GIS Curriculum for PMGSY

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Intended Audience:

NRIDA YCEs

GIS Nodal Officers (State)

GIS Analysts (State)

Module 1	Module 2	Module 3	Module 4	Module 5
Introduction to GIS and Installation of QGIS	Create Layers and Georeferencing	Creating GIS Maps and Reports	Functions in QGIS	Working with Google Earth

Module 5 – Working with Google Earth

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Learning Objectives

Uploading Geo-tagged photographs
Converting Geo-tagged photographs into shapefiles
Check Historical Imagery using Google Earth Pro
Creating Video of a Site using Google Earth Pro
Elevation Profile along the road alignment

Module 1	Module 2	Module 3	Module 4	Module 5
Introduction to GIS and Load your CSV Data in Qgis	Create Layers and Georeferencing	Creating GIS Maps and Reports	Functions in QGIS	Working with Google Earth

Module 5 – Exercise 1

With the advancement in mobile technology now, most of the users are able to capture a photo along with the location's co-ordinates.
QGIS has become a fundamental software to the NRIDA and widely being used for the planning exercise. At the same time, extra features that are incorporated through plugins are of great value to us.

In this exercise we are going to import field survey's geo-tagged (including images in any subdirectories) into shapefiles.

Data Resources you will require:

All the required Layers, project files, Icon,
Photos etc. are supplied in the fileModule-5
Exercise 1 Loading Geotagged Photo.zip

1. The **ImportPhotos** plugin can be used to import Geo-Tagged photos (jpg or jpeg) as points to QGIS. Go to **Plugin -> search ImportPhotos -> Install**

2. Now check Plugin menu and go to **ImportPhotos** and click on the Import photo to import geotagged photos.

3. Browse for the input folder location

4. Browse for the output location and file name (you can create one of the following file types: GeoJSON, SHP, GPKG, CSV, KML, TAB.)

5. Click on OK to start the process.

6. On completion of the process, the system will summarize the imported photos that include photos from subdirectories. Click OK.
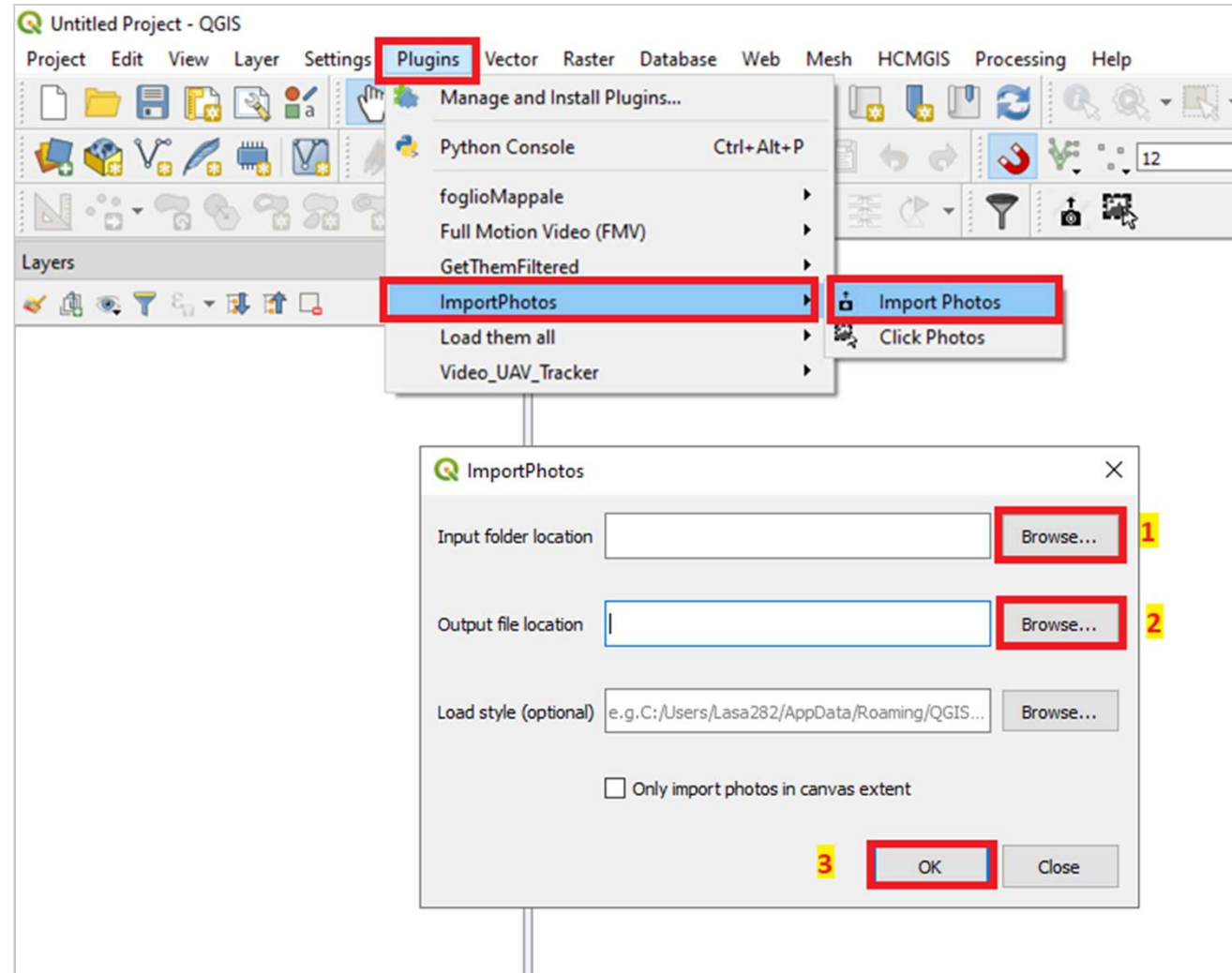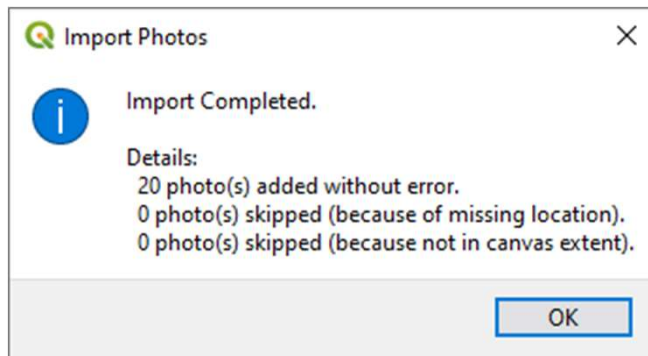
You will see the Point data now loaded in canvas .
It will contain the name of the picture, its directory, the date and time taken, altitude, longitude, latitude, azimuth, north, camera maker and model, title, user comment and relative path.

7. Display Picture - Plugins has a button to display the photo along with information regarding the date, time and altitude.

8. Save the project - To share the photo with other people or to reopen it, you can save it as a project file.

The project file does not include the photos itself but instead has links to the photos.

The folder with the pictures should stay at the original file location or moved at the same location of the project (e.g. *.qgz) in order to be able to view the pictures.
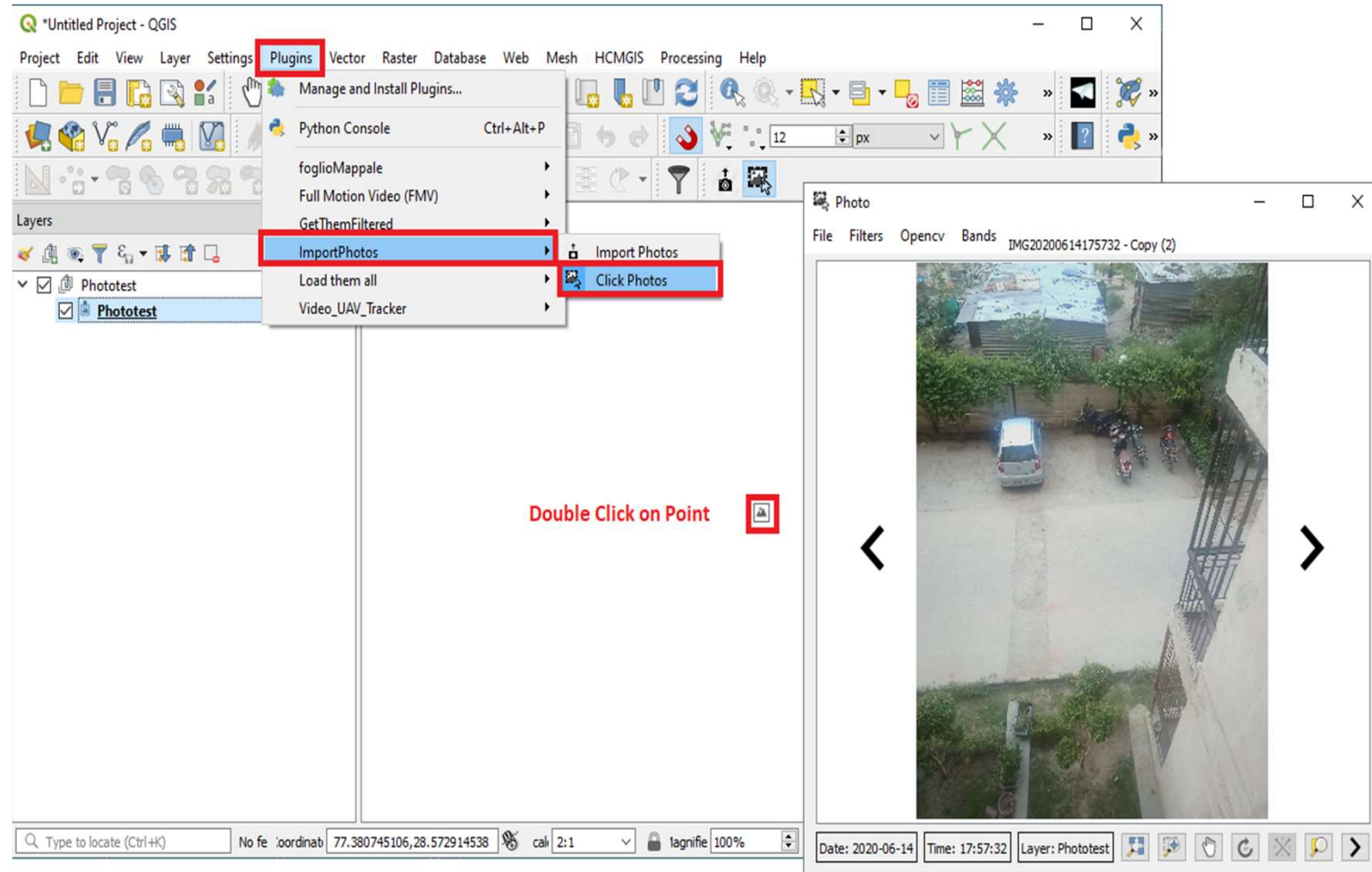
Module5 – Exercise 2

In this Exercise, we will utilize 'Google Earth Pro' to perform some advanced functions.

- Google Earth Pro on desktop is free for users, it has easy-to-use features and high resolution imagery.

- It offers advanced tools that let us:
  - Import and export GIS data
  - go back in time with historical imagery
  - print high-resolution images for presentations or reports
  - record HD movies of your virtual flights around the world

Installation of Google Earth Pro:

Download Google earth pro for windows from the below link.

https://www.google.com/earth/versions/#download-pro

- Double-click the downloaded file and follow the installation process.

- To open Google Earth Pro, click **Start** > **Programs** > **Google Earth Pro**. Then, click **Google Earth Pro**.

A. Comparing Historical imagery

Through 'Use Historical Imagery' feature of Google Earth Pro, we can analyze the change in the landscape over a period of time. For example, we can use the historical imagery to validate the DRRP road data and cross Drainage locations

1. Select the 'Show historical imagery' button in the upper middle area of the screen just above the map as seen in image

2. A scroll bar will appear on the top left of your screen in the map window.

3. Use it to scroll through imagery from different dates. You can see the 'before' and 'after' imagery from the event.
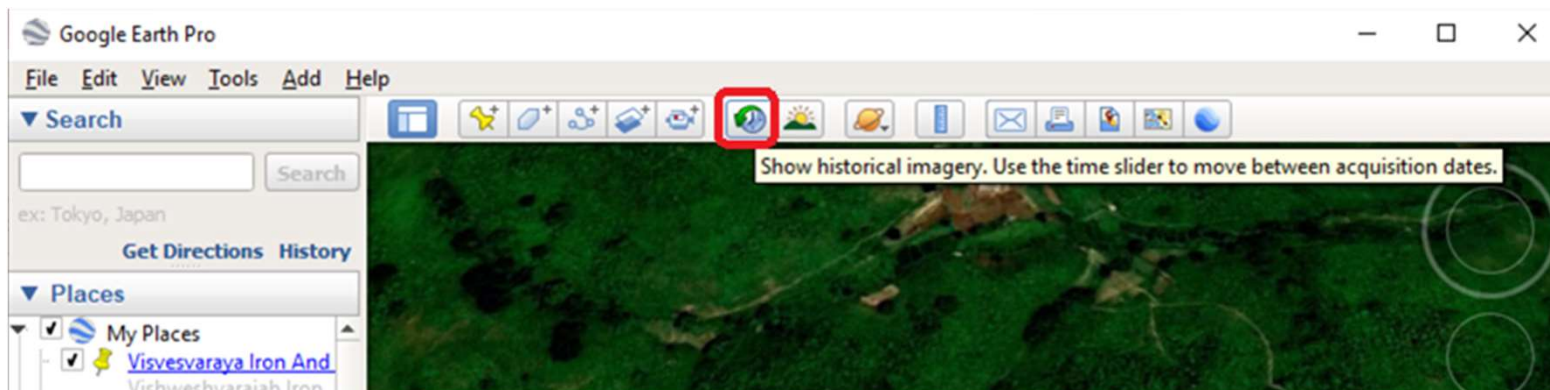
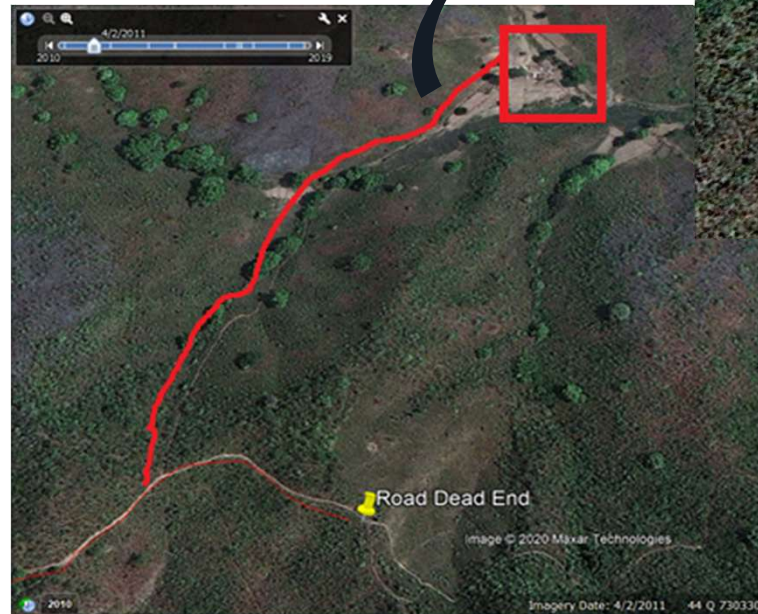4. User can zoom in, on any location that he/she wants to compare.
As an example, below is a comparison of a location in Odisha (recent and 2011)
Observation: The road actually connects the small habitation.

2011 Imagery (Road is heading towards Habitation)

Recent Imagery (Dead ended Road)
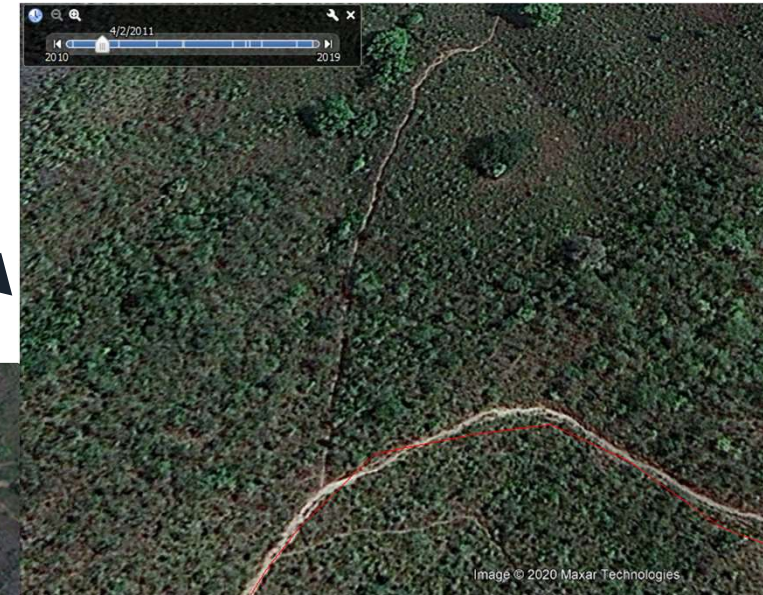
Road Junction

4. Comparison of 2 images (recent and 2011)
Observation: Drainage is visible in the historical image captured
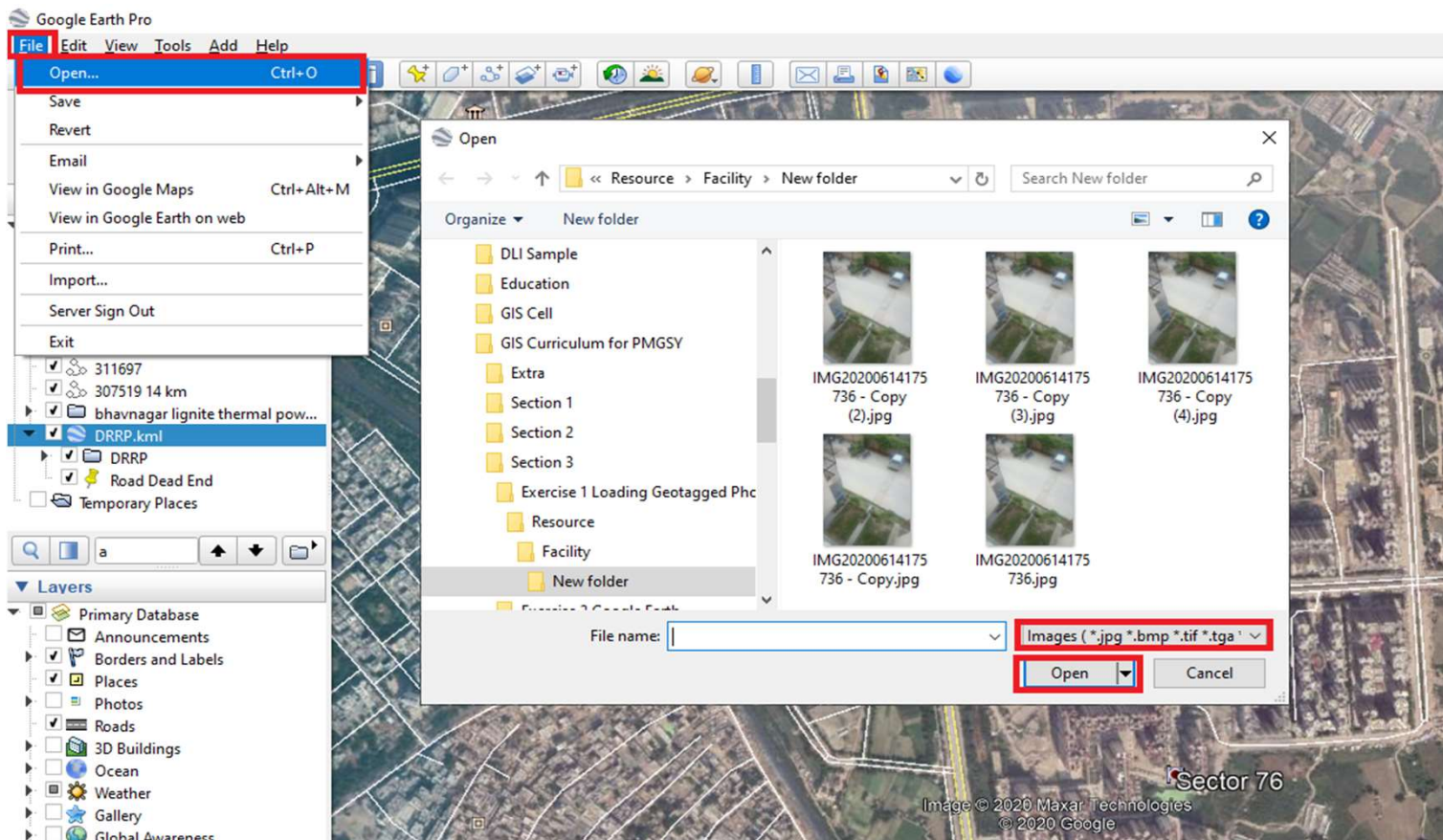
No Drainage visible in recent image

Drainage visible in image captured in 11/2011

B. Importing Geo-Tagged Photo

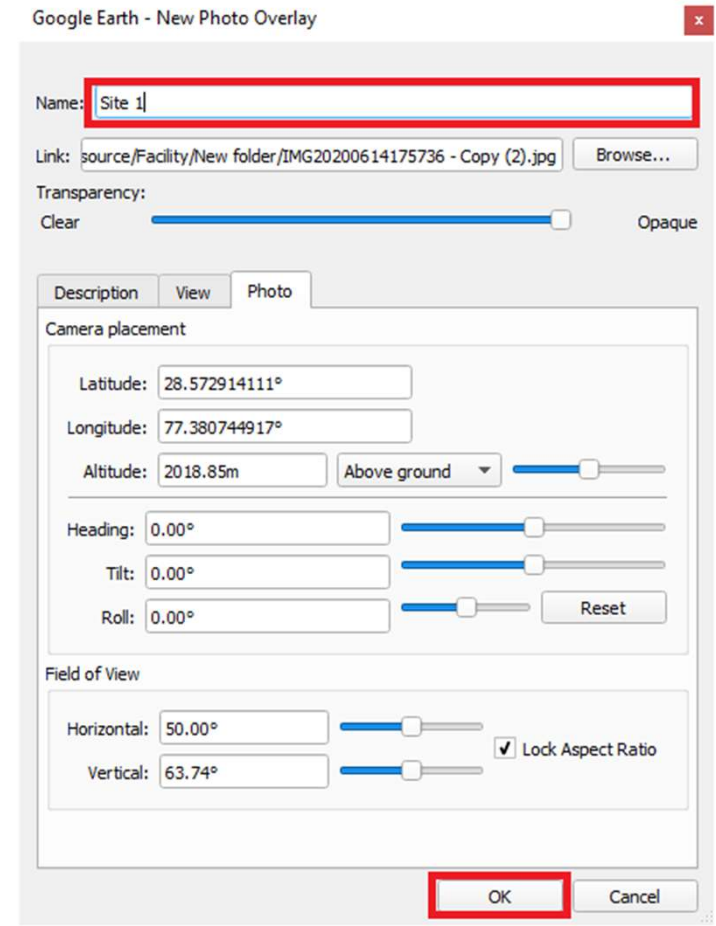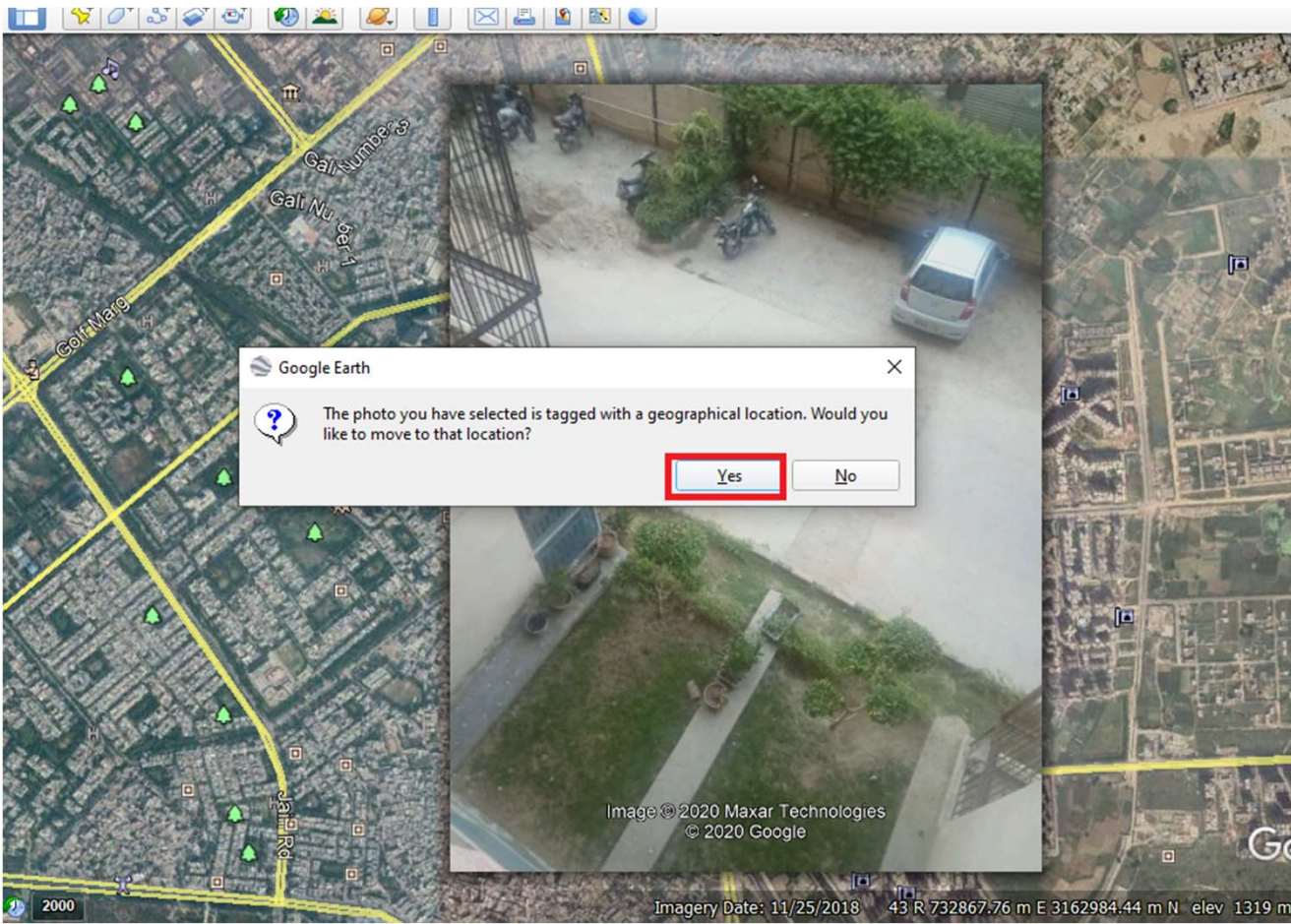Google earth can also be used to show the location where photographs were taken.

1. Go to the Main menu > File > Open.. >Select file type as 'Images' in lower right dropdown menu> Browse for the photo > Open.

2. Click yes when prompted
3. The New Photo Overlay window opens, where you can enter the photo name and make any necessary adjustments. or simply keep the default settings.

At this point, you will need to create a new folder under "My Places" to keep multiple photos together.
It is very important that you include all your photos in the same folder when you want to share them.

4. Click on the 'Add' menu and choose 'Folder' to create a new folder.

5. The New Folder window opens, where you can enter the desired folder name e.g. 'My field visit'

6. When the new folder is created, drag the photo into the folder.
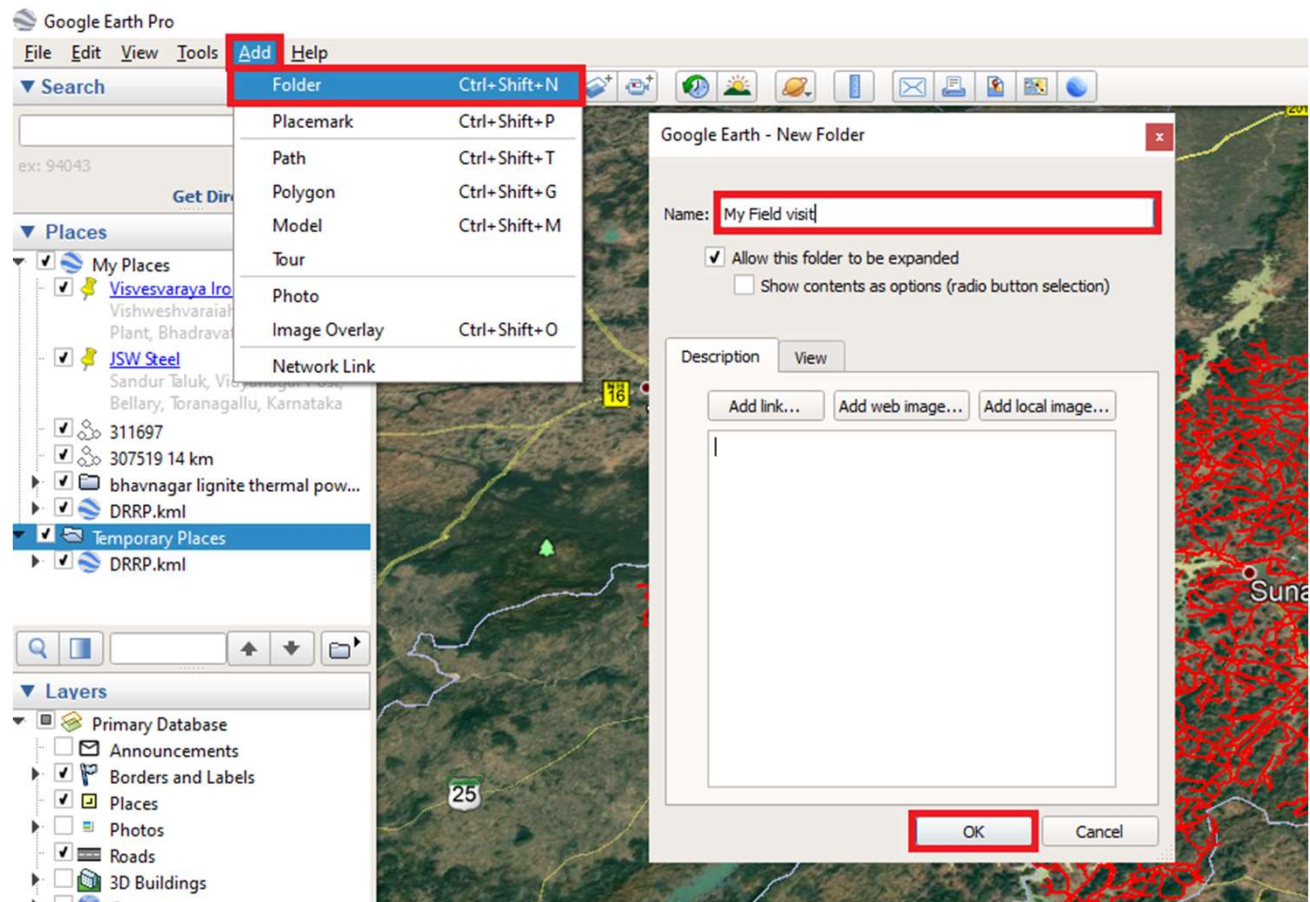
C. Importing Shape File

You can add shapefile easily in Google Earth Pro, rather than having to convert your shape files to KML.

- To add an ESRI .shp file, simply drag and drop the shape file.

- You will be prompted if you want to import a sample of the data or if you wish to import the entire data set.

- For this, we are going to import all the data. Select 'Import all'

- For the Style Template, set the Name field to be 'Hab☐Name', and choose the colour and icon

D. Record a Movie

Google Earth allows us to record a movie for visualizing a site for making initial decisions before coming to a final plan. It greatly reduces the cost of visiting the place in person, as you can see everything on your computer in real-time.

- Click the *'Add Tour'* button. The tour recording tools appear in the lower-left corner.

- To begin recording, go to the lower-left corner of the media player and then click Record/Stop.

- The software then records all the movements you make, in real time, until you click the **Stop Recording** button.

- Use the keyboard and mouse to move around, and your movements are recorded.

- When you are done recording, go ahead and click on 'Record/Stop'. In the right corner below, a media player will show up, and your tour will start playing.

- Click 'Save' to store the tour, in the media player.

- Enter the Name in the box that opens up and make use of the Description and View tabs to add more info about the tour.

- Click OK to save the file.