QGIS

Launch QGIS

- Launch QGIS from

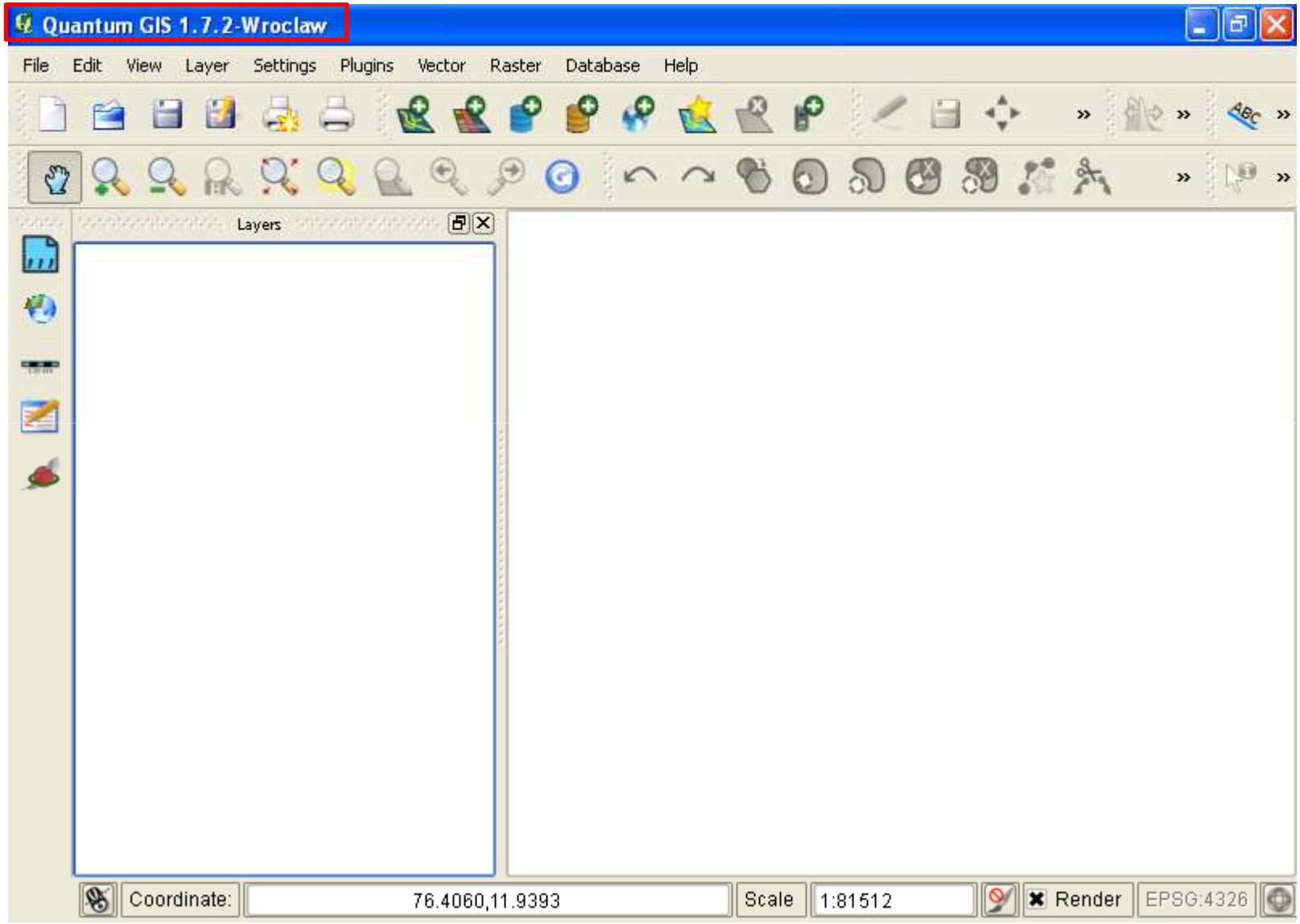
Start ⇒ **All Programs** ⇒ **Quantum GIS**

OR

QGIS Icon on the desk top

- Open window Quantum GIS (Figure 1.1 below)

Figure 1.1

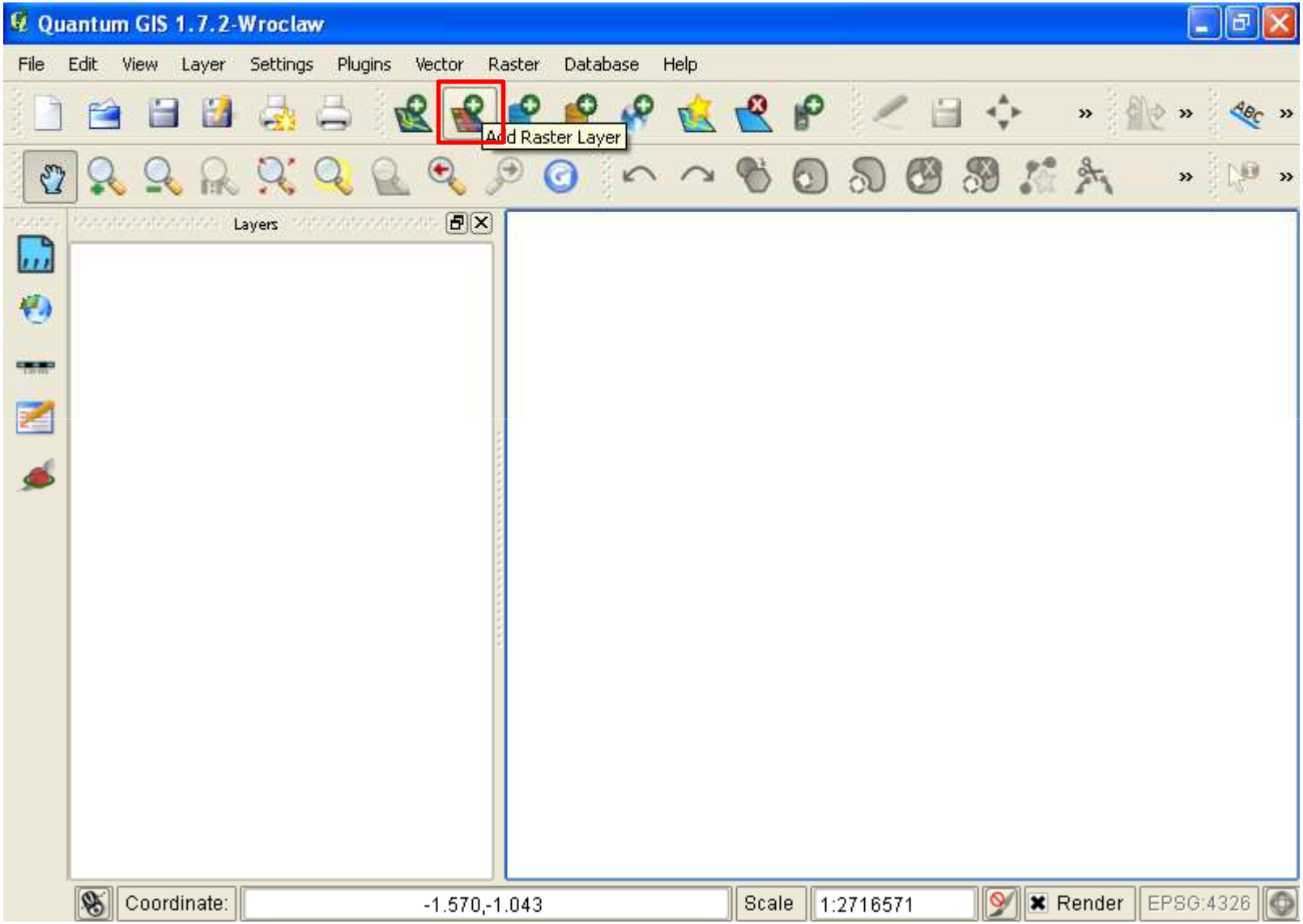

Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
Coordinate:
76.4060,11.9393
Scale
1:81512
Render
EPSG:4326

Opening Raster

- For this exercise we demonstrate three types of GIS data
  - point
  - line
  - polygon.
- These require geo-referenced base data. Such base data could be in the form of
  - ✓ Topo sheets
  - ✓ Cadastral maps (village maps)
  - ✓ Remote sensed images

    eg., Google earth images, IRS data, LANDSAT data.
- The accompanying CD provides a registered image named **nugu.tif**.
- Open this file by selecting **Add Raster Layer** icon (Figure 1.2)

Figure 1.2


Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Add Raster Layer
Layers
Coordinate:
-1.570,-1.043
Scale
1:2716571
Render
EPSG:4326

Opening Raster

- **Open a GDAL Supported Raster Data Source** window opens (Figure 1.3)

- Select **nugu.tif** and select **Open** (Figure 1.3)

- Observe the **nugu.tif** opened in the window (Figure 1.4)

Figure 1.3

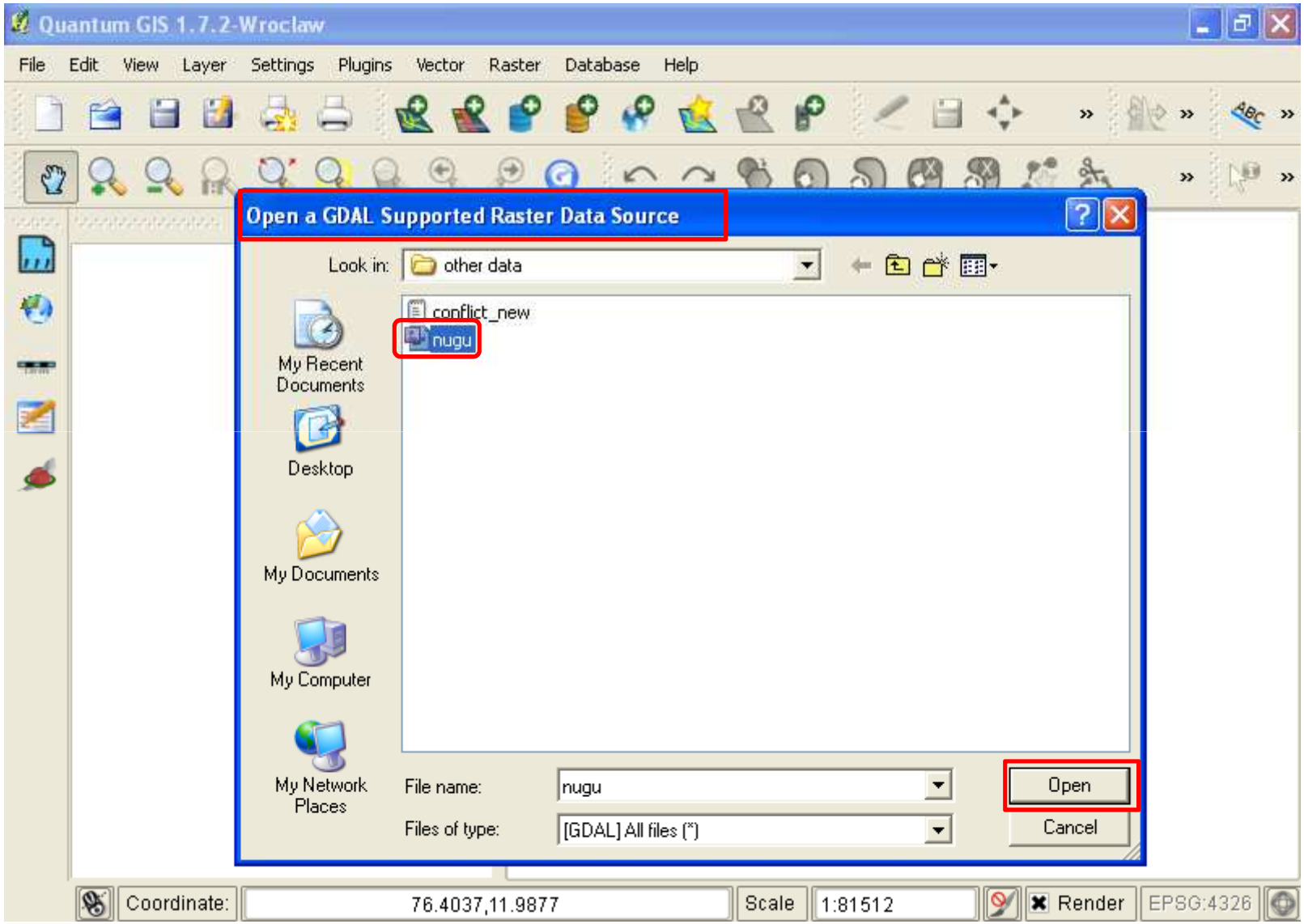
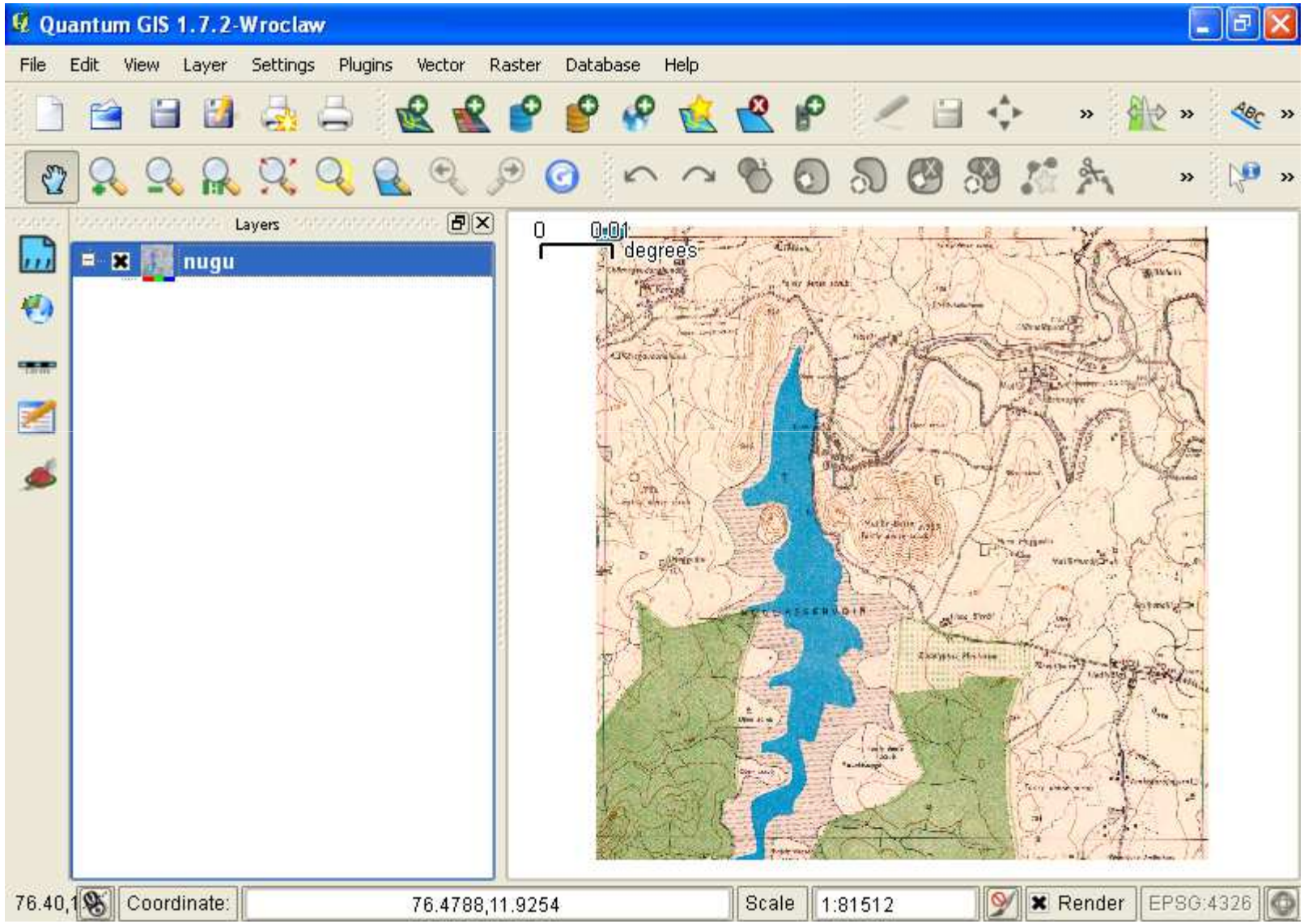

Quantum GIS 1.7.2-Wroclaw
File Edit View Layer Settings Plugins Vector Raster Database Help
Open a GDAL Supported Raster Data Source
Look in: other data
conflict_new
nugu
My Recent Documents
Desktop
My Documents
My Computer
My Network Places
File name: nugu
Files of type: [GDAL] All files (*)
Open
Cancel
Coordinate: 76.4037,11.9877
Scale 1:81512
Render
EPSG:4326

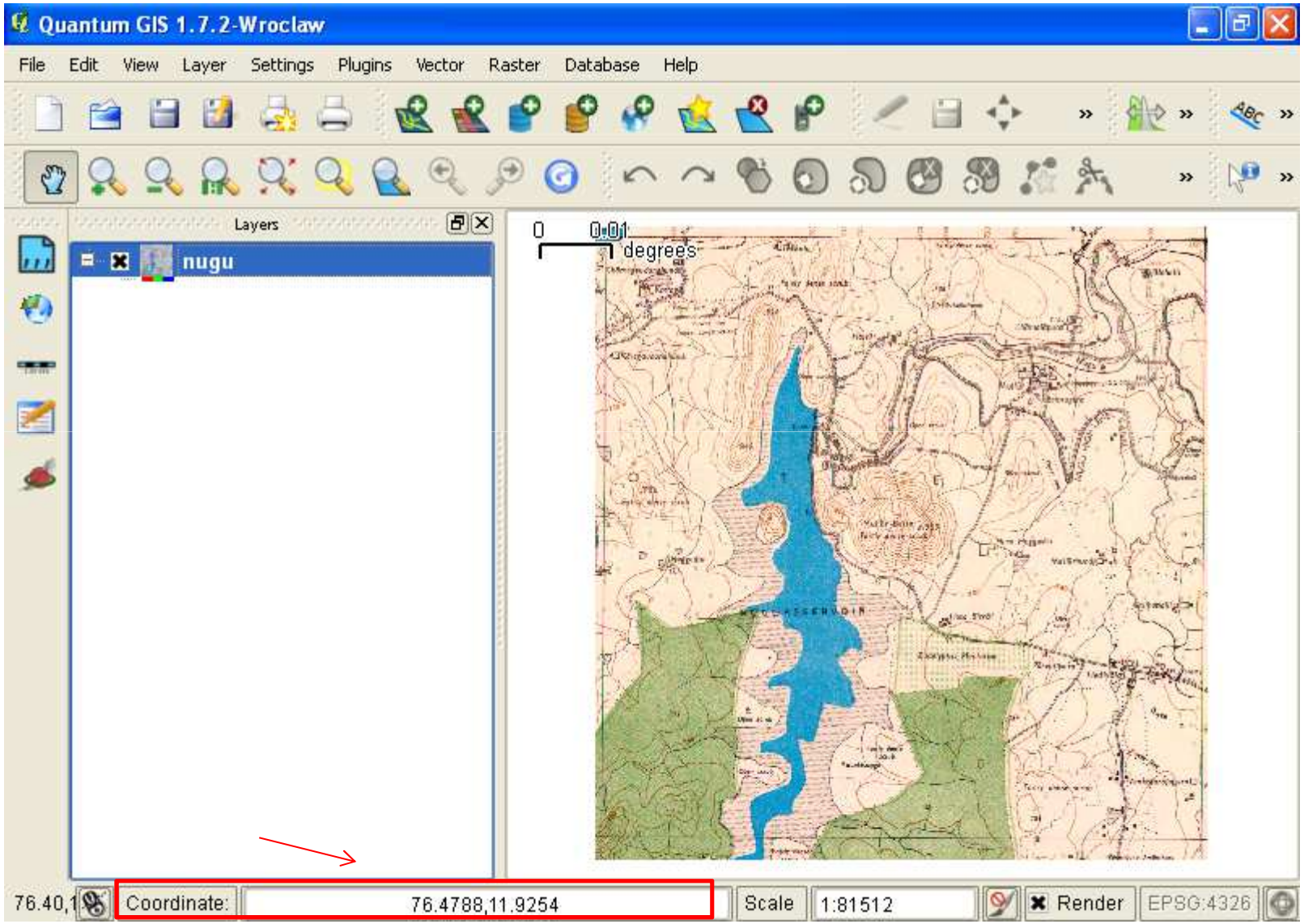
Figure 1.4


Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
nugu
0
0.01
degrees
76.40,1
Coordinate:
76.4788,11.9254
Scale
1:81512
Render
EPSG:4326

Verifying geo-referencing

- The opened raster file is geo-referenced
- To confirm the geo-referencing move the cursor on the opened map; coordinates change in the coordinate window at the bottom of the screen (Figure 1.5)

Figure 1.5


Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
nugu
0
0.01
degrees
76.40,1
Coordinate:
76.4788,11.9254
Scale
1:81512
Render
EPSG:4326

Creation of Vector Point Data

To create a new point layer select the icon New Shapefile Layer (Figure 1.6)

Step 1

- A window pops up titled “Coordinate Reference System Selector” (Figure 1.7)
- Select as the coordinate reference system WGS 84 (Figure 1.7)
- Select **OK**
- A window titled New Vector Layer is displayed (Figure 1.8)

Figure 1.6

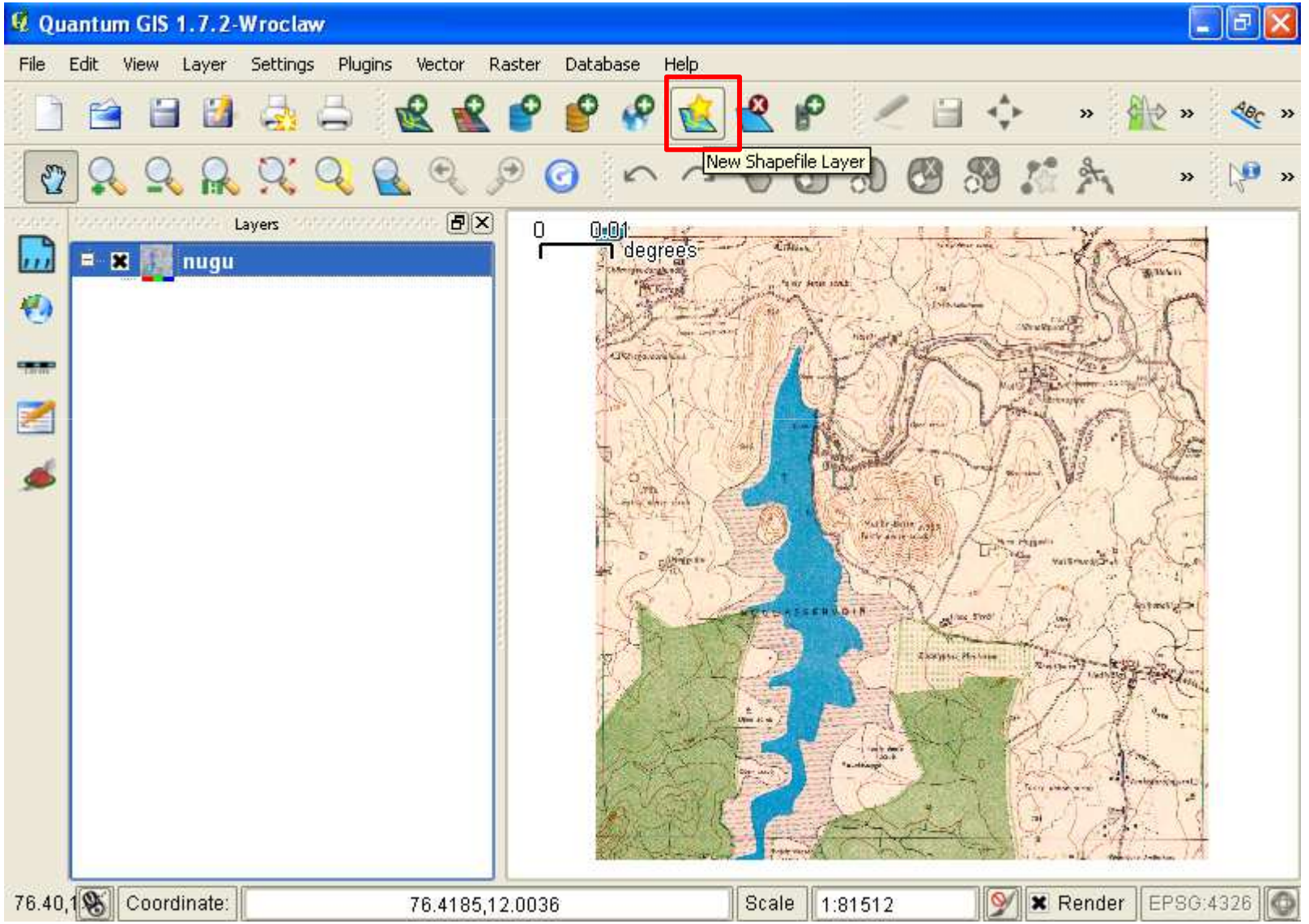

Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
New Shapefile Layer
Layers
nugu
0
0.01
degrees
76.40,1
Coordinate:
76.4185,12.0036
Scale
1:81512
Render
EPSG:4326

Figure 1.7

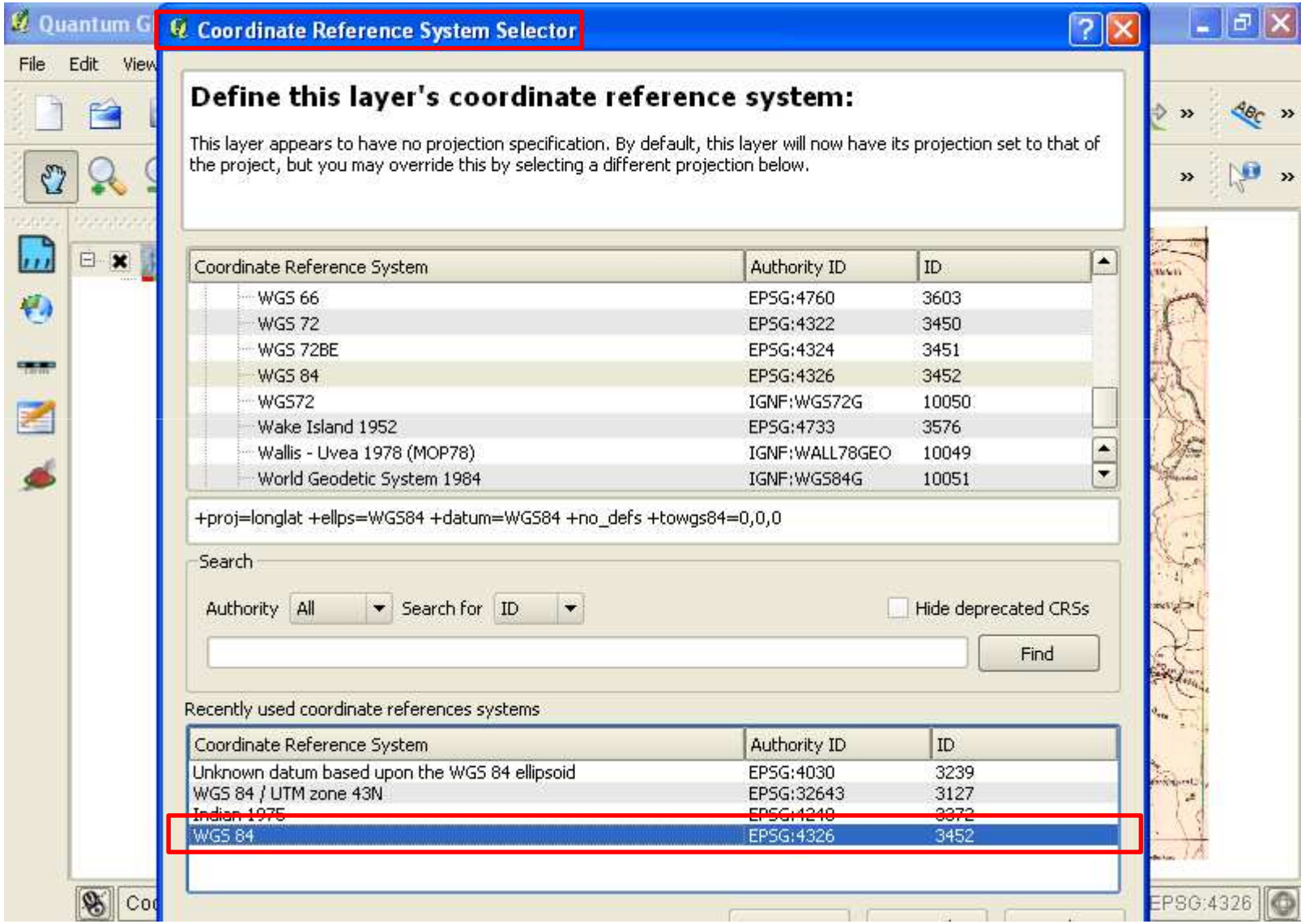
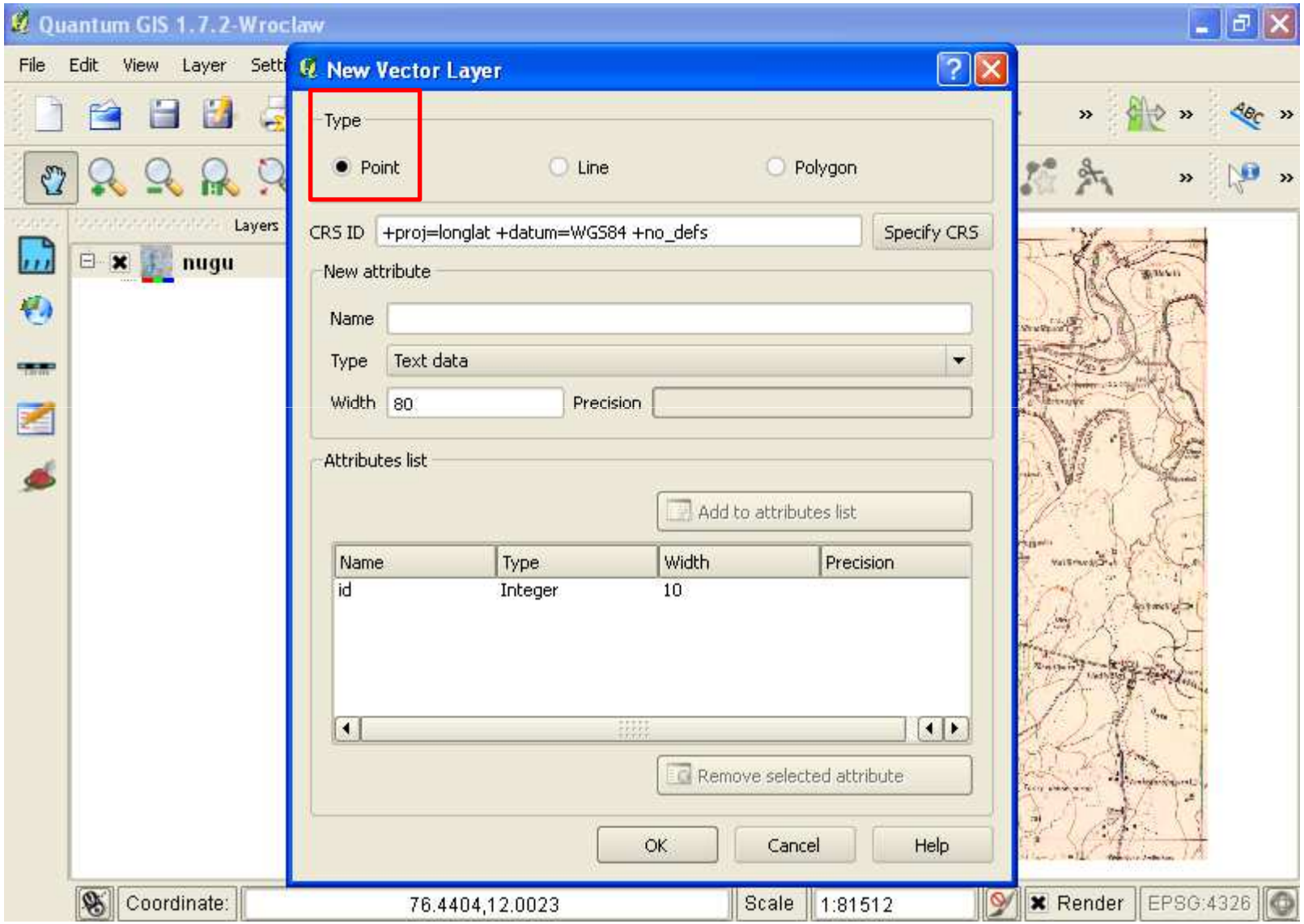

Quantum G
File
Edit
View
Coordinate Reference System Selector
Define this layer's coordinate reference system:
This layer appears to have no projection specification. By default, this layer will now have its projection set to that of the project, but you may override this by selecting a different projection below.
Coordinate Reference System
Authority ID
ID
WGS 66
EPSG:4760
3603
WGS 72
EPSG:4322
3450
WGS 72BE
EPSG:4324
3451
WGS 84
EPSG:4326
3452
WGS72
IGNF:WGS72G
10050
Wake Island 1952
EPSG:4733
3576
Wallis - Uvea 1978 (MOP78)
IGNF:WALL78GEO
10049
World Geodetic System 1984
IGNF:WGS84G
10051
+proj=longlat +ellps=WGS84 +datum=WGS84 +no_defs +towgs84=0,0,0
Search
Authority
All
Search for
ID
Hide deprecated CRSs
Find
Recently used coordinate references systems
Coordinate Reference System
Authority ID
ID
Unknown datum based upon the WGS 84 ellipsoid
EPSG:4030
3239
WGS 84 / UTM zone 43N
EPSG:32643
3127
Indian 1975
EPSG:4240
3372
WGS 84
EPSG:4326
3452
EPSG:4326

Figure 1.8


Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
New Vector Layer
Type
Point
Line
Polygon
CRS ID
+proj=longlat +datum=WGS84 +no_defs
Specify CRS
New attribute
Name
Type
Text data
Width
80
Precision
Attributes list
Add to attributes list
Name
Type
Width
Precision
id
Integer
10
Remove selected attribute
OK
Cancel
Help
Layers
nugu
Coordinate:
76.4404,12.0023
Scale
1:81512
Render
EPSG:4326

Creation of Vector Point Data

- In Figure 1.8 select option ➡ **Type** and then ➡ **Point**
- We need to add 'attributes' next. <u>This step requires planning in detail</u>

➢ For eg., an anti- poaching camp can have the attributes:

1. Number of staff
2. Number of GPS etc

➢ Next create layer of villages with attributes such as:

1. Name
2. Taluk
3. District
4. Population

Creation of Vector Point Data

- In the same window note the **New attribute** box:

it has attributes of **Name**, **Type**, **Width** and **Precision**

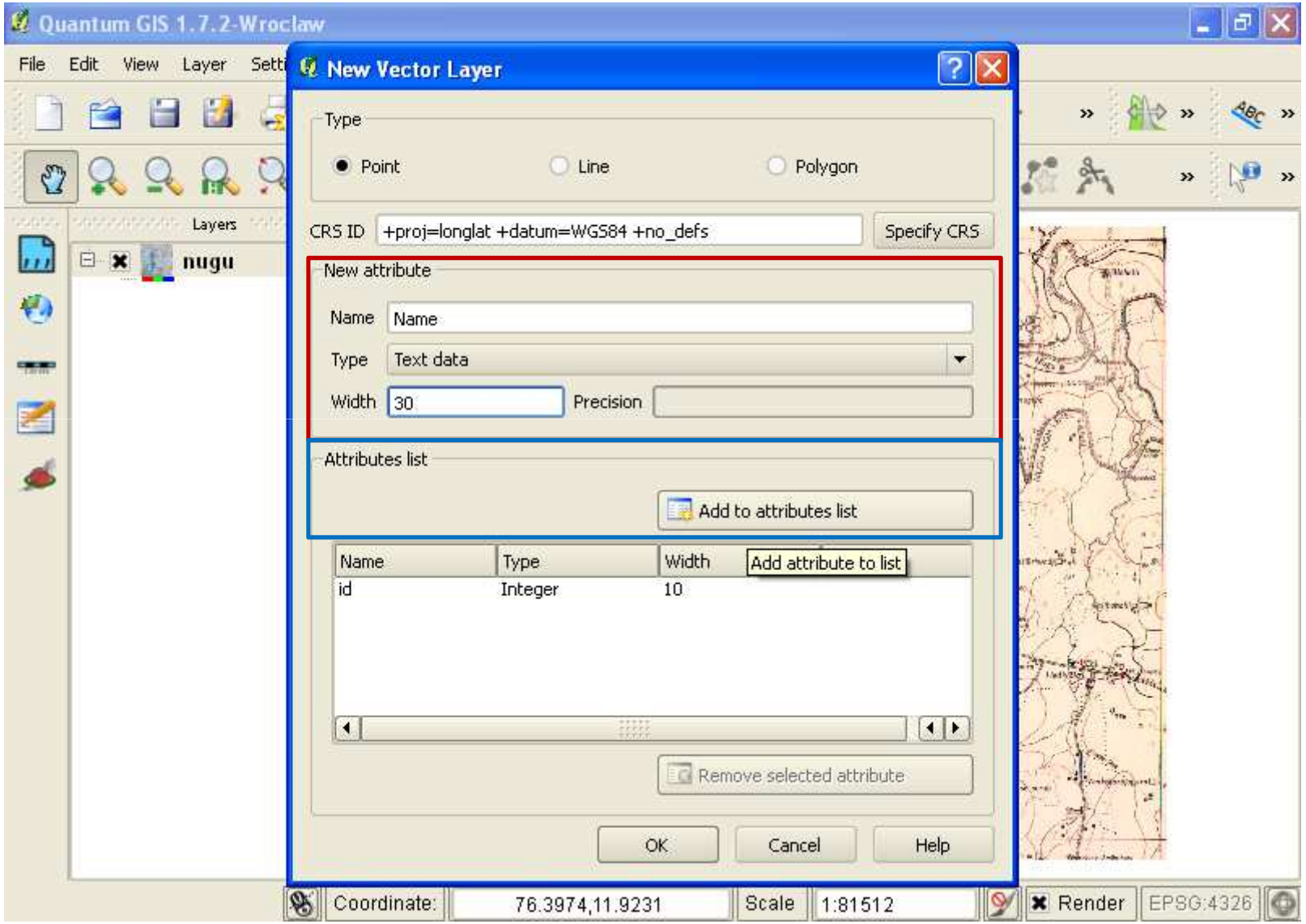
Step 2

- Add new attributes (Figure 1.9)
  - ✓ ***Name***: village
  - ✓ ***Type***: text
  - ✓ ***Width***: 40 (this is subjective decision as place names are generally within 40 characters)

- Come to **Attribute List** box (Figure 1.9)

  Select ⇨ **Add to attribute list**

Figure 1.9


Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
New Vector Layer
Type
Point
Line
Polygon
CRS ID
+proj=longlat +datum=WGS84 +no_defs
Specify CRS
New attribute
Name
Name
Type
Text data
Width
30
Precision
Attributes list
Add to attributes list
Name
Type
Width
Add attribute to list
id
Integer
10
Remove selected attribute
OK
Cancel
Help
Layers
nugu
Coordinate:
76.3974,11.9231
Scale
1:81512
Render
EPSG:4326

Creation of Vector Point Data

- Add taluk and district data in village attributes
  - by repeating **Step 2**
- Add population data: to do this, we need to set **Type** of data in whole number (Figure 1.10)
  - repeat **Step 2** (Figure 1.11)
- After this select **OK** (Figure 1.11)
- You will be guided to the **Save As** window**.**
  - Select the directory in which you would like to save the data. For this example name it as **'Village'** (Figure 1.12)
  - Select **Save**.

Figure 1.10

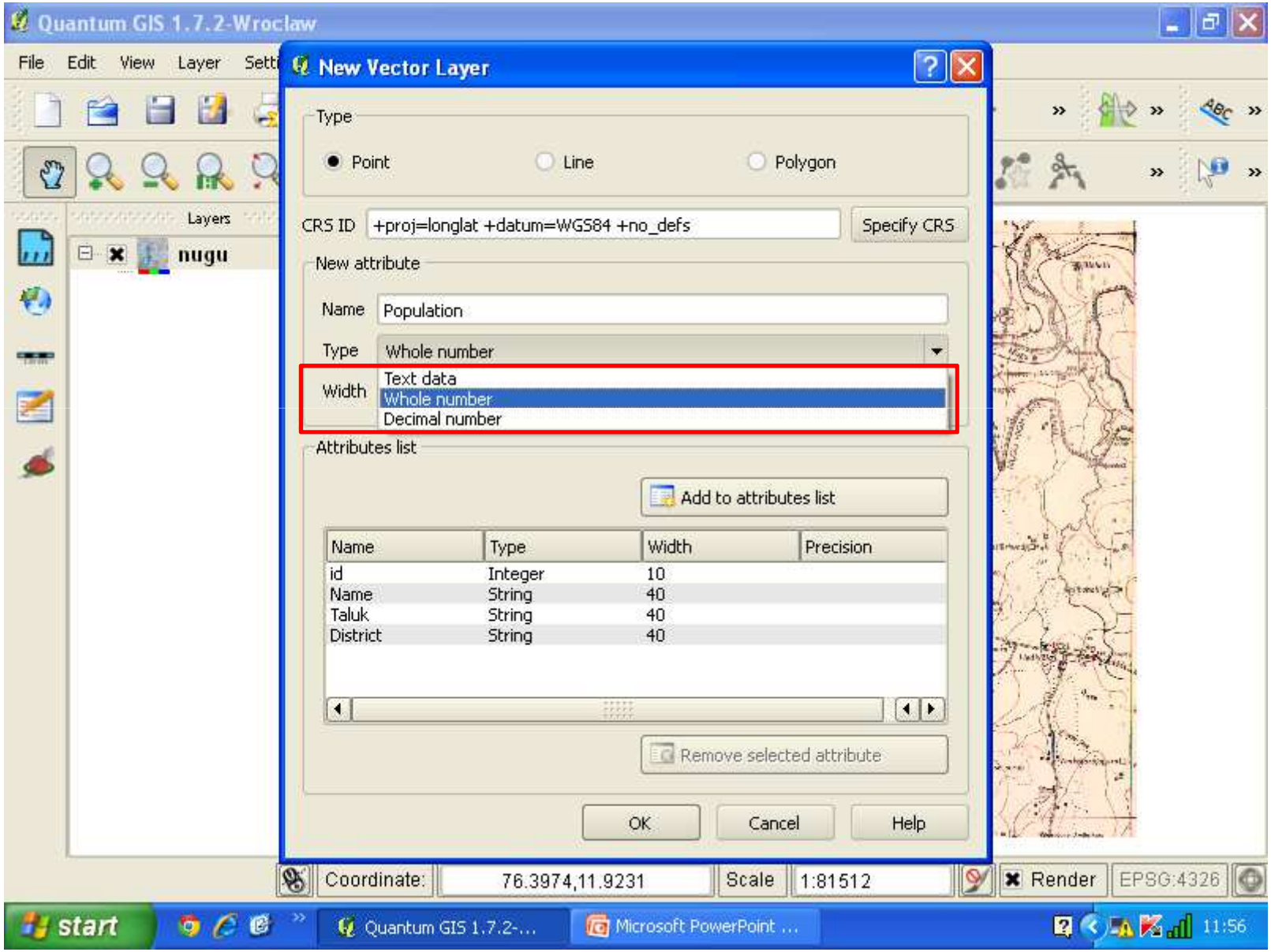

Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
New Vector Layer
Type
Point
Line
Polygon
CRS ID
+proj=longlat +datum=WGS84 +no_defs
Specify CRS
New attribute
Name
Population
Type
Whole number
Width
Text data
Whole number
Decimal number
Attributes list
Add to attributes list
Name
Type
Width
Precision
id
Integer
10
Name
String
40
Taluk
String
40
District
String
40
Remove selected attribute
OK
Cancel
Help
Layers
nugu
Coordinate:
76.3974,11.9231
Scale
1:81512
Render
EPSG:4326
start
Quantum GIS 1.7.2-...
Microsoft PowerPoint ...
11:56

Figure 1.11

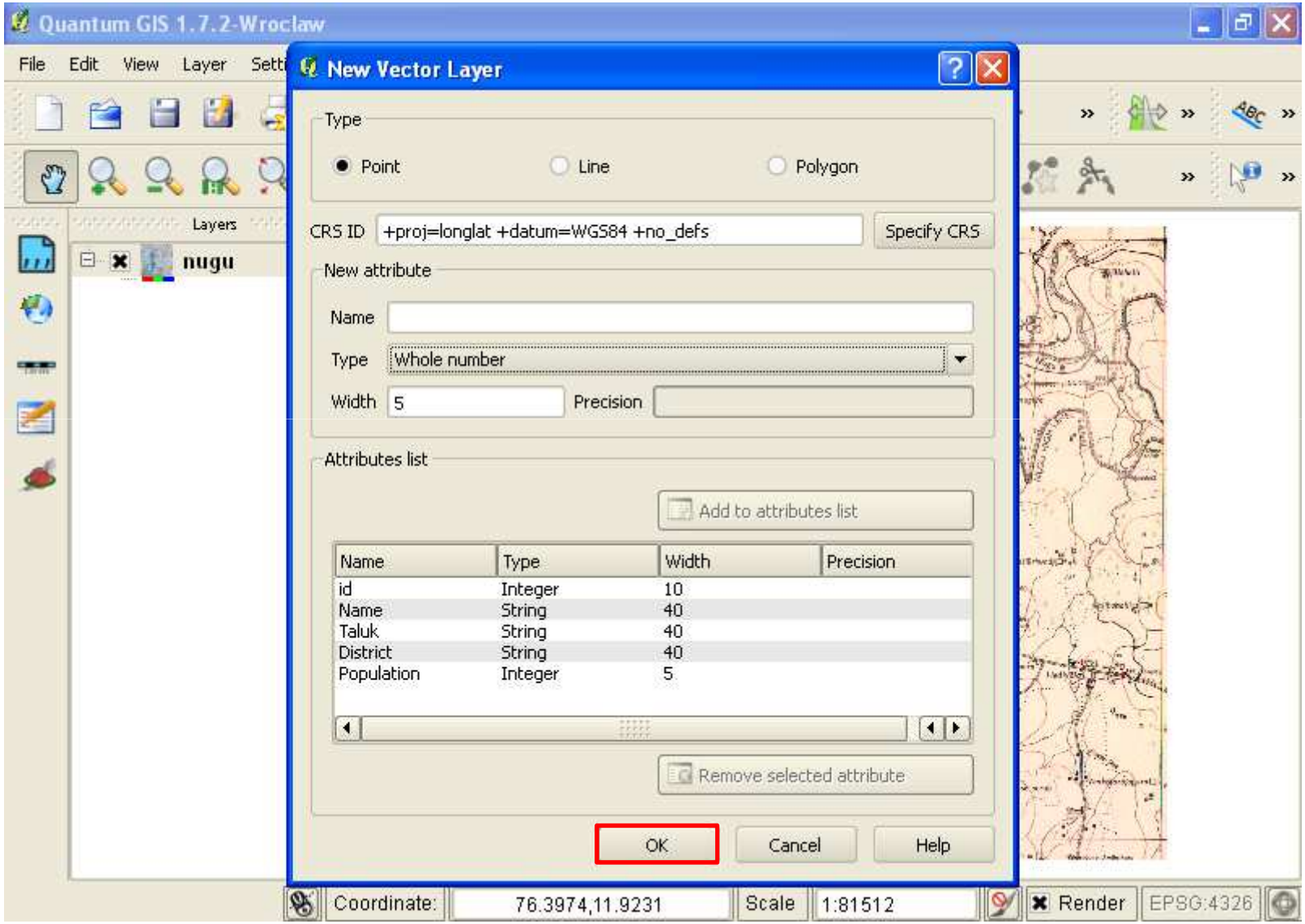
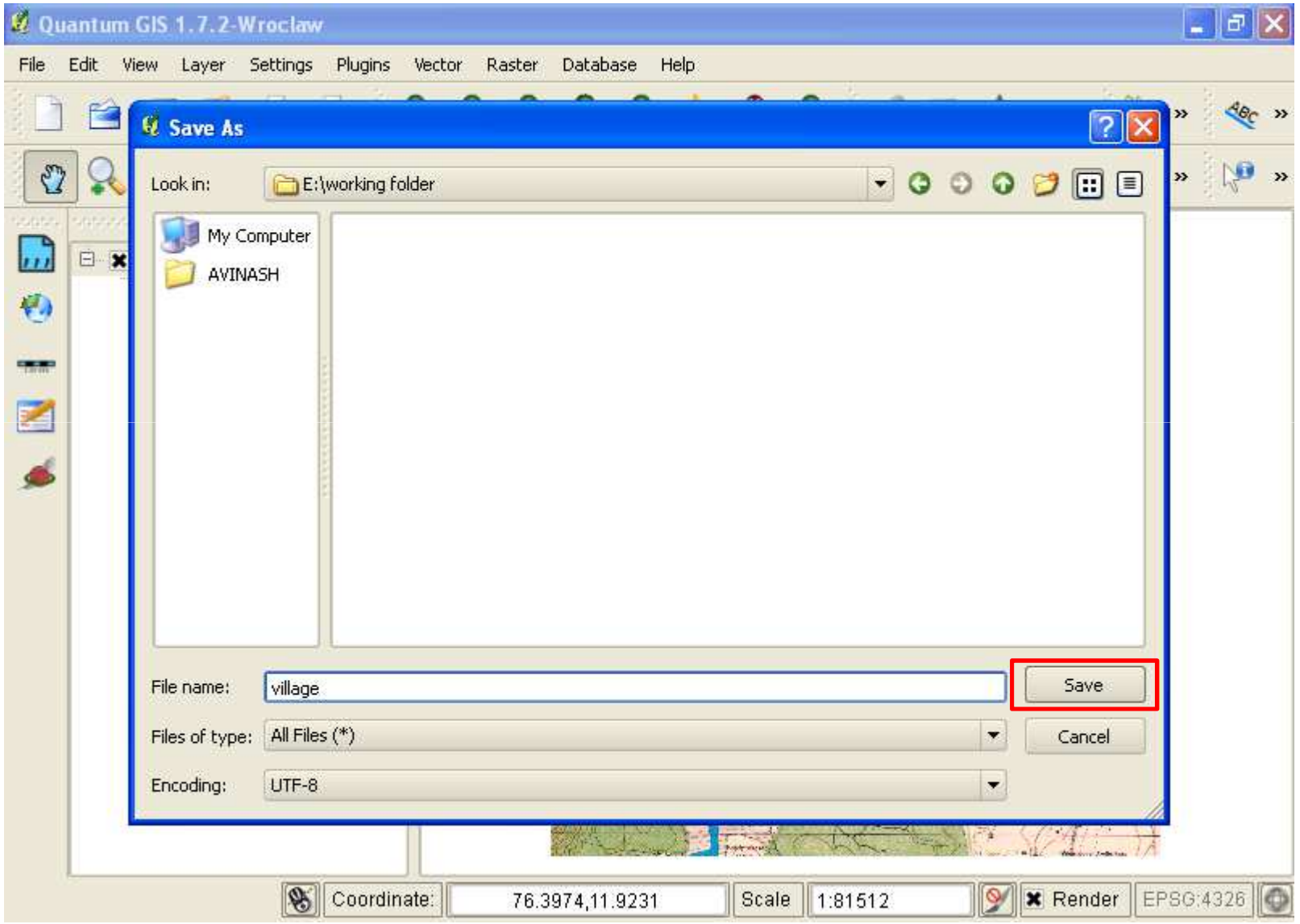

Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
New Vector Layer
Type
Point
Line
Polygon
CRS ID
+proj=longlat +datum=WGS84 +no_defs
Specify CRS
New attribute
Name
Type
Whole number
Width
5
Precision
Attributes list
Add to attributes list
Name
Type
Width
Precision
id
Integer
10
Name
String
40
Taluk
String
40
District
String
40
Population
Integer
5
Remove selected attribute
OK
Cancel
Help
Layers
nugu
Coordinate:
76.3974,11.9231
Scale
1:81512
Render
EPSG:4326

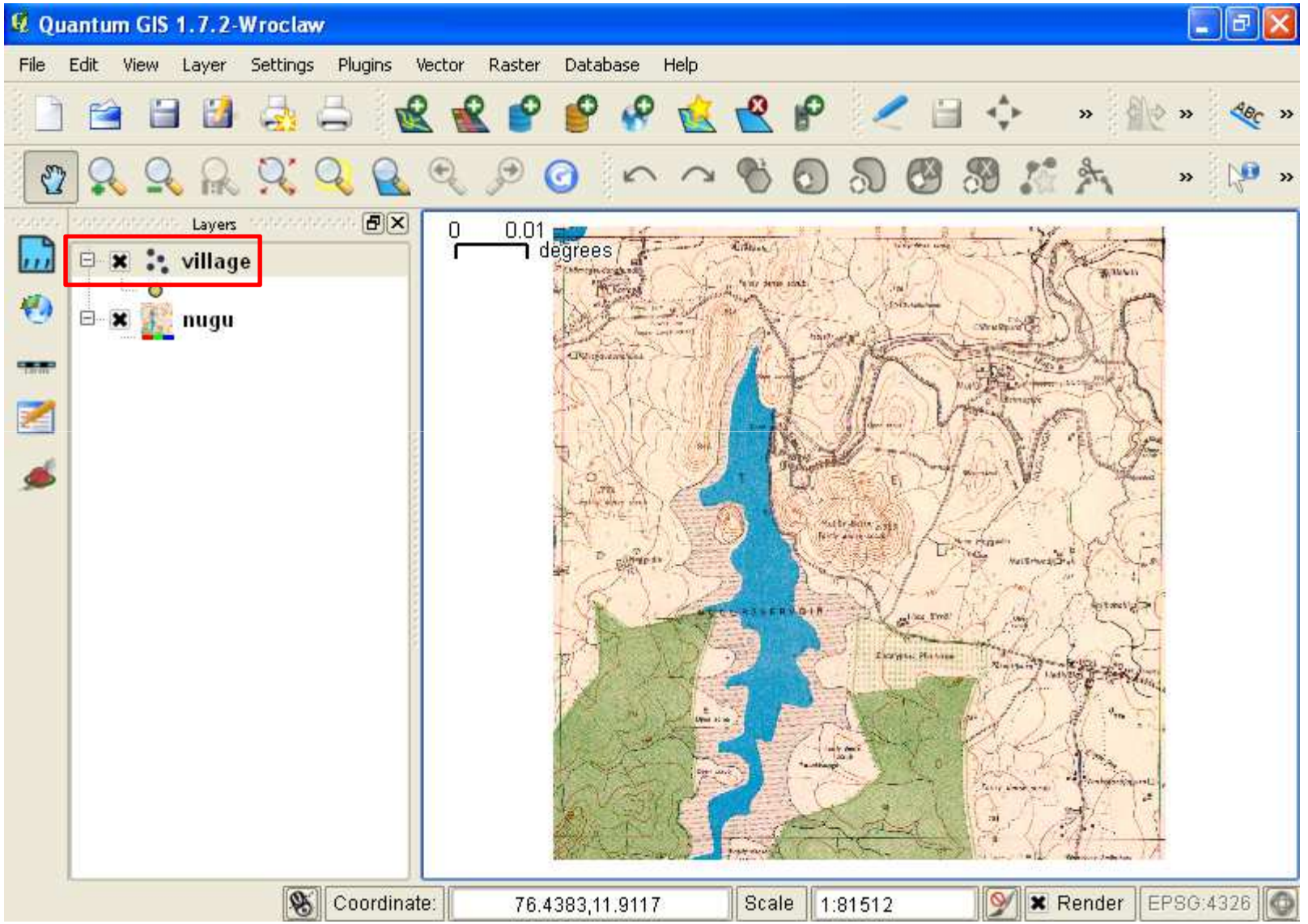
Figure 1.12


Quantum GIS 1.7.2-Wroclaw
File Edit View Layer Settings Plugins Vector Raster Database Help
Save As
Look in: E:\working folder
My Computer
AVINASH
File name: village
Save
Files of type: All Files (*)
Cancel
Encoding: UTF-8
Coordinate: 76.3974,11.9231
Scale 1:81512
Render
EPSG:4326

Creation of Vector Point Data

- On saving, layer is stored in specified folder
- This layer is automatically added to the QGIS window. (Figure 1.13)

Figure 1.13


Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
nugu
0
0.01
degrees
Coordinate:
76.4383,11.9117
Scale
1:81512
Render
EPSG:4326

Creation of Vector Point Data

- Next, add villages (features) to the village layer
- To do this the layer has to be made editable

Step 3

- Select the layer and then select **Toggle editing** icon (Figure 1.14)
- On enabling, in the layer window, the toggle active icon is enabled (Figure 1.15)
- On its enabling, other icons related next to T**oggle editing** icon are also activated (Figure 1.15)

Figure 1.14

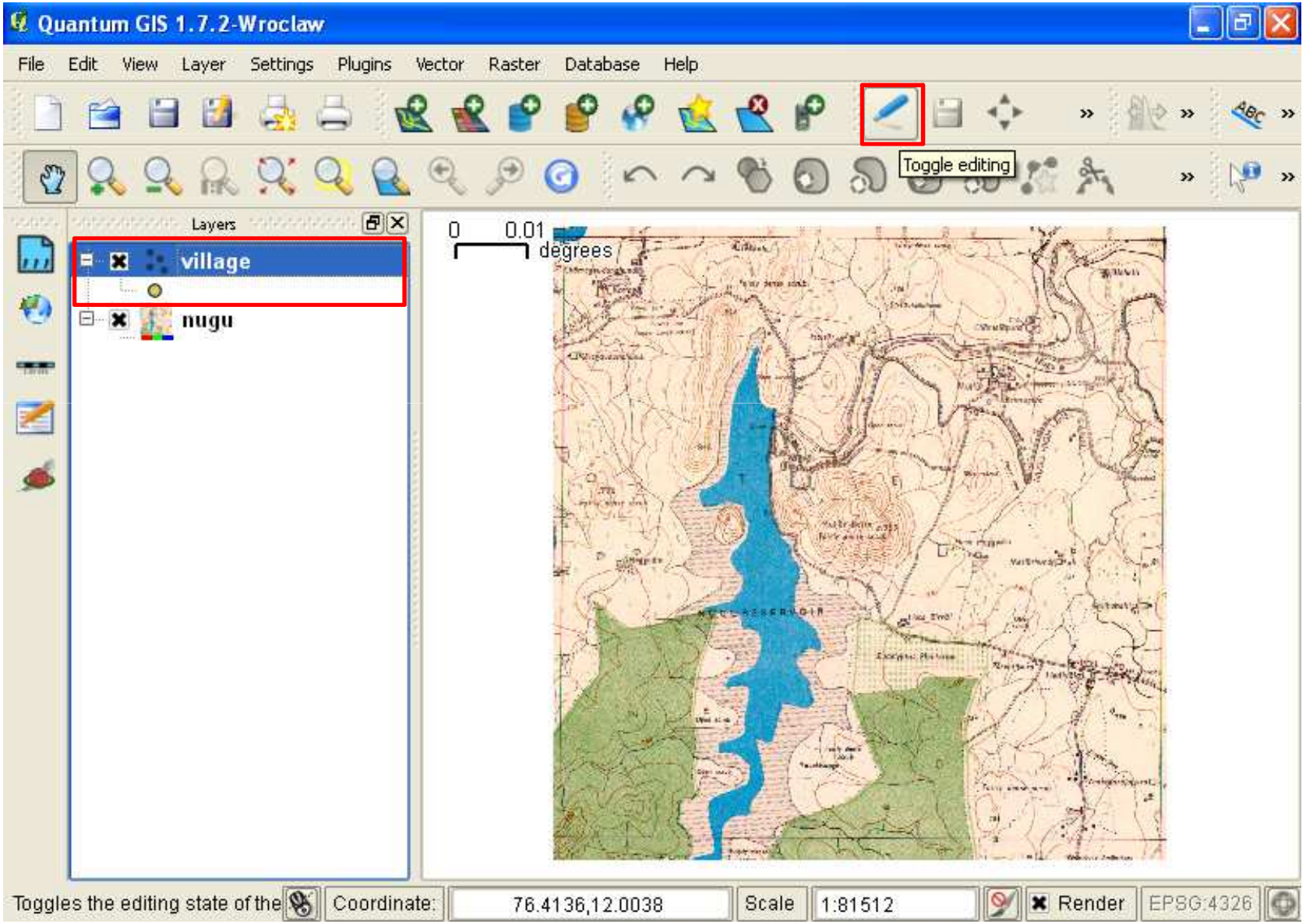
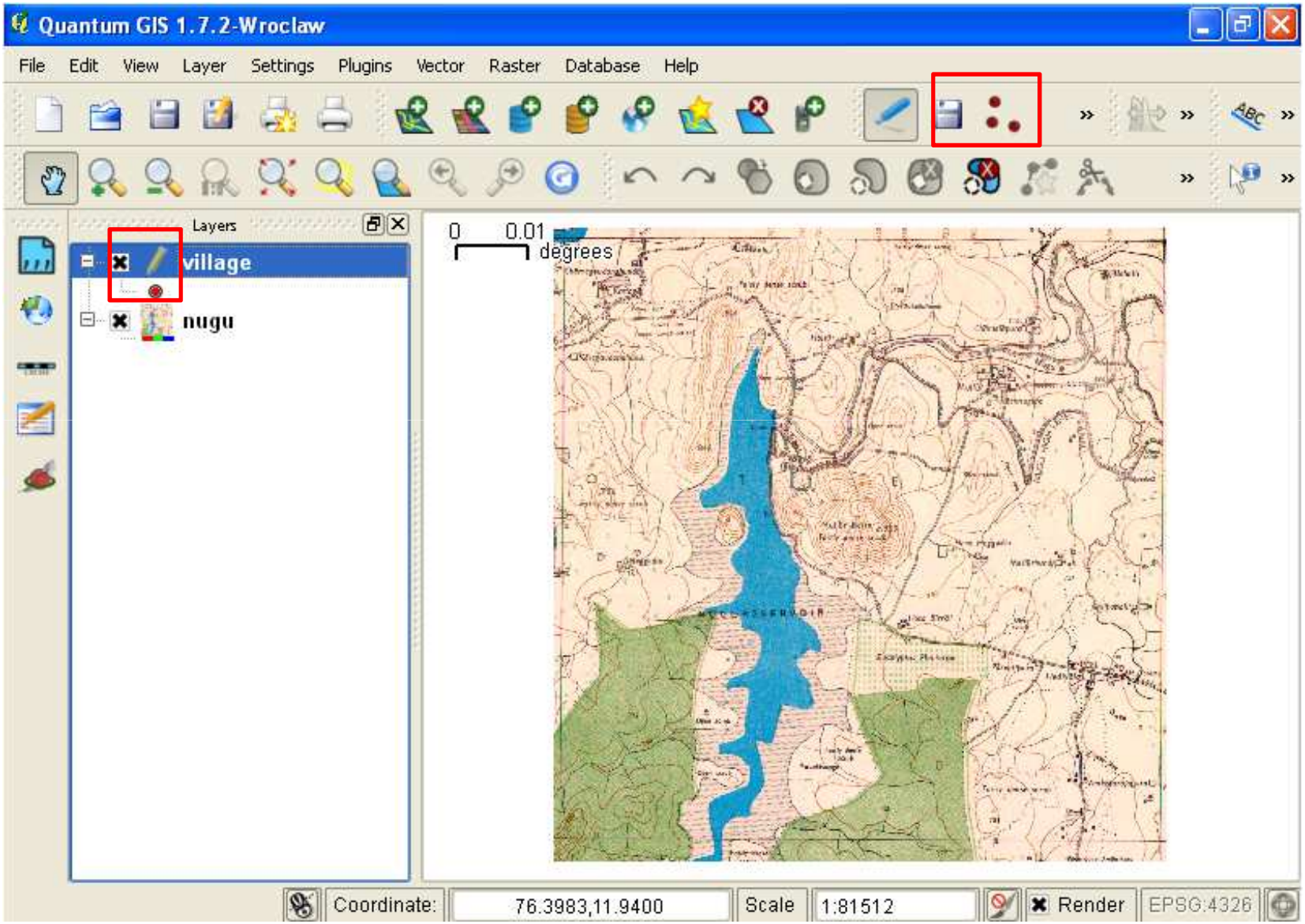

Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Toggle editing
Layers
village
nugu
0
0.01
degrees
Toggles the editing state of the
Coordinate:
76.4136,12.0038
Scale
1:81512
Render
EPSG:4326

Figure 1.15


Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
nugu
0
0.01
degrees
Coordinate:
76.3983,11.9400
Scale
1:81512
Render
EPSG:4326

Creation of vector point data

Creation of Vector Point Data

- Select the icon of **Zoom In**. Now zoom to the area of interest by (Figure 1.16)
- Place the  on the interested area and click (Figure 1.17)
- We have zoomed to the area (Figure 1.18)
- Select the icon **Capture point** (Figure 1.18)

Figure 1.16

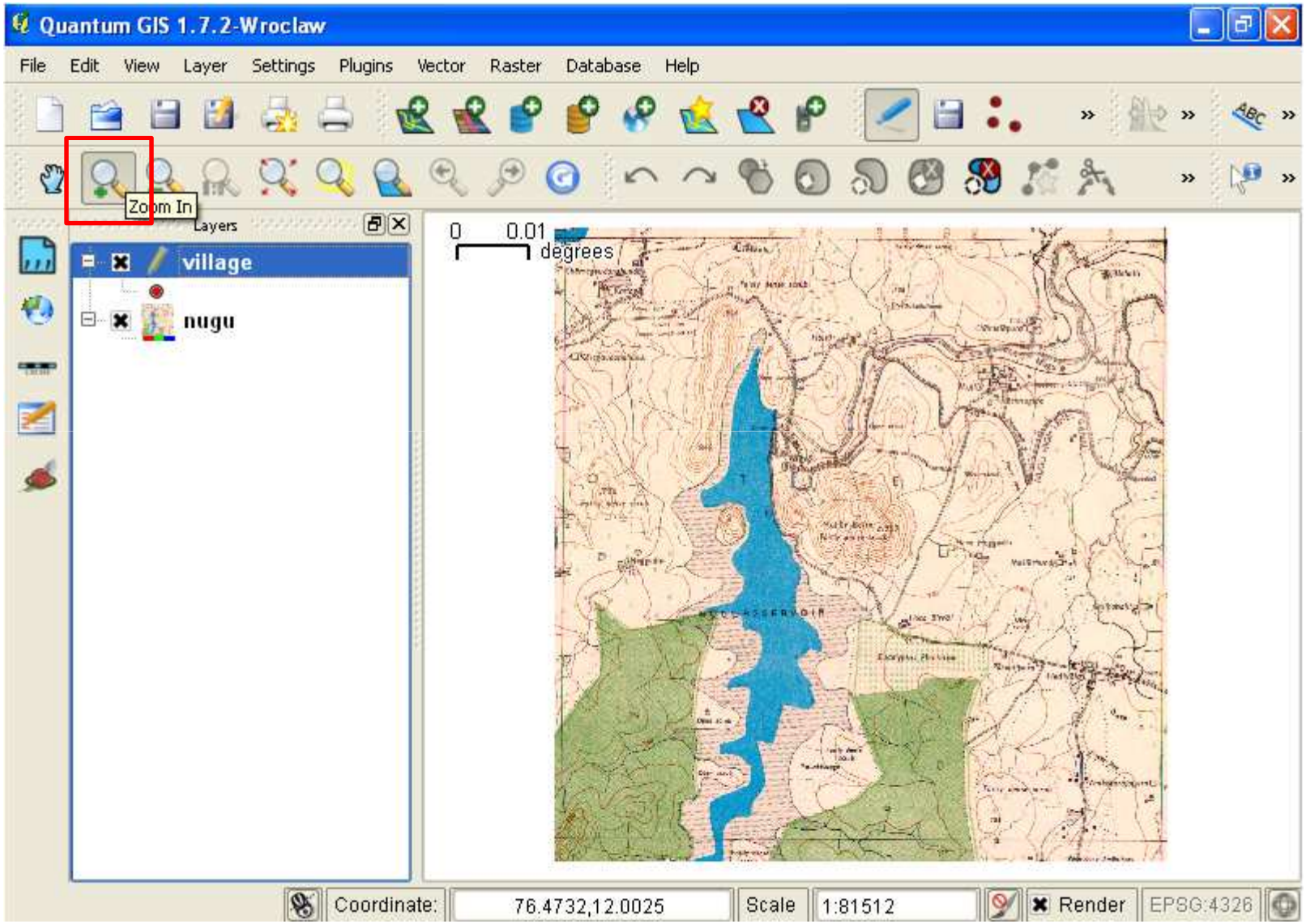

Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Zoom In
Layers
village
nugu
0
0.01
degrees
Coordinate:
76.4732,12.0025
Scale
1:81512
Render
EPSG:4326

Figure 1.17

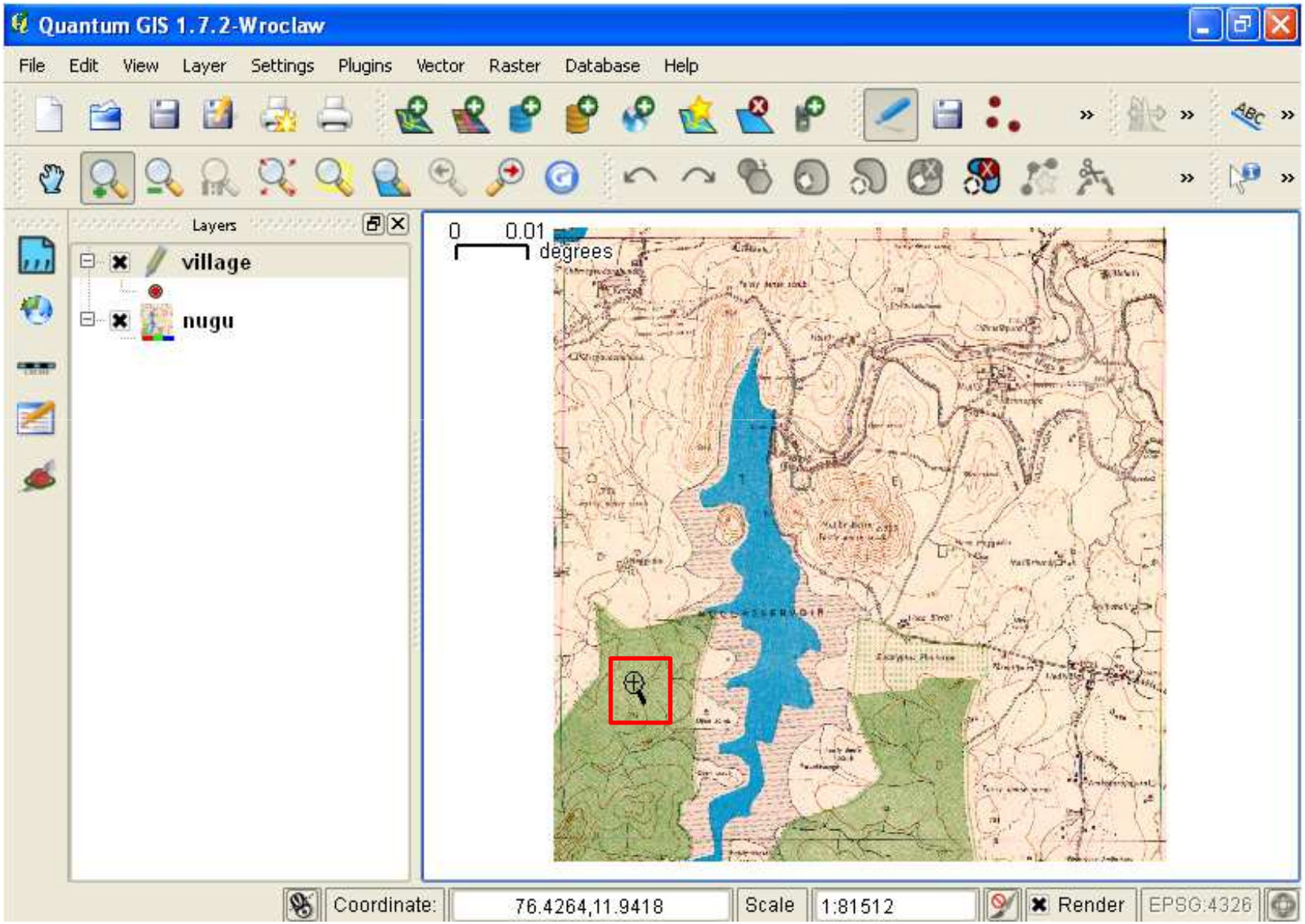

Quantum GIS 1.7.2-Wroclaw
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
nugu
0
0.01
degrees
Coordinate:
76.4264,11.9418
Scale
1:81512
Render
EPSG:4326

Figure.1.18

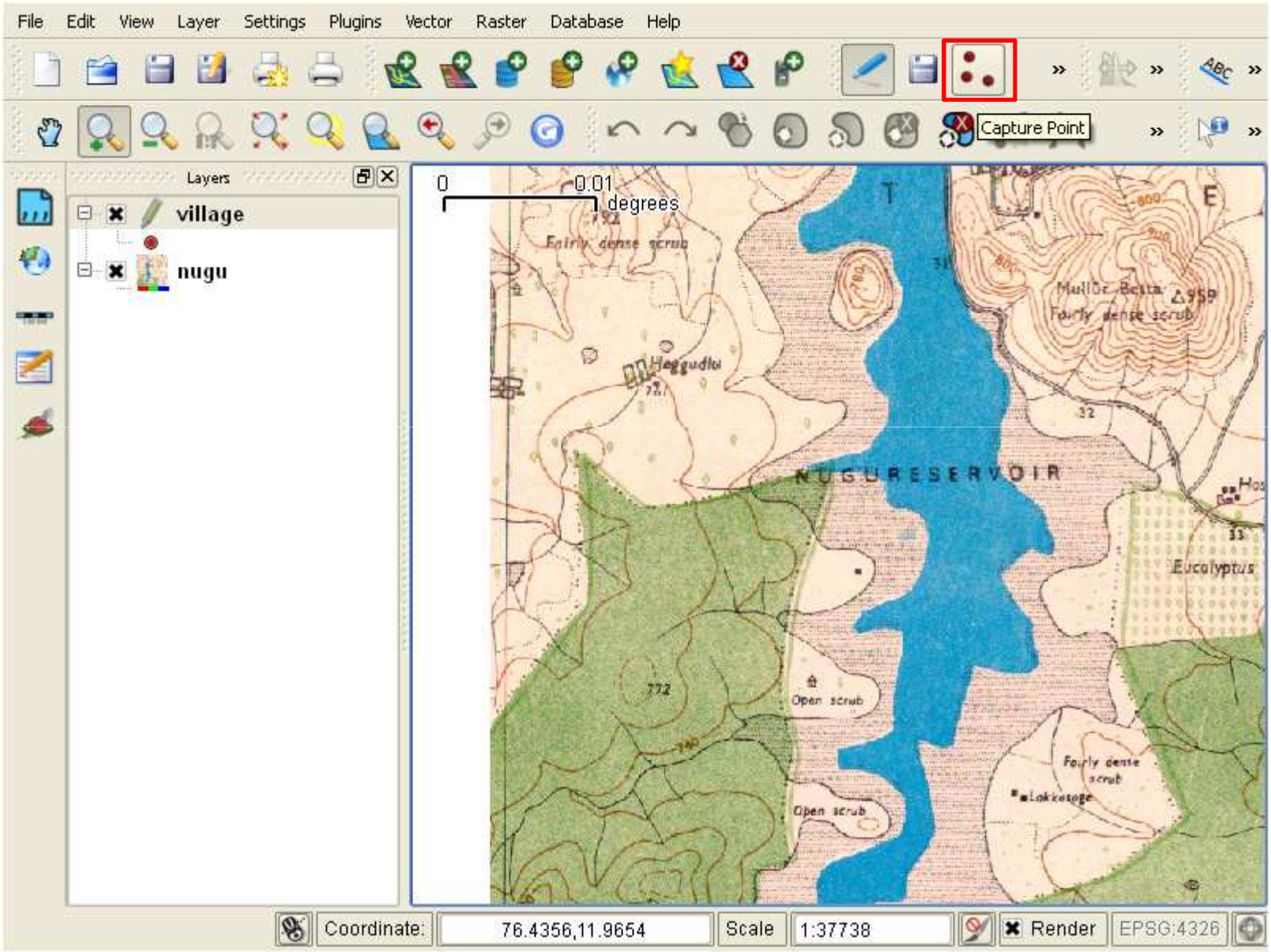
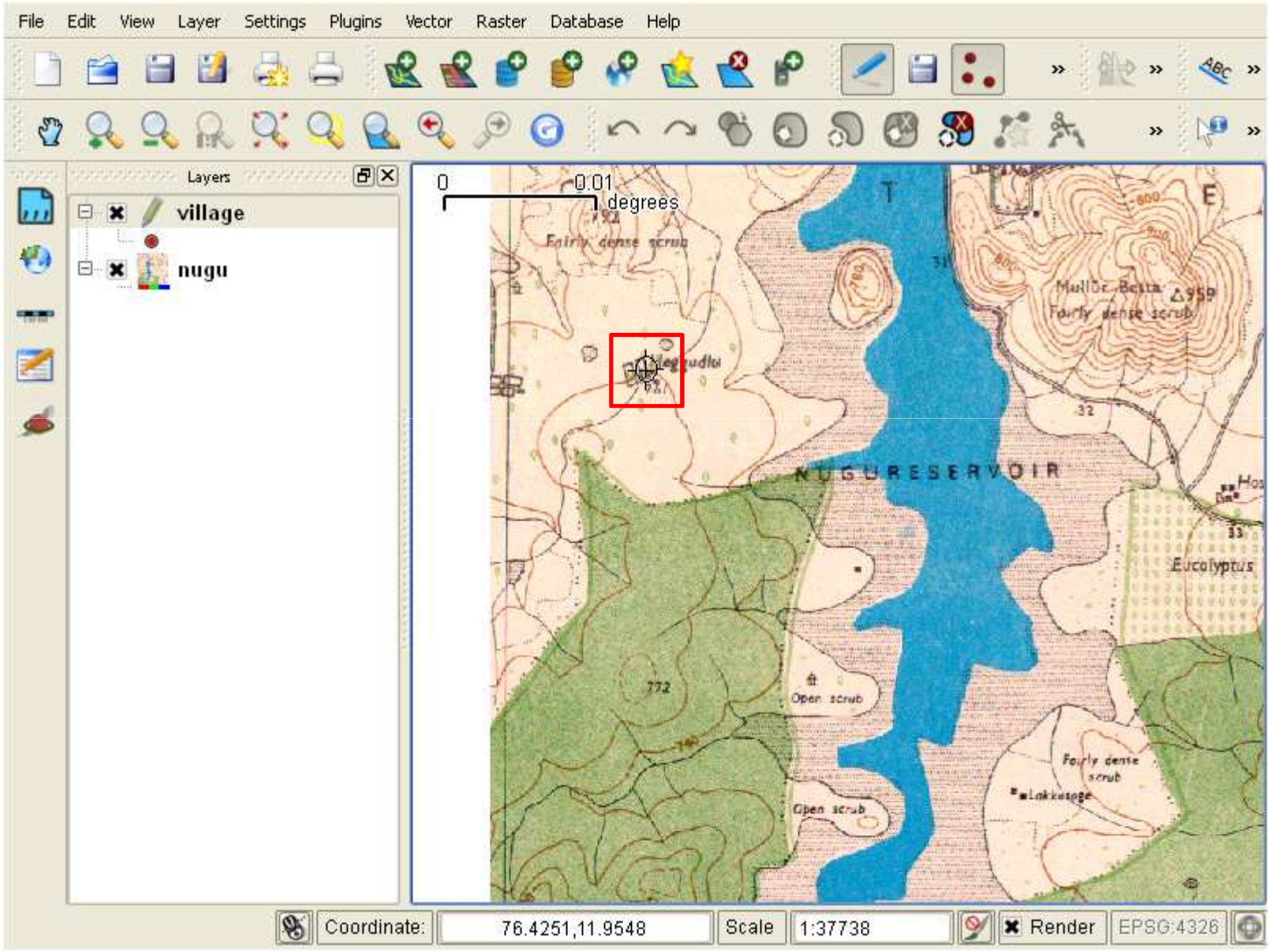

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Capture Point
Layers
village
nugu
0
0.01
degrees
Fairly dense scrub
Heggudlu
NUGURESERVOIR
Eucalyptus
Open scrub
Fairly dense scrub
Open scrub
Coordinate:
76.4356,11.9654
Scale
1:37738
Render
EPSG:4326

Figure 1.19


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
nugu
0
0.01
degrees
Fairly dense scrub
NUGU RESERVOIR
Open scrub
Eucalyptus
Coordinate:
76.4251,11.9548
Scale
1:37738
Render
EPSG:4326

Creation of Vector Point Data

Step 4

- Place the  on the village selected and right click (Figure 1.19)
- A window with title **Attributes** is opened (Figure 1.20)
- Enter the values for different attributes (Figure 1.21)
  - ✓ **Id (default)**: 1
  - ✓ **Name (as in the topo-sheet)**: Heggudlu
  - ✓ **Taluk**: HD Kote
  - ✓ **District**: Mysore
  - ✓ **Population (from census)**: 50
- Select **OK** (Figure 1.21)

Figure 1.20

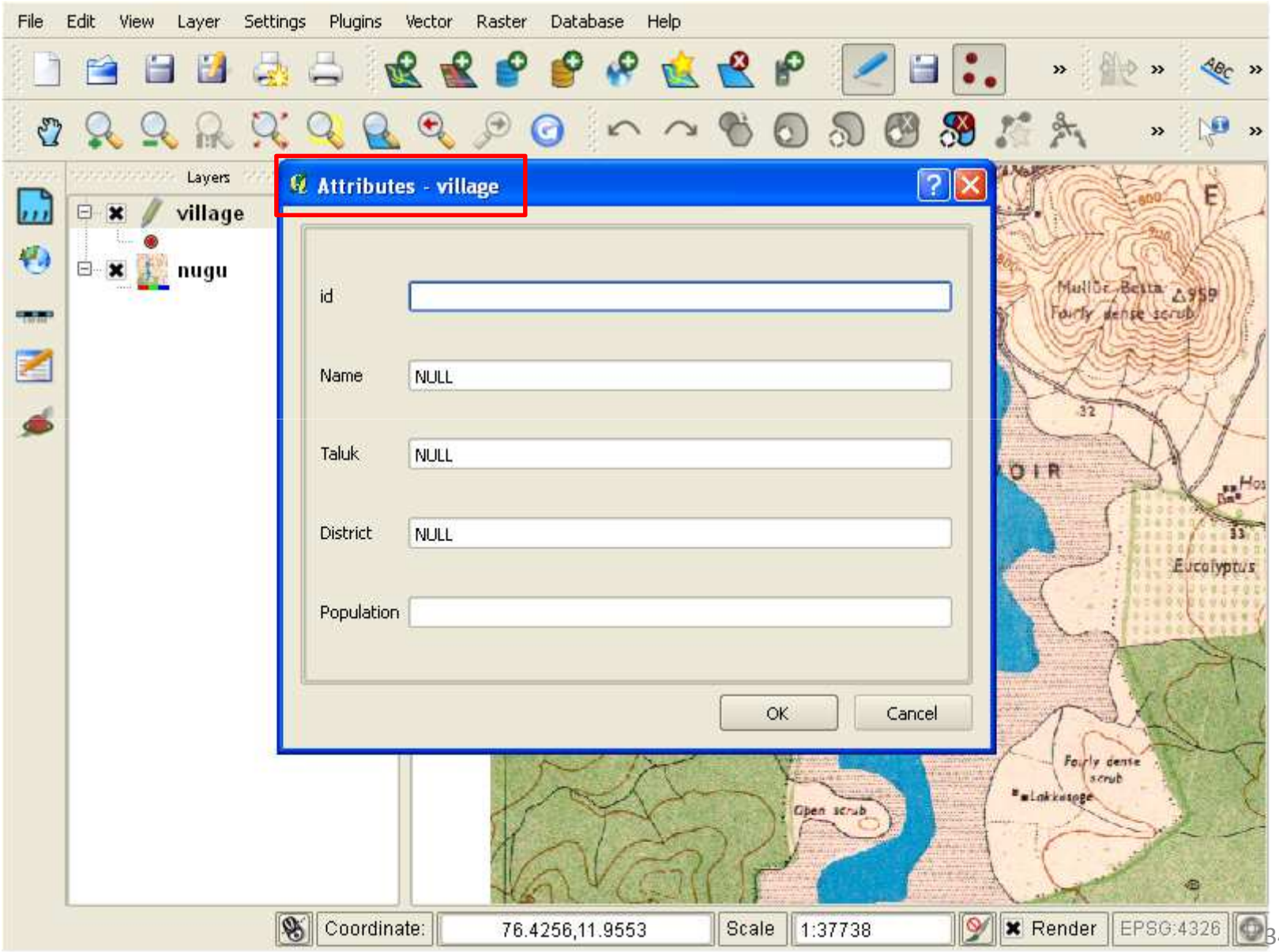
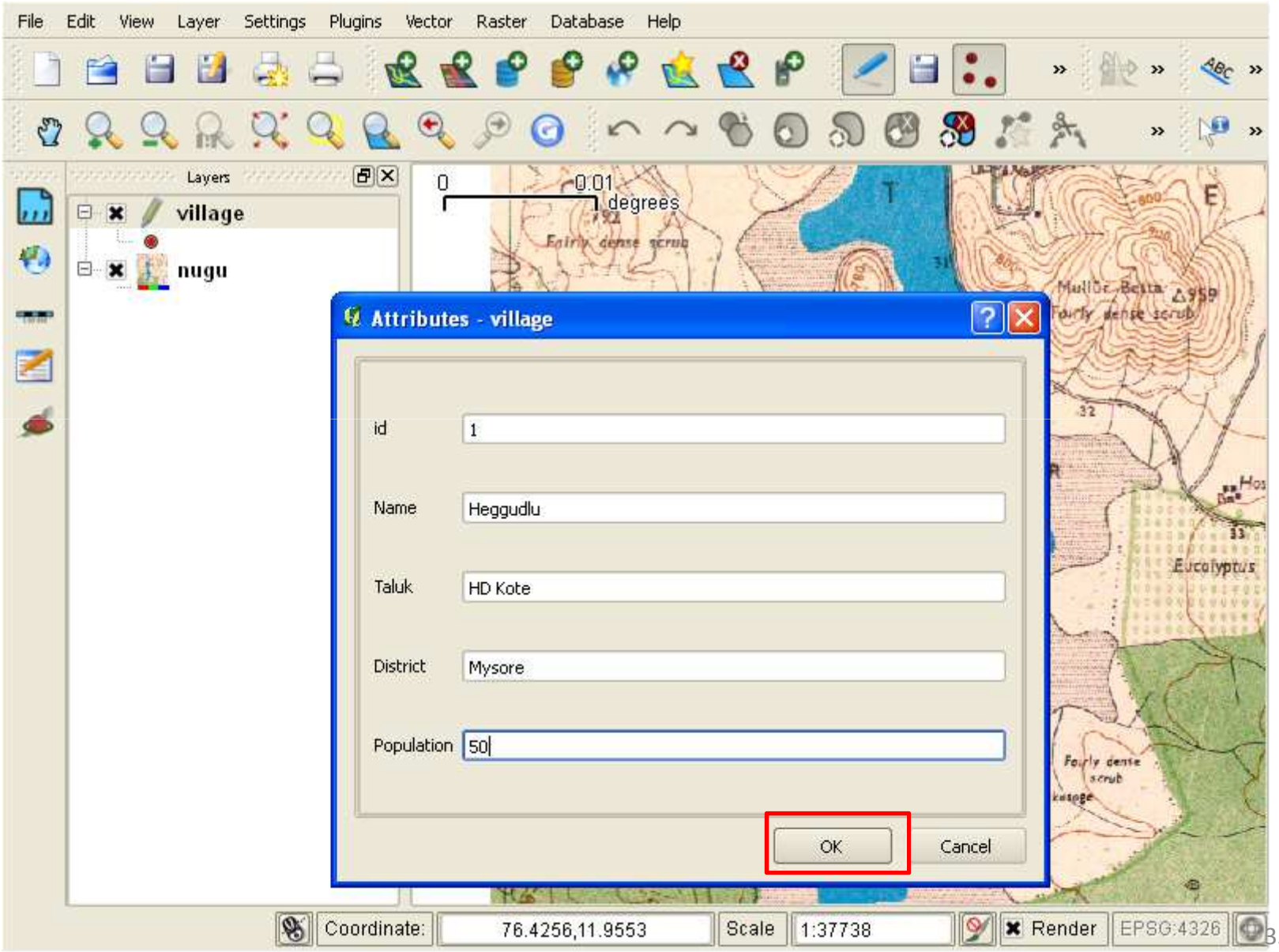

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
nugu
Attributes - village
id
Name
NULL
Taluk
NULL
District
NULL
Population
OK
Cancel
Coordinate:
76.4256,11.9553
Scale
1:37738
Render
EPSG:4326

Figure 1.21


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
nugu
0
0.01
degrees
Attributes - village
id
1
Name
Heggudlu
Taluk
HD Kote
District
Mysore
Population
50
OK
Cancel
Coordinate:
76.4256,11.9553
Scale
1:37738
Render
EPSG:4326

Creation of Vector Point Data

- Notice marked village can be seen on the map (Figure 1.22)
- Repeat **Step 4** (see page 34)
- Finally a map with villages in the Nugu is displayed (Figure 1.23)

Figure 1.22

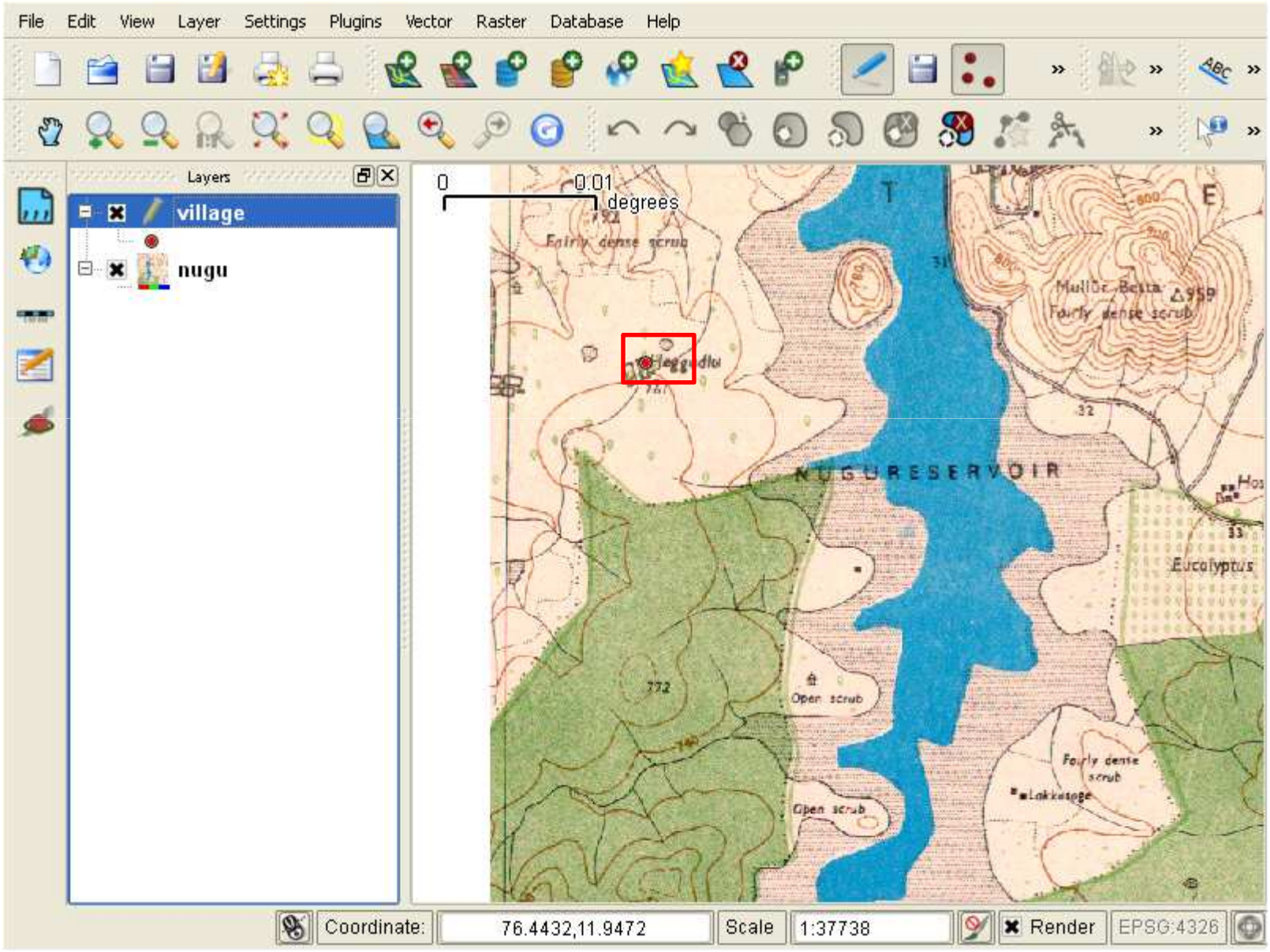
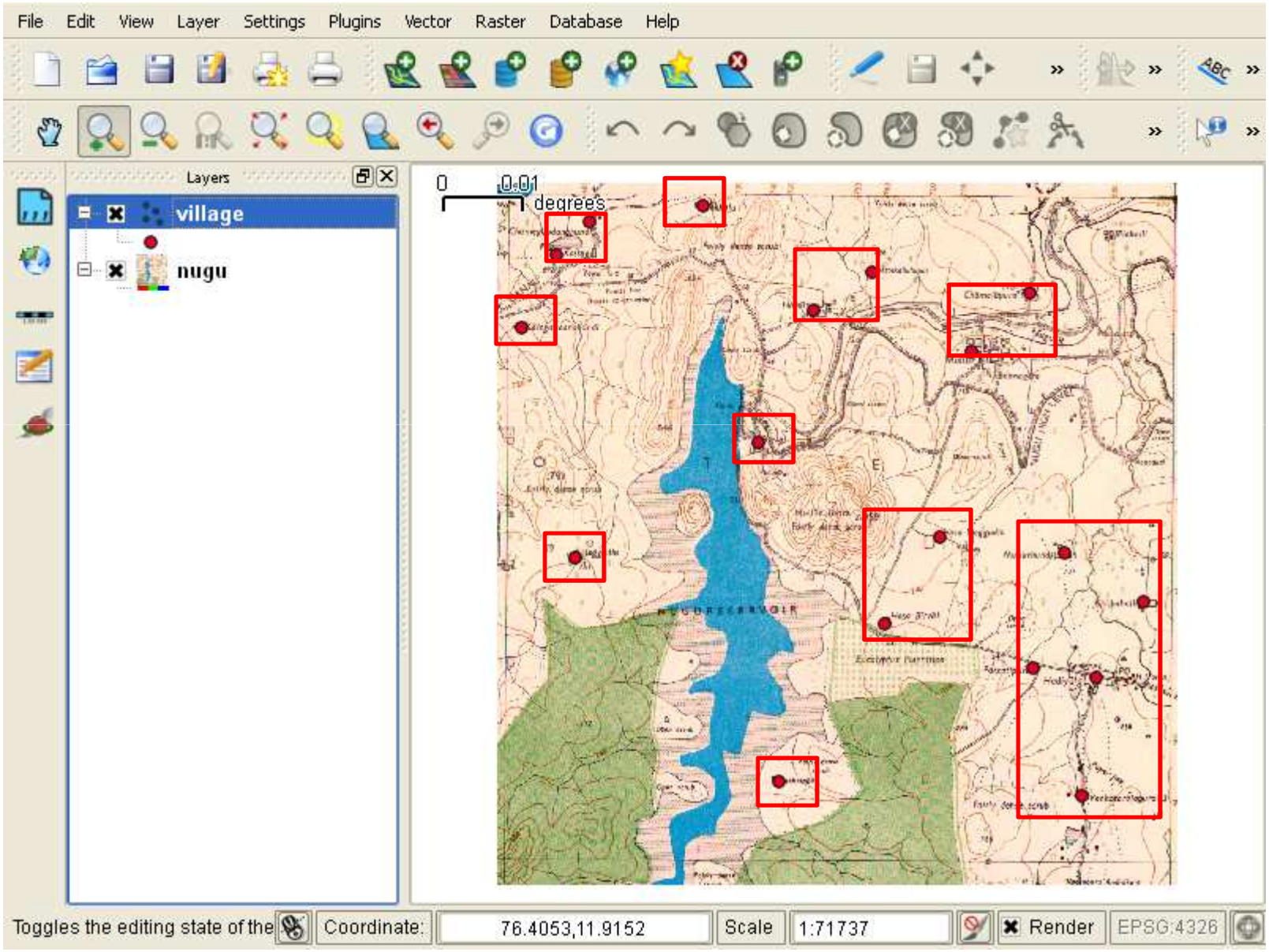
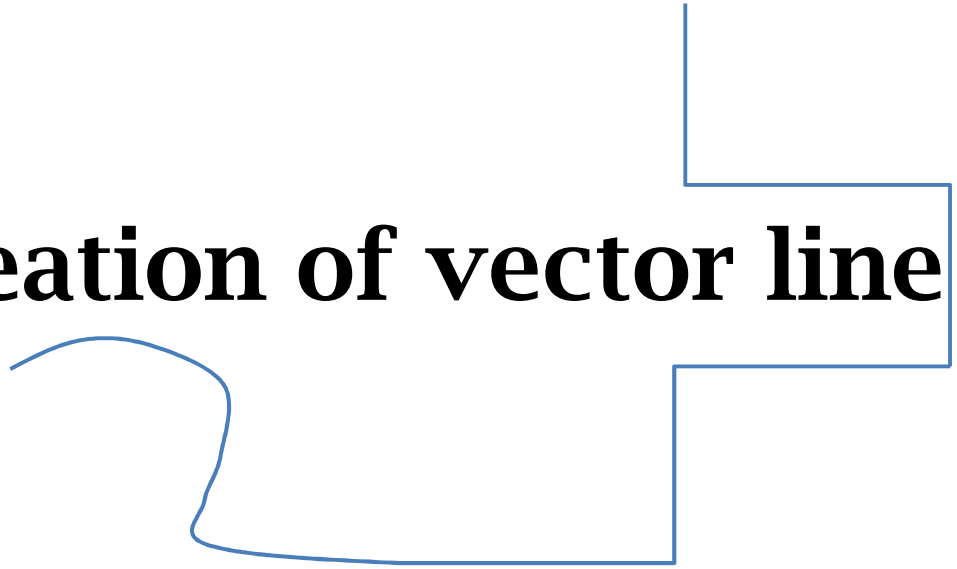

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
nugu
0
0.01
degrees
Fairly dense scrub
NUGU RESERVOIR
Open scrub
Eucalyptus
Coordinate:
76.4432,11.9472
Scale
1:37738
Render
EPSG:4326

Figure 1.23


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
nugu
0
0.01
degrees
Toggles the editing state of the
Coordinate:
76.4053,11.9152
Scale
1:71737
Render
EPSG:4326

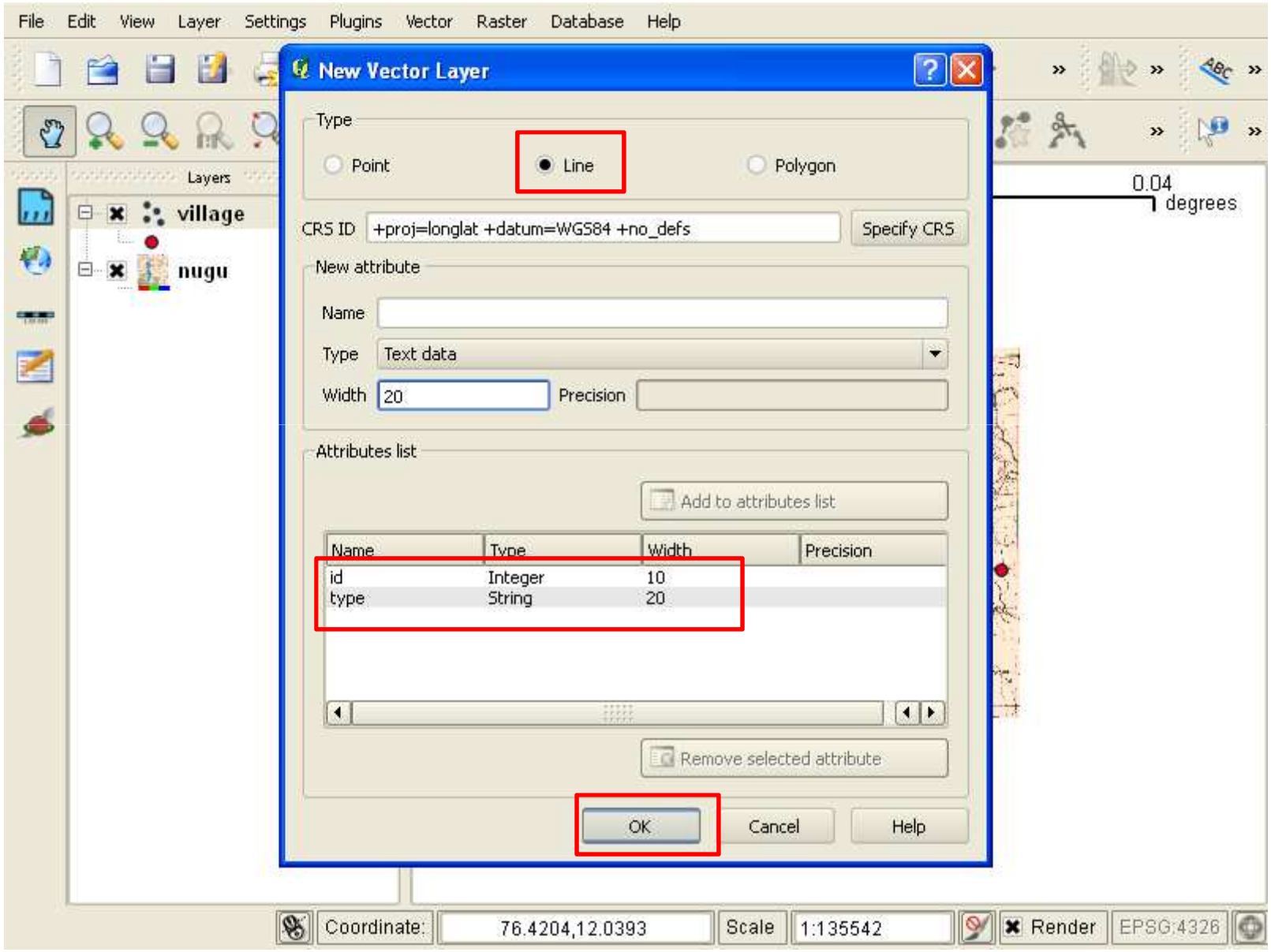
Creation of vector line data



Creation of vector line data - road

- To create new line layer select the icon **New shape layer** (Figure 1.6, page 11)
- Complete **Step 1 (**page 10)
- As in Figure 1.8 where under Type, ‘point’ was selected, *s*elect ‘Line’ (Figure 1.24)
- Next we need to add attributes (Figure 1.24)
  - Attributes associated
    - ✓ **Type of the road**
- After this step, select **OK** (Figure 1.24)

Figure 1.24


File Edit View Layer Settings Plugins Vector Raster Database Help
Layers
village
nugu
0.04
degrees
New Vector Layer
Type
Point
Line
Polygon
CRS ID
+proj=longlat +datum=WGS84 +no_defs
Specify CRS
New attribute
Name
Type
Text data
Width
20
Precision
Attributes list
Add to attributes list
Name
Type
Width
Precision
id
Integer
10
type
String
20
Remove selected attribute
OK
Cancel
Help
Coordinate:
76.4204,12.0393
Scale
1:135542
Render
EPSG:4326

Creation of vector line data

- You will be guided to **Save** as window as previously done in Figure 1.12 (page 20)
  - Select the directory in which you would like to save the data. In this example name it as '**road**' (Figure 1.25)
- Select **Save**; on saving, layer is stored in specified folder (Figure 1.25)
- This layer is automatically added to the QGIS window (Figure 1.26)

Figure 1.25

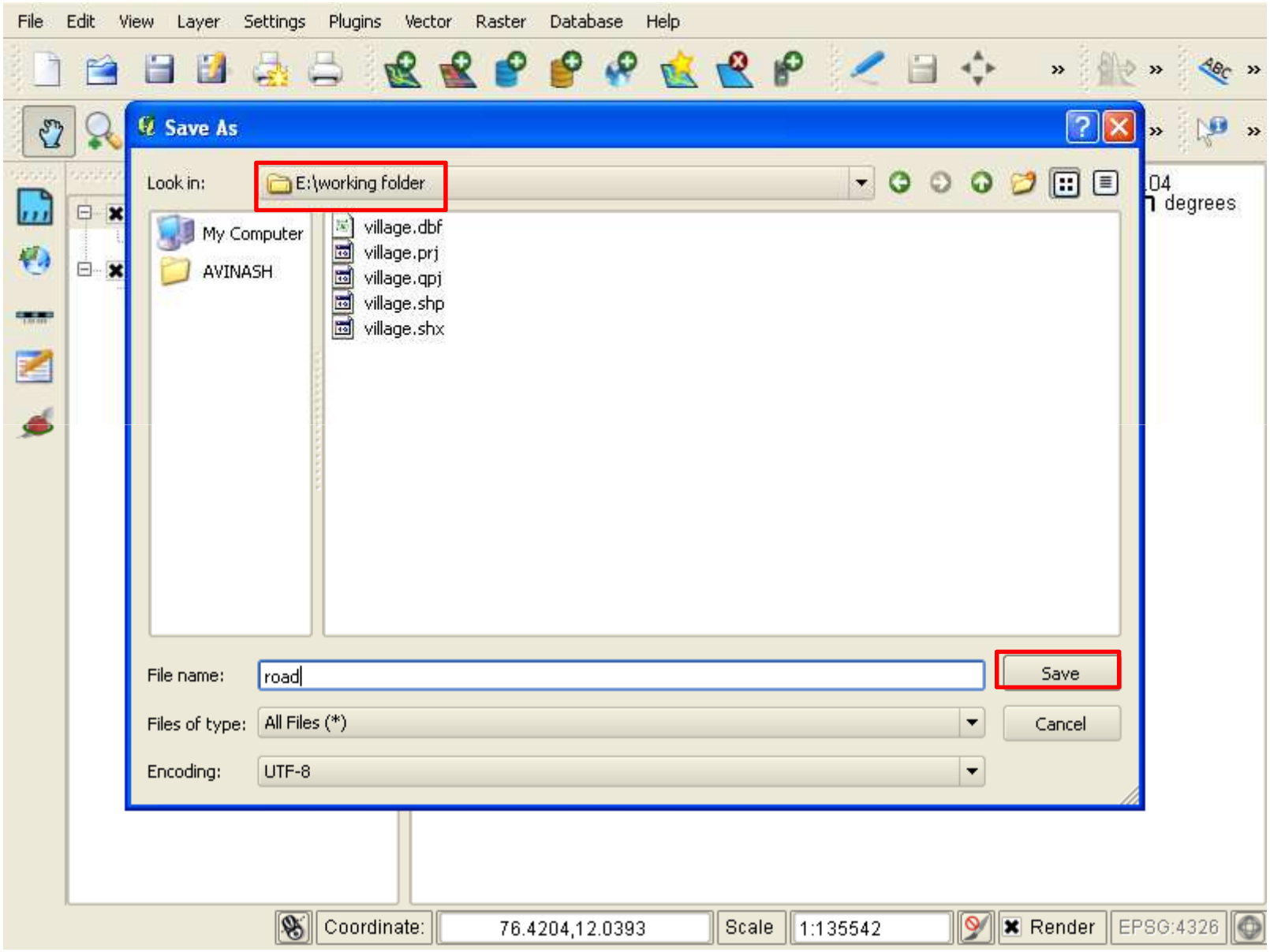
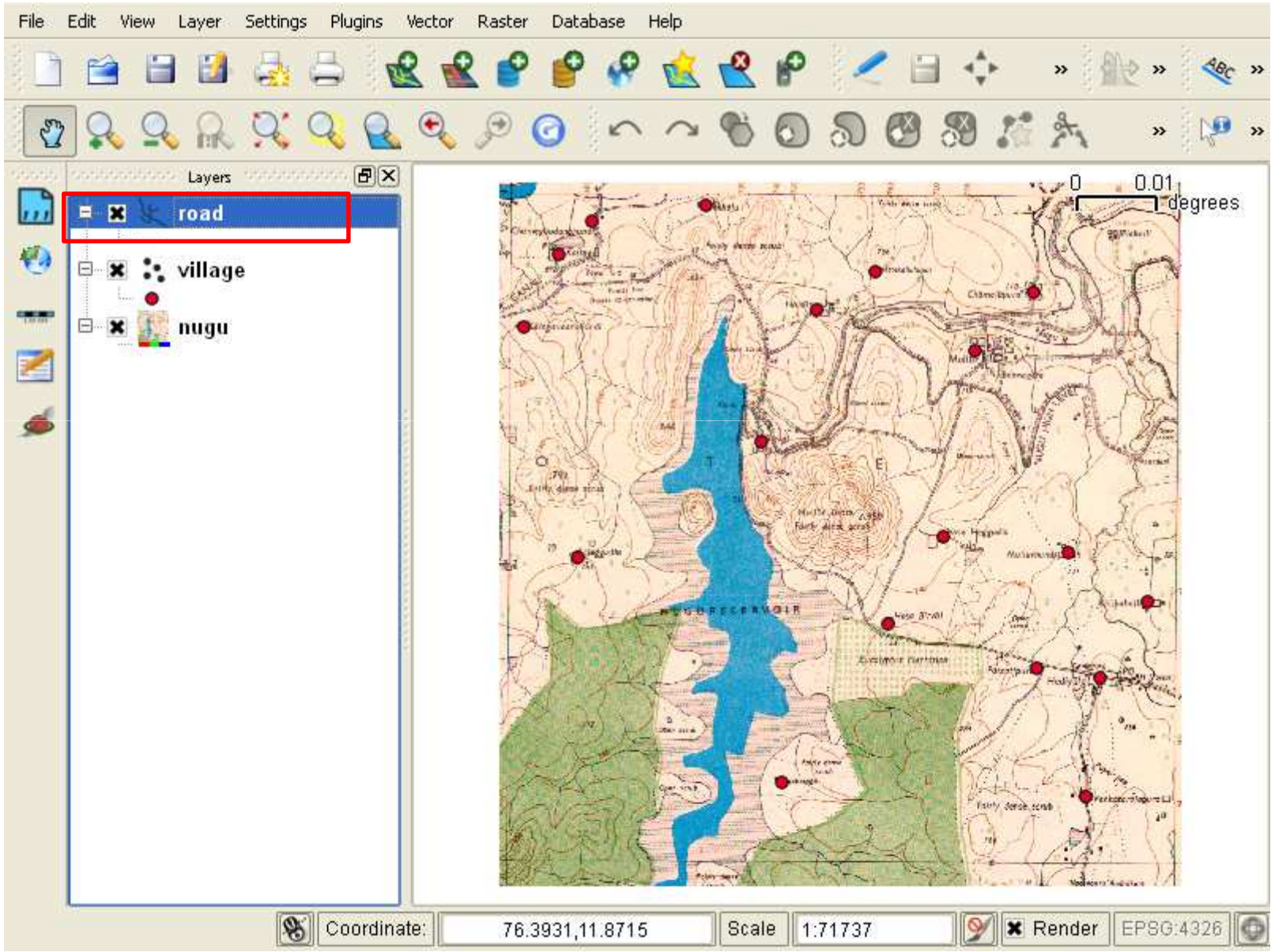

File Edit View Layer Settings Plugins Vector Raster Database Help
Save As
Look in:
E:\working folder
My Computer
AVINASH
village.dbf
village.prj
village.qpj
village.shp
village.shx
File name:
road
Save
Files of type:
All Files (*)
Cancel
Encoding:
UTF-8
04
degrees
Coordinate:
76.4204,12.0393
Scale
1:135542
Render
EPSG:4326

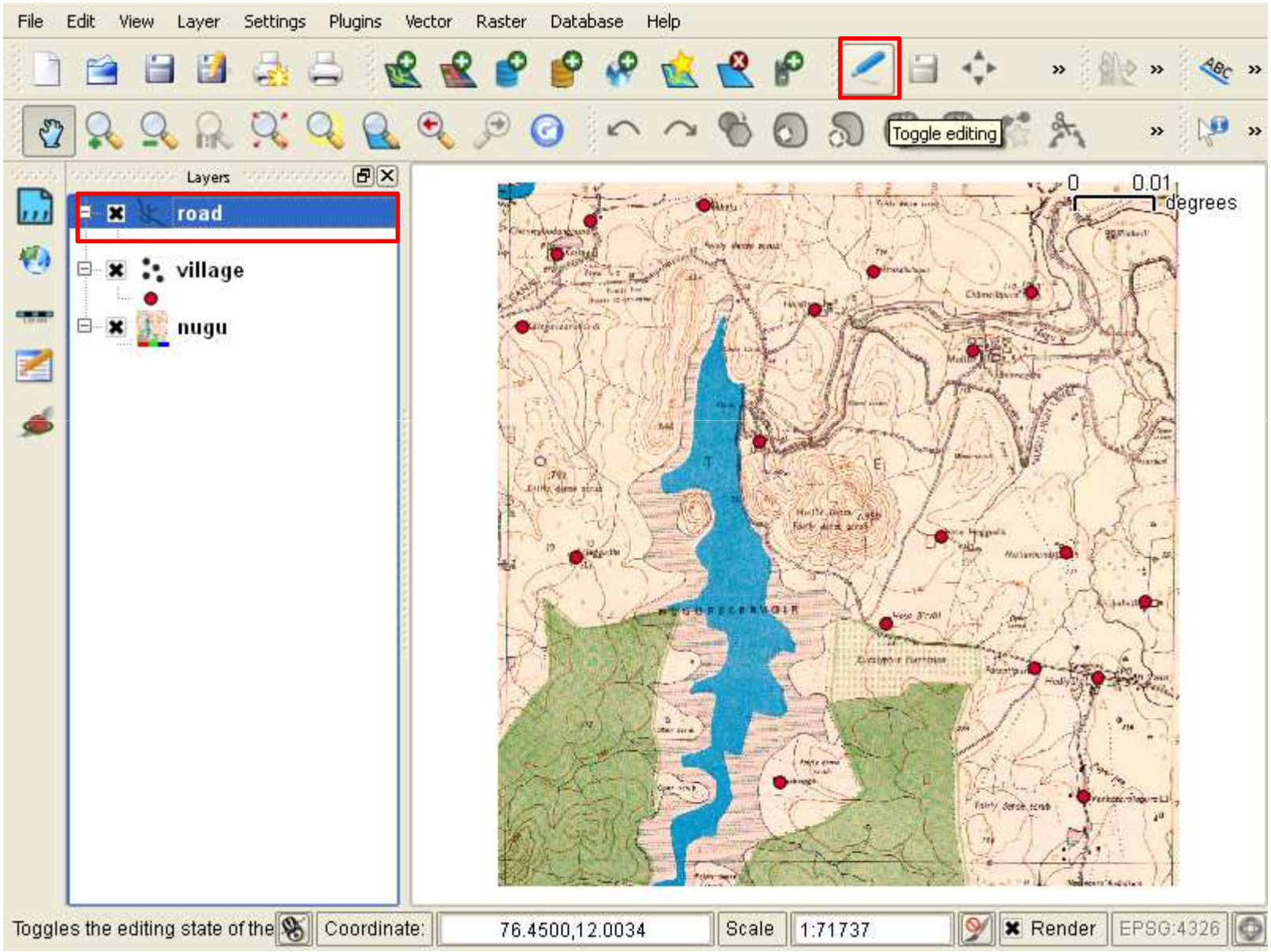
Figure 1.26


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
road
village
nugu
0
0.01
degrees
Coordinate:
76.3931,11.8715
Scale
1:71737
Render
EPSG:4326

Creation of vector line data

- Next we need to add roads (features) to the road layer.
- To do this we have to make this layer editable.
- Select the layer and then select **Toggle editing** icon (Figure 1.27)
- On enabling, in the layer window, the **Toggle active** icon is enabled

Figure 1.27


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Toggle editing
Layers
road
village
nugu
0
0.01
degrees
Toggles the editing state of the
Coordinate:
76.4500,12.0034
Scale
1:71737
Render
EPSG:4326

Creation of vector line data

- Zoom to the area of interest by selecting the icon of **Zoom In** (as in Figure 1.16, page 27)
- Then place the  on the interested area and click (as in Figure 1.17, page 28)

Step 5

- We have zoomed to the area (Figure 1.28)
- Select the icon **Capture Line** (Figure 1.28)
- Place  marker on road that we have to digitize and **left click** (Figure 1.29)

Figure 1.28

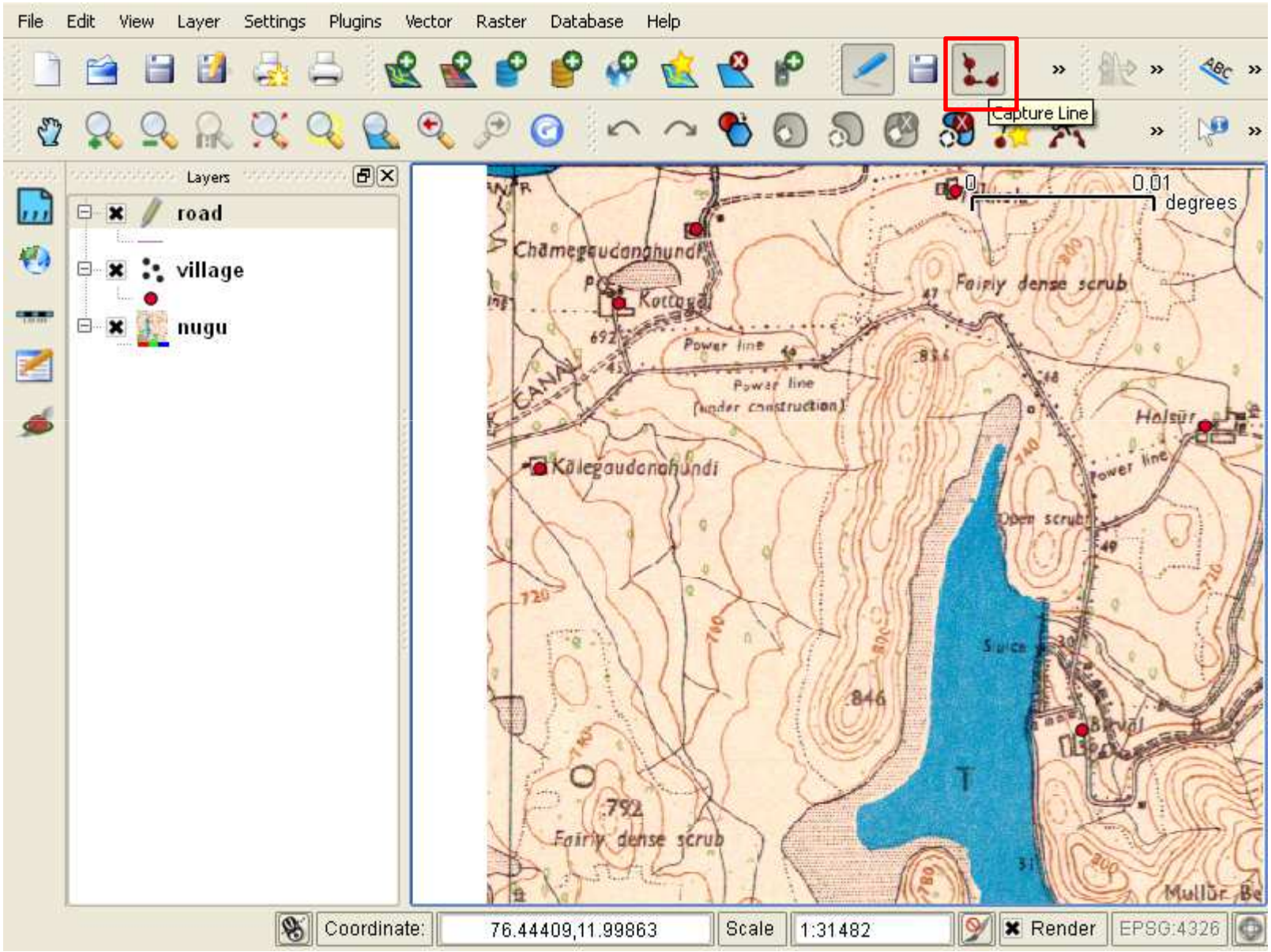
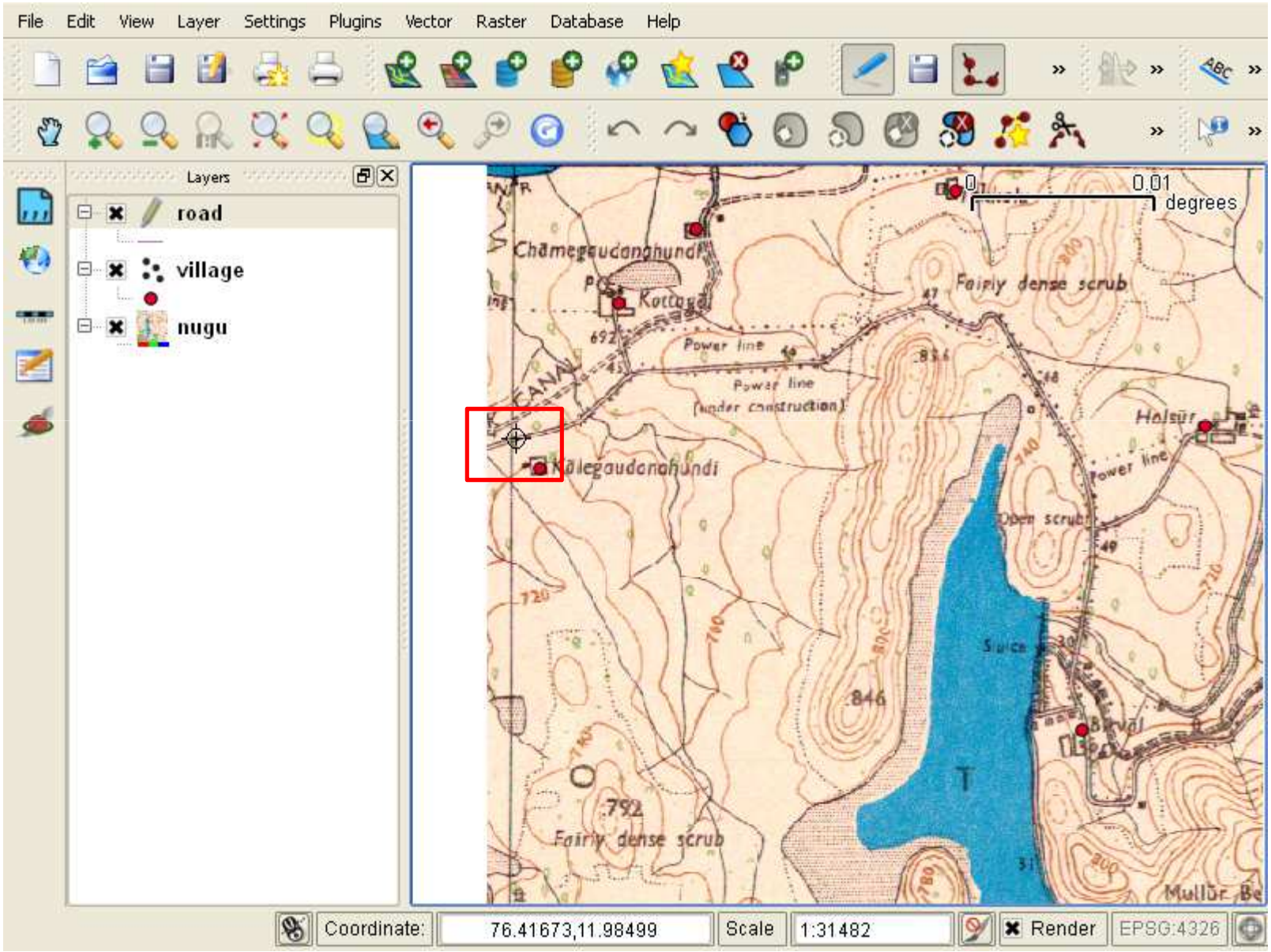

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Capture Line
Layers
road
village
nugu
0
0.01
degrees
Fairly dense scrub
Power line
Power line
(under construction)
Kõlegaudanahundi
Open scrub
Fairly dense scrub
Coordinate:
76.44409,11.99863
Scale
1:31482
Render
EPSG:4326

Figure 1.29


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
road
village
nugu
0
0.01
degrees
Fairly dense scrub
Power line
Power line
(under construction)
Kõlegaudanahundi
Halsür
Open scrub
Sluice
792
Fairly dense scrub
Coordinate:
76.41673,11.98499
Scale
1:31482
Render
EPSG:4326

Creation of vector line data

- Place the  marker to next position and **left click** (Figure 1.30)
- Repeat the same process till the next junction (for e.g., change in direction is required)
- Similarly, continue till where you would like to end the process, **right click**.
- A window with title **Attributes** is opened (Figure 1.31)
- Enter the information for different attributes (Figure 1.31)
  - ✓ **Id (default)**: 1
  - ✓ **Type :** Mud road
- Select **OK** (Figure 1.31)

Figure 1.30

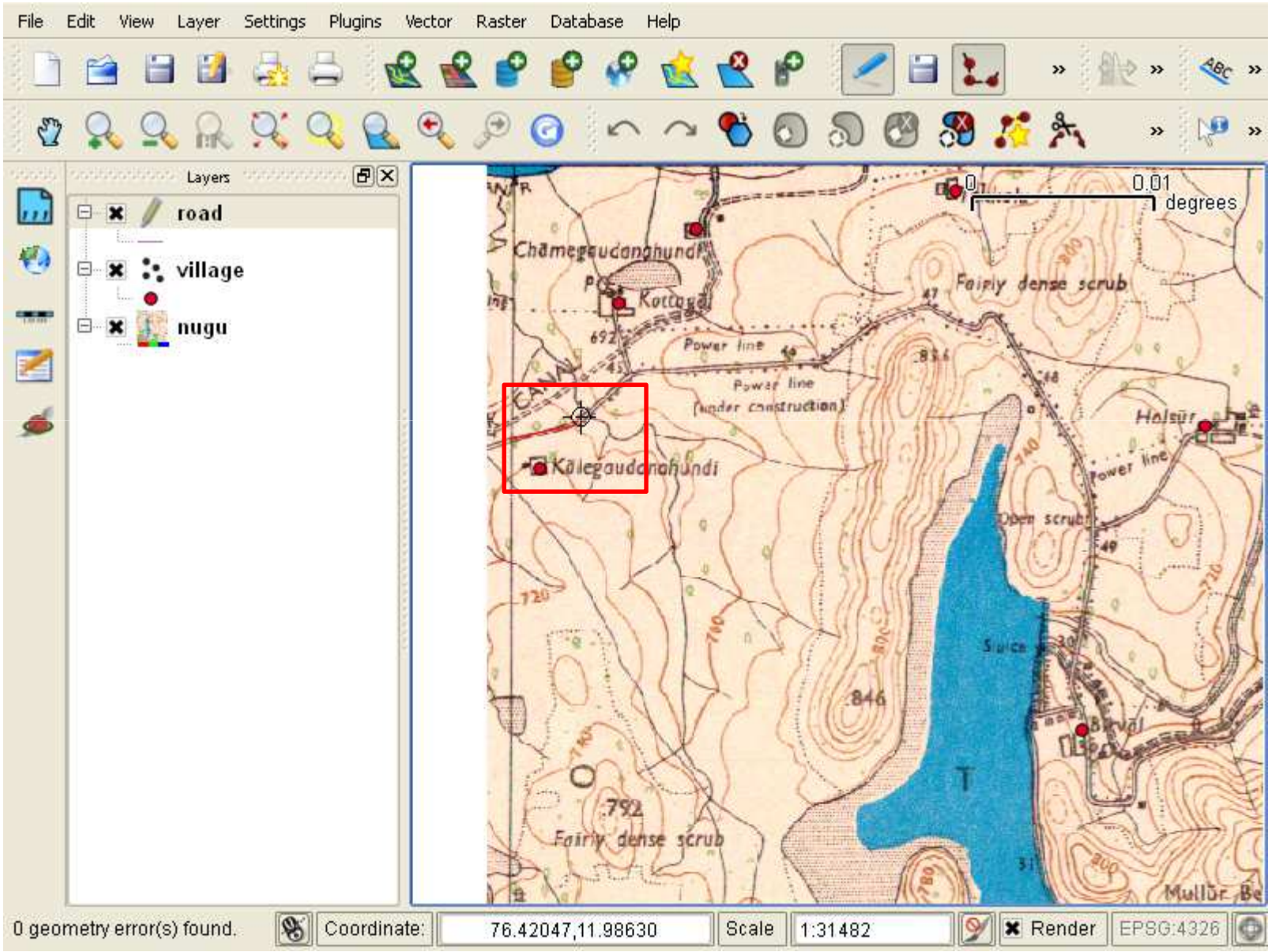
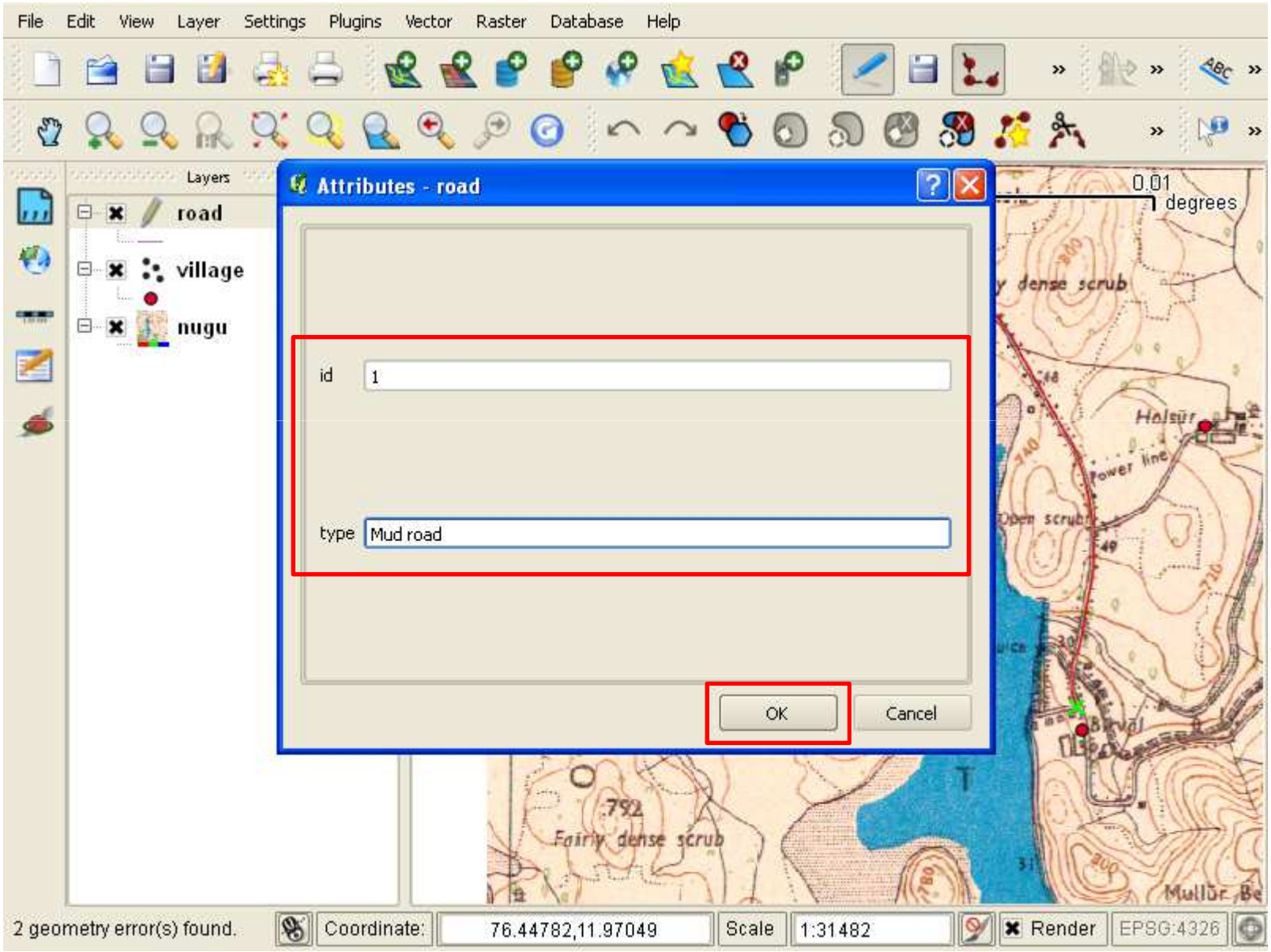
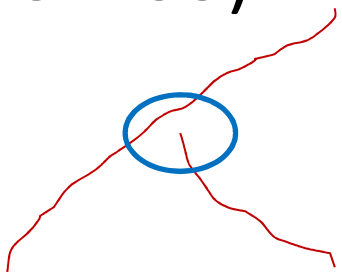

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
road
village
nugu
0
0.01
degrees
Fairly dense scrub
Power line
Power line
(under construction)
Kõlegaudanahundi
Open scrub
Fairly dense scrub
0 geometry error(s) found.
Coordinate:
76.42047,11.98630
Scale
1:31482
Render
EPSG:4326

Figure 1.31

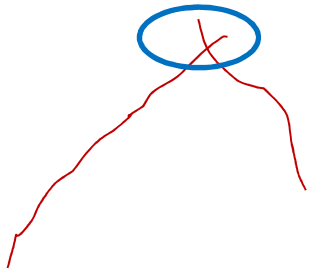

File Edit View Layer Settings Plugins Vector Raster Database Help
Layers
road
village
nugu
Attributes - road
id
1
type
Mud road
OK
Cancel
0.01
degrees
dense scrub
Holsur
Tower line
Open scrub
792
Fairly dense scrub
2 geometry error(s) found.
Coordinate:
76.44782,11.97049
Scale
1:31482
Render
EPSG:4326

Creation of vector line data

- We can notice digitized road can be seen on the map (see Figure 1.32) (end of **Step 5**)
- Before starting the next segment, to avoid the problems of a) undershoot and b) dangles, we need to enable snapping option.
- To enable snapping: **Setting** ➡ **Snapping option** (see Figure 1.33)



a) undershoot



b) dangles

Figure 1.32

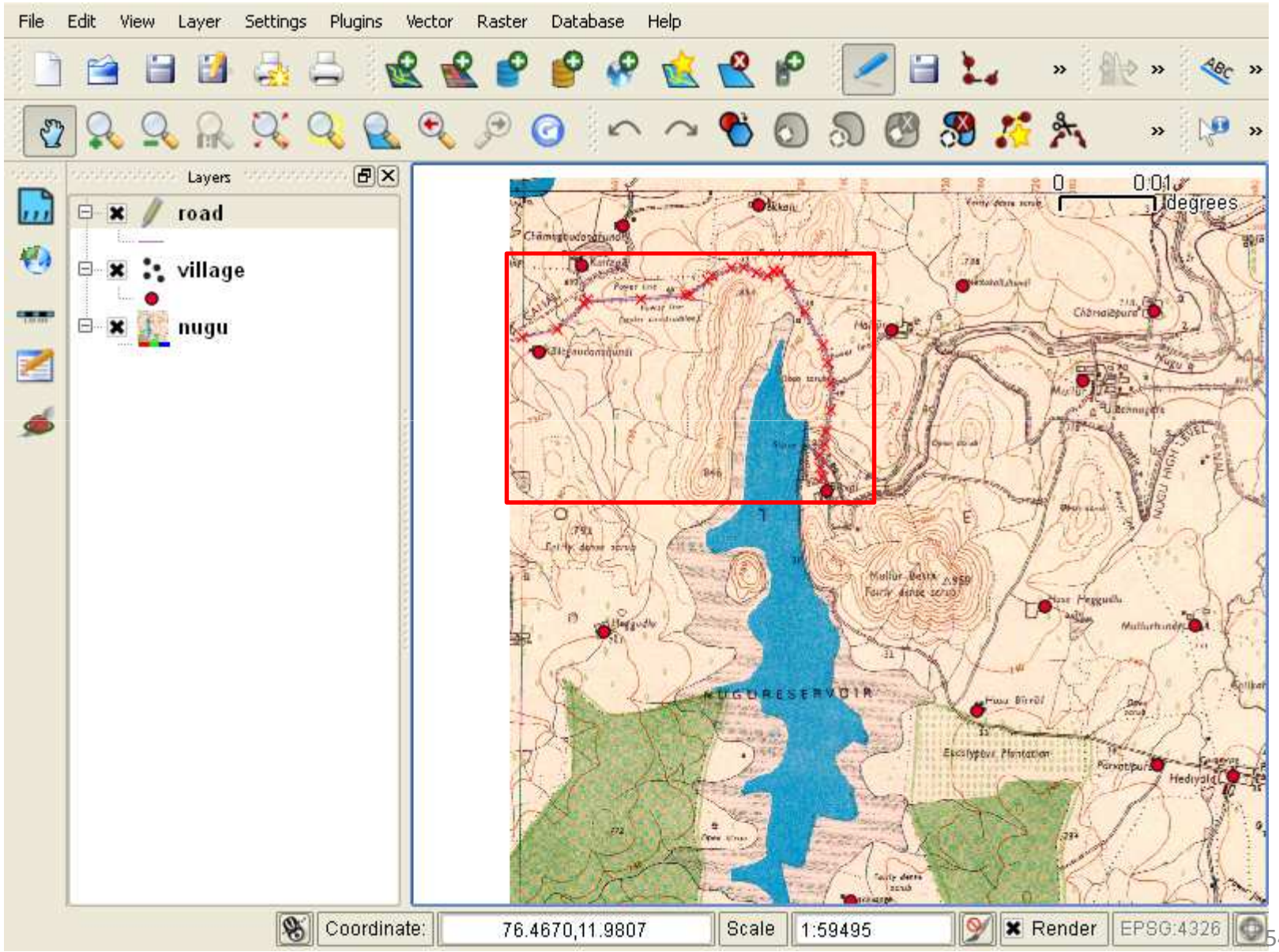
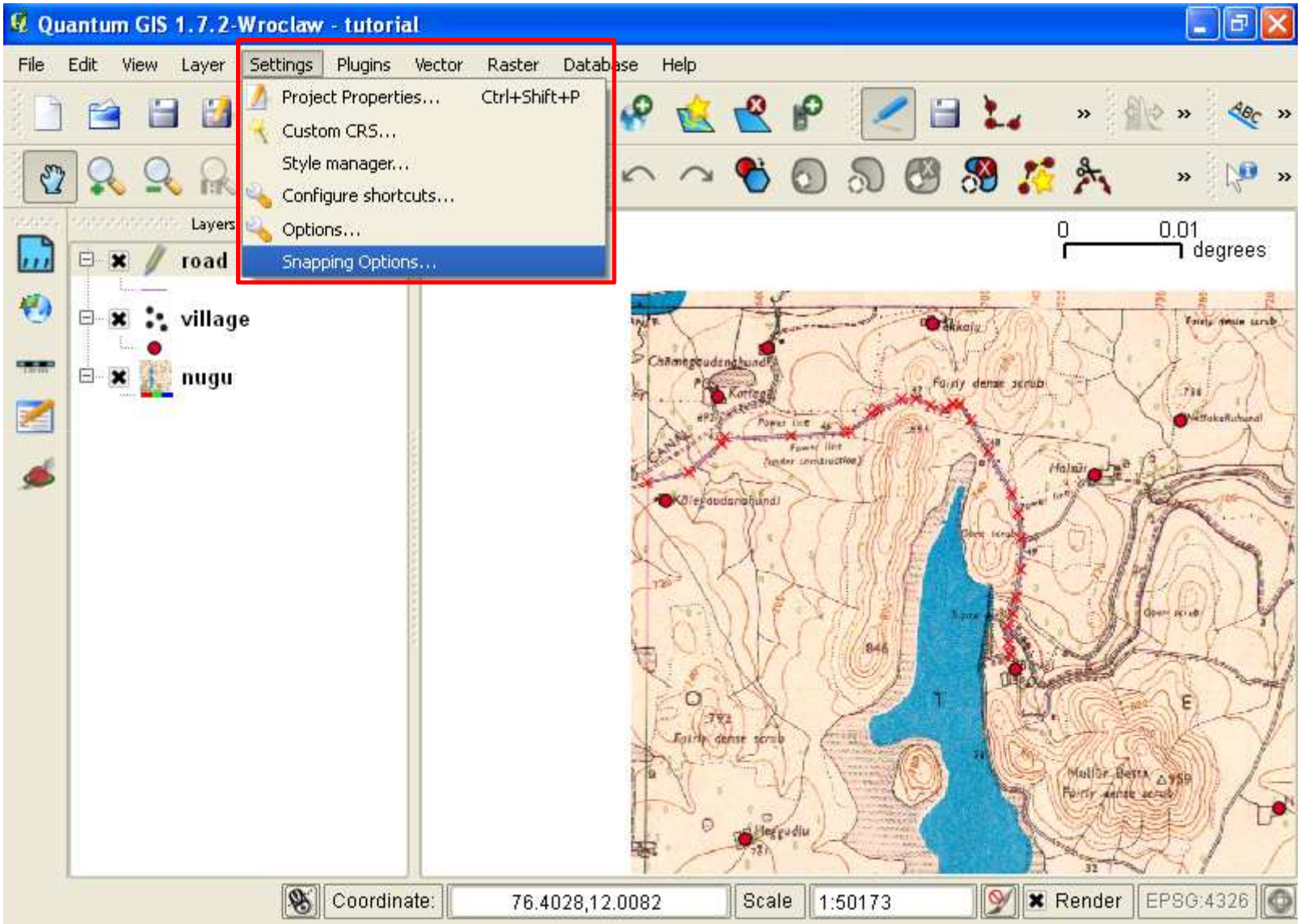

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
road
village
nugu
0
0.01
degrees
NUGURESERVOIR
Coordinate:
76.4670,11.9807
Scale
1:59495
Render
EPSG:4326

Figure 1.33


Quantum GIS 1.7.2-Wroclaw - tutorial
File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Project Properties... Ctrl+Shift+P
Custom CRS...
Style manager...
Configure shortcuts...
Options...
Snapping Options...
Layers
road
village
nugu
0
0.01
degrees
Coordinate:
76.4028,12.0082
Scale
1:50173
Render
EPSG:4326

Creation of vector line data

- A window of **Snapping options** appears (Figure 1.34)
- Select the layer roads, (Figure 1.34)
  - Mode ⇒ to vertex
  - Tolerance ⇒ 0.0005 (this is a subjective decision)
  - Units ⇒ map units
- Select **OK** (Figure 1.34)
- Repeat **Step 5** till all roads are digitized (Figure 1.35) and remove the **Toggle editing**
- **Save** the layer (Figure 1.36)

Figure 1.34

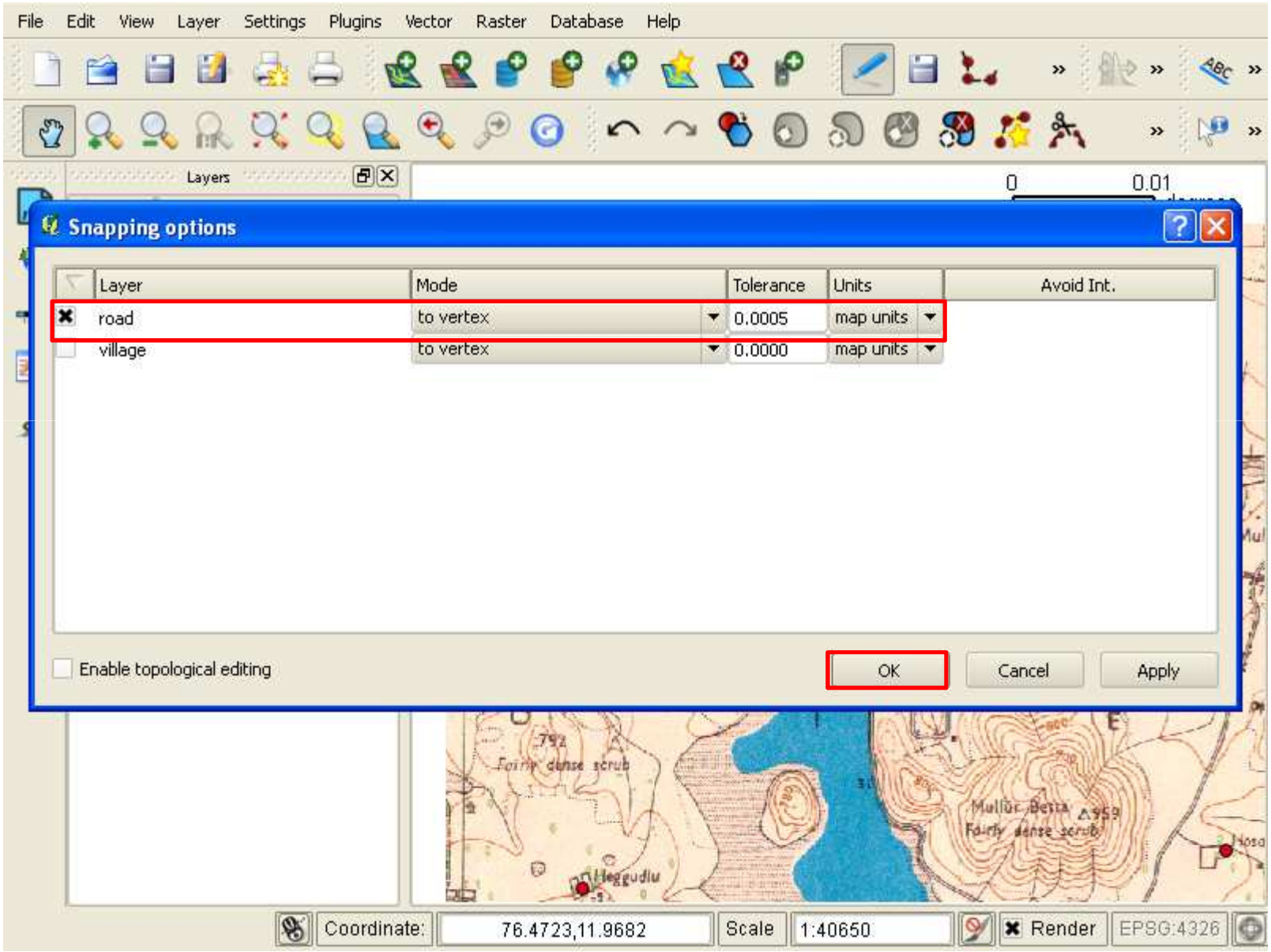

File Edit View Layer Settings Plugins Vector Raster Database Help
Layers
Snapping options
Layer
Mode
Tolerance
Units
Avoid Int.
road
to vertex
0.0005
map units
village
to vertex
0.0000
map units
Enable topological editing
OK
Cancel
Apply
Coordinate:
76.4723,11.9682
Scale
1:40650
Render
EPSG:4326

Figure 1.35

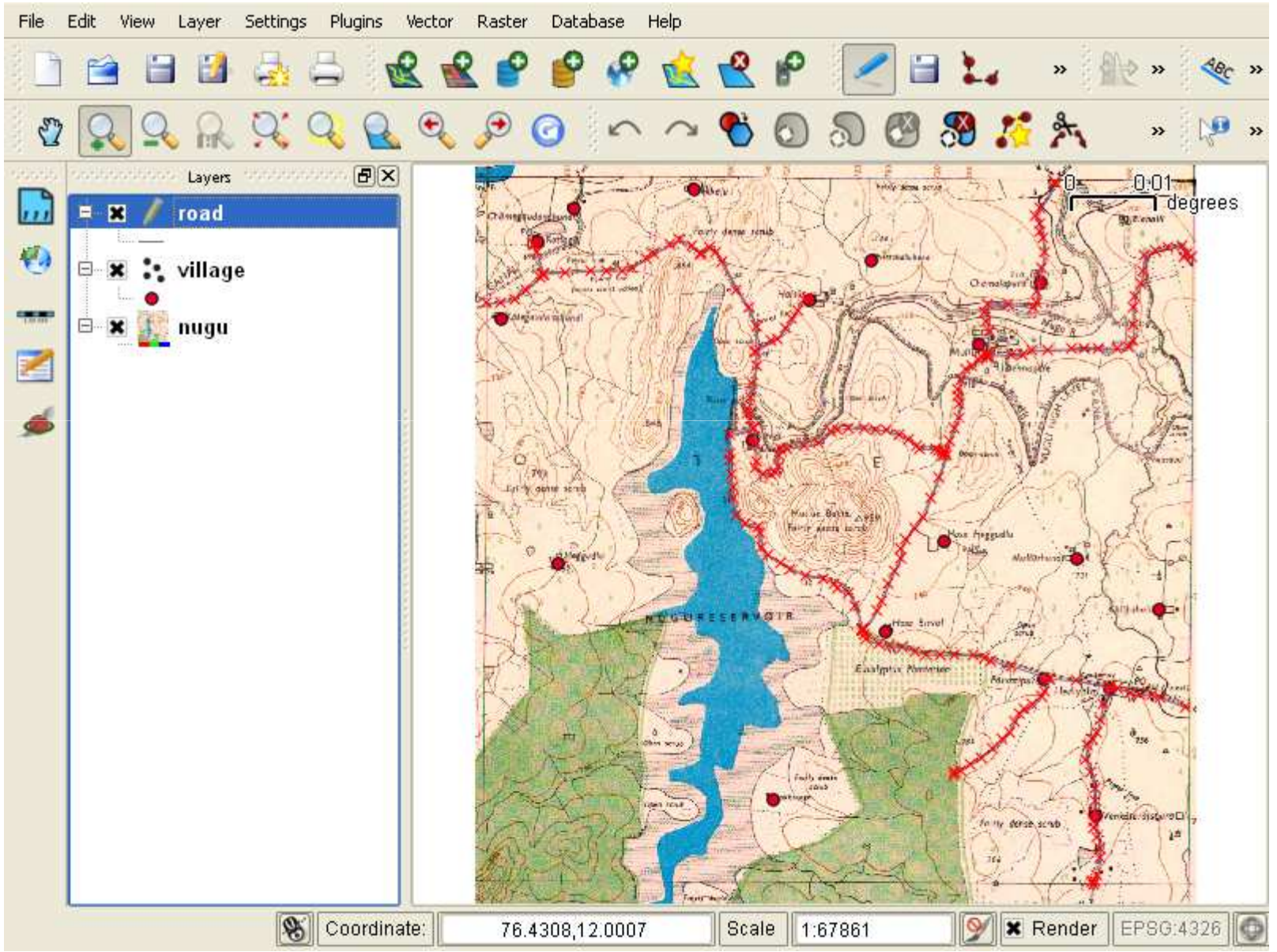
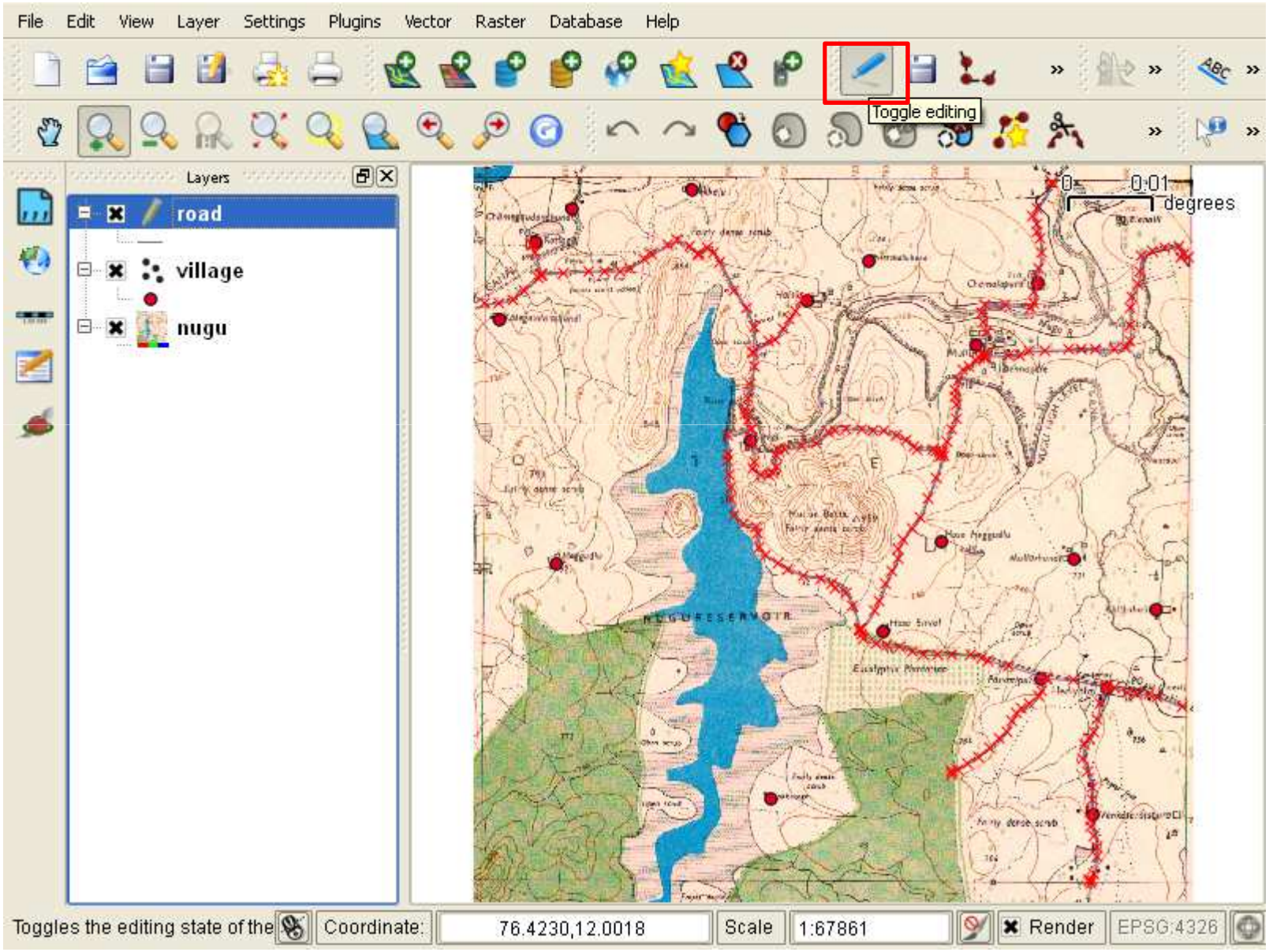

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
road
village
nugu
0
0.01
degrees
Coordinate:
76.4308,12.0007
Scale
1:67861
Render
EPSG:4326

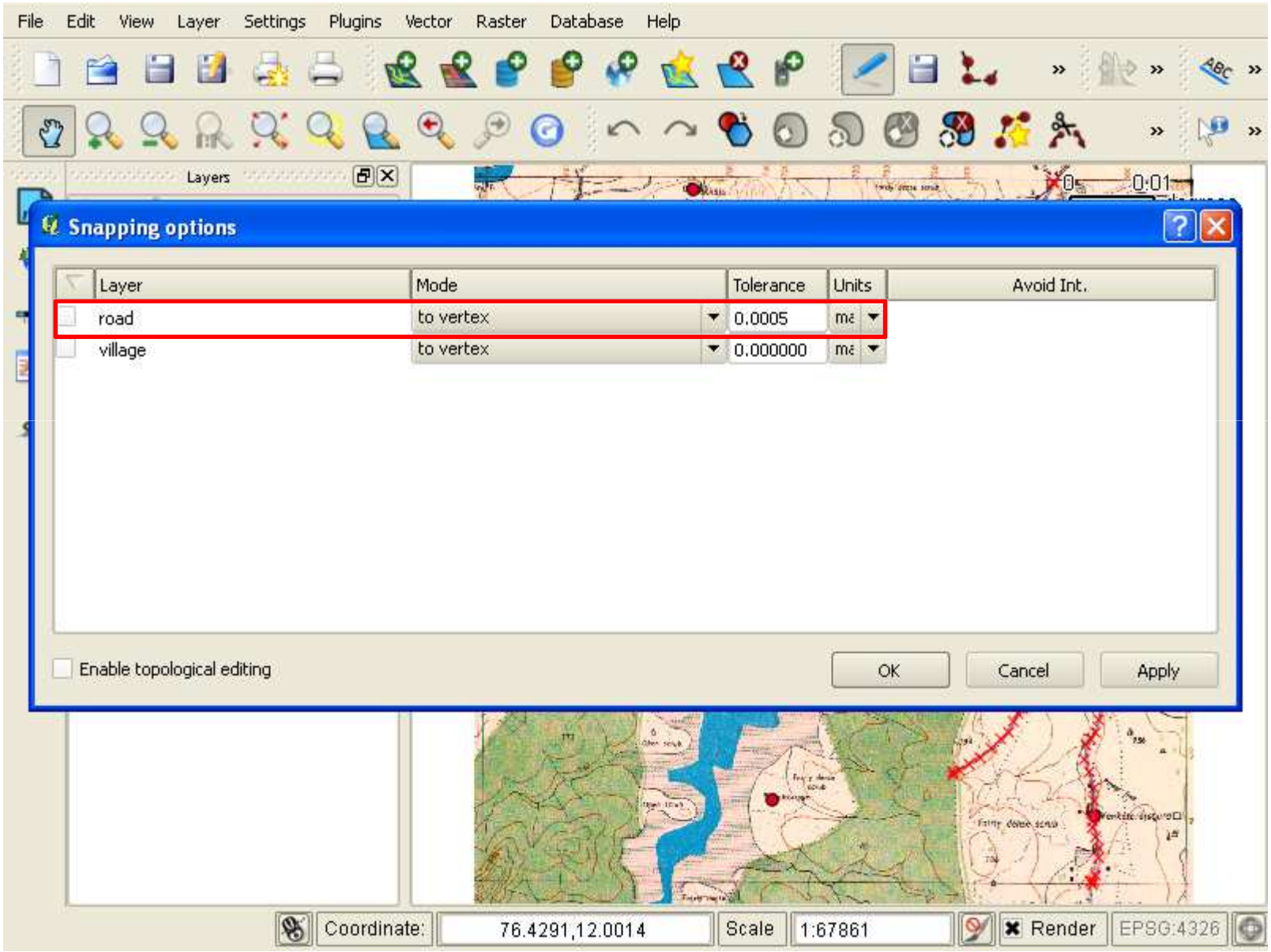
Figure 1.36


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Toggle editing
Layers
road
village
nugu
0
0.01
degrees
Toggles the editing state of the
Coordinate:
76.4230,12.0018
Scale
1:67861
Render
EPSG:4326

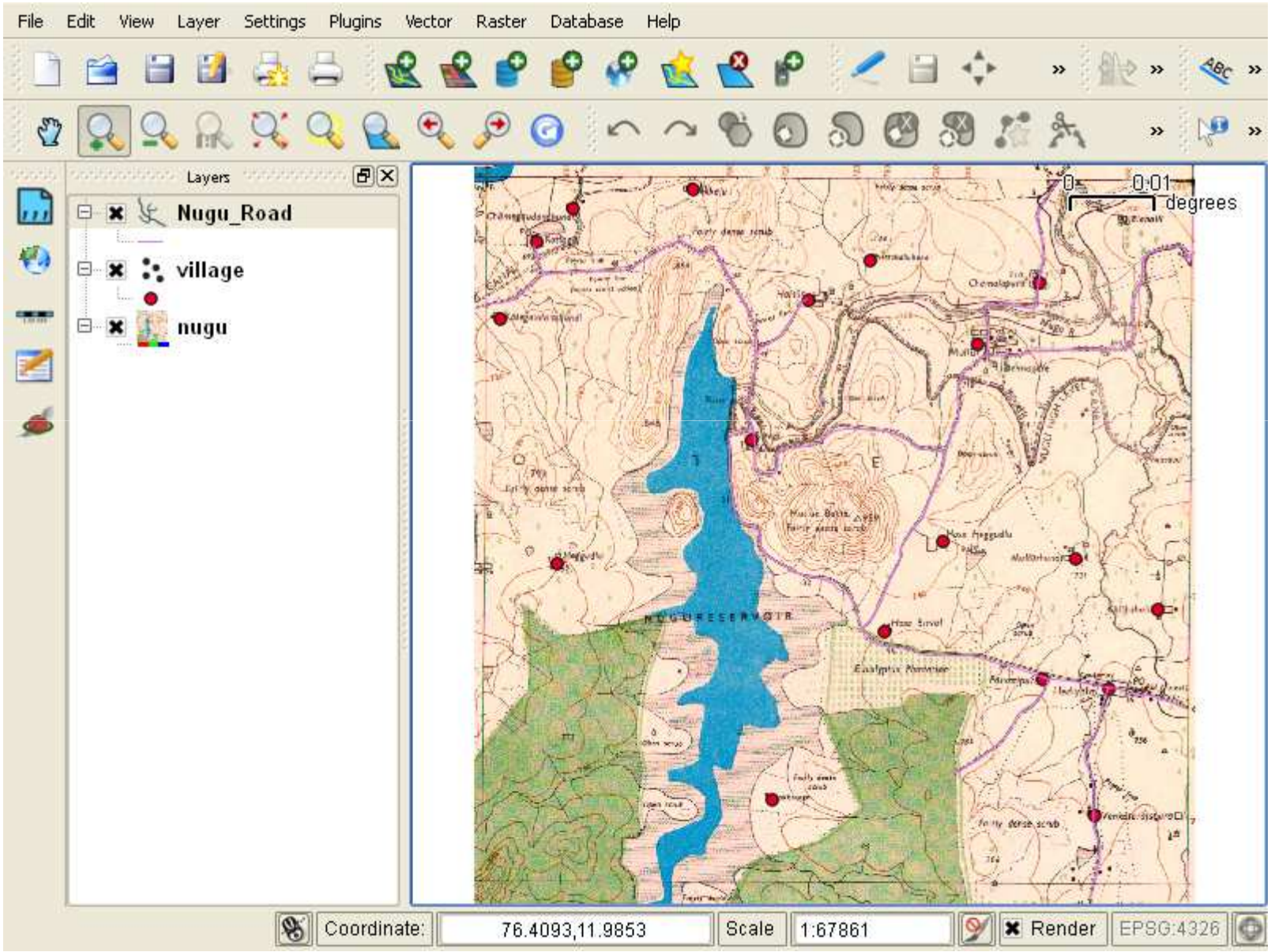
Creation of vector line data

- Finally we need to disable snapping option
  - Select ⇒ **Setting** ⇒ **Snapping options** ⇒ unselect road layer (See Figure 1. 37)

Figure 1.37


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
Snapping options
Layer
Mode
Tolerance
Units
Avoid Int.
road
to vertex
0.0005
village
to vertex
0.000000
Enable topological editing
OK
Cancel
Apply
Coordinate:
76.4291,12.0014
Scale
1:67861
Render
EPSG:4326

Creation of vector line data

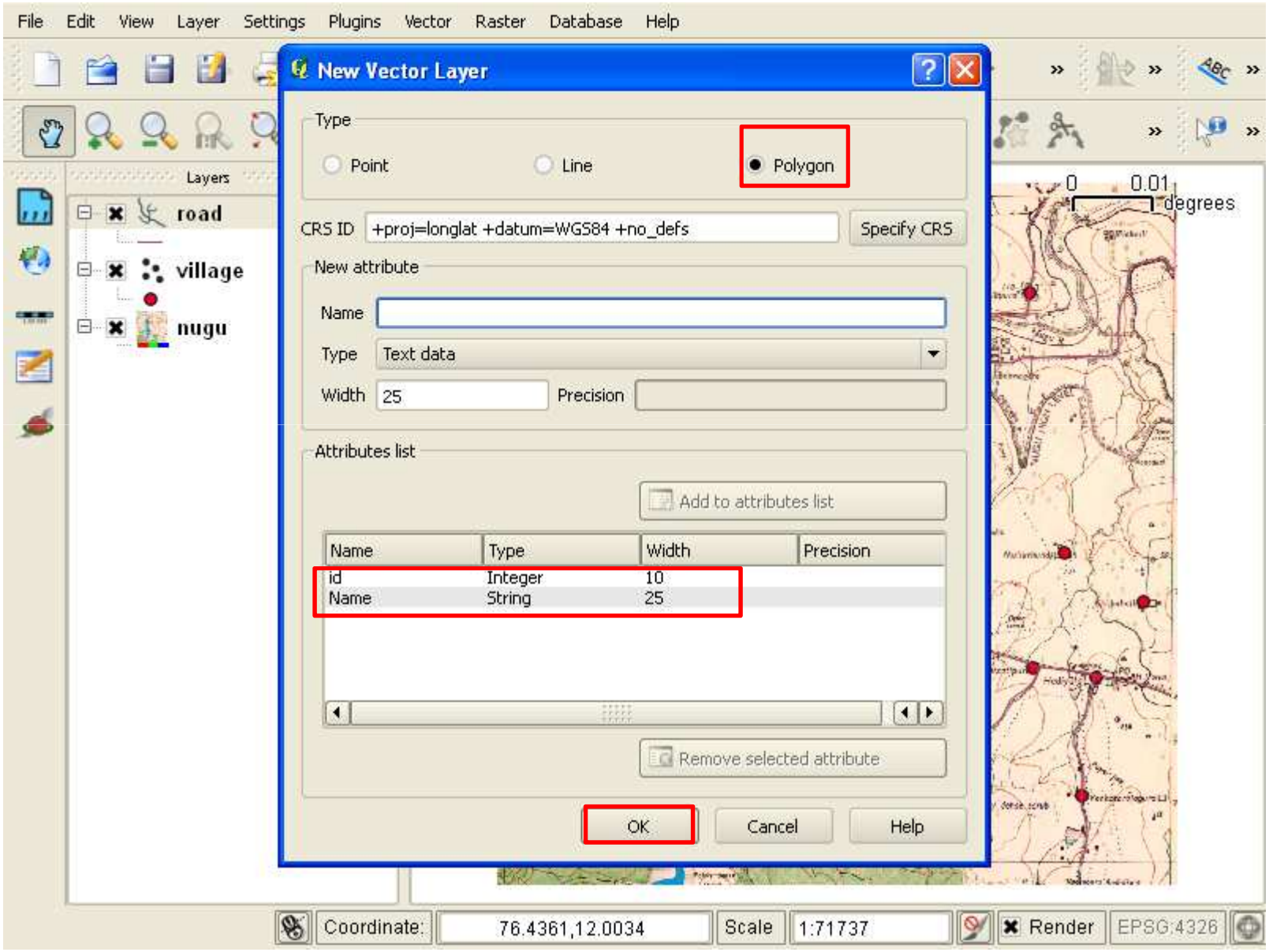


Creation of vector polygon data

Creation of vector polygon data - Waterbody

- To create new polygon layer select the icon **New shape layer** (Figure 1.6, page 11) and complete **Step 1**
- As in Figure 1.8, (page 13) and Figure 1.24 (page 39) where point and line was selected respectively, select **Type** as 'Polygon' (Figure 1.38)
- Next we need to add attributes (see Figure 1.38)
  - ✓ Name
- After this step, select **OK** (Figure 1.38)

Figure 1.38


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
road
village
nugu
New Vector Layer
Type
Point
Line
Polygon
CRS ID
+proj=longlat +datum=WGS84 +no_defs
Specify CRS
New attribute
Name
Type
Text data
Width
25
Precision
Attributes list
Add to attributes list
Name
Type
Width
Precision
id
Integer
10
Name
String
25
Remove selected attribute
OK
Cancel
Help
0
0.01
degrees
Coordinate:
76.4361,12.0034
Scale
1:71737
Render
EPSG:4326

Creation of vector polygon data

- You will be guided to **Save as** window as previously done in Figure 1.12 (page 20)
  - Select the directory in which you would like to save the data. In this example name it as waterbody (Figure 1.39)
- Select **Save** (Figure 1.39)
- On saving, layer is stored in specified folder
- This layer is automatically added to the QGIS window (Figure 1.40)

Figure 1.39

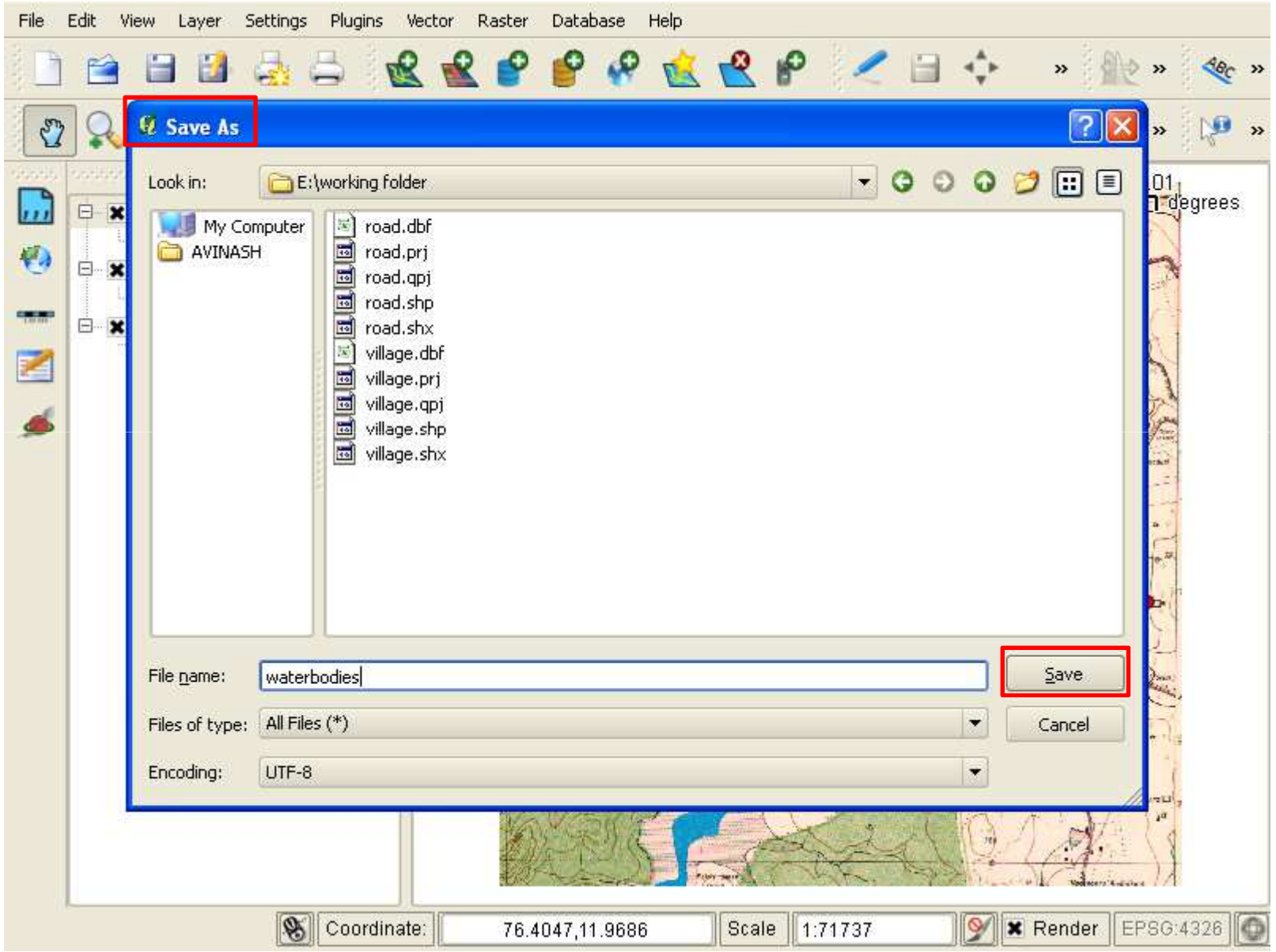
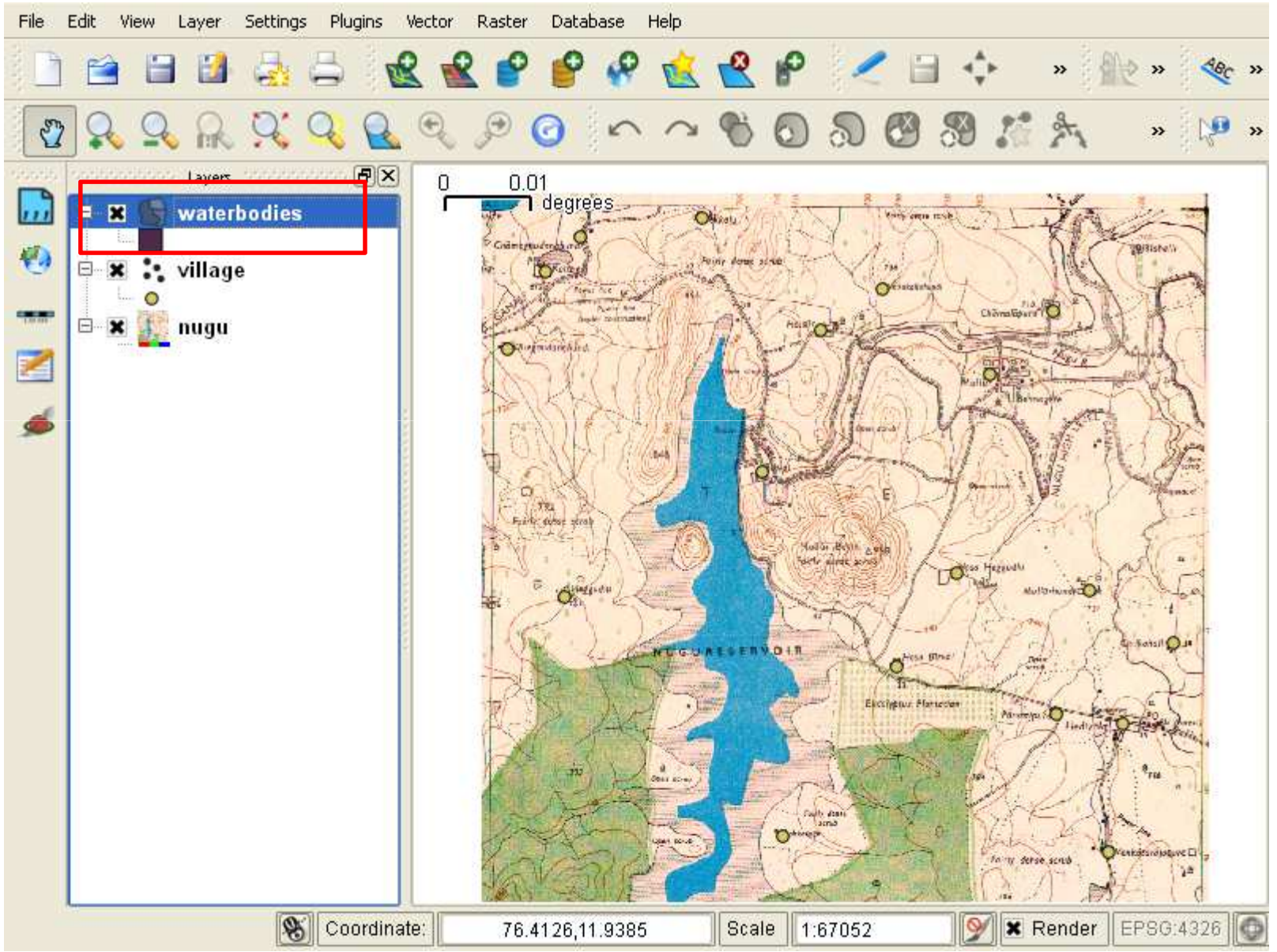

File Edit View Layer Settings Plugins Vector Raster Database Help
Save As
Look in: E:\working folder
My Computer
AVINASH
road.dbf
road.prj
road.qpj
road.shp
road.shx
village.dbf
village.prj
village.qpj
village.shp
village.shx
File name: waterbodies
Files of type: All Files (*)
Encoding: UTF-8
Save
Cancel
degrees
Coordinate: 76.4047,11.9686
Scale 1:71737
Render
EPSG:4326

Figure 1.40

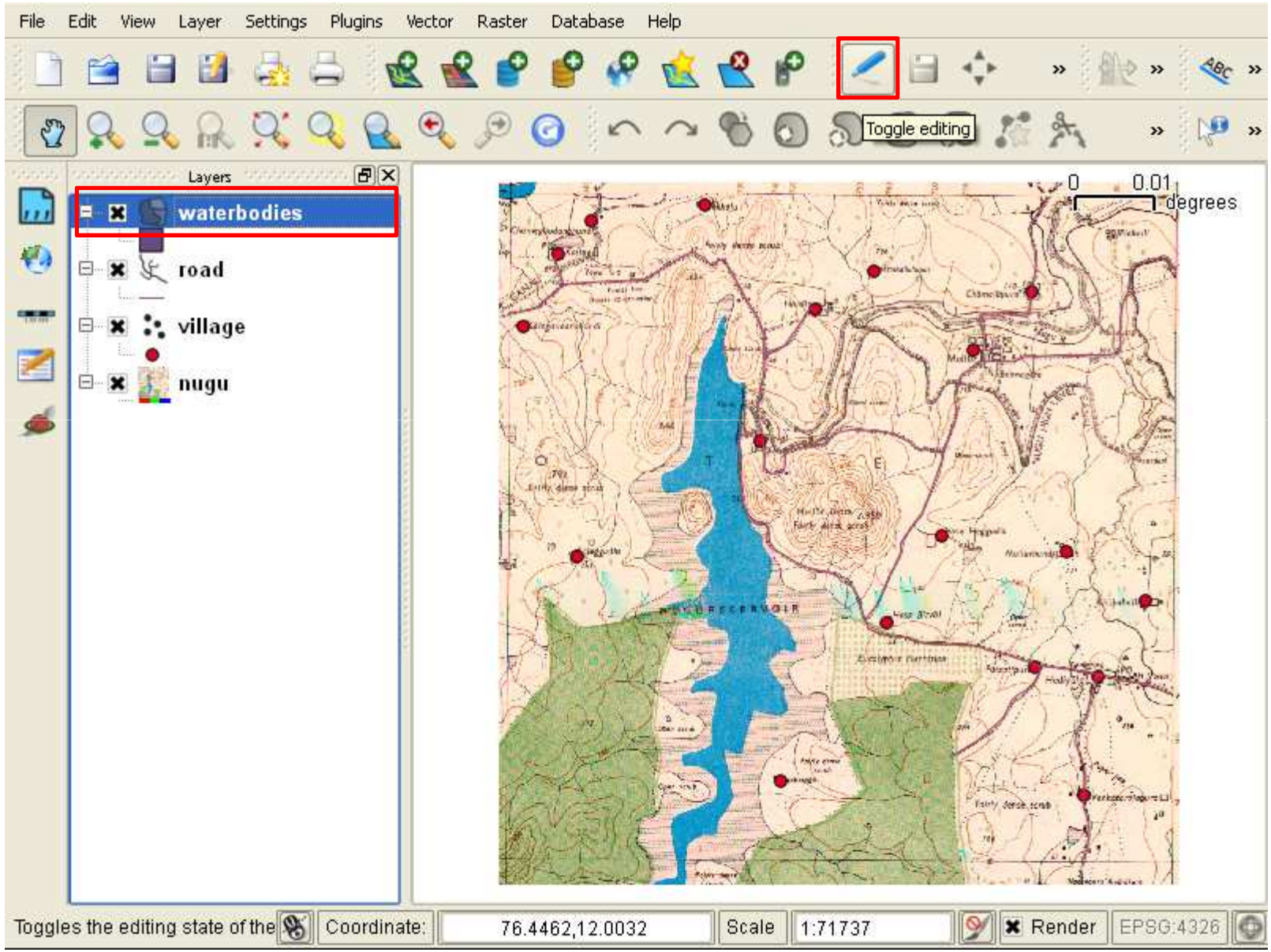

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
waterbodies
village
nugu
0
0.01
degrees
Coordinate:
76.4126,11.9385
Scale
1:67052
Render
EPSG:4326

Creation of vector polygon data

- Next we need to add water bodies (features) to the waterbodies layer.
- To do this we have to make this layer editable.

- Select the layer and then select **Toggle editing** icon (Figure 1.41)
- On enabling, in the layer window, the **Toggle active** icon is enabled

Figure 1.41


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Toggle editing
Layers
waterbodies
road
village
nugu
0
0.01
degrees
Toggles the editing state of the
Coordinate:
76.4462,12.0032
Scale
1:71737
Render
EPSG:4326

Creation of vector polygon data

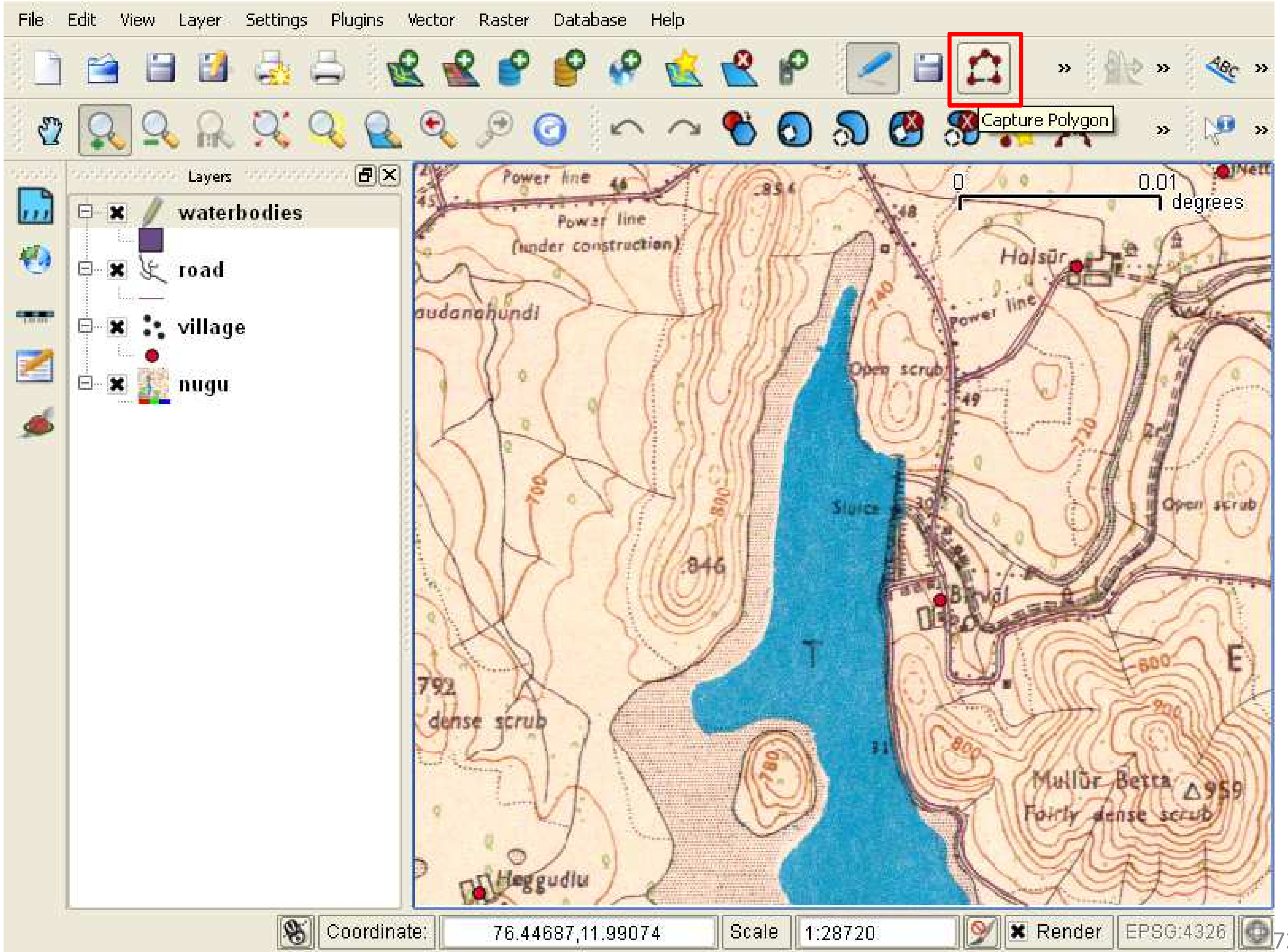
- Select the area of interest and zoom if required by selecting the icon of **Zoom In** (as in Figure 1.16 to 1.18 pages 27 to 29)

- Then place the  on the interested area and **left click** (as in Figure 1.17 page 28)

Step 6

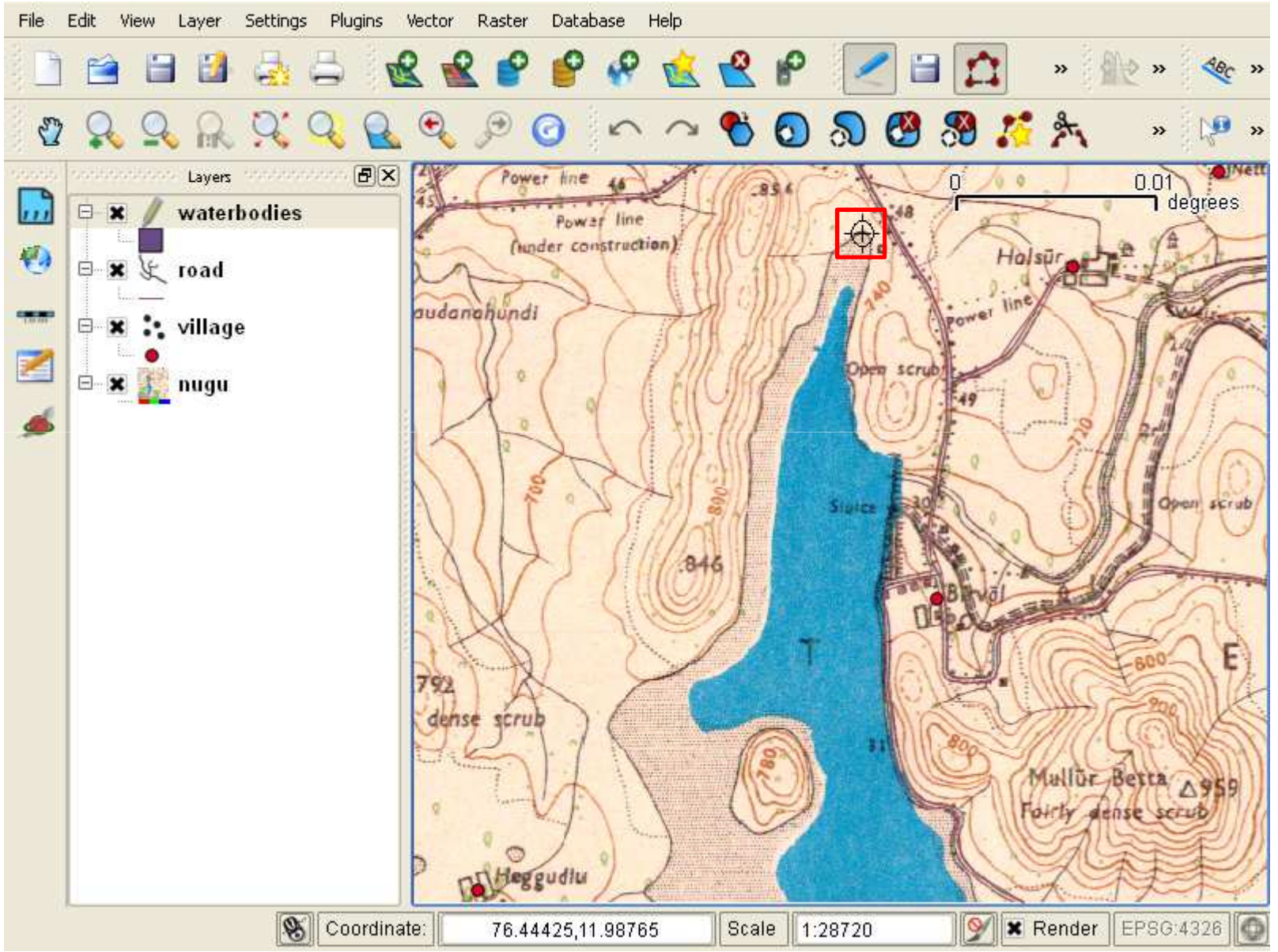
- We have zoomed to the area (Figure 1.42)
- Select the icon **Capture Polygon** (Figure 1.42)
- Place  marker on boundary of water body that we have to digitize and **left click** (Figure 1.43)

Figure 1.42



File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Capture Polygon
Layers
waterbodies
road
village
nugu
Coordinate:
76.44687,11.99074
Scale
1:28720
Render
EPSG:4326

Figure 1.43

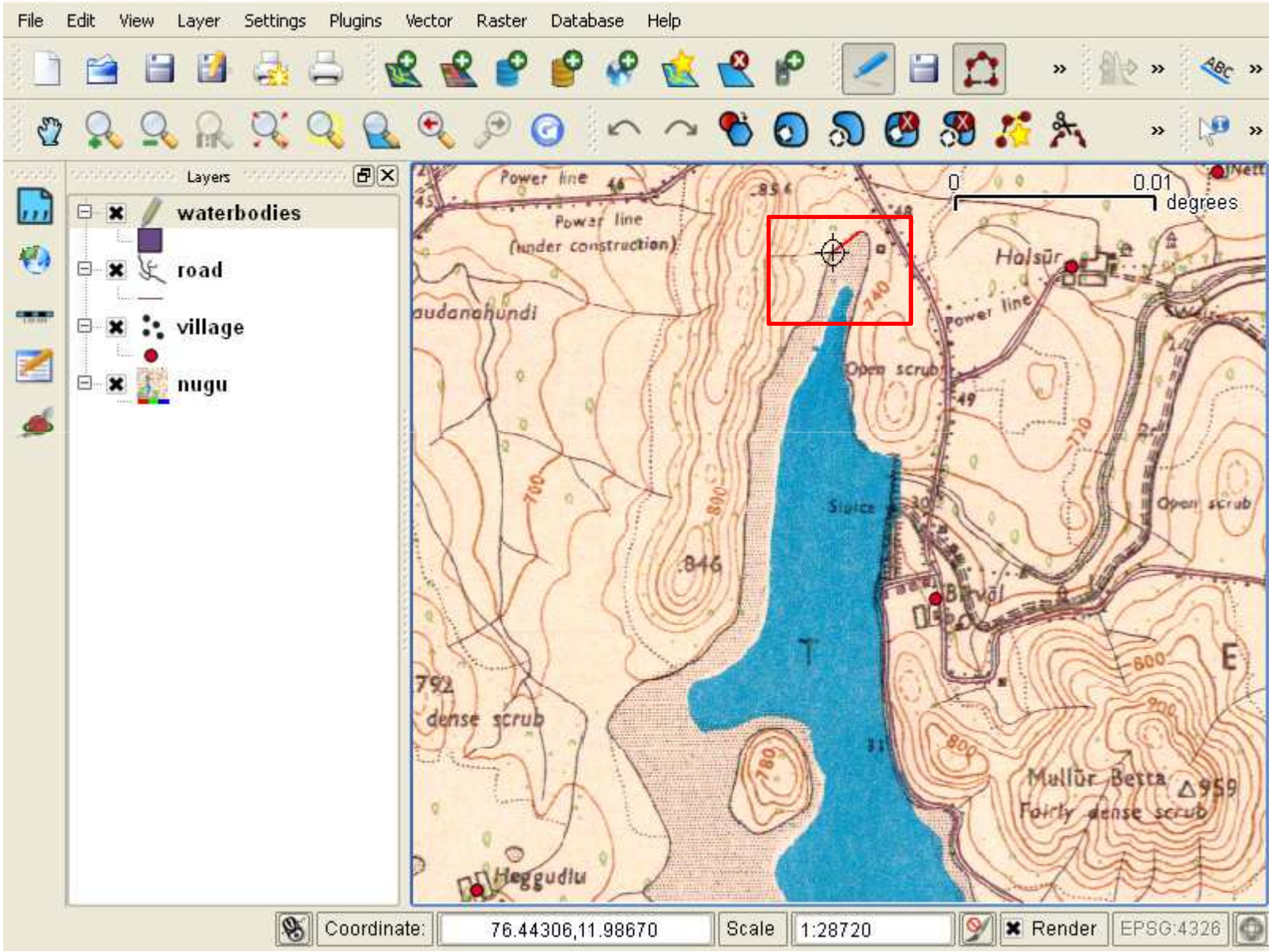

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
waterbodies
road
village
nugu
Power line
(under construction)
Halsūr
Open scrub
Sluice
Mullūr Betta
Fairly dense scrub
dense scrub
Heggudlu
0
0.01
degrees
Coordinate:
76.44425,11.98765
Scale
1:28720
Render
EPSG:4326

Creation of vector polygon data

- Place the ⊕ marker to next position and **left click** (Figure 1.44)
- Repeat the same process till we complete the polygon and **right click**

Note: if the viewing window covers only some portion of the area, then use up arrow key ⇧ for scrolling up or down-arrow key ⇩ or side way arrow keys (⇦ / ⇨) for required scrolling

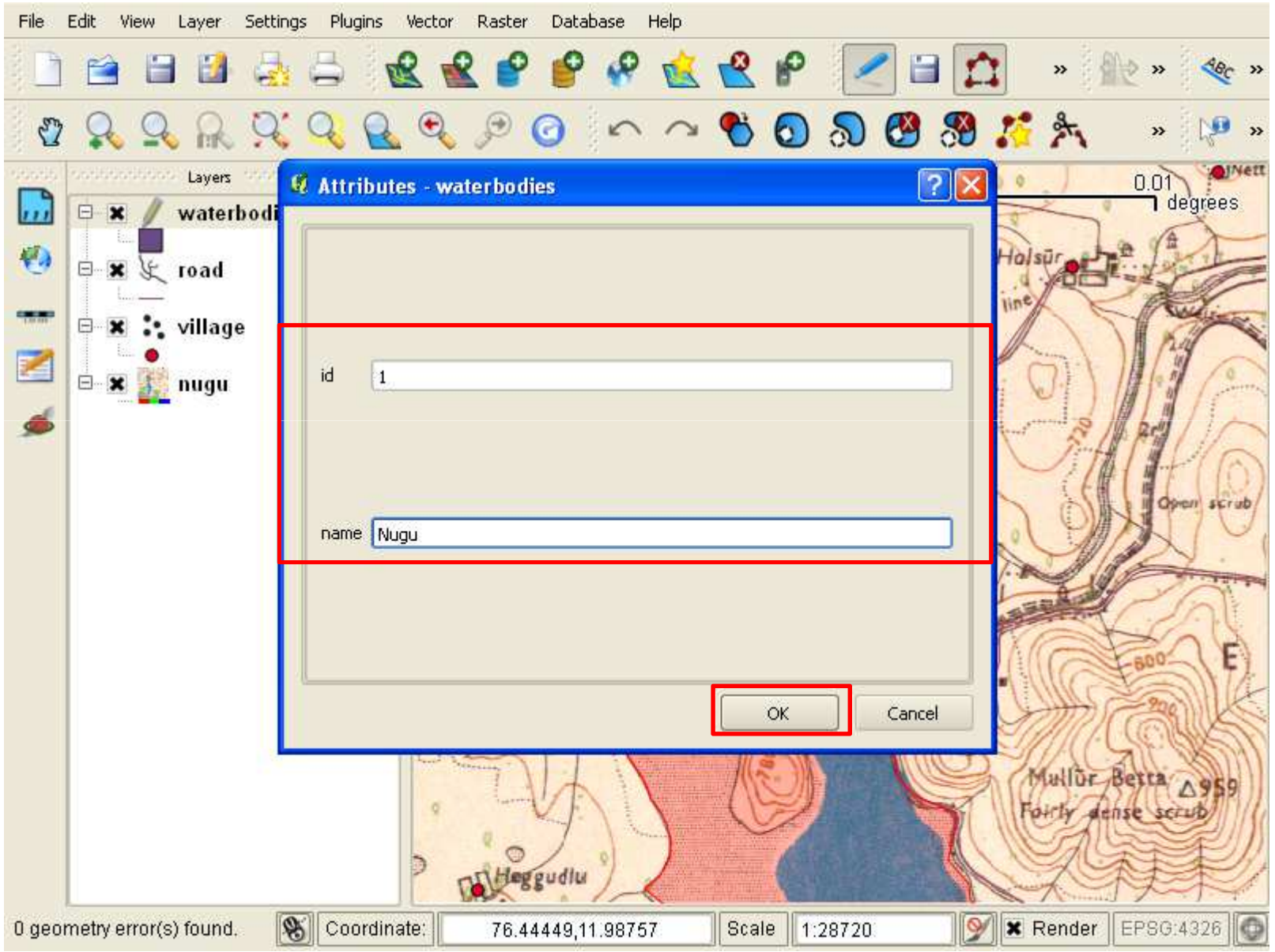
Figure 1.44


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
waterbodies
road
village
nugu
Power line
Power line
(under construction)
Halsūr
Open scrub
Sluice
Open scrub
Mullūr Betta △959
Fairly dense scrub
792
dense scrub
Heggudlu
0
0.01
degrees
Coordinate:
76.44306,11.98670
Scale
1:28720
Render
EPSG:4326

Creation of vector polygon data

- A window with title **Attributes** is opened (Figure 1.45)
- Enter the values for different attributes (Figure 1.45)
  - ✓**Id (default)**: 1
  - ✓**name**: Nugu
- Select **OK** (Figure 1.45)

Figure 1.45

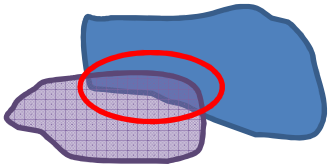

File Edit View Layer Settings Plugins Vector Raster Database Help
Layers
waterbodi
road
village
nugu
Attributes - waterbodies
id
1
name
Nugu
OK
Cancel
0.01
degrees
Halsūr
Open scrub
Mullūr Betta
Fairly dense scrub
Heggudlu
0 geometry error(s) found.
Coordinate:
76.44449,11.98757
Scale
1:28720
Render
EPSG:4326

Creation of vector polygon data

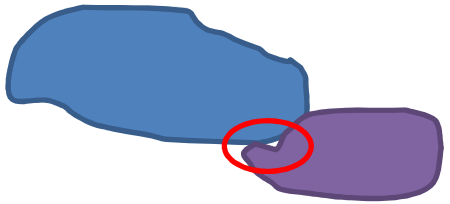
- We can see digitized waterbody on the map (Figure 1.46) (end of **Step 6**)

Note: If another polygon is adjacent to the digitized polygon, we need to enable snapping option to avoid the problems of a) overlapping area and b) slivers

- To enable snapping: ⇒ **Setting** ⇒ **Snapping option** (as in Figure 1.33, page 53)

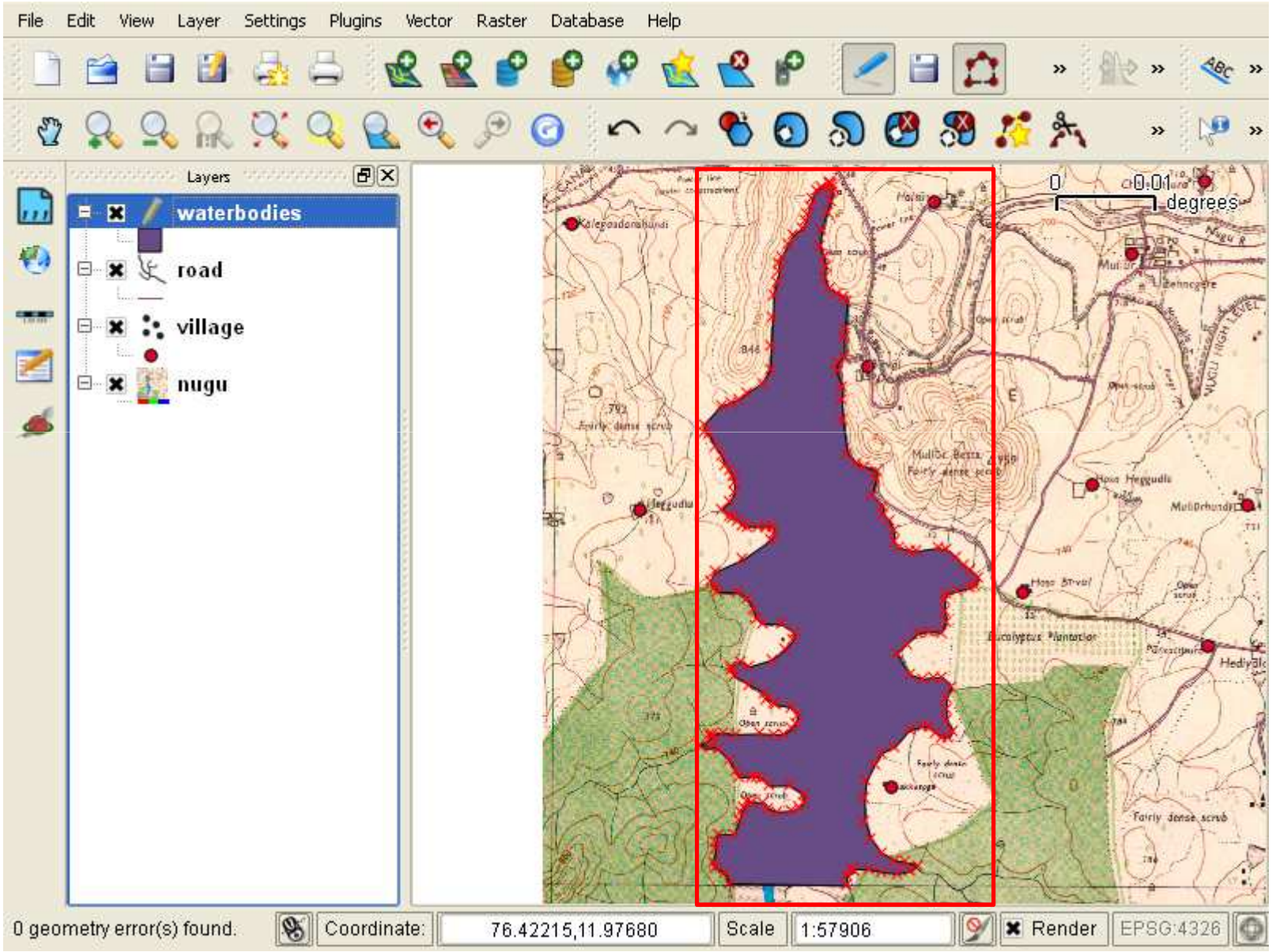


a) overlapping



b) slivers

Figure 1.46


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
waterbodies
road
village
nugu
0
0.01
degrees
0 geometry error(s) found.
Coordinate:
76.42215,11.97680
Scale
1:57906
Render
EPSG:4326

Creation of vector polygon data

- A window of **Snapping options** appears (Figure 1.47)
- Select the layer waterbodies, (Figure 1.47)
  - Mode ⇒ to vertex and segment
  - Tolerance ⇒ 0.0005 (this is a subjective decision)
  - Units ⇒ map units
- Select **OK** (Figure 1.47)
- Repeat **Step 6** till all water bodies are digitized (Figure 1.48)
- Remove the **Toggle editing** and **Save** the layer (Figure 1.49)

Figure 1.47

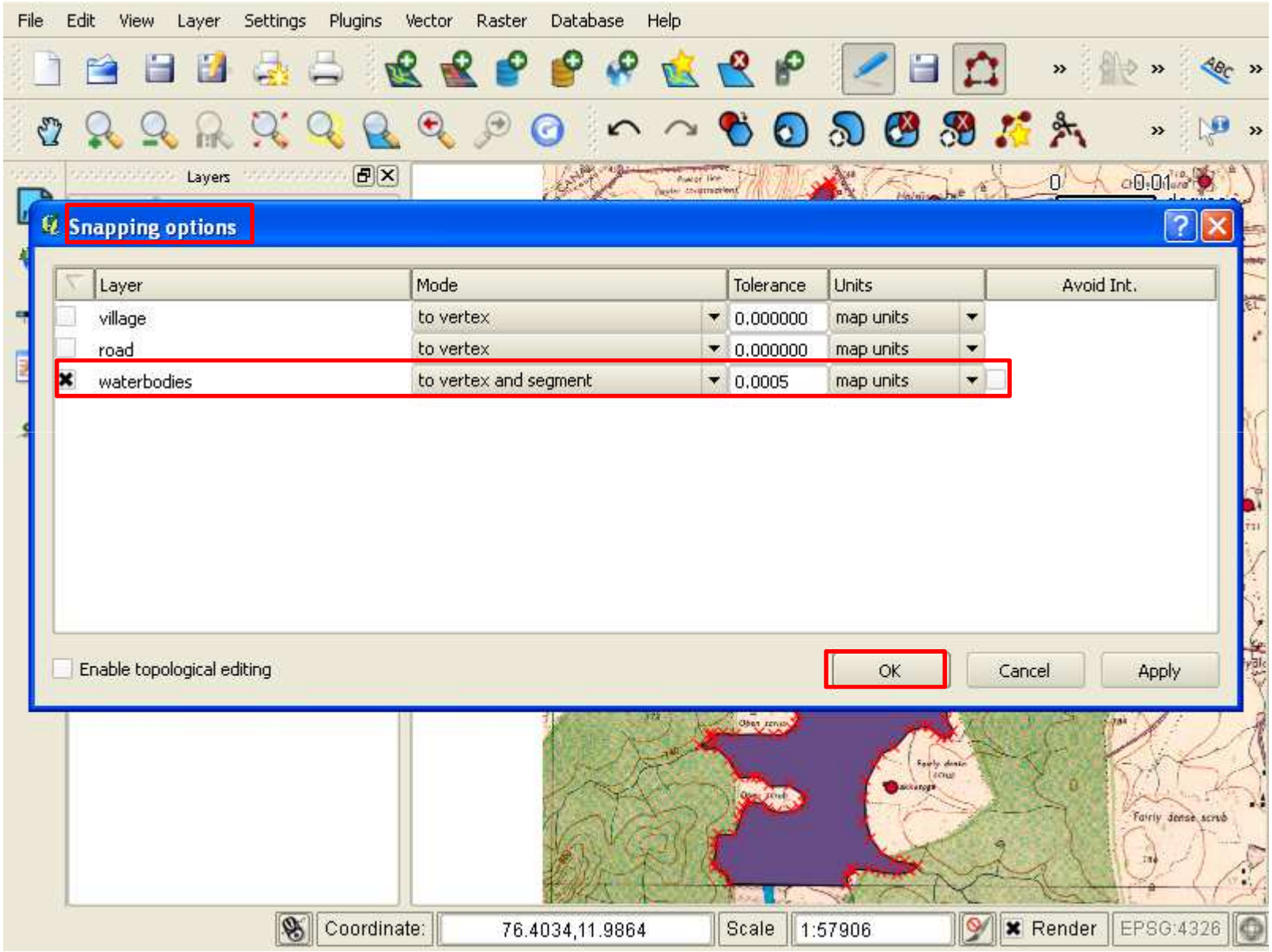

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
Snapping options
Layer
Mode
Tolerance
Units
Avoid Int.
village
to vertex
0.000000
map units
road
to vertex
0.000000
map units
waterbodies
to vertex and segment
0.0005
map units
Enable topological editing
OK
Cancel
Apply
Coordinate:
76.4034,11.9864
Scale
1:57906
Render
EPSG:4326

Figure 1.48

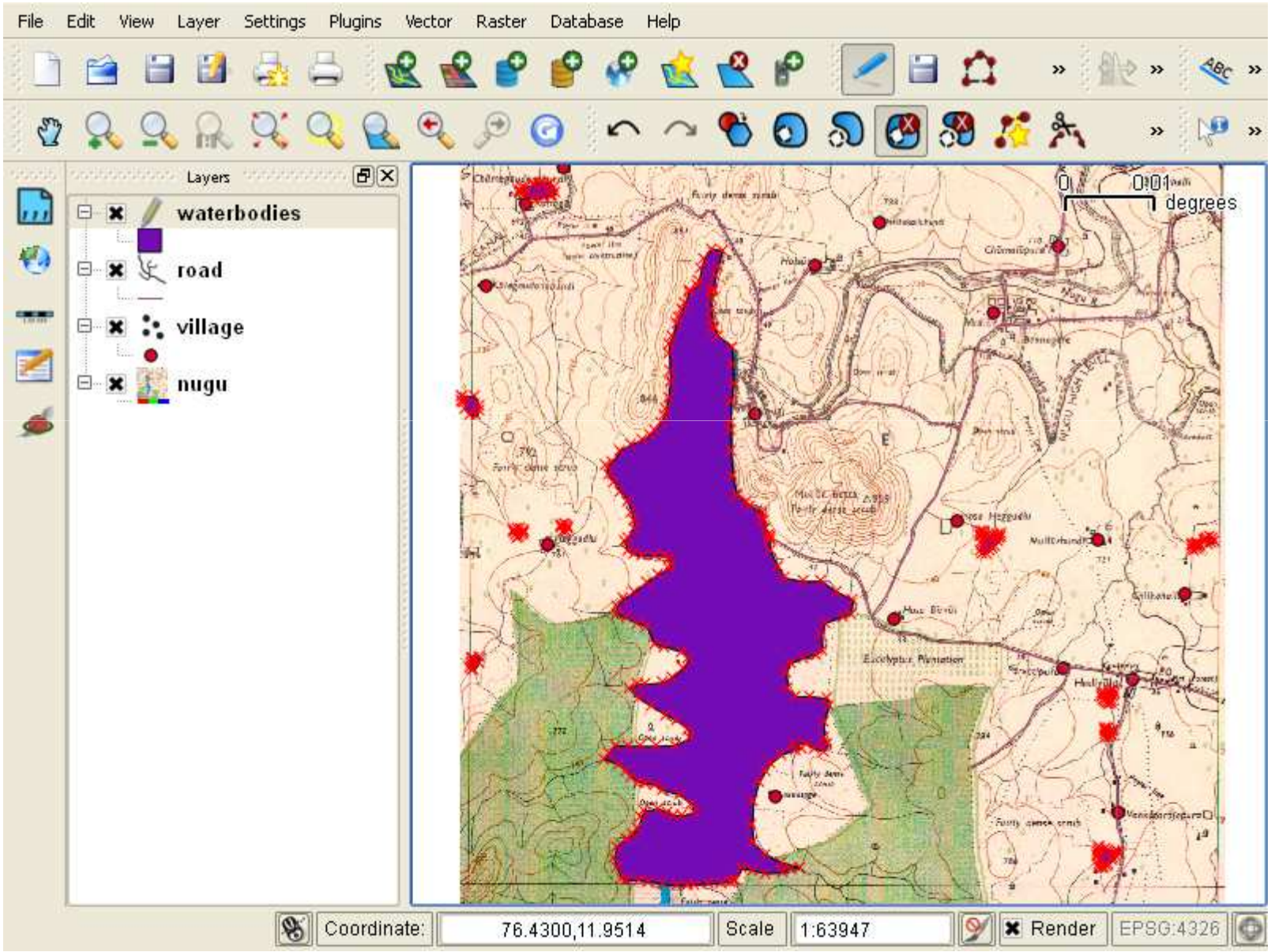
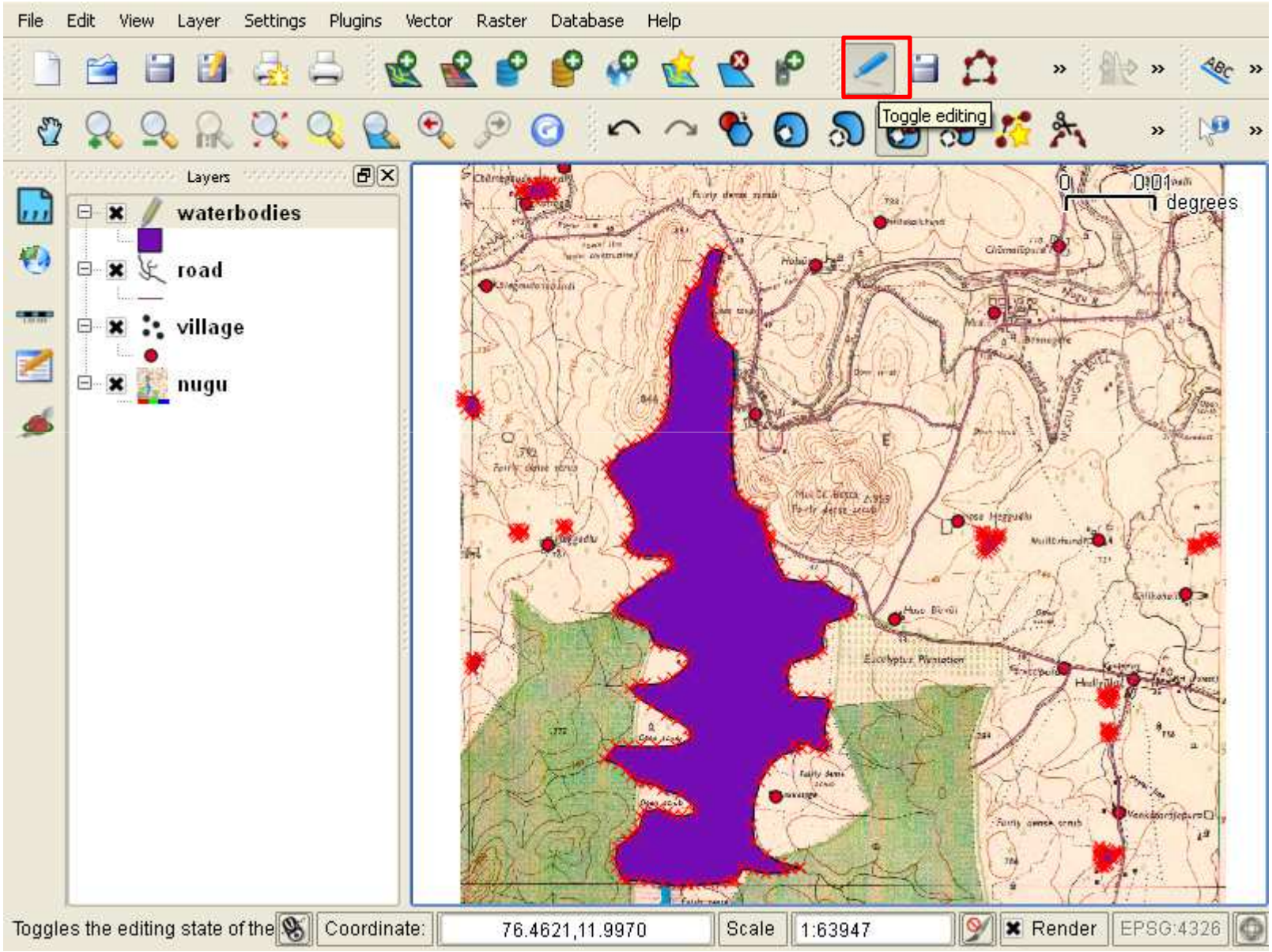

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
waterbodies
road
village
nugu
0
0.01
degrees
Coordinate:
76.4300,11.9514
Scale
1:63947
Render
EPSG:4326

Figure 1.49


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Toggle editing
Layers
waterbodies
road
village
nugu
0
0.01
degrees
Toggles the editing state of the
Coordinate:
76.4621,11.9970
Scale
1:63947
Render
EPSG:4326

Creation of vector polygon data

- Finally we need to disable snapping option
  - Select: ⇒ **Setting** ⇒ **Snapping options** ⇒ unselect waterbodies (Figure 1.50)
- The final output is ready (Figure 1.51)

Figure 1.50

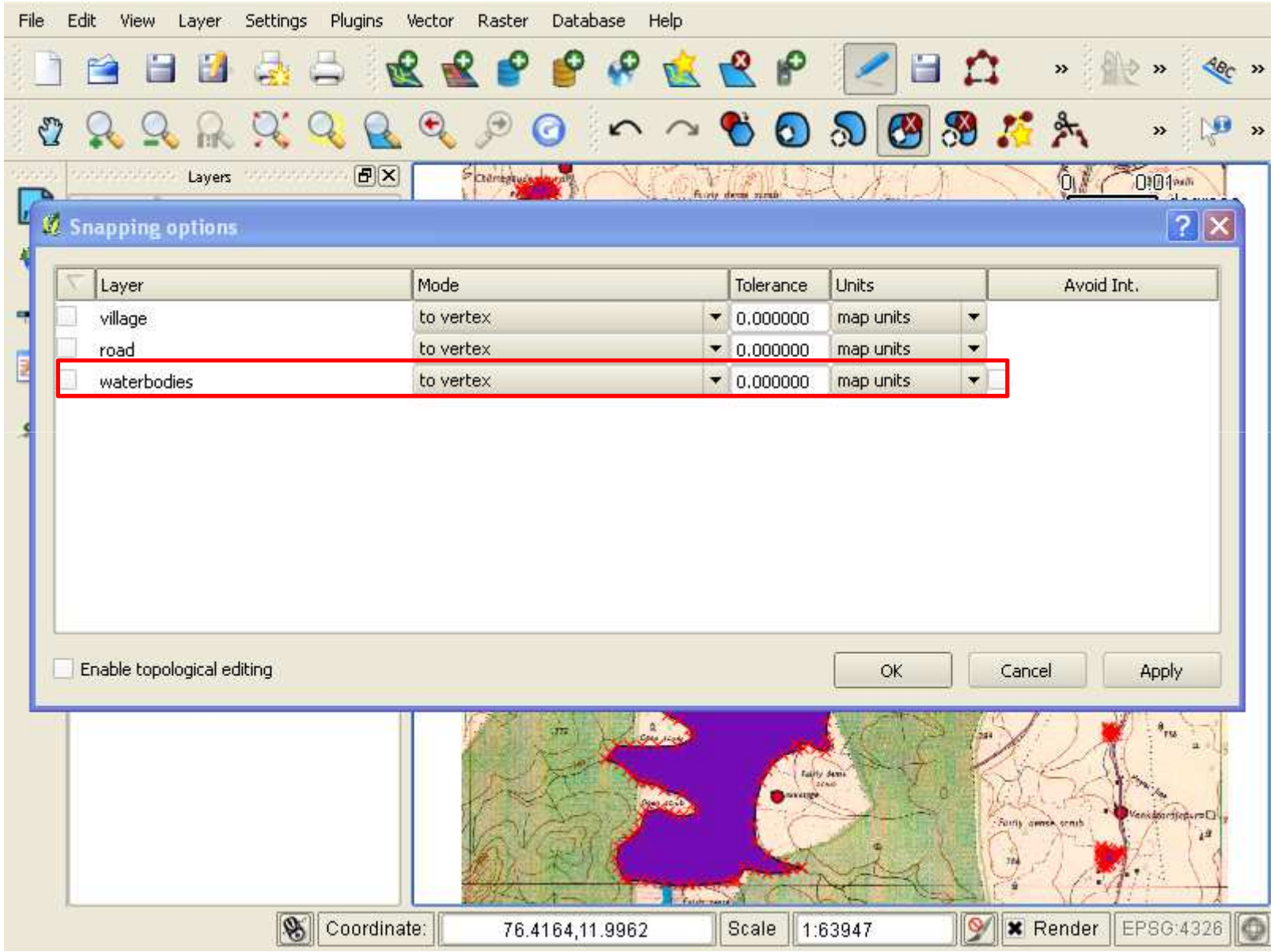
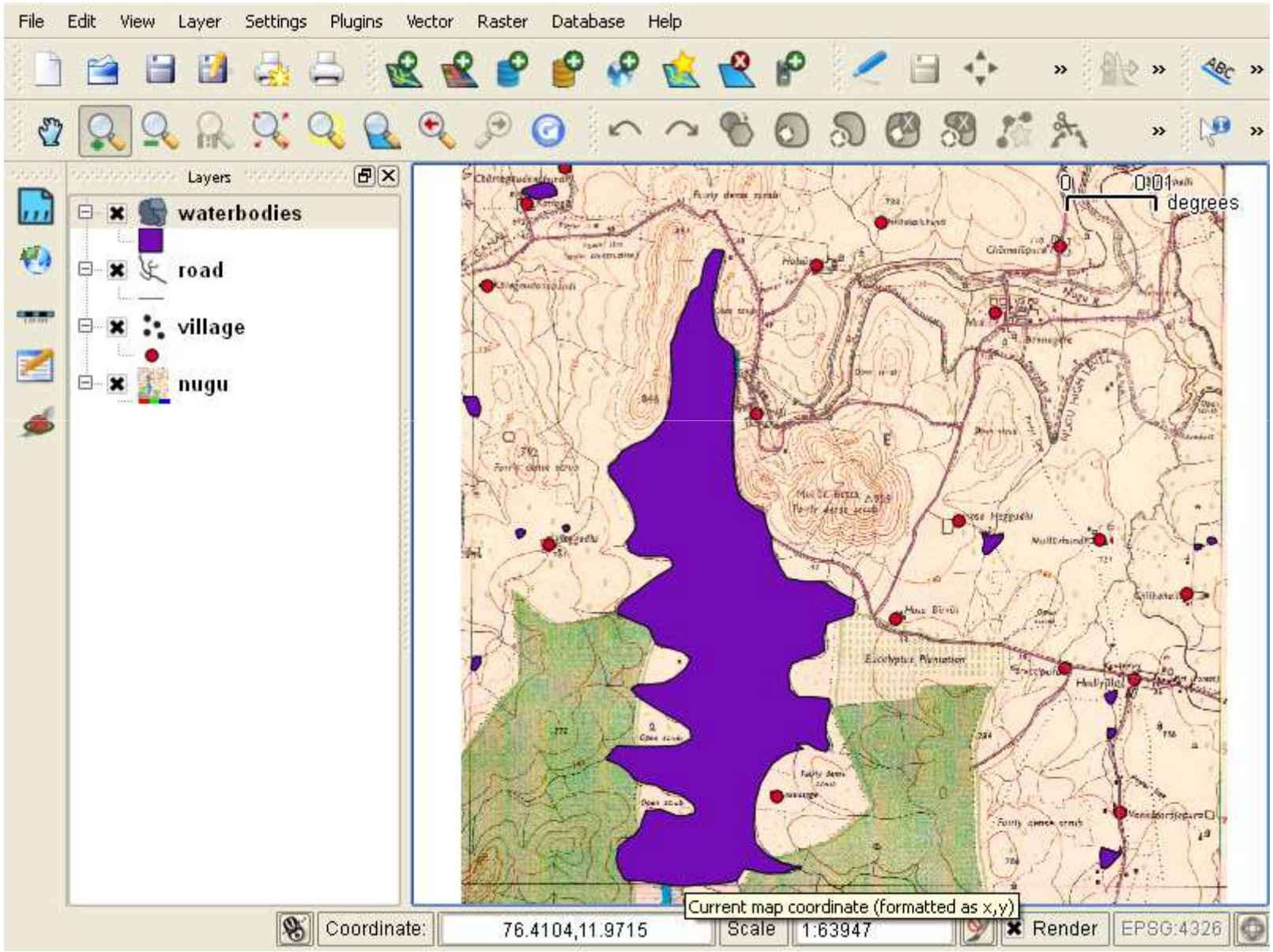

File Edit View Layer Settings Plugins Vector Raster Database Help
Layers
Snapping options
Layer
Mode
Tolerance
Units
Avoid Int.
village
to vertex
0.000000
map units
road
to vertex
0.000000
map units
waterbodies
to vertex
0.000000
map units
Enable topological editing
OK
Cancel
Apply
Coordinate:
76.4164,11.9962
Scale
1:63947
Render
EPSG:4326

Figure 1.51


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
waterbodies
road
village
nugu
0
0.01
degrees
Current map coordinate (formatted as x,y)
Coordinate:
76.4104,11.9715
Scale
1:63947
Render
EPSG:4326

Coloring themes

Coloring themes

Steps to be followed

- Appropriate Colors to depict the theme

  For example,

  Forests : Use green shades

  Roads: Use brown shades

  Waterbodies: Use blue shades

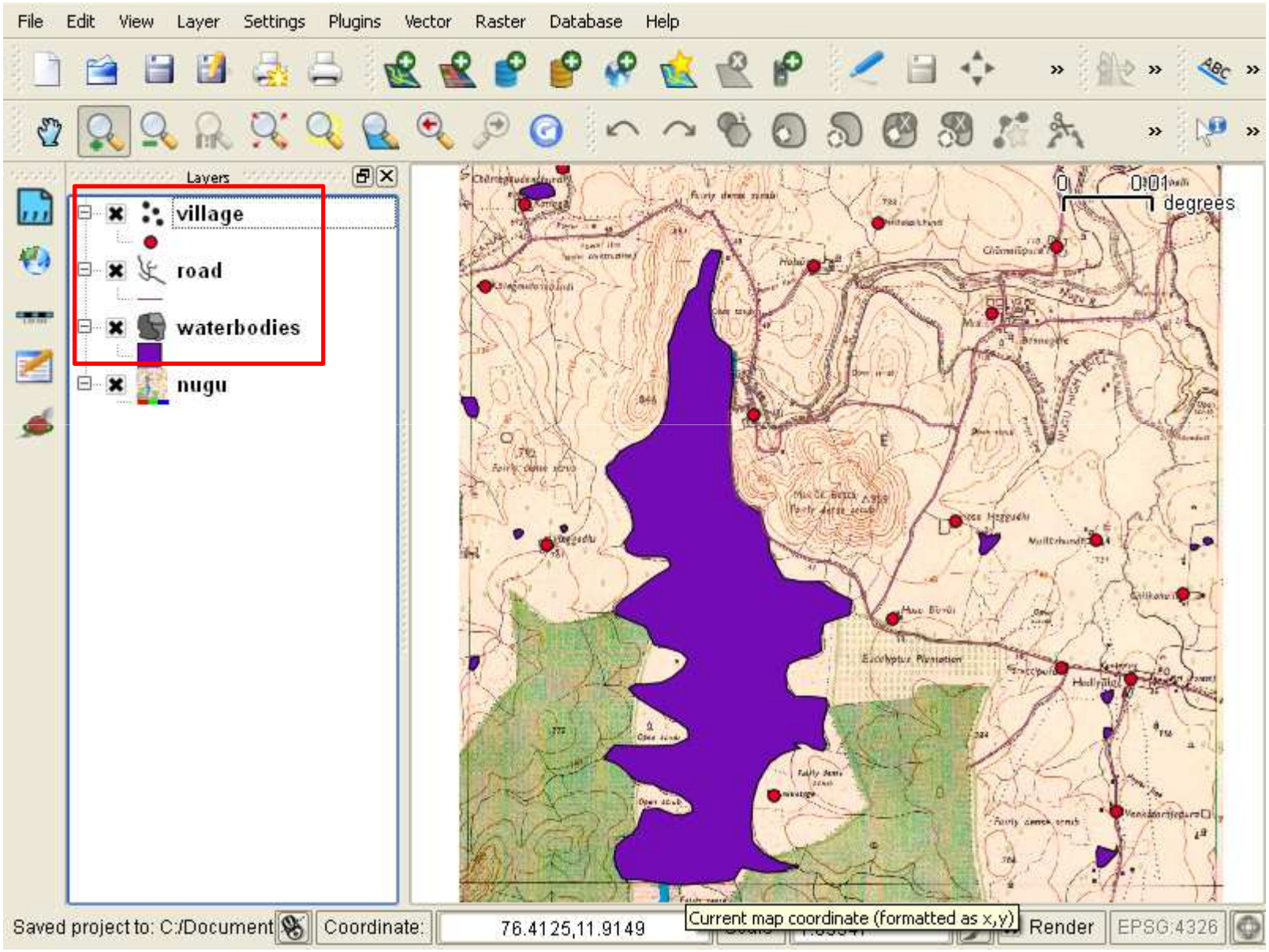
  Fence: Use black shades

Organizing layers in hierarchy

Before Coloring layers

- organize the layers in the order of point, line and polygon features (Figure 1.52)
- Select concerned layer and drag it up or down

Figure 1.52


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
road
waterbodies
nugu
0.01 degrees
Saved project to: C:/Document
Coordinate:
76.4125,11.9149
Current map coordinate (formatted as x,y)
Render
EPSG:4326

Point Style

Step 7

- To change the color of point data, **double click** on the **point data** (village layer). Layer properties window opens (Figure 1.53)

End **Step 7**

- Layer properties has various tabs: **Style, Labels, Fields, General, Metadata, Actions, Joins** and **Diagram** (Figure 1.53)

Point Style

Step 8

- Select **Style** (Figure 1.53)
- In style we can change **Color , Size, Unit**, etc.
- Let us change the color
  - Select ⇒ **Change** (Figure 1.54)
  - **Select Color** window opens (Figure 1.55)
  - Select Color by placing + on the selected Color, the select **OK** (Figure 1.56)

End **Step 8**

Figure 1.53

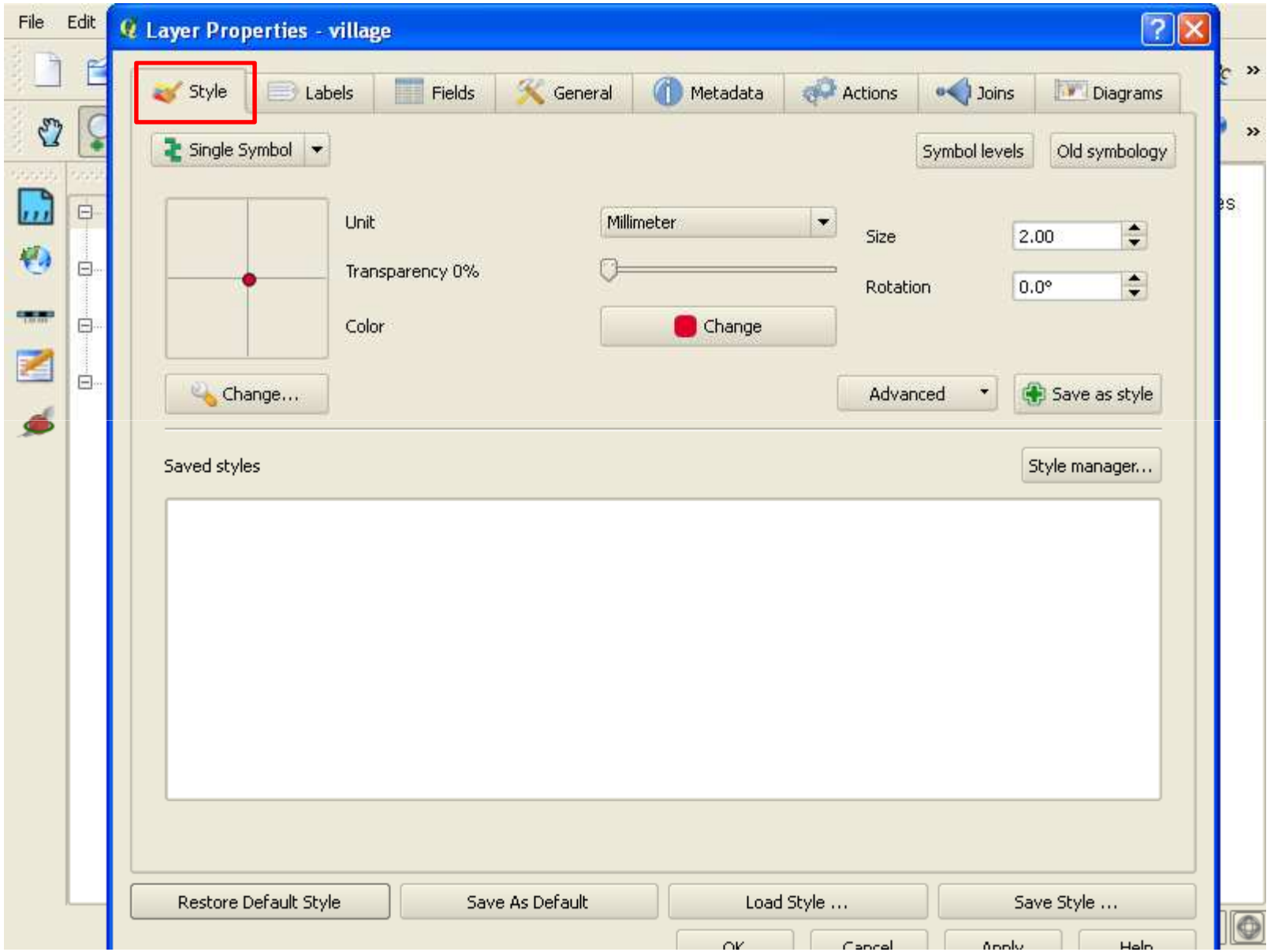

File
Edit
Layer Properties - village
Style
Labels
Fields
General
Metadata
Actions
Joins
Diagrams
Single Symbol
Symbol levels
Old symbology
Unit
Millimeter
Size
2.00
Transparency 0%
Rotation
0.0°
Color
Change
Change...
Advanced
Save as style
Saved styles
Style manager...
Restore Default Style
Save As Default
Load Style ...
Save Style ...
OK
Cancel
Apply
Help

Figure 1.54

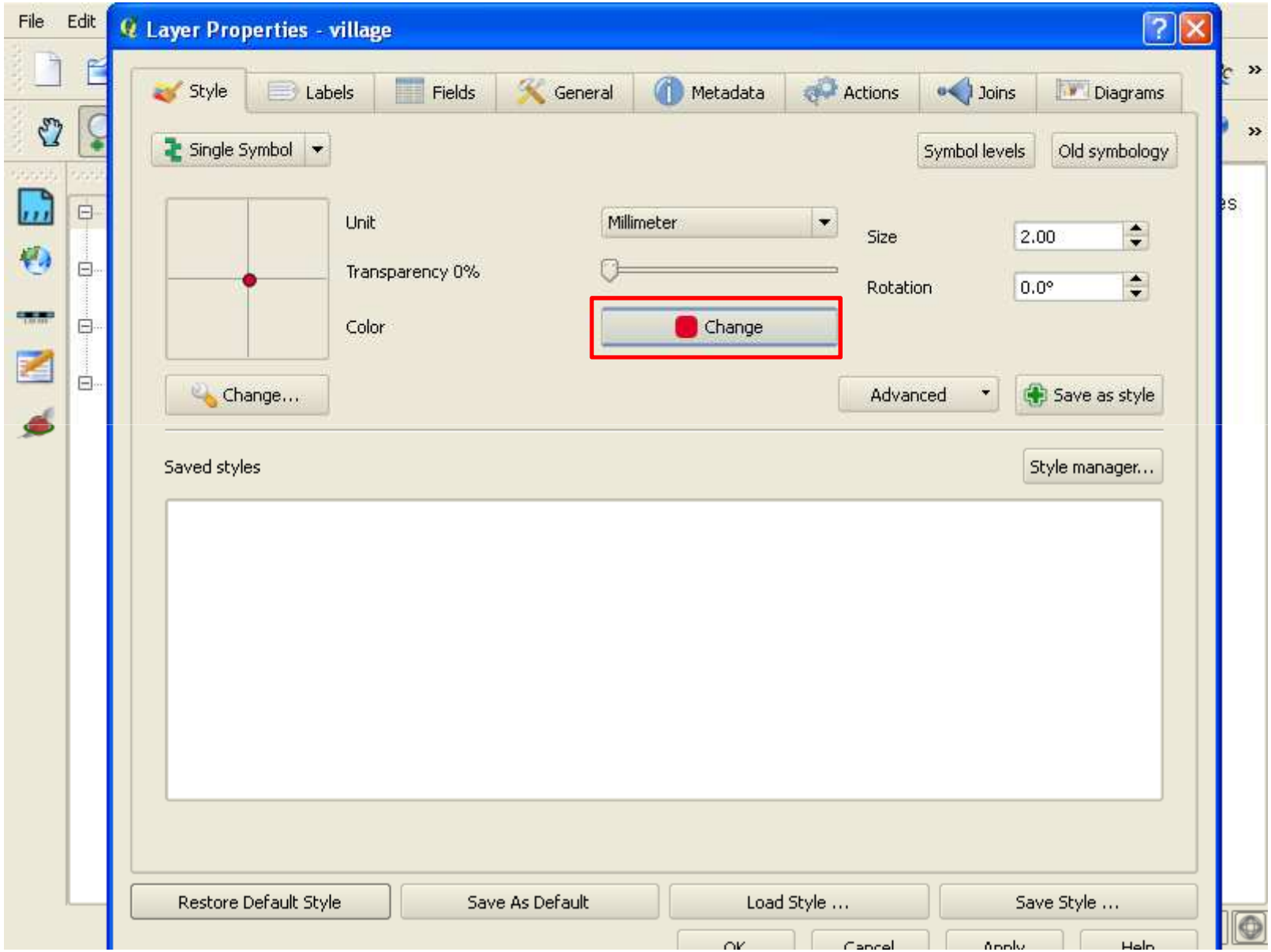

File
Edit
Layer Properties - village
Style
Labels
Fields
General
Metadata
Actions
Joins
Diagrams
Single Symbol
Symbol levels
Old symbology
Unit
Millimeter
Size
2.00
Transparency 0%
Rotation
0.0°
Color
Change
Change...
Advanced
Save as style
Saved styles
Style manager...
Restore Default Style
Save As Default
Load Style ...
Save Style ...
OK
Cancel
Apply
Help

Figure 1.55

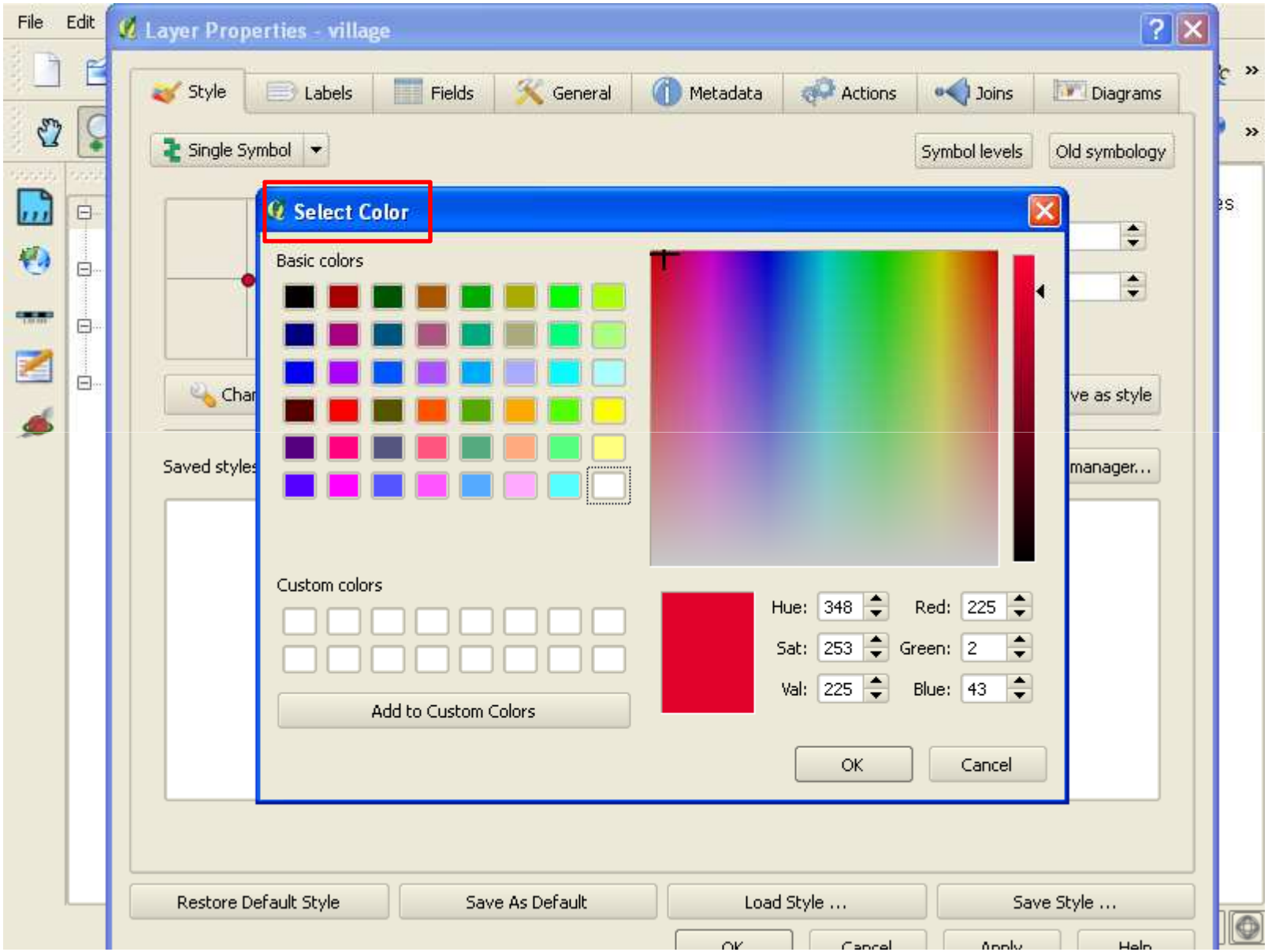
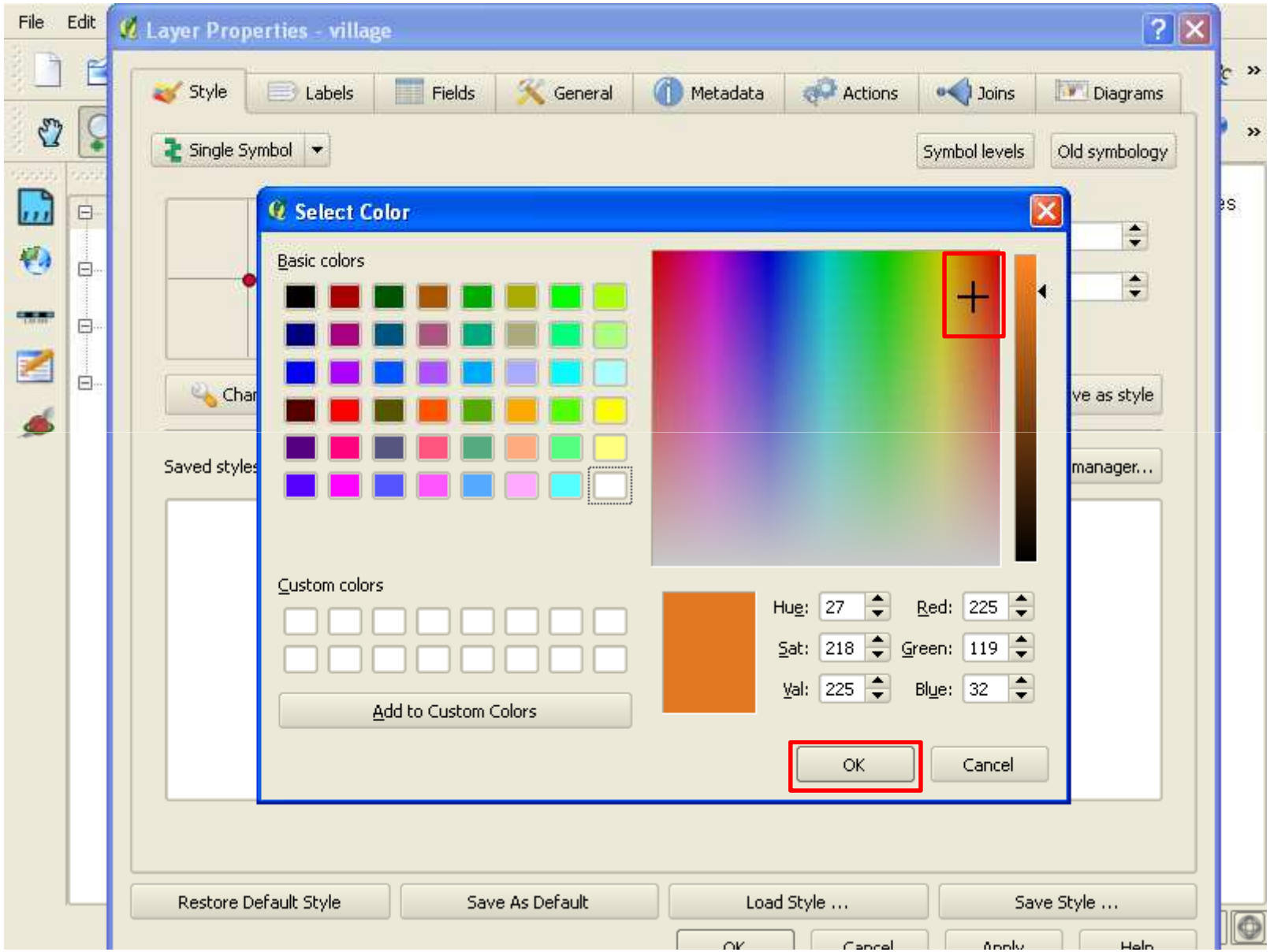

File
Edit
Layer Properties - village
Style
Labels
Fields
General
Metadata
Actions
Joins
Diagrams
Single Symbol
Symbol levels
Old symbology
Select Color
Basic colors
Custom colors
Add to Custom Colors
Hue: 348
Sat: 253
Val: 225
Red: 225
Green: 2
Blue: 43
OK
Cancel
Saved styles
manager...
Restore Default Style
Save As Default
Load Style ...
Save Style ...
OK
Cancel
Apply
Help

Figure 1.56


File
Edit
Layer Properties - village
Style
Labels
Fields
General
Metadata
Actions
Joins
Diagrams
Single Symbol
Symbol levels
Old symbology
Select Color
Basic colors
Custom colors
Add to Custom Colors
Hue: 27
Sat: 218
Val: 225
Red: 225
Green: 119
Blue: 32
OK
Cancel
Saved styles
manager...
Restore Default Style
Save As Default
Load Style ...
Save Style ...

Point Style

- In the layer properties we can notice color has changed (Figure 1.57)
- Select **OK** (Figure 1.57)
- Color change can be noticed in the village layer (Figure 1.58)

Figure 1.57

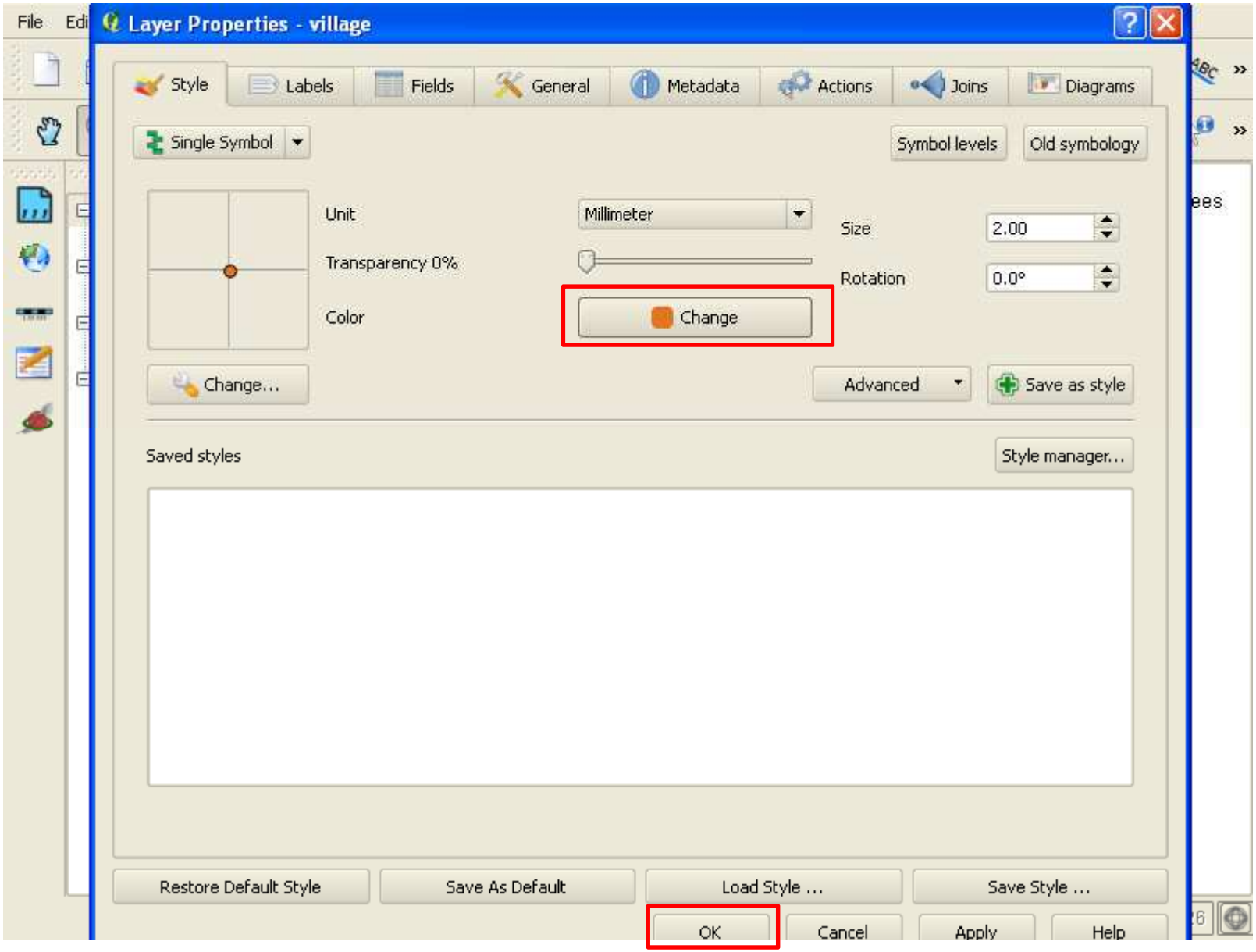
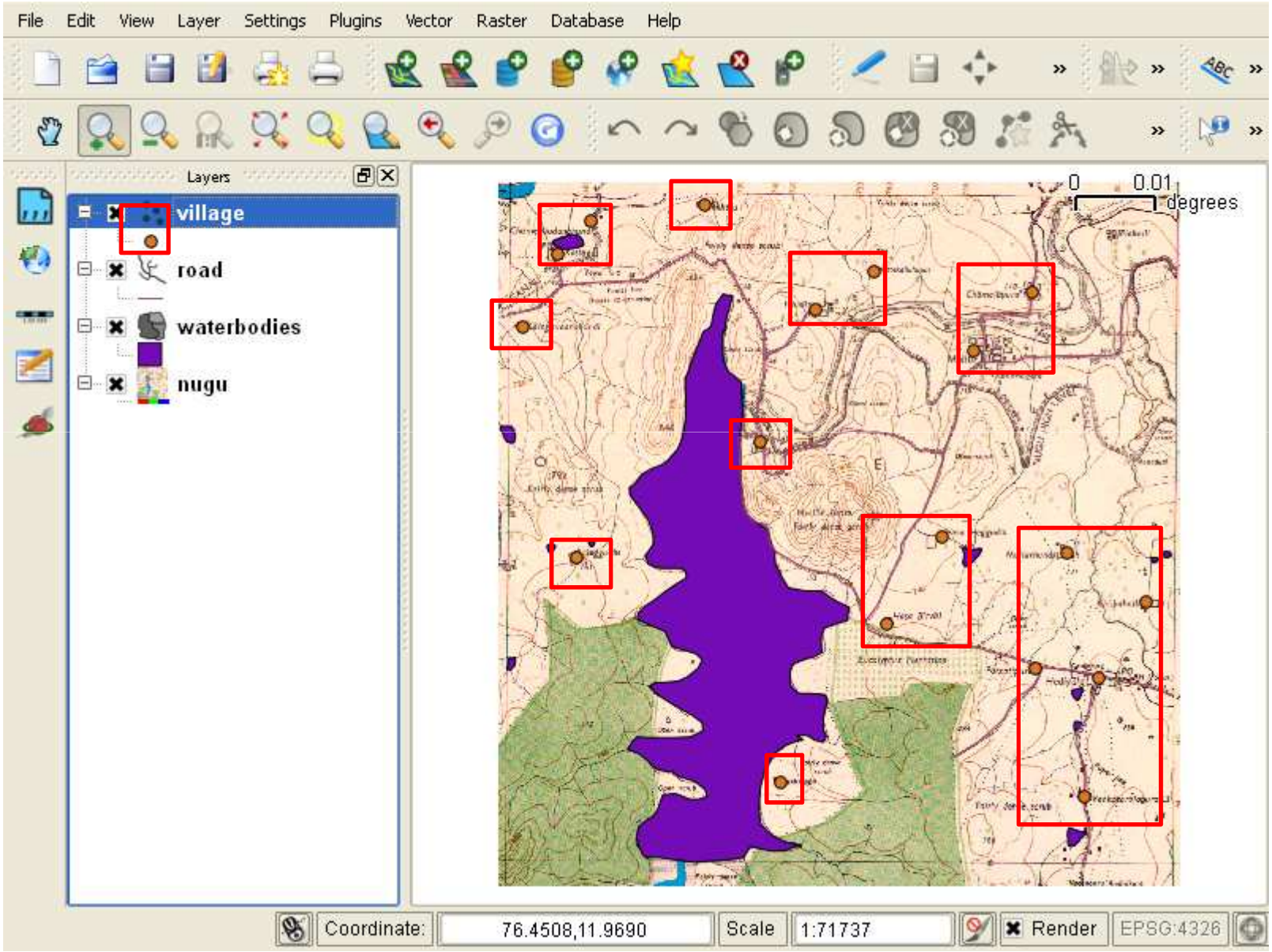

File
Layer Properties - village
Style
Labels
Fields
General
Metadata
Actions
Joins
Diagrams
Single Symbol
Symbol levels
Old symbology
Unit
Millimeter
Size
2.00
Transparency 0%
Rotation
0.0°
Color
Change
Change...
Advanced
Save as style
Saved styles
Style manager...
Restore Default Style
Save As Default
Load Style ...
Save Style ...
OK
Cancel
Apply
Help

Figure 1.58


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
road
waterbodies
nugu
0
0.01
degrees
Coordinate:
76.4508,11.9690
Scale
1:71737
Render
EPSG:4326

Line Style

- To change the color of road follow **Step 7** (page 89)
- **Layer Properties** window opens (Figure 1.59)
  - Select from saved styles an symbol appropriated for roads, and even set width appropriately (Figure 1.60)
  - Select **OK** (Figure 1.60)

Figure 1.59

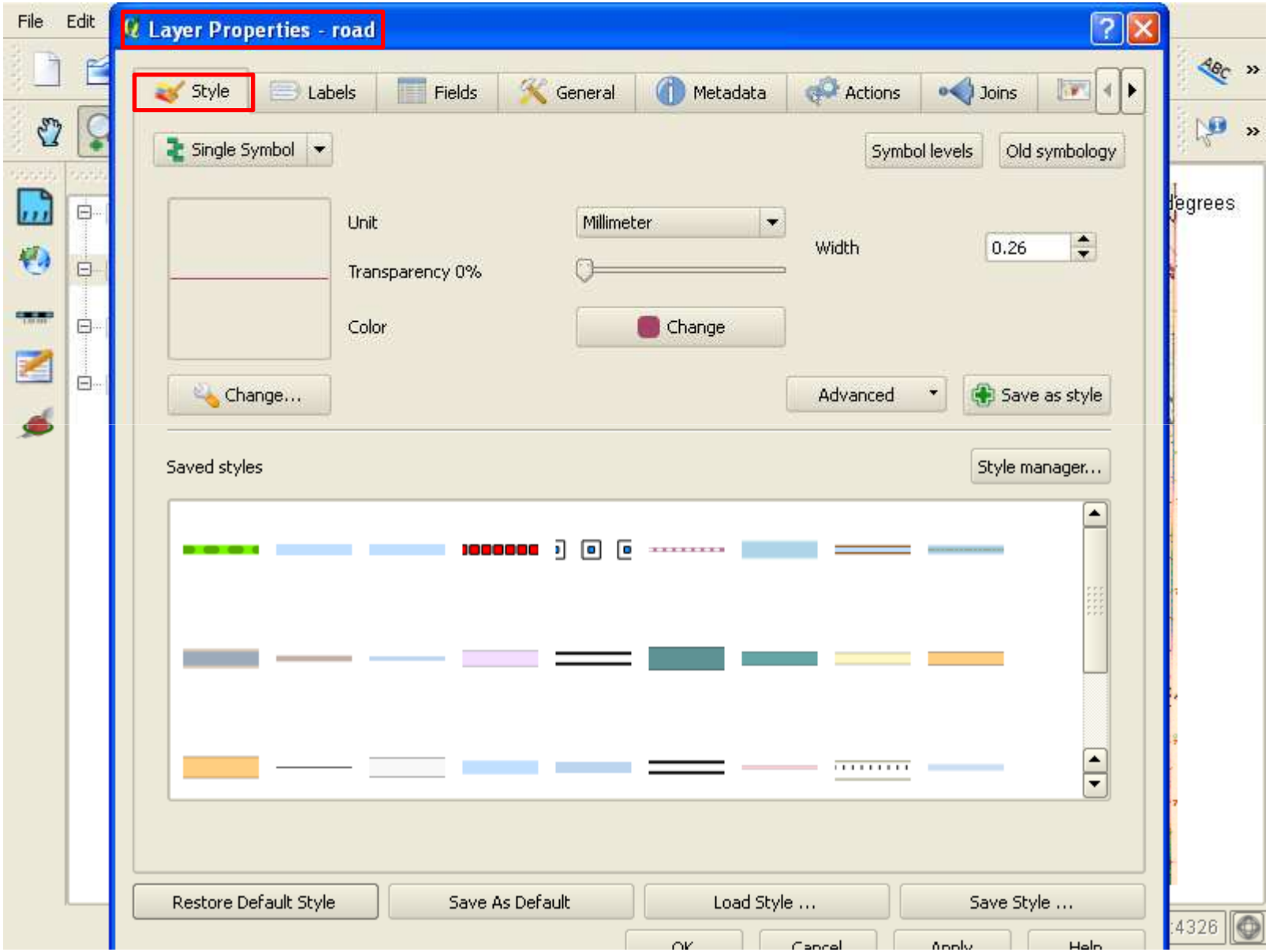
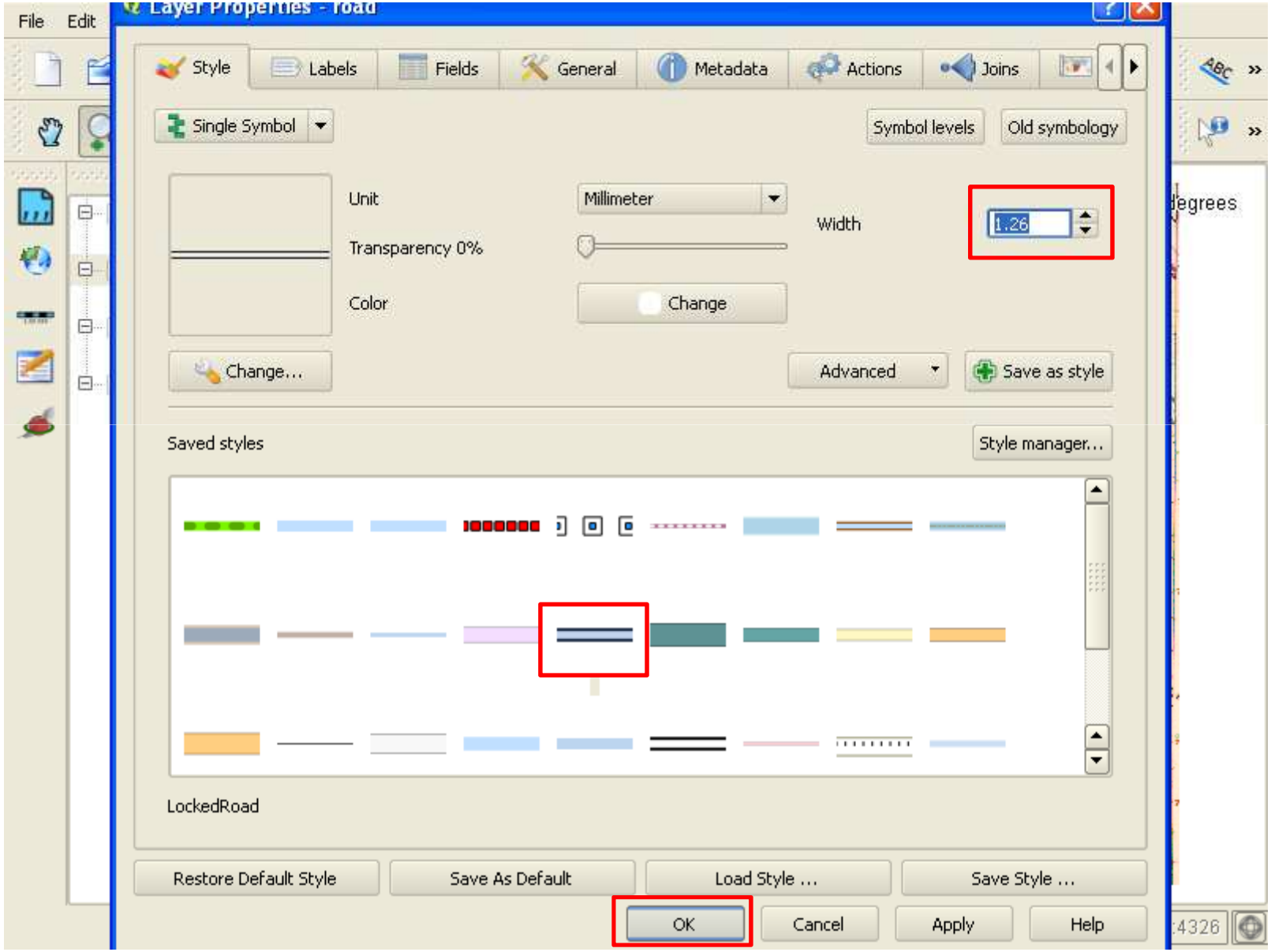

File
Edit
Layer Properties - road
Style
Labels
Fields
General
Metadata
Actions
Joins
Single Symbol
Symbol levels
Old symbology
Unit
Millimeter
Transparency 0%
Width
0.26
Color
Change
Change...
Advanced
Save as style
Saved styles
Style manager...
Restore Default Style
Save As Default
Load Style ...
Save Style ...
OK
Cancel
Apply
Help
degrees

Figure 1.60

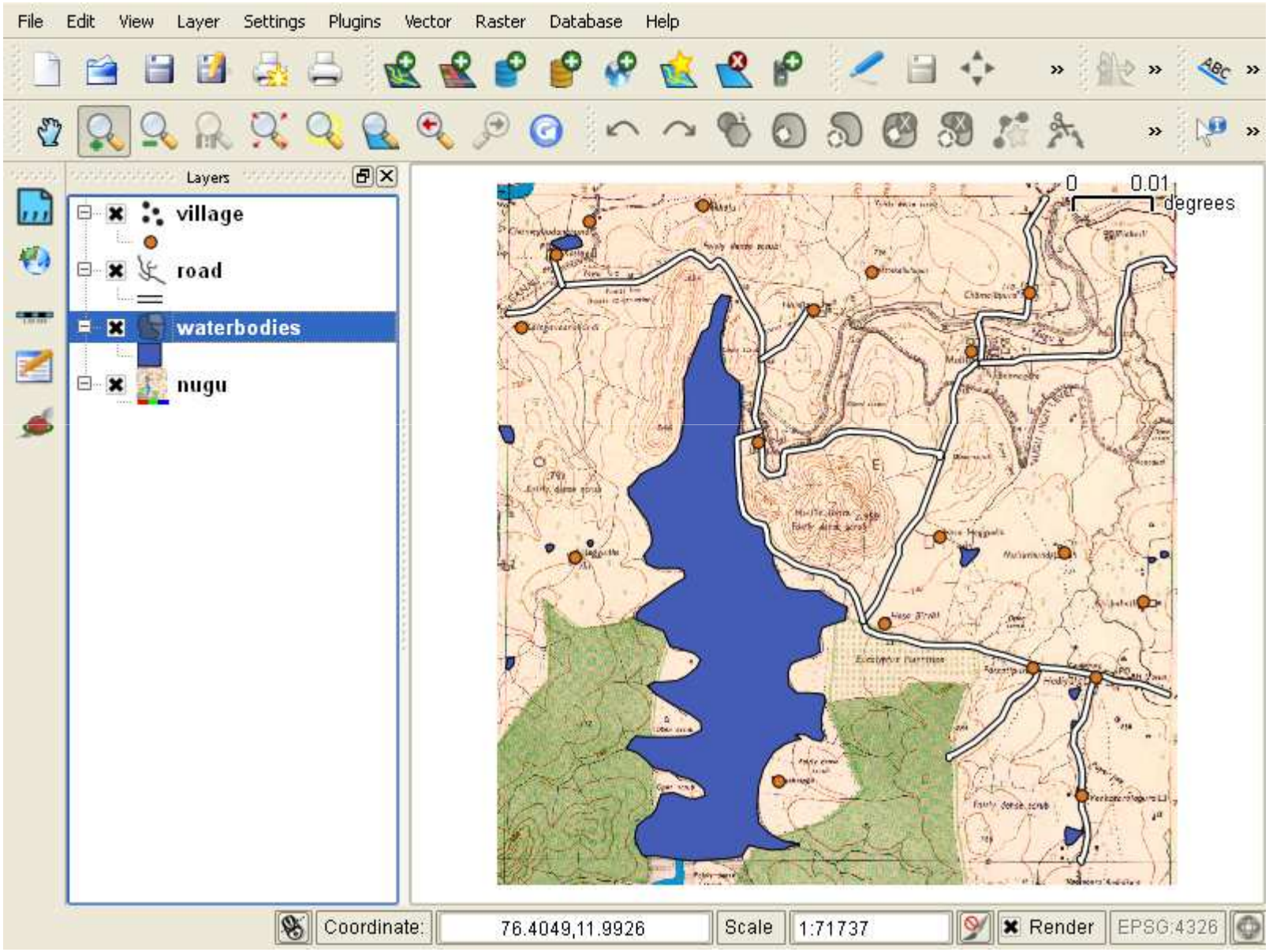

File
Edit
Layer Properties - road
Style
Labels
Fields
General
Metadata
Actions
Joins
Single Symbol
Symbol levels
Old symbology
Unit
Millimeter
Transparency 0%
Color
Change
Width
1.26
Change...
Advanced
Save as style
Saved styles
Style manager...
LockedRoad
Restore Default Style
Save As Default
Load Style ...
Save Style ...
OK
Cancel
Apply
Help
egrees
4326

Polygon Style

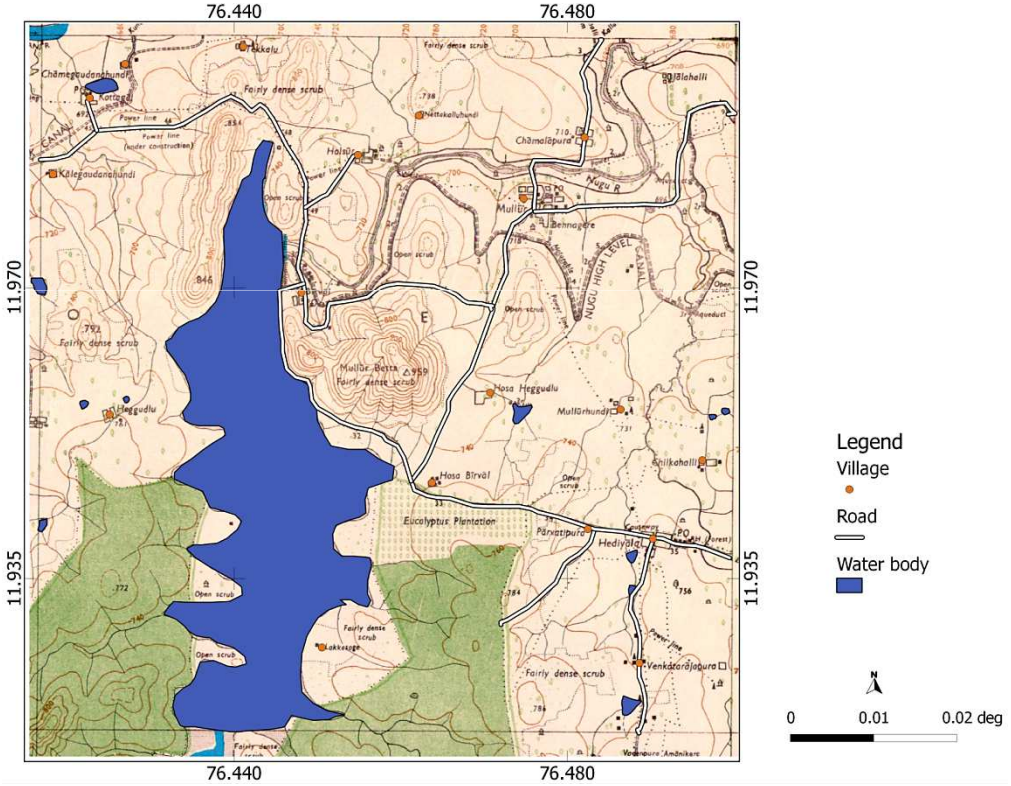
- To change the color of polygon follow **Step 7** (page 89)

- Follow **Step 8**, (page 90) and we get an output as in Figure 1.61

Figure 1.61


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
road
waterbodies
nugu
0
0.01
degrees
Coordinate:
76.4049,11.9926
Scale
1:71737
Render
EPSG:4326

Map composer



Composition of Map

A output map should have

- ✓ Scale
- ✓ Legend
- ✓ North Arrow
- ✓ Grid (with coordinates)

- To create map select **New Print Composer** (Figure 2.1)
- The **Composer** opens (Figure 2.2)
- Composer has the buttons, **General, Item** and **Command history** (Figure 2.2)

Figure 2.1

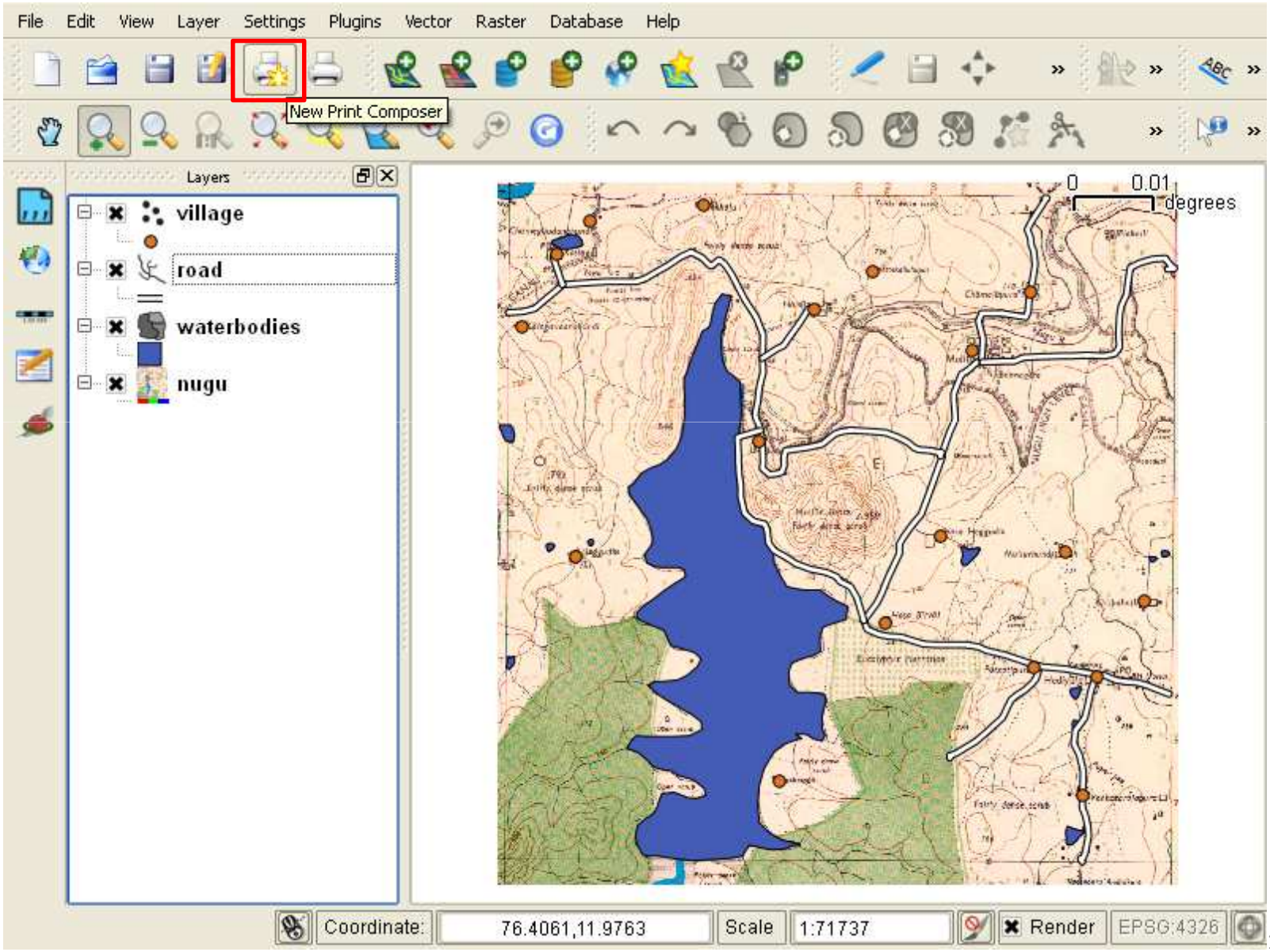
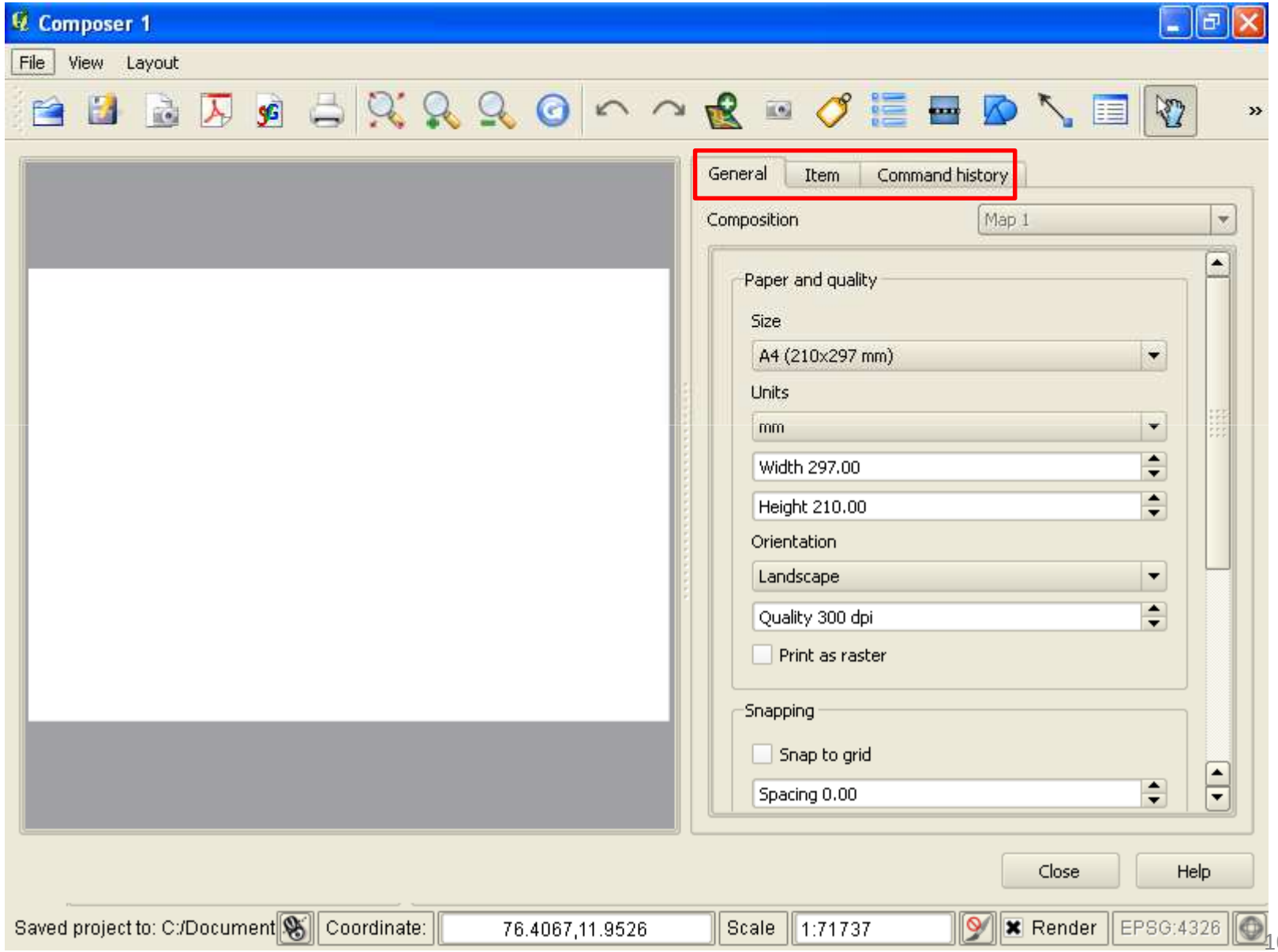

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
New Print Composer
Layers
village
road
waterbodies
nugu
0
0.01
degrees
Coordinate:
76.4061,11.9763
Scale
1:71737
Render
EPSG:4326

Figure 2.2


Composer 1
File
View
Layout
General
Item
Command history
Composition
Map 1
Paper and quality
Size
A4 (210x297 mm)
Units
mm
Width 297.00
Height 210.00
Orientation
Landscape
Quality 300 dpi
Print as raster
Snapping
Snap to grid
Spacing 0.00
Close
Help
Saved project to: C:/Document
Coordinate:
76.4067,11.9526
Scale
1:71737
Render
EPSG:4326

Adding a new map

- Select **Add new map** (Figure 2.3)
- After selection, drag on the canvas by **left click** of arrow. (Figure 2.4)
- On releasing the finger from left button of mouse, a map with various layers appears in the QGIS display window. (Figure 2.5)

Figure 2.3

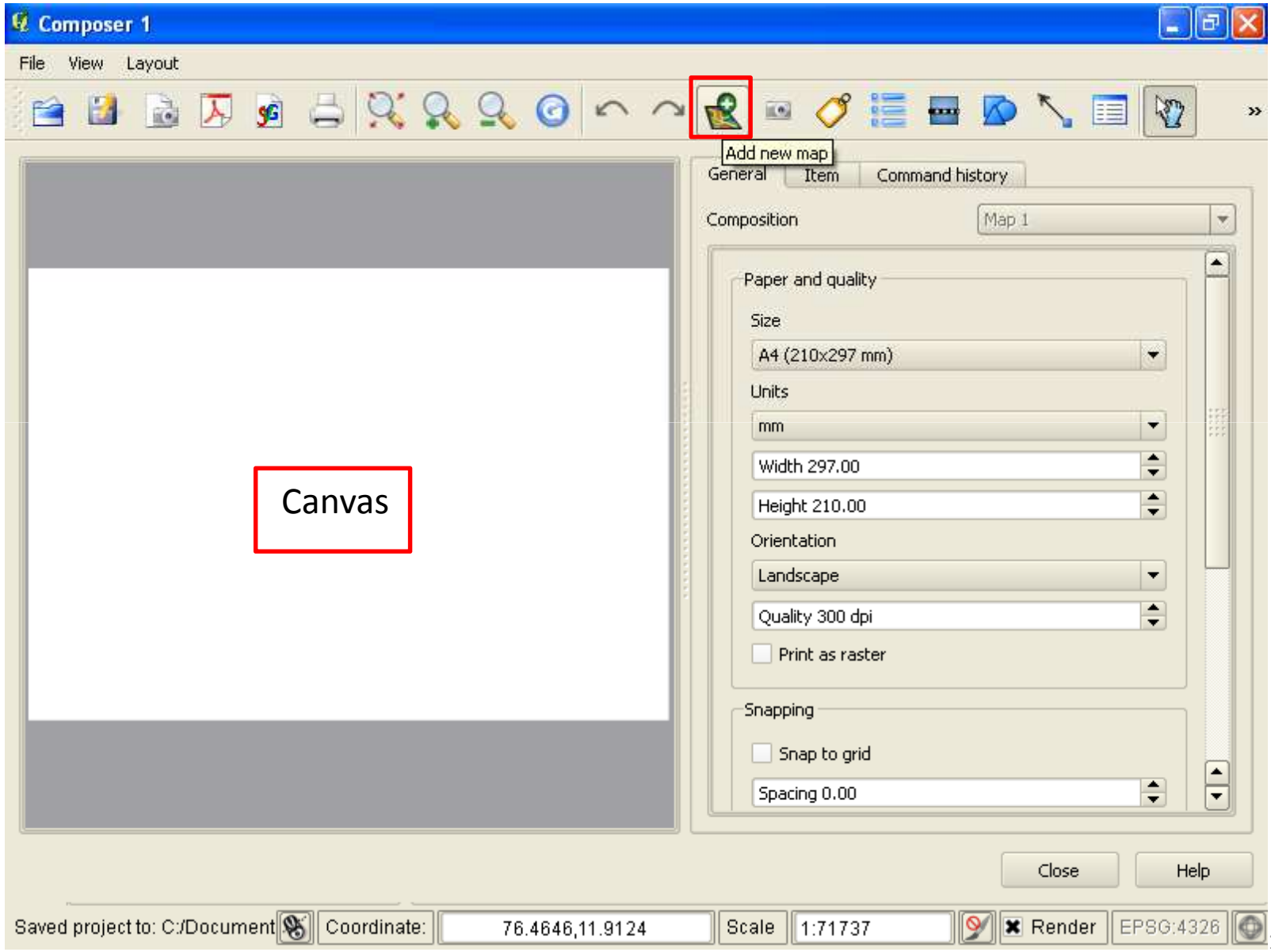

Composer 1
File
View
Layout
Add new map
Canvas
General
Item
Command history
Composition
Map 1
Paper and quality
Size
A4 (210x297 mm)
Units
mm
Width 297.00
Height 210.00
Orientation
Landscape
Quality 300 dpi
Print as raster
Snapping
Snap to grid
Spacing 0.00
Close
Help
Saved project to: C:/Document
Coordinate:
76.4646,11.9124
Scale
1:71737
Render
EPSG:4326

Figure 2.4

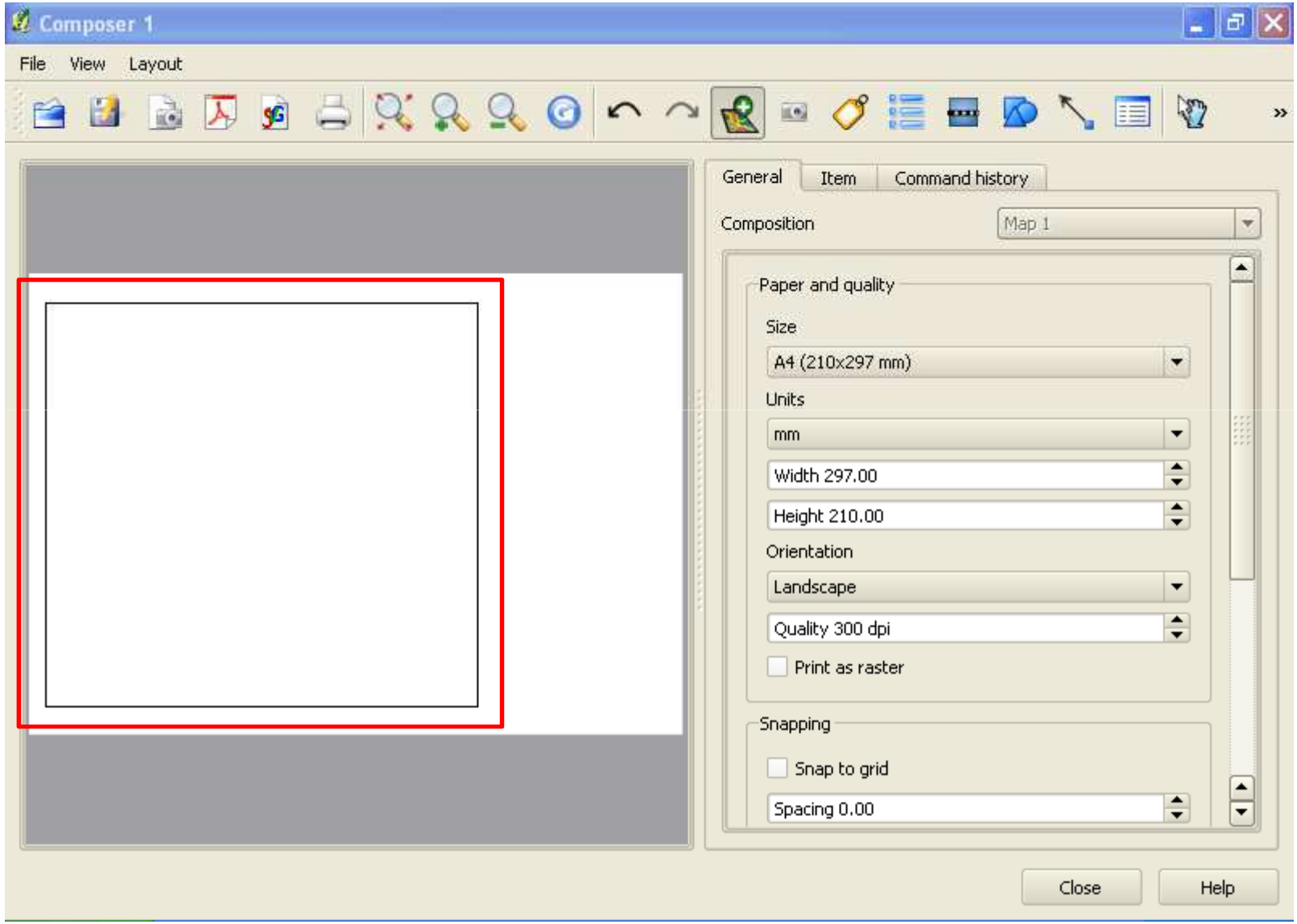
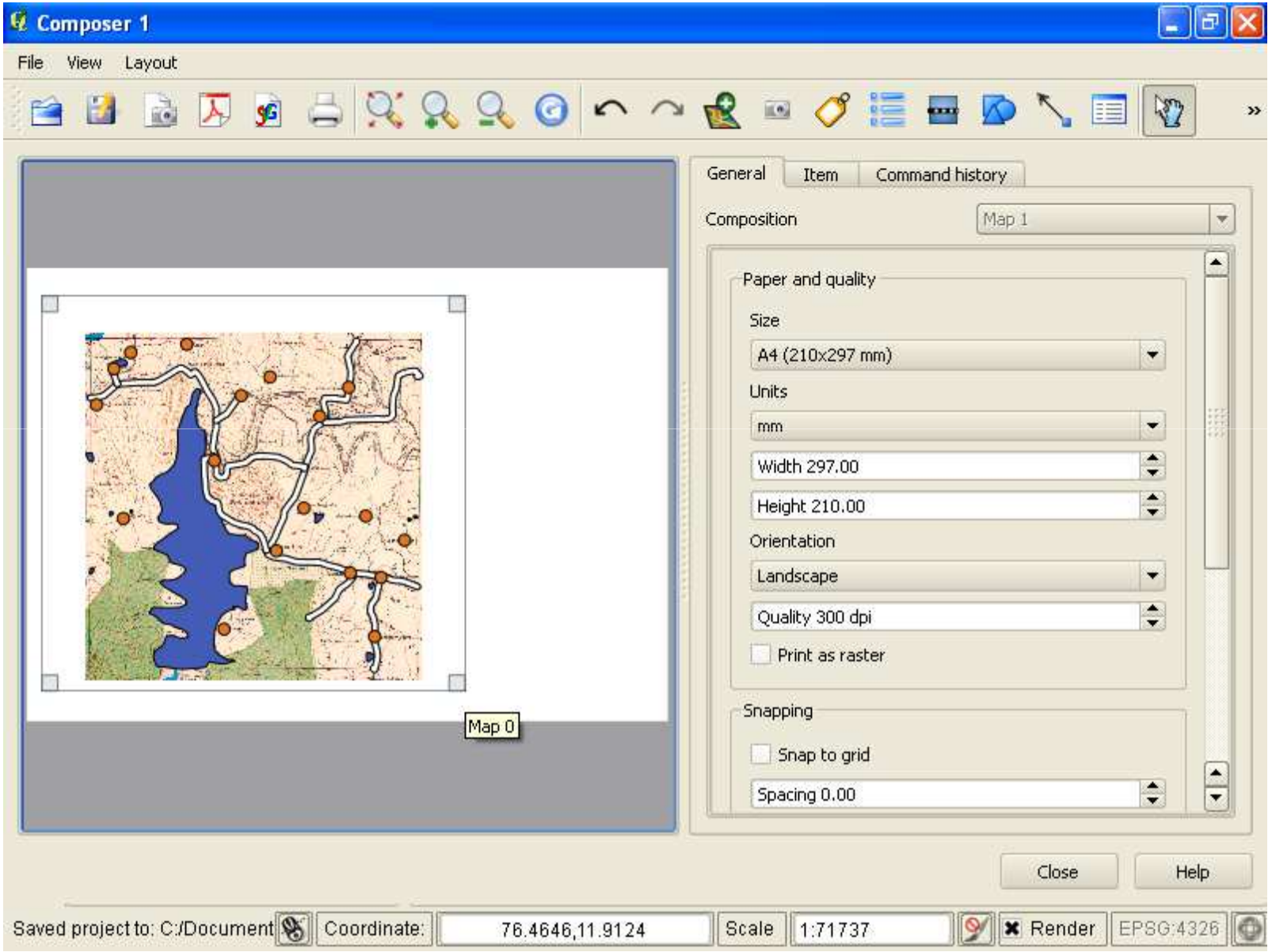

Composer 1
File
View
Layout
General
Item
Command history
Composition
Map 1
Paper and quality
Size
A4 (210x297 mm)
Units
mm
Width 297.00
Height 210.00
Orientation
Landscape
Quality 300 dpi
Print as raster
Snapping
Snap to grid
Spacing 0.00
Close
Help

Figure 2.5


Composer 1
File
View
Layout
General
Item
Command history
Composition
Map 1
Paper and quality
Size
A4 (210x297 mm)
Units
mm
Width 297.00
Height 210.00
Orientation
Landscape
Quality 300 dpi
Print as raster
Snapping
Snap to grid
Spacing 0.00
Map 0
Close
Help
Saved project to: C:/Document
Coordinate:
76.4646,11.9124
Scale
1:71737
Render
EPSG:4326

Adjusting the map

- In Figure 2.5 the complete display area is not used by the map; to change this select **Item** (Figure 2.6)
- By selecting either **Width, Height** or **Scale** the map can use the complete display area
- For now, let us select ⇒ **Scale** (Figure 2.6)
- Change **Scale** value to appropriate values (Figure 2.7)
- Then select ⇒ **Grid**(Figure 2.7)

Figure 2.6

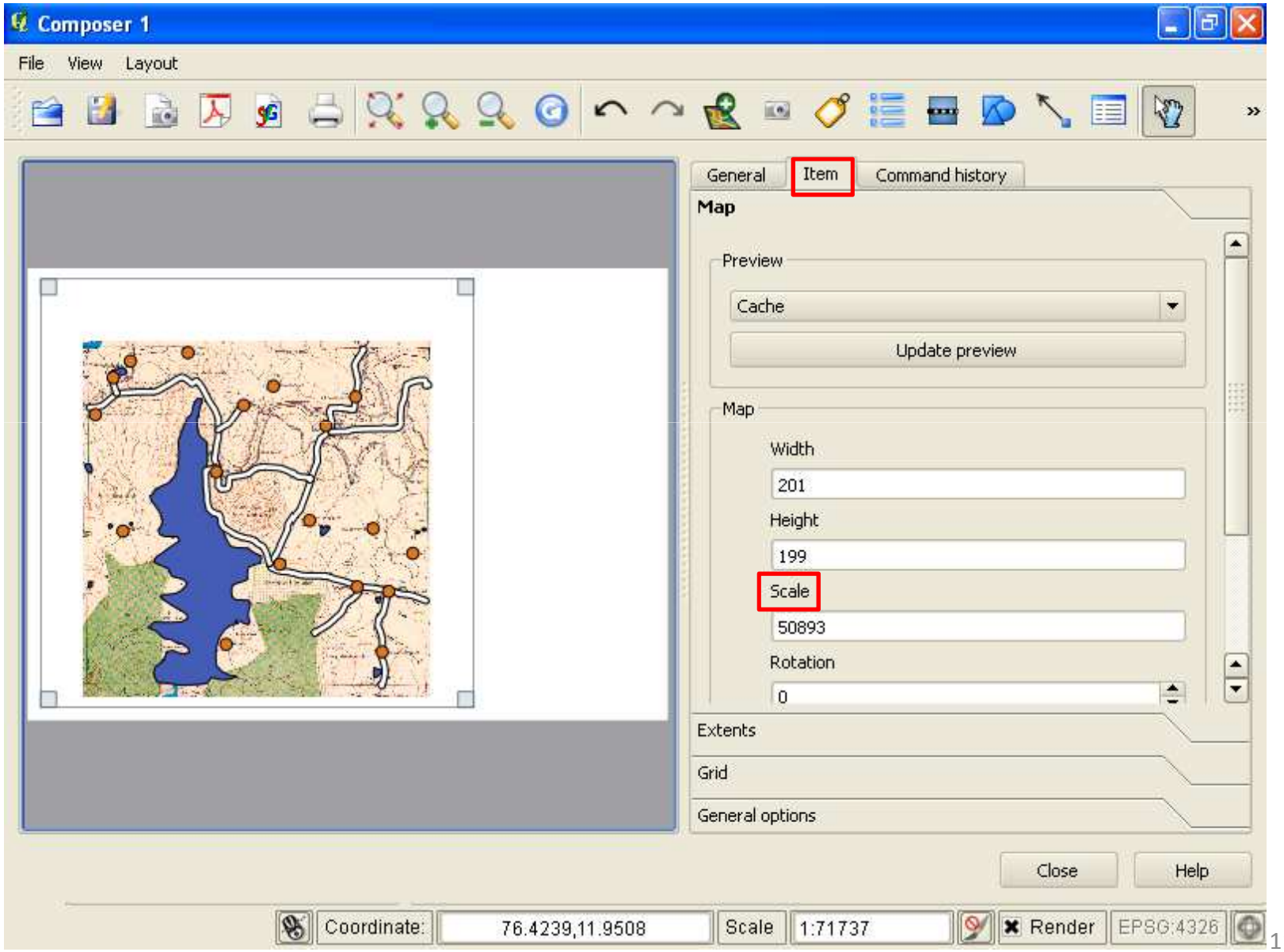
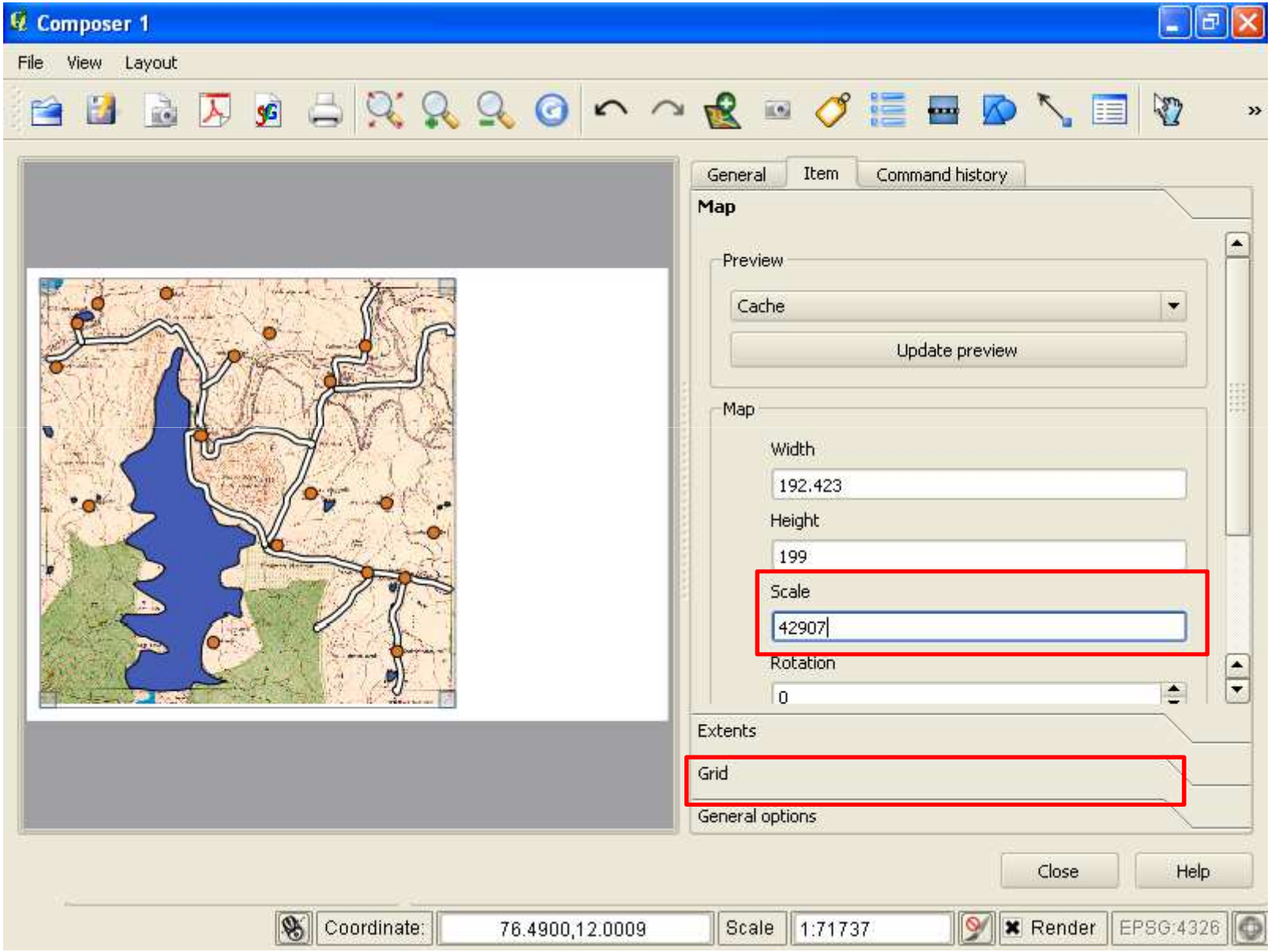

Composer 1
File
View
Layout
General
Item
Command history
Map
Preview
Cache
Update preview
Map
Width
201
Height
199
Scale
50893
Rotation
0
Extents
Grid
General options
Close
Help
Coordinate:
76.4239,11.9508
Scale
1:71737
Render
EPSG:4326

Figure 2.7


Composer 1
File
View
Layout
General
Item
Command history
Map
Preview
Cache
Update preview
Map
Width
192.423
Height
199
Scale
42907
Rotation
0
Extents
Grid
General options
Close
Help
Coordinate:
76.4900,12.0009
Scale
1:71737
Render
EPSG:4326

Grid creation

- Select ➡ **Show Grid** (Figure 2.8)
- Enter appropriate values (Figure 2.8)
  - ✓**Interval X :** 0.04
  - ✓**Interval Y :** 0.035
- Scroll down (Figure 2.9)
  - ➢ Select ➡ **Draw annotation** (Figure 2.9)
  - ➢ Change **Annotation Position** and **Annotation direction** appropriately (Figure 2.9) *

* These are subjective decisions and dependent on the projection system used.

Figure 2.8

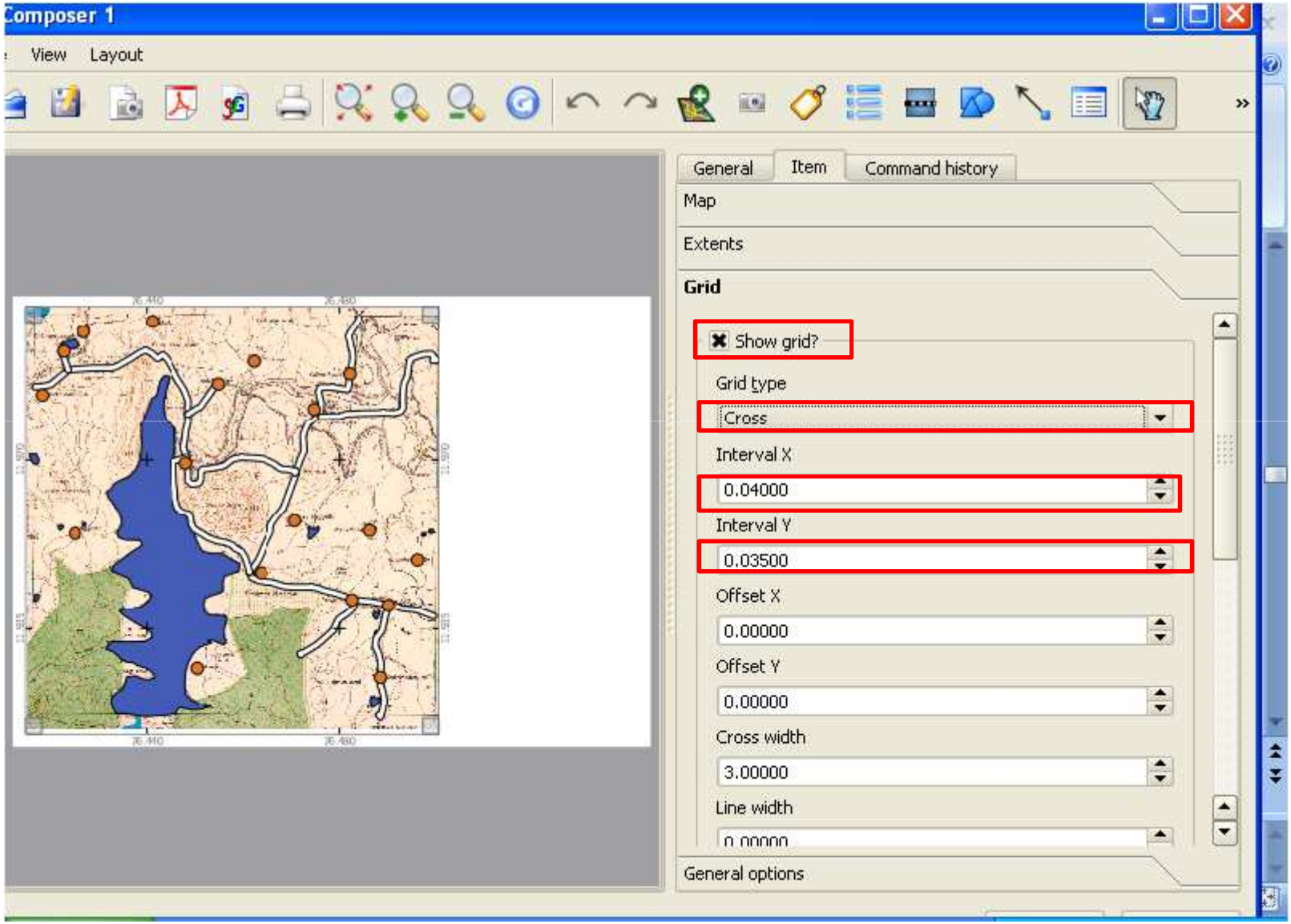
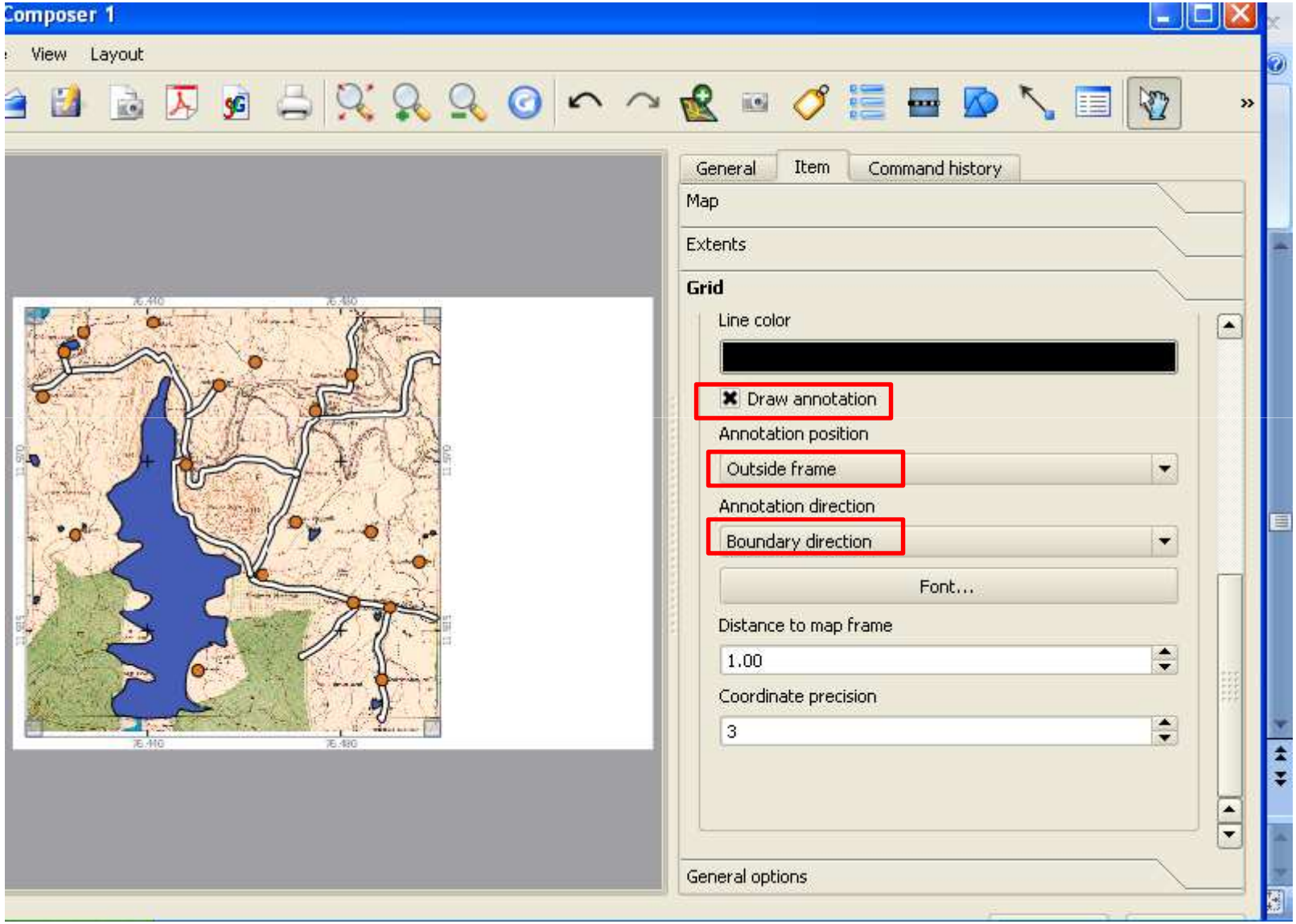

Composer 1
View
Layout
General
Item
Command history
Map
Extents
Grid
Show grid?
Grid type
Cross
Interval X
0.04000
Interval Y
0.03500
Offset X
0.00000
Offset Y
0.00000
Cross width
3.00000
Line width
General options

Figure 2.9


Composer 1
View
Layout
General
Item
Command history
Map
Extents
Grid
Line color
Draw annotation
Annotation position
Outside frame
Annotation direction
Boundary direction
Font...
Distance to map frame
1.00
Coordinate precision
3
General options

Adding North Arrow

- Next add a north arrow. Select ⇒ **Add Image** (Figure 2.10)
- **Left click** on the canvas, a window appears, and in the **Item** window various images are displayed (Figure 2.11)
- **Scroll down** till we get the appropriate North arrow image (Figure 2.12)
- In the **Item** ⇒ **General options** ⇒ de-select **Show frames** (Figure 2.12 and Figure 2.13)

Figure 2.10

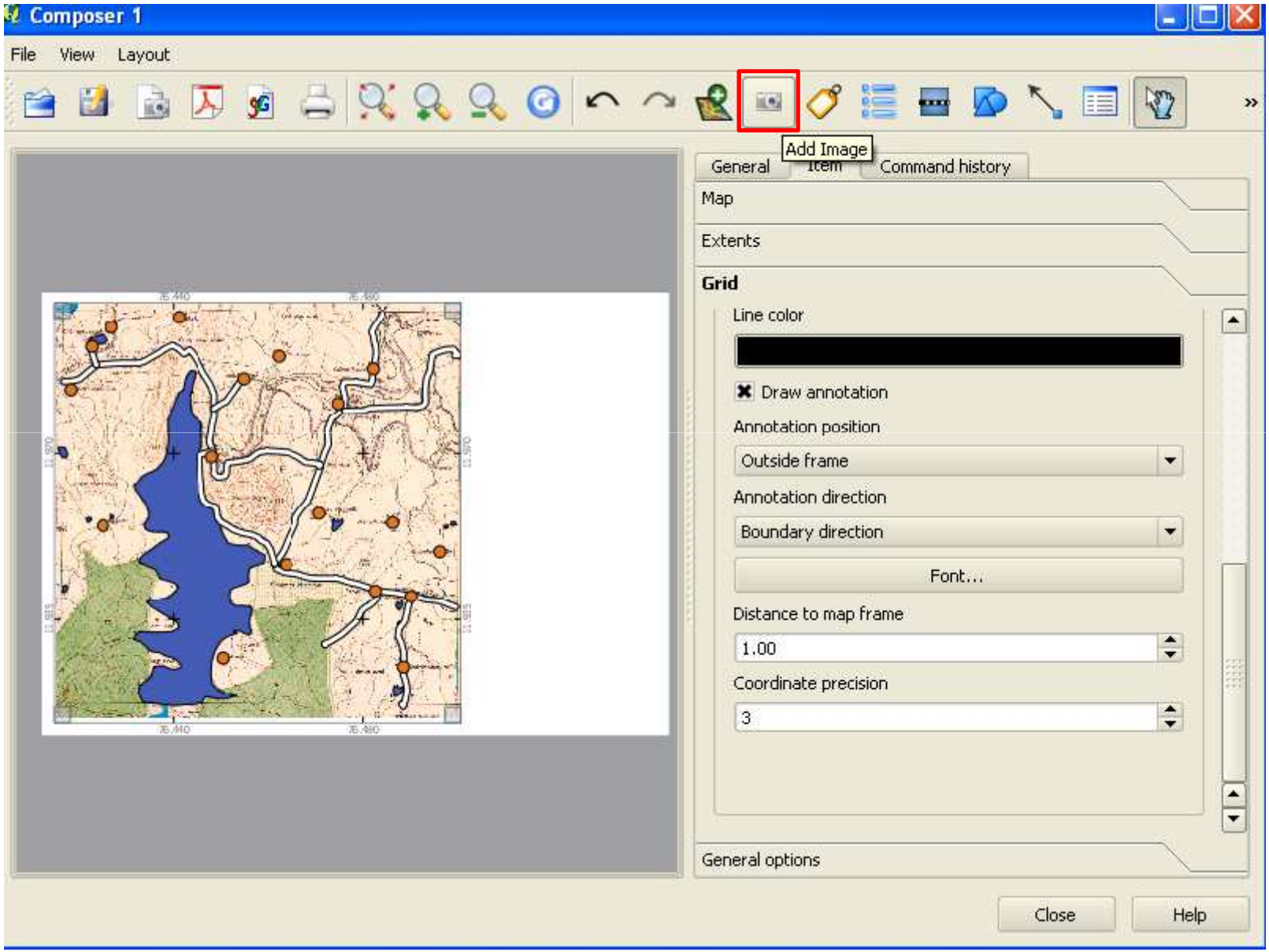

Composer 1
File
View
Layout
Add Image
General
Item
Command history
Map
Extents
Grid
Line color
Draw annotation
Annotation position
Outside frame
Annotation direction
Boundary direction
Font...
Distance to map frame
1.00
Coordinate precision
3
General options
Close
Help

Figure 2.11

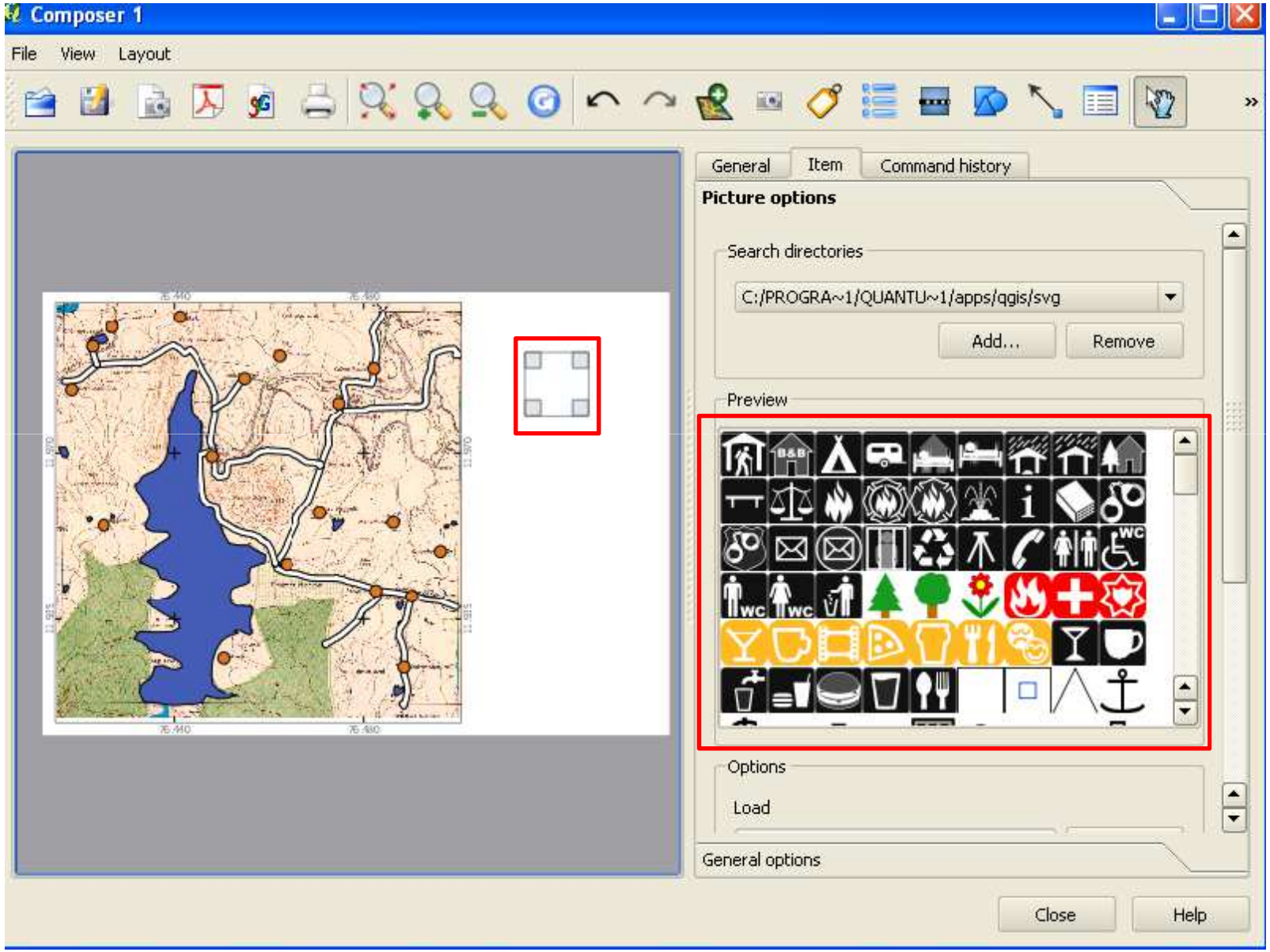

Composer 1
File
View
Layout
General
Item
Command history
Picture options
Search directories
C:/PROGRA~1/QUANTU~1/apps/qgis/svg
Add...
Remove
Preview
Options
Load
General options
Close
Help

Figure 2.12

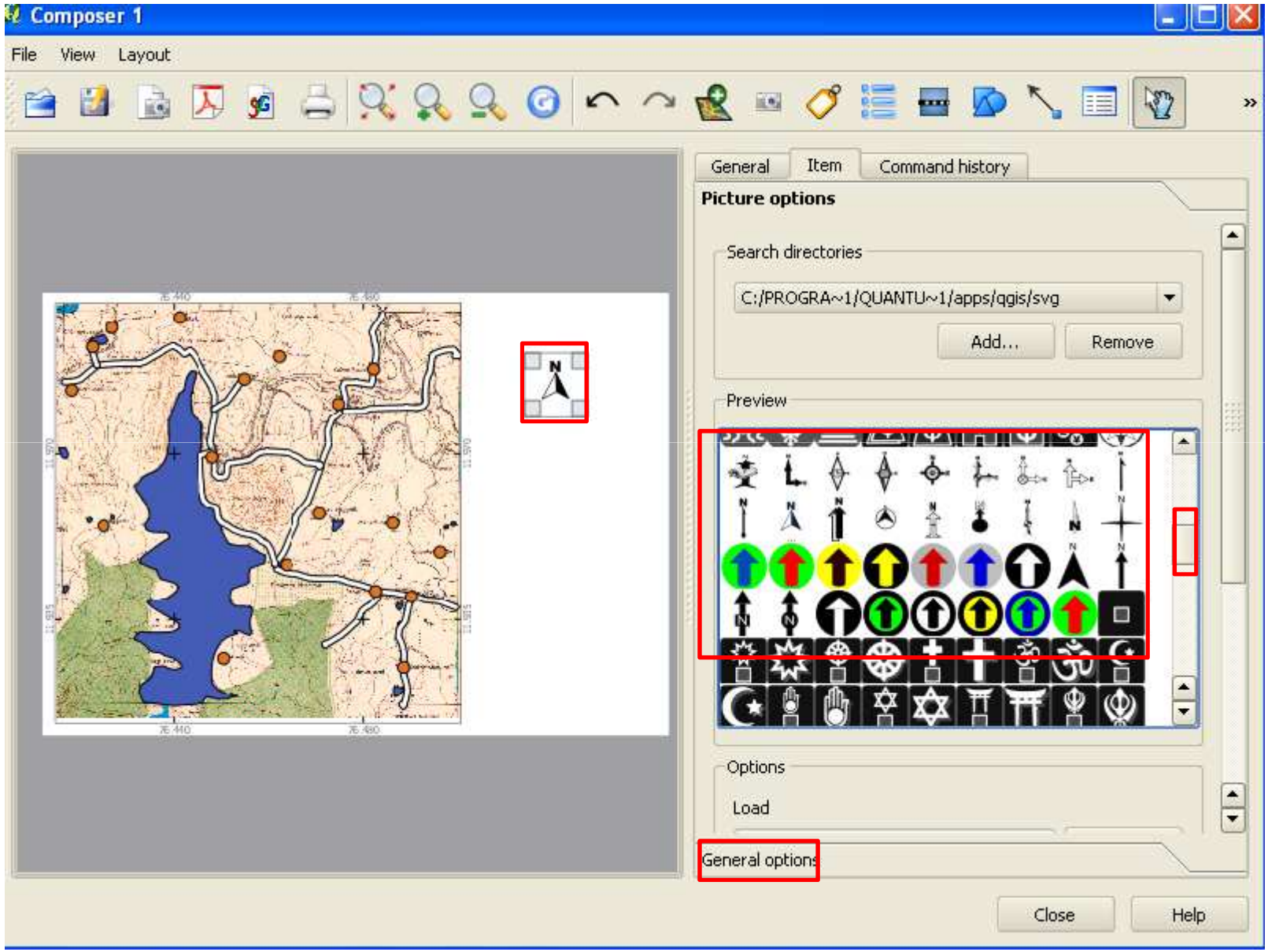
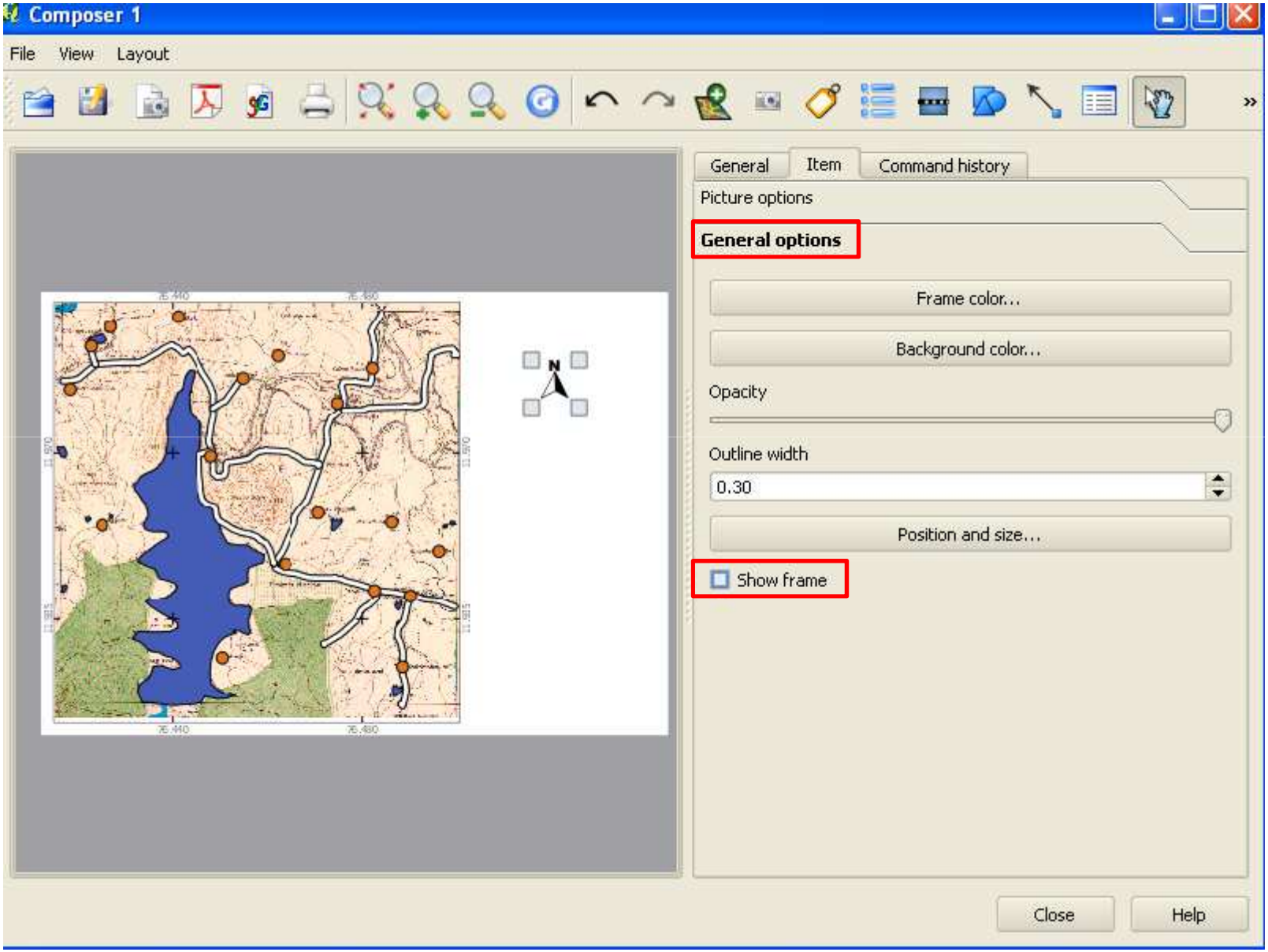

Composer 1
File
View
Layout
General
Item
Command history
Picture options
Search directories
C:/PROGRA~1/QUANTU~1/apps/qgis/svg
Add...
Remove
Preview
Options
Load
General options
Close
Help

Figure 2.13


Composer 1
File
View
Layout
General
Item
Command history
Picture options
General options
Frame color...
Background color...
Opacity
Outline width
0.30
Position and size...
Show frame
Close
Help

Adding Scale bar

- Next add scale to the map ➡ **Add new scale bar** (Figure 2.14)
- **Left click** on canvas, a window appears. In the **Item** window **Scale bar** tab is displayed (Figure 2.15)
- Enter appropriate values* (Figure 2.16)
  - ✓ **Segment size**: 0.01
  - ✓ **Map units per bar**: 1
  - ✓ **Unit label**: deg
- In the **Item** ➡ **General options** ➡ de-select **Show frames** (as in Figure 2.12 and Figure 2.13)

* These are subjective decisions and dependent on the projection system used.

Figure 2.14

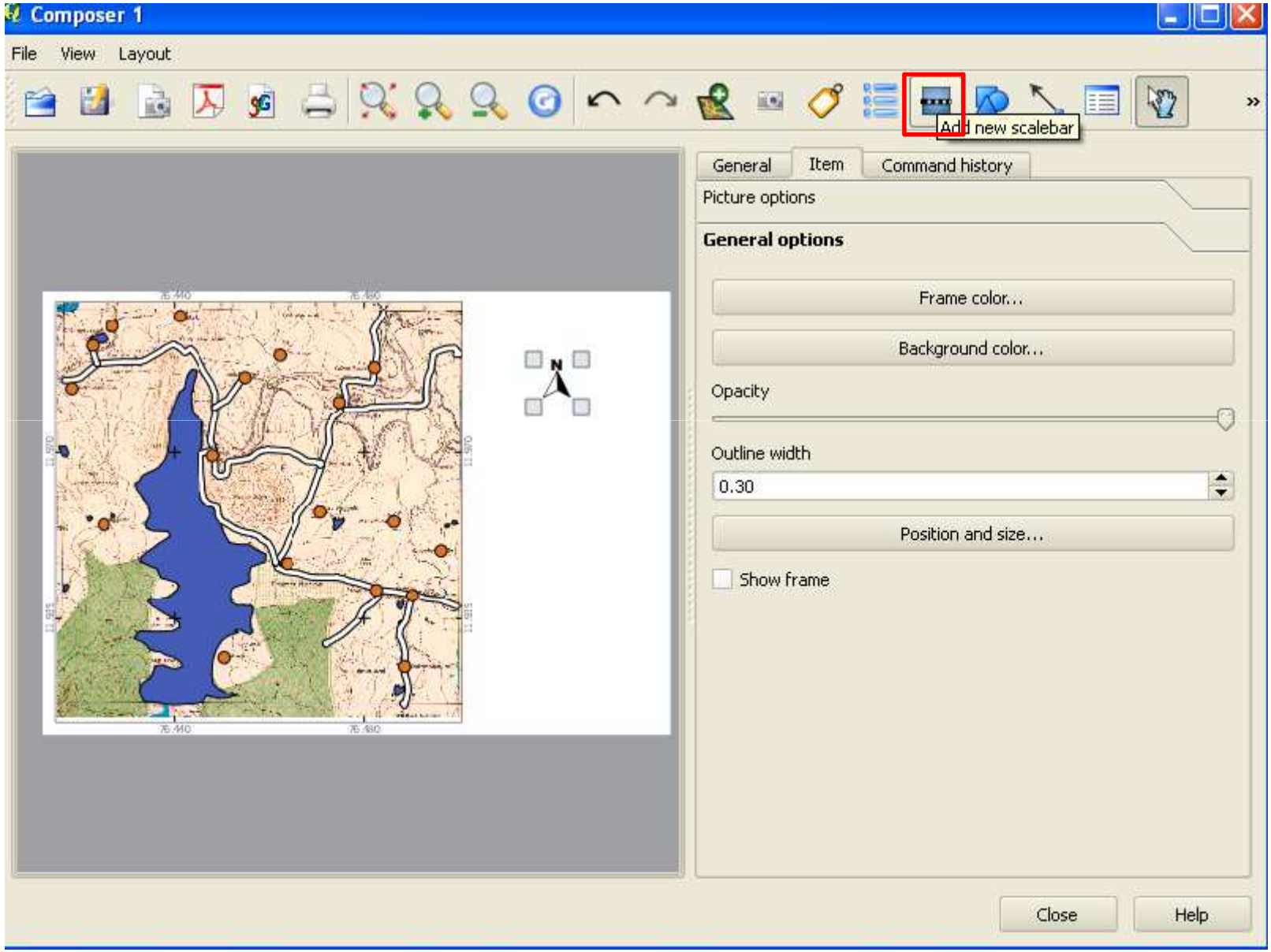

Composer 1
File
View
Layout
Add new scalebar
General
Item
Command history
Picture options
General options
Frame color...
Background color...
Opacity
Outline width
0.30
Position and size...
Show frame
Close
Help

Figure 2.15

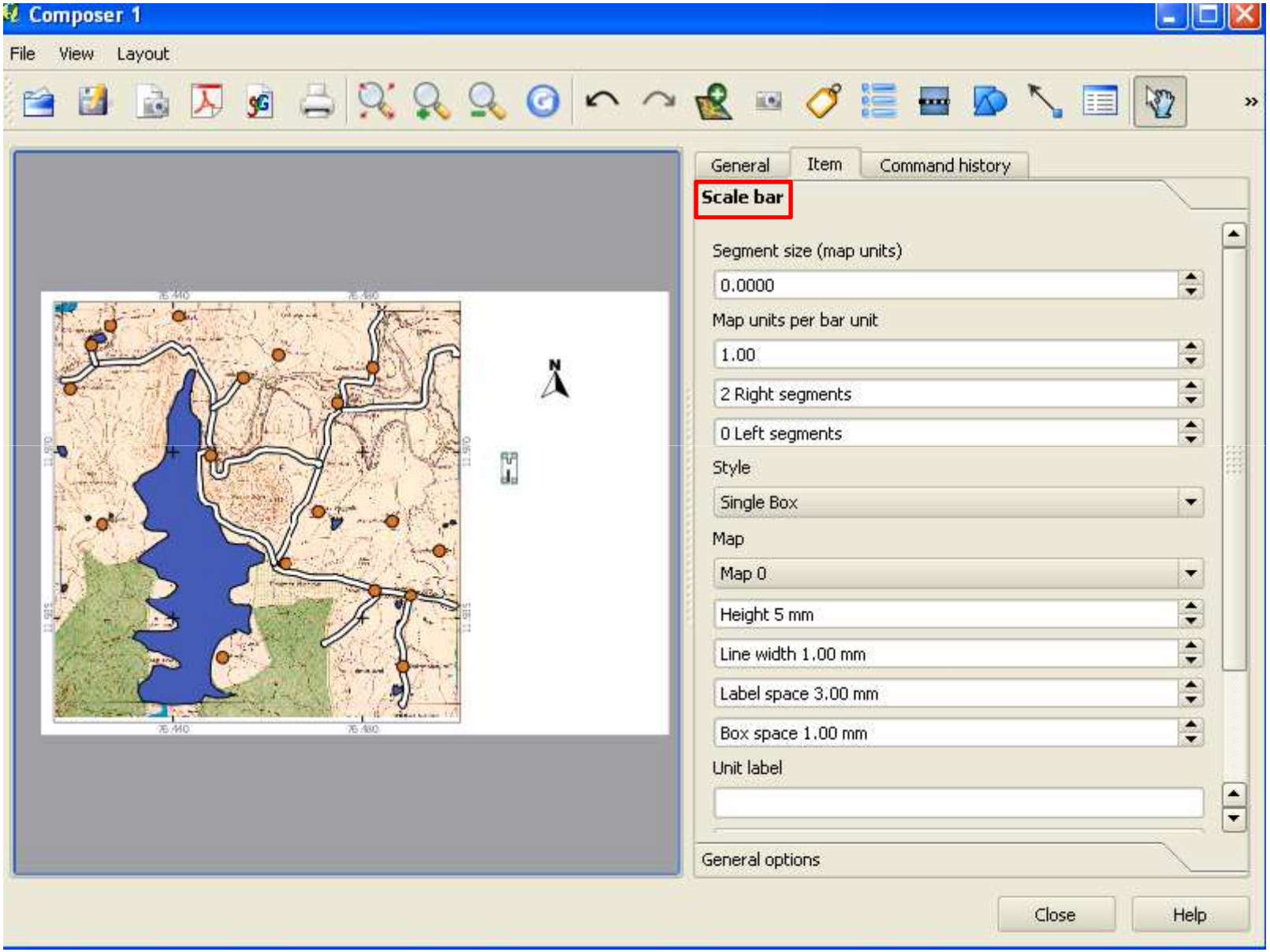
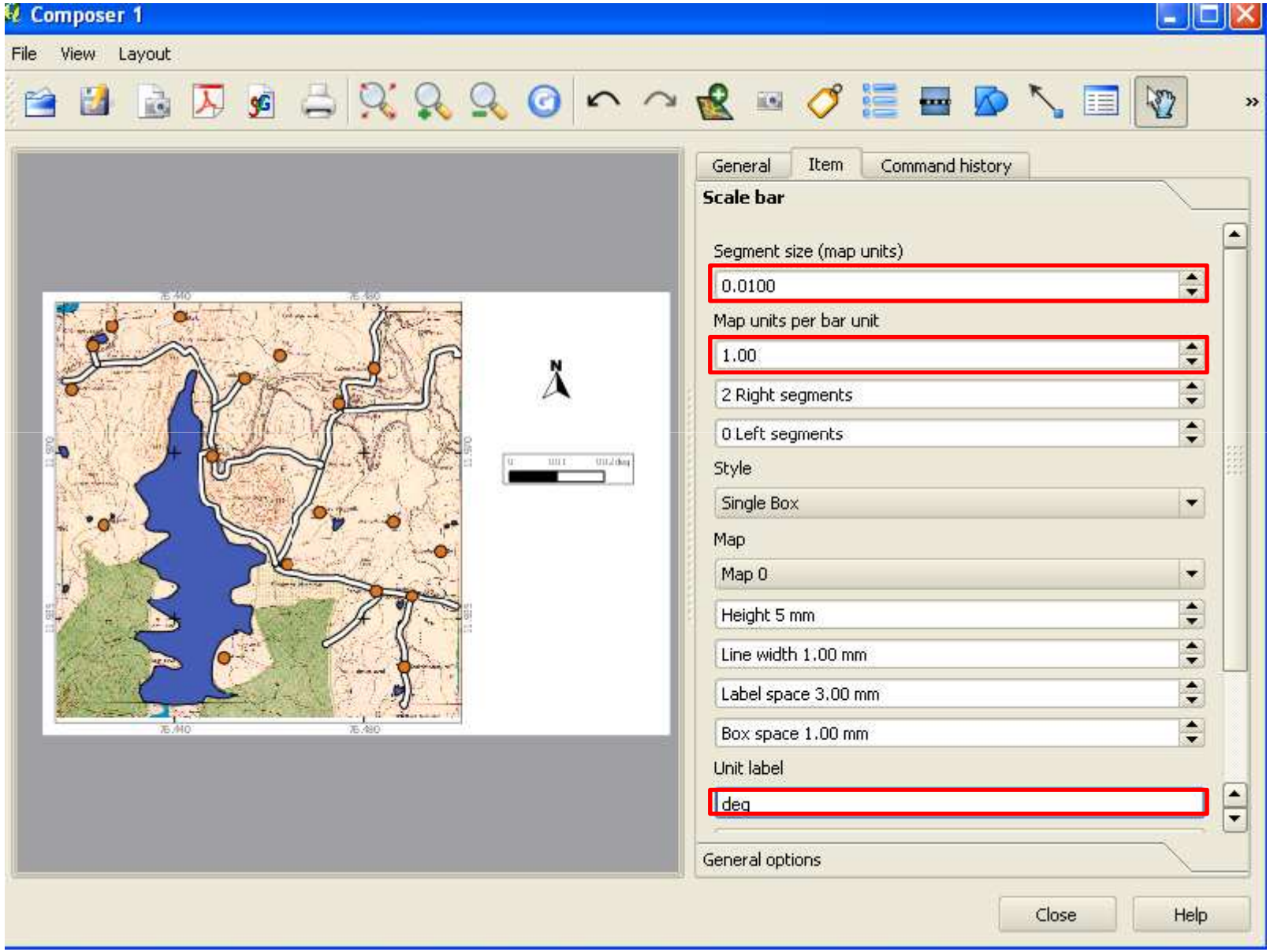

Composer 1
File
View
Layout
General
Item
Command history
Scale bar
Segment size (map units)
0.0000
Map units per bar unit
1.00
2 Right segments
0 Left segments
Style
Single Box
Map
Map 0
Height 5 mm
Line width 1.00 mm
Label space 3.00 mm
Box space 1.00 mm
Unit label
General options
Close
Help

Figure 2.16


Composer 1
File
View
Layout
General
Item
Command history
Scale bar
Segment size (map units)
0.0100
Map units per bar unit
1.00
2 Right segments
0 Left segments
Style
Single Box
Map
Map 0
Height 5 mm
Line width 1.00 mm
Label space 3.00 mm
Box space 1.00 mm
Unit label
deg
General options
Close
Help

Adding Legend

- The final step is to add a legend, select ⇒ **Add new vect legend**
- **Left click** on the canvas, a window appears, and in the **Item** window **General** tab is displayed (Figure 2.18)
- Select⇒**Legend items** (Figure 2.18)⇒**Legend items tab** opens (Figure 2.19)

Figure 2.17

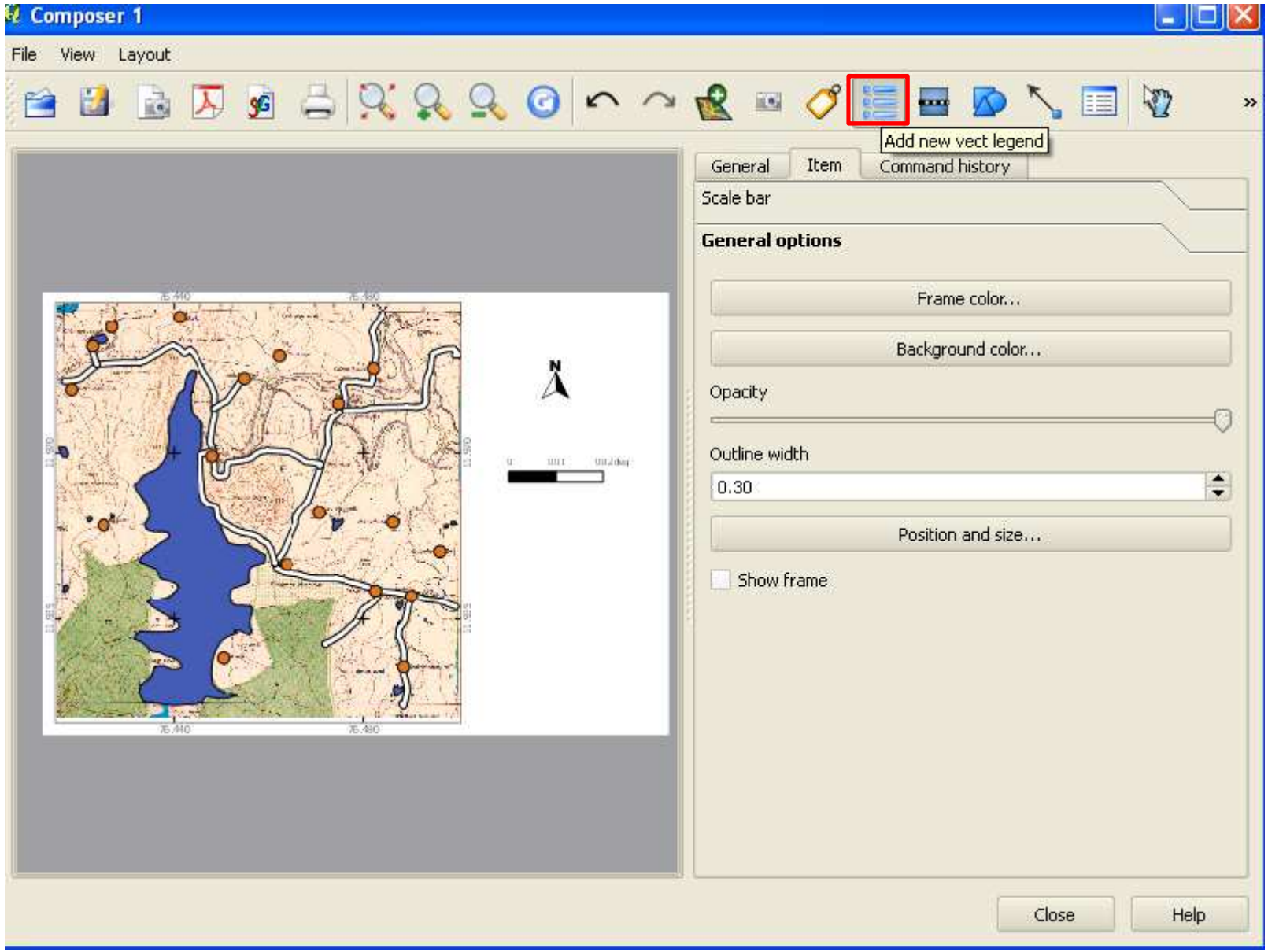
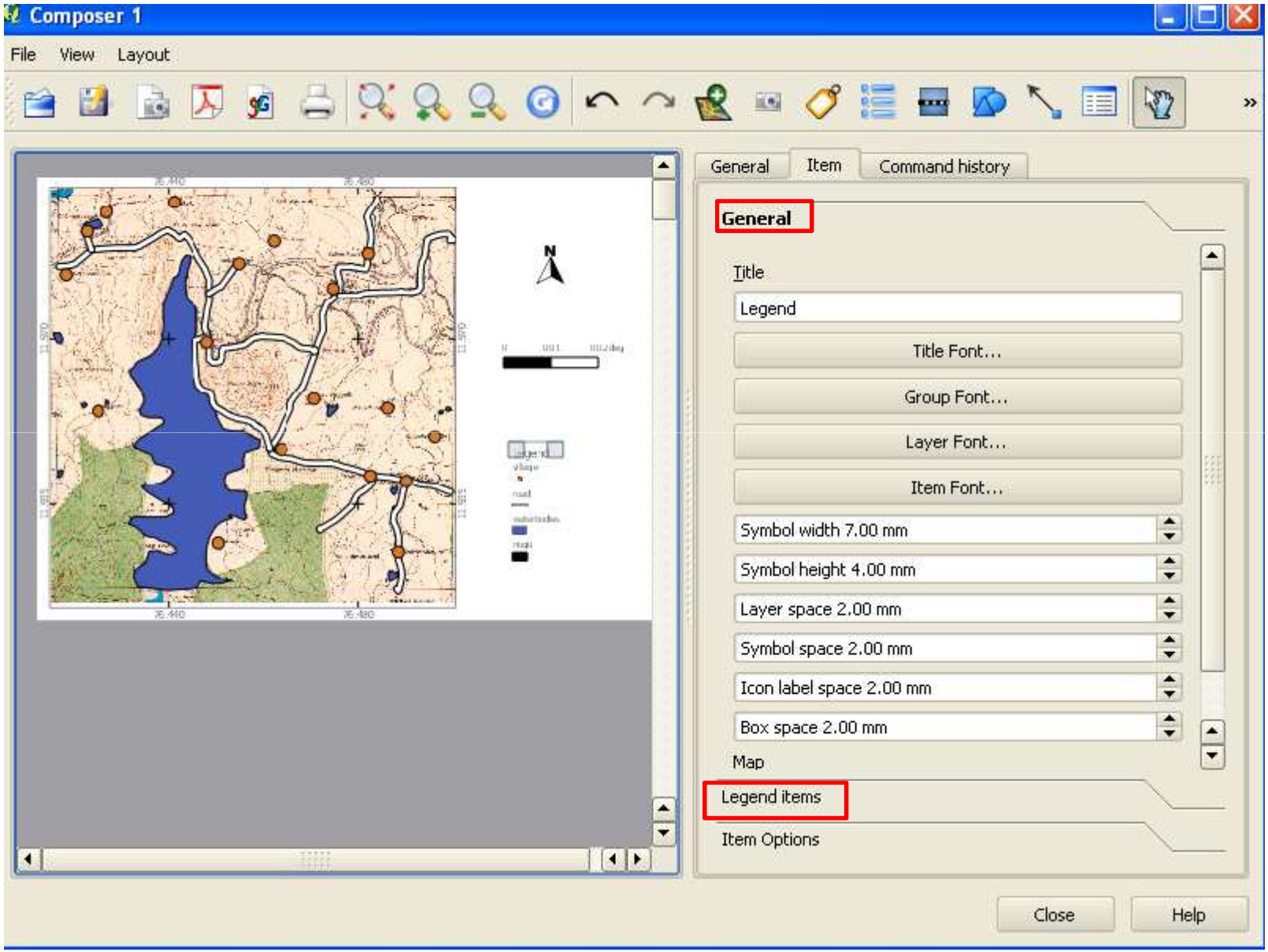

Composer 1
File
View
Layout
Add new vect legend
General
Item
Command history
Scale bar
General options
Frame color...
Background color...
Opacity
Outline width
0.30
Position and size...
Show frame
Close
Help

Figure 2.18


Composer 1
File
View
Layout
General
Item
Command history
General
Title
Legend
Title Font...
Group Font...
Layer Font...
Item Font...
Symbol width 7.00 mm
Symbol height 4.00 mm
Layer space 2.00 mm
Symbol space 2.00 mm
Icon label space 2.00 mm
Box space 2.00 mm
Map
Legend items
Item Options
Close
Help

Customising Legend

- To remove unnecessary items from legend
  - Select **nugu** and select  (Figure 2.19)
- To modify legend items
  - Select **Items** and select **Legend items** (Figure 2.20)
  - In **Legend items** window select the **Layer** and select the icon resembling editing  (Figure 2.20)
- A **Legend item properties** window opens (Figure 2.21)
- In **Item text** rename if required; then select **OK** (Figure 2.22)
- For rest of the layers, repeat the process described in Figures 20, 21 and 22, if required (Figure 2.23)

Figure 2.19

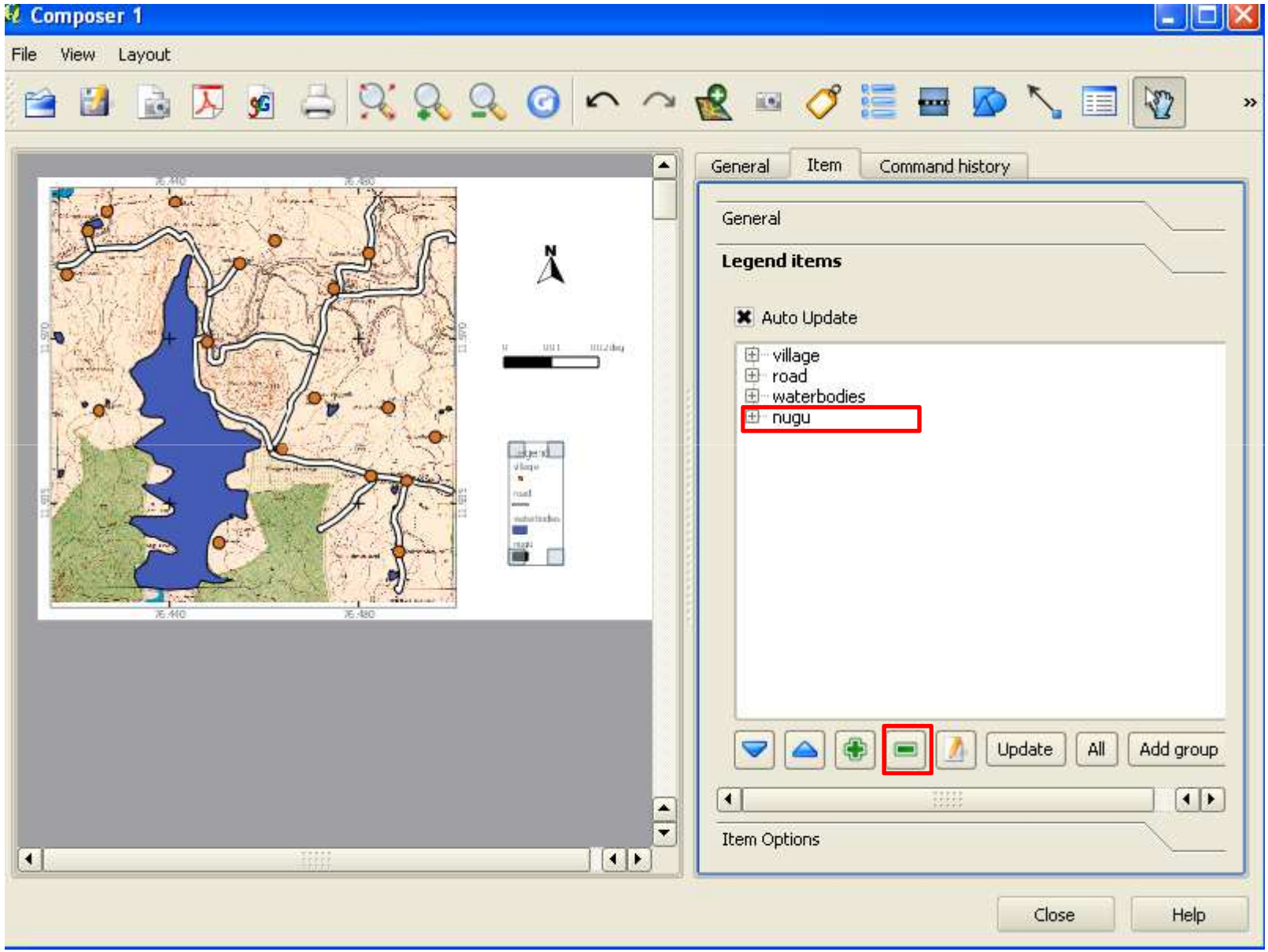

Composer 1
File
View
Layout
General
Item
Command history
General
Legend items
Auto Update
village
road
waterbodies
nugu
Update
All
Add group
Item Options
Close
Help

Figure 2.20

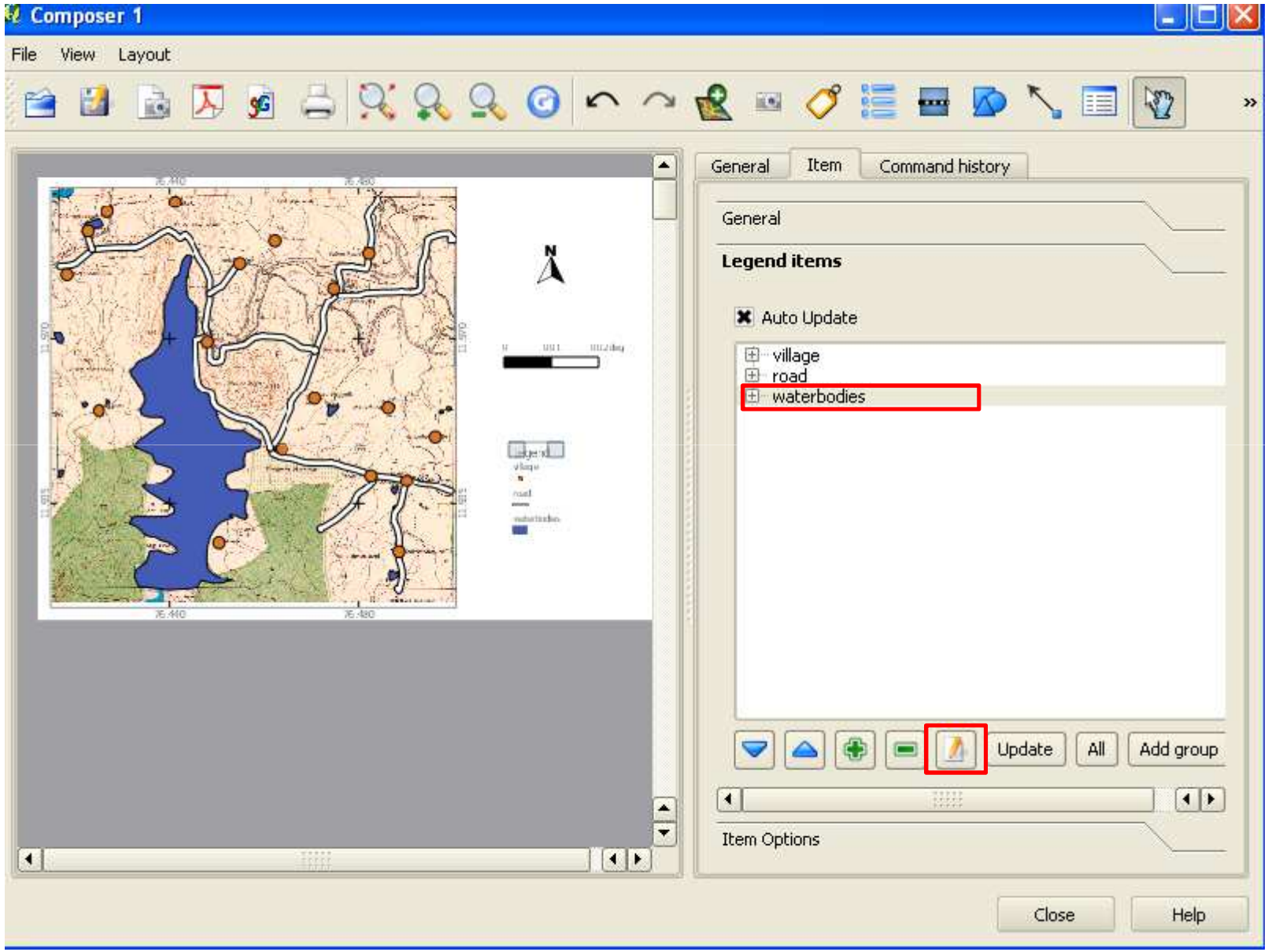

Composer 1
File
View
Layout
General
Item
Command history
General
Legend items
Auto Update
village
road
waterbodies
Update
All
Add group
Item Options
Close
Help

Figure 2.21

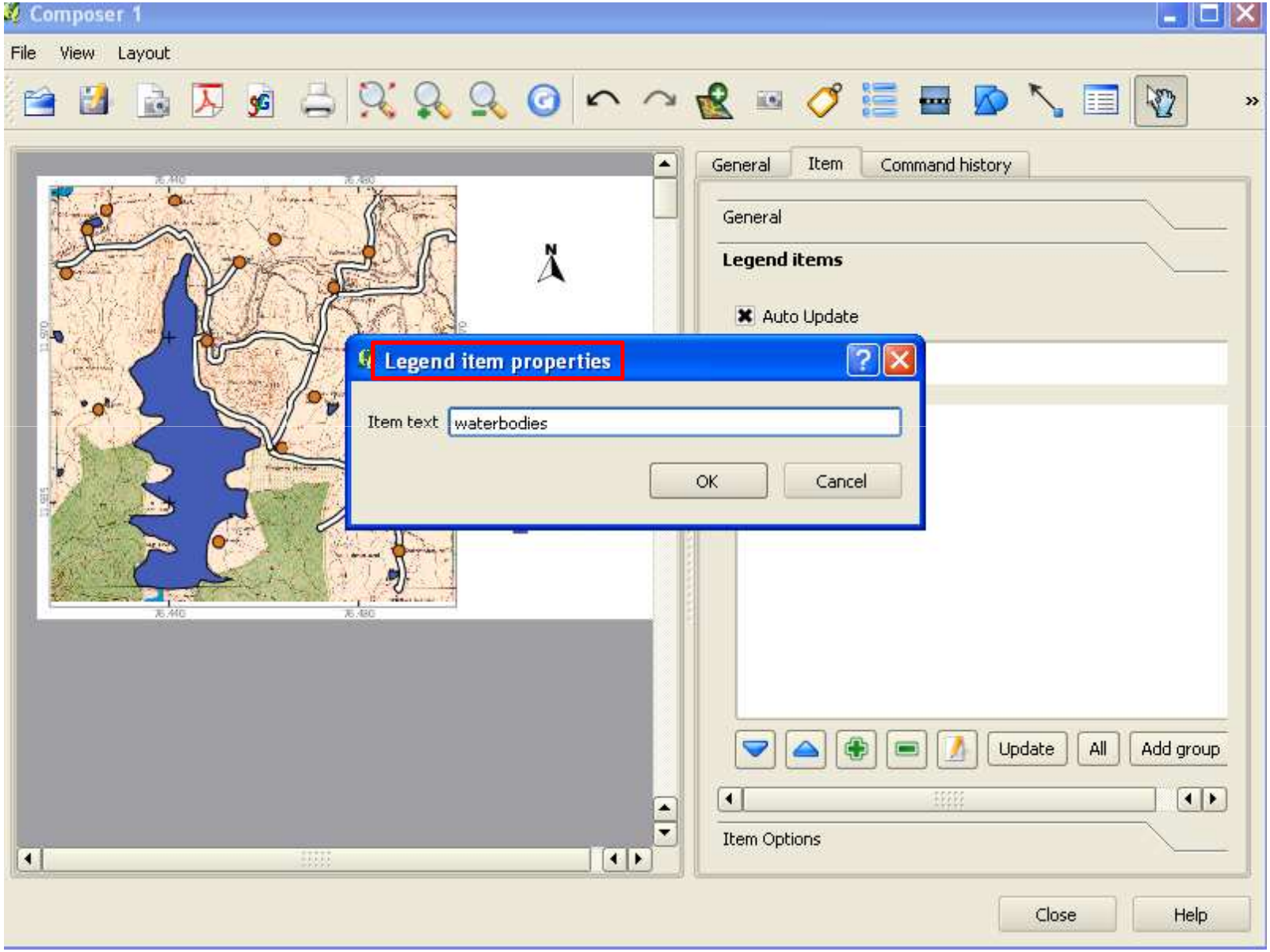

Composer 1
File
View
Layout
General
Item
Command history
General
Legend items
Auto Update
Legend item properties
Item text
waterbodies
OK
Cancel
Update
All
Add group
Item Options
Close
Help

Figure 2.22

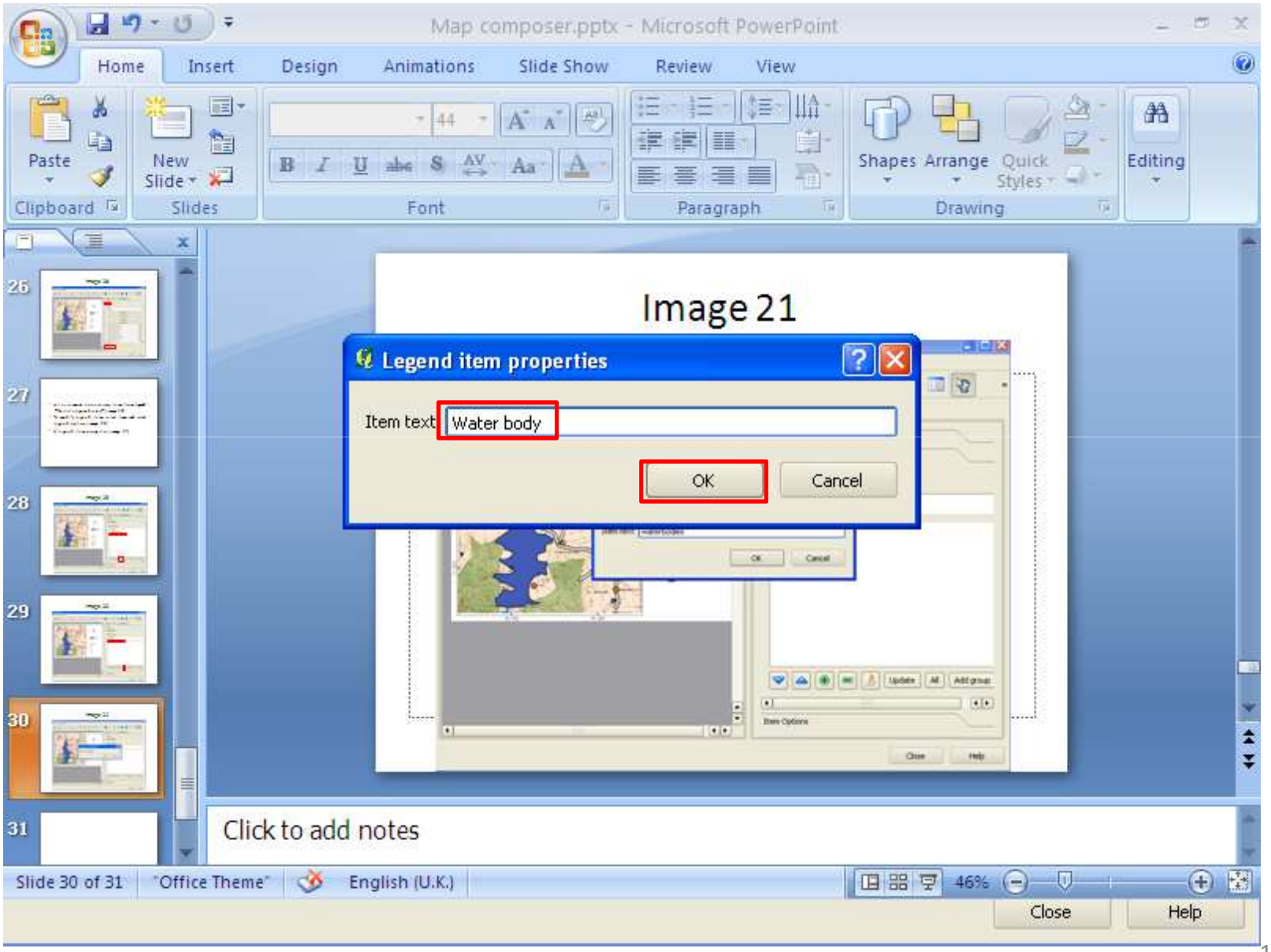
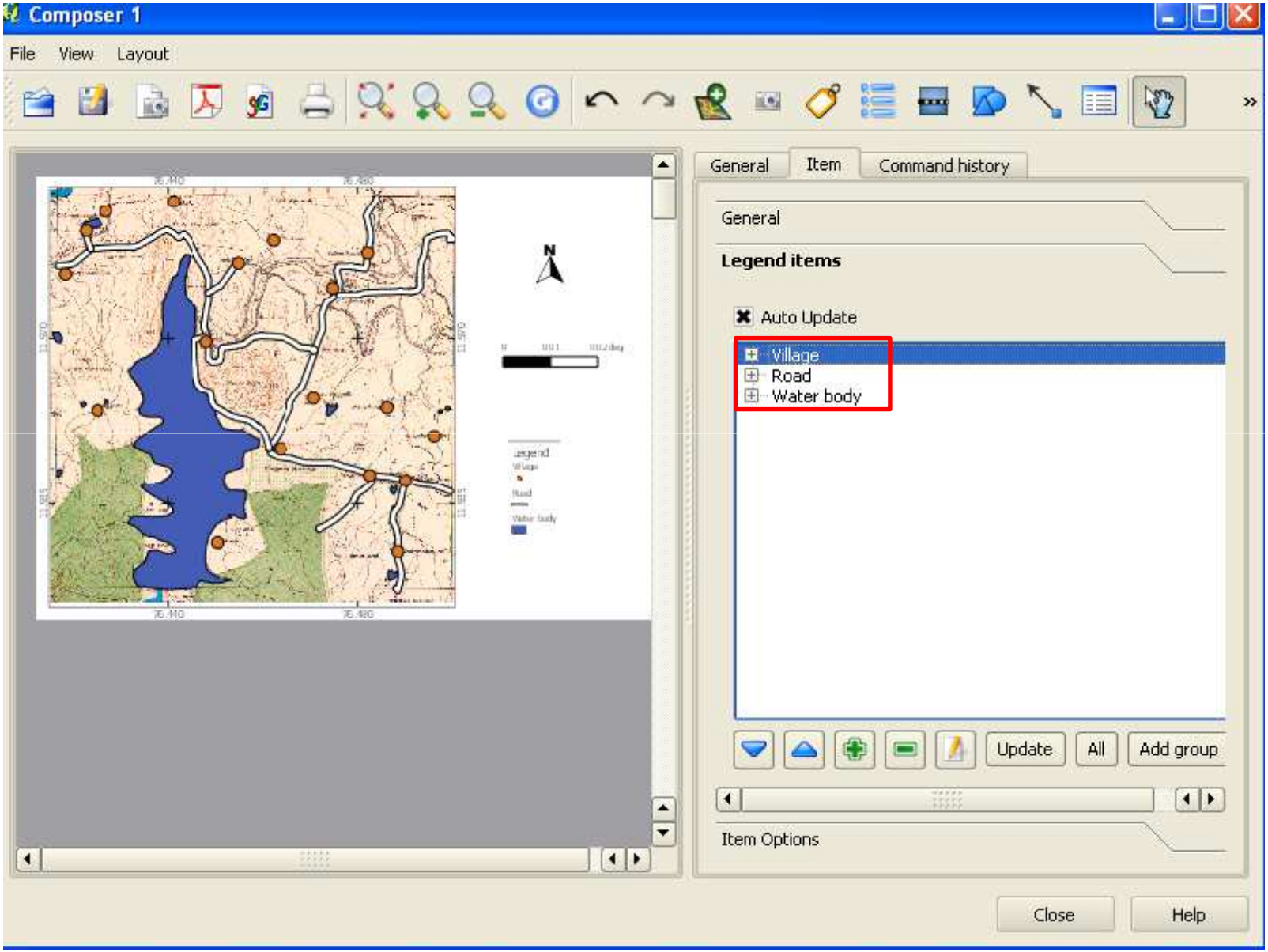

Map composer.pptx - Microsoft PowerPoint
Home
Insert
Design
Animations
Slide Show
Review
View
Paste
New Slide
Clipboard
Slides
Font
Paragraph
Shapes
Arrange
Quick Styles
Drawing
Editing
Image 21
Legend item properties
Item text:
Water body
OK
Cancel
Click to add notes
Slide 30 of 31
"Office Theme"
English (U.K.)
46%
Close
Help

Figure 2.23


Composer 1
File
View
Layout
General
Item
Command history
General
Legend items
Auto Update
Village
Road
Water body
Update
All
Add group
Item Options
Close
Help

Customising Map window

- In the **Item** ➡ **Item options** ➡ de-select **Show frames** as in Figure 2.12, page 17 (Figure 2.24)
- Finally, all the required elements are placed on the canvas; rearrange the same to convey the message in a elegant way (Figure 2.25)
- Save the composer window by selecting **Save as template** (Figure 2.26)
- The **Save template** window opens, enter the file name Nugu and select **Save** (Figure 2.27)

Figure 2.24

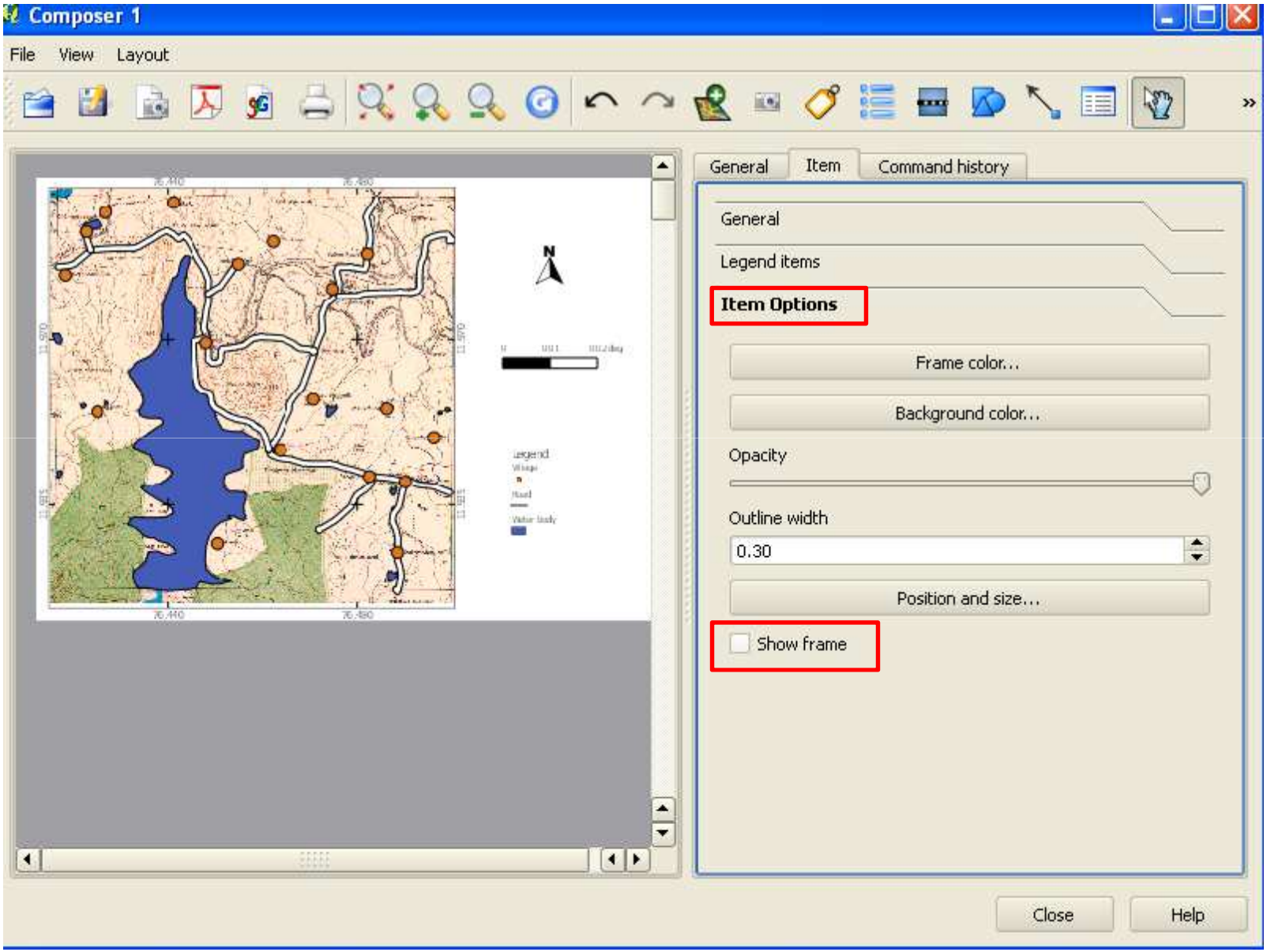

Composer 1
File
View
Layout
General
Item
Command history
General
Legend items
Item Options
Frame color...
Background color...
Opacity
Outline width
0.30
Position and size...
Show frame
Close
Help

Figure 2.25

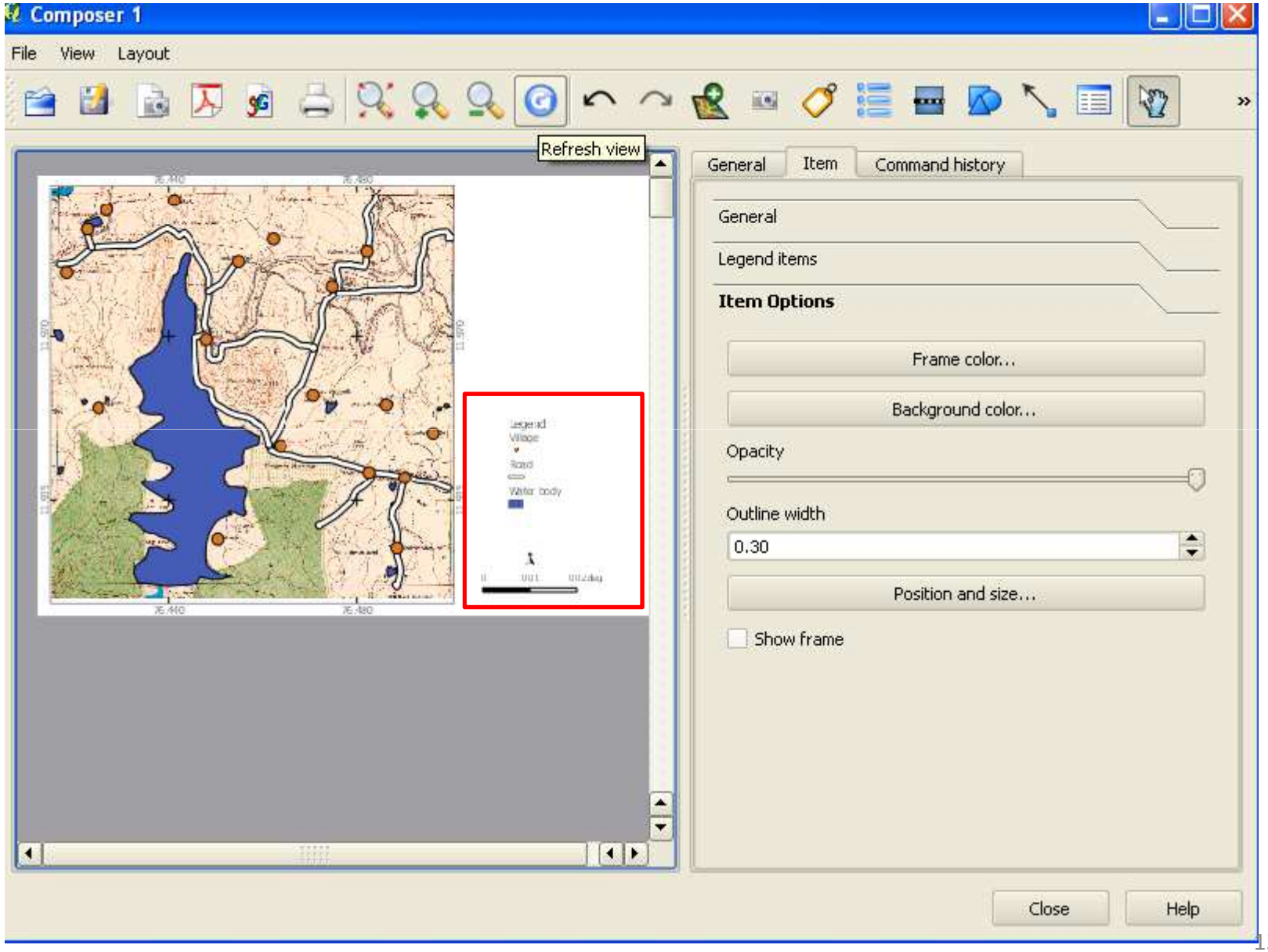

Composer 1
File
View
Layout
Refresh view
General
Item
Command history
General
Legend items
Item Options
Frame color...
Background color...
Opacity
Outline width
0.30
Position and size...
Show frame
Close
Help

Figure 2.26

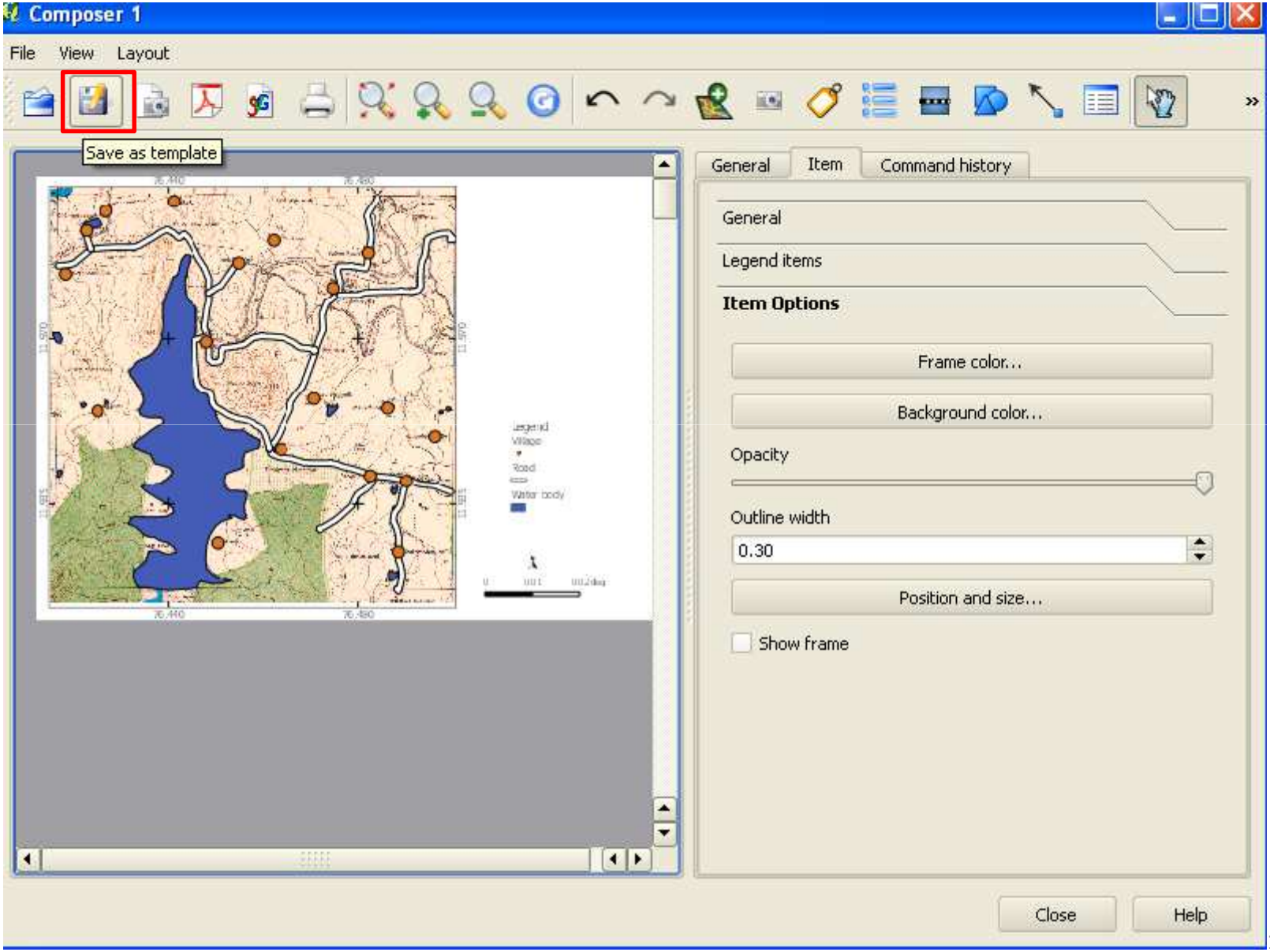
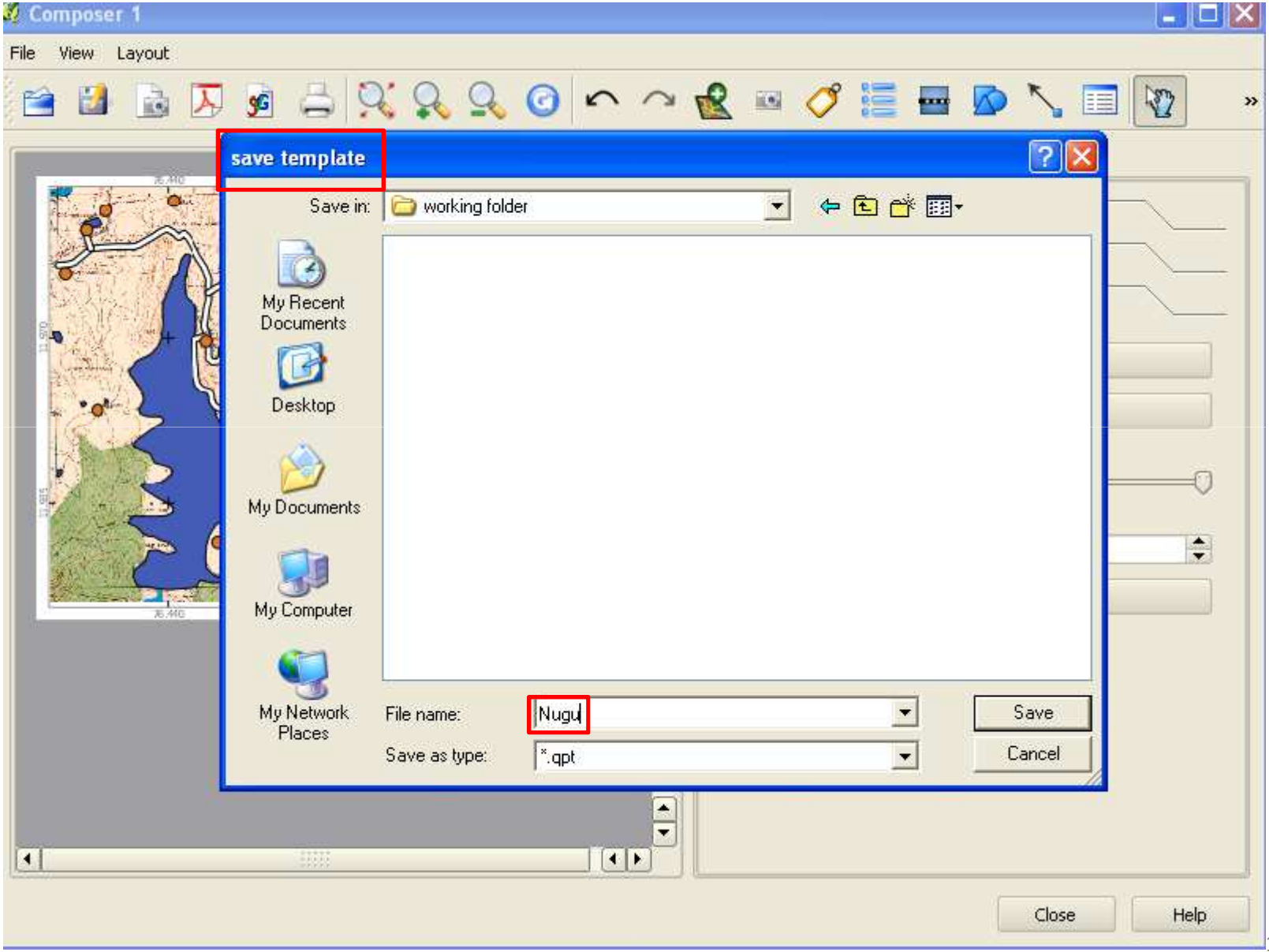
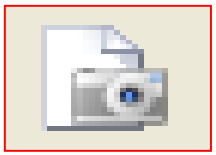
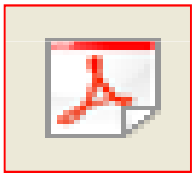
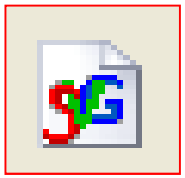
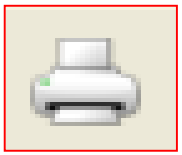

Composer 1
File
View
Layout
Save as template
General
Item
Command history
General
Legend items
Item Options
Frame color...
Background color...
Opacity
Outline width
0.30
Position and size...
Show frame
Close
Help

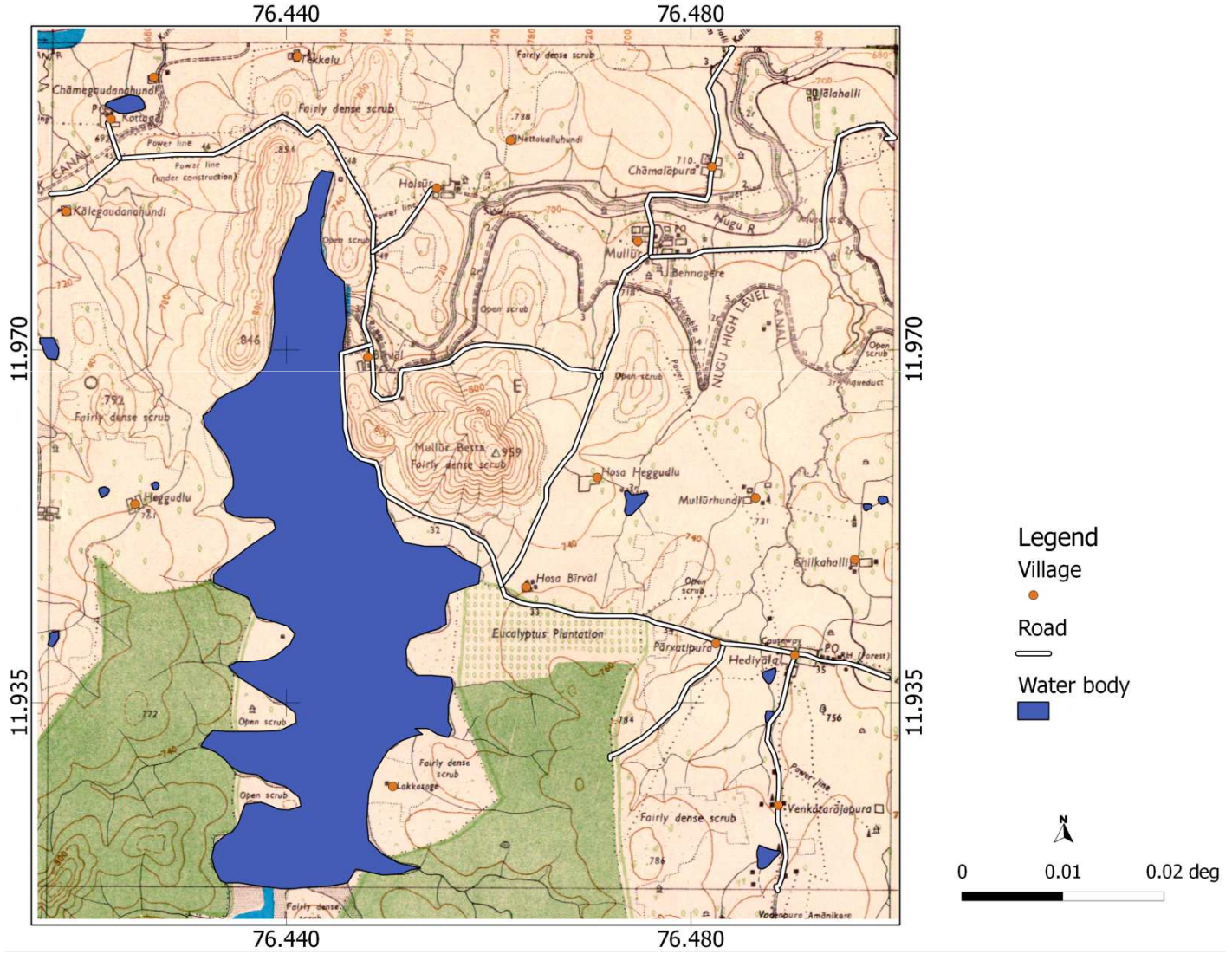
Figure 2.27

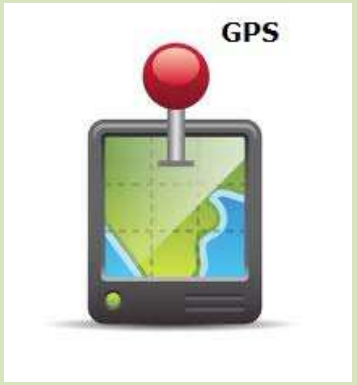

Composer 1
File
View
Layout
save template
Save in:
working folder
My Recent Documents
Desktop
My Documents
My Computer
My Network Places
File name:
Nugu
Save as type:
*.qpt
Save
Cancel
Close
Help

Output options

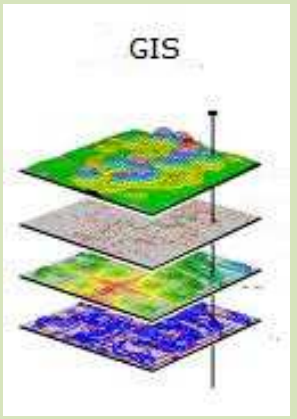
- To take output we have:
  - Export as Image 
  - Export as PDF 
  - Export as SVG 
  - Give a Print 

The final map





Data from Field to GPS to QGIS



Importing GPS data to GPS TrackMarker

To import the data from GPS to QGIS, the following steps are involved:

- Running GPS TrackMarker
- Connecting the GPS to the system
- Importing the data to GPS TrackMarker
- Saving it as GPX format.

Importing GPS data to GPS TrackMarker

- Run GPS TrackMarker from Program file

- Connect and turn on the GPS
- GPS TrackMarker window opens (Figure 3.1)
- Select: **GPS** option (Figure 3.1)
- A dropdown window having various makes of GPS appears (Figure 3.2)
- Select the **Garmin interface** (Figure 3.3)

Figure 3.1

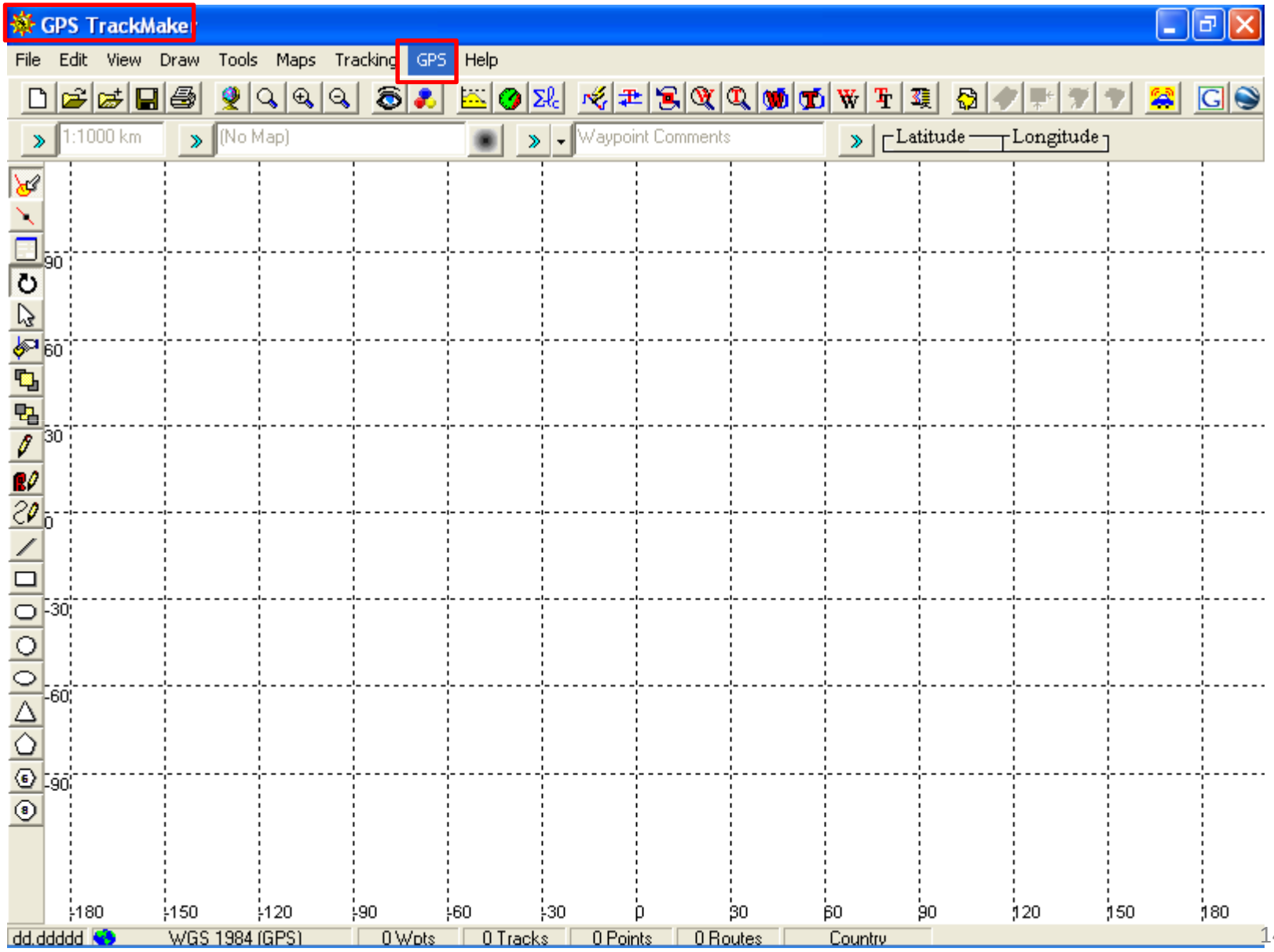

GPS TrackMaker
File Edit View Draw Tools Maps Tracking GPS Help
1:1000 km
(No Map)
Waypoint Comments
Latitude
Longitude
90
60
30
0
-30
-60
-90
-180 -150 -120 -90 -60 -30 0 30 60 90 120 150 180
dd.ddddd
WGS 1984 (GPS)
0 Wpts
0 Tracks
0 Points
0 Routes
Country

Figure 3.2

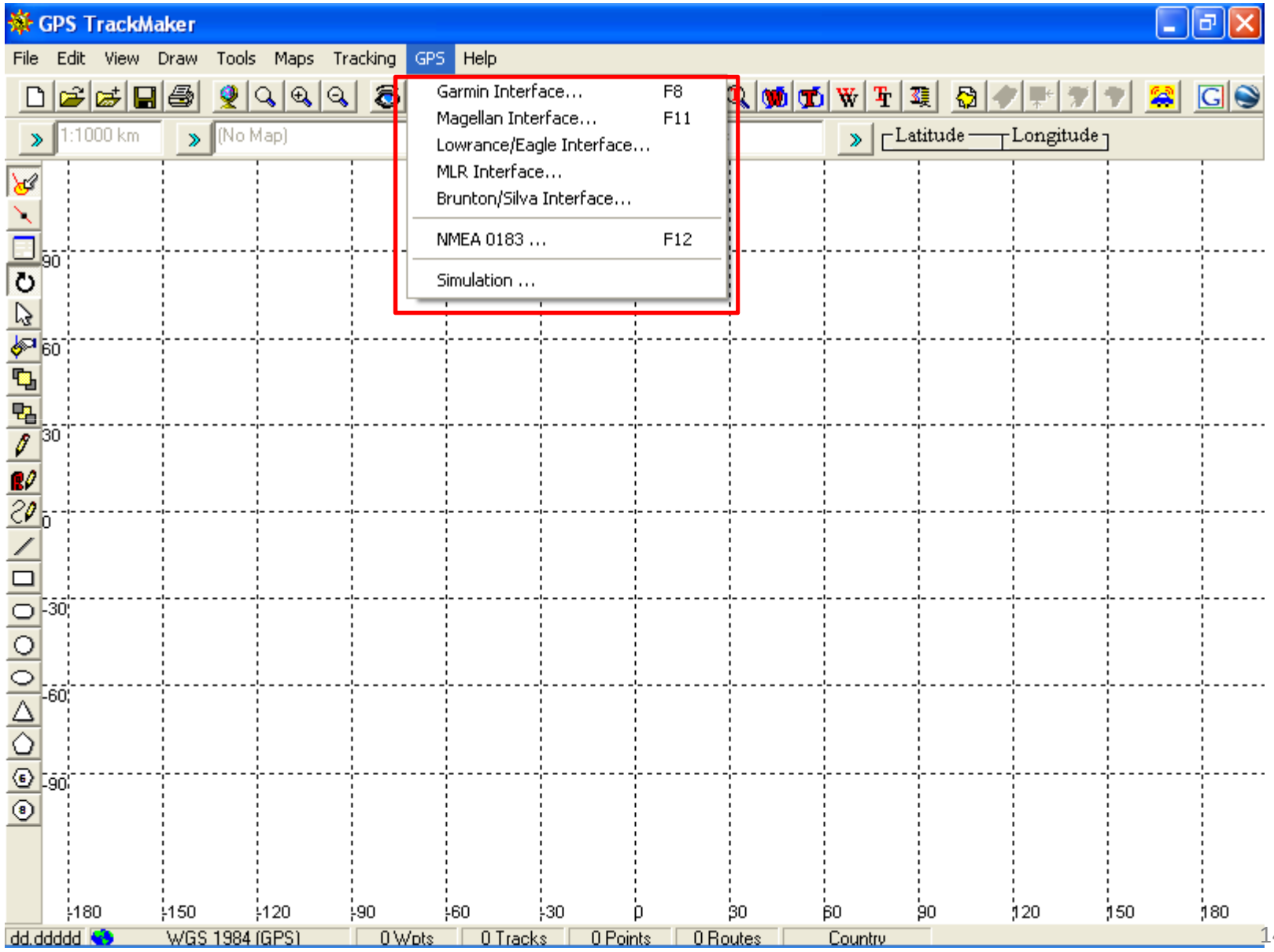
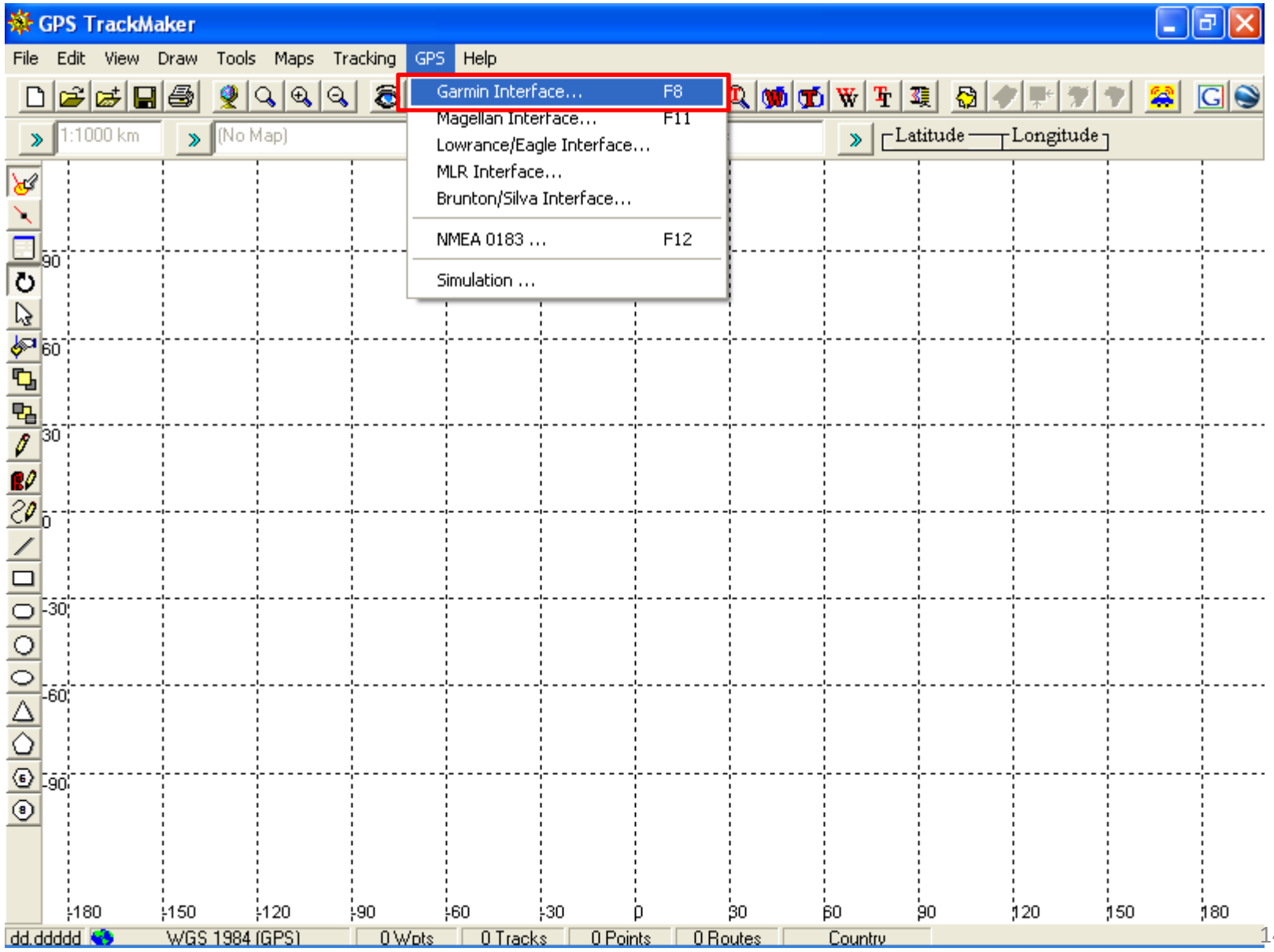

GPS TrackMaker
File Edit View Draw Tools Maps Tracking GPS Help
Garmin Interface... F8
Magellan Interface... F11
Lowrance/Eagle Interface...
MLR Interface...
Brunton/Silva Interface...
NMEA 0183 ... F12
Simulation ...
1:1000 km
(No Map)
Latitude
Longitude
90
60
30
0
-30
-60
-90
180
150
120
90
60
30
0
30
60
90
120
150
180
dd.ddddd
WGS 1984 (GPS)
0 Wpts
0 Tracks
0 Points
0 Routes
Country

Figure 3.3


GPS TrackMaker
File Edit View Draw Tools Maps Tracking GPS Help
Garmin Interface... F8
Magellan Interface... F11
Lowrance/Eagle Interface...
MLR Interface...
Brunton/Silva Interface...
NMEA 0183 ... F12
Simulation ...
1:1000 km
(No Map)
Latitude
Longitude
90
60
30
0
-30
-60
-90
180 150 120 90 60 30 0 30 60 90 120 150 180
dd.ddddd
WGS 1984 (GPS)
0 Wpts
0 Tracks
0 Points
0 Routes
Country

Importing GPS data to GPS TrackMarker

- **Garmin Interface** window opens (Figure 3.4)

  Note: Window gives information on the device connected (e.g., eTrex Legend), and the mode of connection as USB (Figure 3.4)

➢ Select **Capture** ⇒ **ALL*** (Figure 3.5)

- Fields get flooded with the values

➢ Select ⇒ EXIT (Figure 3.6)

* During the field work if only **Waypoints** or **Tracks** were collected please select **Waypoints** or **Tracks** respectively rather than **ALL**

Figure 3.4

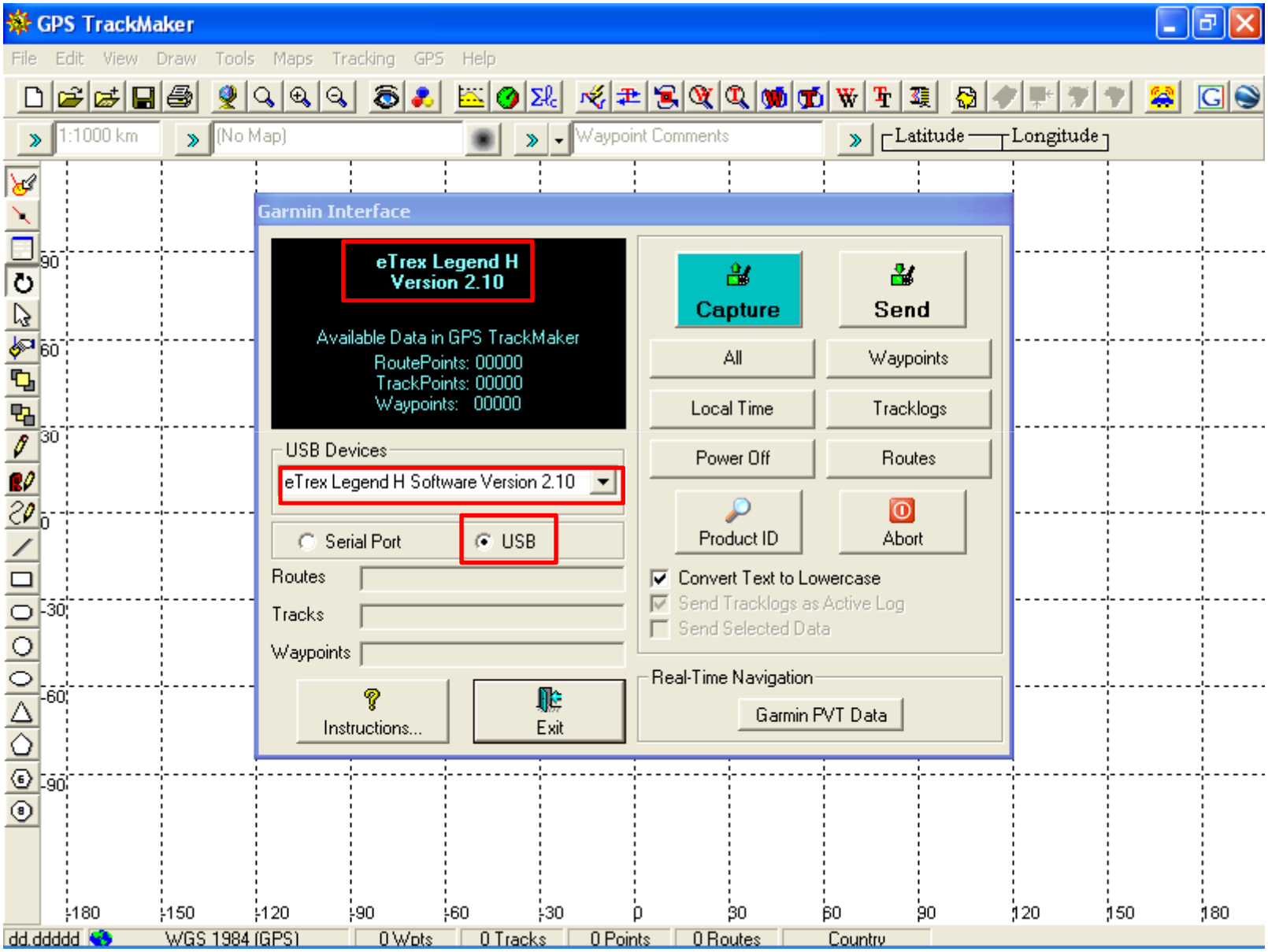

GPS TrackMaker
File Edit View Draw Tools Maps Tracking GPS Help
1:1000 km
(No Map)
Waypoint Comments
Latitude
Longitude
Garmin Interface
eTrex Legend H
Version 2.10
Available Data in GPS TrackMaker
RoutePoints: 00000
TrackPoints: 00000
Waypoints: 00000
USB Devices
eTrex Legend H Software Version 2.10
Serial Port
USB
Routes
Tracks
Waypoints
Instructions...
Exit
Capture
Send
All
Waypoints
Local Time
Tracklogs
Power Off
Routes
Product ID
Abort
Convert Text to Lowercase
Send Tracklogs as Active Log
Send Selected Data
Real-Time Navigation
Garmin PVT Data
90
60
30
0
-30
-60
-90
180
150
120
90
60
30
0
30
60
90
120
150
180
dd.ddddd
WGS 1984 (GPS)
0 Wpts
0 Tracks
0 Points
0 Routes
Country

Figure 3.5

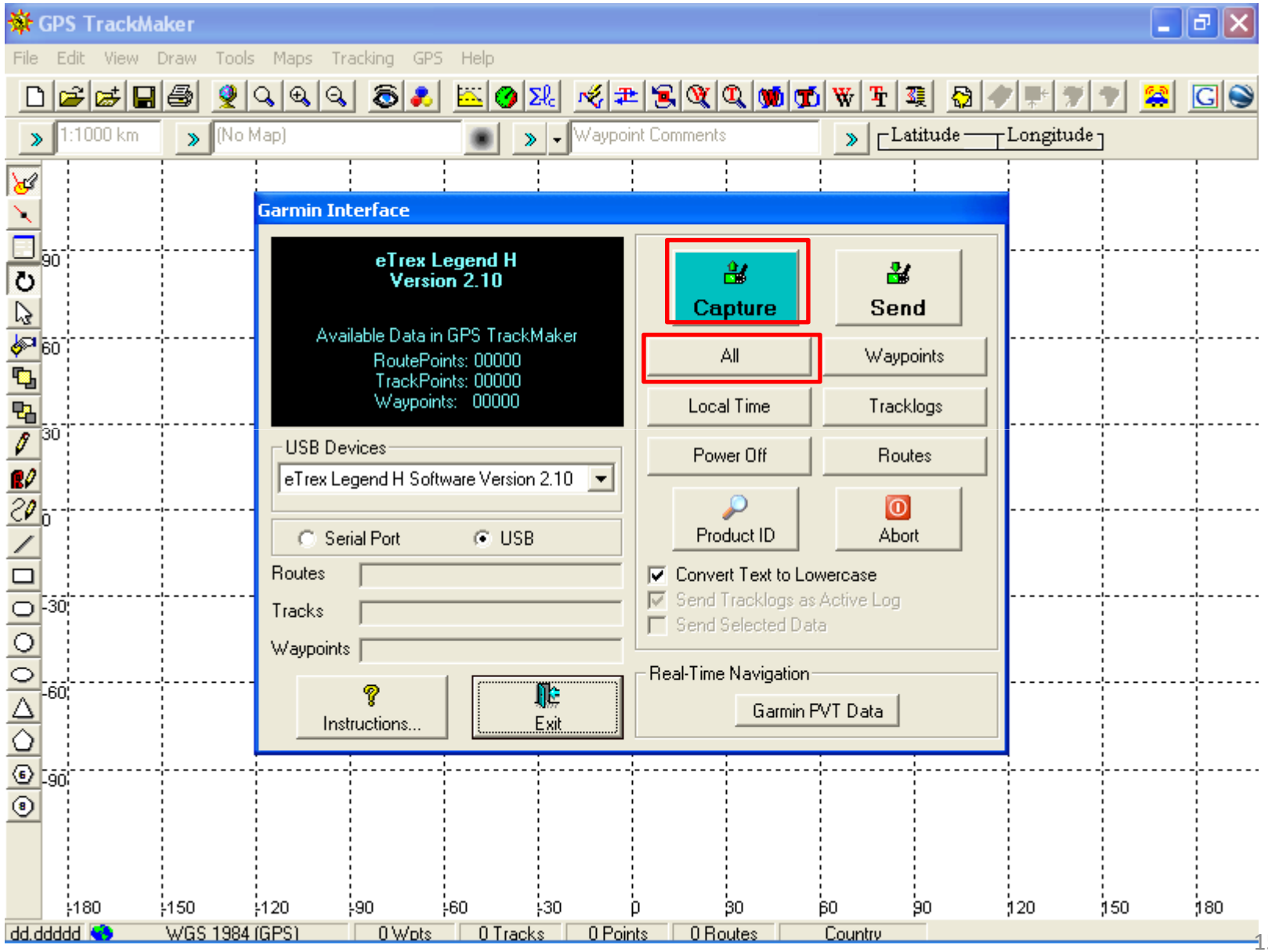
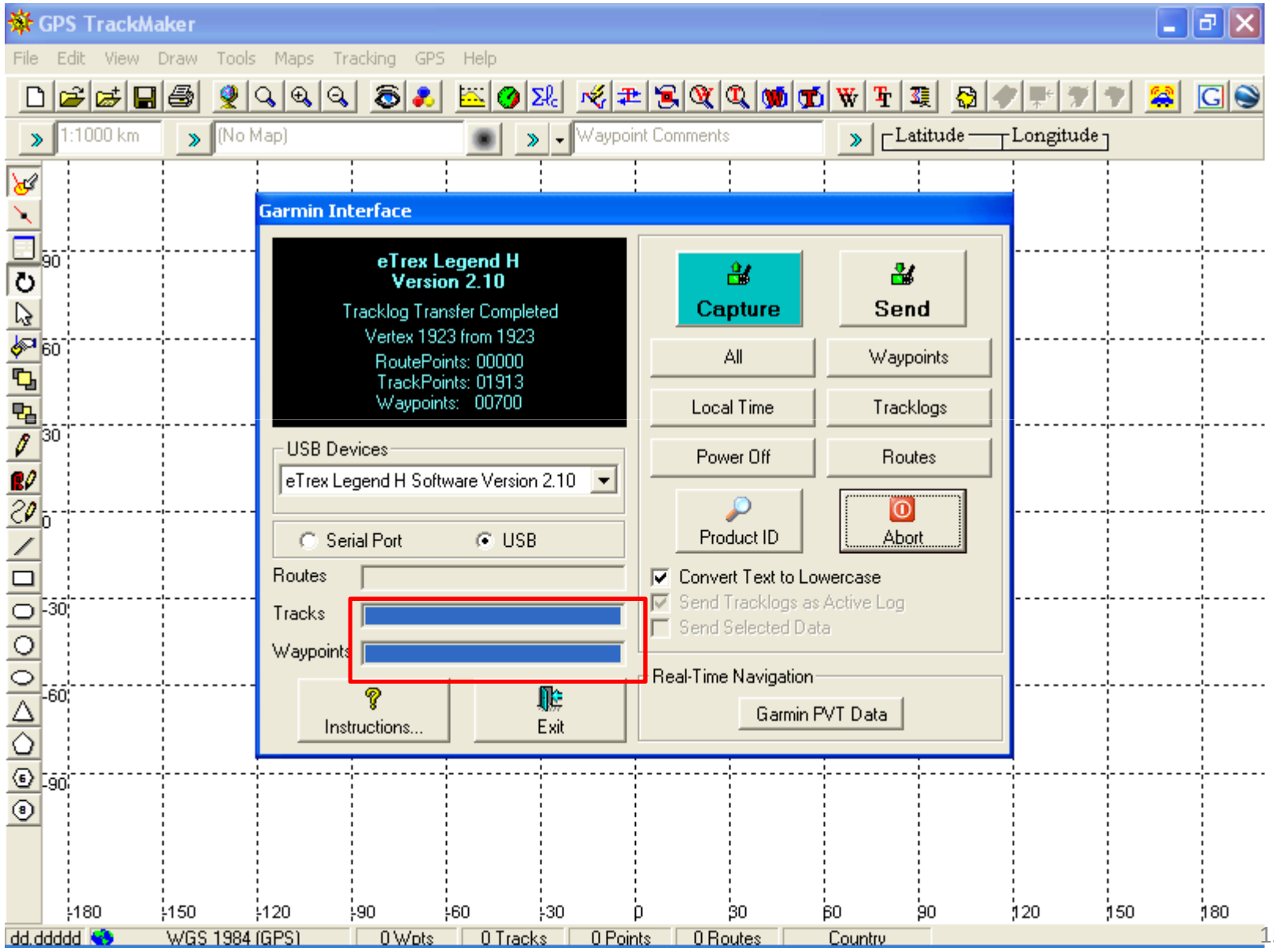

GPS TrackMaker
File Edit View Draw Tools Maps Tracking GPS Help
1:1000 km
(No Map)
Waypoint Comments
Latitude
Longitude
Garmin Interface
eTrex Legend H
Version 2.10
Available Data in GPS TrackMaker
RoutePoints: 00000
TrackPoints: 00000
Waypoints: 00000
USB Devices
eTrex Legend H Software Version 2.10
Serial Port
USB
Routes
Tracks
Waypoints
Instructions...
Exit
Capture
Send
All
Waypoints
Local Time
Tracklogs
Power Off
Routes
Product ID
Abort
Convert Text to Lowercase
Send Tracklogs as Active Log
Send Selected Data
Real-Time Navigation
Garmin PVT Data
90
60
30
0
-30
-60
-90
180
150
120
90
60
30
0
30
60
90
120
150
180
dd.ddddd
WGS 1984 (GPS)
0 Wpts
0 Tracks
0 Points
0 Routes
Country

Figure 3.6


GPS TrackMaker
File Edit View Draw Tools Maps Tracking GPS Help
1:1000 km
(No Map)
Waypoint Comments
Latitude
Longitude
Garmin Interface
eTrex Legend H
Version 2.10
Tracklog Transfer Completed
Vertex 1923 from 1923
RoutePoints: 00000
TrackPoints: 01913
Waypoints: 00700
USB Devices
eTrex Legend H Software Version 2.10
Serial Port
USB
Routes
Tracks
Waypoints
Instructions...
Exit
Capture
Send
All
Waypoints
Local Time
Tracklogs
Power Off
Routes
Product ID
Abort
Convert Text to Lowercase
Send Tracklogs as Active Log
Send Selected Data
Real-Time Navigation
Garmin PVT Data
90
60
30
0
-30
-60
-90
180
150
120
90
60
30
0
30
60
90
120
150
180
dd.ddddd
WGS 1984 (GPS)
0 Wpts
0 Tracks
0 Points
0 Routes
Country

Importing GPS data to GPS TrackMarker

- The output is displayed in the window (Figure 3.7)
- Next save the data.

➢ Select ⇒ **File** ⇒ **Save File as** (Figure 3.8)

➢ Select ⇒ **Save as type**: GPS exchange file (.gpx) format (Figure 3.9)

➢ Name appropriately and save (Figure 3.10)

Figure 3.7

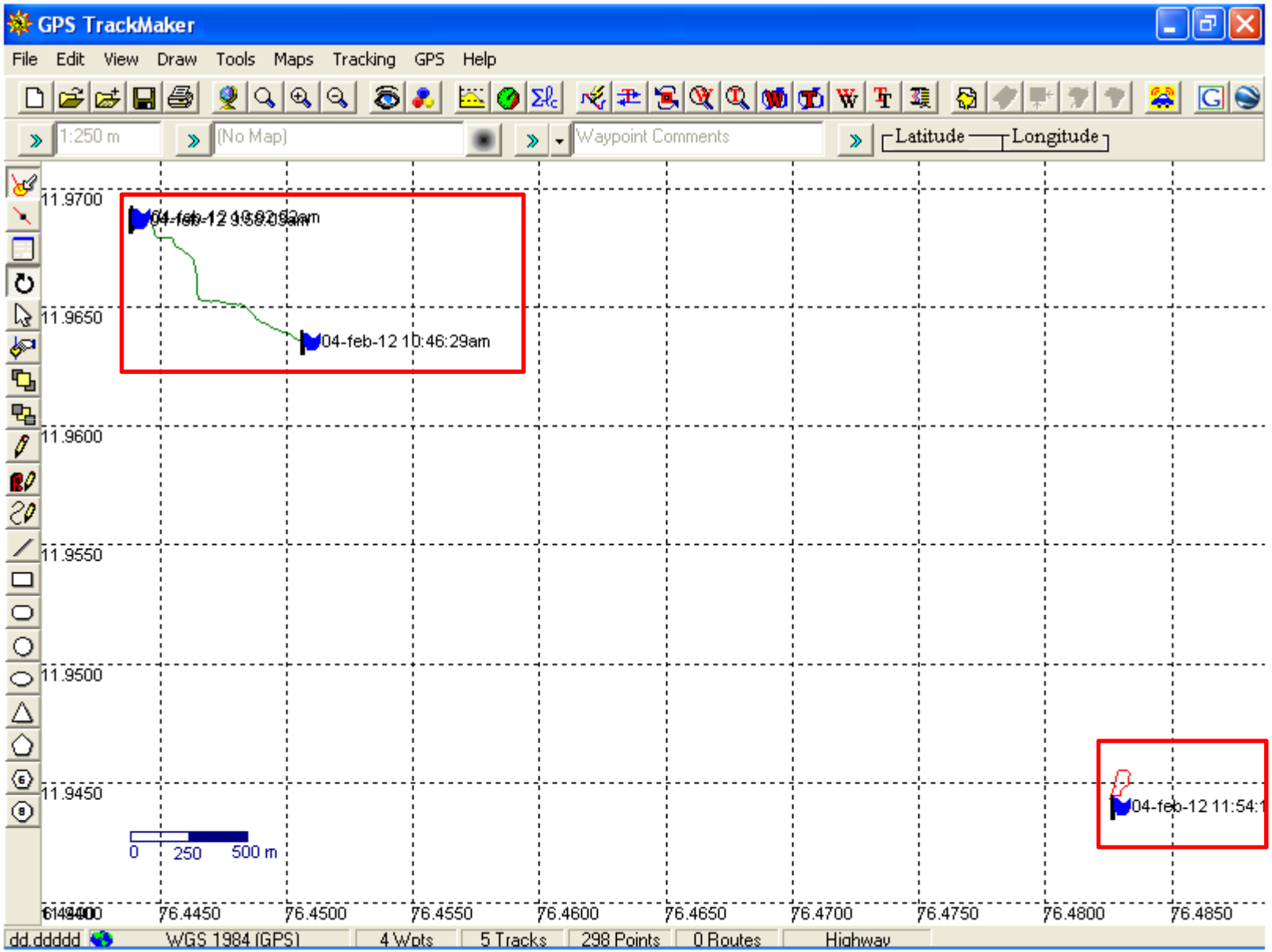

GPS TrackMaker
File Edit View Draw Tools Maps Tracking GPS Help
1:250 m
(No Map)
Waypoint Comments
Latitude
Longitude
11.9700
11.9650
11.9600
11.9550
11.9500
11.9450
04-feb-12 10:46:29am
0 250 500 m
76.4450
76.4500
76.4550
76.4600
76.4650
76.4700
76.4750
76.4800
76.4850
dd.ddddd
WGS 1984 (GPS)
4 Wpts
5 Tracks
298 Points
0 Routes
Highway

Figure 3.8

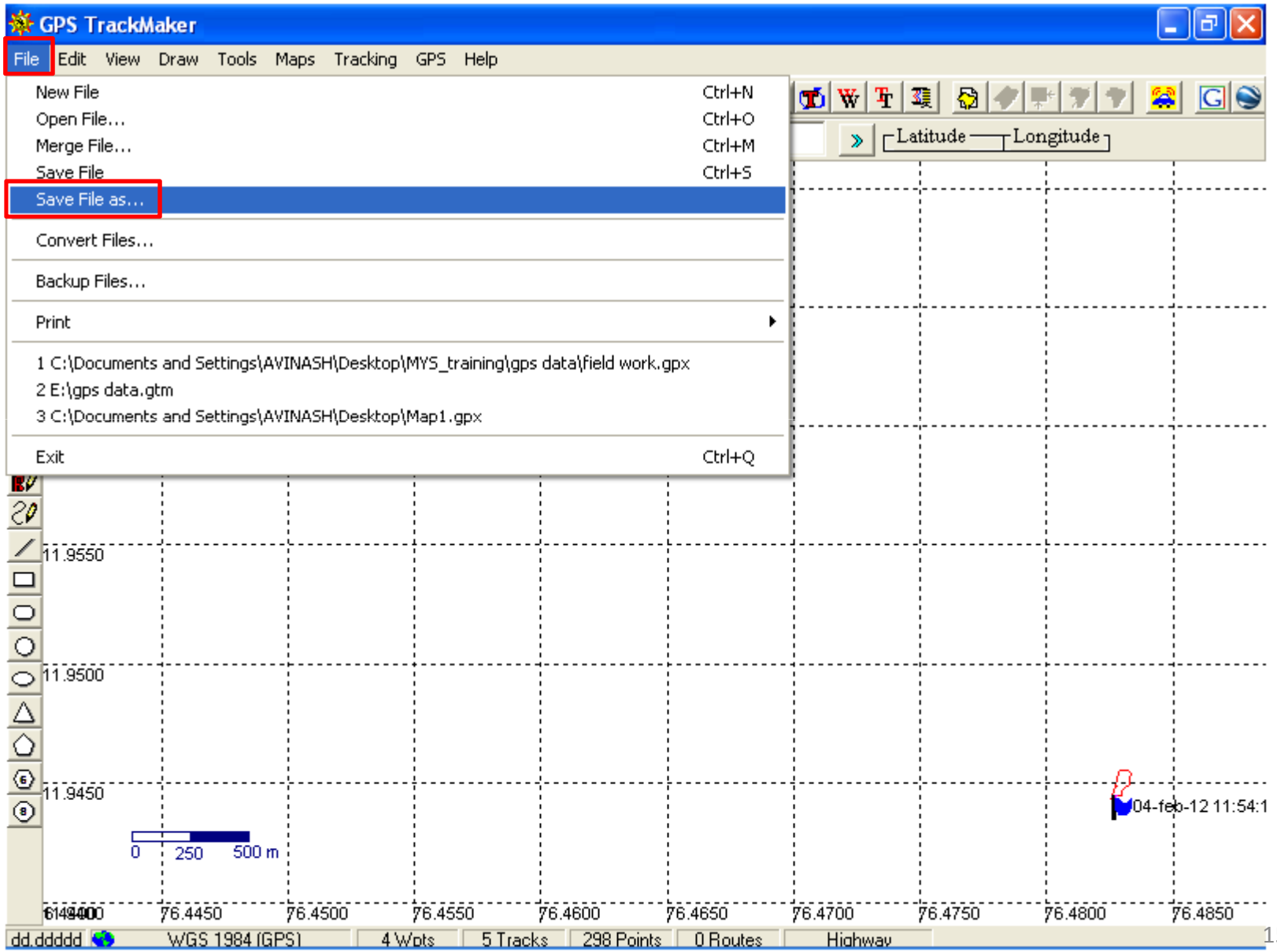

GPS TrackMaker
File
Edit
View
Draw
Tools
Maps
Tracking
GPS
Help
New File Ctrl+N
Open File... Ctrl+O
Merge File... Ctrl+M
Save File Ctrl+S
Save File as...
Convert Files...
Backup Files...
Print
1 C:\Documents and Settings\AVINASH\Desktop\MYS_training\gps data\field work.gpx
2 E:\gps data.gtm
3 C:\Documents and Settings\AVINASH\Desktop\Map1.gpx
Exit Ctrl+Q
Latitude
Longitude
11.9550
11.9500
11.9450
0 250 500 m
04-feb-12 11:54:1
76.4450
76.4500
76.4550
76.4600
76.4650
76.4700
76.4750
76.4800
76.4850
dd.ddddd
WGS 1984 (GPS)
4 Wpts
5 Tracks
298 Points
0 Routes
Highway

Figure 3.9

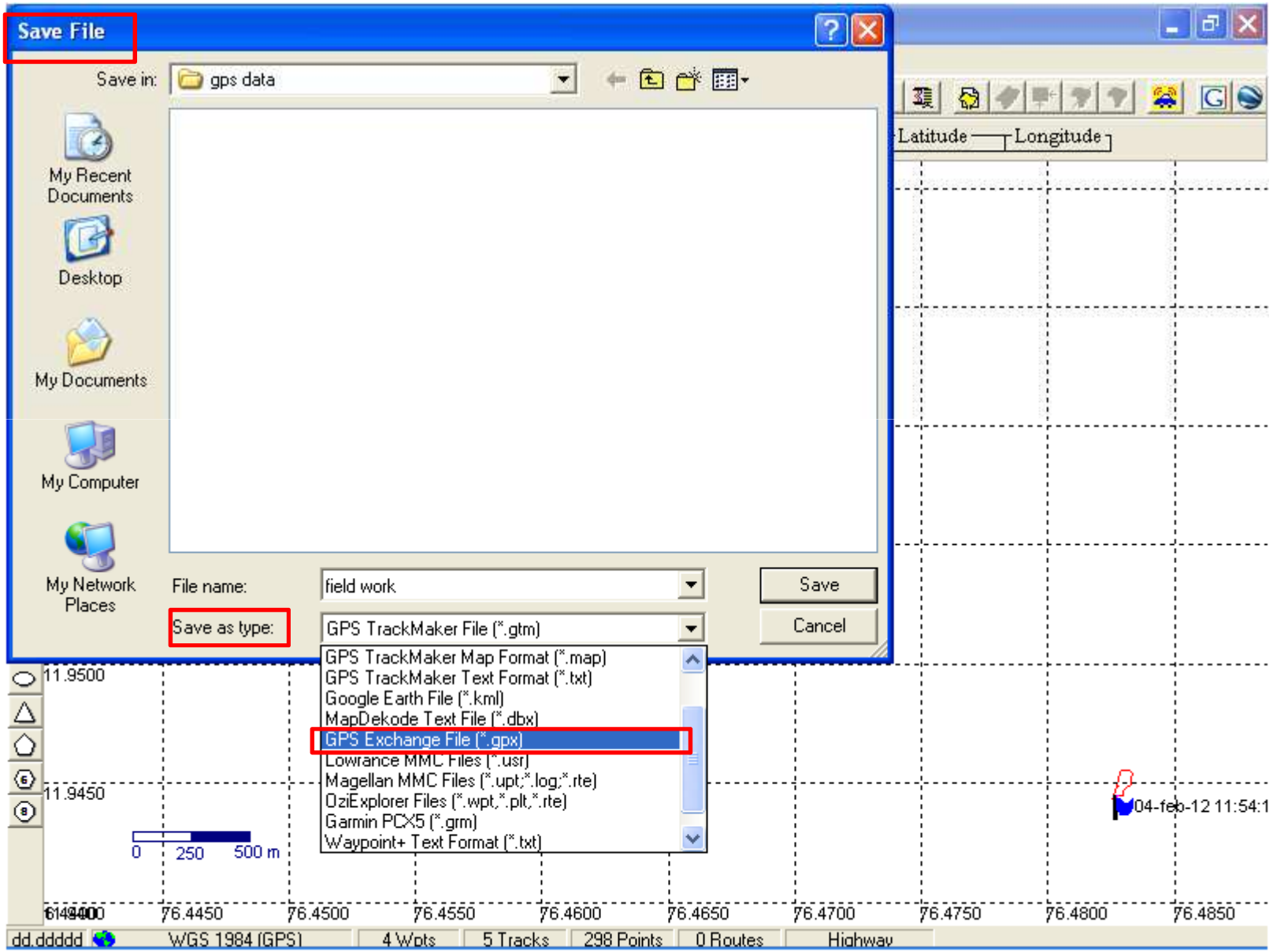
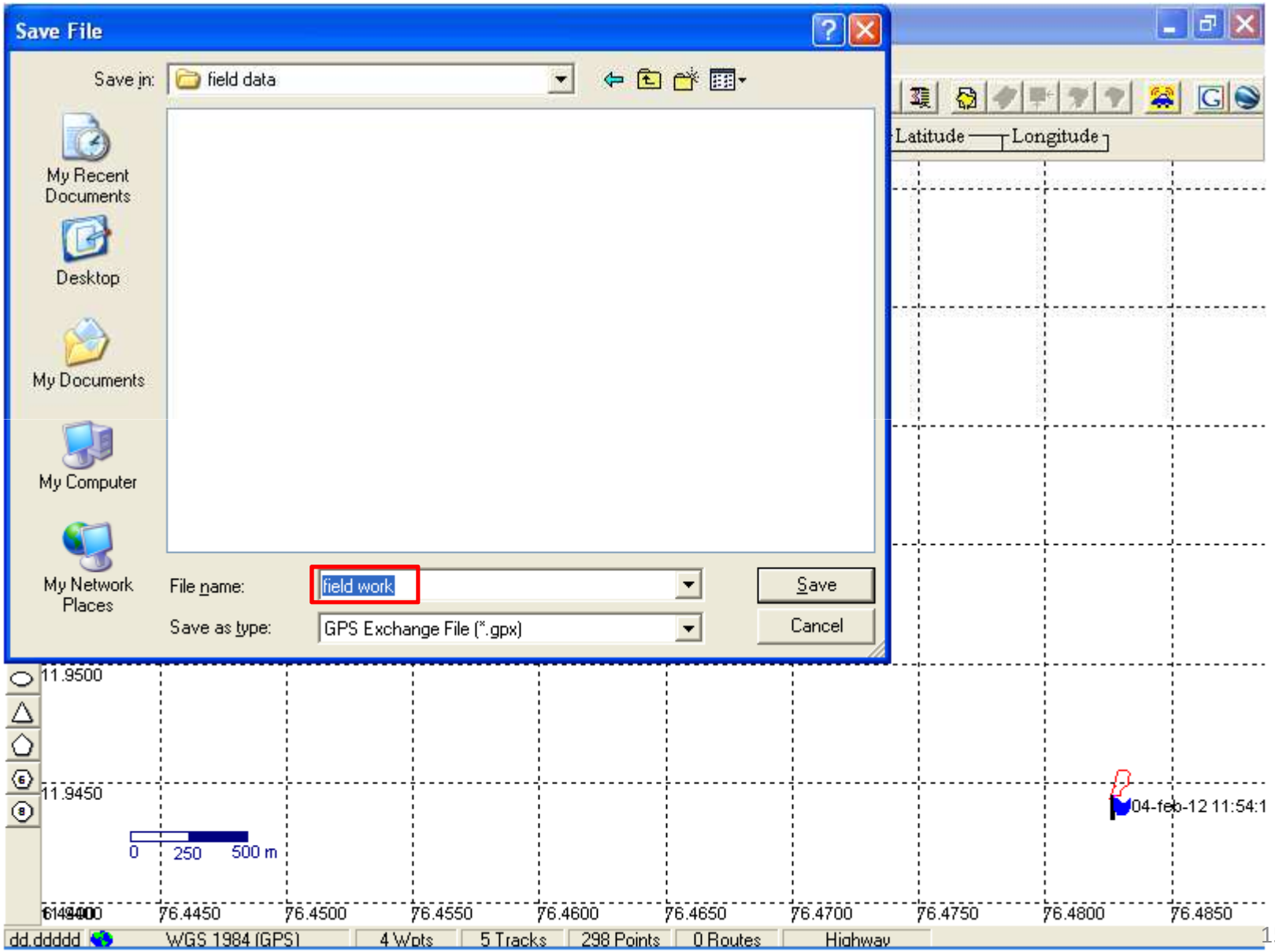

Save File
Save in:
gps data
My Recent Documents
Desktop
My Documents
My Computer
My Network Places
File name:
field work
Save as type:
GPS TrackMaker File (*.gtm)
Save
Cancel
GPS TrackMaker Map Format (*.map)
GPS TrackMaker Text Format (*.txt)
Google Earth File (*.kml)
MapDekode Text File (*.dbx)
GPS Exchange File (*.gpx)
Lowrance MMC Files (*.usr)
Magellan MMC Files (*.upt;*.log;*.rte)
OziExplorer Files (*.wpt,*.plt,*.rte)
Garmin PCX5 (*.grm)
Waypoint+ Text Format (*.txt)
Latitude
Longitude
11.9500
11.9450
0
250
500 m
76.4450
76.4500
76.4550
76.4600
76.4650
76.4700
76.4750
76.4800
76.4850
dd.ddddd
WGS 1984 (GPS)
4 Wpts
5 Tracks
298 Points
0 Routes
Highway

Figure 3.10


Save File
Save in:
field data
My Recent Documents
Desktop
My Documents
My Computer
My Network Places
File name:
field work
Save as type:
GPS Exchange File (*.gpx)
Save
Cancel
Latitude
Longitude
11.9500
11.9450
0
250
500 m
04-feb-12 11:54:1
76.4450
76.4500
76.4550
76.4600
76.4650
76.4700
76.4750
76.4800
76.4850
dd.ddddd
WGS 1984 (GPS)
4 Wpts
5 Tracks
298 Points
0 Routes
Highway

Importing the data to QGIS

- Close the GPS TrackMarker application
- Open QGIS
- To view this data in QGIS

➢ Select ➡ **Gps tools** icon (Figure 3.11)

➢ **Gps Tools** window appears ➡ **Load GPX file** ➡ Browse (Figure 3.12)

➢ Directs to the saved file. Select the gpx file created (Figure 3.13)

Figure 3.11

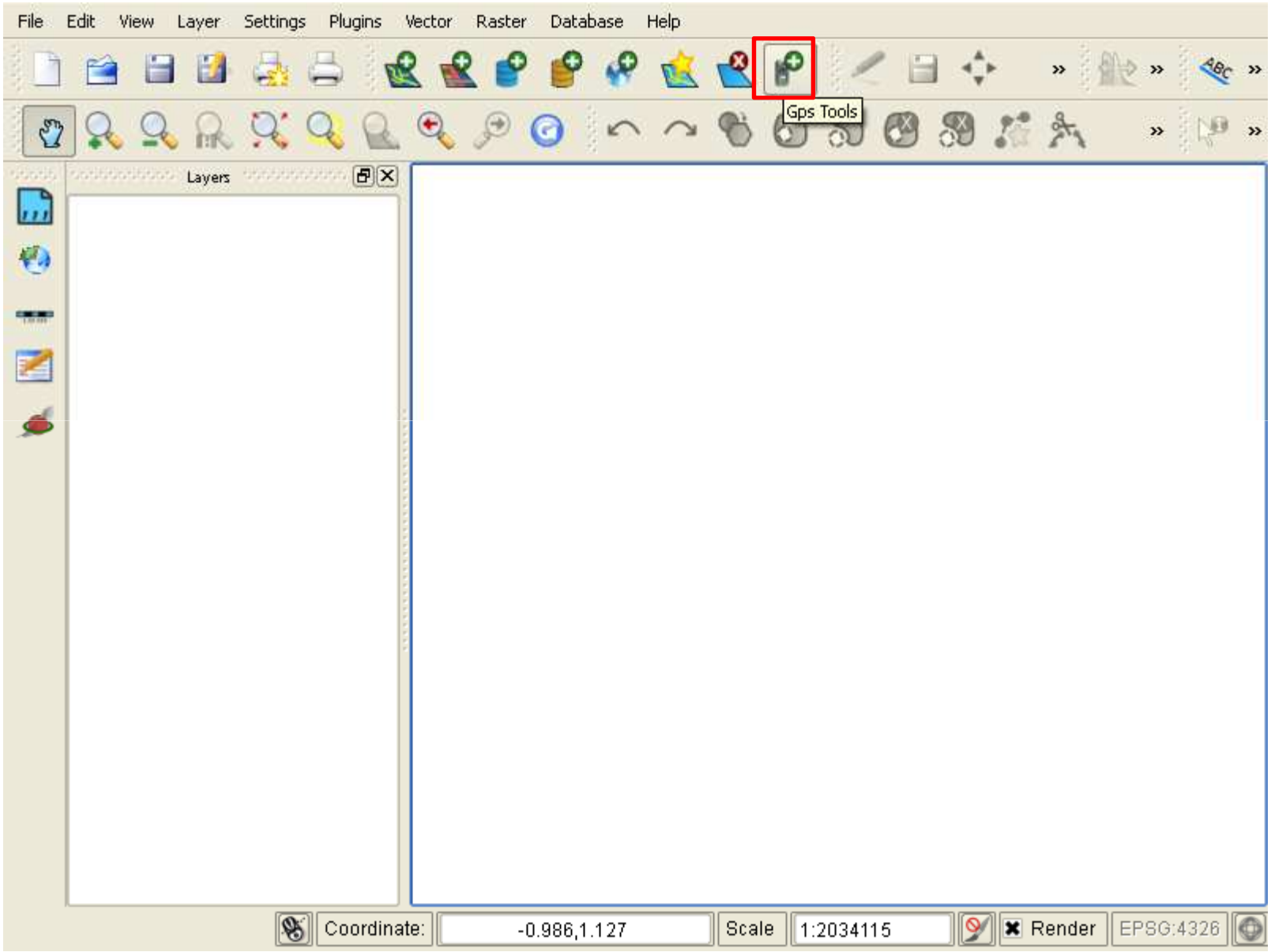

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Gps Tools
Layers
Coordinate:
-0.986,1.127
Scale
1:2034115
Render
EPSG:4326

Figure 3.12

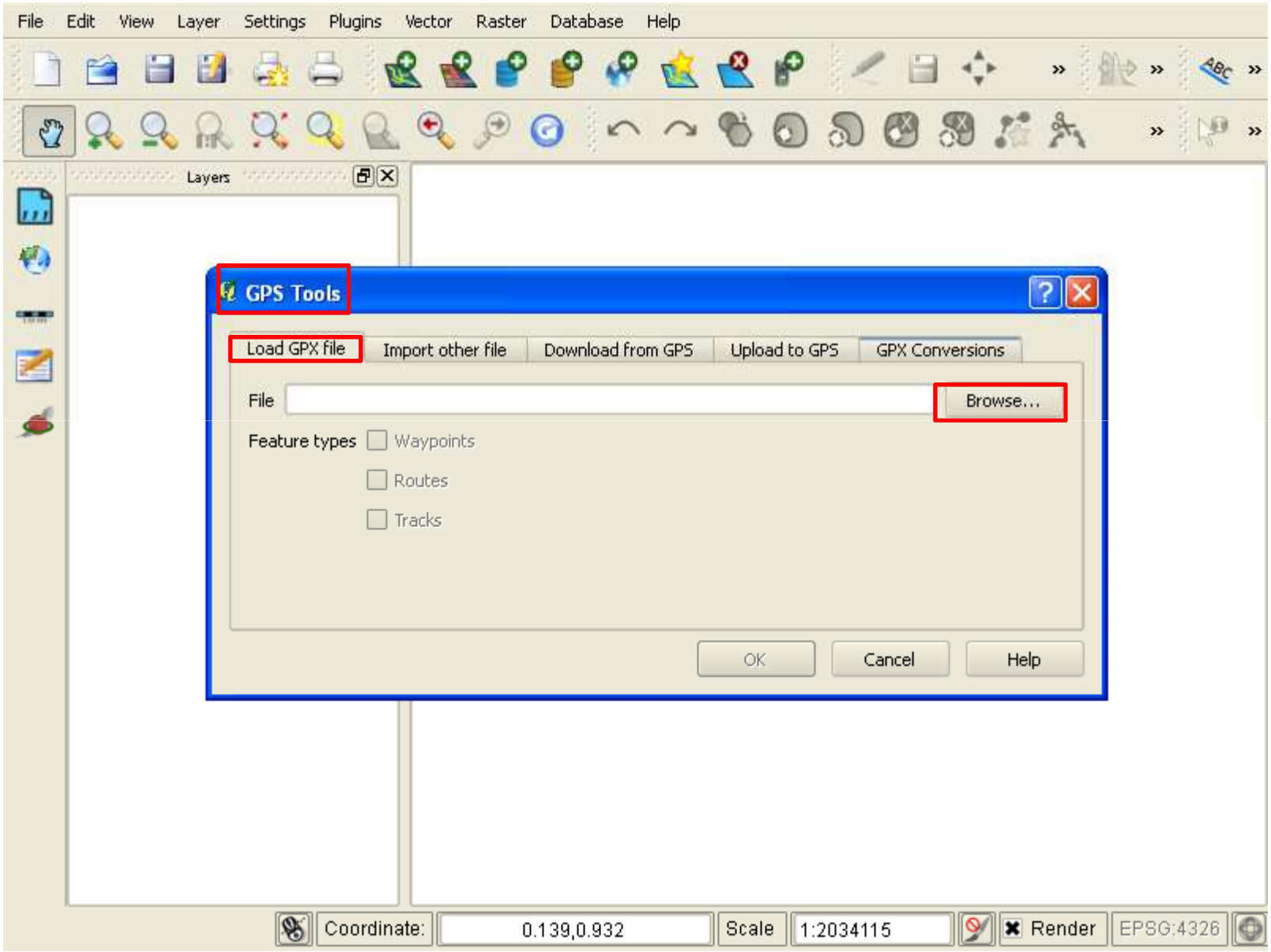
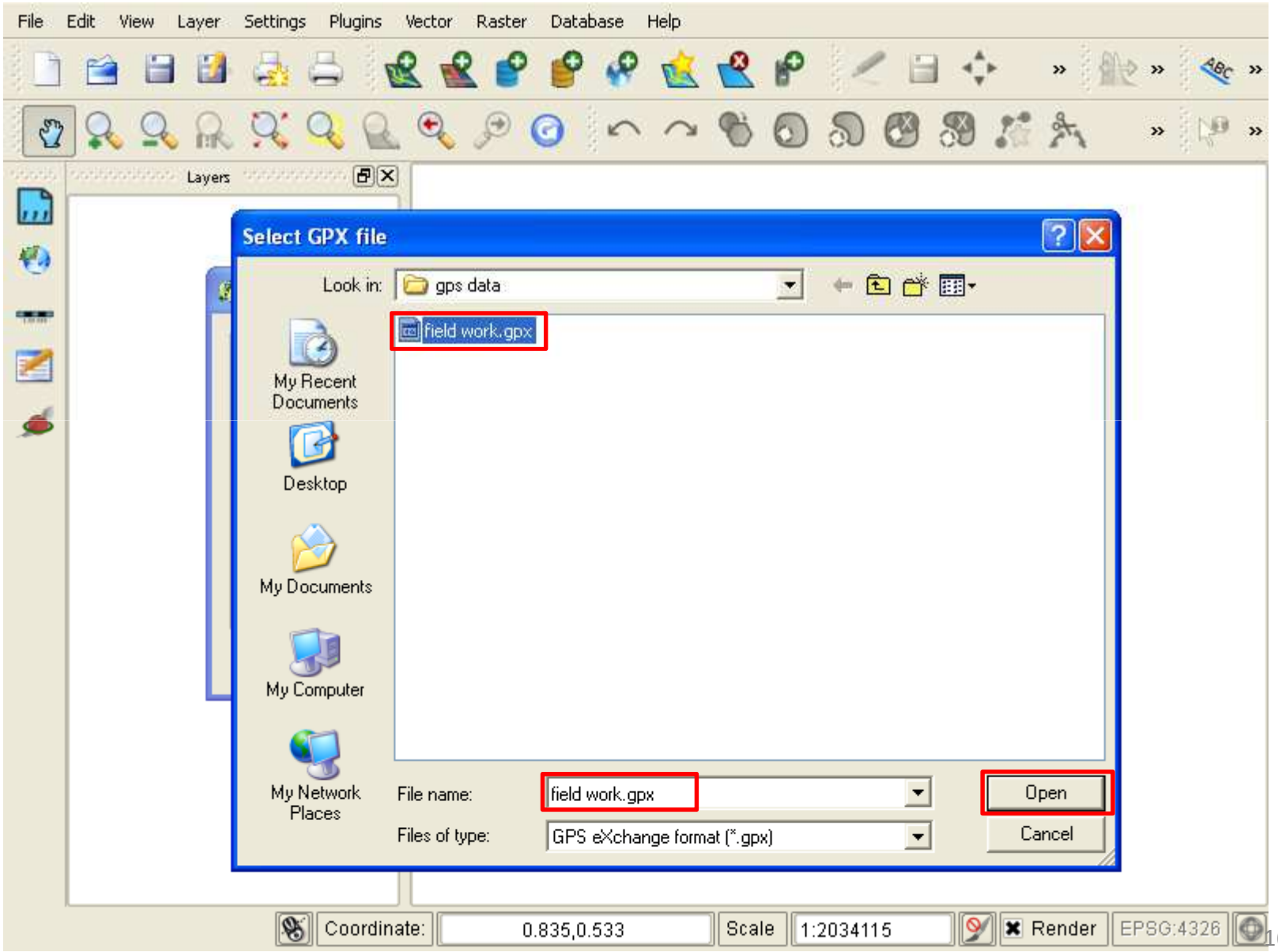

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
GPS Tools
Load GPX file
Import other file
Download from GPS
Upload to GPS
GPX Conversions
File
Browse...
Feature types
Waypoints
Routes
Tracks
OK
Cancel
Help
Coordinate:
0.139,0.932
Scale
1:2034115
Render
EPSG:4326

Figure 3.13


File Edit View Layer Settings Plugins Vector Raster Database Help
Layers
Select GPX file
Look in: gps data
field work.gpx
My Recent Documents
Desktop
My Documents
My Computer
My Network Places
File name: field work.gpx
Files of type: GPS eXchange format (*.gpx)
Open
Cancel
Coordinate: 0.835,0.533
Scale 1:2034115
Render
EPSG:4326

Importing the data to QGIS

- GPS tools window appears which is loaded with features and highlights various data (**Waypoints, Routes** and **Tracks**) (Figure 3.14)

➢ De-select ⇒ routes (Figure 3.15) so that only **Tracks** and **Waypoints** are downloaded

➢ Select **OK** (Figure 3.15)

- In Figure 3.16 we can see that collected data is only of Tracks and Waypoints

Figure 3.14

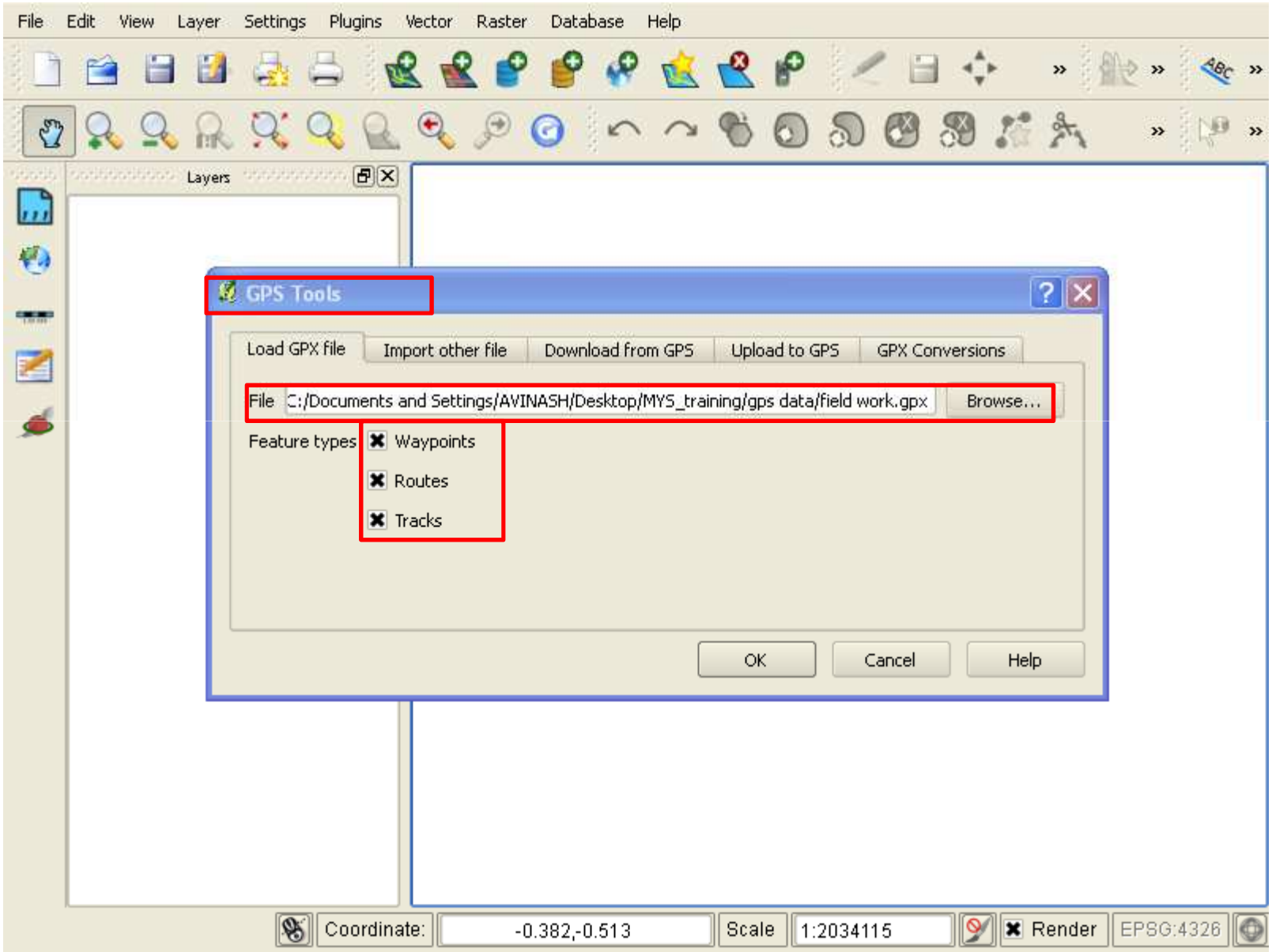

File Edit View Layer Settings Plugins Vector Raster Database Help
Layers
GPS Tools
Load GPX file
Import other file
Download from GPS
Upload to GPS
GPX Conversions
File C:/Documents and Settings/AVINASH/Desktop/MYS_training/gps data/field work.gpx
Browse...
Feature types
Waypoints
Routes
Tracks
OK
Cancel
Help
Coordinate:
-0.382,-0.513
Scale
1:2034115
Render
EPSG:4326

Figure 3.15

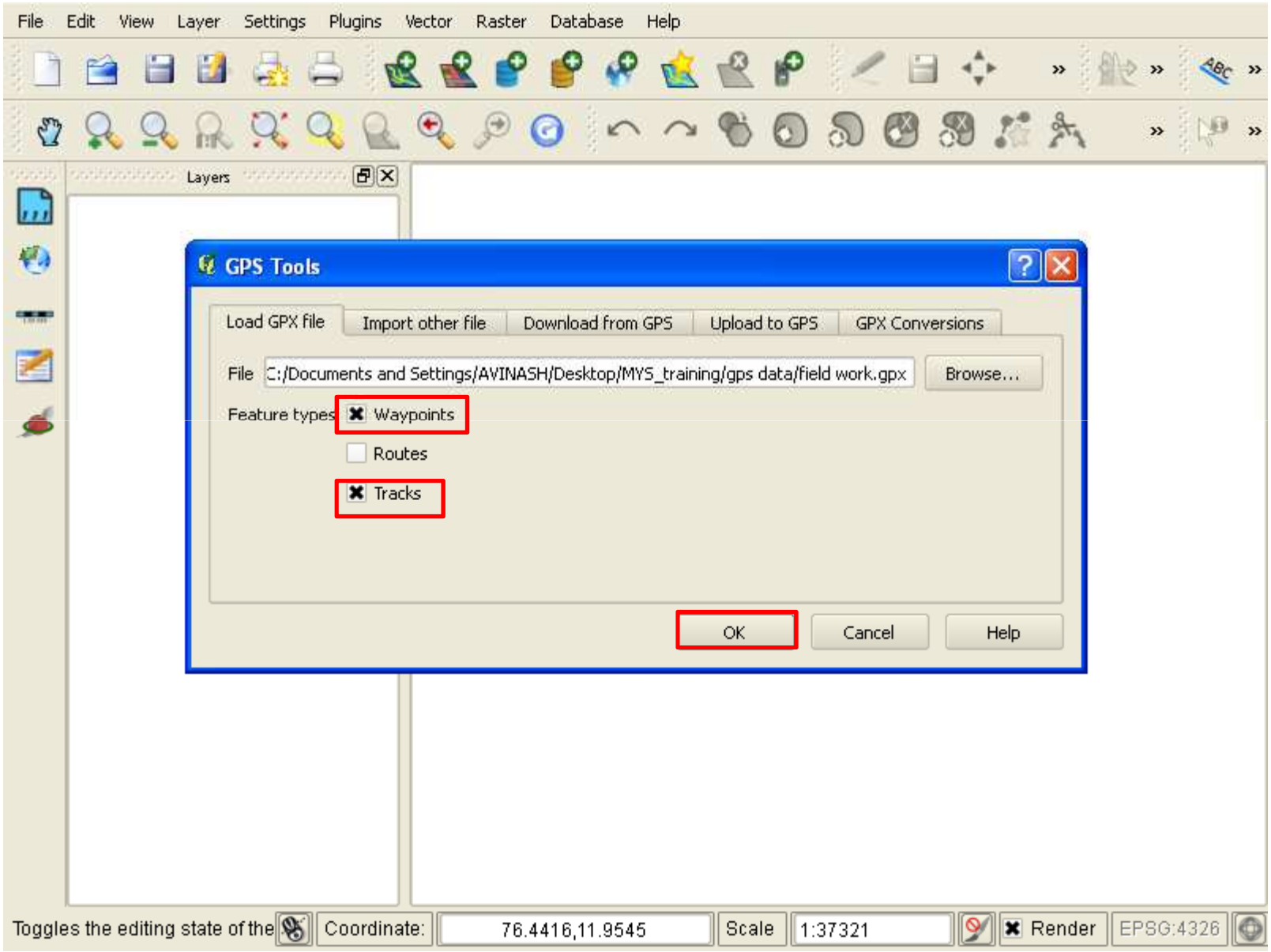
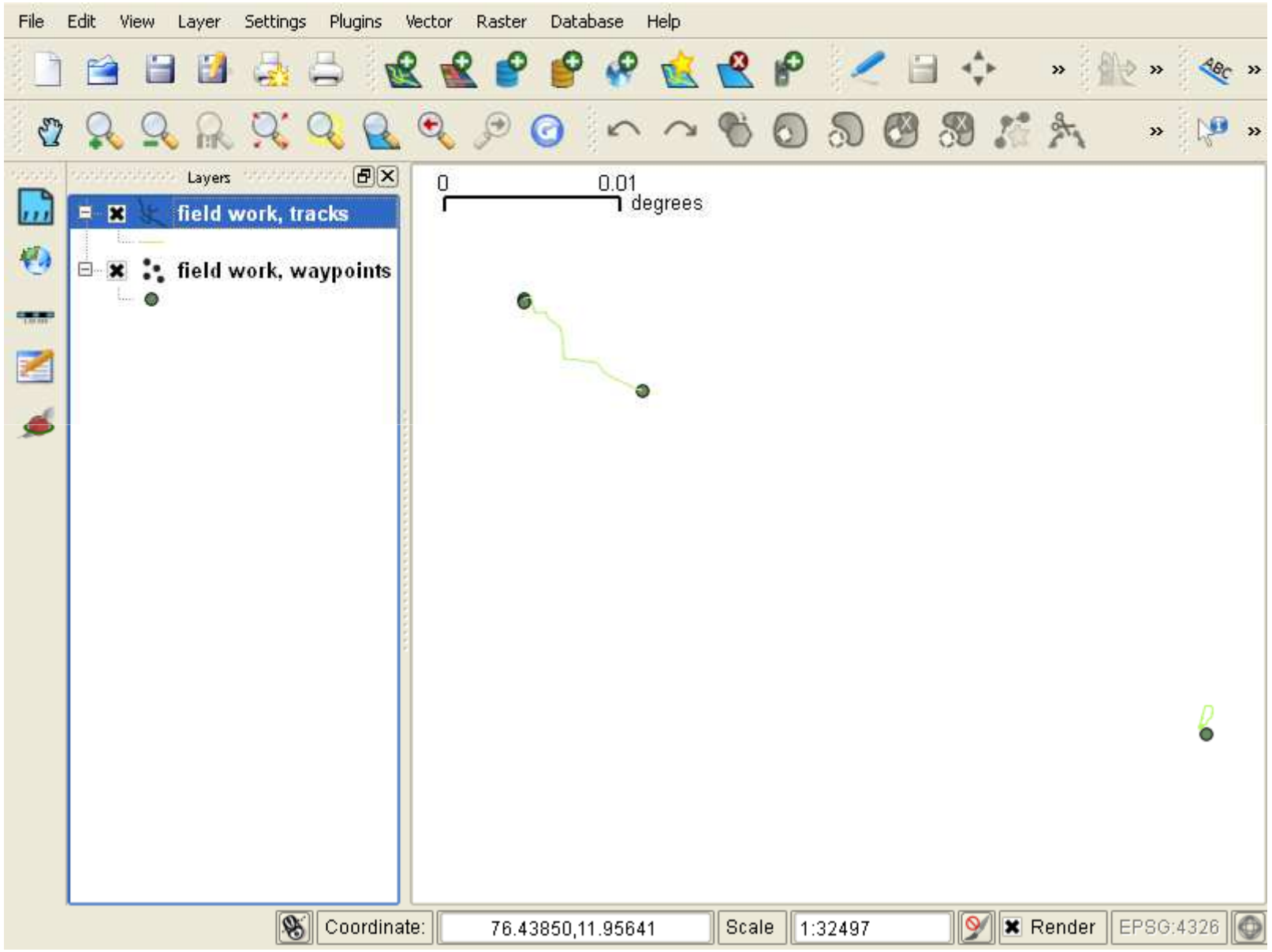

File Edit View Layer Settings Plugins Vector Raster Database Help
Layers
GPS Tools
Load GPX file
Import other file
Download from GPS
Upload to GPS
GPX Conversions
File C:/Documents and Settings/AVINASH/Desktop/MYS_training/gps data/field work.gpx
Browse...
Feature types
Waypoints
Routes
Tracks
OK
Cancel
Help
Toggles the editing state of the
Coordinate:
76.4416,11.9545
Scale
1:37321
Render
EPSG:4326

Figure 3.16


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
field work, tracks
field work, waypoints
0
0.01
degrees
Coordinate:
76.43850,11.95641
Scale
1:32497
Render
EPSG:4326

Saving the Imported Data

- Save the files one after the other by **right clicking** ➡ **Save as** (Figure 3.17)
- Save vector layer as (Figure 3.18)
  - ➡ Format: ESRI shapefiles
  - ➡ Save as: save in desired folder
  - ➡ CRS : WGS 84
- Select **OK** (Figure 3.18)

Figure 3.17

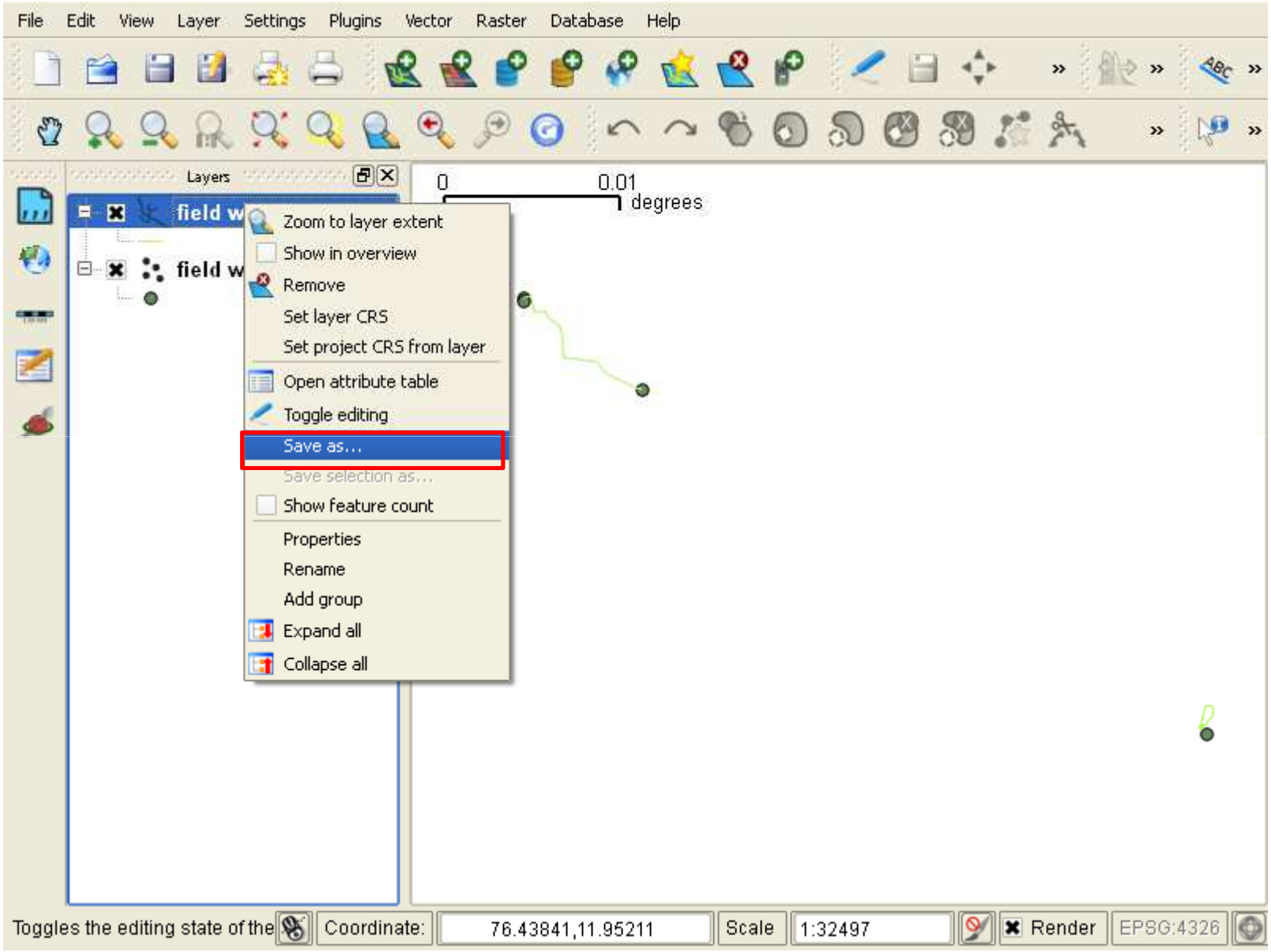
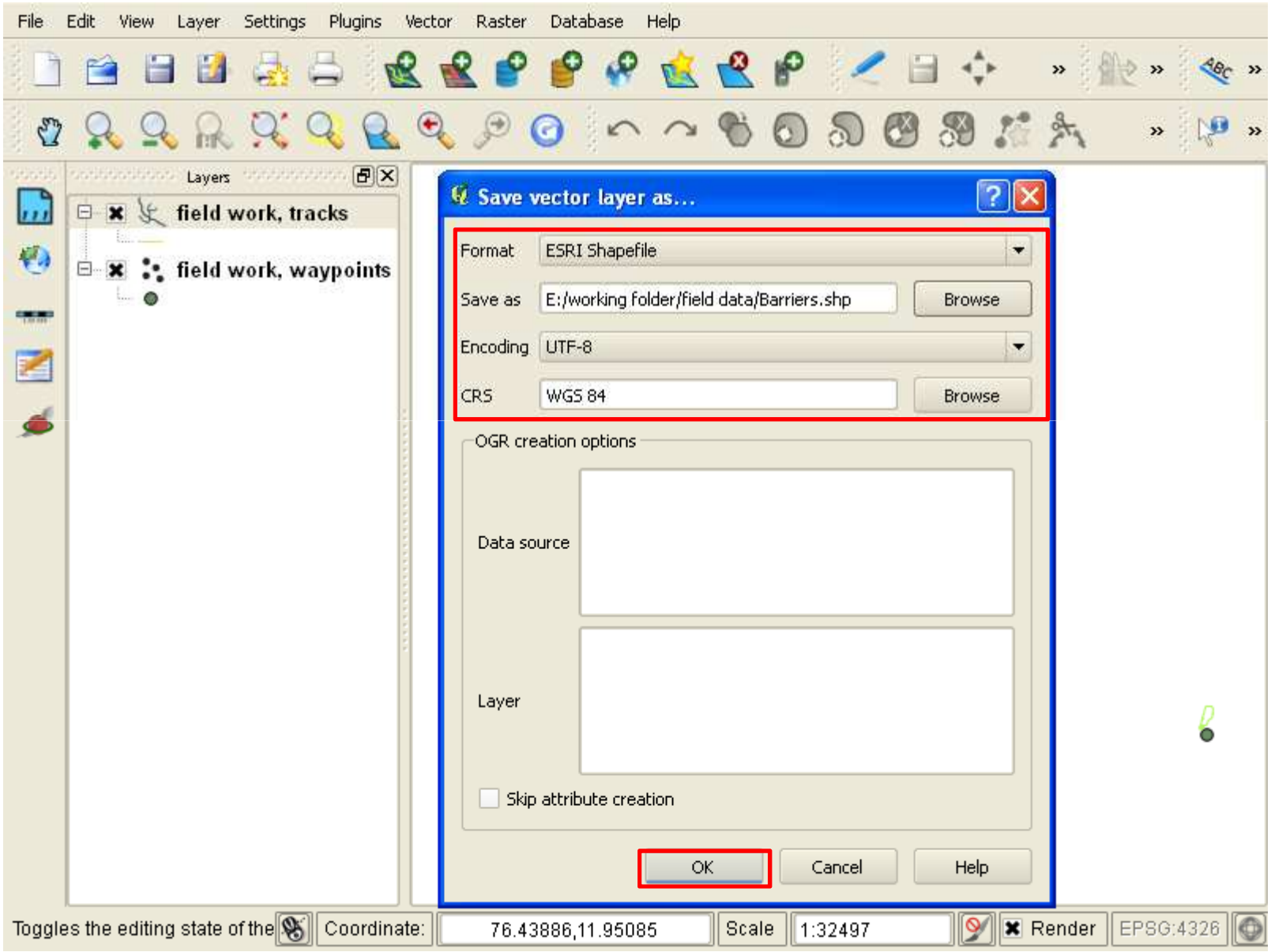

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
field w
field w
0
0.01
degrees
Zoom to layer extent
Show in overview
Remove
Set layer CRS
Set project CRS from layer
Open attribute table
Toggle editing
Save as...
Save selection as...
Show feature count
Properties
Rename
Add group
Expand all
Collapse all
Toggles the editing state of the
Coordinate:
76.43841,11.95211
Scale
1:32497
Render
EPSG:4326

Figure 3.18


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
field work, tracks
field work, waypoints
Save vector layer as...
Format
ESRI Shapefile
Save as
E:/working folder/field data/Barriers.shp
Browse
Encoding
UTF-8
CRS
WGS 84
Browse
OGR creation options
Data source
Layer
Skip attribute creation
OK
Cancel
Help
Toggles the editing state of the
Coordinate:
76.43886,11.95085
Scale
1:32497
Render
EPSG:4326

Representation on Map

- Remove both the layers.
- Load all the digitised layers from Nugu area, and also the Nugu map (as described in QGIS tutorial)
- Now add the filed data saved from GPS (only shape files)

➢ Select ⇒ **Add vector layer** ⇒ **Browse**

➢ select layers ⇒ **Open**

➢ Once again, select ⇒ **Open** (Figure 3.19)

- The output (Figure 3.20) would have both the features (follow Map composer tutorial)

Figure 3.19

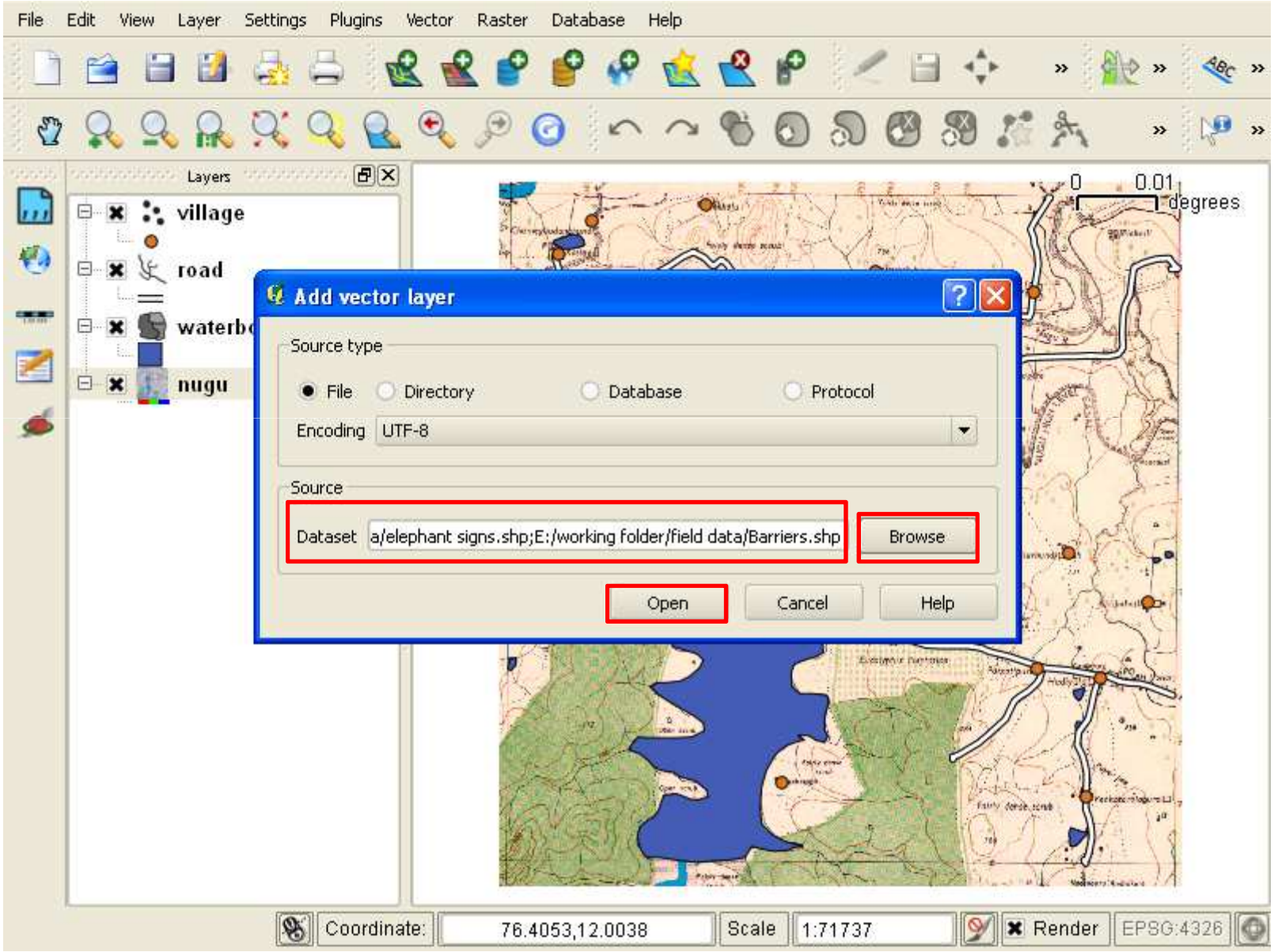
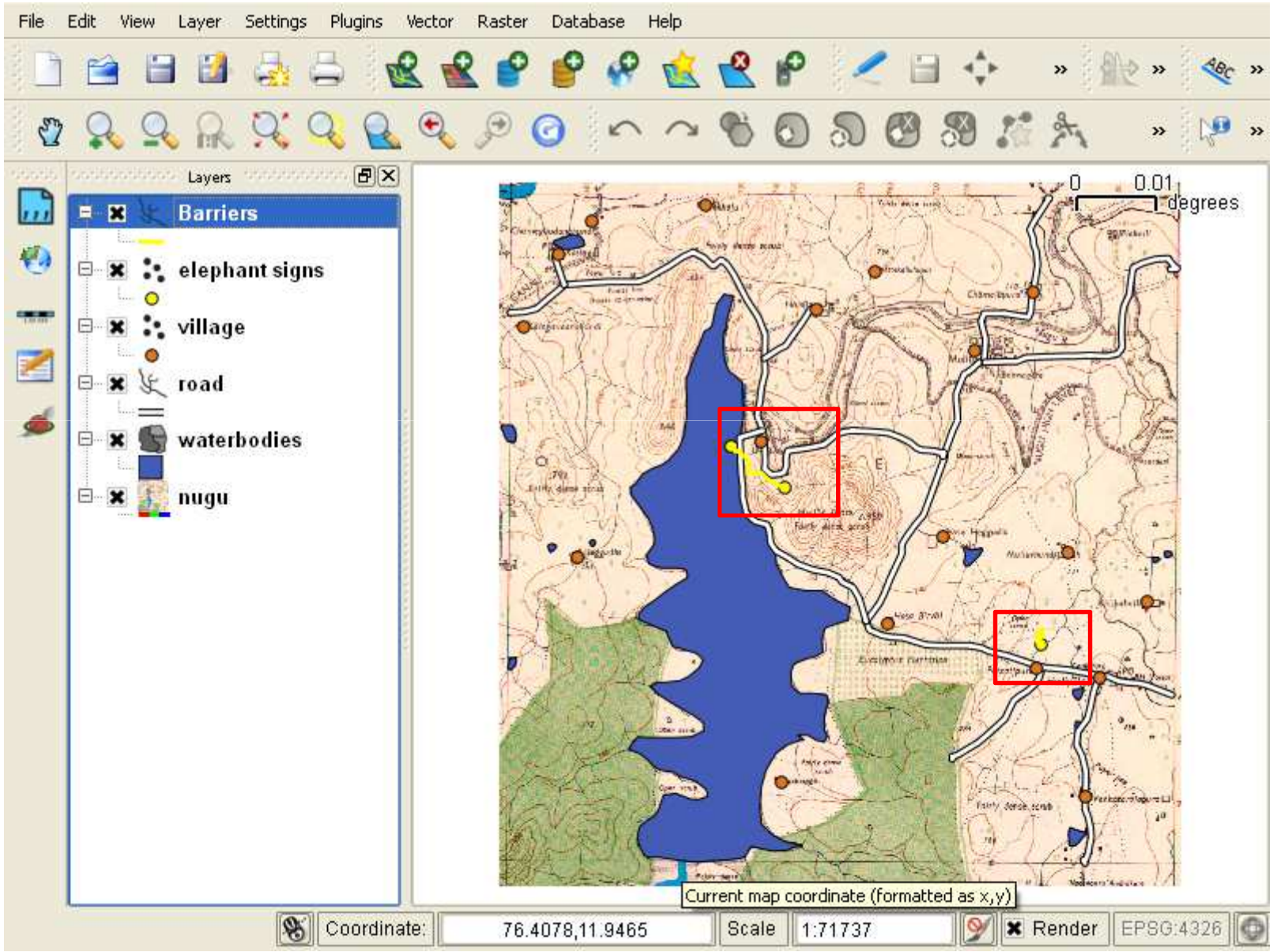
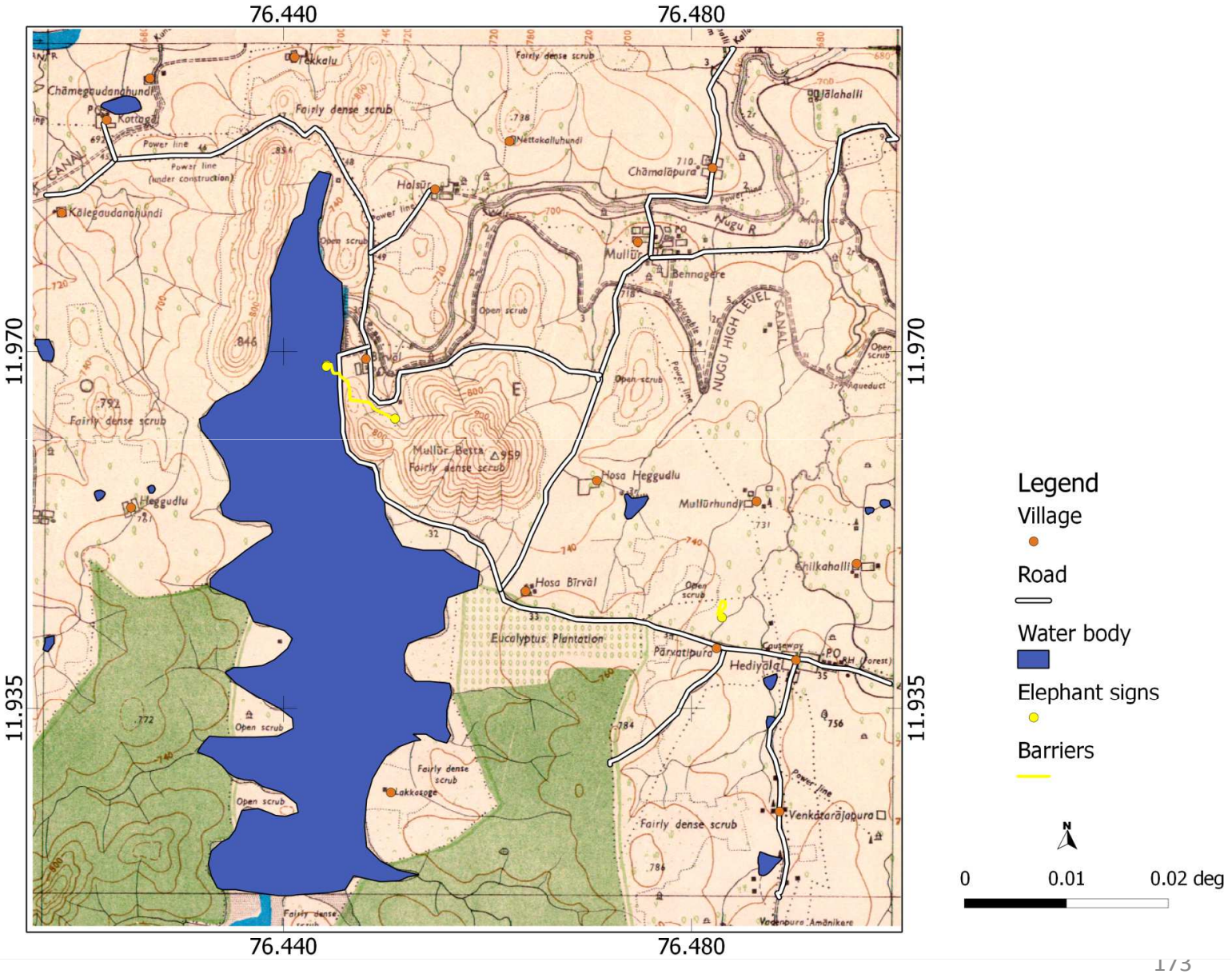

File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
village
road
nugu
0
0.01
degrees
Add vector layer
Source type
File
Directory
Database
Protocol
Encoding
UTF-8
Source
Dataset
a/elephant signs.shp;E:/working folder/field data/Barriers.shp
Browse
Open
Cancel
Help
Coordinate:
76.4053,12.0038
Scale
1:71737
Render
EPSG:4326

Figure 3.20


File
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Help
Layers
Barriers
elephant signs
village
road
waterbodies
nugu
0
0.01
degrees
Current map coordinate (formatted as x,y)
Coordinate:
76.4078,11.9465
Scale
1:71737
Render
EPSG:4326

Final output



End of QGIS Workshop Tutorial for Forest Managers