Working with tables

Using Quantum GIS

Working with tables

Objective: To import the Indian census data of Pune and Beed districts into a shapefile by using joining method.

Software: Quantum GIS 2.0.1

Level: Beginner

Time required: 1 Hour

Prerequisites and Geospatial Skills:

1. Quantum GIS and MS Office should be installed on the computer
2. Basic knowledge about the QGIS interface
3. Should have completed Exercise ID: IGET_GIS_001 and IGET_GIS_007

Reading

1. Sutton, T., Dassau, O., & Sutton, M. (2009). A gentle introduction to GIS. *Chief Directorate: Spatial Planning & Information, Eastern Cape.*

Tutorial Data: Tutorial data can be downloaded from IGET_GIS_008

Introduction

Data which we are working with will not be necessarily in spatial format always. It can be also in tabular format. Quantum GIS provides the convenient way to link these database tables with spatial data, making it much easier for spatial analysis. In GIS it is very common to use Census data for analysis. In this tutorial we will learn how to join Indian census data which is in spreadsheet format with attribute table of shapefile for analysis.

Exercise 1: Preparing and converting census data into compatible CSV format

1. Open the provided raw census '*Pune_Beed_water_widin_premisis.xls*' data in spreadsheet software like '*MS Excel*'. At the same time open '*Pune_Beed_Map*' shapefile in QGIS. '*Pune_Beed_Map.shp*' file contains the tehsils of corresponding districts.

2. Open attribute table of '*Pune_Beed_Map.shp*' by right clicking on the layer.

	ID_2	NAME_2	ID_3	NAME_3	VARNAME_3	Shape_Leng	Area_km2	UID
0	16023	Bid	26985	Ashti	NULL	278.56328792064	1459.29127089282	04215
1	16023	Bid	26991	Patoda	NULL	192.40310479643	843.60829150562	04216
2	16041	Pune	27126	Bhor	NULL	230.21314653276	837.25943031683	04198
3	16041	Pune	27127	Daund	NULL	251.20151131253	1306.36294066650	04195
4	16041	Pune	27128	Ambegaon	Ghod	228.18932222326	1065.79304396906	04188
5	16041	Pune	27129	Indapur	NULL	244.32797299935	1463.66889830774	04200
6	16041	Pune	27130	Junnar	NULL	225.89427583062	1340.85900244415	04187
7	16041	Pune	27131	Velhe	NULL	190.34258051766	539.40861430664	04197
8	16041	Pune	27132	Mulshi	Paud	225.09941038443	1032.83156011481	04192
9	16041	Pune	27133	Khed	Rajagurunagar	234.63411929816	1363.38688131458	04190
10	16041	Pune	27134	Purandar	Sasvad	188.26782592568	1118.88456194940	04196
11	16041	Pune	27135	Shirur	NULL	272.80166524166	1557.18841501532	04189
12	16041	Pune	27136	Mawal	Wadgao	172.89828301261	1132.45355223364	04191
13	16023	Bid	26987	Gevrai	NULL	229.19995984618	1342.13052973340	04218
14	16023	Bid	26987	Shirur	NULL	186.07739090653	686.18959854285	04217
15	16023	Bid	26989	Kaij	NULL	217.78160097472	1212.05180664880	04222
16	16023	Bid	26990	Majalgaon	NULL	216.16603995123	1181.21537711609	04219
17	16023	Bid	26984	Ambajogai	NULL	191.04590119581	763.89091772913	04225
18	16023	Bid	26984	Parli	NULL	184.54154339519	648.90227706946	04224
19	16023	Bid	26986	Bid	NULL	214.42106097009	1232.91767936646	04221
20	16023	Bid	26989	Dharur	NULL	103.61673381242	343.11905573425	04223
21	16041	Pune	27131	Haveli	NULL	271.86425144587	1352.50821547296	04193
22	16041	Pune	27131	Pune City	NULL	63.13532625173	112.85889404755	04194
23	NULL	Bid	NULL	Wadwani	NULL	132.45575019742	819.79239702075	04220

3. Go through the *column/field* headings. To join the census data table with this shapefile, we need a *common column/field* with unique and same values in both the census data and attribute table of the shapefile. This can be used as primary key to perform the join. In this case '*UID* ' is chosen as the primary key.

4. If the '*UID*' doesn't exist in census spreadsheet, you have to create a *column* with *UID* and have to enter the same values in *UID* field as in shapefile.

5. Once the primary key is matched for both tables, save the excel table in CSV (**C**omma **S**eparated **V**alues) format.

6. To save in CSV format, In Ms Excel: '***File'** or* → '***Save As***' → '***Other Formats***'. The '*Save As'* window will popup. Give appropriate file name and select type as '***CSV (Comma Delimited)***'.
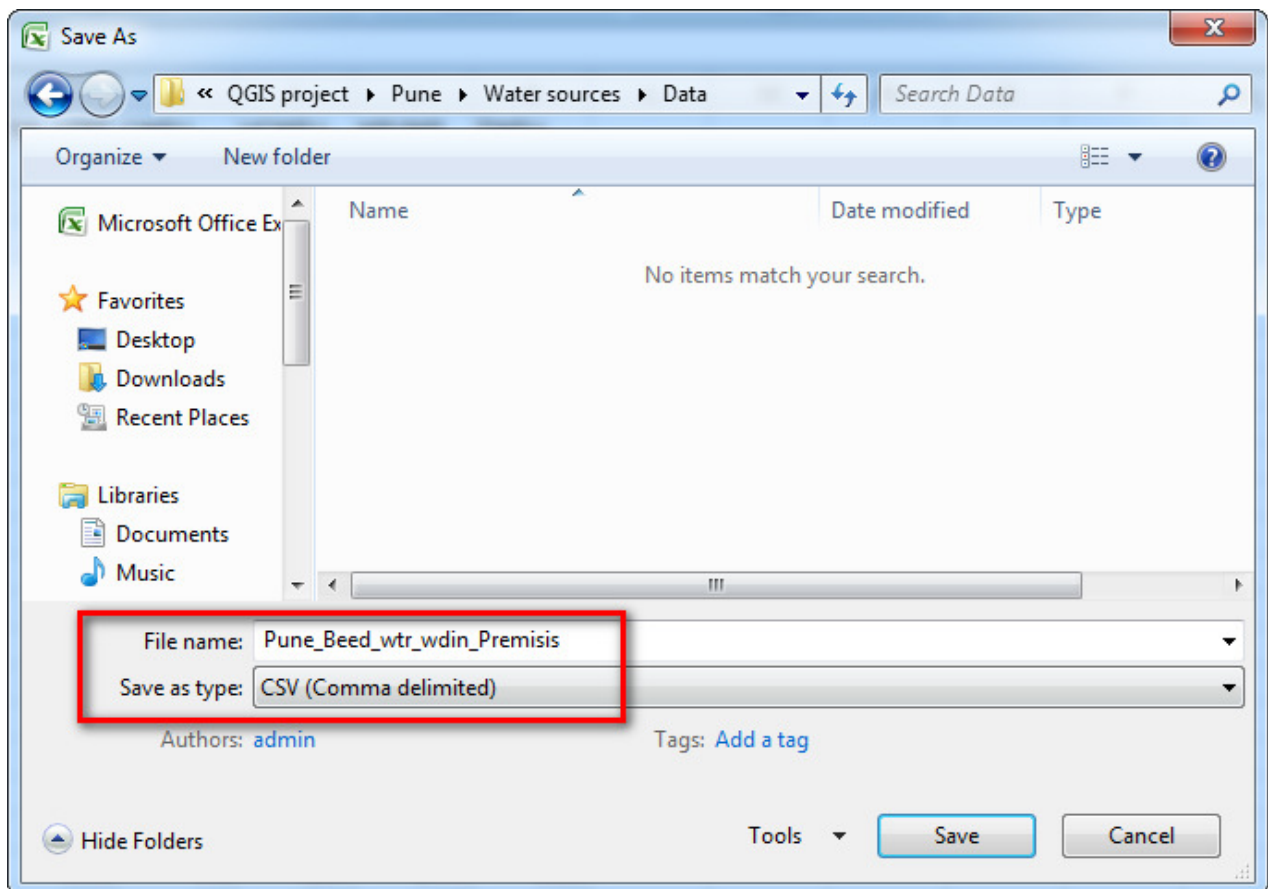
7. Click on '***Save***' this will open up a new window asking for confirmation of format. Click on '***Yes***'.
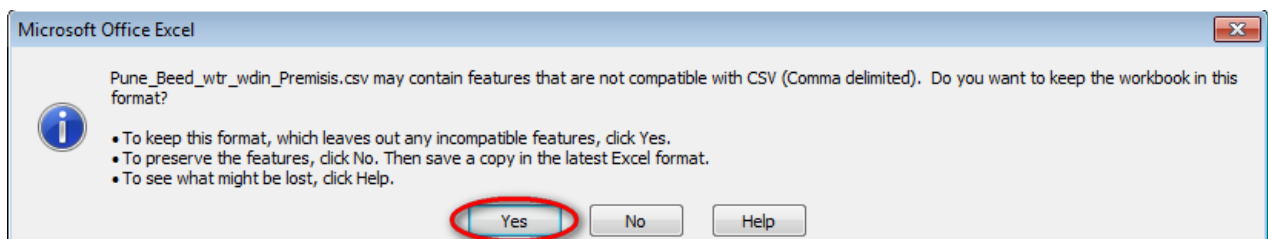
8. Now your data is saved in CSV format, which is a compatible format in QGIS. Now open this *CSV* table as vector layer in QGIS.

9. Click on '***Add vector layer***' in QGIS select format type as 'All files(*)' browse to the census CSV file, i.e., '*Pune_beed_wtr_wdin_premisis.csv*' and select it → click '***Open***'.
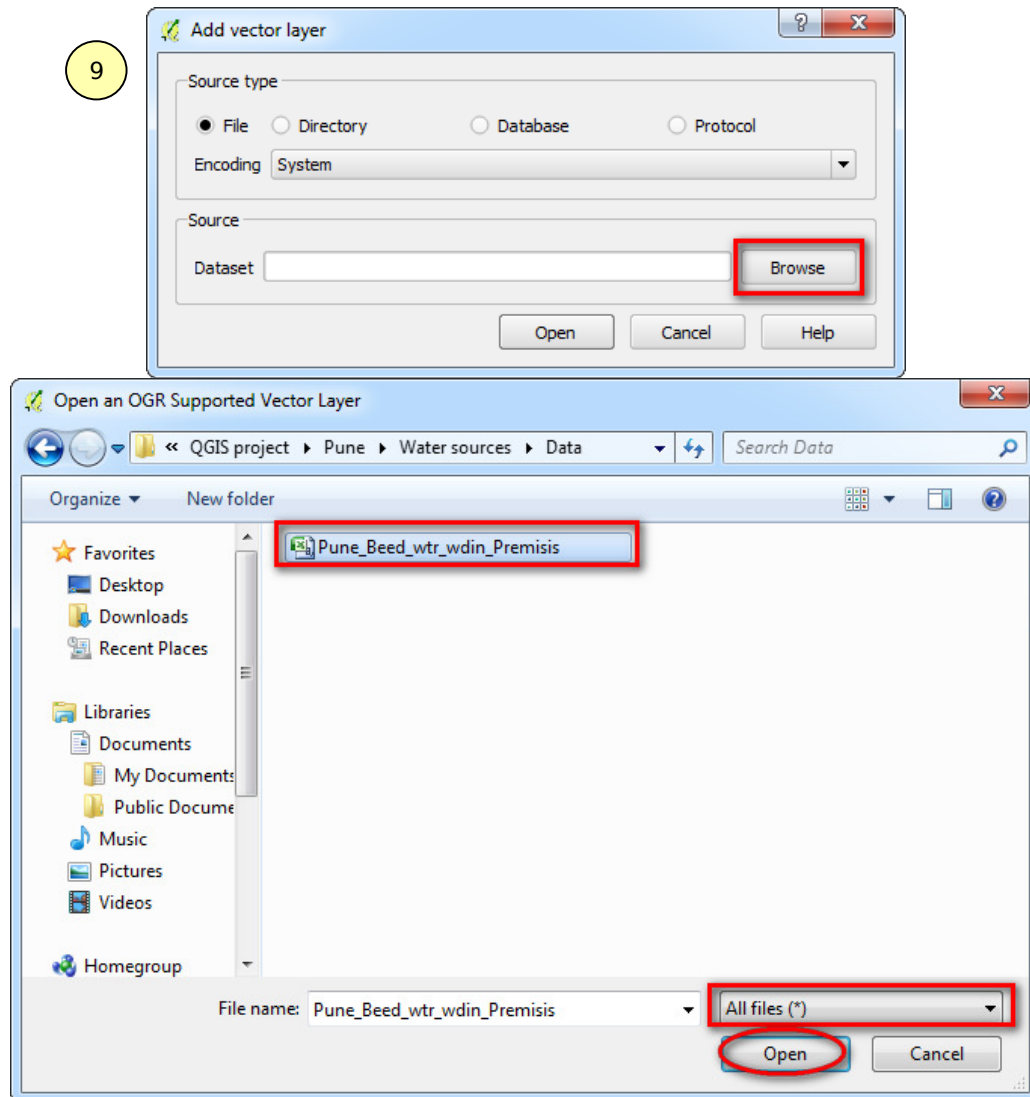
10. Now you will see, the census data table is imported as attribute table in map layers.
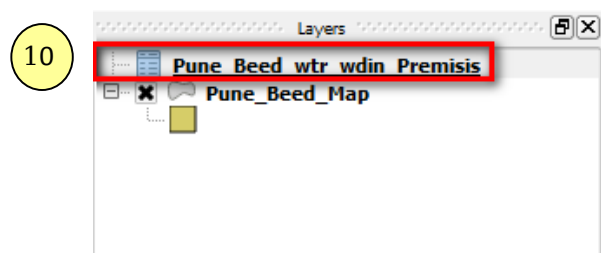
Exercise 2: Joining table

11. Right click on '*Pune_Beed_Map.shp*' layer and open properties.
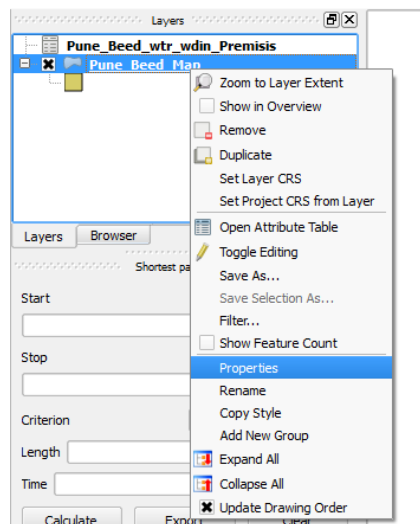
12. Navigate to the '***Joins***' tab in the '*Layer Properties*' window.

13. Then click on button, to add census data to the shapefile.

14. '*Add vector join*' window will popup. Select '*Pune_Beed_wtr_wdin_Premisis.csv*' in '*join Layer section*', '*Join field*' and '*target field*' will be UID, because it is the primary key in both tables → Click '**OK**'.
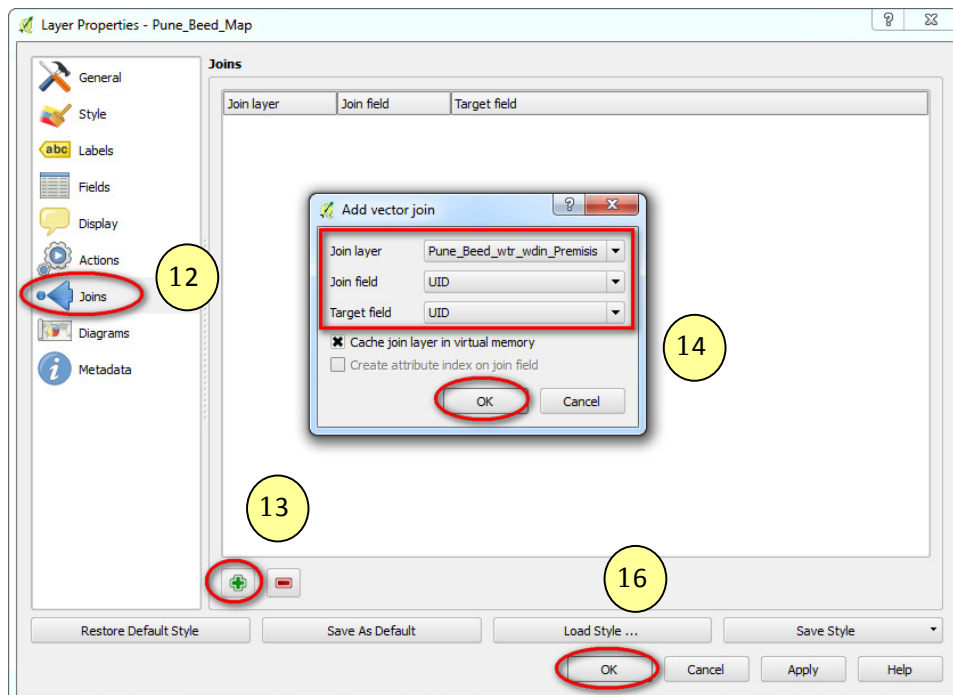
15. Now you will notice the census data added to the list.

16. Click '**OK**' in '*Layer properties*' Window
17. Now open the attribute table of '*Pune_Beed_Map.shp*'. You will notice new fields added up to it. This joint is temporary in nature, to make the joint permanent we have to create a new layer using '**Save As**' option. This can be access by right click on 'Pune_Beed_map.shp' layer.

18. In '*Save As*' window give appropriate output file name→ '**Save**', projection and click '**OK**'.

19. The attribute is added to the vector layer. Open the saved vector layer and check the attribute table. Water sources details would be added to the attribute list.

Exercise

1. In the sample data there is an excel file by name 'Pune_Beed_water_Nr_premisis' download it. Create appropriate primary key and join the table to 'Pune_Beed_Map' shapefile.