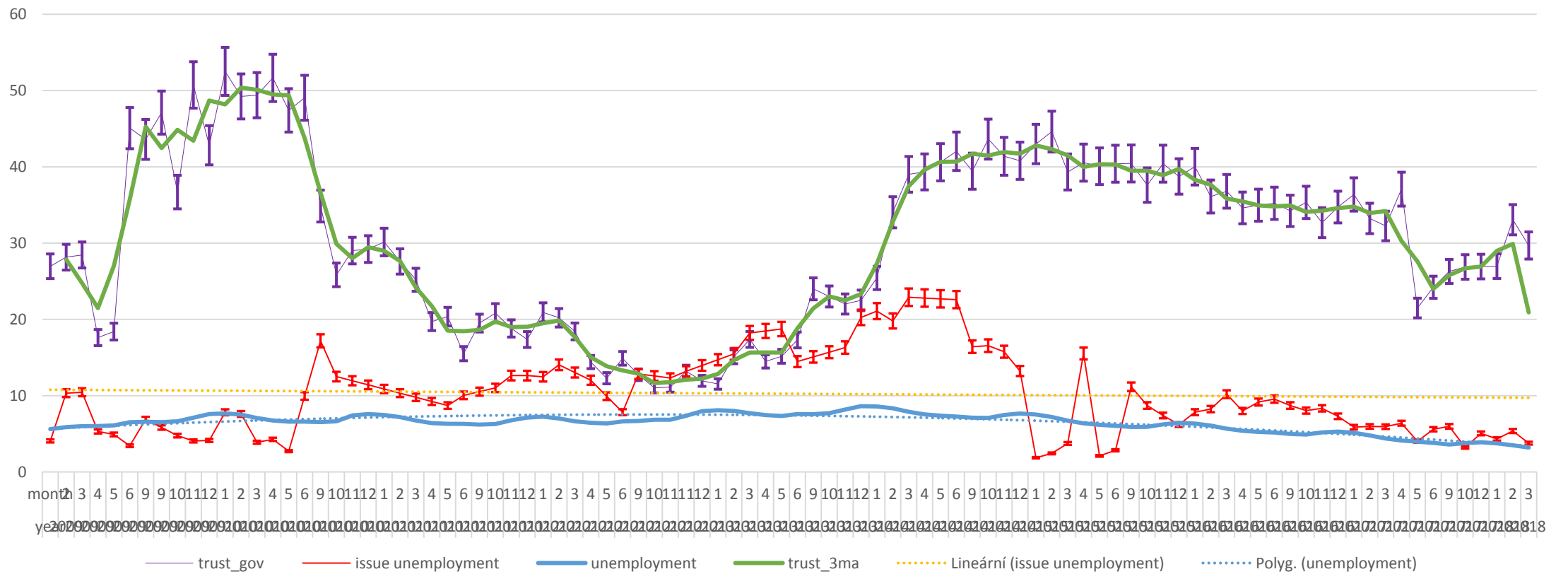
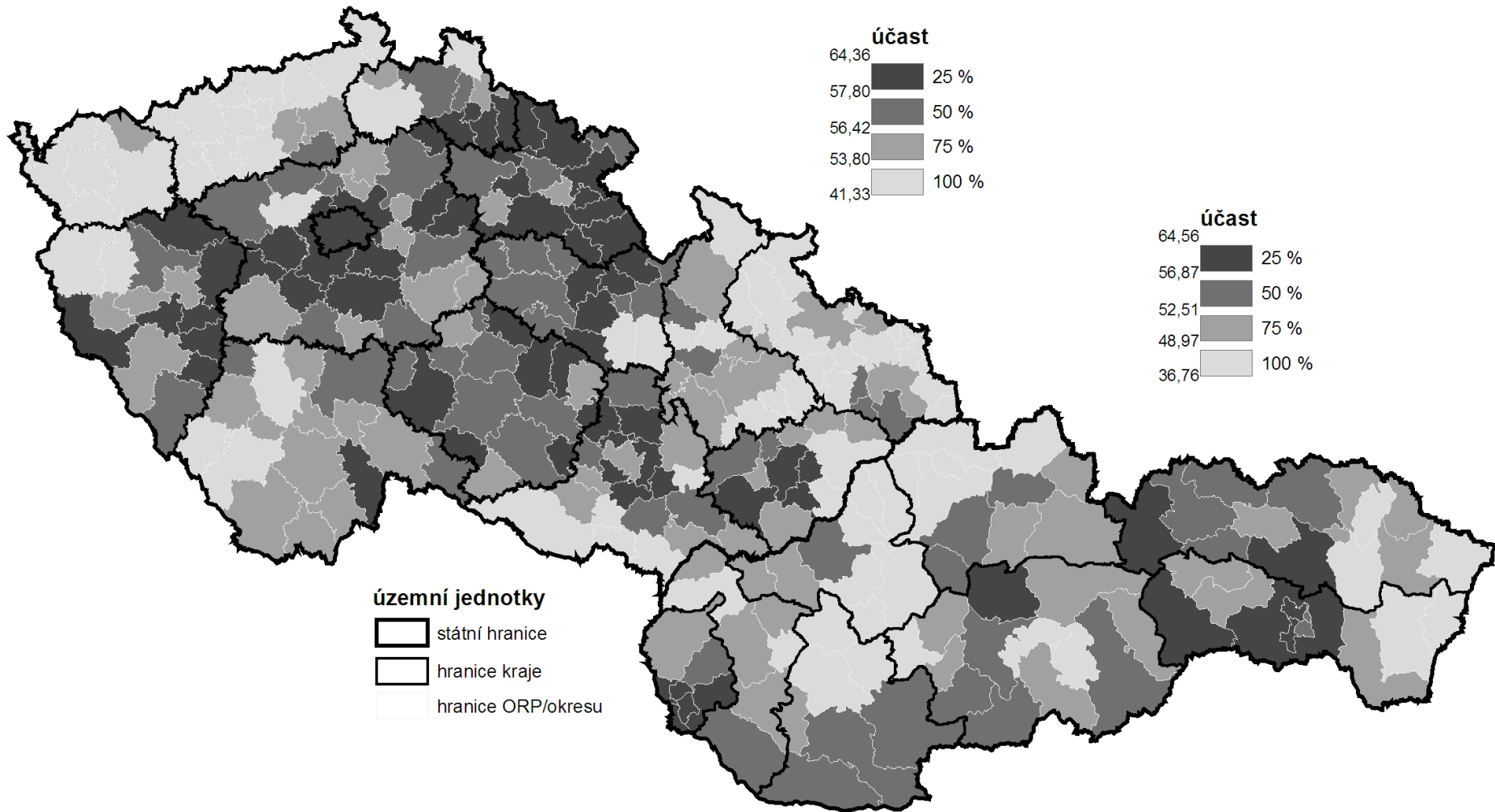


Vizualization of spatial data

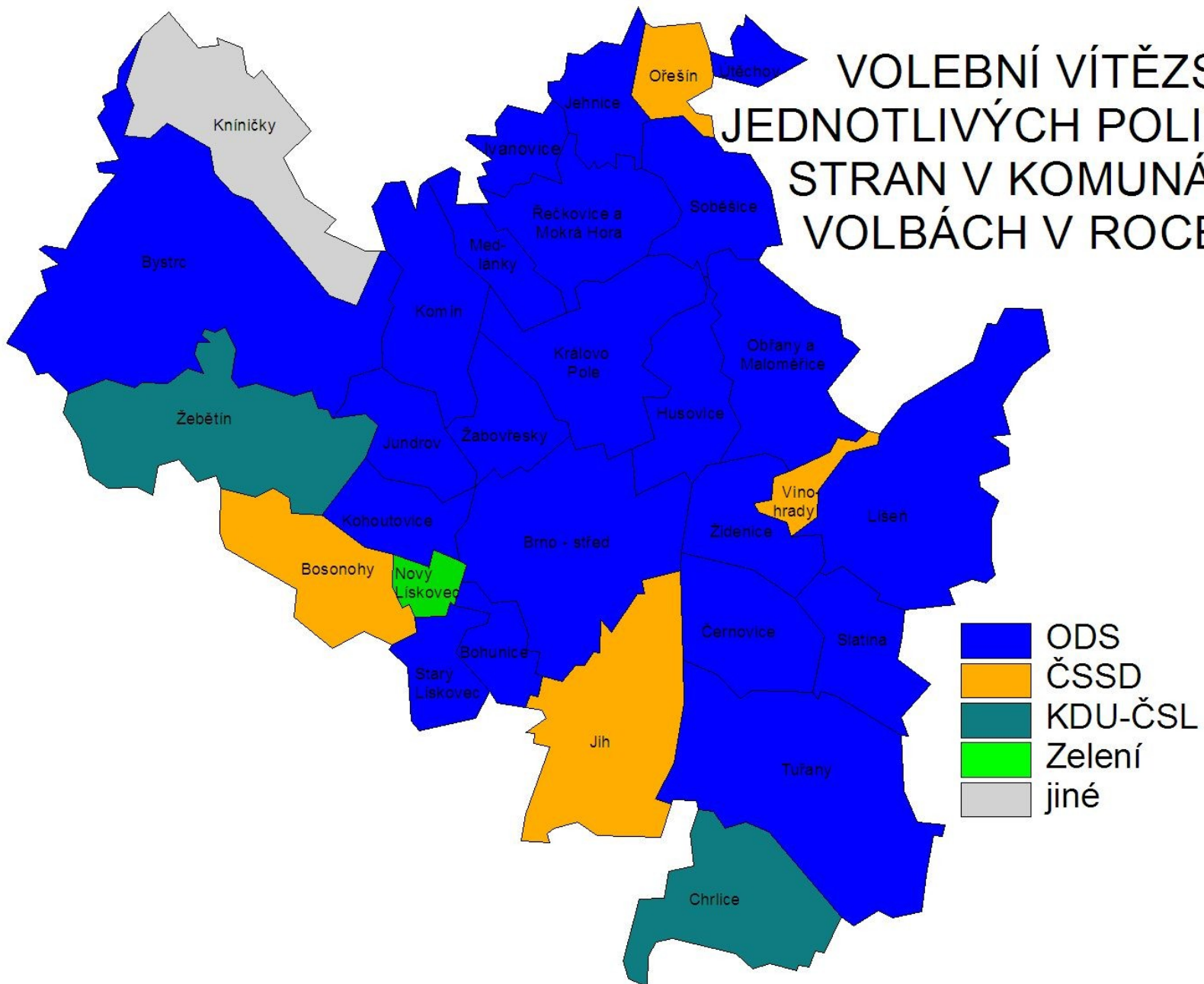
Název grafu



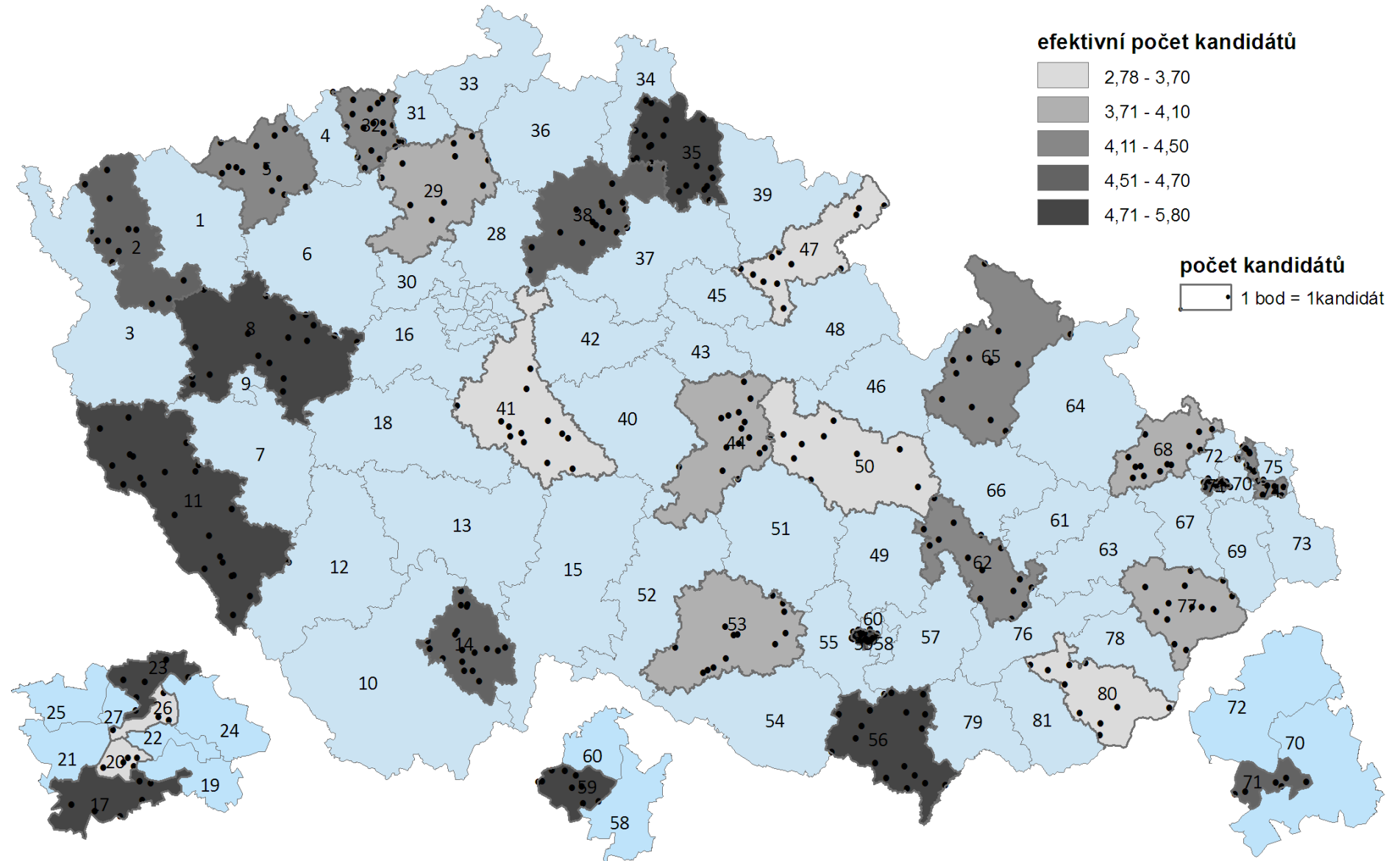
VOLEBNÍ ÚČAST V REFERENDU V ROCE 2004



VOLEBNÍ VÍTĚZSTVÍ JEDNOTLIVÝCH POLITICKÝCH STRAN V KOMUNÁLNÍCH VOLBÁCH V ROCE 2006



POČET A EFEKTIVNÍ POČET KANDIDÁTŮ V 1. KOLE VE VOLBÁCH DO SENÁTU V ROCE 2000



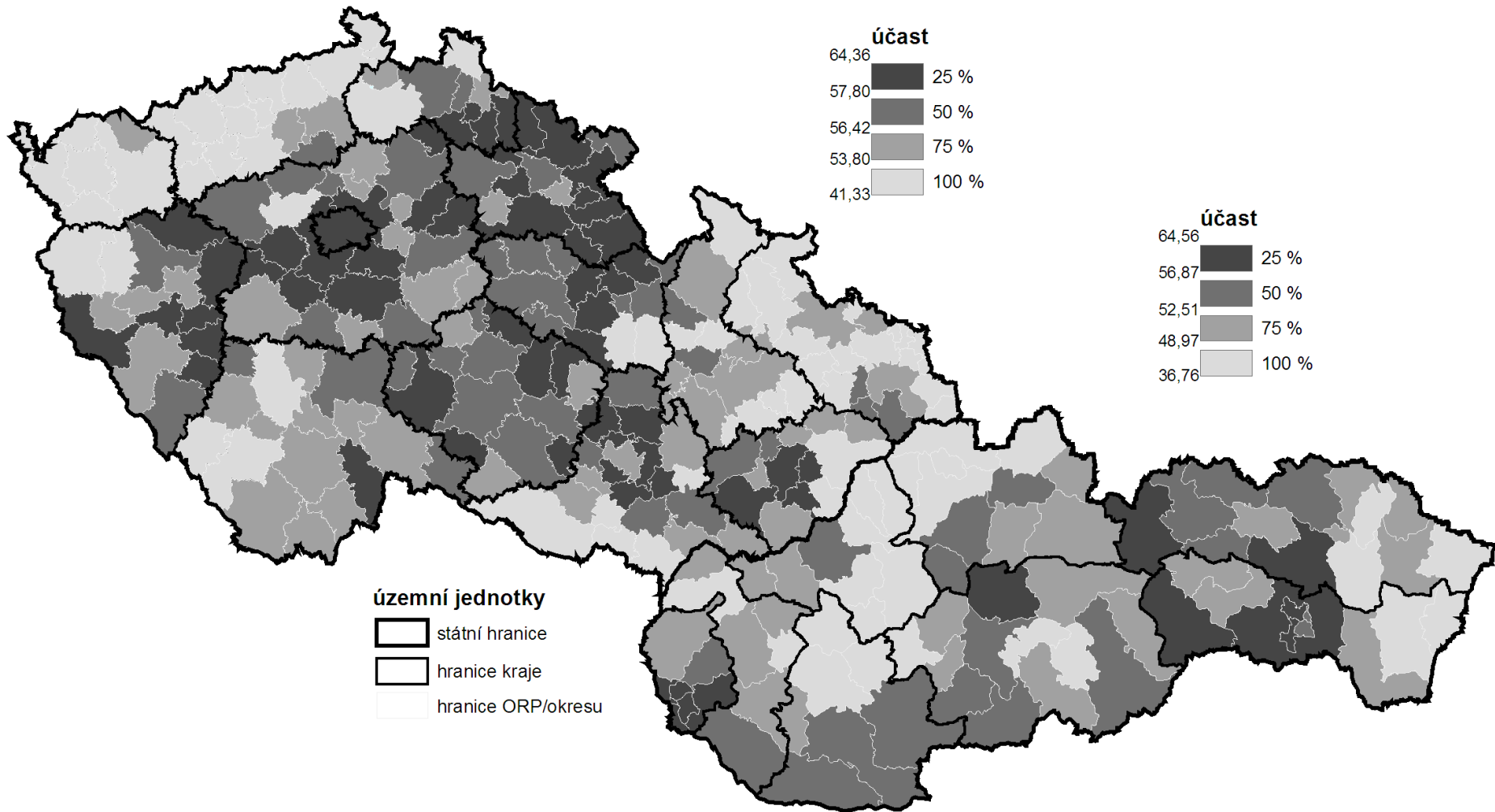
Two types of variables (spatially)

- Just related to some space
 - GDP by country - it is not equally produced on whole territory
 - It is just related to territory
 - Choropleth maps
- Truly spatial
 - The data are describing some exact location
 - Dot maps
- The difference between categorical and cardinal variables are also important

Rules of using colors

- Different categories (e.g. Winnig party)
 - Different colors (e.g. blue, red, green, etc.)
- Different quantity (e.g. Electoral turnout)
 - Different shades of the same color (e.g from light blue to dark blue)
 - The higher intensity of variable, the darker the color is

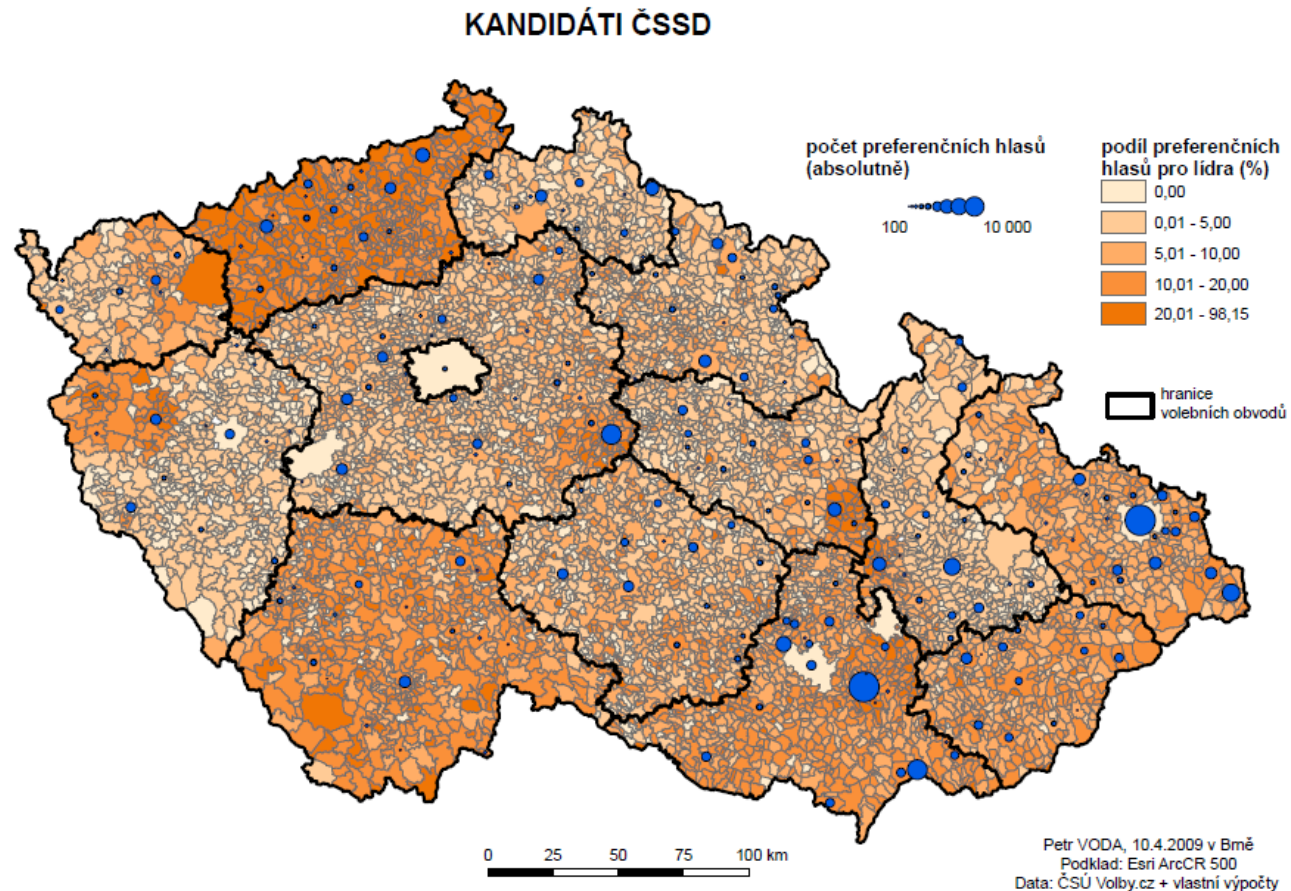
VOLEBNÍ ÚČAST V REFERENDU V ROCE 2004



Rules of creating intervals

- Equal interval (eg. 0-10,10-20, 20-30,...)
- Quantile – in all intervals, number of cases is the same
- Natural breaks – unclear meaning

It is possible to combine cartographic visualization with piechart or barchart



What is needed

- Data related to some spatial structure
 - Level of democracy in countries
 - Unemployment in municipalities
 - Number of parking places in streets
- Or to places itself
 - Location of candidates homes
 - Location of armed clashes during conflict
 - Location of powerplants
 - How tall trees growing on their exact places are?
 - ...

An empty map

- The cartographic feature representing given spatial structure
- Shapefiles
- Contain information about coordinates
- Contain information related to coordinates
- Contain information about how the map should look

- Practically: it consists of about 6 different files, all of them must remain in the same folder

Where to find empty maps?

- <https://www.diva-gis.org/Data>
- <https://geodata.lib.utexas.edu/>
- <https://datacatalog.worldbank.org/search/dataset/0039368>

- Open street map

Important things about empty maps

- Geographic projection
- The same country looks very differently in different projections
- The proper projection has to be selected
- It is possible to set it in software

A key between map and data

- Something which tells us that the data belongs to units drawn in map
- It has to be exactly the same in map and in data
- Full names are not best options (e.g. United Kingdom x Great Britain, Czech Republic x Czechia)
- Standardized Ids
- Usually available for any level of administrative units
- Municipalities, counties, regions, states
- Often available in official statistics

Spatial key

- The data can be connected by the location
- The coordinates of data has to be available
 - Or it must be data already in form of shapefile
- How many candidates live in certain area

- The map of mentions of places within book (check dubliners by james joyce)

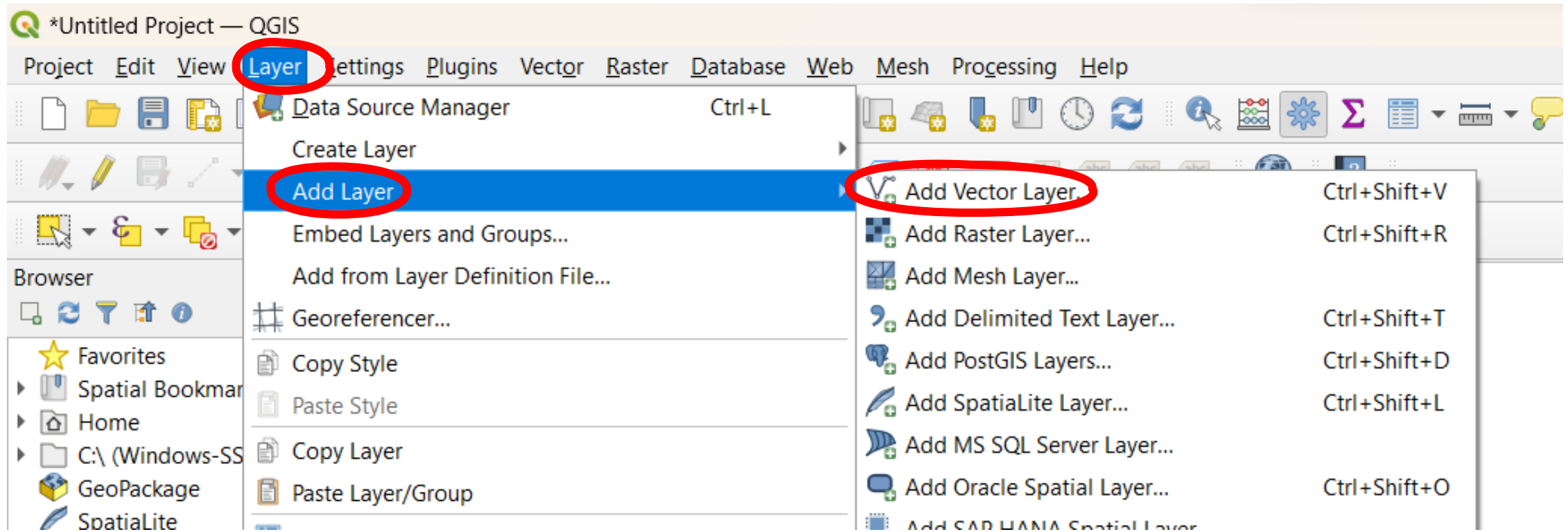
Example of pledges from local electoral manifesto

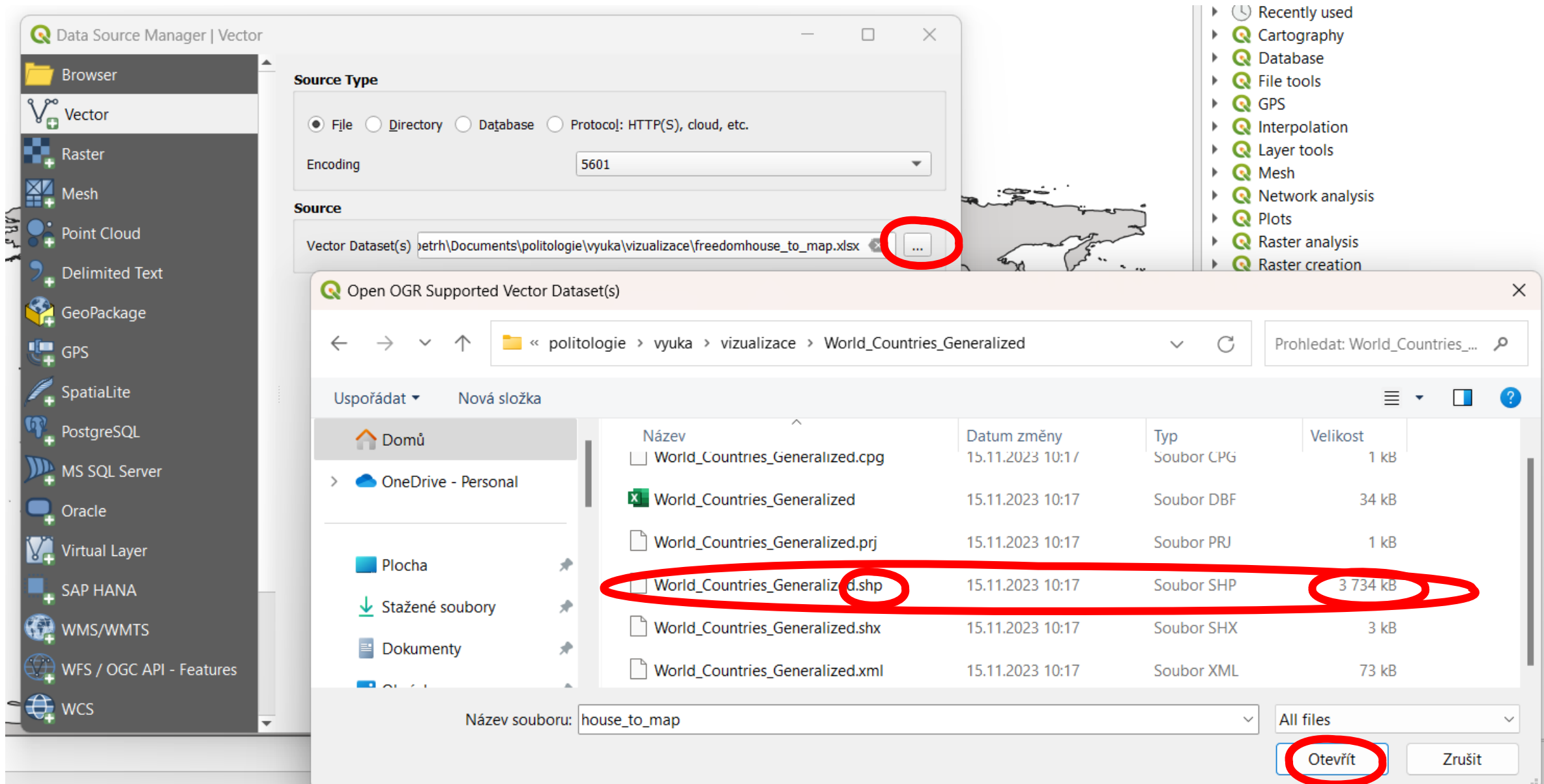
- Parties in local elections often promise the change of ceratain locations
- repair of streets or pawments
- Building of playgrounds
- Reconstructions of public buildings
- These locations can be drawn in map

software

- ArcMap
- QGis

What to do in software – add empty map





- The same procedure to add excel table with data

Browser

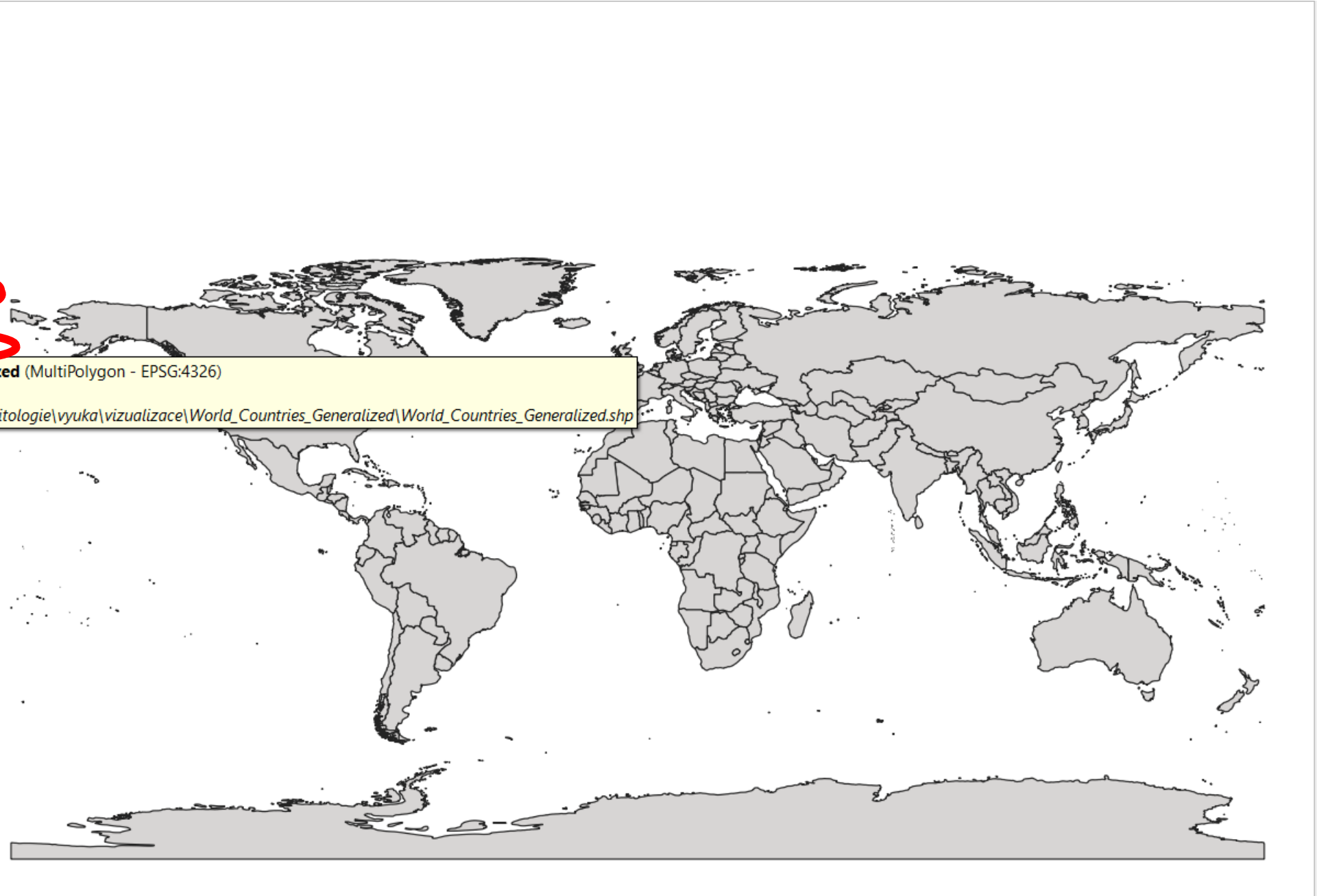


- ★ Favorites
- ▶ Spatial Bookmarks
- ▶ Home
- ▶ C:\ (Windows-SSD)
- GeoPackage
- Spatialite
- PostgreSQL

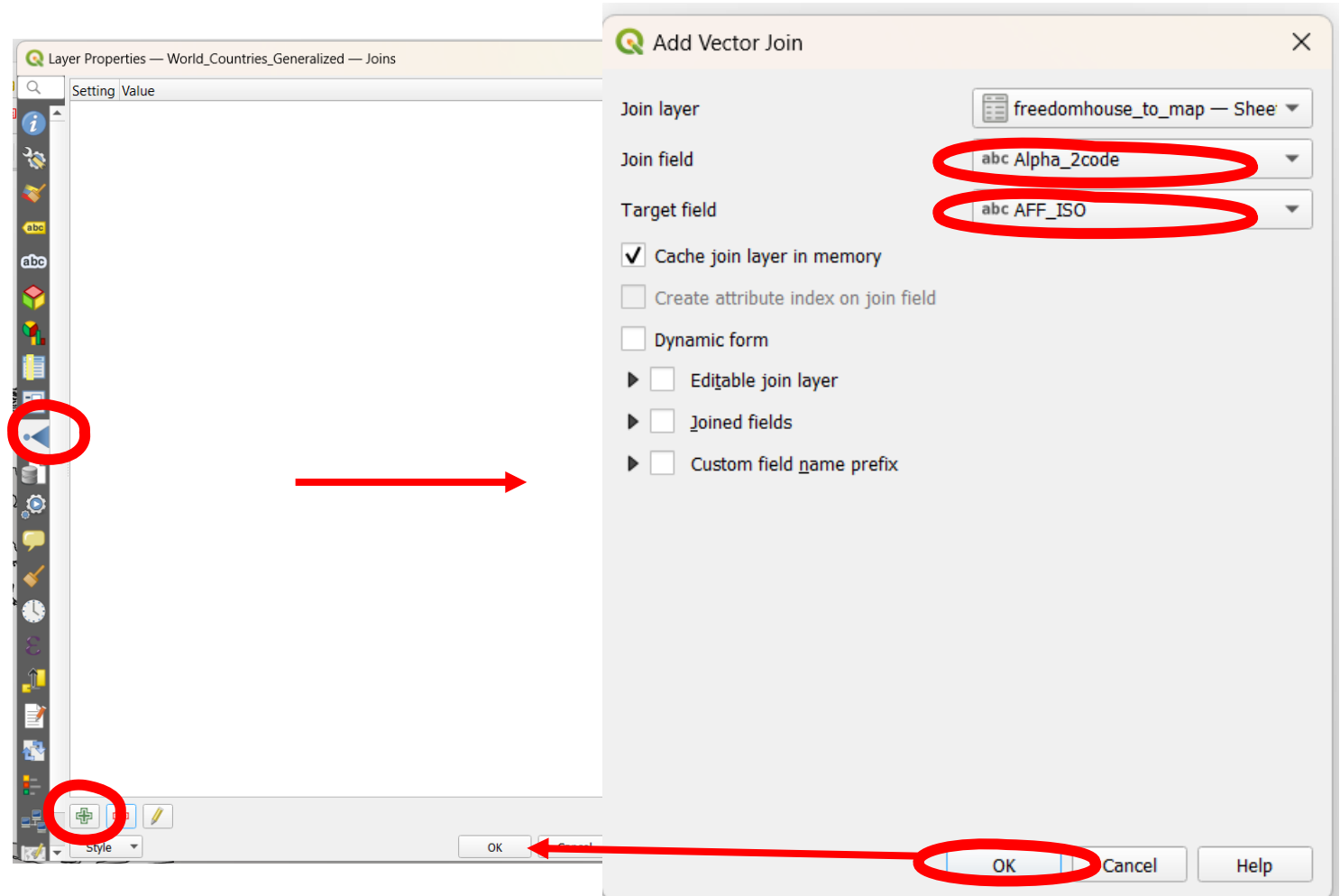
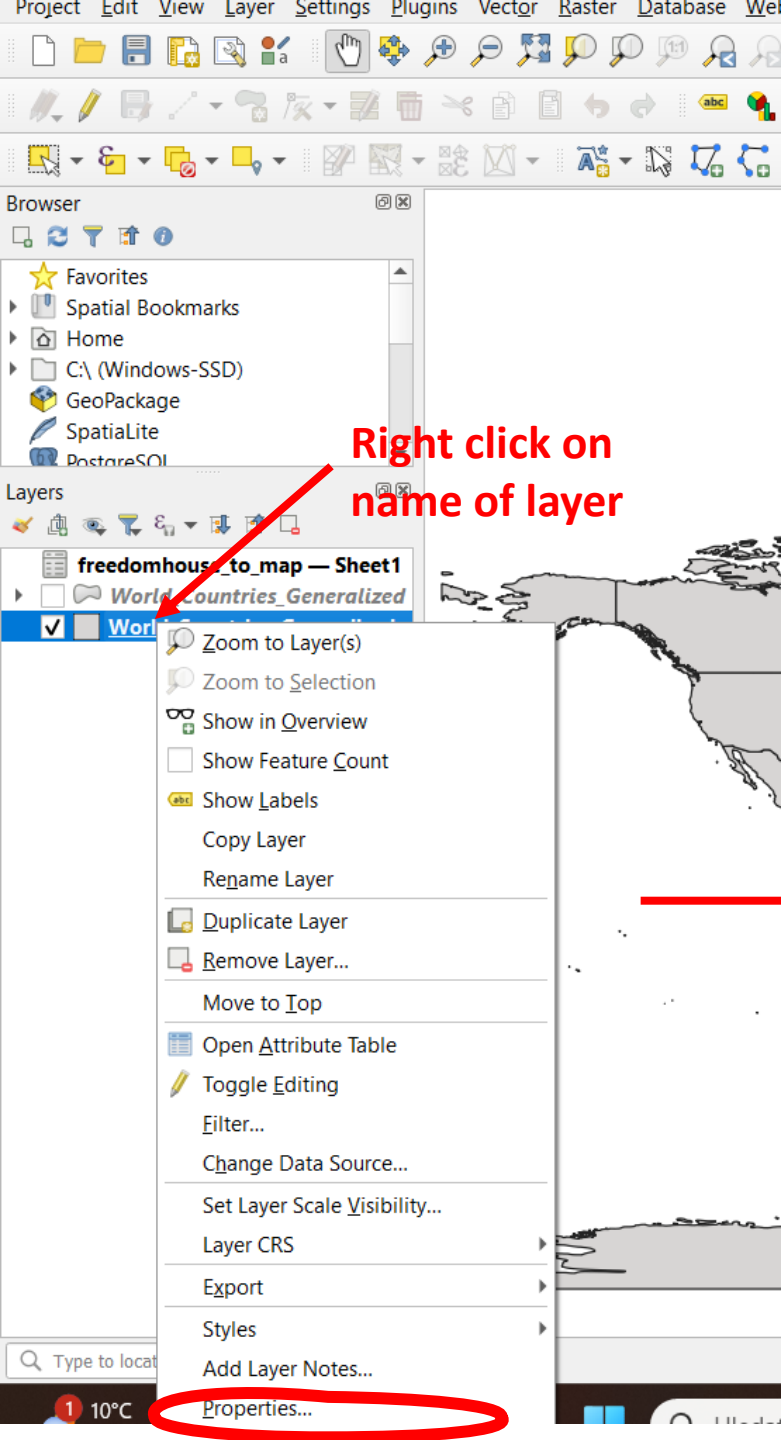
Layers

- freedomhouse_to_map — Sheet1
- World_Countries_Generalized

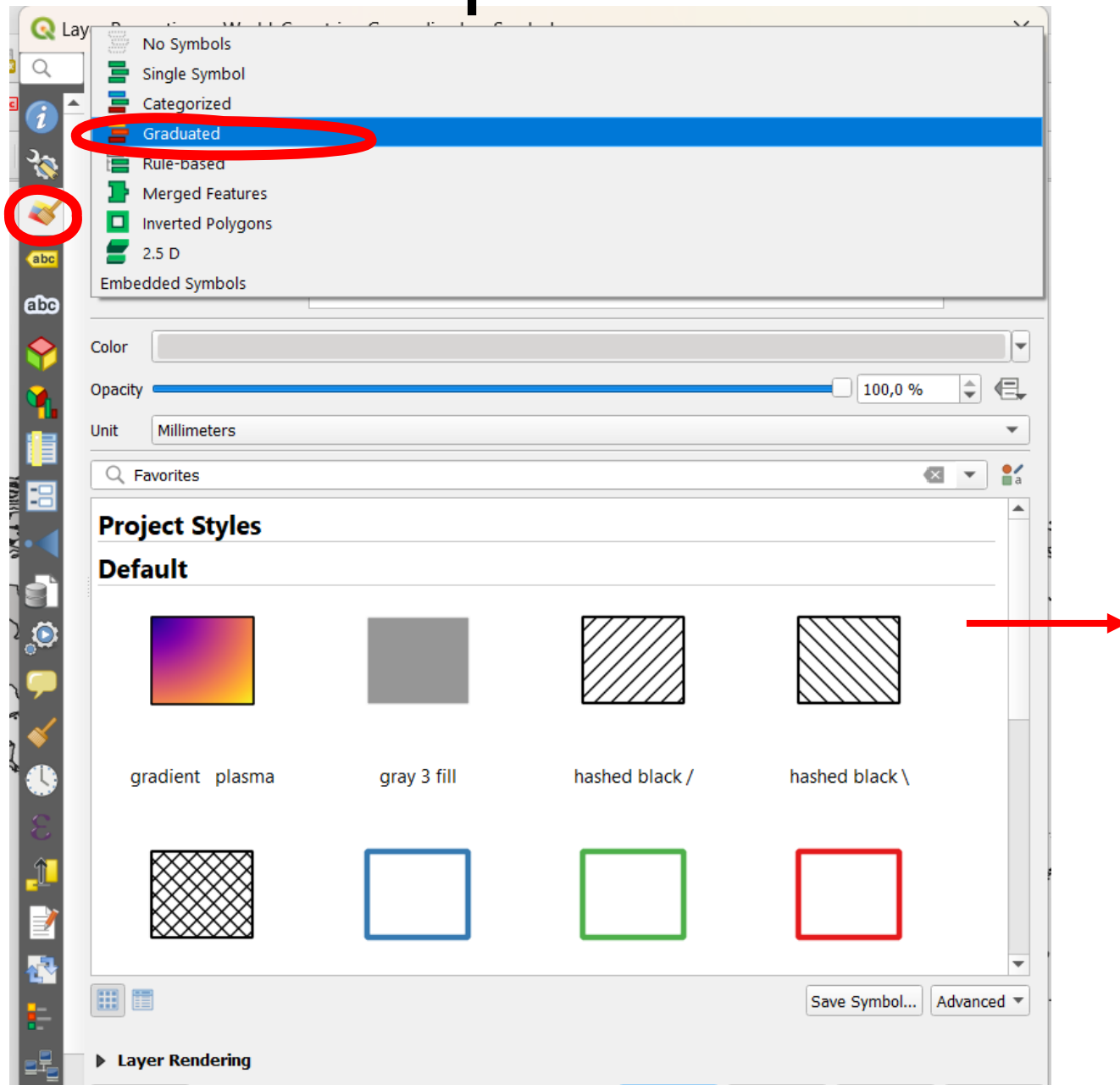
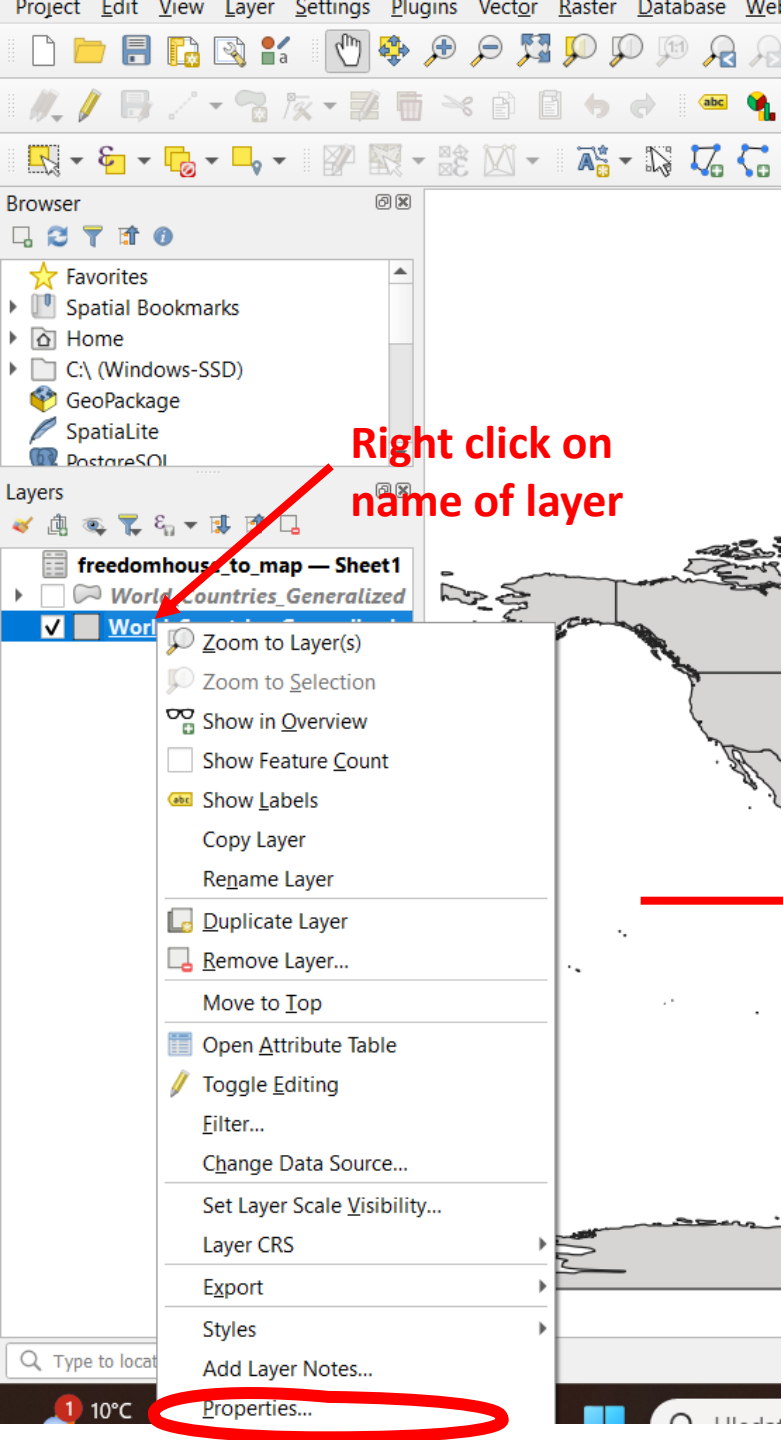
World_Countries_Generalized (MultiPolygon - EPSG:4326)
C:
\\Users\petrh\Documents\politologie\vyuka\vizualizace\World_Countries_Generalized\World_Countries_Generalized.shp

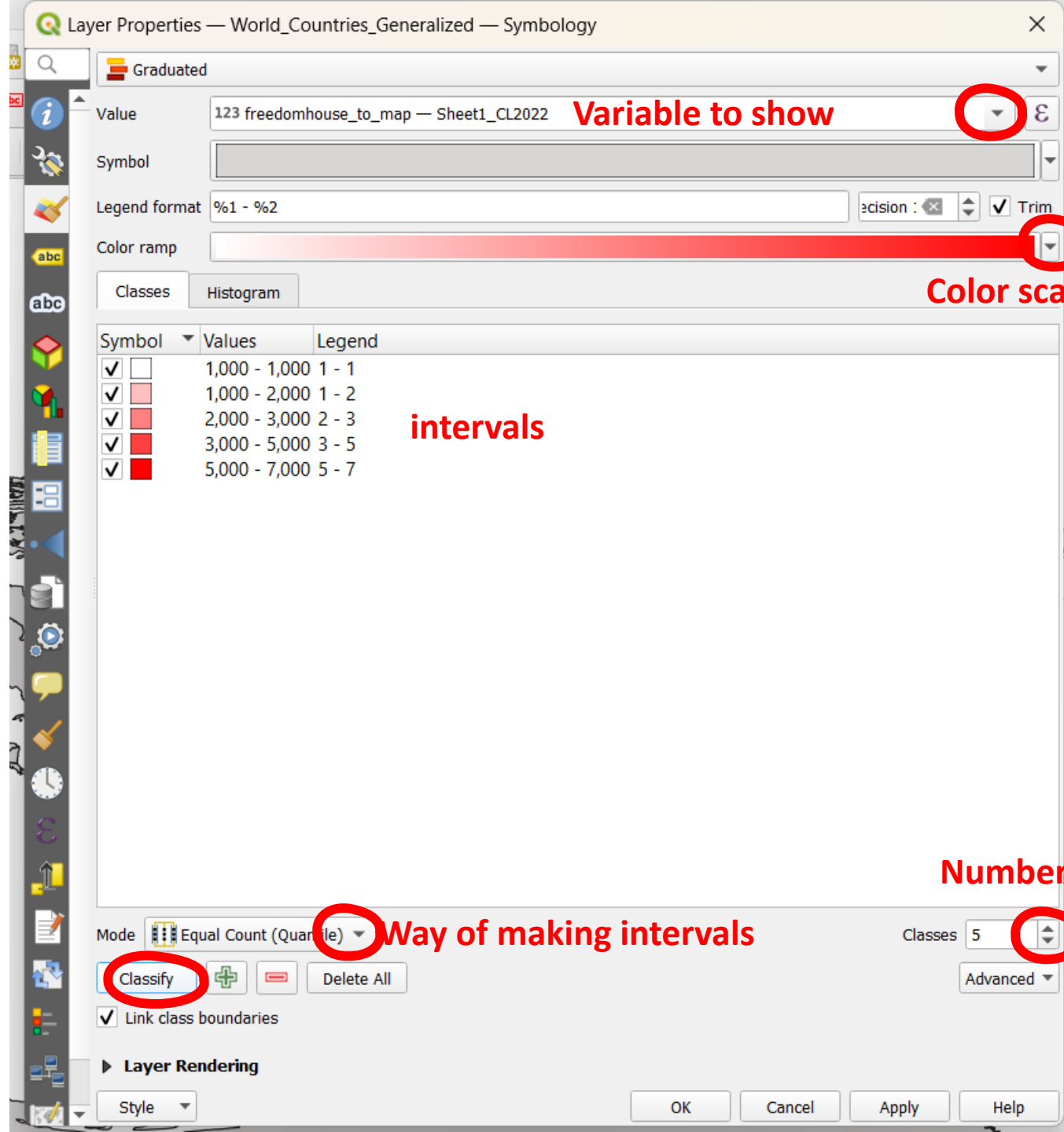


Join data from table to map



Make a map





Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help



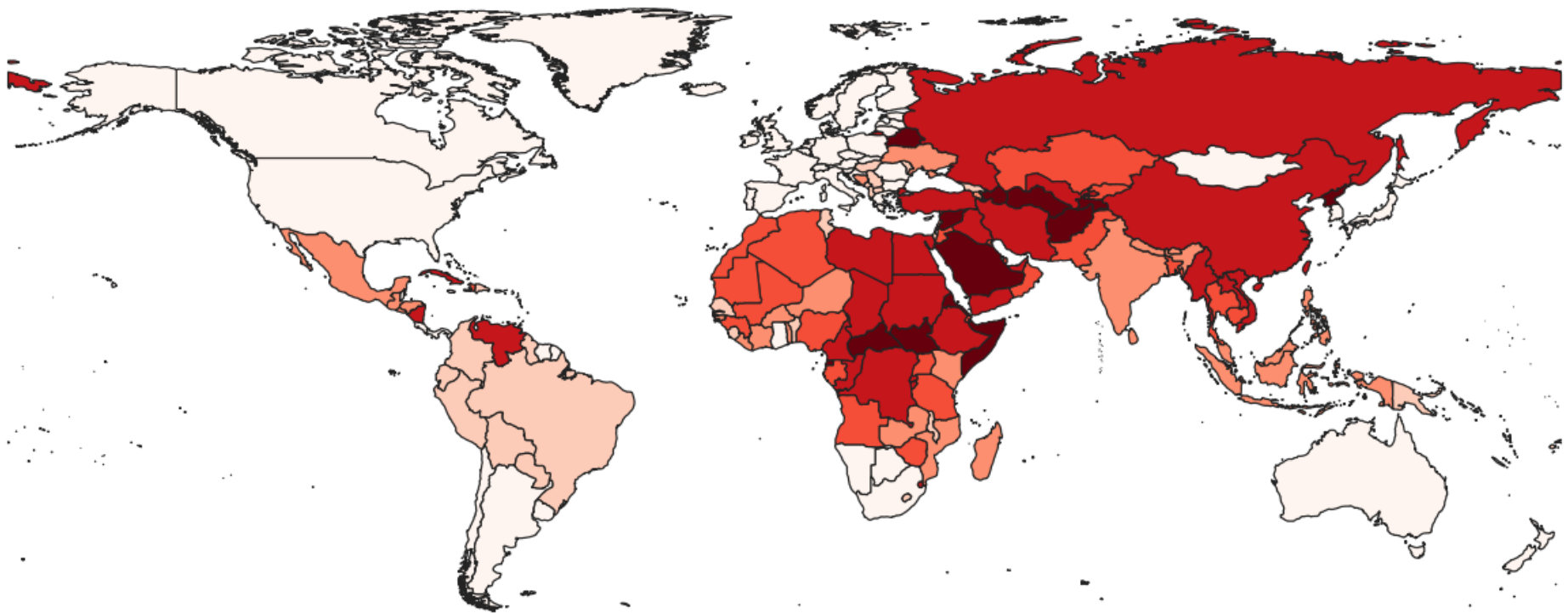
Browser

- ★ Favorites
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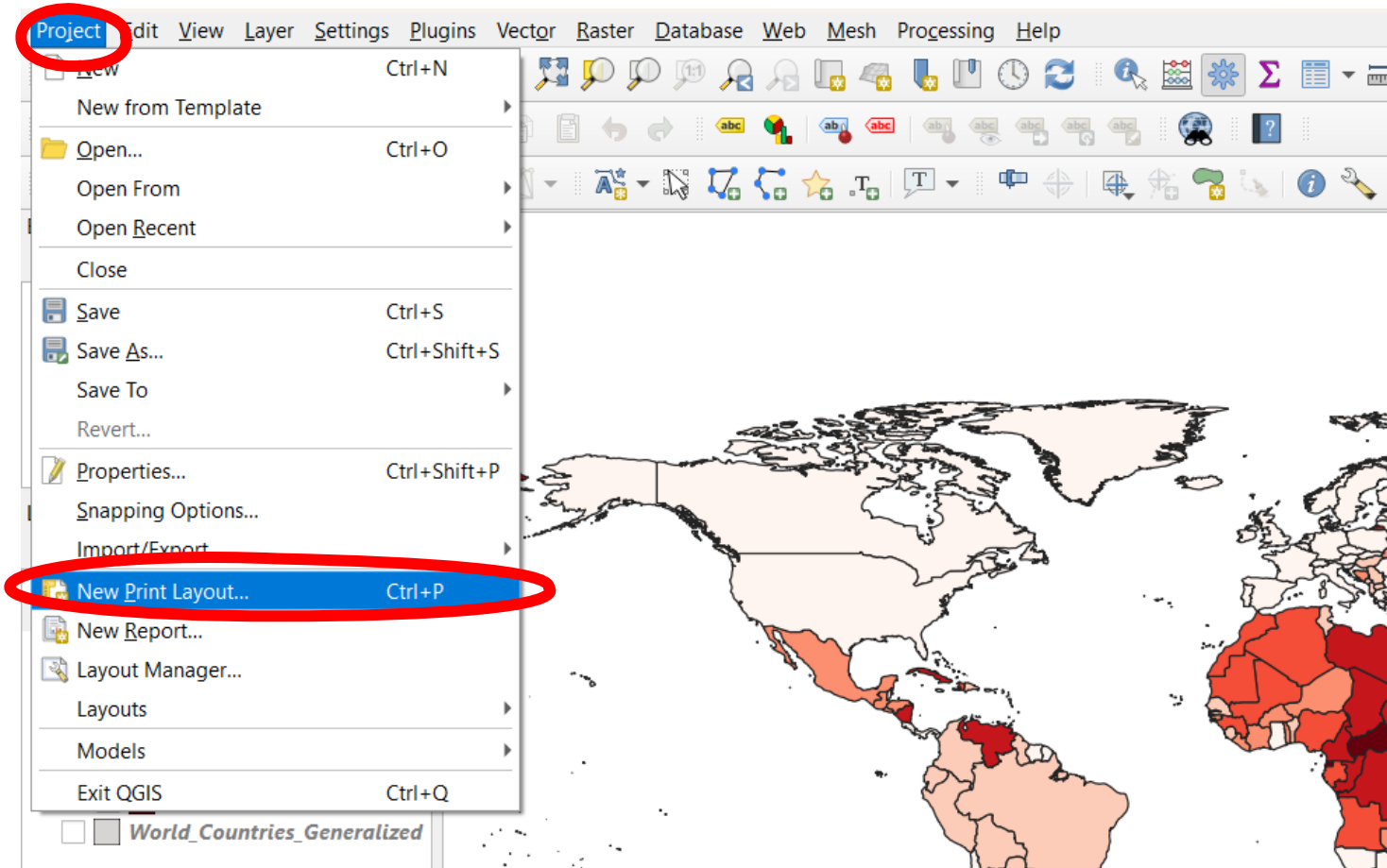
Layers

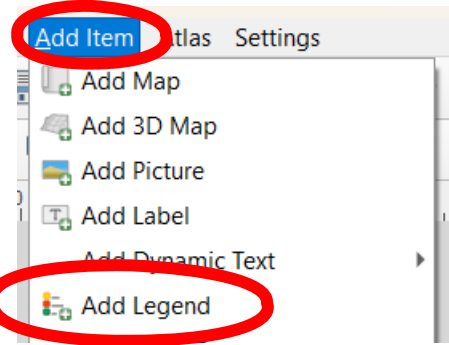
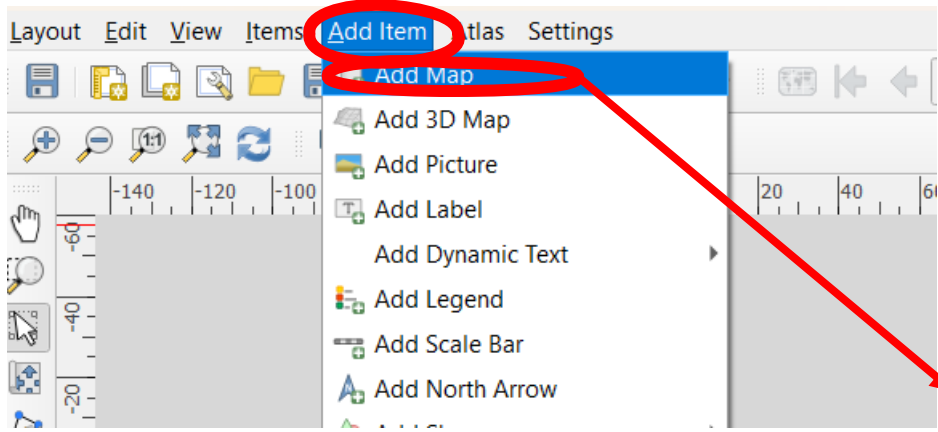
freedomhouse_to_map — Sheet1

- World Countries Generalized
 - 1 - 2
 - 2 - 3
 - 3 - 4
 - 4 - 5
 - 5 - 6
 - 6 - 7
- World_Countries_Generalized



Add map elements (legend, scale, title, etc)





**Draw with
mouse over
white board**

Layout Edit View Items Add Item Atlas Settings

- Save Project Ctrl+S
- New Layout... Ctrl+N
- Duplicate Layout...
- Delete Layout...
- Layout Manager...
- Layouts
- Layout Properties...
- Rename Layout...
- Add Pages...
- Add Items from Template...
- Save as Template...
- Export as Image...**
- Export as SVG...
- Export as PDF...
- Printer Page Setup... Ctrl+Shift+P
- Print... Ctrl+P
- Close Ctrl+Q

World_Countries_Generalized

| | |
|-------|--|
| 1 - 2 | |
| 2 - 3 | |
| 3 - 4 | |
| 4 - 5 | |
| 5 - 6 | |
| 6 - 7 | |