UN-REDD PROGRAMME

Introduction to QGIS

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What will we cover in the introductory QGIS session:

- What is QGIS and what can it do?
- Overview of Coordinate reference systems in QGIS
- Quick Demonstration to give an overview of the software and highlight some of the differences and similarities to ArcGIS
- Introductory tutorial covering:
  - ❑ Understanding Coordinate Reference System (CRS) in QGIS
  - ❑ Adding vector and raster layers
  - ❑ Adding tabular information as a delimited text layer
  - ❑ Symbolising vector data
  - ❑ Symbolising raster data
  - ❑ Installing plugins
  - ❑ Querying data
  - ❑ Joining tables
  - ❑ Introduction to the Processing Toolbox
  - ❑ Map layouts

1. What is QGIS and what can it do?

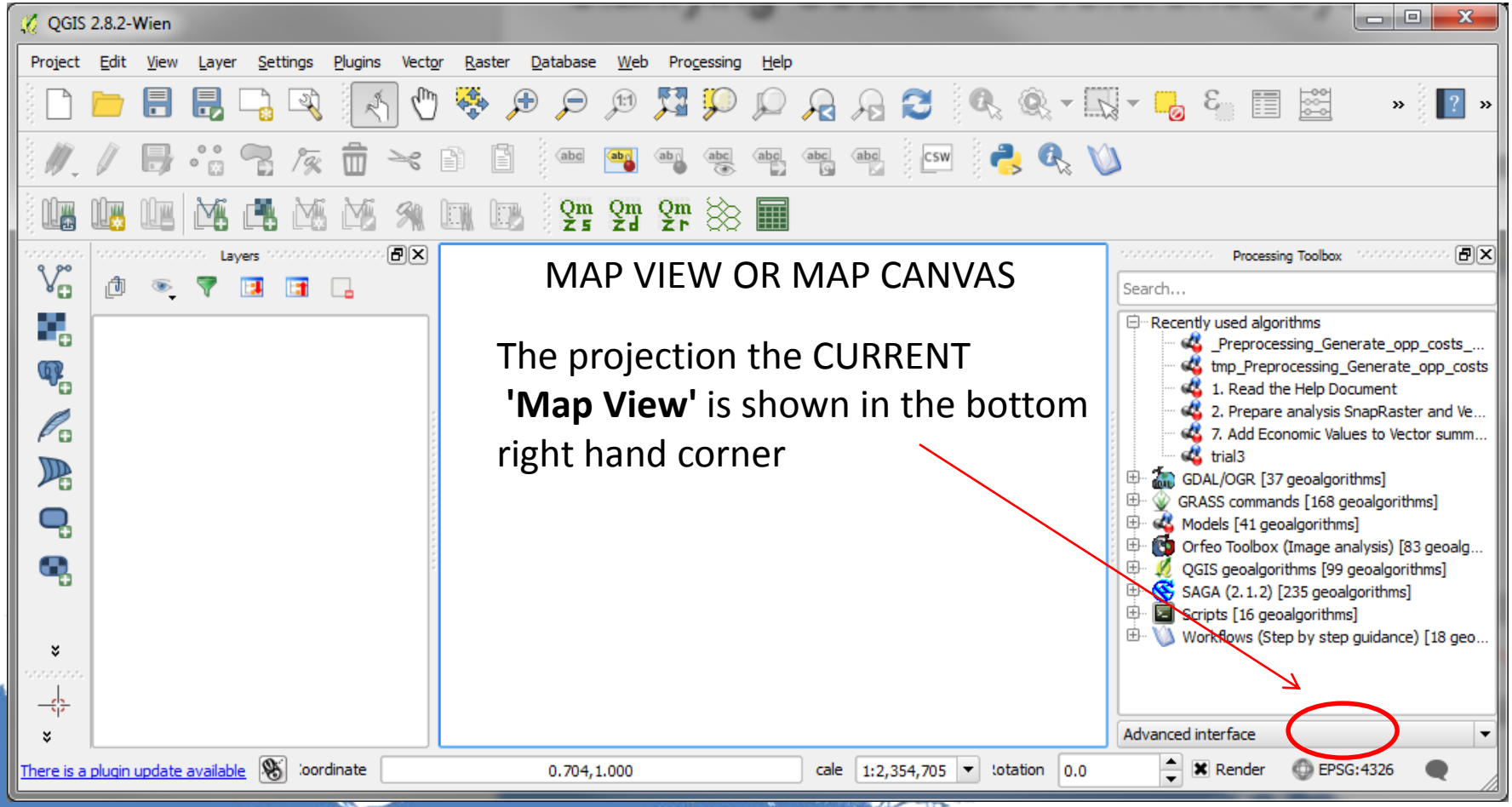
- QGIS is a desktop GIS package
  - It's free and open source
- QGIS can:
  - View and edit geographic information
  - Present geographic information (i.e. create maps and figures)
  - Analyse geographic information
- QGIS is:
  - Extensible (through plugins and scripts)
  - Has a graphical modeler which allow you to build your own processing workflows

2. Open source software

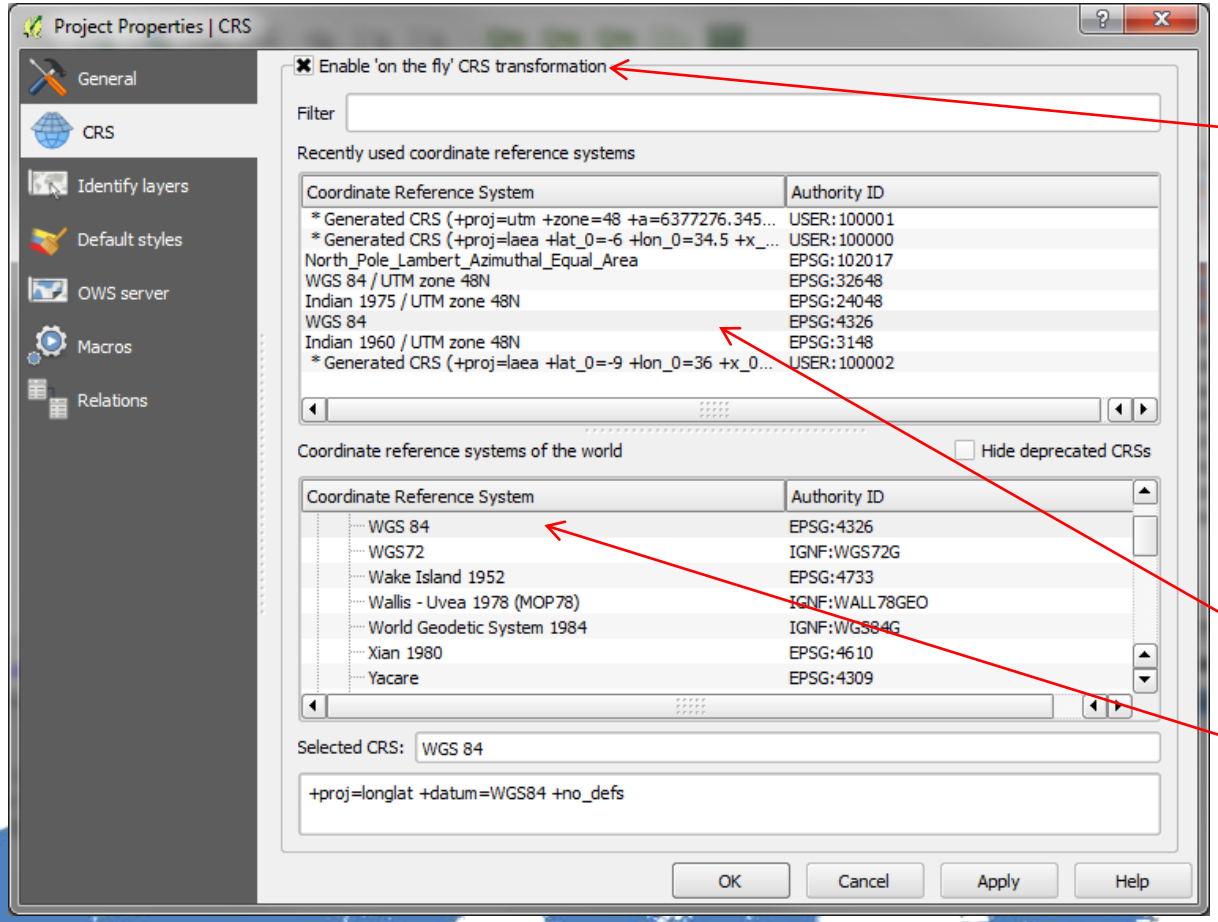
- Software that's released under a liberal license
  - An example, GNU General Public Licence v2 (QGIS' license)
- The software's license protects four special freedoms:
  1. *The freedom to **run the program, for any purpose** (freedom 0).*
  2. *The freedom to **study** how the program works, and **change it** so it does your computing as you wish (freedom 1). Access to the source code is a precondition for this.*
  3. *The freedom to **redistribute copies** so you can help your neighbour (freedom 2).*
  4. *The freedom to **distribute copies of your modified versions** to others (freedom 3). By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this. **...gnu.org***

Clarifying coordinate reference systems in QGIS

Changing the projection of the QGIS Map View (for the current project only)



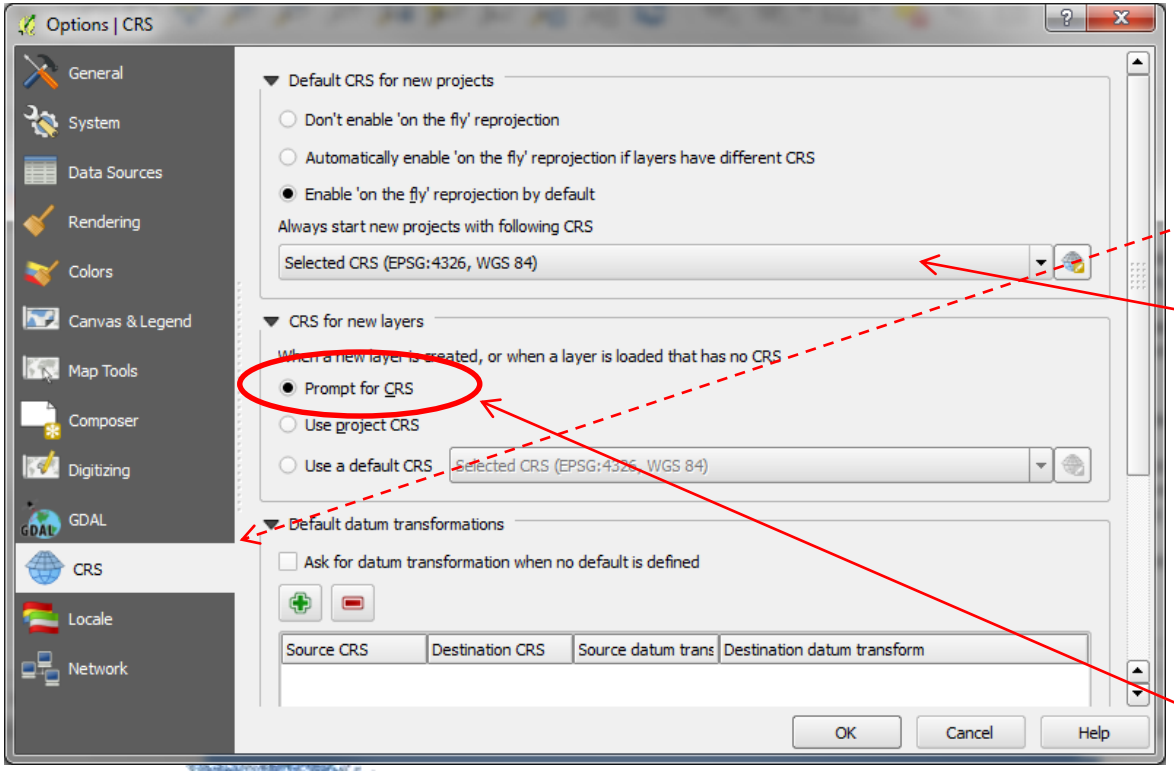
Changing the projection of the QGIS Map View (for the current project only)



You should **activate on the fly projection** or otherwise different datasets in different projections will not appear on top of each other in the 'Map View'

Here you can change the projection of the 'MapView' **for the current project only**

Changing the projection of the QGIS Map View (for the future projects)



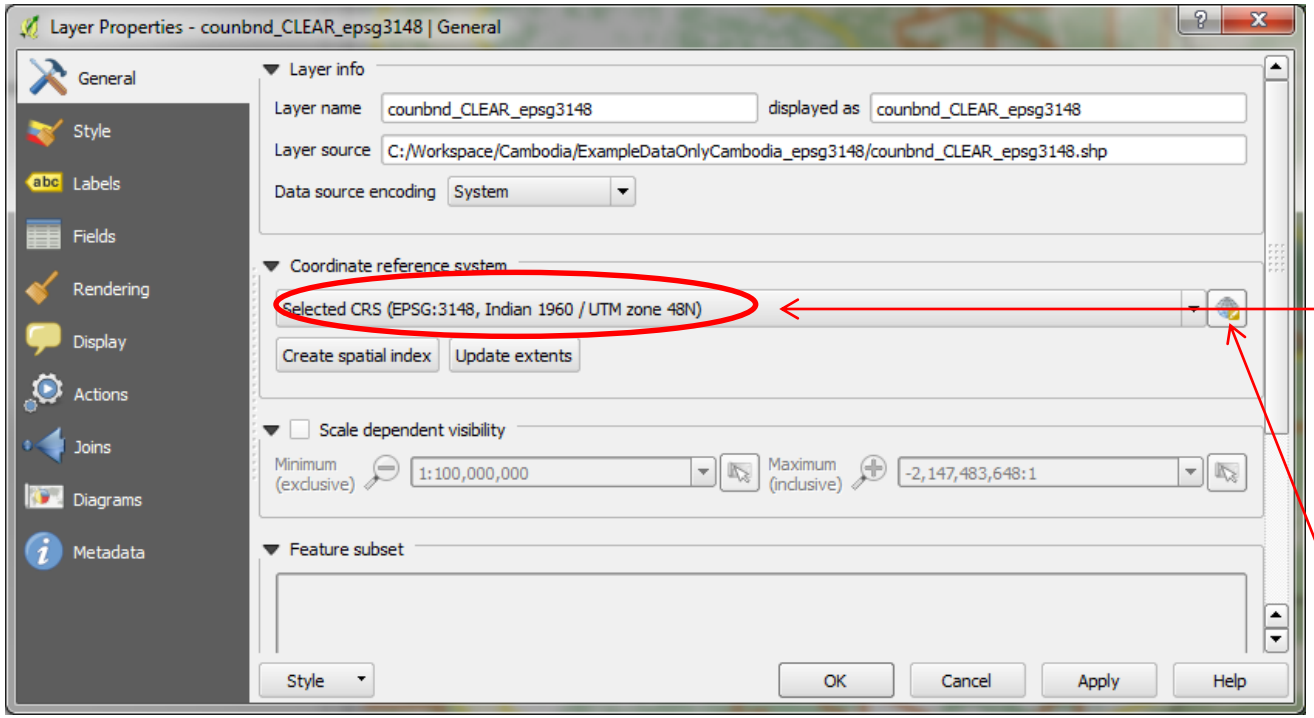
From the main menu click on **Setting>>Options**

Click on the **CRS** tab

Set the projection here if you want QGIS to **always open with the MAP VIEW in a particular projection**

If a dataset has no projection defined you **ALWAYS want QGIS to ask you what it is**

Looking at the projection of a dataset

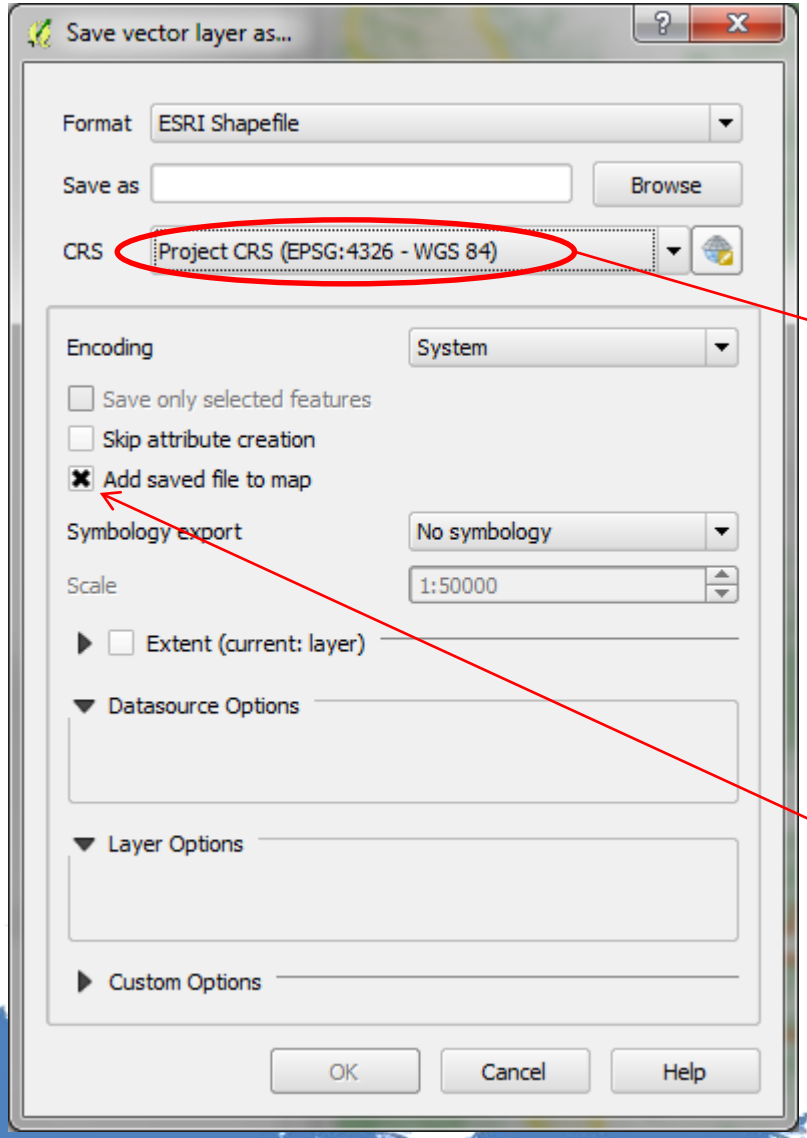


Right click on the dataset and click **properties**

The **projection of the dataset** is listed here

WARNING!!!!
Specifying a different CRS here **does not reproject** the data.

Reprojecting - Saving a dataset to another CRS

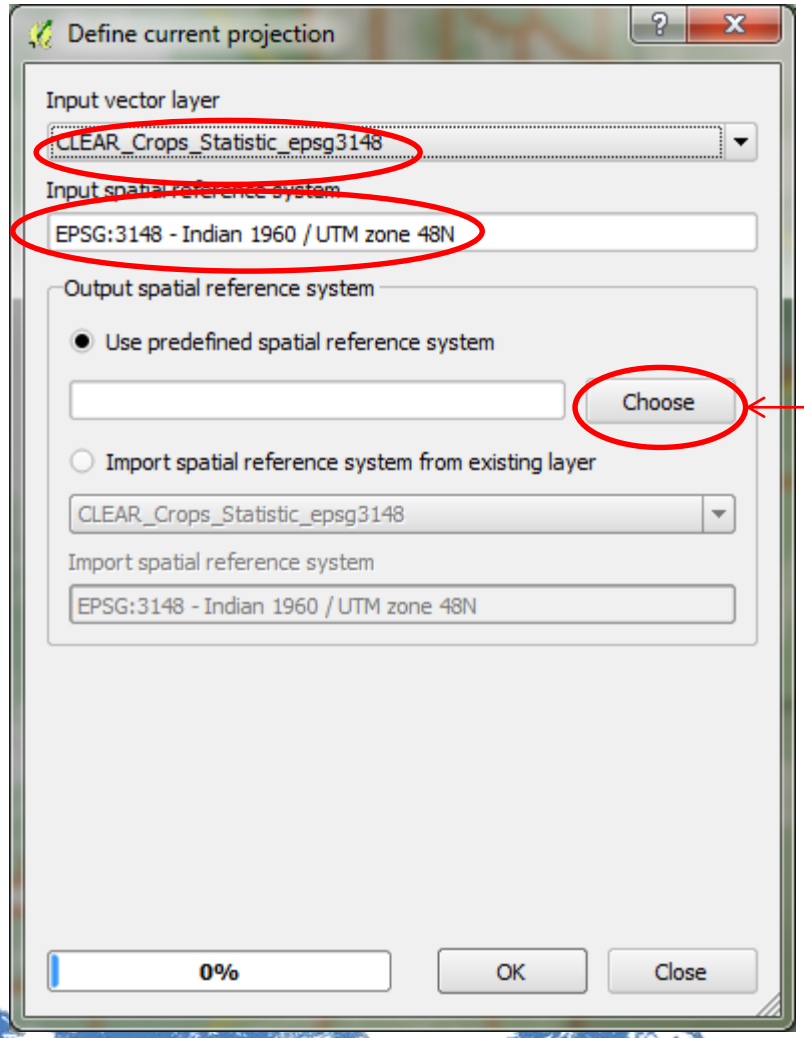


Right click on the dataset and click **Save As**

Change this from layer CRS to either **project CRS** (if you want to save as the projection of your Map View or **Specify CRS** if you want to pick from the list of projections

Tick add to map if you want the projected dataset to be added to your QGIS project.

Define current projection



From the main menu click on **Vector>>Data Management Tools>>Define Current Projection**

If a layer is missing a CRS and you want to tell QGIS what the projection is and

Or

if you have a layer that has the WRONG projection and you want to tell QGIS what the correct projection for this layer is.

Other important or useful comments on projections in QGIS

- If the Map View is in a projected coordinate system you can set the scale of the canvas at the bottom of the screen

- Unlike ArcGIS you cannot do on-the-fly area calculations in QGIS you have to physically project the data.

- If QGIS does not provide the coordinate reference system you need, you can define a custom CRS - under setting>>custom CRS

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Datasets to use in the Introduction to QGIS tutorial

2.2.3.1 Adding vector layer	E:\ODC\Provinces.shp	(provinces)
2.2.3.2 Adding Raster layer	E:\FA\UNEP_WCMC\bcarden300.tif	(biomass carbon)
2.2.3.3 Adding delimited text	E:\GBIFOccurence_slim.csv	(biodiversity data from GBIF)
2.2.5 Projecting	E:\ODC\PF.shp	(protected forests)
2.4 Vector symbology - Simple	E:\ODC\PF.shp	(protected forests)
2.4 Vector symbology - categorised	E:\ODC\natural_protected_areas.shp	(natural protected areas)
2.4 Vector symbology - graduated	E:\ODC\census_2008_districts.shp	(2008 population census)
2.4.1 Raster symbology - 1	E:\Data\FA_data\UNEP_WCMC\bcaden300.tif	(biomass Carbon t/ha)

2.4.2 Raster symbology – 2 **right- click>>duplicate on bcaden300.tif so that you get a 2nd copy of the bcaden300.tif raster and shade classes to match the carbon map in the 2010 report located in E:\Data\FA_data\UNEP_WCMC**

2.5.3 Groupstats	E:\ODC\census_2008_districts.shp	(2008 population census)
2.5.4	*Read but skip this one – useful plugin but we won't run in this training*	
2.6 Query data	E:\ODC\census_2008_districts.shp	(2008 population census)
2.7 Joining tables	**join table E:\Data\ODC\VulnIndex.dbf to E:\ODC\Provinces.shp**	(vulnerability index)

2.8.1 Vector clip (batch) **use E:\Data\FA_data\KokKong\KohKong.shp to batch clip any 4 vector layers from E:\Data\ODC folder**

2.8.2 Dissolve	E:\Data\WDPA\KHM_WDPAJune2015_pol.shp	(protected areas)

2.8.3 Zonal Statistics **E:\Data\FA_data\UNEP_WCMC\bcaden300 and E:\Data\WDPA\KHM_WDPAJune2015_pol.shp**

2.9 Map Layouts **- choose to make a map layout using any of the data used in the previous exercises or add your own data**

Please save output files and QGIS projects in the Day1_training folder on USB

Datasets to use for Exercises

E:\ODC\Communes.shp	(communes)
E:\Data\ODC\National_Roads.shp	(roads)
E:\Data\ODC\CropYield.dbf	(crop yields)
E:\Data\FA_data\Mondolkiri\MDK_Forest_Cover_2010.shp	(Forest cover)
E:\Data\FA_data\Mondolkiri\MDK_CNMC_Landuse_2010.shp	(Landuse)
E:\Data\Hydrosheds	(DEM tiles)

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Thank you!

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