

How to run the Surface Water Extractor plugin

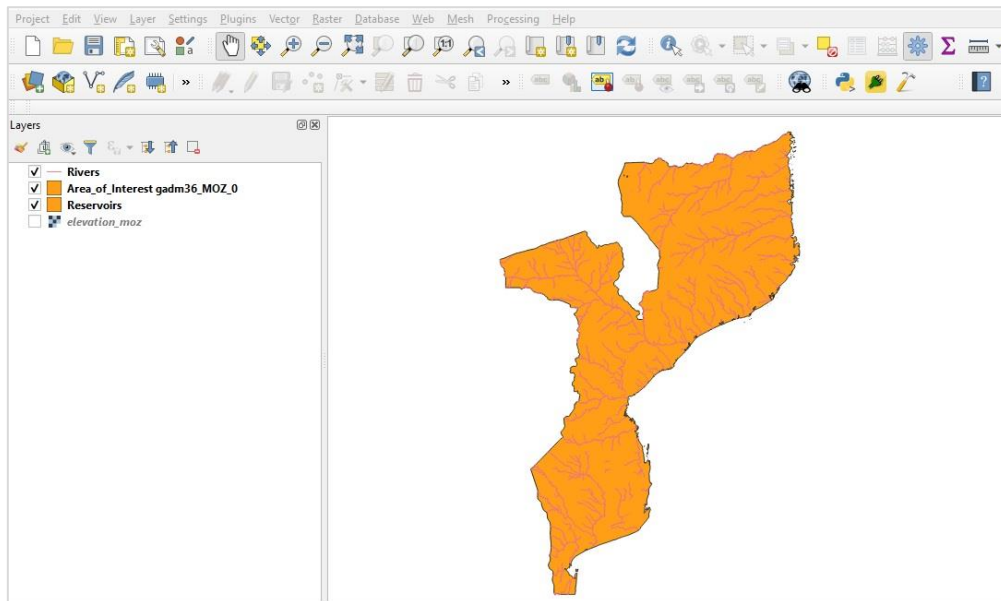
Input data requirements

You will need the following datasets for the plugin to function correctly:

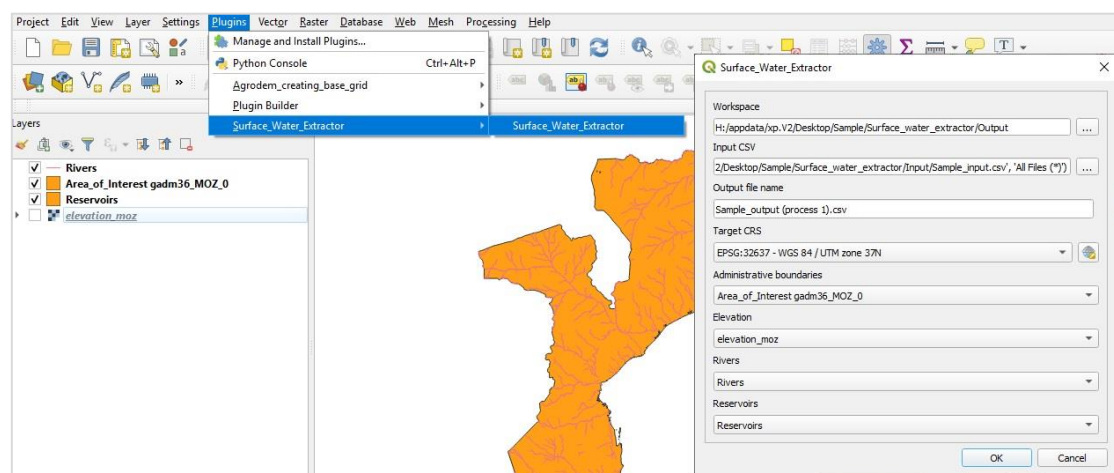
1. **Admin boundaries:** Vector polygon indicating administrative boundaries for the AoI
2. **River network:** Vector polylines indicating river network over the AoI
3. **Reservoirs:** Vector polygons indicating lakes and reservoirs over the AoI
4. **Elevation:** Raster layer indicating elevation (in m) over the AoI (e.g. Digital Elevation Map)
5. **Crop data:** csv with potential crop locations over the area of interest

Running the plugin

1. Before opening the plugin make sure that layers (1-4) are loaded into your current QGIS session.



2. Open the plugin from the **Plugin** menu in QGIS.



3. In the field named **Workspace**, click on the three dots on the right hand side of the field and navigate to an empty folder. This will be the directory that output (and supporting) products will be stored.

Surface_Water_Extractor

Workspace
H:/appdata/xp.V2/Desktop/Sample/Surface_water_extractor/Output

Input CSV
2/Desktop/Sample/Surface_water_extractor/Input/Sample_input.csv, 'All Files (*)'

Output file name
Sample_output (process 1).csv

Target CRS
EPSG:32637 - WGS 84 / UTM zone 37N

Administrative boundaries
Area_of_Interest gadm36_MOZ_0

Elevation
elevation_moz

Rivers
Rivers

Reservoirs
Reservoirs

OK Cancel

4. Select the **.csv** file that you want to use as your base. This csv file shall include the following columns:

- **pixel** - Unique id for each pixel of the agricultural area
- **State** - Name of states the location belongs to
- **lon** - Longitude (in EPSG:4326)
- **lat** - Latitude (in EPSG:4326)
- **Crop** – Name of the crop
- **Fraction** - The fraction that is cultivated (only if file derives from downscaling)
- **CropArea** – Harvested area of the crop (in ha)

Surface_Water_Extractor

Workspace
H:/appdata/xp.V2/Desktop/Sample/Surface_water_extractor/Output

Input CSV
2/Desktop/Sample/Surface_water_extractor/Input/Sample_input.csv, 'All Files (*)'

Output file name
Sample_output (process 1).csv

Target CRS
EPSG:32637 - WGS 84 / UTM zone 37N

Administrative boundaries
Area_of_Interest gadm36_MOZ_0

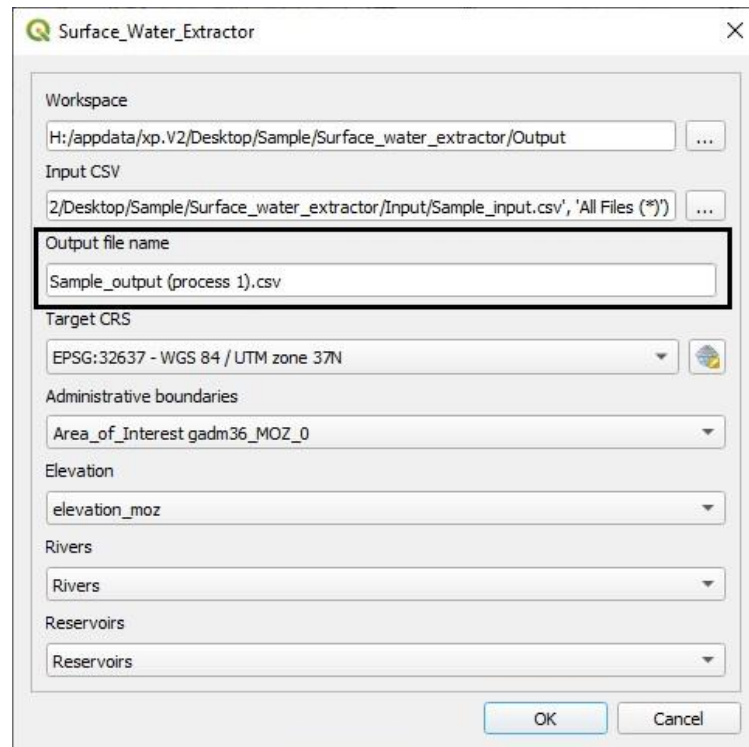
Elevation
elevation_moz

Rivers
Rivers

Reservoirs
Reservoirs

OK Cancel

5. Then, provide the name of the output file.



Surface_Water_Extractor

Workspace
H:/appdata/xp.V2/Desktop/Sample/Surface_water_extractor/Output ...

Input CSV
2/Desktop/Sample/Surface_water_extractor/Input/Sample_input.csv', 'All Files (*)' ...

Output file name
Sample_output (process 1).csv

Target CRS
EPSG:32637 - WGS 84 / UTM zone 37N

Administrative boundaries
Area_of_Interest gadm36_MOZ_0

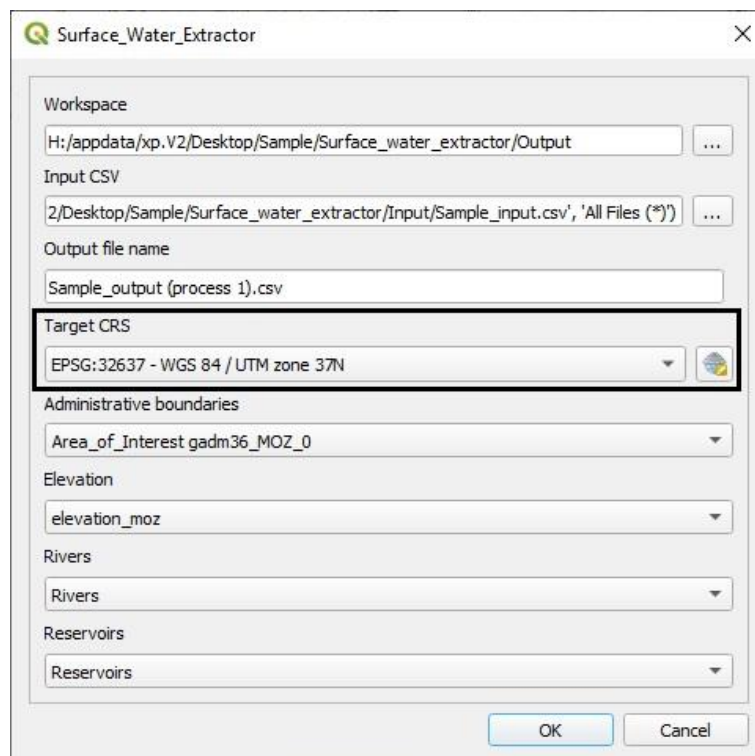
Elevation
elevation_moz

Rivers
Rivers

Reservoirs
Reservoirs

OK Cancel

6. Next, chose the **projection system**. Make sure that the projection system is in a linear unit (e.g. meters).



Surface_Water_Extractor

Workspace
H:/appdata/xp.V2/Desktop/Sample/Surface_water_extractor/Output ...

Input CSV
2/Desktop/Sample/Surface_water_extractor/Input/Sample_input.csv', 'All Files (*)' ...

Output file name
Sample_output (process 1).csv

Target CRS
EPSG:32637 - WGS 84 / UTM zone 37N

Administrative boundaries
Area_of_Interest gadm36_MOZ_0

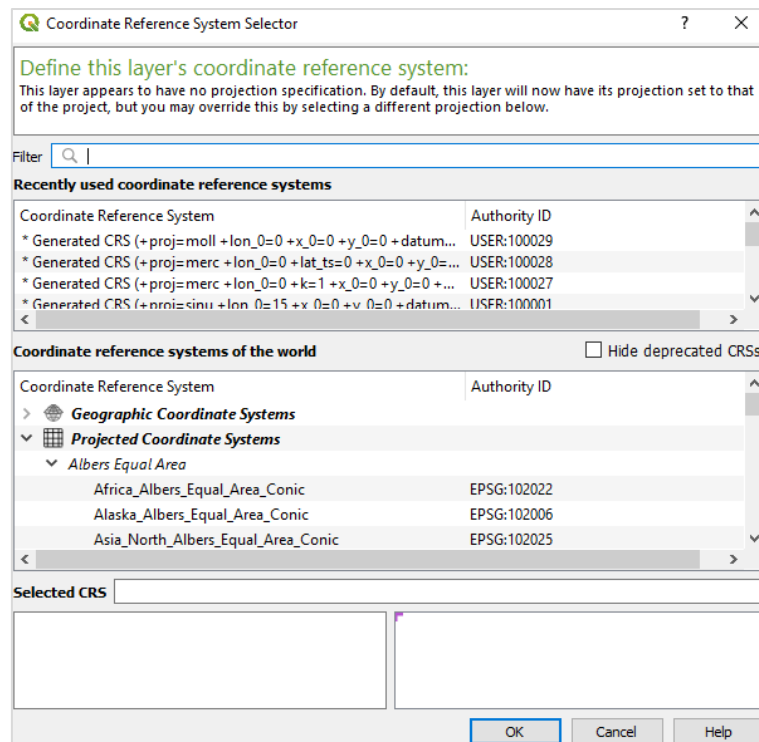
Elevation
elevation_moz

Rivers
Rivers

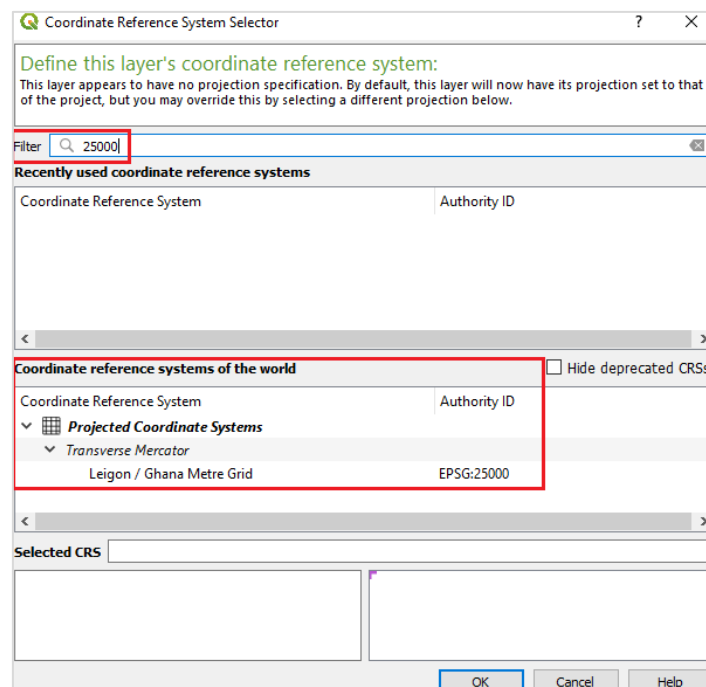
Reservoirs
Reservoirs

OK Cancel

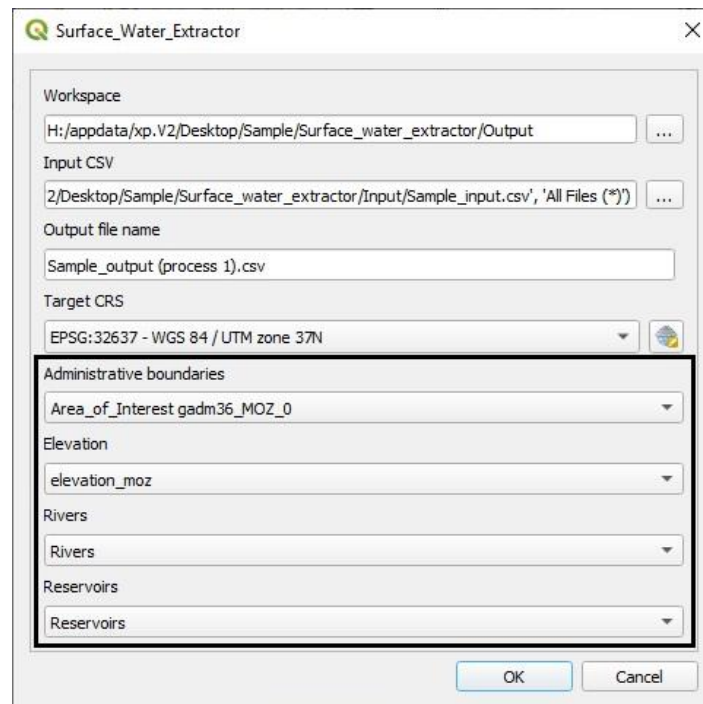
Note! When selecting the projection system the following window will open up:



To find the coordinate system that is appropriate for your study area please visit <http://epsg.io/> and search for your area of interest. This will present you with a list of coordinate systems suitable. In this example, the projection system for Mozambique was set as UTM zone 37N. Next, click on the icon next to the field and check the EPSG code received from the webpage. Choose one where the unit is in meters and the red box covers the whole area you are working with.



7. In the remaining boxes select the datasets accordingly.



8. Plugin may take some time to run depending on the size of the study area. During this time, QGIS cannot be used. For the example case of Mozambique (~170,000 rows) the plugin takes approximately 20 minutes to run.