



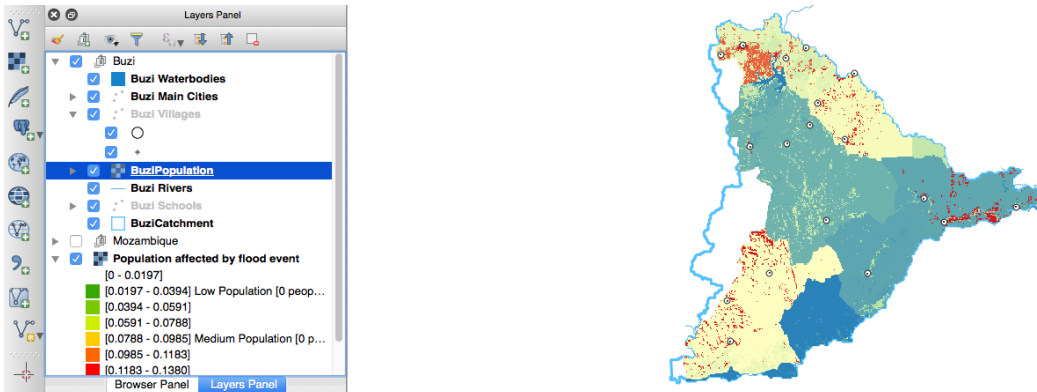
## Section : 7. Raster

### Module : 7.6. Clipping Rasters

#### Clipping rasters with QGIS

*"QGIS provides various ways to clip a raster layer. In this worksheet we will look at one approach."*

If you have a raster that is larger than the area needed for your map or analysis, you can clip it to a smaller size using QGIS. In addition, you can 'mask' the layer using a polygon in order to assign no data values to pixels outside of your target area.



#### **You try:**

**Goal: To determine the streams and catchment area for swellendam.**

NB: You need the mentioned plugins

Data: SRTM

- Load the raster from the data path
- Run the fill sinks algorithm (save the filled demand flow direction only)
- Apply the flow style to flow direction layer
- Run the strahler alg and use the filled dem as input.
- Use raster calc to create a boolean raster (userast calc expression and input raster is fromstrahler alg)
- Apply the boolean style on the boolean raster
- Add an additional no-data value 0 on the boolean raster
- Run channels alg with Filled Dem as the input. Set the threshold to 8. (save channels and drainage basins only)
- Activate plugins
- Search Swellendam using geocode plugin
- Zoom to a river near the point added by geocode plugin.
- Use co-ord capture plugin to capture a point along the vector river.
- Use the slope alg. Substitute x,y for values in the coordinate capture. Use values representing correct CRS of the raw raster layer.
- Proceed to generate the catchment and streams as a vector layer.

Name	Expectation
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Fill sinks algorithm	Fill sinks (wang and liu)
Flow style	d8_flow_directions.qml
Strahler alg	Strahler order
Raster calc	"strahler@1" >= 7
Boolean style	strahler_boolean.qml
Channels alg	Channel network and drainage basins
plugins	Coordinate capture, geocoding
Slope alg	Upslope area

### **More about Clipping rasters with QGIS**

Raster data contains cells which are organised into rows and columns where each cell contains values representing information. Because raster images are generally very big and contain a lot of pixels (information), it is sometimes imperative to clip them. This can be achieved by either using a shapefile as a mask layer or by specifying an extent.

When clipping a raster layer we can change the other characteristics of the output layer like no-data values, spatial resolution and adding an alpha band to the output raster.

The spatial resolution of a raster defines the smallest possible feature that can be detected. No-data values are used to represent areas of a raster that have no data or areas in the raster that you do not want to show based on the pixel values in the raster.

An alpha band acts as a transparency mask, providing a transparency value for each pixel.

### **Check your knowledge:**

1. DEM is an abbreviation for:
  - a. Data emission problems
  - b. Digital elevation Movie
  - c. Digital elevation model
2. Which of these represents a derivative of a digital elevation model:
  - a. A satellite image showing mountainous areas
  - b. A slope curvature map that is used by surveyors to determine the direction at which the sun shines
  - c. A vector data that represents natural phenomenon

3. Plugins are extensions in QGIS:

- a. *True*
- b. *False*

 **Further reading:**

- Cutting\_merging: [https://docs.qgis.org/2.14/en/docs/training\\_manual/processing/cutting\\_merging.html](https://docs.qgis.org/2.14/en/docs/training_manual/processing/cutting_merging.html)
- Raster\_mosaicing\_and\_clipping: [http://www.qgistutorials.com/en/docs/raster\\_mosaicing\\_and\\_clipping.html](http://www.qgistutorials.com/en/docs/raster_mosaicing_and_clipping.html)

Download the sample data for the lesson from [http://changelog.inasafe.org/media/images/lesson/worksheet/external\\_data/1c8439948585164c135b2e5a01630a5233d87442.zip](http://changelog.inasafe.org/media/images/lesson/worksheet/external_data/1c8439948585164c135b2e5a01630a5233d87442.zip).