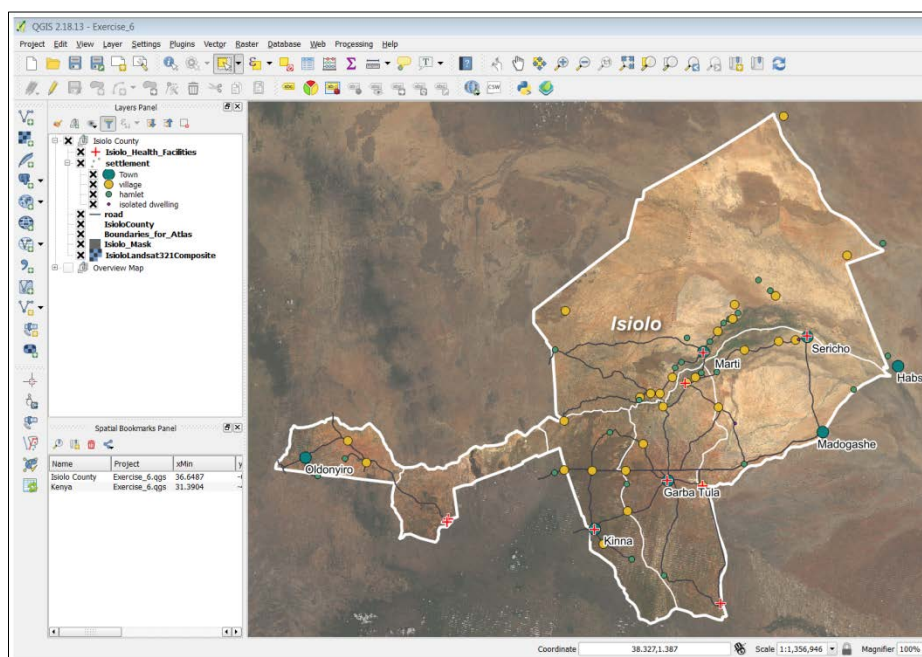


Exercise 7 – Producing a Map


Objectives: The purpose of this exercise is to create a layout from scratch, complete with overview map, extent indicator, legend and scale bar

Open up Exercise_7.qgs located here: *C:\Intro_Quantum_GIS\Exercises*

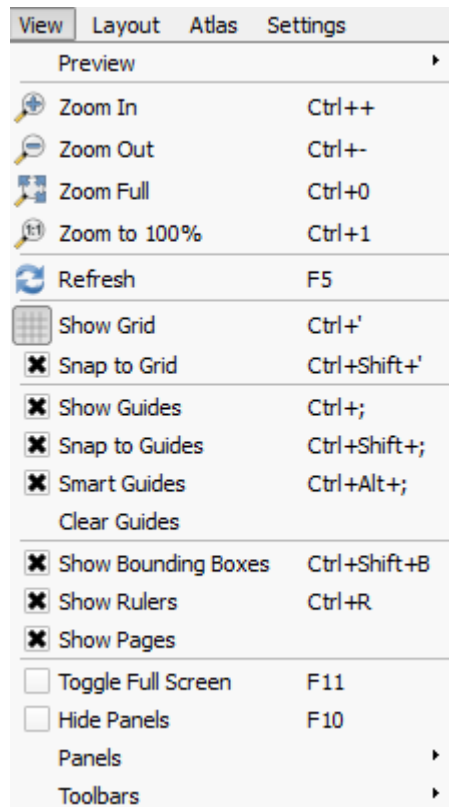
You will be presented with a stack of data layers relating to Isiolo County, Kenya – county boundary, settlements, roads and health facilities. Explore the **layers Panel** to understand the data you have available. If you zoom or pan away from the current map extent, open up the **Spatial Bookmarks Panel** and double-click *Isiolo County* (If you created it in exercise 2!).



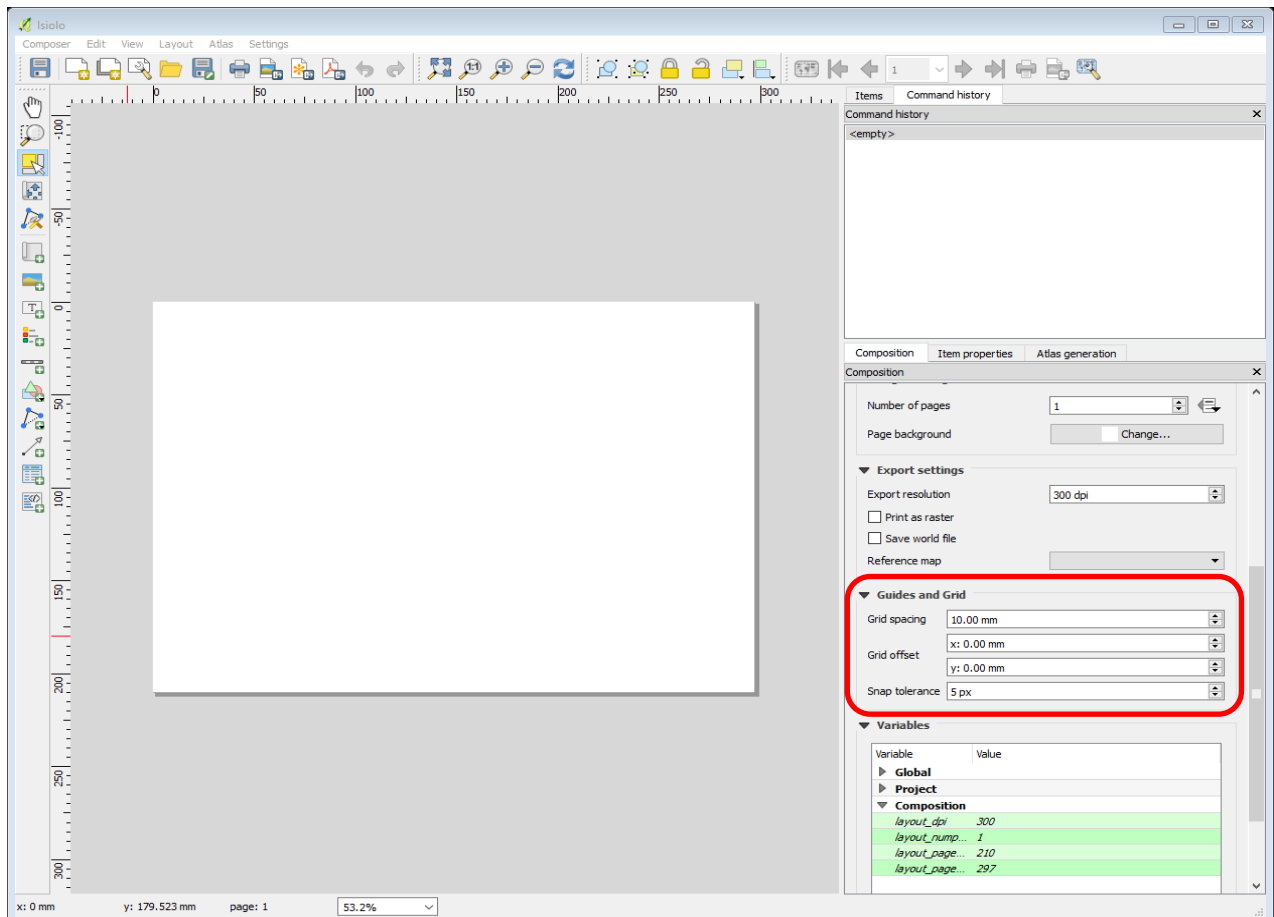
Part 1 - Setting up the map composer

1. Open a new print composer window.
 - Click on the **New print composer button** 
 - In the window that appears, enter a title of *Isiolo*
2. On the right hand side of the composer window, you will see the **Composition** menu with paper size and orientation options.
 - Set the paper size to A4.
 - Set the orientation to Landscape
 - Set the quality to 300 dpi.




3. Under the **View** drop-down menu, there are a number of options for setting up your workspace.
 - Click **Show Grid**
 - Click **Snap to Grid**

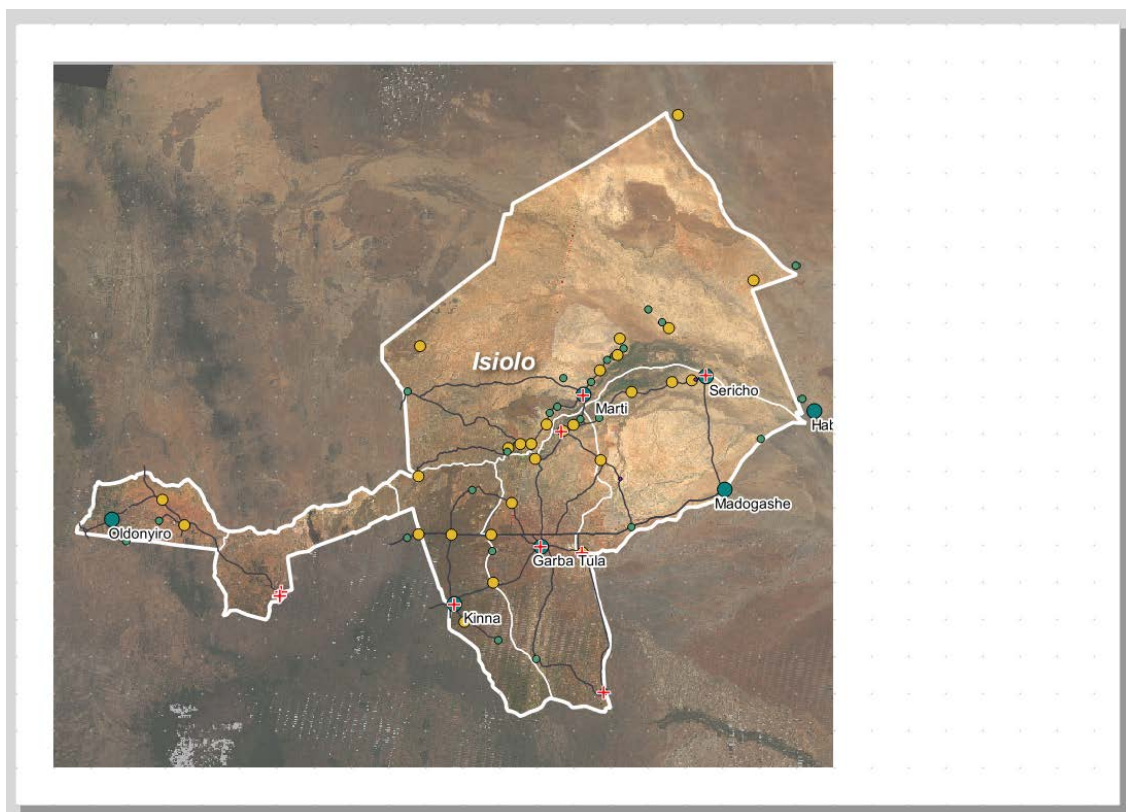


4. Back in the **Composition** menu on the right-hand side, there are also Grid options.
 - Set the **Spacing** to 10.00, if it currently differs
 - Your Print Composer should be set up as follows (note, you may have to scroll down the **Composition** menu in order to see **Guides and Grid**)




Part 2 – Adding a map canvas to the print composer

1. Add a new map canvas to the composer window.
 - Click on the **Add new map** button. 
 - Click and drag on the page to place your new map. Use about 2/3 of the page for this map.
 - You can move the map around using the **Move item content** button 
2. Set the map extent and scale.
 - With the map canvas selected, click on the **Item Properties** tab on the right of the screen. Type in an appropriate scale so that the map content fills the area you have assigned to it.
 - It may be that you need to resize the map area to make it fit to the shape of the data.
 - Use the **Select/Move item** tool to do this. 
 - With the same goal in mind, experiment with **Set to map canvas extent** (in **Extents** section).
 - This is the approximate positioning you should aim for:

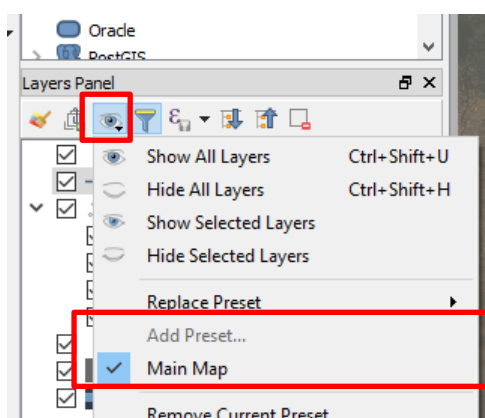


3. Lock the map item.

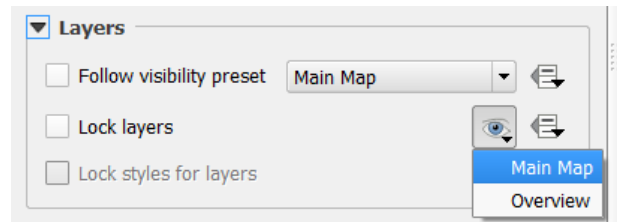
- When you are happy with the scale and position of the map, click the lock icon  in the **Composer Item Actions** toolbar. This locks all currently selected items in your composer window and prevents you from accidentally moving or re-sizing them.


Part 3 – Adding a new map canvas displaying overview map and extent indicator

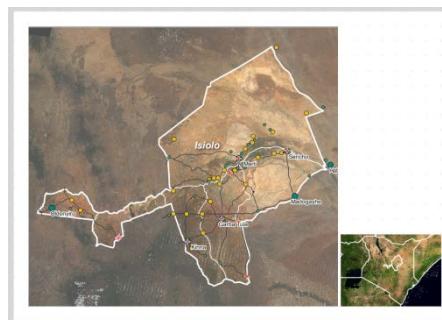
- Create a preset for the current map layers.
 - Switch back to the QGIS map window and add a preset from the visibility dropdown above the Layer list. Give the preset a meaningful title such as *Main Map*



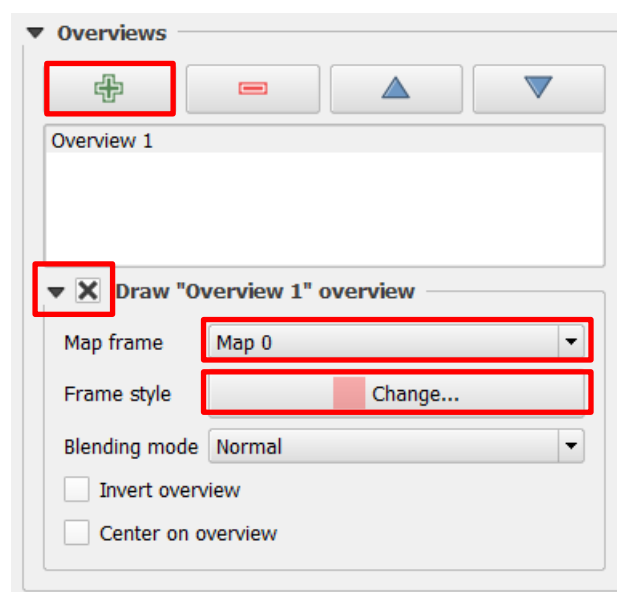
- Associate the composer map canvas with this preset
 - Back in the Composer, view the **Item properties** for your map canvas, and link the map to the preset that you have just defined by clicking the eye icon:



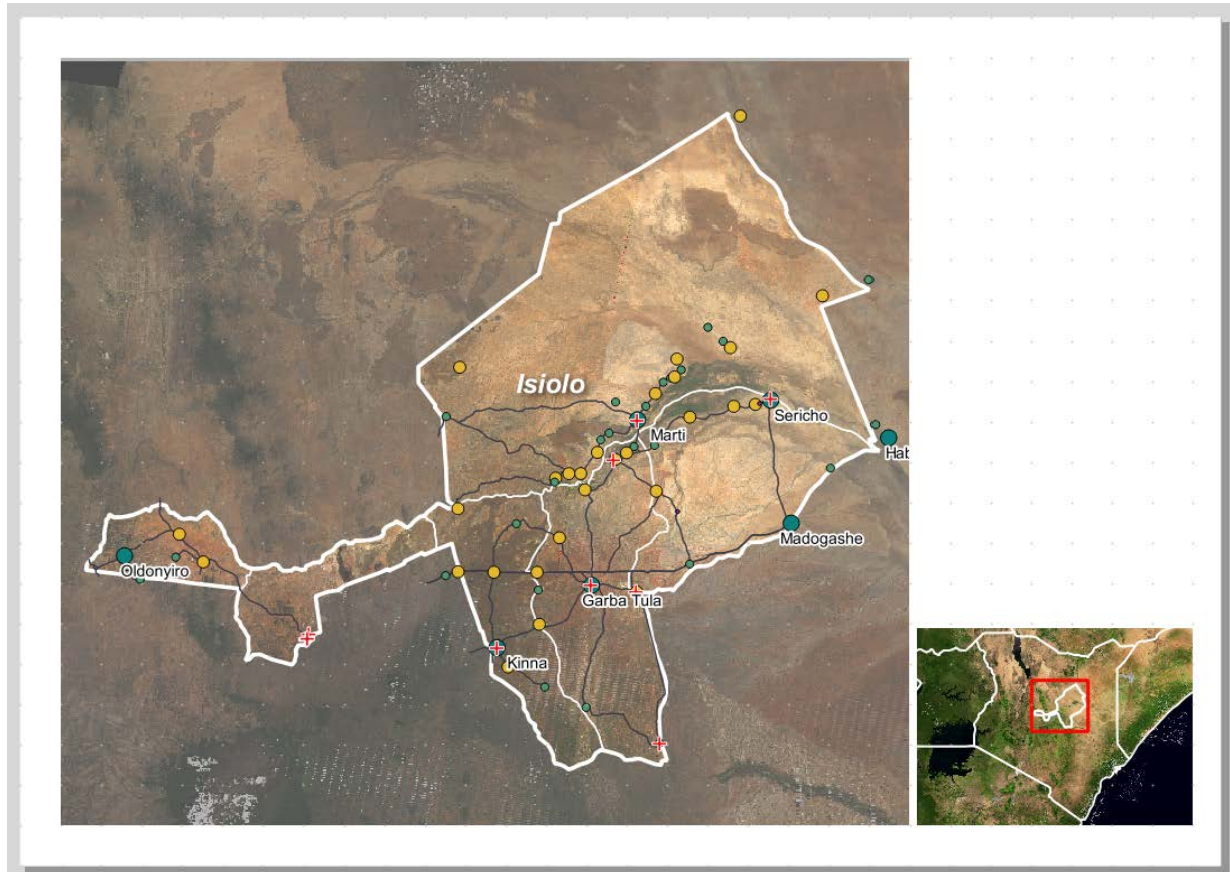
3. Adjust the map layers for the overview map
 - In the main QGIS project window, turn off the *Isiolo County* layer group in the **Layers Panel**
 - Now turn on the *Overview* layer group
 - Open the **Spatial Bookmarks panel** from the main toolbar 
 - Double-click the *Kenya* bookmark
 - Now that the map extent has shifted, create a new preset called *Overview*
4. Back in the **Composer** window, add a new map canvas.
 - Use the same steps you used on page 3 of this exercise.
 - Make this new canvas fill about third of the remaining space you have on the page.
 - Associate the new map canvas with the *Overview* preset



5. Add an **Extent Indicator**, to identify the geographic extent of your main map.
 - Scroll down the **Item Properties** tab to the **Overviews** section and expand the section



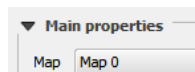
- Click the '+' sign to create a new overview
- Expand the **Draw "Overview1" overview** and ensure there is a cross in the box
- For **Map Frame**, ensure *Map 0* is selected (Map 0 is the default name for the first map window created)
- Either except the default **Frame style** or click **change** to edit it



Part 4 – Adding a scale bar

Add a scale bar to the main map.


- Click on the **Add new scalebar** button.
- Click on the page where you want to add the scalebar
- With the scalebar selected, go through the options available in **Item properties** tab on the right, which enables you to modify the style, dimensions and units of the scalebar.
- Firstly, ensure that the scalebar is linked to the correct map canvas as shown under the 'Main properties' section

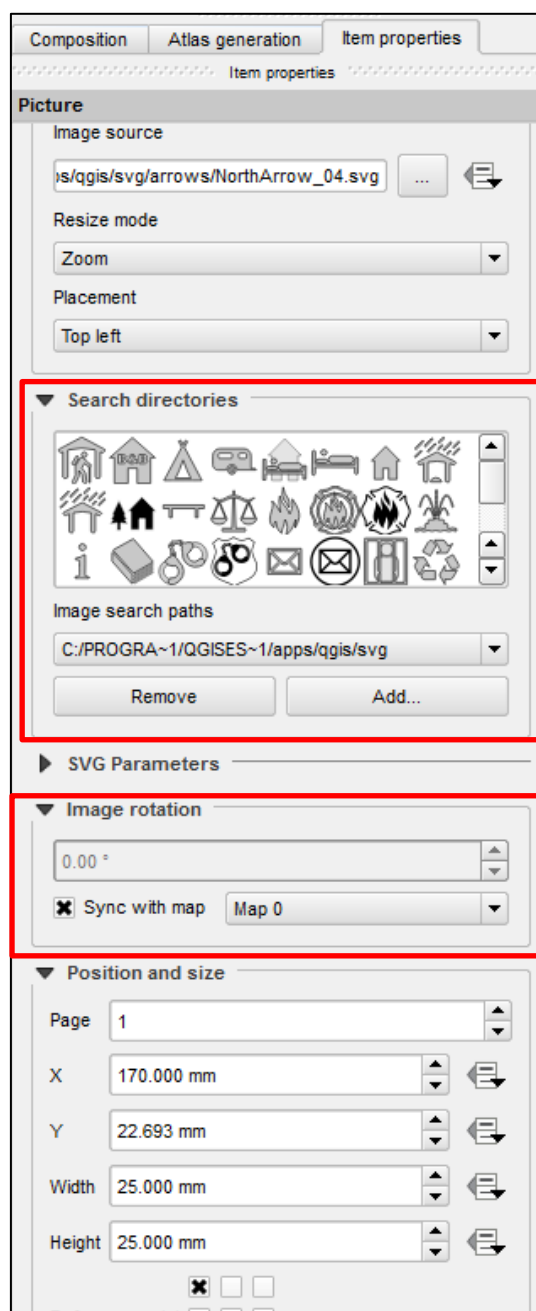


- Experiment with the different options under the **Units** and **Segments** section in order to display your scale bar at an appropriate size and orientation

Part 5 – Adding a north arrow

Add a north arrow to the map.


- Click on the **Add image** button. 
- Click on the map where you want to add the north arrow and drag a box.
- From the **Item Properties** tab on the right, expand **Search Directories** and select an arrow image
- If you have rotated the map (i.e. north is not at the top) you should check the **Sync with map** box in **Image rotation** section and choose the appropriate map window. This will ensure that the north arrow is synched with the correct map window
- There are many customisation options in the **Item Properties** tab. Explore these.




Part 6 – Adding a legend

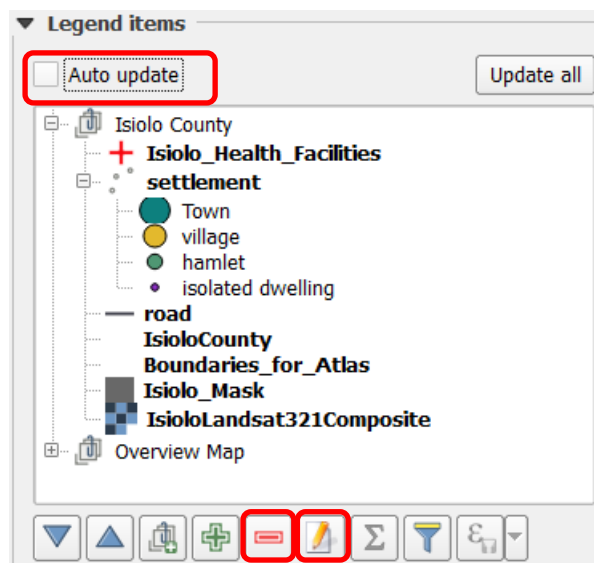
- Legends are by default actively linked to the main QGIS project window, so that when you add/remove/hide a dataset from the QGIS window, the legend updates accordingly.
- Here you want to add a legend for your main map. Before adding the legend, it is worth making sure that the layers you want to view in the legend are turned on in the main QGIS window, and the layers you don't want to view are turned off.
- Make sure that both of your map canvases are locked and then, in the main QGIS project window, turn off the Landsat data, and turn on all the other dataset.

1. Add a legend to the map.

- Click on the **Add new legend** button. 
- Click on the map where you wish to add the legend.

2. Change the legend labels.

- You will notice that the legend names all have underscores '_' in them. This is because it is pulling the names from the layer names in the **Layers** window.
- Click on the **Legend items** section in the **Item properties** tab
- Untick **Auto update**
- Select the legend item which you wish to edit and then click on the **Edit** button . You will get a pop-up window in which you can change the legend text for that item.



- There are also unnecessary legend items, highlight *Boundaries_for_Atlas*, *Isiolo_Mask*, *IsioloLandsatComposite* and *Overview Map*, and click the minus '-' icon

3. Format the legend

- With the legend selected, explore the other options in the **Item Properties** tab. Here you can edit the legend title, font, size etc...
- Explore these settings until you are happy with the layout and style of your legend.
- You may notice that the legend symbols for the administrative boundaries are not visible. This is because they are white – the same colour as the page.

- One way to correct this would be to change the background colour of the legend in the item. However a more suitable solution may be to add a background shape. We will do this in the last step.

Part 7 - Add additional information

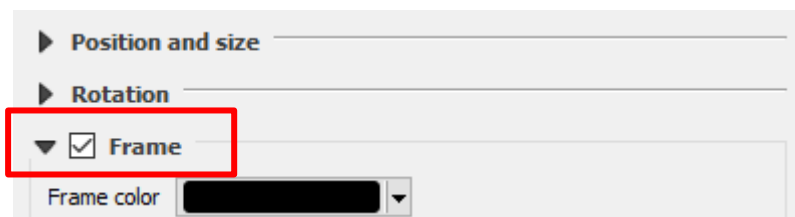
1. Sometimes you may wish to add text to a map explaining what the map is showing or text about the sources of the data. It is important if you are using data from a secondary source to reference this in the map layout.
2. Click on the add text button and drag a box underneath the legend. Within the item properties an input box will pop up. This is where additional text can be typed.
3. Enter the following:

Map created by: "Add your name here"

Date: "Add today's date here"

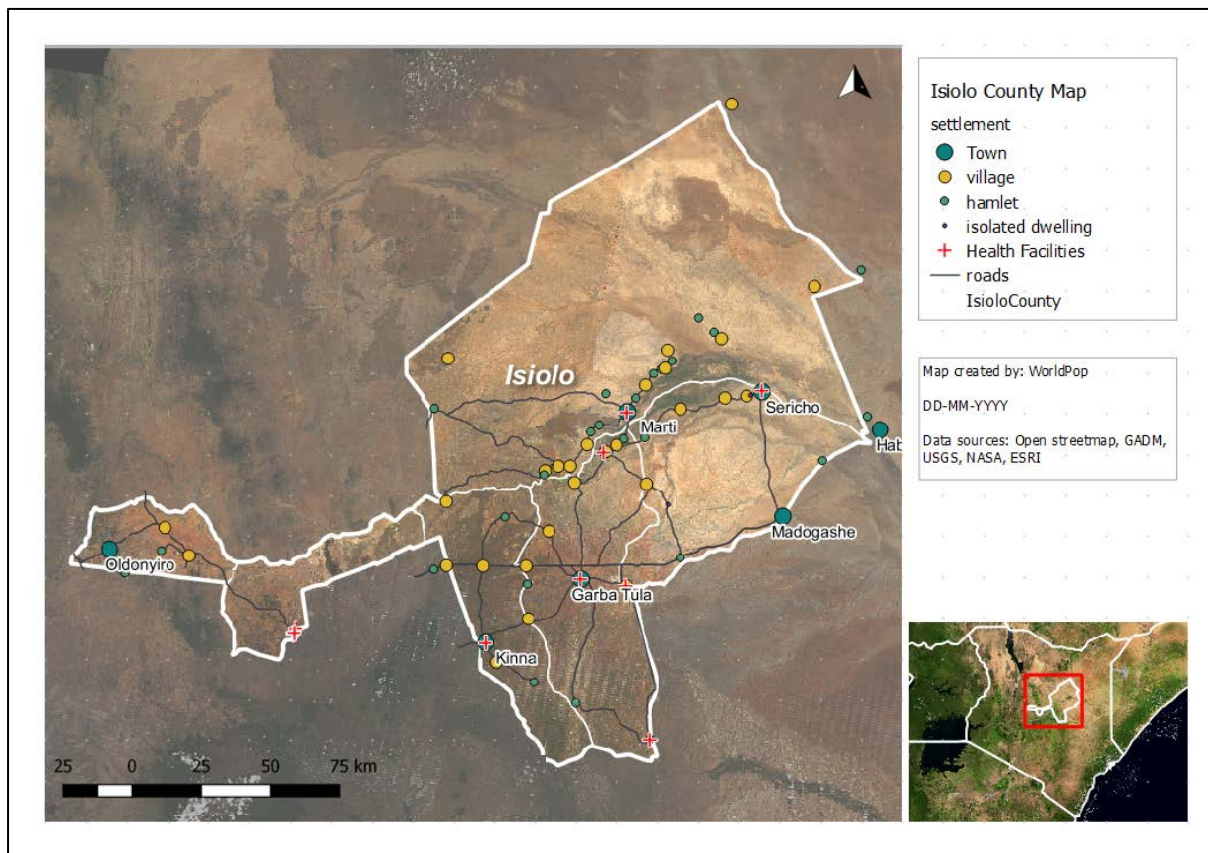
Data sources: Open streetmap, GADM, USGS and NASA,


4. Tick to add a frame in the Item Properties as shown below:

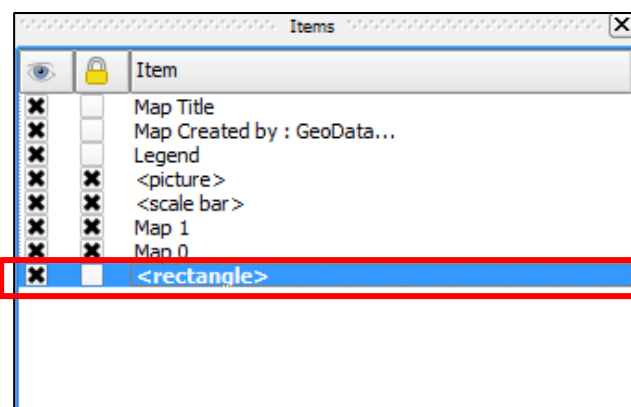


Part 7 - Adding Shapes

- By now your map should look similar to the one shown below

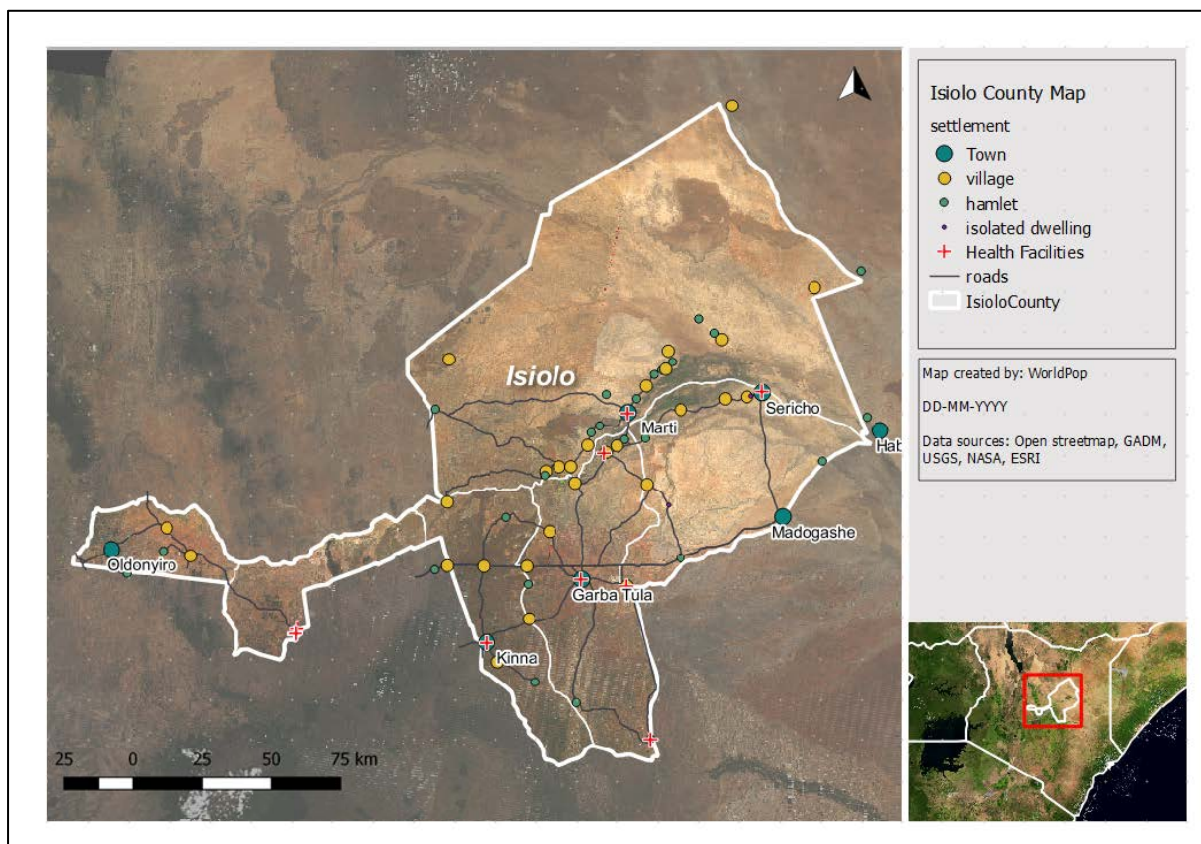


- To improve the look of the map we will draw a rectangle to provide a background for the elements on the right hand side of the map.
 - Click on the add shape button 
 - Draw a rectangle over the desired map elements
 - In the items panel move the newly added rectangle so that it is not drawing on top of any of your current map elements



- Now, with the rectangle selected change the colour of rectangle from the item properties tab

You should now have a completed map. An example map can be seen below



Part 8 – Printing / exporting the map

- When you are satisfied with your layout you have a number of choices of what you do. You can either print the layout or you can export it to an image file or a PDF. An image file can then be imported into other applications (e.g. Word).

- To print the file, simply click on the **print button** to open up the **Print dialog box**.



- To export your map as an image file, click on the **Export as image** button. You can then choose a number of file formats for the image.





- To export your map as a PDF, click on the **Export as PDF** button.



1. Export your map as a PDF.

- In the **Composer** drop-down menu, click on **Export as PDF..**
- Save it to C:\Intro_Quantum_GIS\Exercises\Data\

– Call it **Isiolo County Map**

- You may want to use the layout you have set up for another map (e.g if you have a series of maps or a corporate branding template). To do this can save the map as a template using the **Save as template** button. 
- To load a template you have previously saved, click on the **Add items from template**. 
- Save the QGIS project and close QGIS.