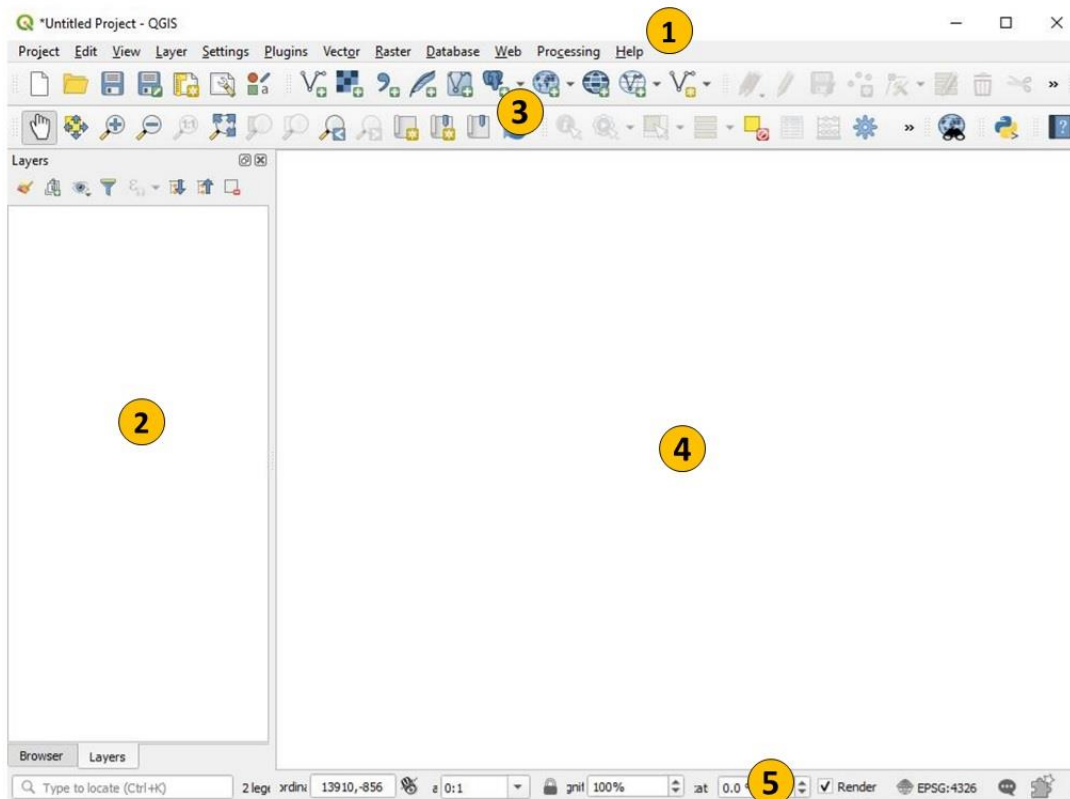


## Session 4.B: Using the basic functionalities of GIS software (QGIS)

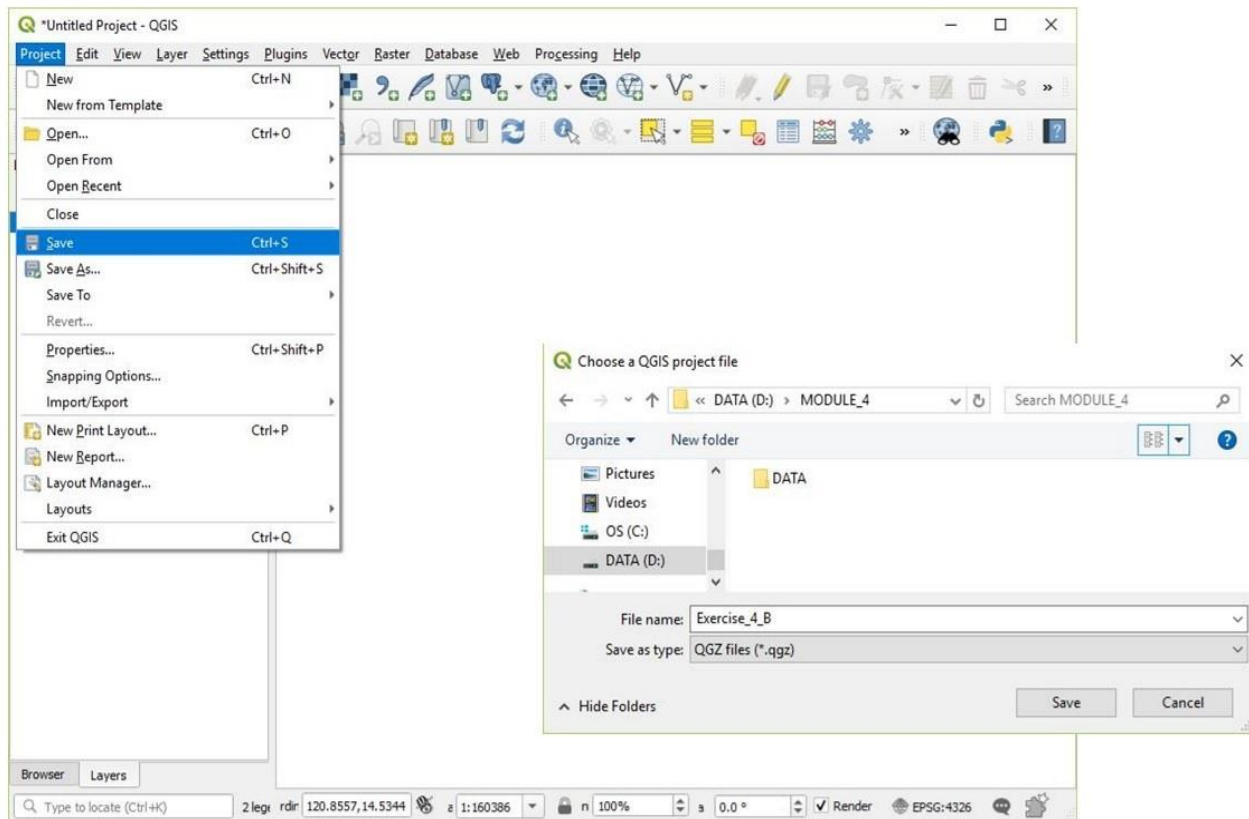
### Navigating the Interface:



QGIS interface is divided into 5 main areas:

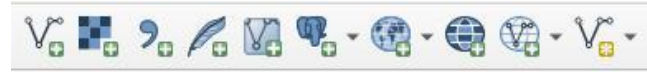
1. Main Menu
  - Provides access to various QGIS features using a standard hierarchical menu
2. Layers Panel / Browser Panel
  - Layers Panel: where you will see the the list of different map layers you have added to your map
  - Browser Panel: Lets you easily navigate in your filesystem and manage geodata.
3. Toolbars
  - Provides access to most of the same functions as the menus, plus additional tools for interacting with the map
4. Map View
  - Also called Map canvas, this is the “business end” of QGIS — maps are displayed in this area.
5. Status bar
  - Provides you with general information about the map view, and actions processed or available and offers you tools to manage the map view.

## Saving Project Files



- QGIS can save user sessions. (A QGIS file is called a project.)
- *Project > Save*
- Type in a file name and save your project as a QGZ file (.qgz)
  - QGZ file format is a new default format for QGIS. It is a compressed format with the .qgs file (former default format) embedded in it together with its associated sqlite database (.qgd) for auxiliary data.

## Manage Layers Toolbar



- Add Vector Layer
- Add Raster Layer
- Add Delimited Text Layer
- Add SpatiaLite Layer
- Add/Edit Virtual Layer
- Add PostGIS Layers
- Add WMS/WMTS Layer
- Add WCS Layer
- Add WFS Layer
- New Shapefile Layer

## Map Navigation Toolbar



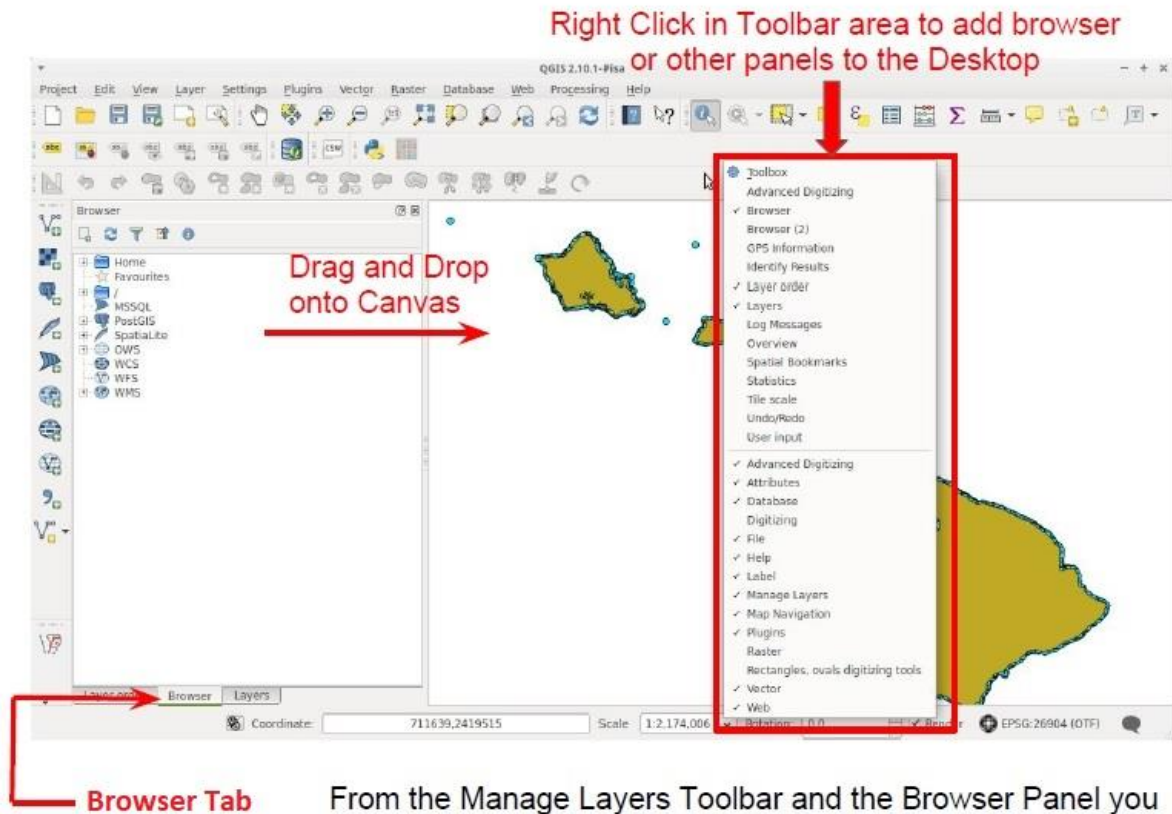
- Pan Map
- Pan Map to Selection
- Zoom In
- Zoom Out
- Zoom to Native Resolution
- Zoom Full
- Zoom to Selection
- Zoom to Layer
- Zoom Last
- Zoom Next
- New Map View
- New Bookmark
- Show Bookmarks
- Refresh

## Attributes Toolbar



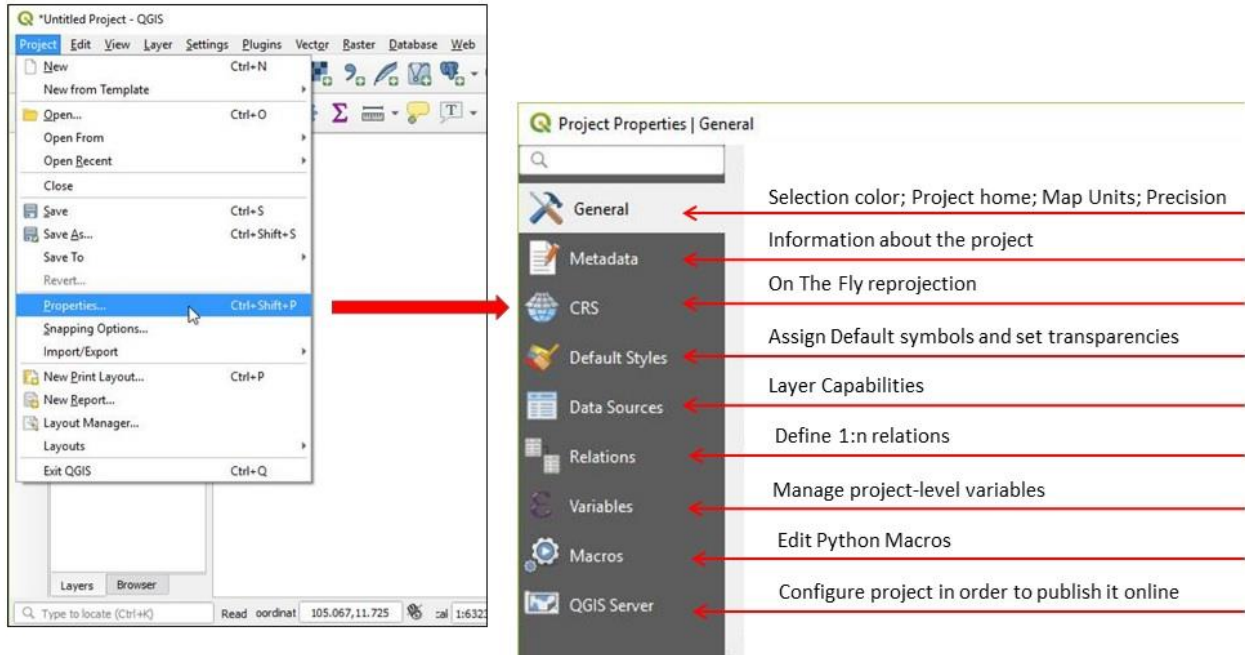
- Identify Features
- Run Feature Action
- Select Features by area or single click
- Select Features by Value
- Deselect Features from All Layers
- Open Attribute Table
- Open Field Calculator
- Toolbox
- Open statistical summary
- Measure Line
- Show Map Tips
- Text Annotations

## Browser Tab



From the Manage Layers Toolbar and the Browser Panel you can add Shapefiles, Databases, WFS, WMS, and several other types of files.

## Project Properties

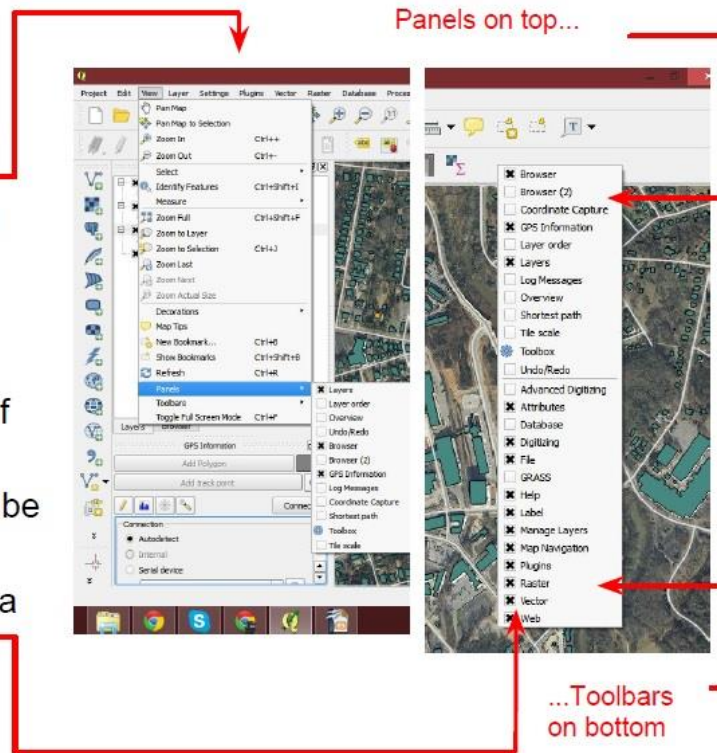


Project Properties changes the default project setting for the **CURRENT** QGIS project.

## Panels and Toolbars

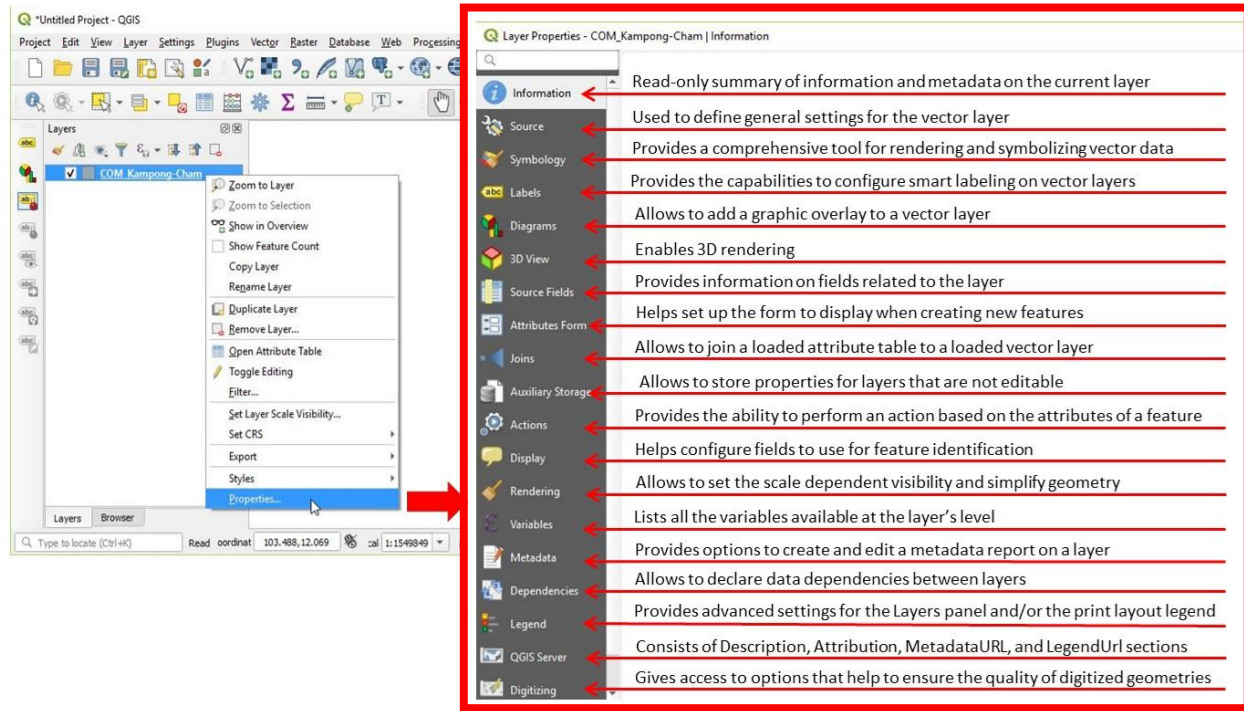
Panels and Toolbars:

- Turn them on and off by going to View > Panels or Toolbars.
- Panels provide interactive “windows”. Examples: Layers, GPS Information, and toolbox
- Toolbars are a grouping of tools
- Panels/Toolbars can also be added/removed by right-clicking on the toolbar area





## Vector Layer Properties



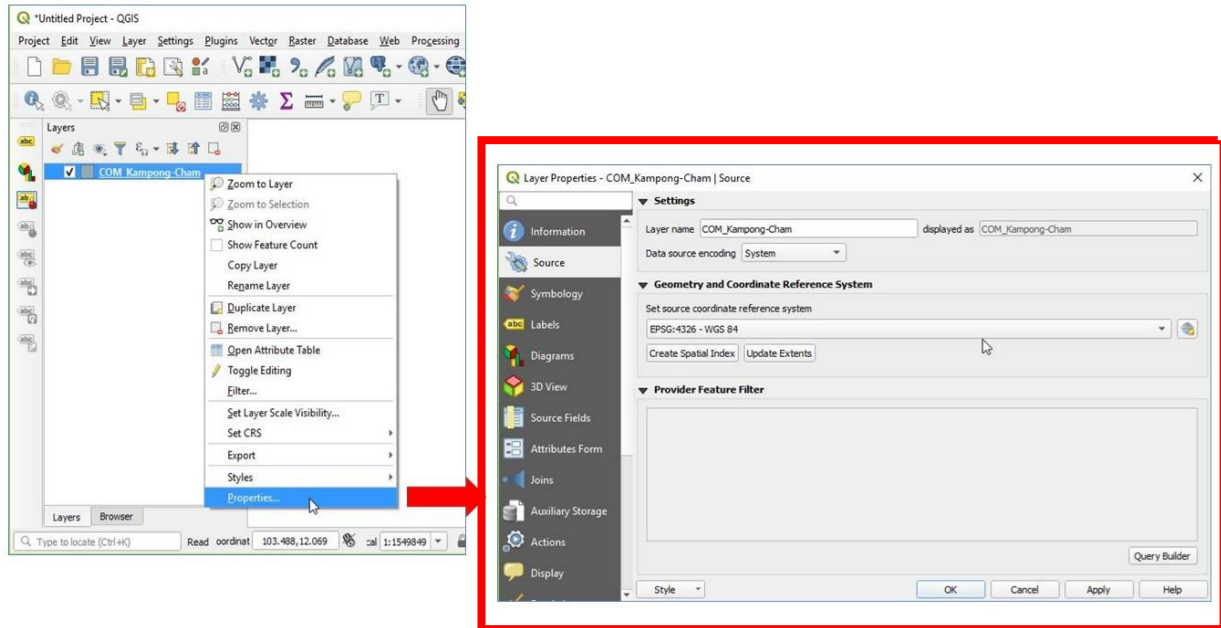
The screenshot shows the QGIS interface with the 'Layer Properties' window open for the 'COM\_Kampong-Cham' layer. The 'Properties' menu item in the 'Layers' panel is highlighted, and a red arrow points to the 'Layer Properties' window. The window displays a list of property categories on the left and their descriptions on the right.

| Property Category | Description   |
|-------------------|---|
| Information       | Read-only summary of information and metadata on the current layer              |
| Source            | Used to define general settings for the vector layer                            |
| Symbolology       | Provides a comprehensive tool for rendering and symbolizing vector data         |
| Labels            | Provides the capabilities to configure smart labeling on vector layers          |
| Diagrams          | Allows to add a graphic overlay to a vector layer                               |
| 3D View           | Enables 3D rendering  |
| Source Fields     | Provides information on fields related to the layer                             |
| Attributes Form   | Helps set up the form to display when creating new features                     |
| Joins             | Allows to join a loaded attribute table to a loaded vector layer                |
| Auxiliary Storage | Allows to store properties for layers that are not editable                     |
| Actions           | Provides the ability to perform an action based on the attributes of a feature  |
| Display           | Helps configure fields to use for feature identification                        |
| Rendering         | Allows to set the scale dependent visibility and simplify geometry              |
| Variables         | Lists all the variables available at the layer's level                          |
| Metadata          | Provides options to create and edit a metadata report on a layer                |
| Dependencies      | Allows to declare data dependencies between layers                              |
| Legend            | Provides advanced settings for the Layers panel and/or the print layout legend  |
| QGIS Server       | Consists of Description, Attribution, MetadataURL, and LegendUrl sections       |
| Digitizing        | Gives access to options that help to ensure the quality of digitized geometries |

The (Vector) Layer Properties window provides information about the vector layer and provides general settings to manage appearance of layer features in the map (symbolology, labeling, diagrams) and interaction with the mouse (actions, map tips, form design).

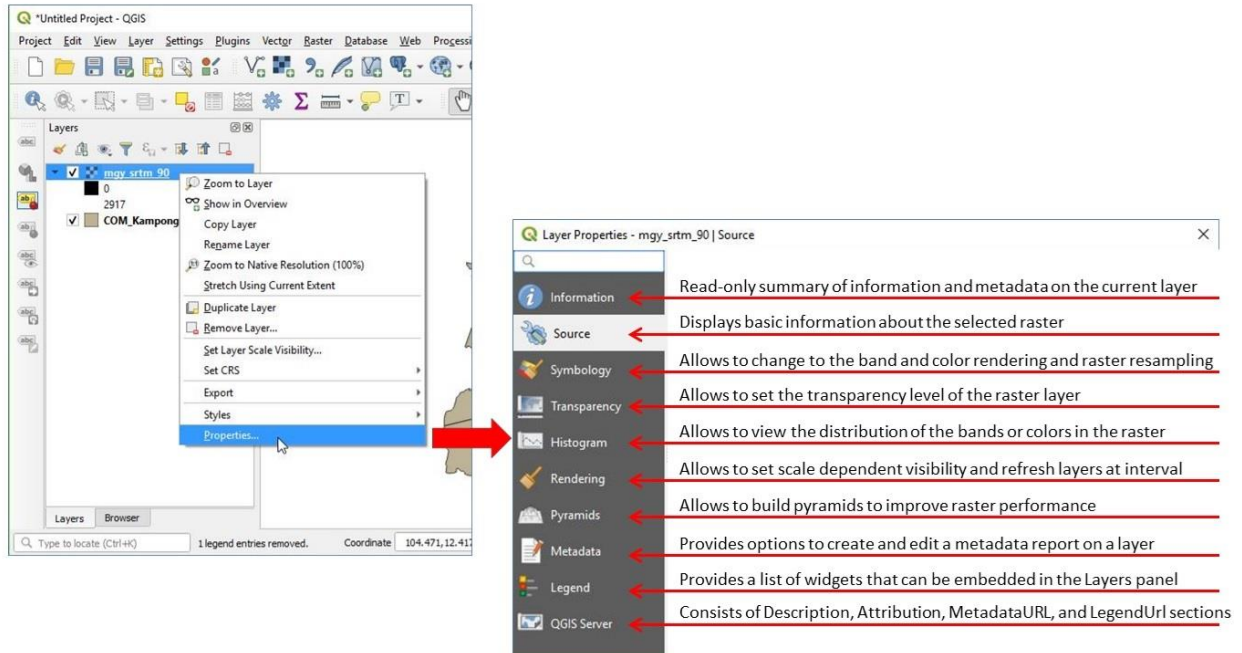


## Data Projections



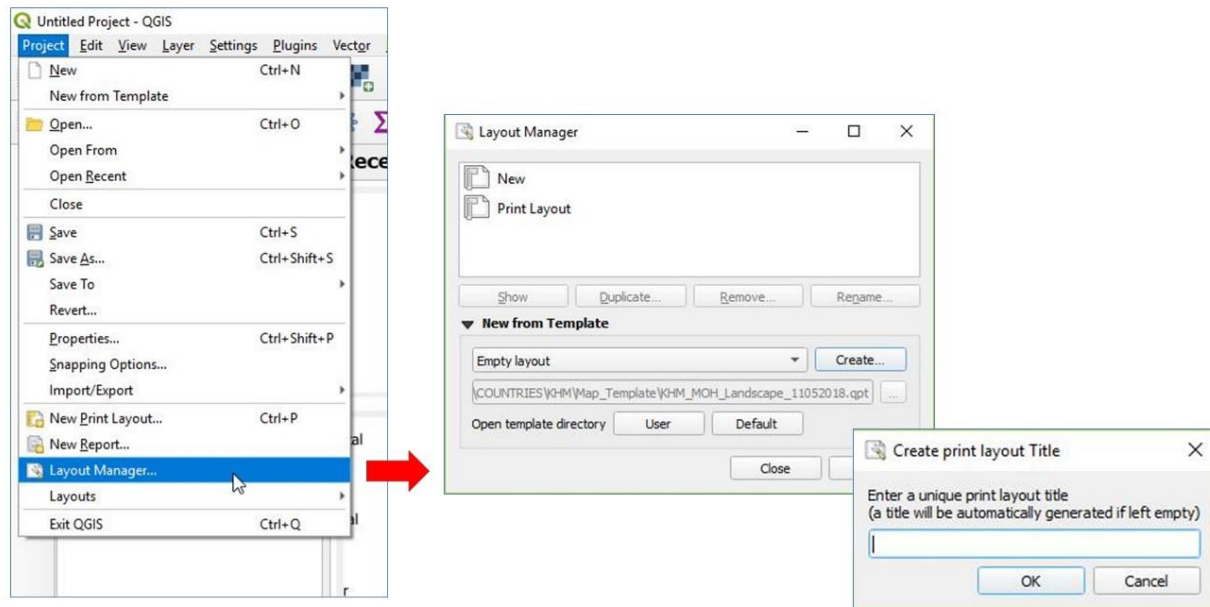
All vector/raster layers have a projection or CRS. The quickest way to check projections is to right click on the layer > *Properties* > *Source*

## Raster Layer Properties



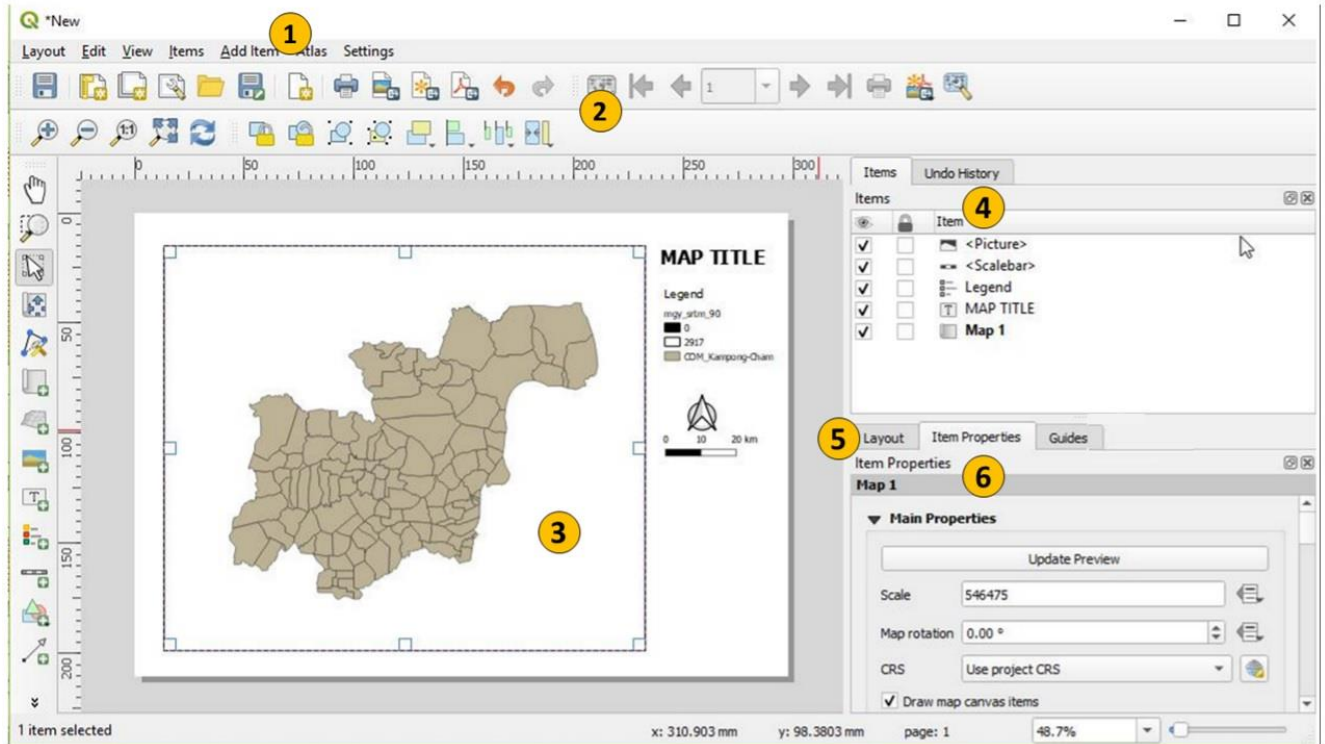
The (Raster) Layer Properties window provides information about the layer as well as the ability to set pyramids levels, adjust appearance, and view the histogram.

## Layout Manager



The Layout Manager allows you to create a new map layout either from an empty layout or a template. It can be accessed from the Project menu (Project > Layout Manager) or in the Print Layout window (Layout > Layout Manager).

## Print Layout



**Print Layout interface:** 1. Menu Bar; 2. Toolbar; 3. Map Layout; 4. Items and Command History; 5. Layout Properties; 6. Item Properties

## Layout Toolbar



- Save project
- New layout
- Duplicate layout
- Layout manager
- Add items from template
- Save as template
- Add Pages...
- Print Layout
- Export as image
- Export as SVG...
- Export as PDF...
- Undo
- Redo

## Navigation Toolbar



- Zoom in
- Zoom out
- Zoom to 100%
- Zoom full
- Refresh view



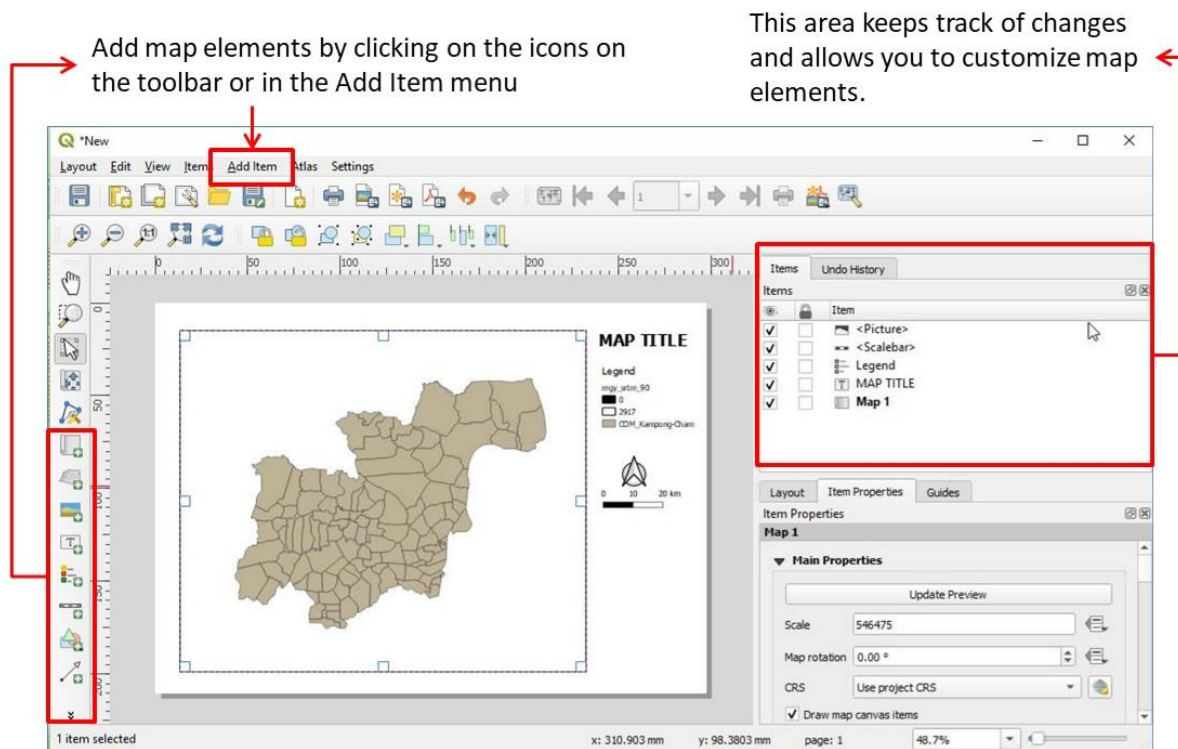
## Print Layout

Click on the Add Map button then draw a rectangle for where the Map Canvas will appear.

The screenshot shows the QGIS Print Layout interface. A red rectangle is drawn on the map canvas, indicating the area for the map. A red arrow points from the text instruction to the 'Add Map' button in the toolbar. The status bar at the bottom indicates '1 item selected', 'x: 291.336 mm', 'y: 100.554 mm', 'page: 1', and '48.7%'.



## Map Elements



Once the map has been added, the other map elements can be added. Their properties, as well as the page properties, can be viewed and modified. The Print Layout tracks changes in the Undo History window.

## Layout

- Set the grid spacing and snap tolerance
- Export settings
- Resize layout to content

## Item Properties

- Set the font
- Set scale bar properties
- Set legend properties



- Set  
map element properties