

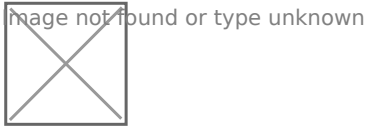
# 2.3 Extraction of Waterbodies and Rivers using Open Street Map (OSM) Database

## 2.3.1 Stepwise Process Flow Details

- Step 1: Download OpenStreetMap (OSM) Data for Your Study Area
  - o Start by loading your study area in QGIS and using the OSM Downloader plugin to download the OSM data for your area of interest, as explained in the previous steps. This data will be saved as an .osm file on your computer.
- Step 2: Load OSM Data into QGIS
  - o Next, load the downloaded .osm data into QGIS by navigating to "Layer" in the top menu, then selecting "Add Layer" > "Add Vector Layer". Browse to the location of your .osm file and load it into QGIS.
- Step 3: Select Waterbody and River Features
  - o In the OSM data, the water bodies and rivers are generally contained in the 'multipolygons' layer. In the layer list, select the 'multipolygons' layer and then right-click to select "Open Attribute Table". This will bring up a list of all features in this layer.
  - o From here, filter and select the features that represent water bodies or rivers. This can be done by setting up a query in the attribute table where the 'type' or 'name' of the feature represents water bodies or rivers.
- Step 4: Export Selected Features as a Shapefile
  - o Once you've selected the relevant waterbody and river features, you can export them as a shapefile for further analysis. To do this, right-click on the 'multipolygons' layer in the layer list and select "Export" > "Save Features As". Choose "ESRI Shapefile" as the format and select a location on your computer to save the file.
- Step 5: Clip the Shapefile to Your Study Area
  - o Finally, use the clip tool to trim your shapefile to match the boundaries of your study area. Navigate to "Vector" > "Geoprocessing Tools" > "Clip" in the top menu. Set the input layer as the waterbody and river shapefile and the overlay layer as your study area

boundary. Run the tool to perform the clipping operation. The result is a shapefile that contains only the water bodies and rivers within your study area.

### 2.3.2 Output Illustrations



*Figure 5 Illustrations of extracted water bodies map, Ranchi (India)*

*Source – CWIS spatial analysis, Inn pact Solutions and GWSC*

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