

# Multi-Hazard Child Vulnerability Analysis and Mapping Plugin (QGIS)

## User Guide

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# Multi-Hazard Child Vulnerability Analysis and Mapping (MHCVAM) plugin for QGIS

## About the Plugin

This QGIS plugin performs child vulnerability analysis and mapping using different risk indicators on a household or barangay level.

It has 5 main components:

1. MHCVAM usimg Child-centered Indicators (BARANGAY)
2. MHCVAM usimg Child-centered Indicators (HOUSEHOLD)
3. Barangay-level Hazard and Vulnerability Analysis
4. Household-level Hazard and Vulnerability Analysis
5. Infrastructures Hazard Analysis

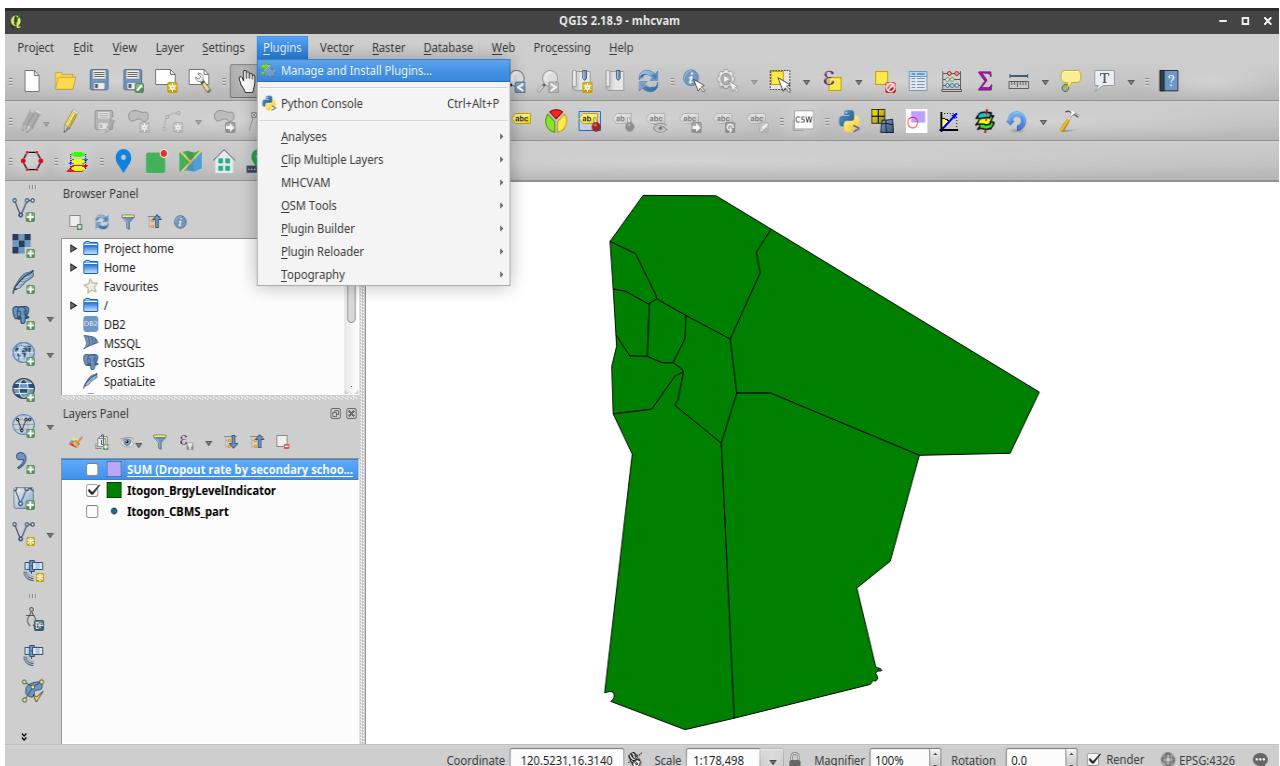
**IMPORTANT:** The plugin is made using Python 2.7 for QGIS 2.18.X. There is no assurance that it will run on QGIS versions other than 2.18.X.

This plugin was made possible by the efforts of the United Nations Children's Fund (UNICEF) and the Philippine Geographical Society and is part of the Child-Centered Participatory Approaches and GIS for Disaster Risk Reduction Phase 2 (CPAG-DDR 2) Project.

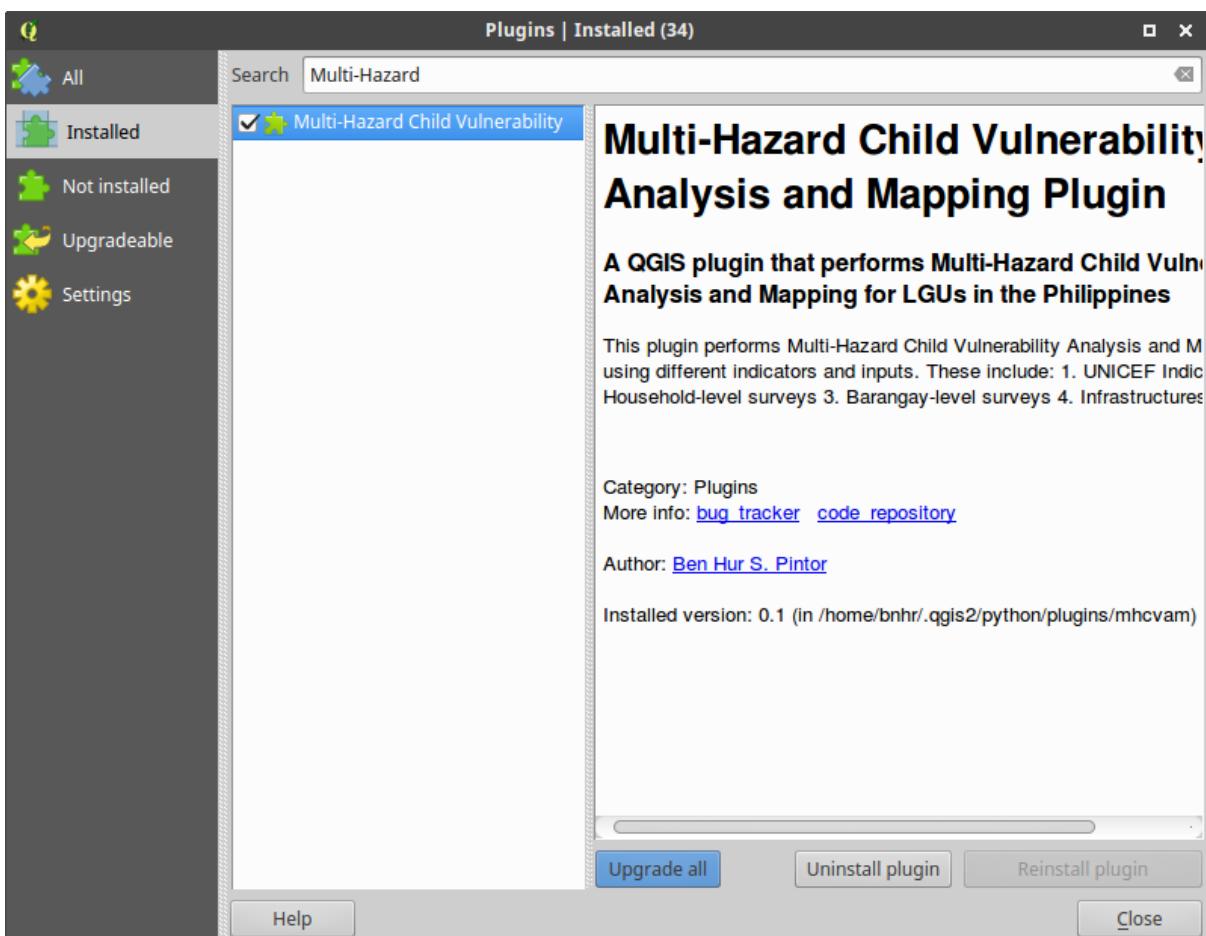
## Download and Installation

1. Download the source code of the plugin at <https://github.com/benhur07b/mhcvam>.
2. Note that the master branch always contains the latest stable release.
3. Unzip the downloaded file. You can use winRar, 7zip, tar, etc.  
You should have an directory/folder named "mhcvam-master".
4. You can rename the unzipped directory to "mhcvam". [OPTIONAL]
5. Move the unzipped directory ("mhcvam" if you performed #3 above) to your QGIS plugin directory.
  - For WINDOWS, move the "mhcvam" directory to C:\Users\<your username>\qgis2\python\plugins\
  - For LINUX, move the "mhcvam" directory to ~/.qgis2/python/plugins/
6. Start/re-start QGIS.

7. Go to Plugins -> Manage and Install Plugins



8. Look for Multi-Hazard Child Vulnerability



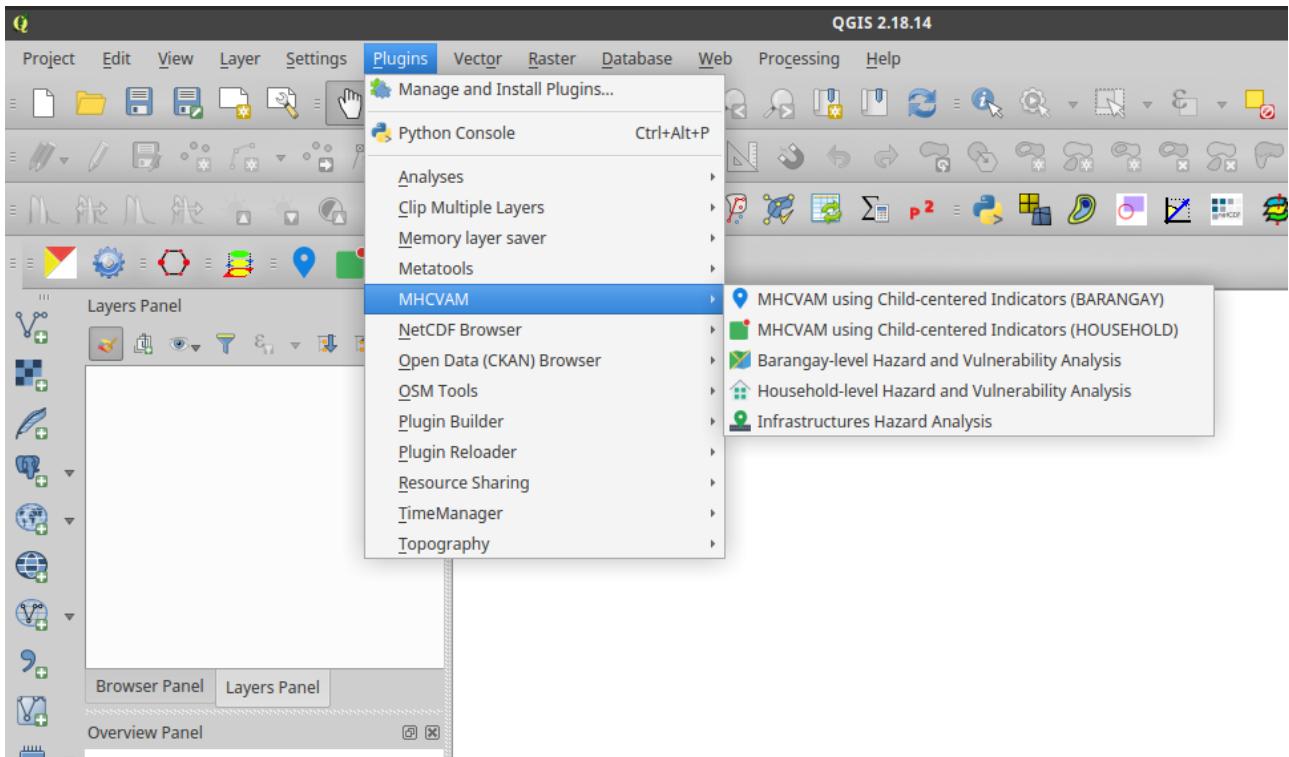
9. Restart QGIS.

# Accessing the Plugin

If the installation was successful, you should be able to access the plugin from the Plugins Menu and/or the MHCVAM toolbar.

## From the Plugins Menu

The plugin can be accessed from the QGIS Plugins Menu. **Plugins -> MHCVAM**



## The MHCVAM Toolbar



The MHCVAM Toolbar can be used to quickly access the tools of the plugins.

The five buttons are:



MHCVAM usimg Child-centered Indicators (BARANGAY)



MHCVAM usimg Child-centered Indicators (HOUSEHOLD)



Barangay-level Hazard and Vulnerability Analysis



Household-level Hazard and Vulnerability Analysis



Infrastructures Hazard Analysis

# MHCVAM usimg Child-centered Indicators (BARANGAY)

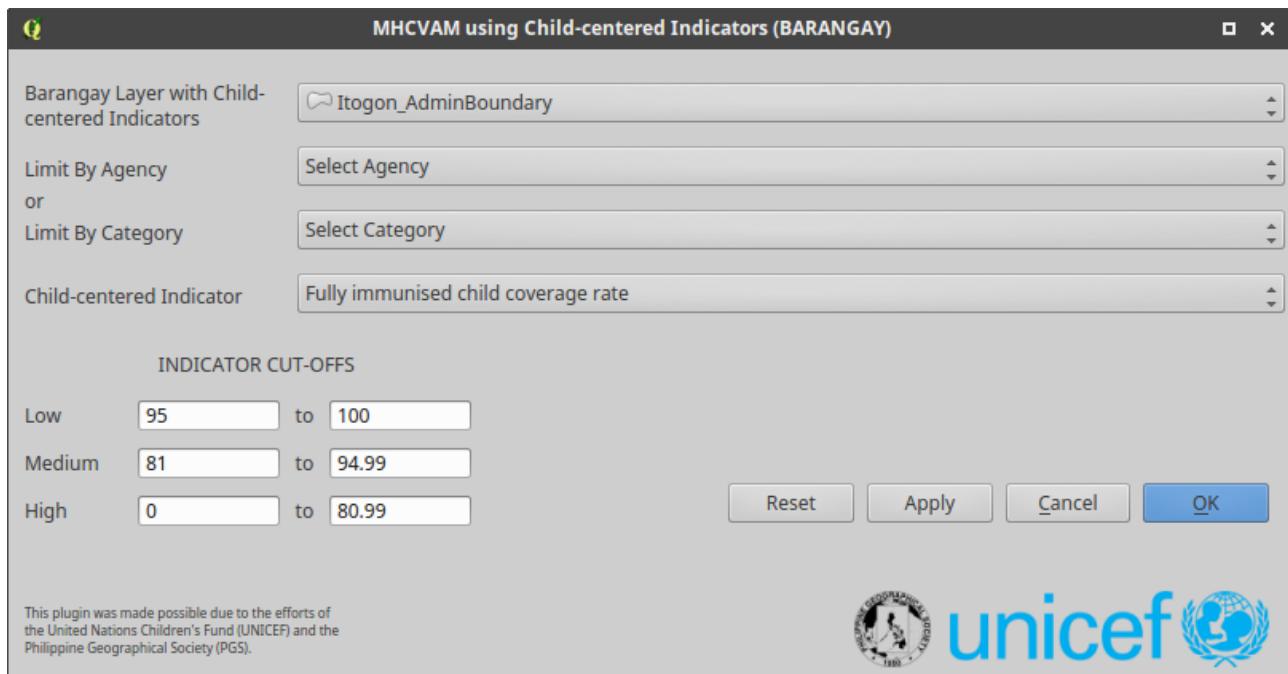
**IMPORTANT:** The plugin will only run if Layers are already loaded in QGIS.

## What It Does

This tool maps the barangays with “ High ”, “ Medium ”, or “ Low ” hazards based on the indicators and cut-offs provided by UNICEF and found in the `indicators_unicef_barangay.csv`. file.

To learn more about `indicators_unicef_barangay.csv`, click [HERE](#).

## Parts of the Tool



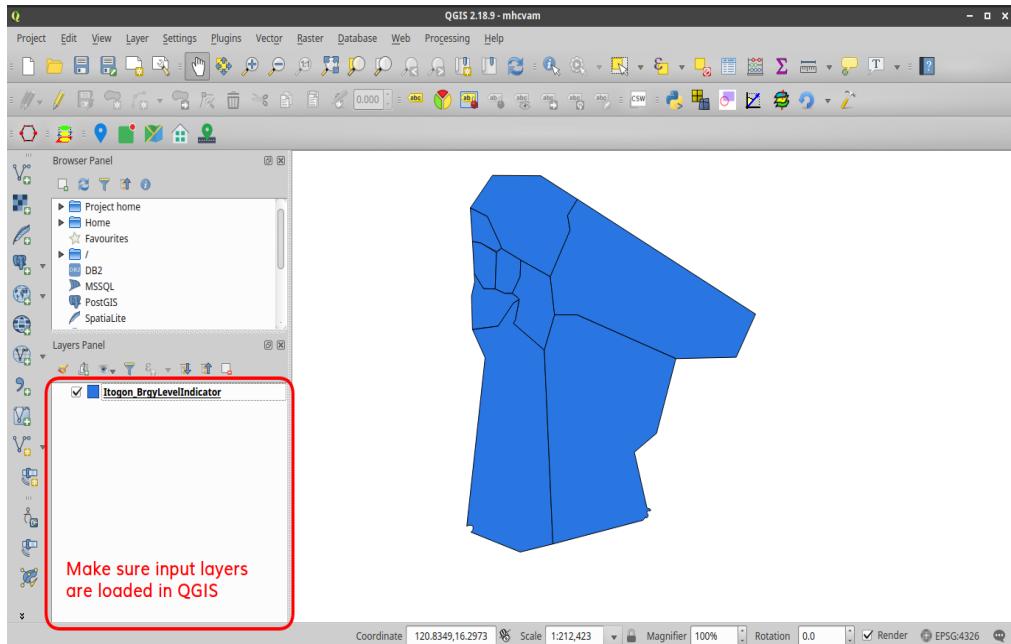
1. **Barangay Layer with Child-centered Indicators** – select the Barangay Layer with Child-centered Indicators
2. **Limit By Agency** – this will show the unique agencies in the AGENCY column of `indicators_unicef_barangay.csv`. If an Agency is selected, the **UNICEF Indicator** combobox will only show the indicators from the Agency selected.
3. **Limit by Category** – this will show the unique categories in the CATEGORY column of `indicators_unicef_barangay.csv`. If a Category is selected, he **UNICEF Indicator** combobox will only show the indicators under the same category as the one selected.
4. **Child-centered Indicator** – select the indicator you want to map. This will show the corresponding indicator names of the FIELDS in the selected Barangay layer which are also in the INDICATOR\_CODE column of `indicators_unicef_barangay.csv`
5. **Indicator Cut-offs** – the cut-offs for the selected indicator will be shown here if they are in `indicators_unicef_barangay.csv`. Users can also manually edit the cut-offs.
6. **Button box** – **Reset** will reset the indicators; **Apply** will run the tool without closing it; **Cancel** will close the tool; and **OK** will close the tool after running it.

## Input Layers

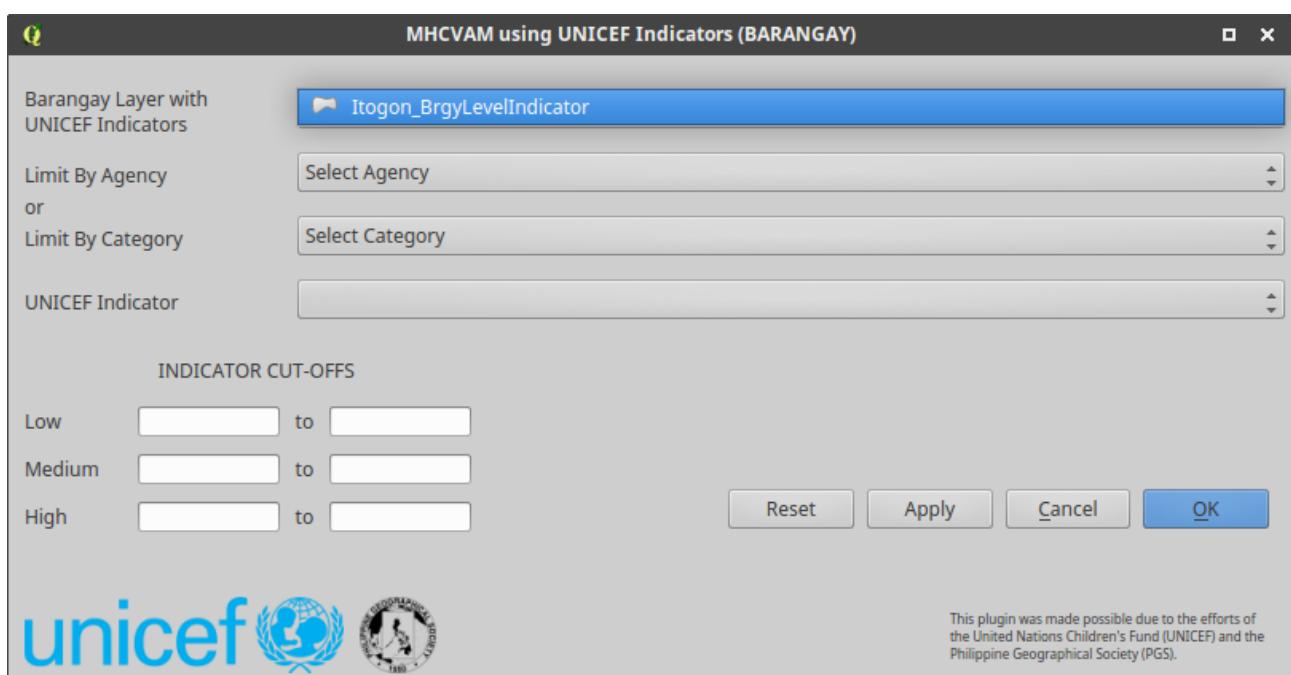
- Barangay Layer with Child-centered Indicators
  - A polygon vector file (.shp) of the barangay administrative boundaries with FIELDS corresponding to the Indicators in **indicators\_unicef\_barangay.csv**.

## Running the Tool

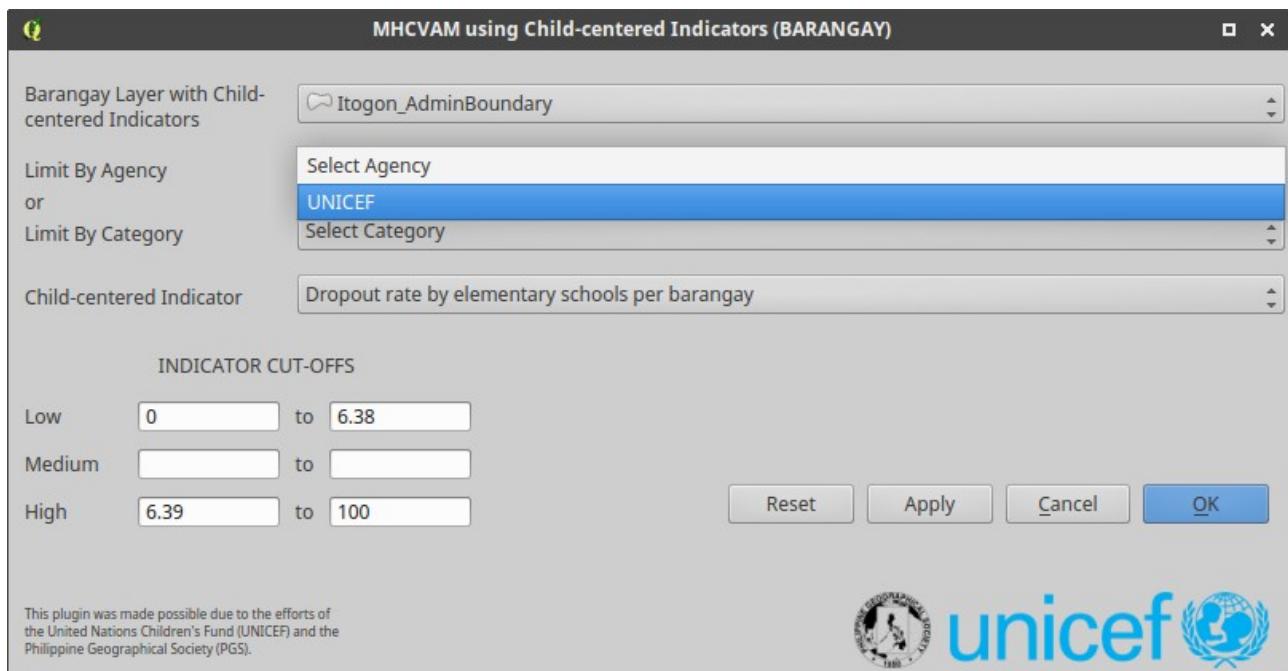
1. Make sure that your input layer/s are already loaded in QGIS (Check the Layers Panel).



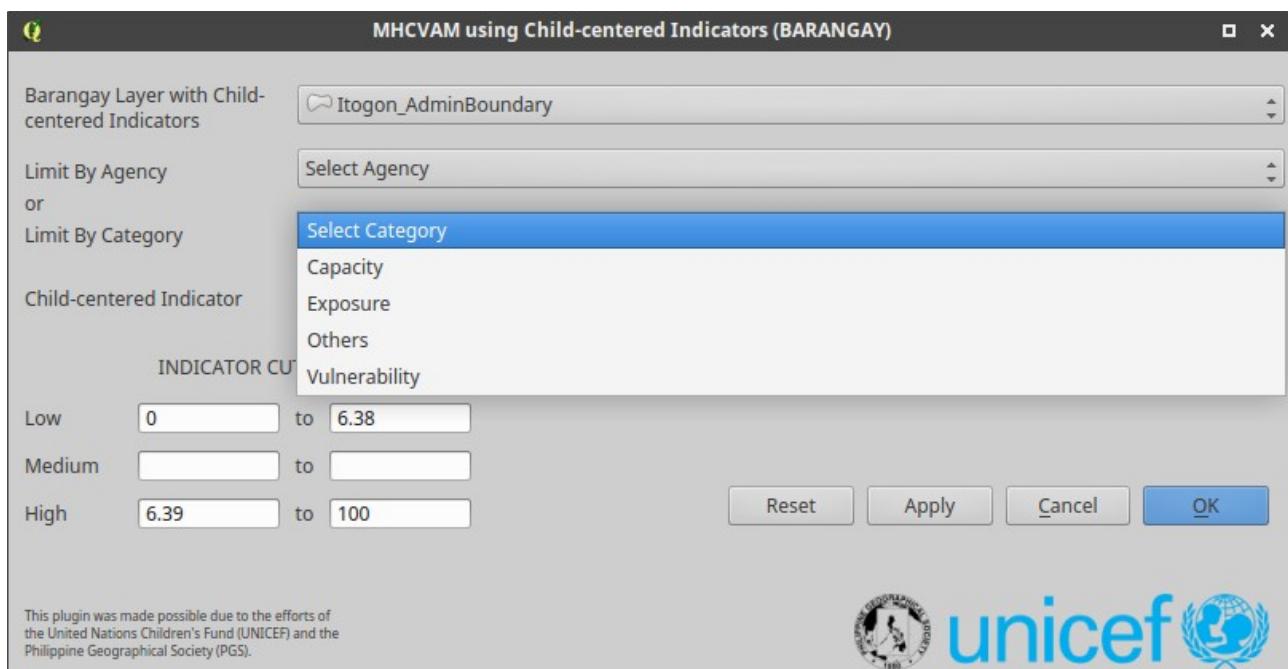
2. Run the plugin [ ] via the Menu bar: Plugins -> MHCVAM -> MHCVAM using Child-centered Indicators (BARANGAY) or the MHCVAM Toolbar
3. Select the Barangay Layer with Child-centered Indicators



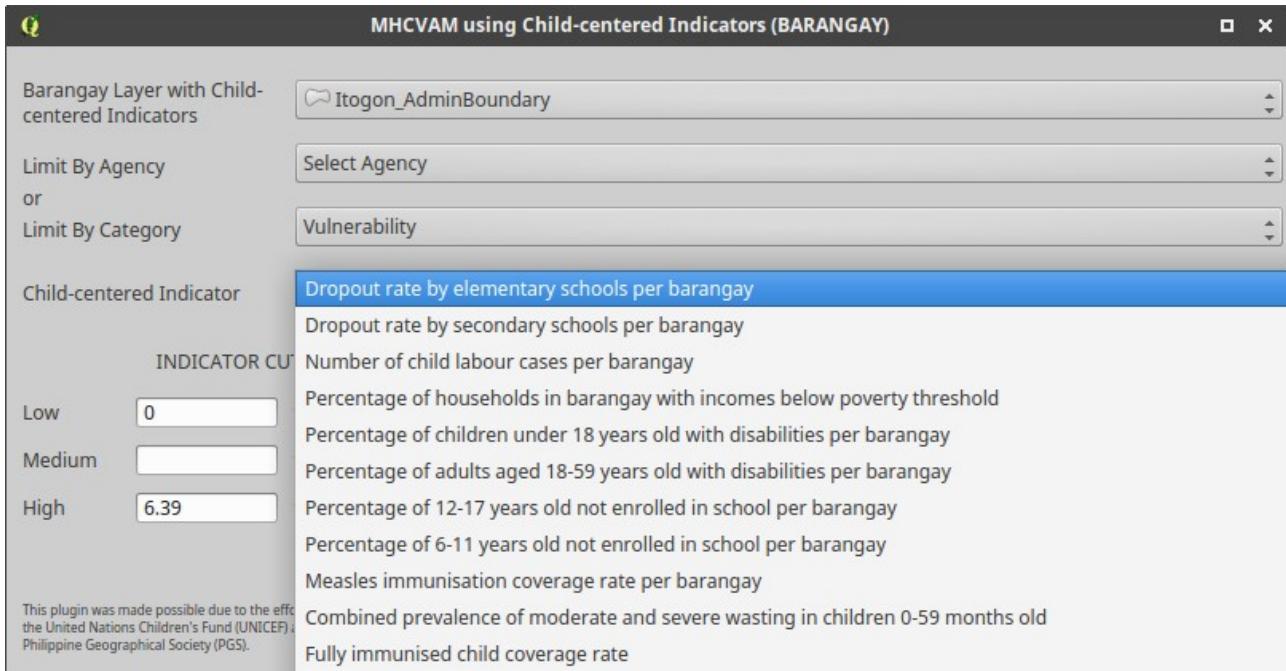
4. Limit the Indicators.
- a. By Agency



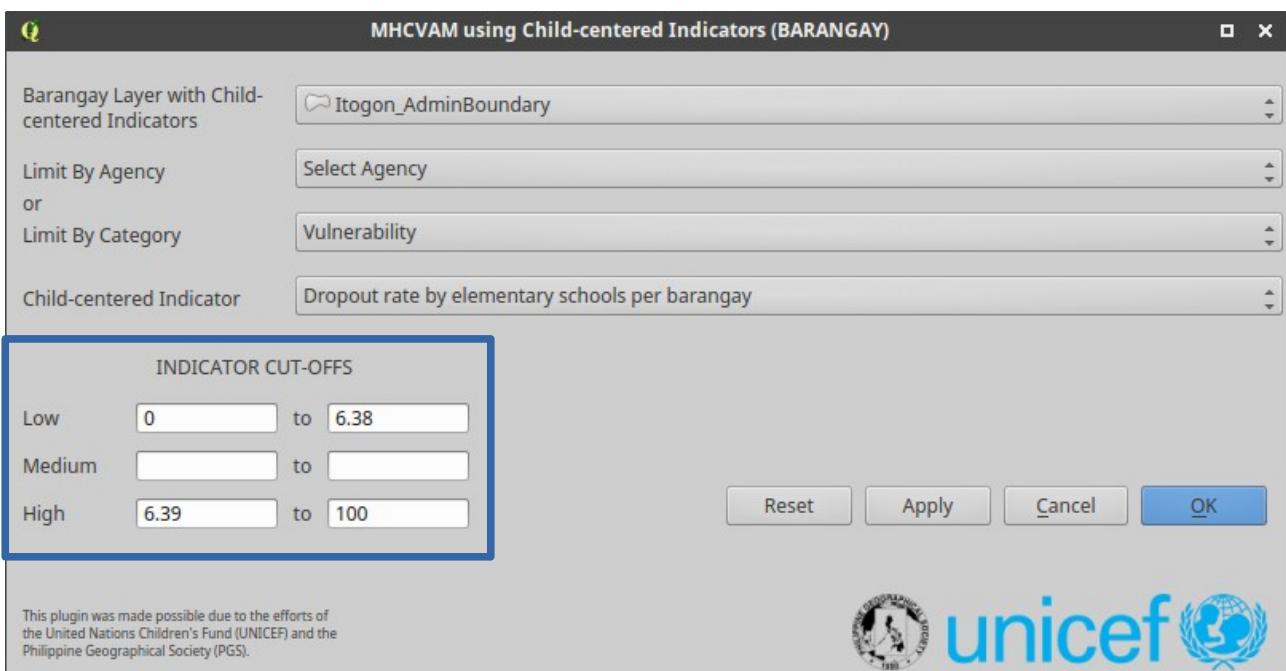
- b. By Category



5. Select the Indicator to Map



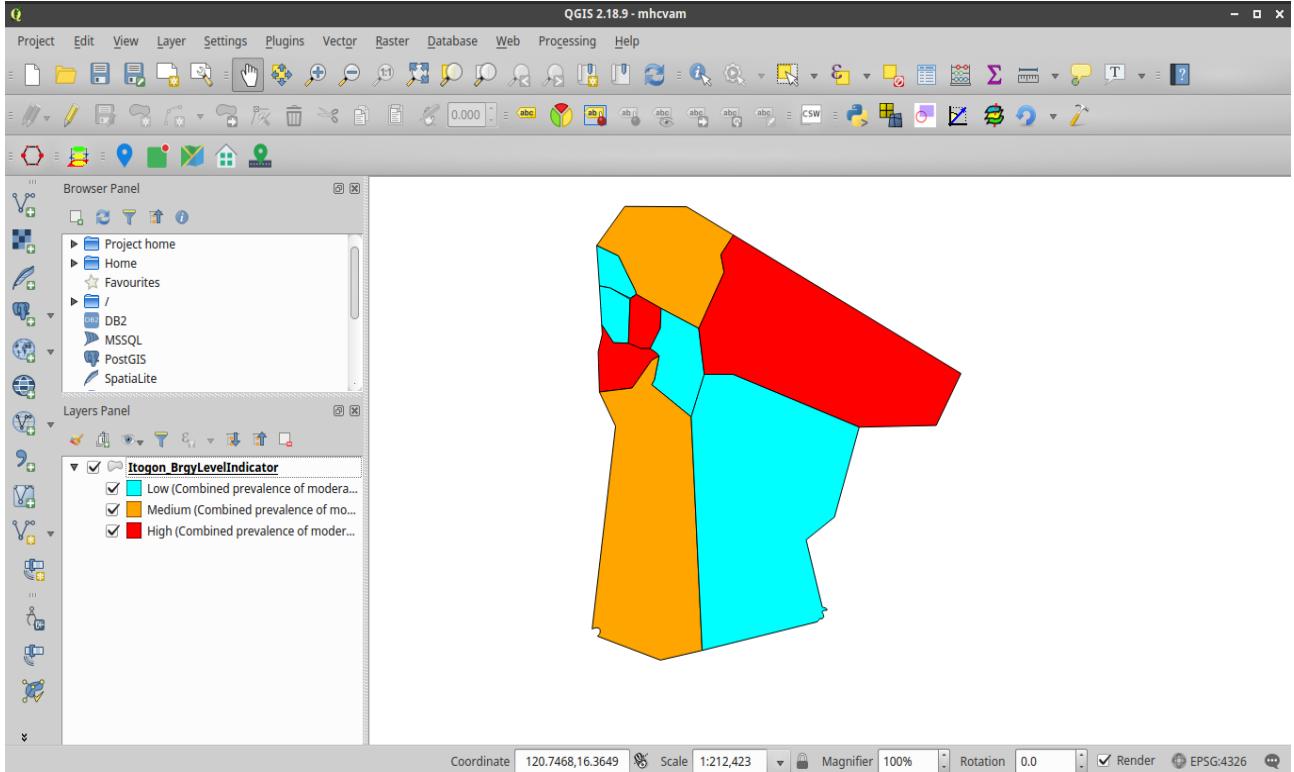
6. Add or Edit the Cut-offs. If the cut-off are already set in `indicators_unicef_barangay.csv`, they will automatically show.



7. Clink Apply or OK.

## Results

The output layer should look like the one below.



# MHCVAM usimg Child-centered Indicators (HOUSEHOLD)

**IMPORTANT:** The plugin will only run if Layers are already loaded in QGIS.

## What It Does

The tool gets the sum of the selected indicators in each Category (Exposure, Vulnerability, Capacity) and saves the results in new layers.

The name of these new layers are:

- Exposure: <Resulting Field Name>\_EXP
- Vulnerability: <Resulting Field Name>\_VUL
- Capacity: <Resulting Field Name>\_CAP

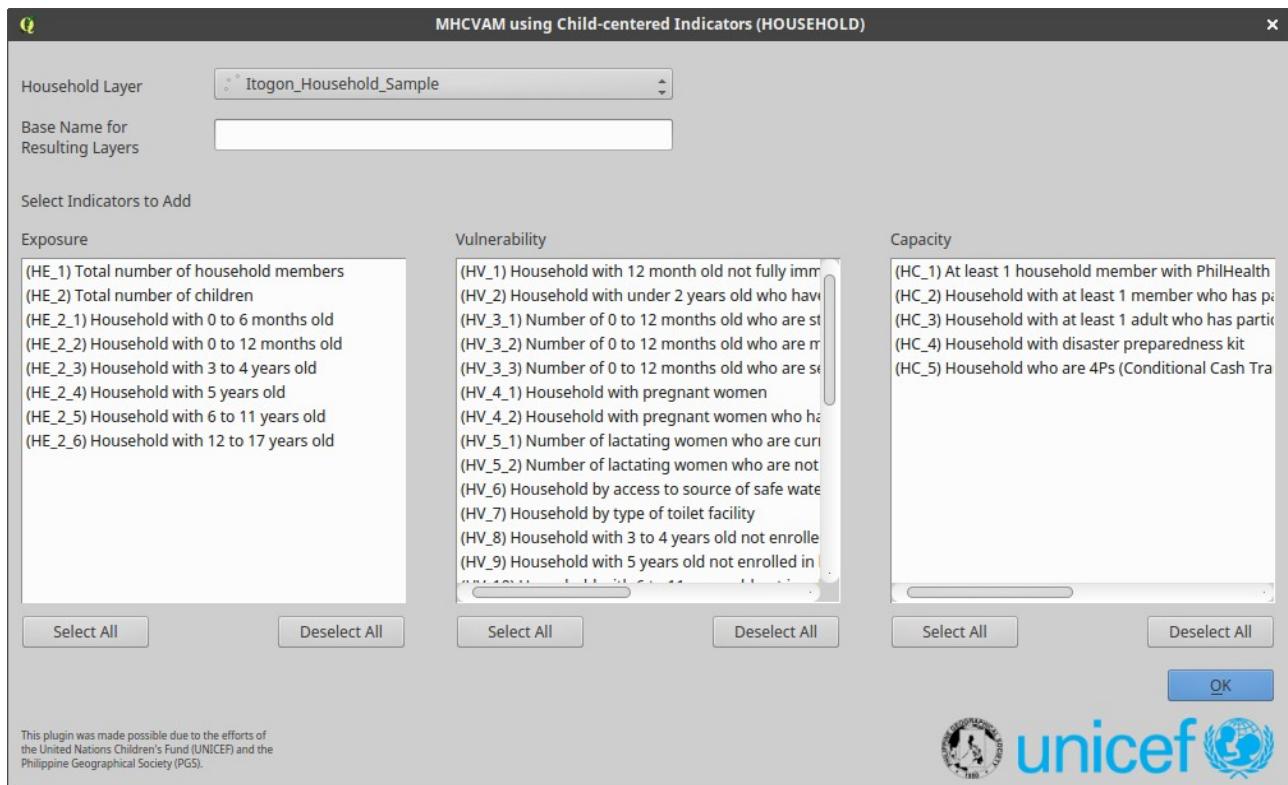
The indicators shown are based on the fields of the Household layer and the indicators in the `indicators_unicef_household.csv` file.

To learn more about `indicators_unicef_household.csv`, click [HERE](#).

## Layer Inputs

- Household layer
  - A point vector file (.shp) of the households with FIELDS corresponding to the Indicators in `indicators_unicef_household.csv`.

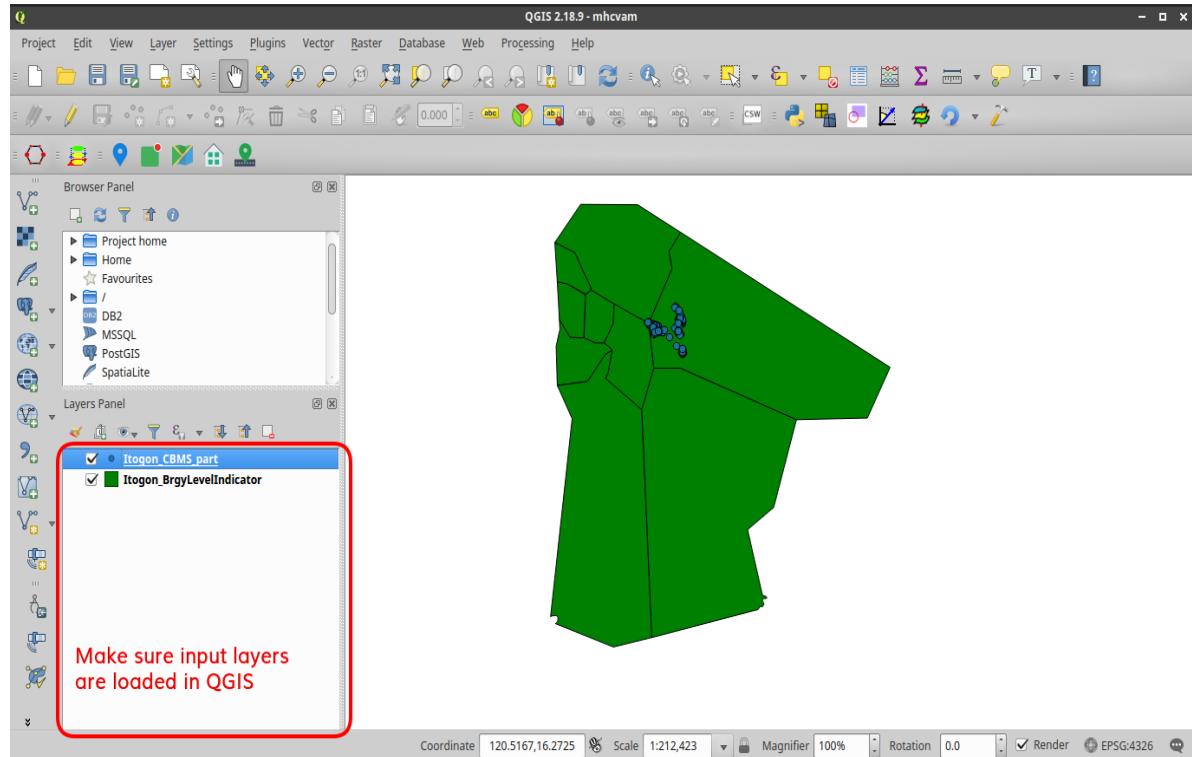
## Parts of the Tool



1. **Household Layer** – select the Household Layer with the UNICEF Indicators
2. **Resulting Base Name** – the base name for the new layers to be created.
3. **Indicators under the Exposure Category** – here you can select the indicators under the Exposure category based on `indicators_unicef_household.csv`
4. **Indicators under the Vulnerability Category** – here you can select the indicators under the Vulnerability category based on `indicators_unicef_household.csv`
5. **Indicators under the Capacity Category** – here you can select the indicators under the Capacity category based on `indicators_unicef_household.csv`
6. **OK** – click this to run the tool

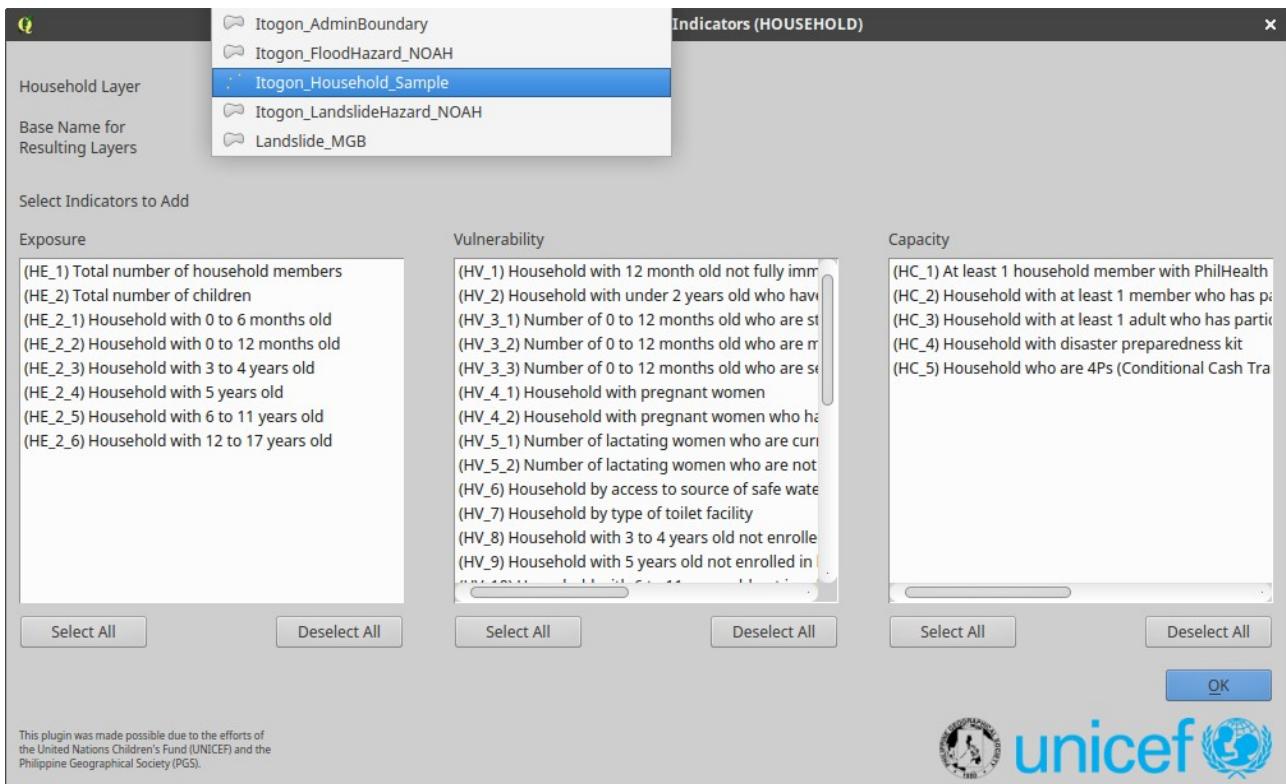
## Running the Plugin

1. Make sure that your input layer/s are already loaded in QGIS (Check the Layers Panel).

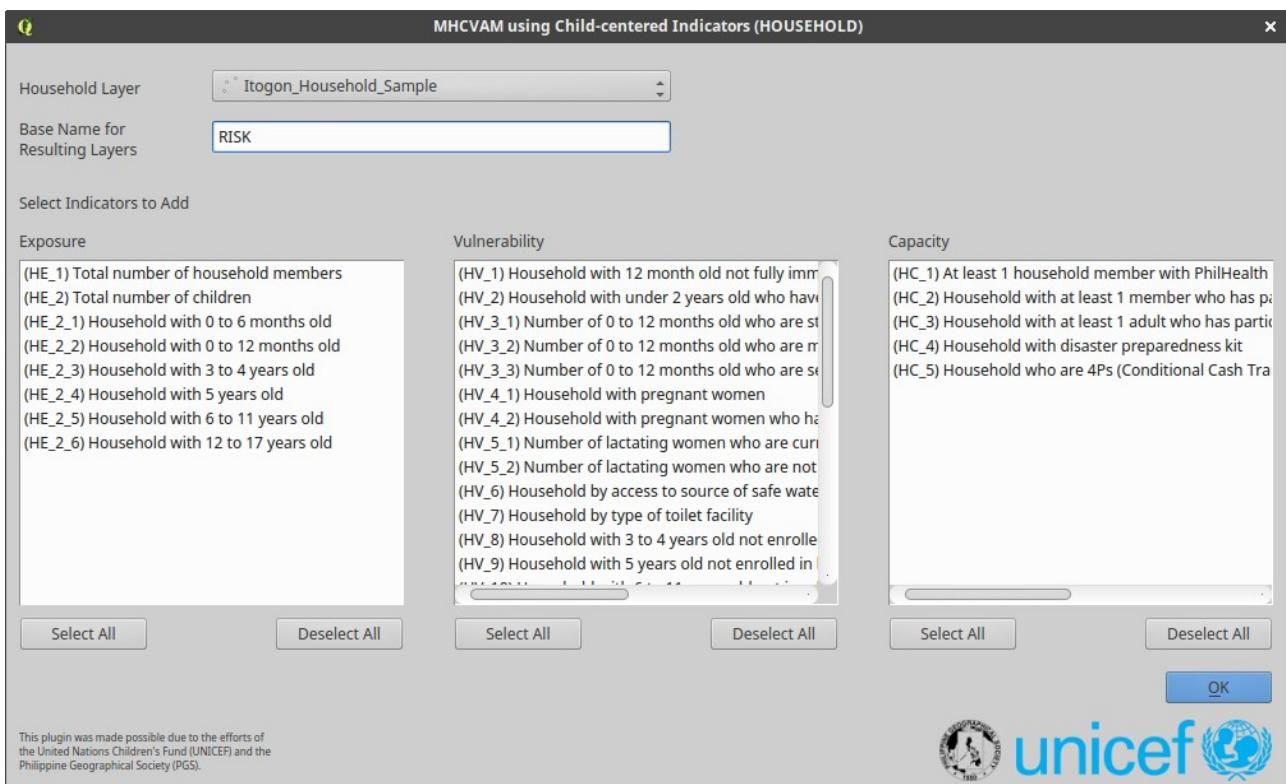


2. Run the plugin [  ] via the Menu bar: Plugins -> MHCVAM -> MHCVAM using Child-centered Indicators (HOUSEHOLD) or the MHCVAM Toolbar

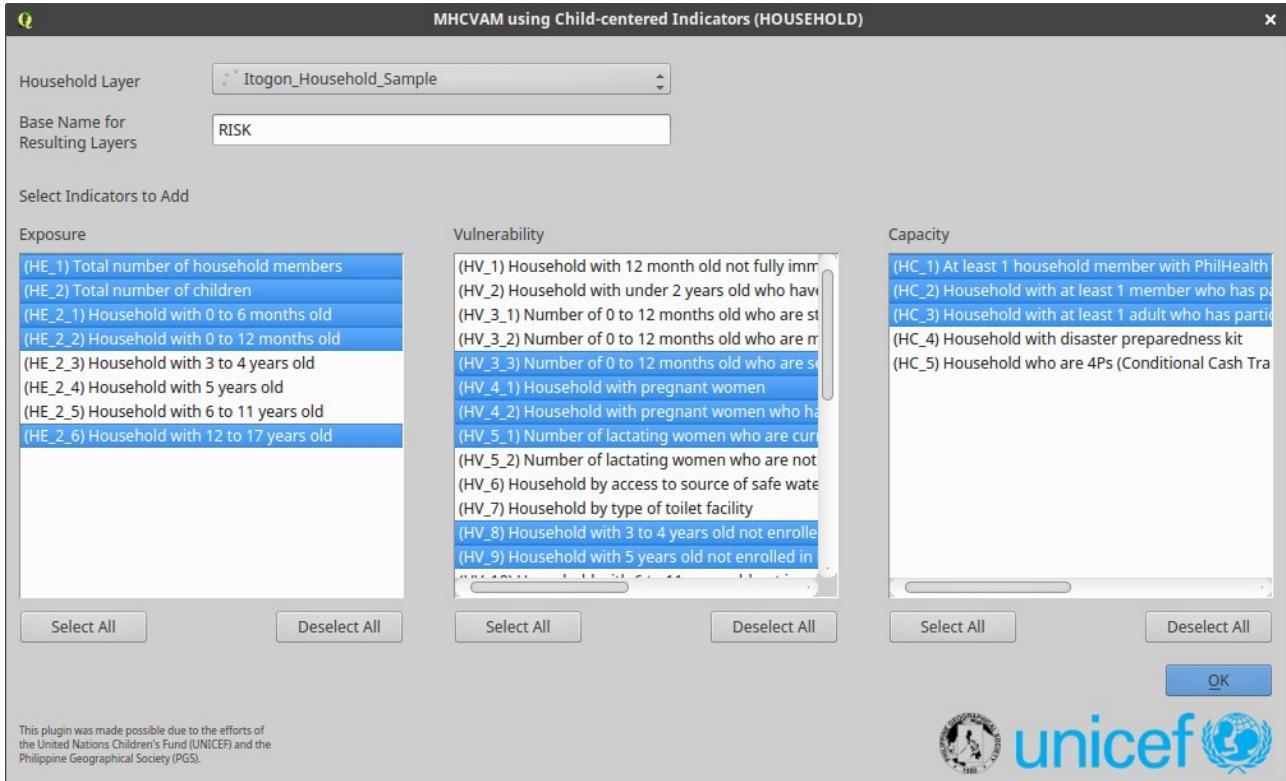
3. Select the Household layer.



4. Add the Base Name for Resulting Layers

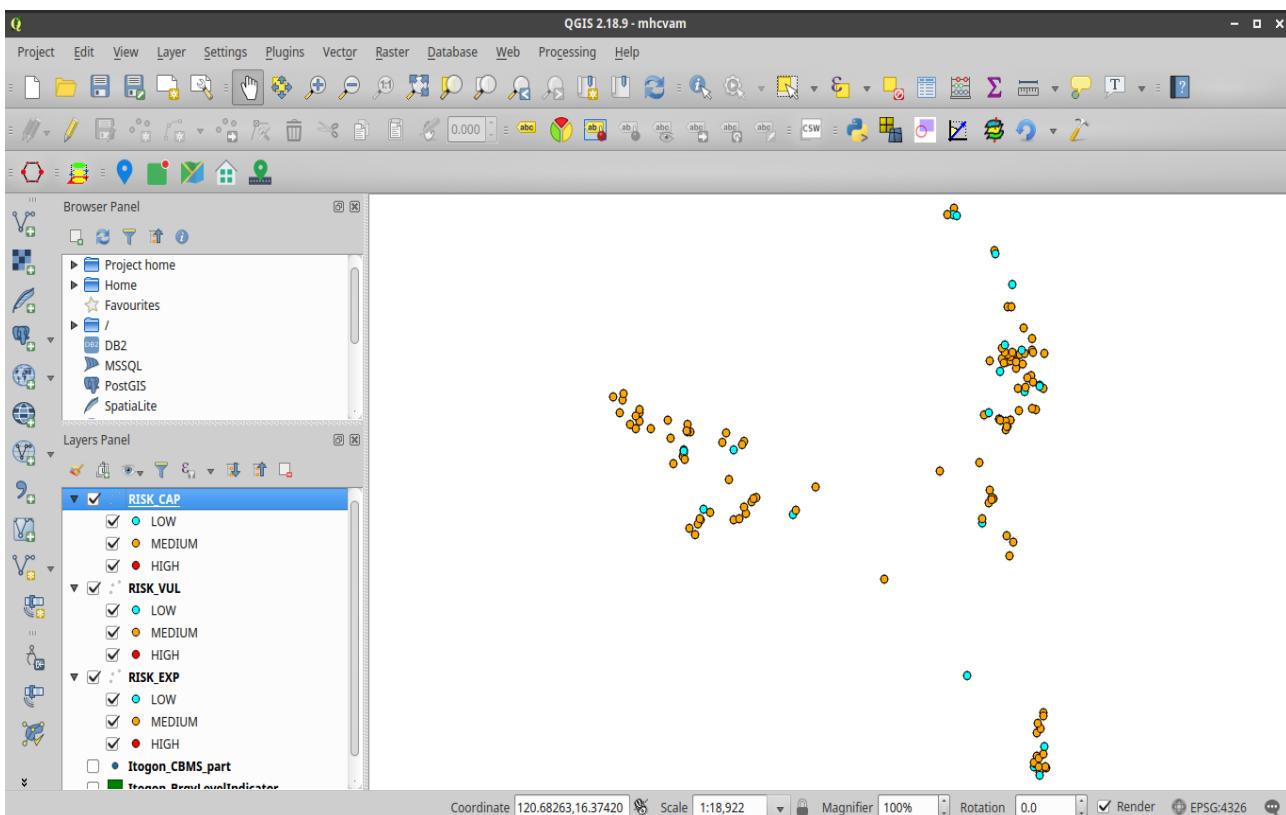


5. Select the Indicators to add under each Category.
  - a. You can use the buttons below the indicators list to "Select All" or "Deselect All".
  - b. You can use **CTRL + left-click** to select multiple indicators.
  - c. You can use **SHIFT + left-click** to select a range of indicators.



## Results

There will be three output layers. One each for Capacity, Vulnerability and Exposure.



# Barangay-level Hazard and Vulnerability Analysis

**IMPORTANT:** The plugin will only run if Layers are already loaded in QGIS.

## What It Does

The tool has two functions – the **Query** function and the **Summarize** function.

The **Query** function selects barangays using a query provided by the user based on the values of the indicators and fields in the Barangay Layer. After the query, the tool will select and show only the barangays that meet the criteria of the query expression.

The **Summarize** function computes for statistics (**SUM, MEAN, MIN, MAX, PERCENTAGE**) of the indicator values of the barangays and summarizes them up to the municipal level.

The indicators used are based on the fields of the Barangay layer and the indicators in the **indicators\_barangay.csv** file.

To learn more about **indicators\_barangay.csv**, click [HERE](#).

## Layer Inputs

- Barangay layer
  - A polygon vector file (.shp) of the barangay administrative boundaries with FIELDS corresponding to the Indicators in **indicators\_barangay.csv**.

## Parts of the Tool

### Query

The screenshot shows the 'Barangay-level Hazard and Vulnerability Analysis' QGIS plugin window. The title bar says 'Barangay-level Hazard and Vulnerability Analysis'. The window has two tabs: 'Query' (selected) and 'Summarize'. The 'Query' tab contains the following fields:

- Barangay Layer:** Itogon\_AdminBoundary
- Limit By Agency:** Select Agency
- Field:** (empty dropdown)
- Function:** equal to
- Expression:** (empty text area)

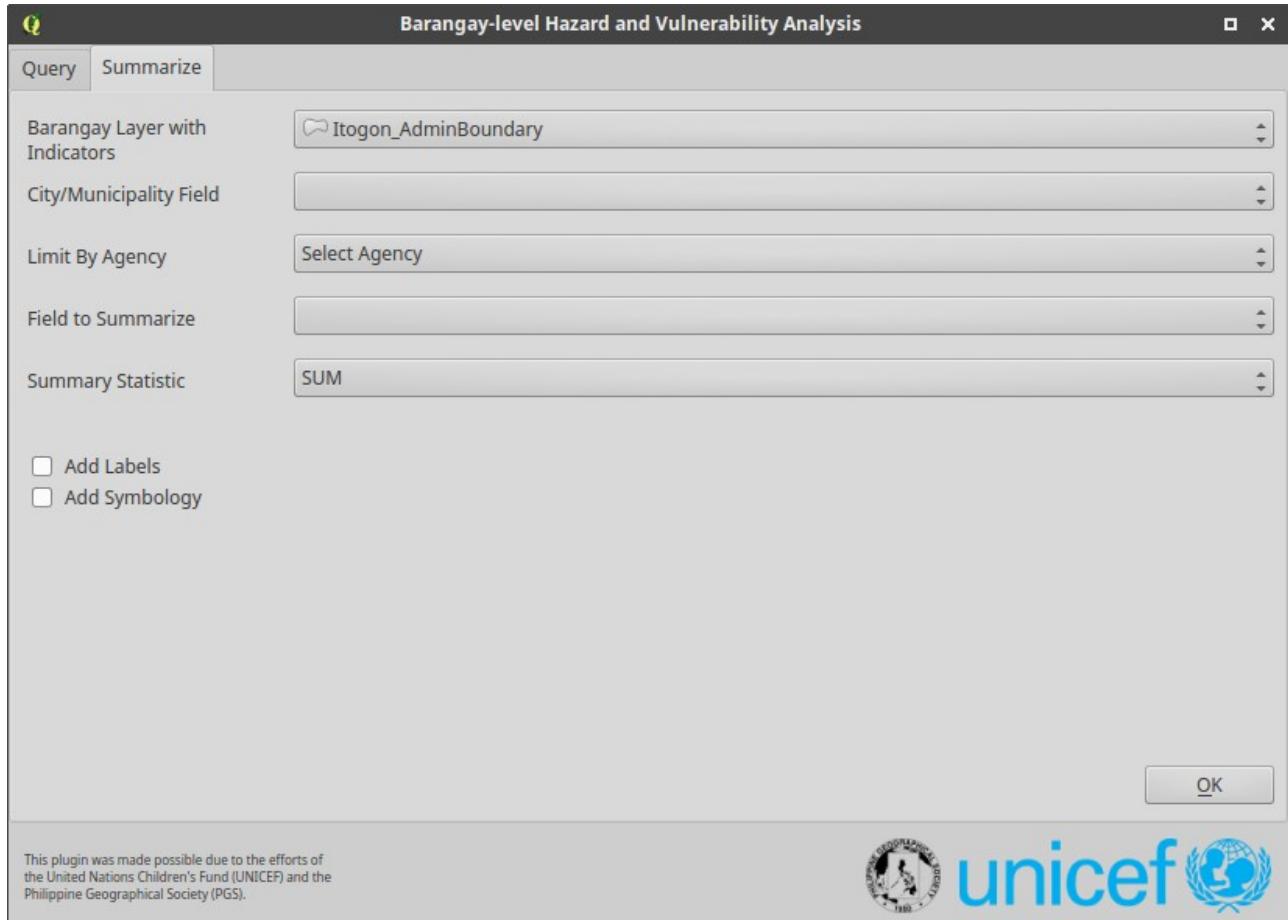
Buttons include: 'GET UNIQUE VALUES', 'ADD' (for Field, Function, Expression), 'Reset', and 'OK'.

At the bottom, a note states: "This plugin was made possible due to the efforts of the United Nations Children's Fund (UNICEF) and the Philippine Geographical Society (PGS)."

The UNICEF logo is displayed at the bottom right.

1. **Barangay Layer** – select the Barangay Layer to Query
2. **Limit By Agency** – this will show the unique agencies in the AGENCY column of indicators\_barangay.csv. If an Agency is selected, the **Field** combobox will only show the indicators from the Agency selected.
3. **Field** – shows the corresponding Indicator Names of the Fields in the shapefile which are also in indicators\_barangay.csv. You can select field names to add to your query **Expression** here.
4. **ADD (Field)** – add the content of **Field** to the query **Expression**.
5. **GET UNIQUE VALUES** – gets the unique values for the selected **Field** and outputs them in the **Unique Values List**.
6. **Unique Values List** – lists the unique values for the selected **Field**. You can select values to add to your query **Expression** here.
7. **ADD (Unique Value)** – add the selected **Unique Value** to the query **Expression**.
8. **Function** – select the function you want to add to your query **Expression**. Supported functions include:
  - a. equal to (=)
  - b. not equal to (!=)
  - c. greater than (>)
  - d. less than (<)
  - e. greater than or equal to (>=)
  - f. less than or equal to (<=)
  - g. NOT NULL
  - h. AND
  - i. OR
9. **ADD (Function)** – add the selected **Function** to the query **Expression**.
10. **Expression Text Box** – holds the query expression to perform. Can be edited manually or using the **ADD** buttons.
11. **Reset** – resets the query **Expression**
12. **OK** – run the tool

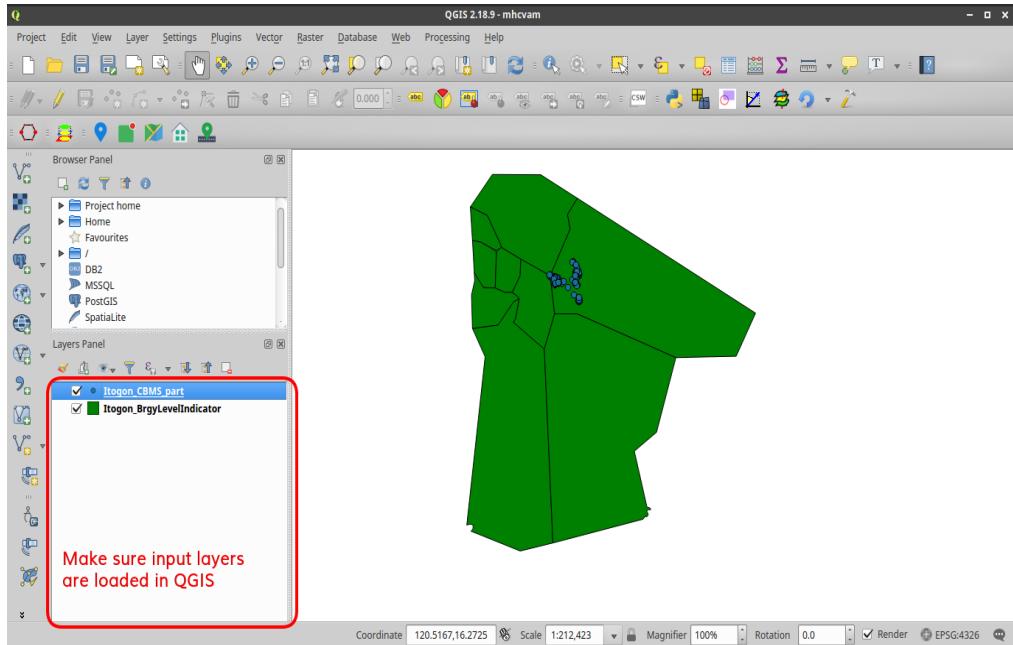
## Summarize



1. **Barangay Layer with Indicators** – select the Barangay layer with indicators based on `indicators_barangay.csv`.
2. **City/Municipality Field** – the field in the Barangay layer that has the city/municipality name. The indicators will be summarized based on the contents of this field.
3. **Limit By Agency** – this will show the unique agencies in the AGENCY column of `indicators_barangay.csv`. If an Agency is selected, the **Field to Summarize** combobox will only show the indicators from the Agency selected.
4. **Field to Summarize** – shows the corresponding Indicator Names of the Fields in the shapefile which are also in `indicators_barangay.csv`.
5. **Summary statistic** – select how to summarize the indicators. Statistics include:
  - a. **SUM** – returns the sum of the indicator values for all barangays in a city/municipality.
  - b. **MEAN** – returns the average indicator value of all barangays in a city/municipality.
  - c. **MIN** – returns the minimum value of the indicator in a city/municipality
  - d. **MAX** – returns the maximum value of the indicator in a city/municipality
  - e. **PERCENTAGE** – returns the percentage of the value of the indicator for a city/municipality relative to the total of the indicator for all the cities/municipalities.
6. **Add labels** – add labels to the map.
7. **Add symbology** – add symbology to the map.
8. **OK** – run the tool.

## Running the Tool

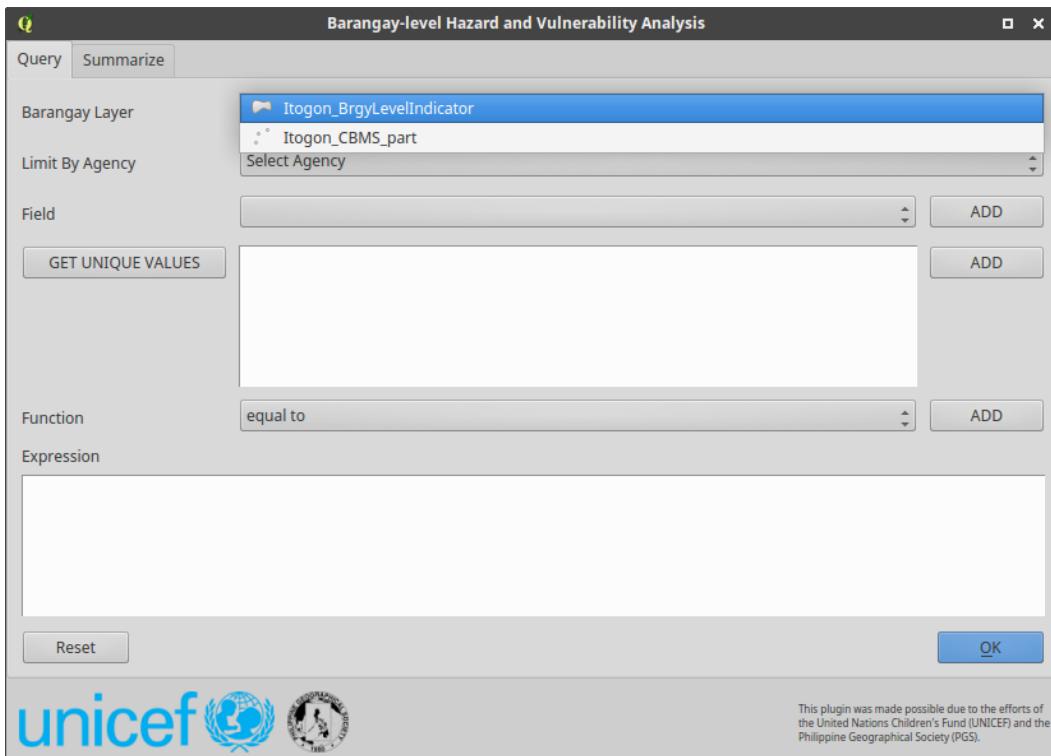
1. Make sure that your input layer/s are already loaded in QGIS (Check the Layers Panel).



2. Run the plugin [  ] via the Menu bar: Plugins -> MHCVAM -> Barangay-level Hazard and Vulnerability Analysis or the MHCVAM Toolbar

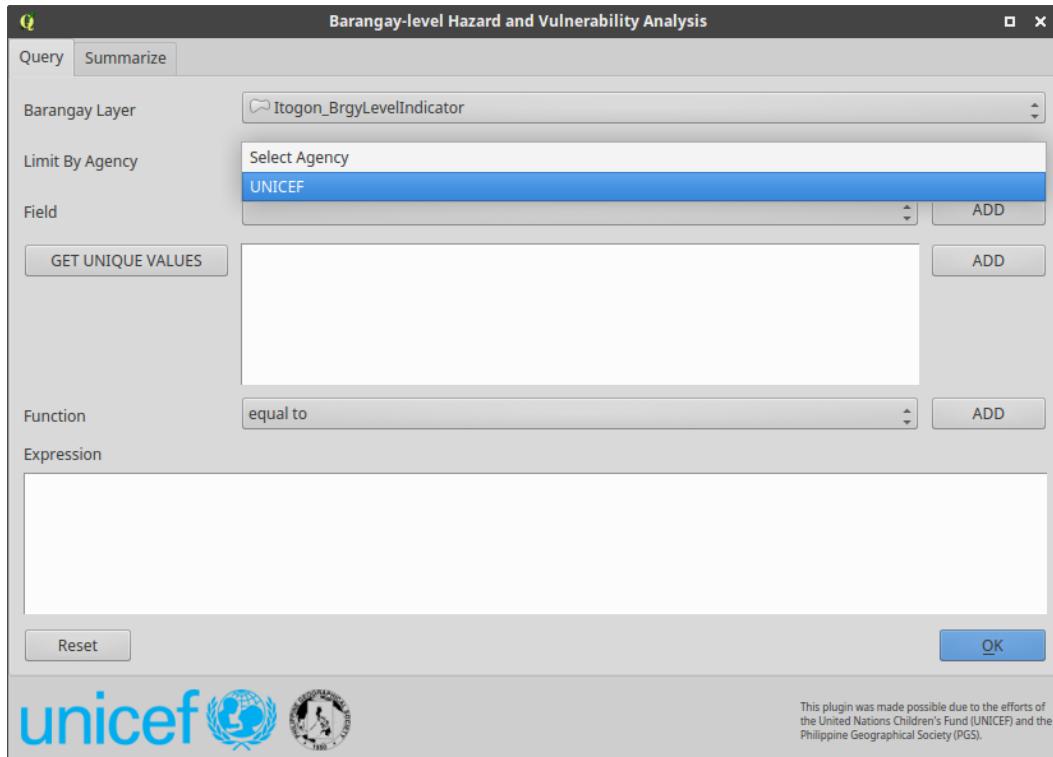
### Query

1. Select the Barangay Layer you want to Query.

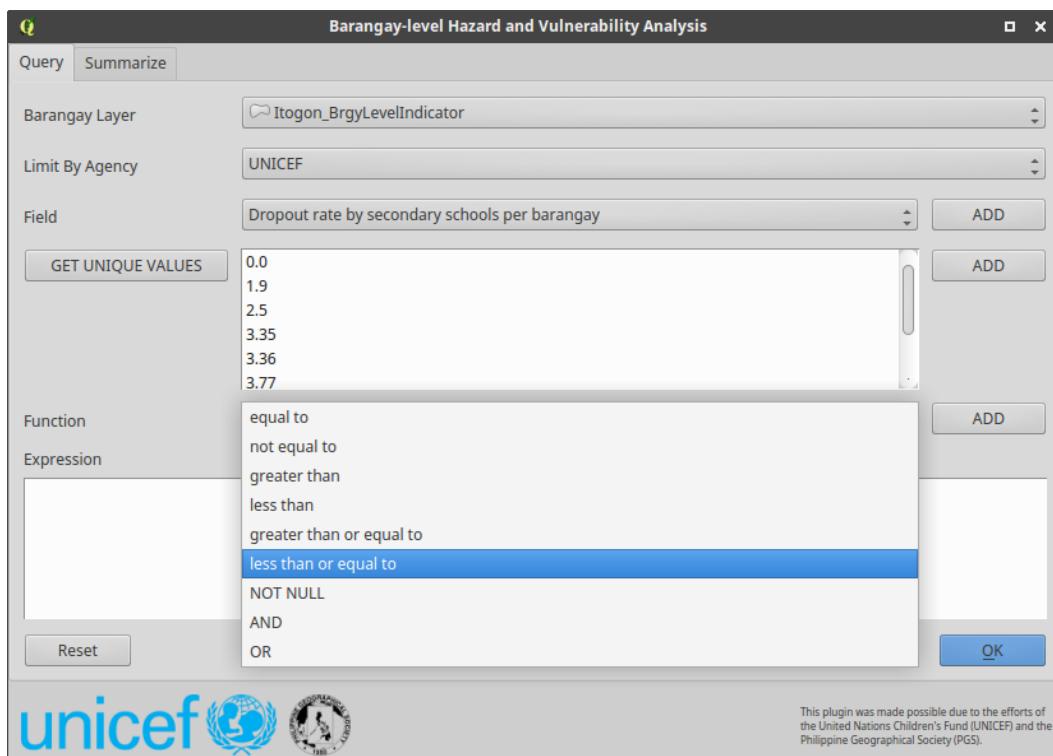


2. Create a query expression.

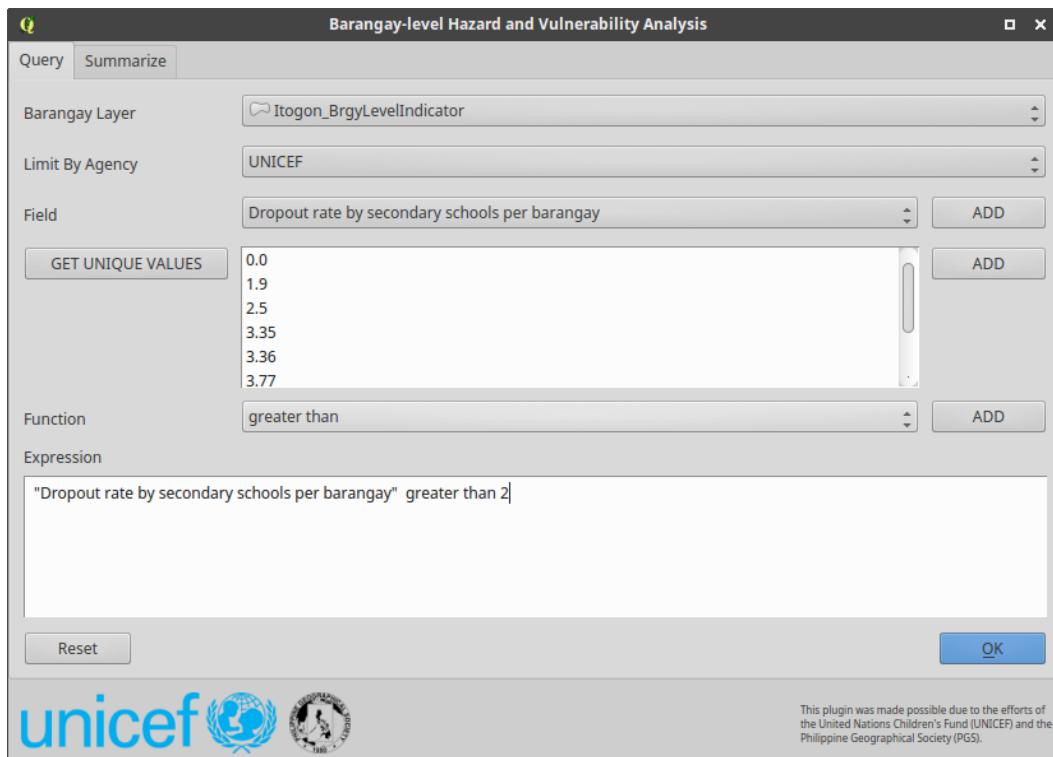
a. Select field/indicator and add to Expression using the "ADD" button.



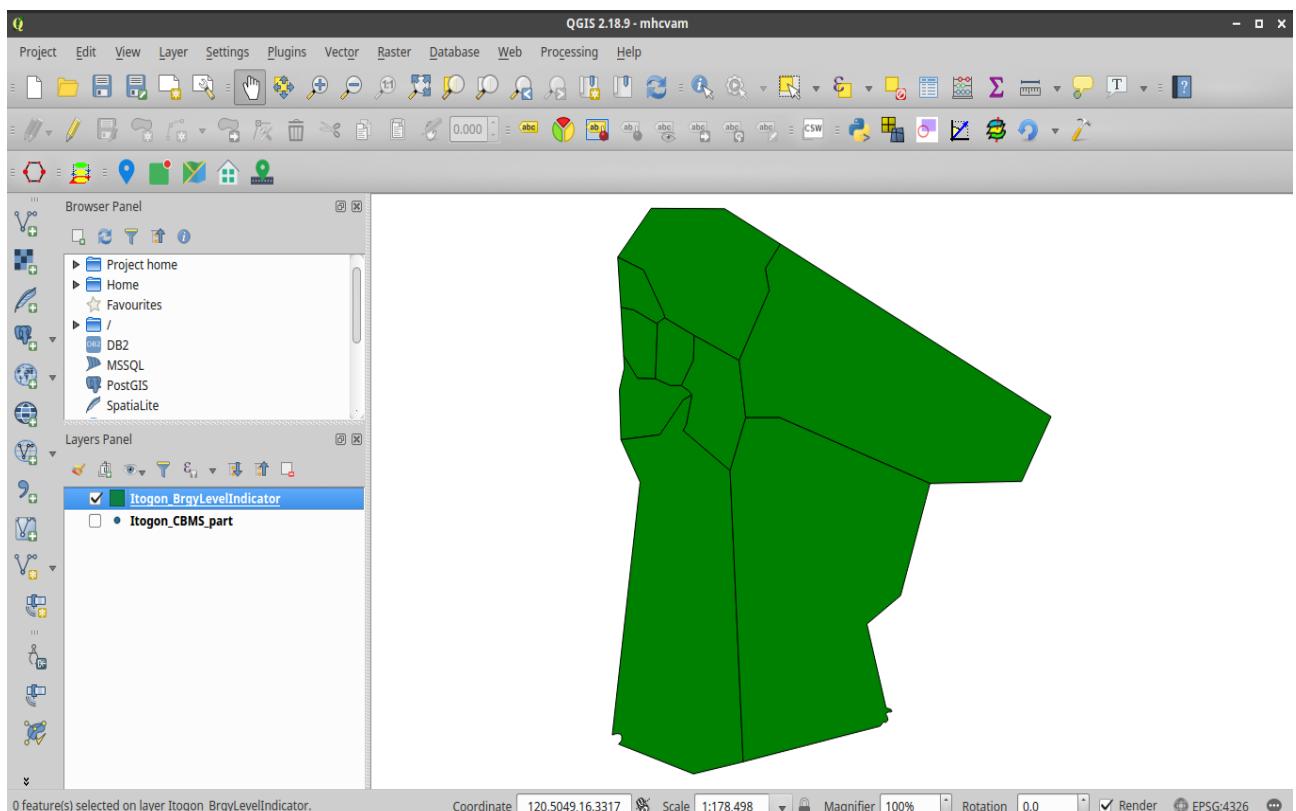
- b. You can get the unique values for the field/indicator using the "**GET UNIQUE VALUES**" button. (Note that this could take a while if there are a lot of unique values.) You can add the unique values to the Expression using the "**ADD**" button.
- c. Select a function from the function combo-box and add it to your Expression using the "**ADD**" button.



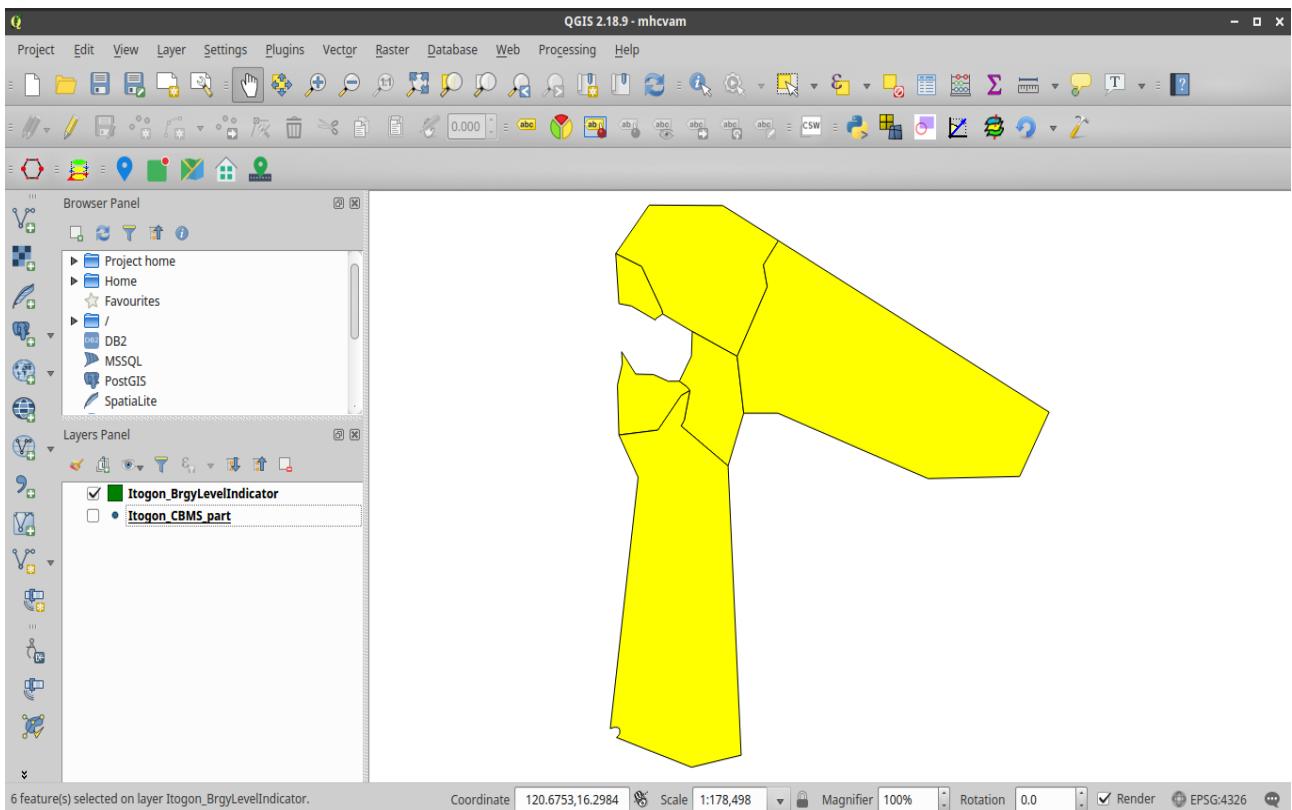
d. You can also directly edit the Expression.



3. Once you are satisfied with the query expression, click **OK**. The tool will select the barangays that meet the query expression and show only these barangays.

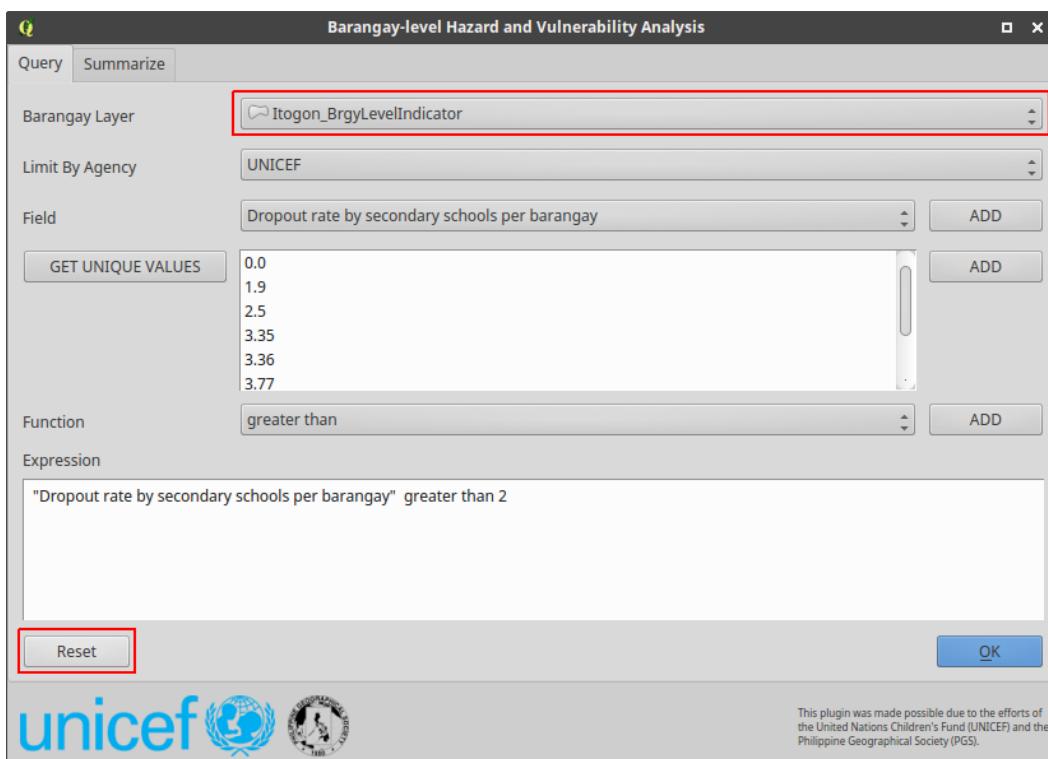


Barangay layer before running Query Tool



Barangay layer after running Query Tool (notice that only those that meet the query criteria are shown)

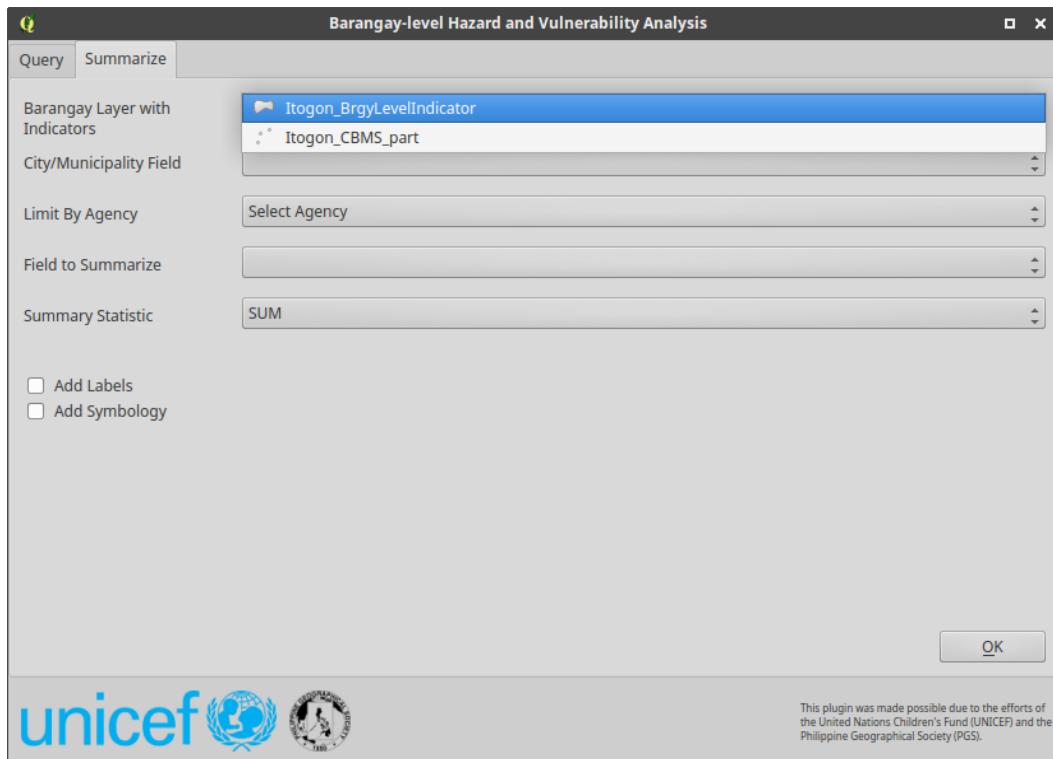
4. You can reset or cancel the selection using the **Reset** button. Resetting the query will unselect the selected barangays in the **Barangay Layer** based on the query. Make sure that the **Barangay Layer** selected is the one whose query you want to reset.



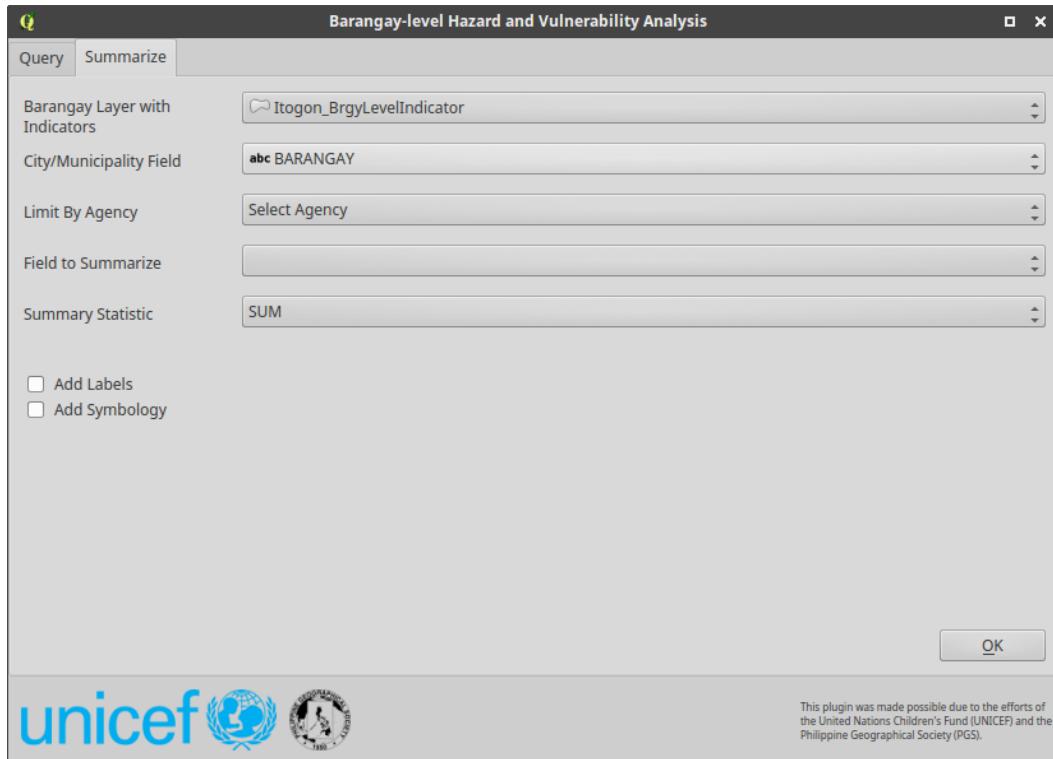
This plugin was made possible due to the efforts of the United Nations Children's Fund (UNICEF) and the Philippine Geographical Society (PGS).

## Summarize

1. Select the Barangay Layer you want to Summary.

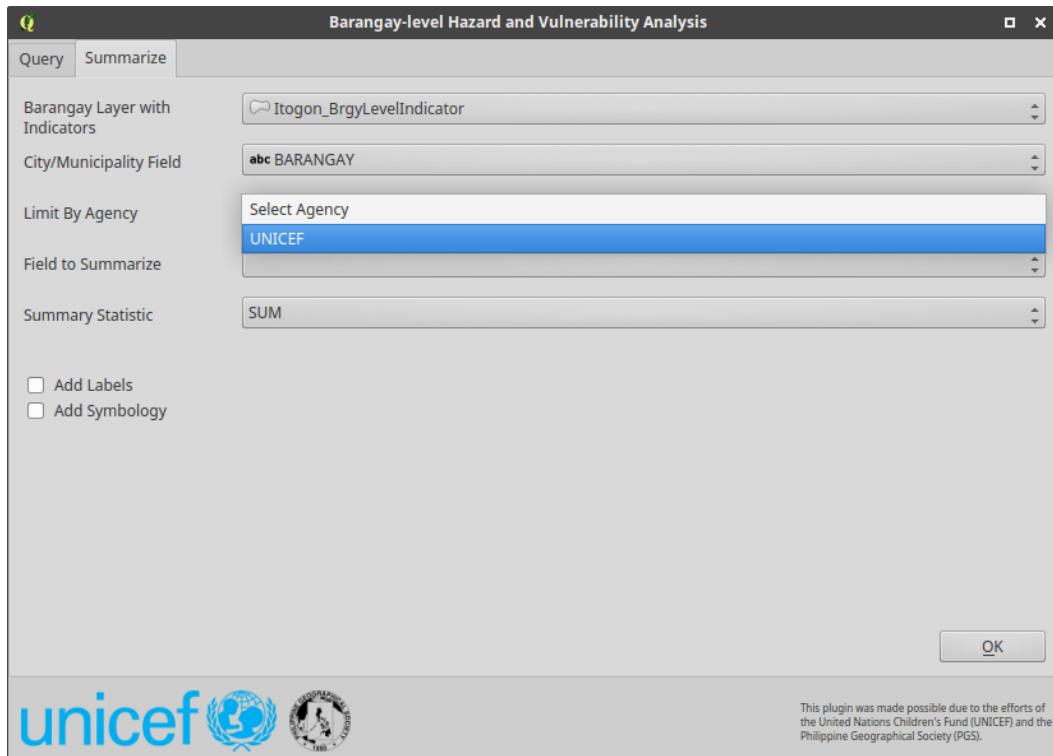


2. Select the Field corresponding to the city/municipality names.

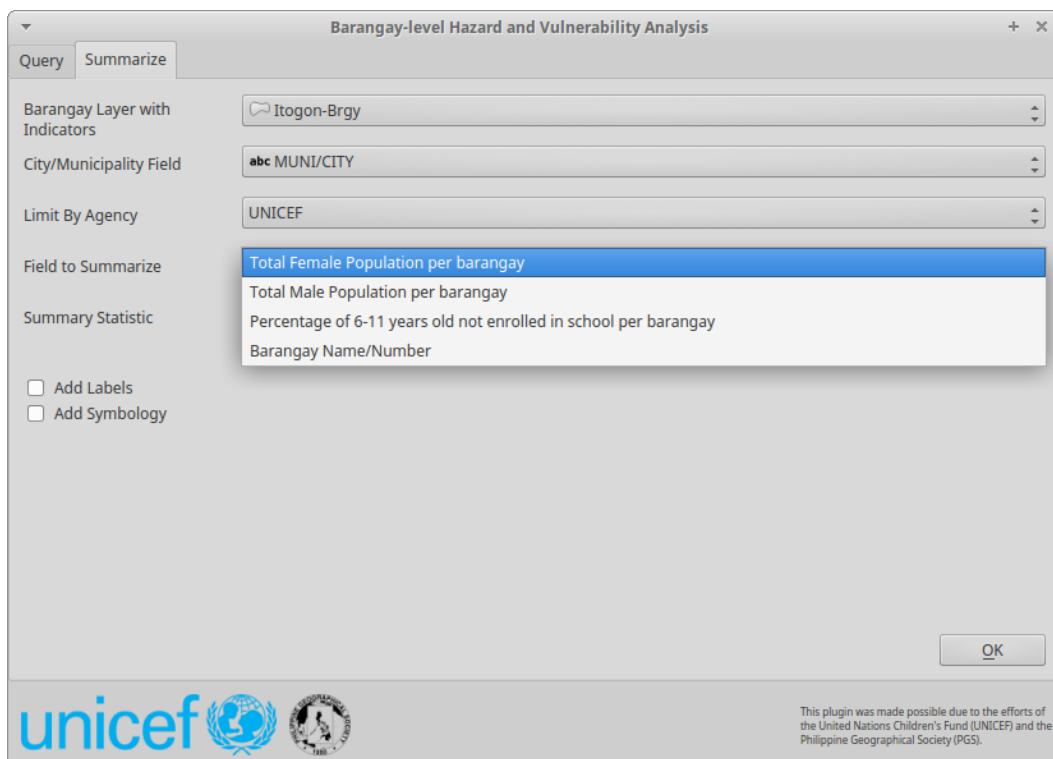


3. Choose the Field you want to summarize.

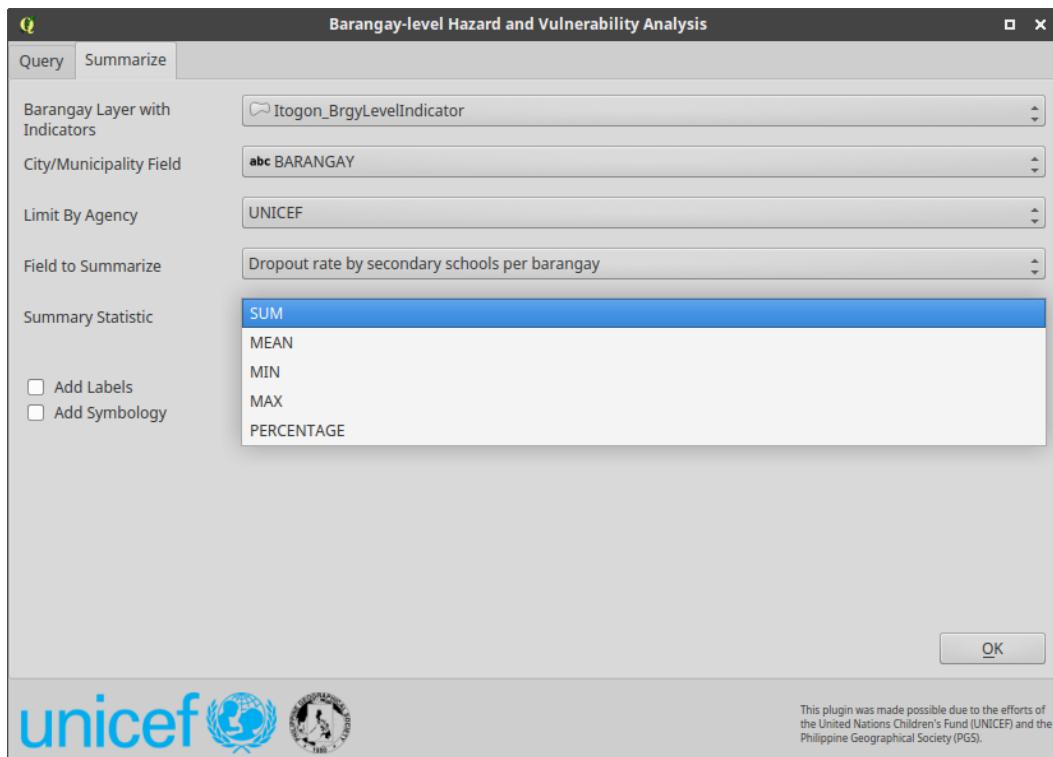
a. Limit by Agency



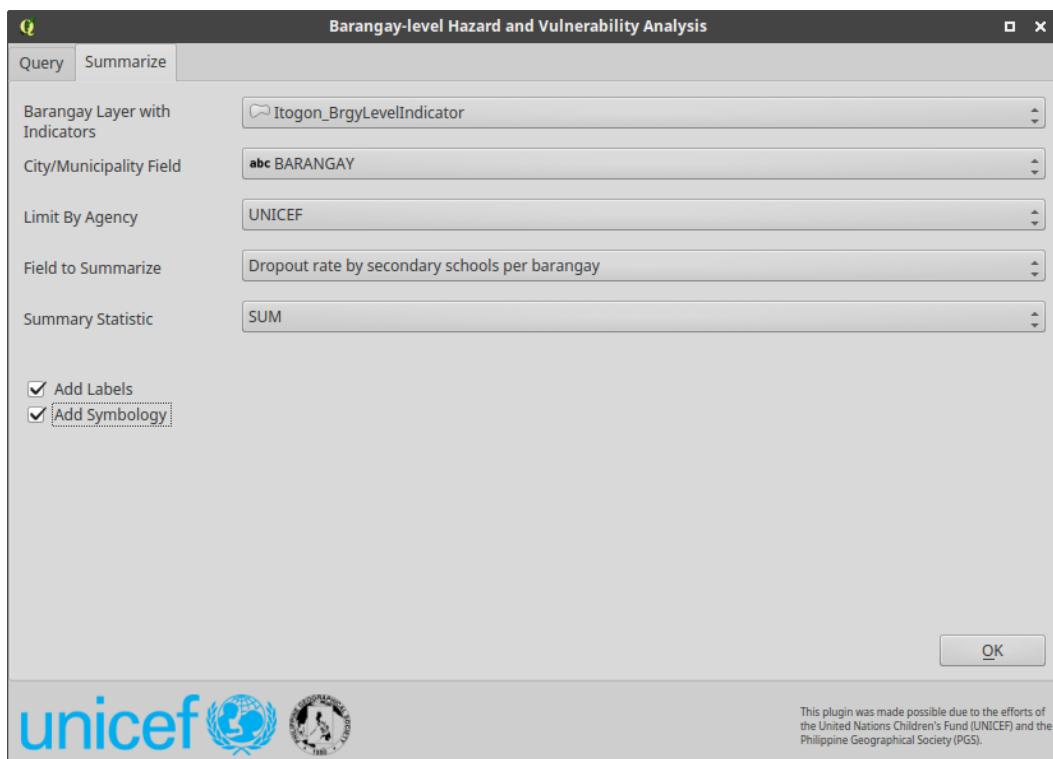
b. Choose the Field to Summarize



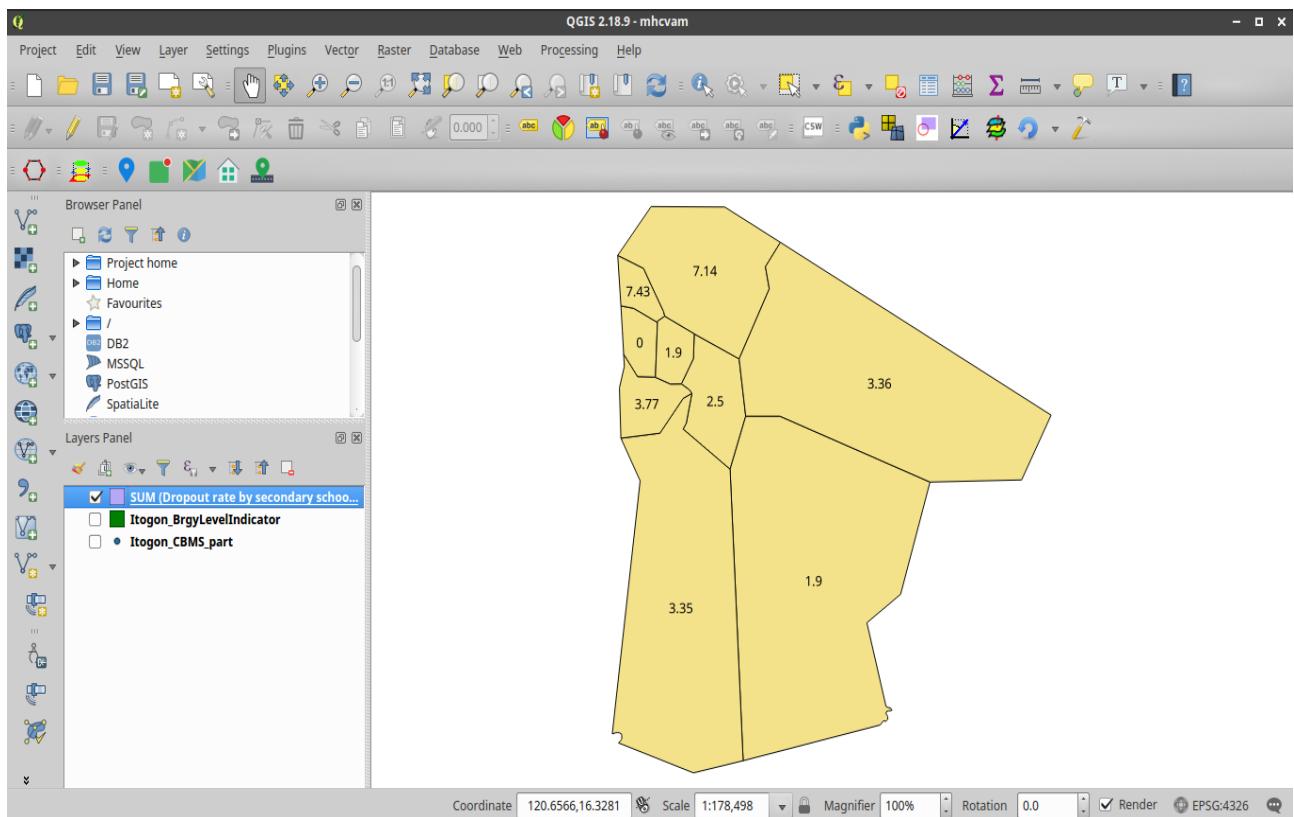
4. Choose the **Summary Statistic** you want to compute.



5. Add **Labels** and **Symbology** if you want.



6. Click **OK**.
7. The resulting layer should look like the one below. Its name will be the <Summary Statistic> (Indicator Name) and the labels will be the value of the Summary Statistic in the city/municipality.



# Household-level Hazard and Vulnerability Analysis

**IMPORTANT:** The plugin will only run if Layers are already loaded in QGIS.

## What It Does

The tool has three functions – **Select**, **Query**, and **Summarize**.

The **Select** function maps out households that are under “**High**”, “**Medium**”, or “**Low**” hazard-level based on a hazard layer.

The **Query** function selects households using a query provided by the user based on the values of the indicators and fields in the Household Layer. After the query, the tool will select and show only the households that meet the criteria of the query expression.

The **Summarize** function computes for statistics (**SUM**, **MEAN**, **MIN**, **MAX**, **PERCENTAGE**) of the indicator values of the households and summarizes them up to the municipal level.

The indicators used are based on the fields of the Barangay layer and the indicators in the **indicators\_household.csv** file.

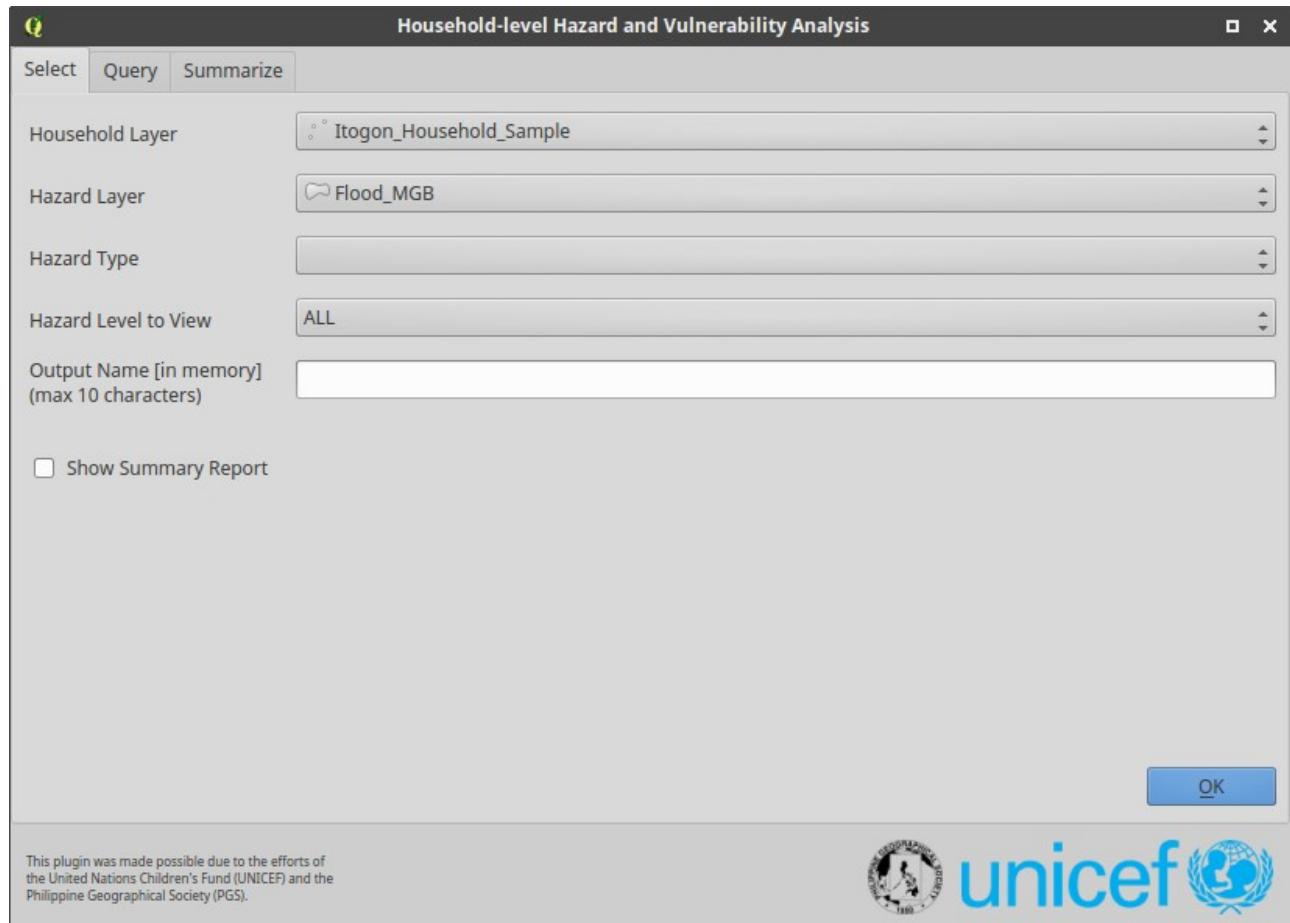
To learn more about **indicators\_household.csv**, click [HERE](#).

## Layer Inputs

- Household layer
  - A point vector file (.shp) of the households with FIELDS corresponding to the Indicators in **indicators\_household.csv**.
- Hazard layer (for Select)
  - A vector file of the hazard (e.g. Fire, Flood, Landslide, etc.) with values corresponding to the Hazard-level (i.e. Low, Medium, High).
- Administrative boundaries layer (for Summary)
  - A polygon vector file of the administrative boundaries.

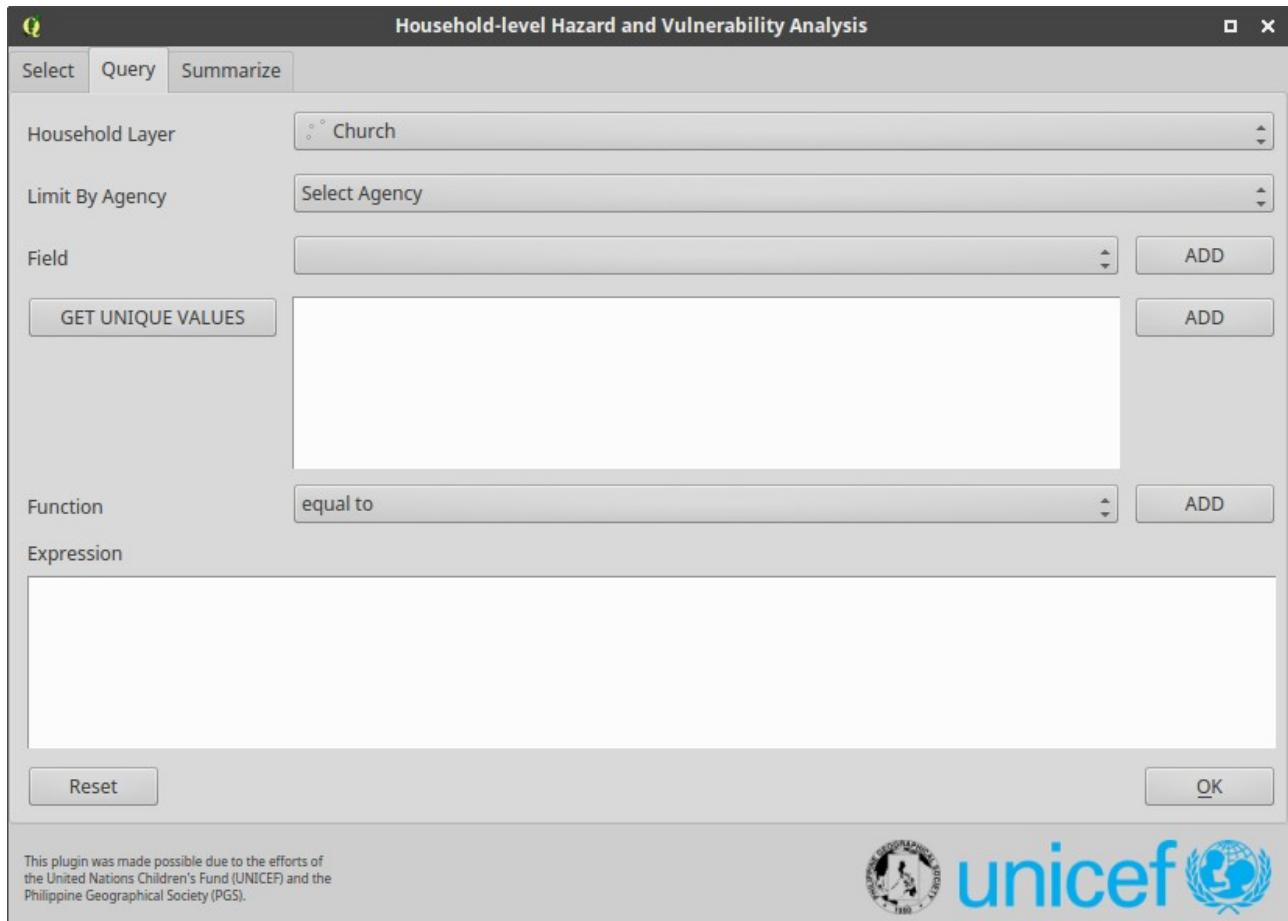
## Parts of the Tool

### Select



1. **Household Layer** – select the household layer to map hazards to.
2. **Hazard Layer** – select the layer containing the hazard you want to map.
3. **Hazard Type** – the field containing the hazard level (i.e. the field name containing Low, Medium, and High).
4. **Hazard Level to View** – select the hazard level you want to map.
5. **Output name** – the name of the resulting output layer.
6. **Show Summary Report** – show the summary report after running the tool. The summary report shows the number of households that are in each hazard level.
7. **OK** – run the tool.

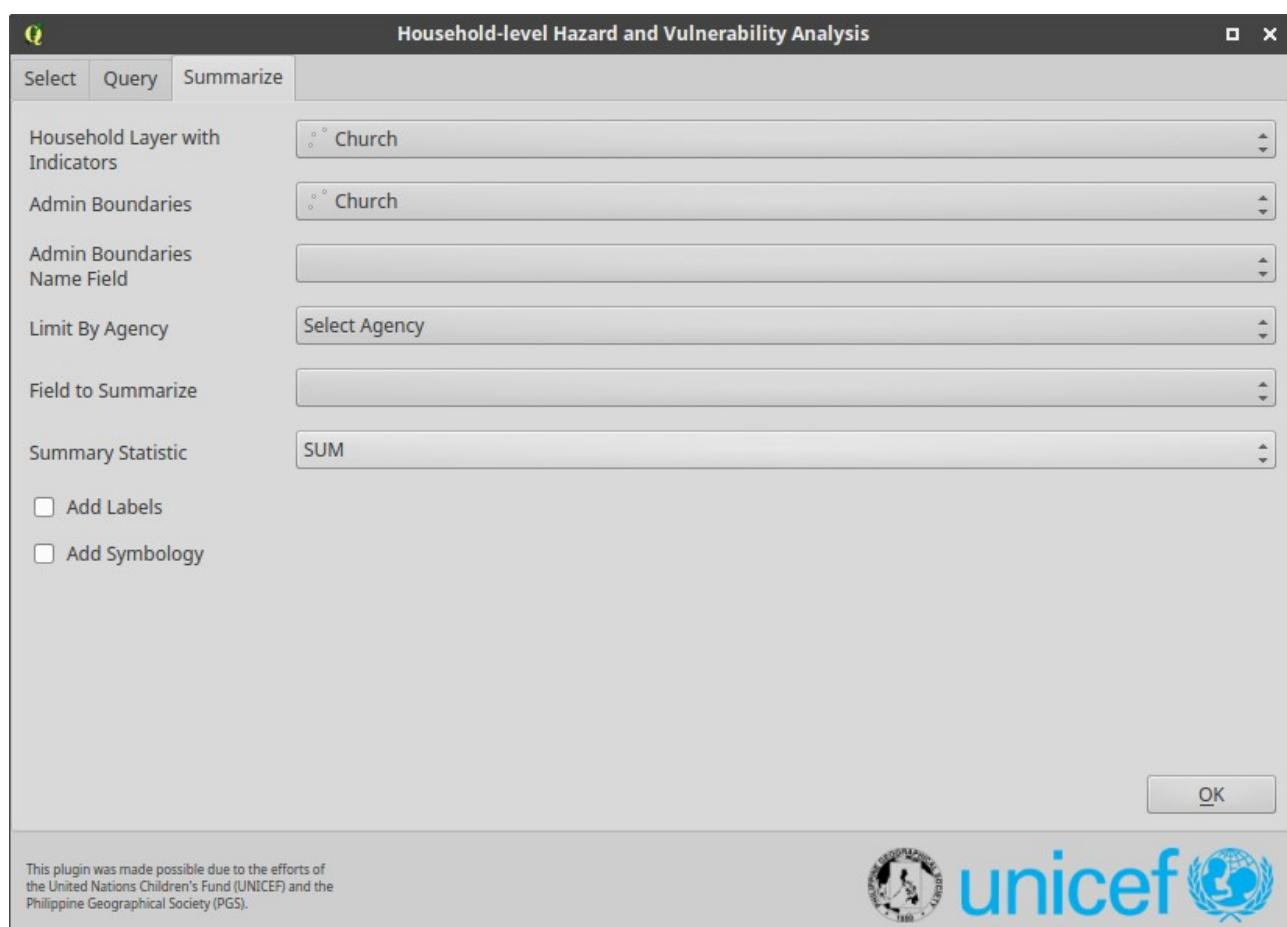
## Query



1. **Household Layer** – select the Household Layer to Query
2. **Limit By Agency** – this will show the unique agencies in the AGENCY column of indicators\_household.csv. If an Agency is selected, the **Field** combobox will only show the indicators from the Agency selected.
3. **Field** – shows the corresponding Indicator Names of the Fields in the shapefile which are also in indicators\_barangay.csv. You can select field names to add to your query **Expression** here.
4. **ADD (Field)** – add the content of **Field** to the query **Expression**.
5. **GET UNIQUE VALUES** – gets the unique values for the selected **Field** and outputs them in the **Unique Values List**.
6. **Unique Values List** – lists the unique values for the selected **Field**. You can select values to add to your query **Expression** here.
7. **ADD (Unique Value)** – add the selected **Unique Value** to the query **Expression**.

8. **Function** – select the function you want to add to your query **Expression**. Supported functions include:
  - a. equal to (=)
  - b. not equal to (!=)
  - c. greater than (>)
  - d. less than (<)
  - e. greater than or equal to (>=)
  - f. less than or equal to (<=)
  - g. NOT NULL
  - h. AND
  - i. OR
  
9. **ADD (Function)** – add the selected **Function** to the query **Expression**.
  
10. **Expression Text Box** – holds the query expression to perform. Can be edited manually or using the **ADD** buttons.
  
11. **Reset** – resets the query **Expression**.
  
12. **OK** – run the tool

## Summary

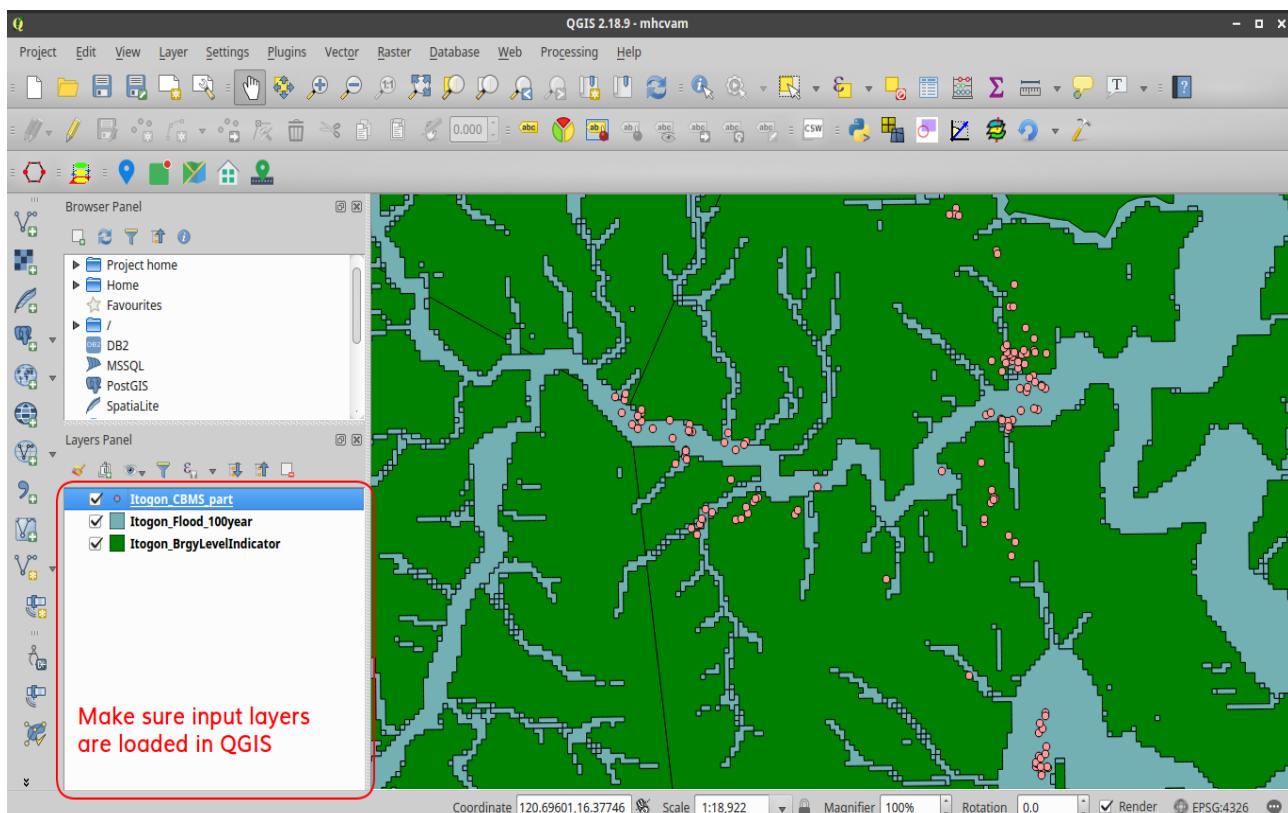


1. **Household Layer with Indicators** – select the Household layer with indicators based on `indicators_household.csv`.
  
2. **Admin Boundaries** – the layer that holds the admin boundaries to summarize to.

3. **Admin Boundaries Name Field** – the field in the Admin Boundaries layer that has the barangay/city/municipality name. The indicators will be summarized based on the contents of this field. The names in this field **must be the same** as the names in the BARANGAY field of the Household layer.
4. **Limit By Agency** – this will show the unique agencies in the AGENCY column of indicators\_household.csv. If an Agency is selected, the **Field to Summarize** combobox will only show the indicators from the Agency selected.
5. **Field to Summarize** – shows the corresponding Indicator Names of the Fields in the shapefile which are also in indicators\_barangay.csv.
6. **Summary statistic** – select how to summarize the indicators. Statistics include:
  - a. **SUM** – returns the sum of the indicator values for all barangays in a city/municipality.
  - b. **MEAN** – returns the average indicator value of all barangays in a city/municipality.
  - c. **MIN** – returns the minimum value of the indicator in a city/municipality
  - d. **MAX** – returns the maximum value of the indicator in a city/municipality
  - e. **PERCENTAGE** – returns the percentage of the value of the indicator for a city/municipality relative to the total of the indicator for all the cities/municipalities.
  - f. **COUNT [LOW], COUNT [MEDIUM], COUNT [HIGH], COUNT [VERY HIGH]** – these 4 only works for FIELDS with fieldname RISK and numeric values. Examples include the results of MHCVAM usimg Child-centered Indicators (Household) and the Select tool of the Household-level Hazard and Vulnerability Analysis.
7. **Add labels** – add labels to the map.
8. **Add symbology** – add symbology to the map.
9. **OK** – run the tool.

## Running the Tool

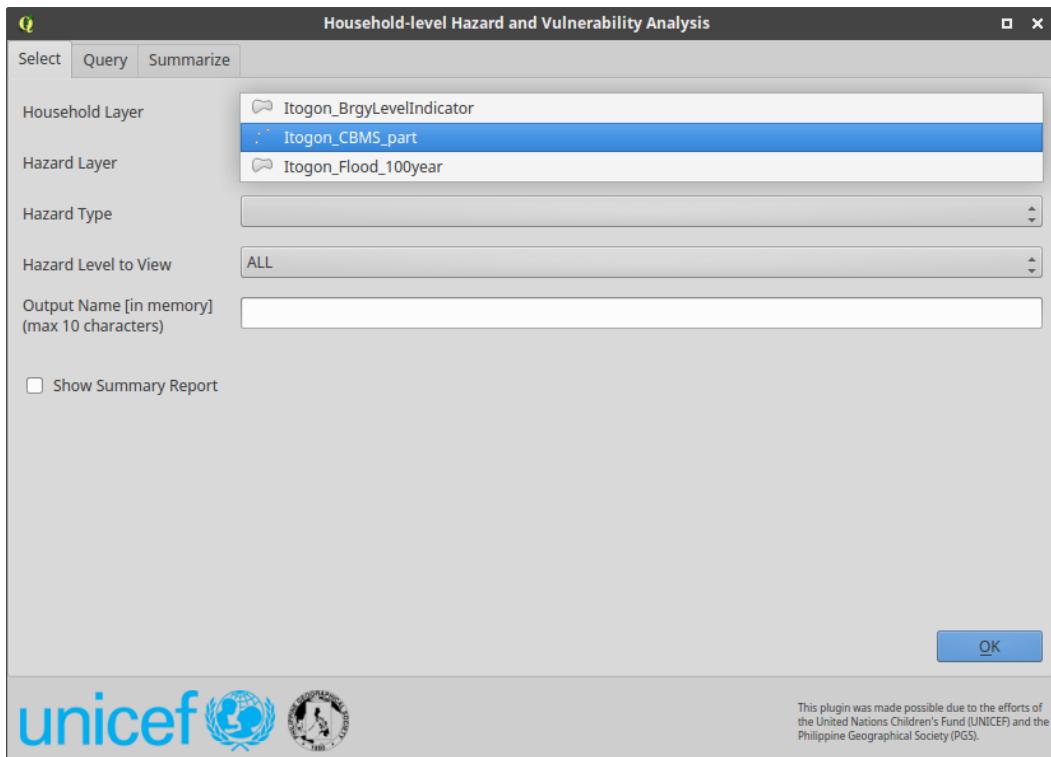
1. Make sure that your input layer/s are already loaded in QGIS (Check the Layers Panel).



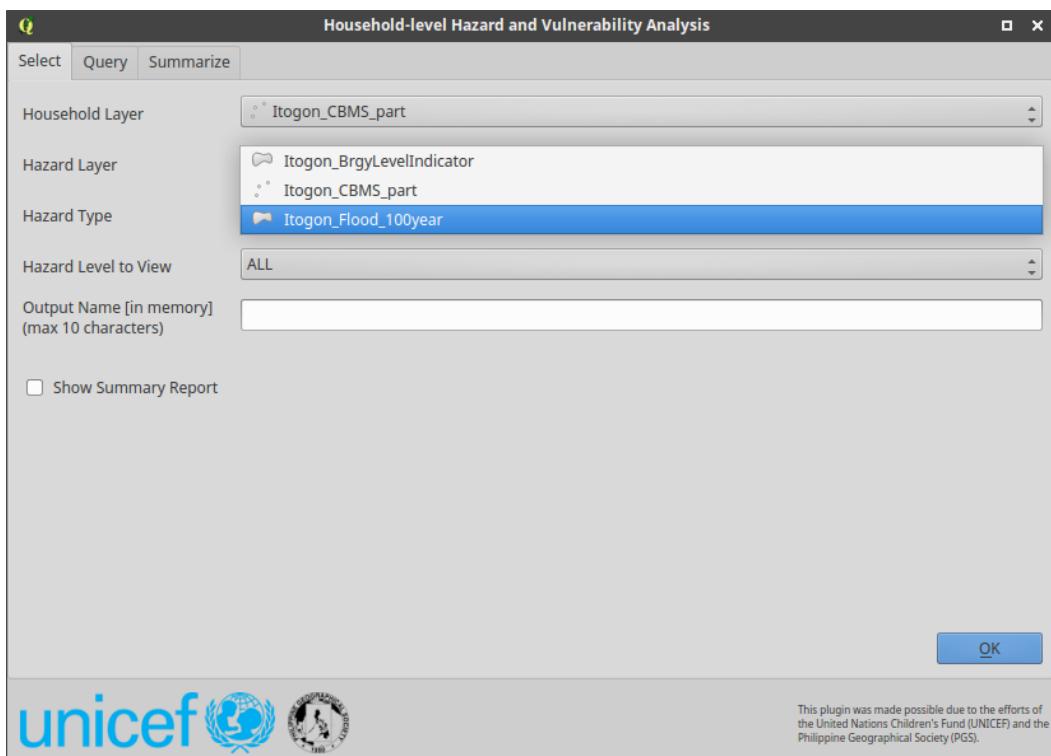
2. Run the plugin [  ] via the Menu bar: Plugins -> MHCVAM -> Household-level Hazard and Vulnerability Analysis or the MHCVAM Toolbar.

## Select

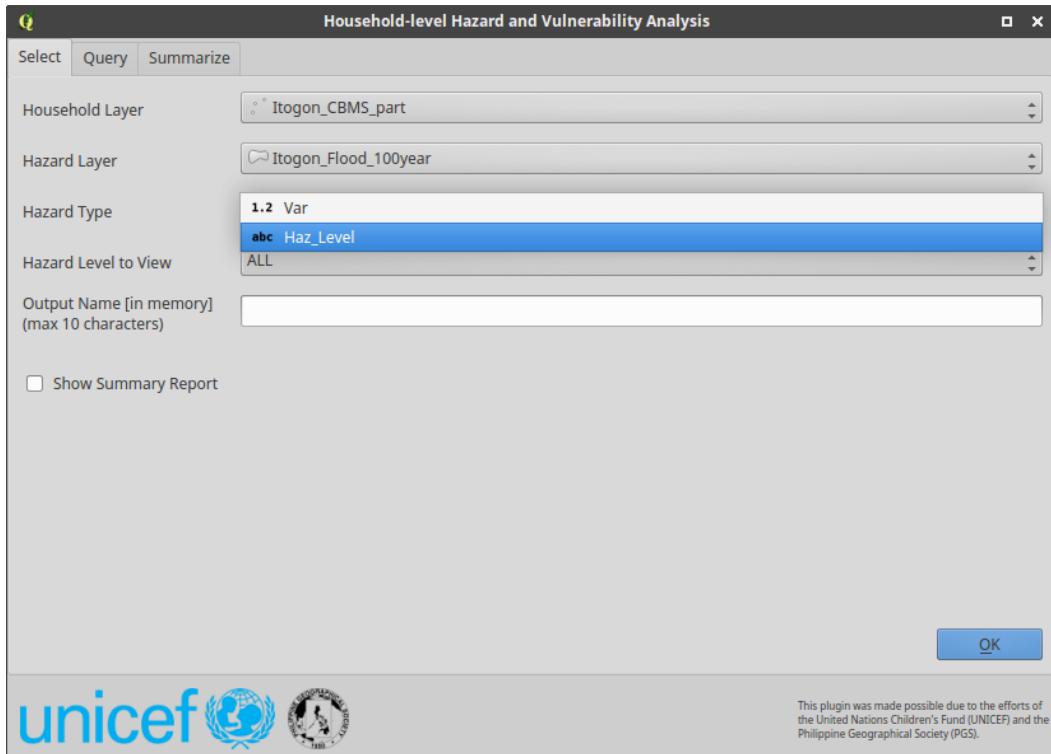
1. Select the Household layer



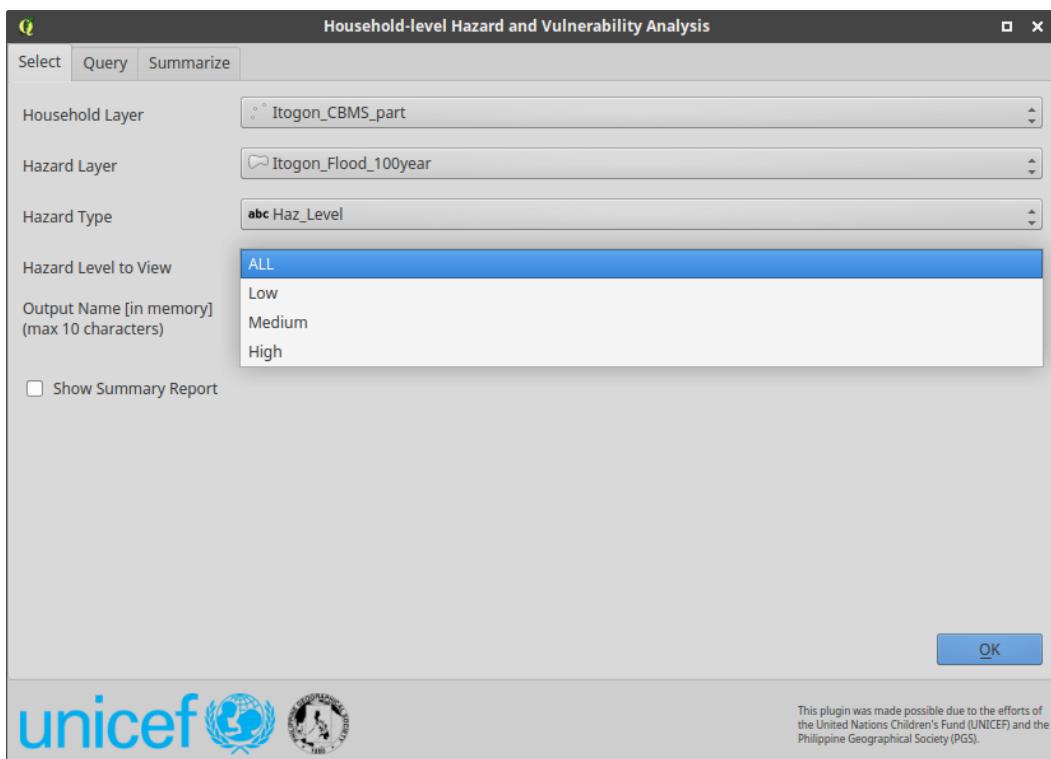
2. Select the Hazard layer



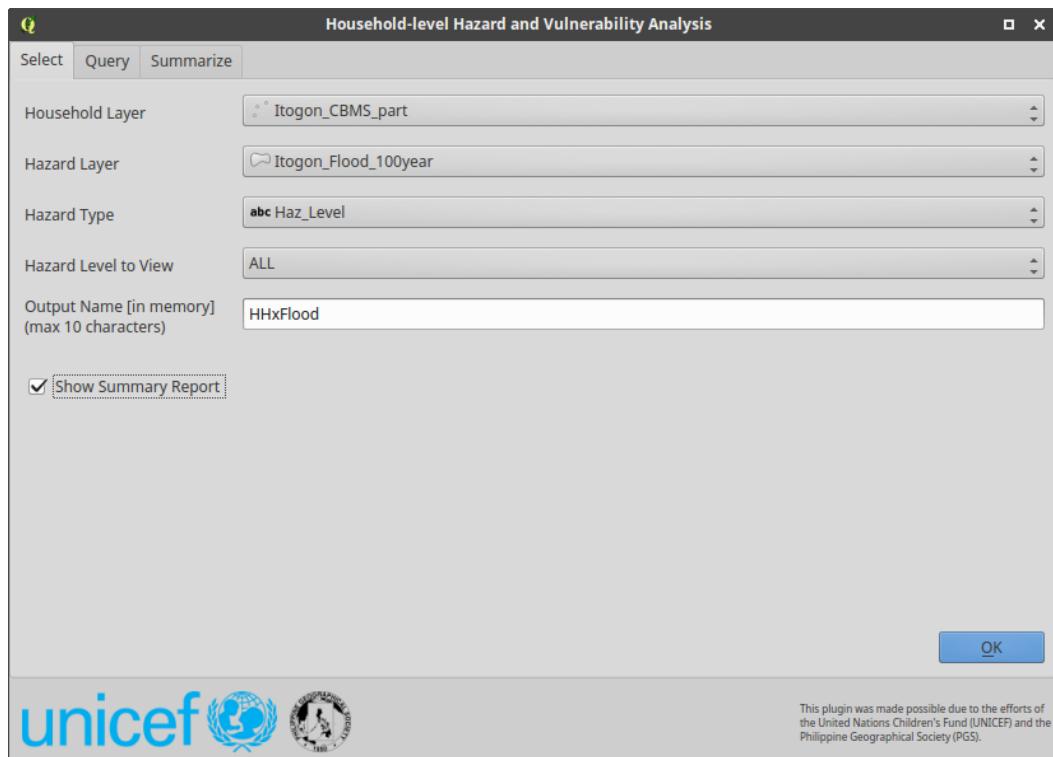
3. Select the Hazard type (field containing the hazard levels)



4. Select the Hazard level to view

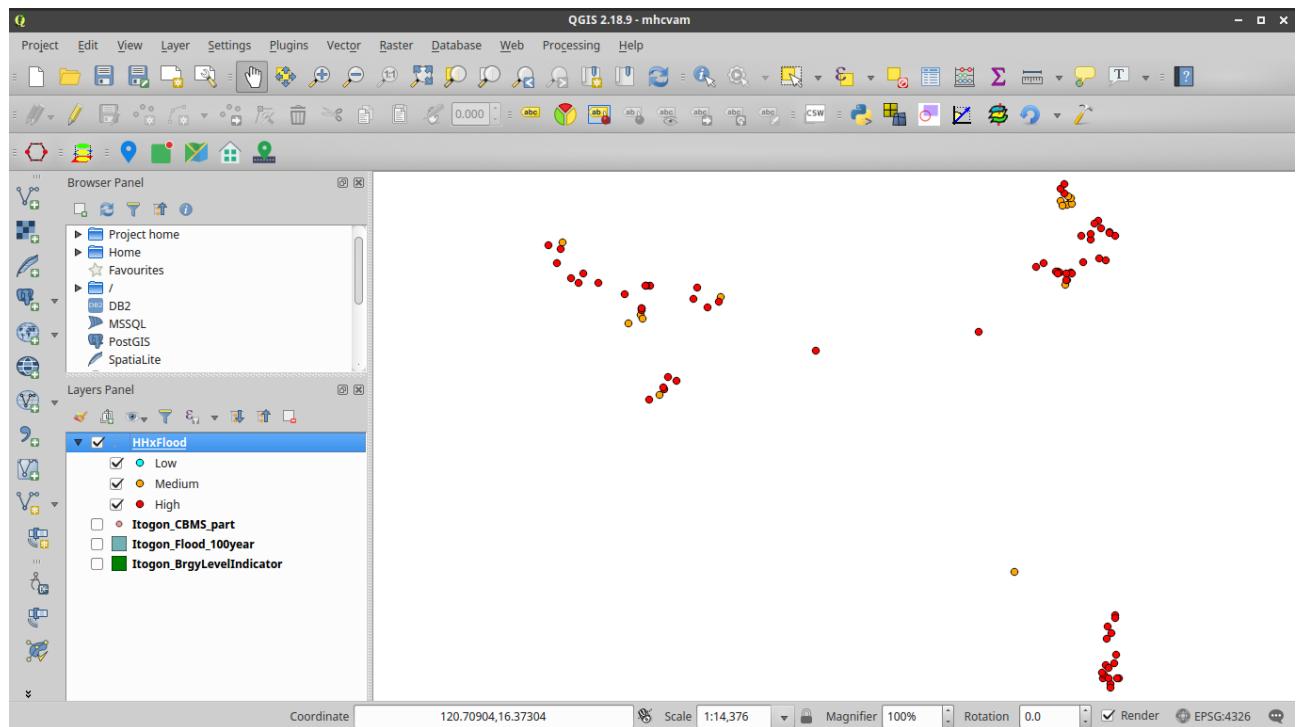


5. Enter output name (Max 10 characters) and Show Summary Report (optional).



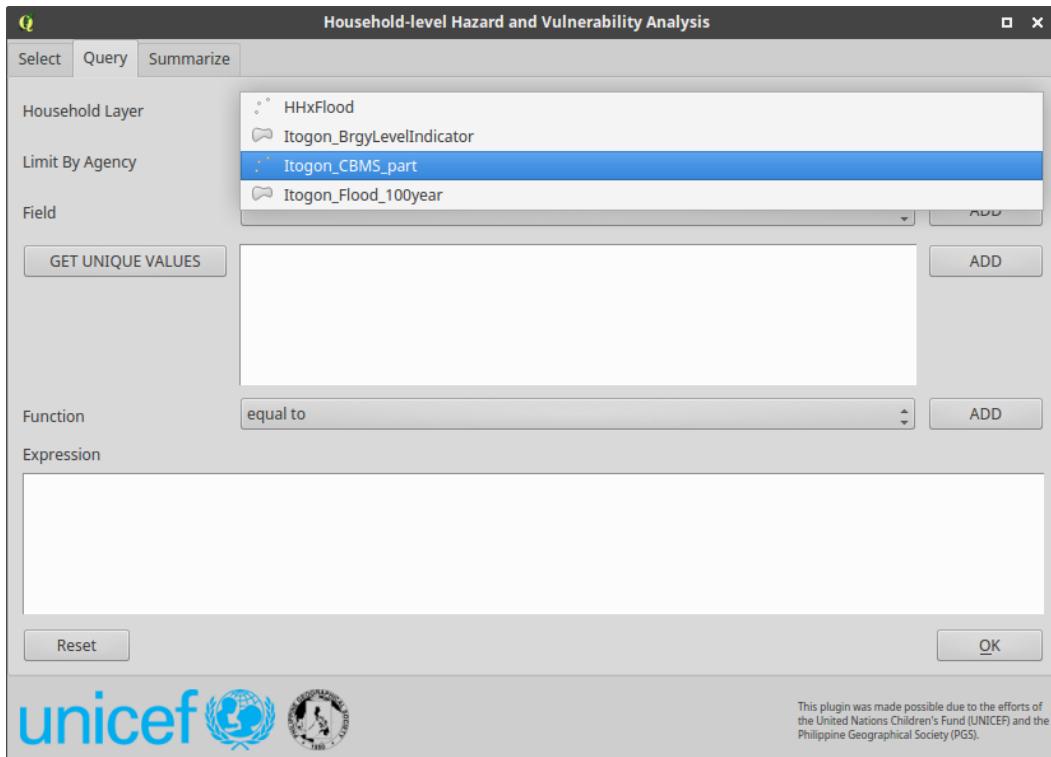
6. Click OK.

The output layer should look like the one below. Households will be tagged according to whether they are in a **High**", "**Medium**", or "**Low**" hazard area.



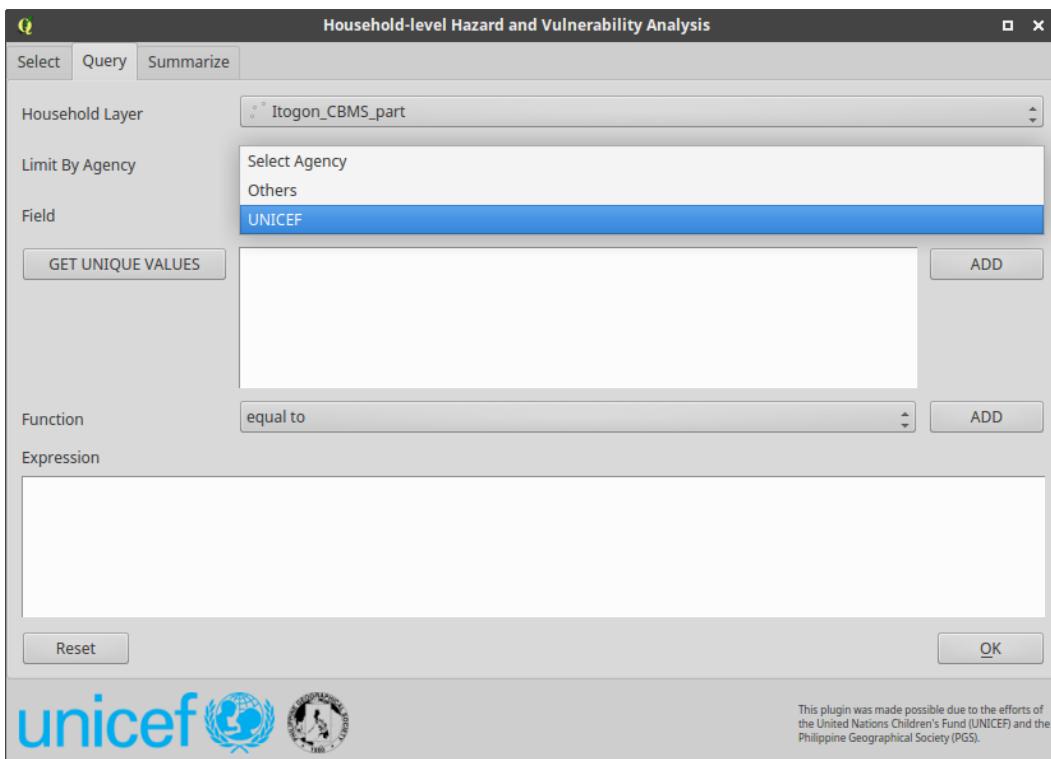
## Query

1. Select the Household Layer you want to Query.

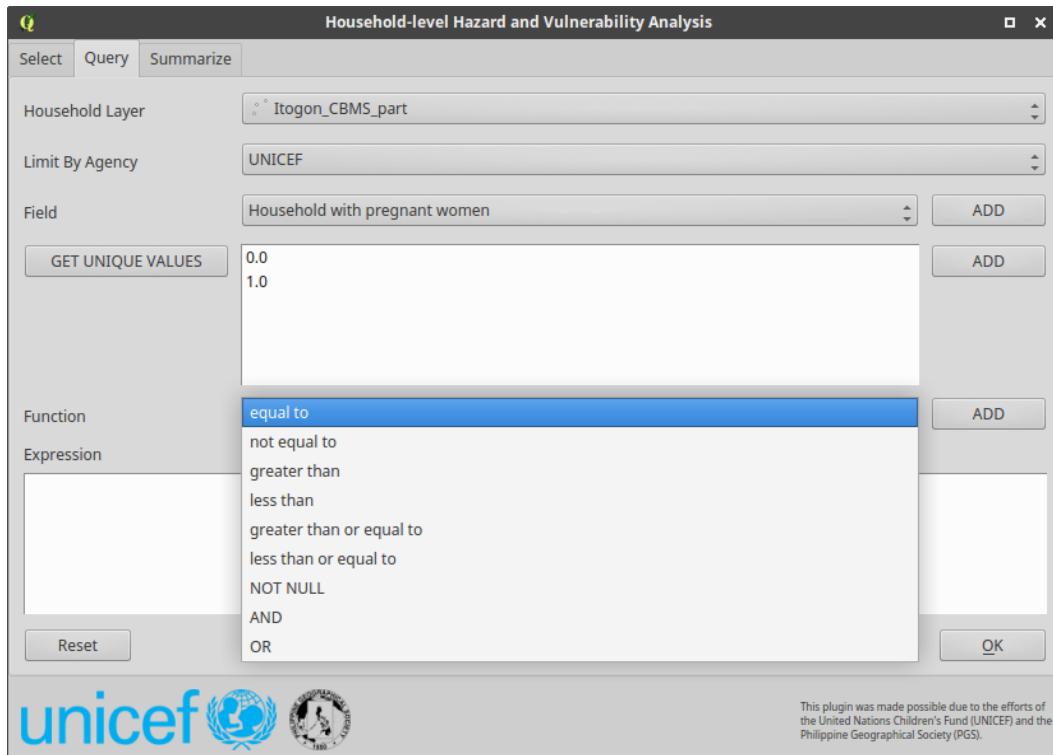


2. Create a query expression.

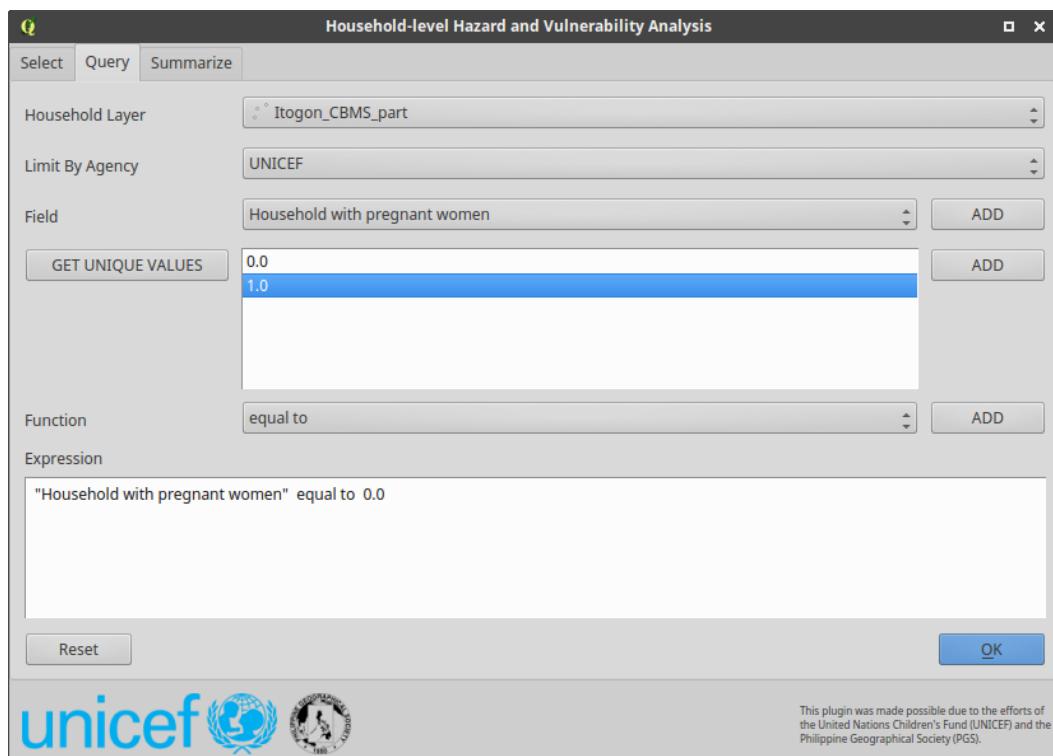
- a. Select field/indicator and add to Expression using the "ADD" button



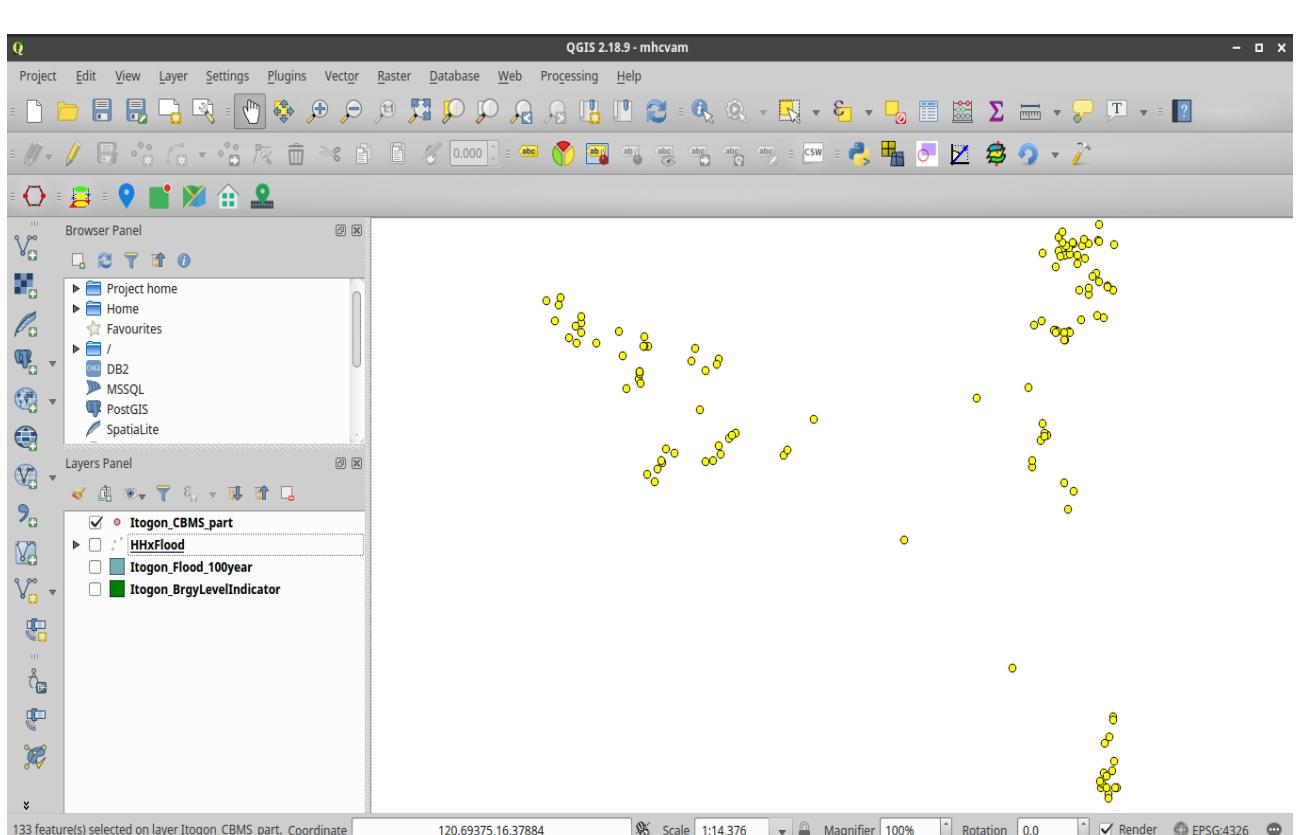
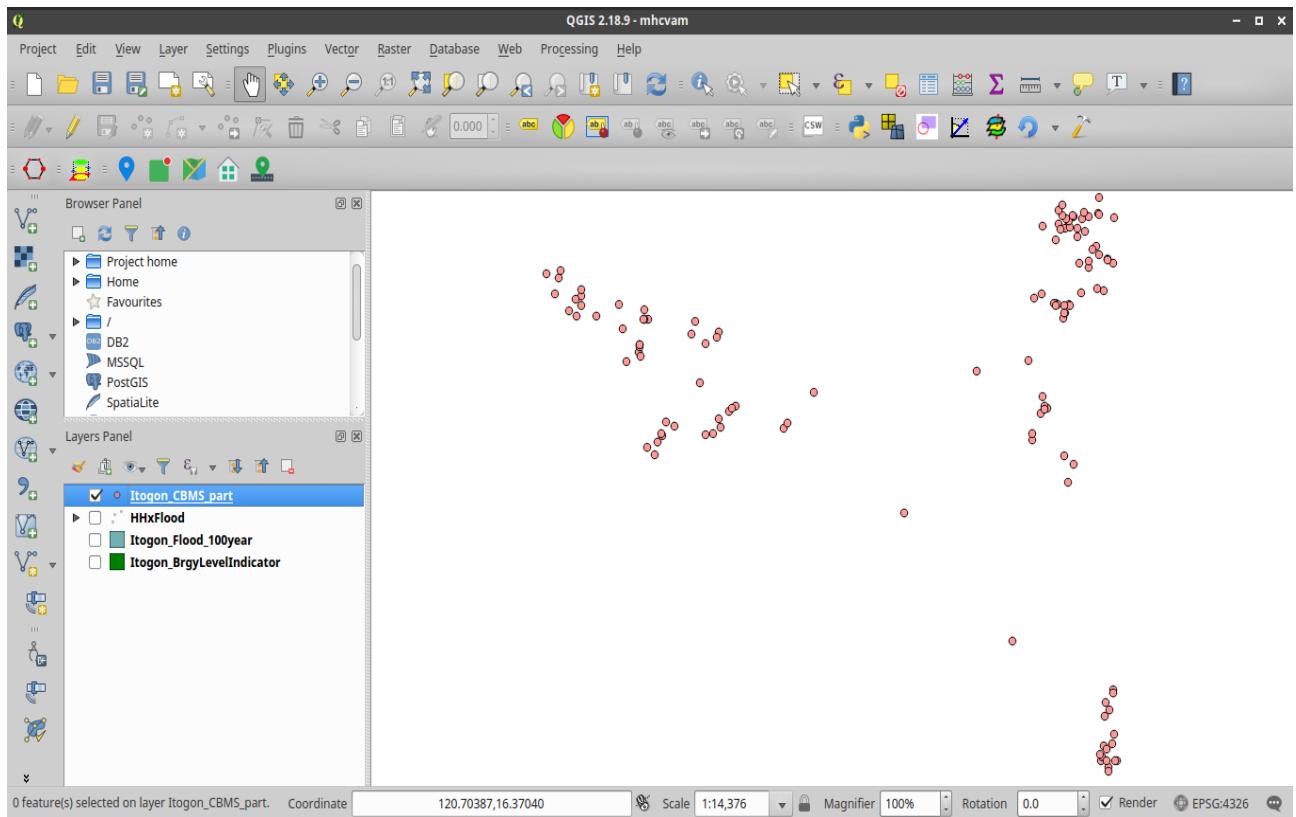
- b. You can get the unique values for the field/indicator using the “**GET UNIQUE VALUES**” button. (Note that this could take a while if there are a lot of unique values.” You can add the unique values to the Expression using the “**ADD**” button.
- c. Select a function from the function combo-box and add it to your Expression using the “**ADD**” button.



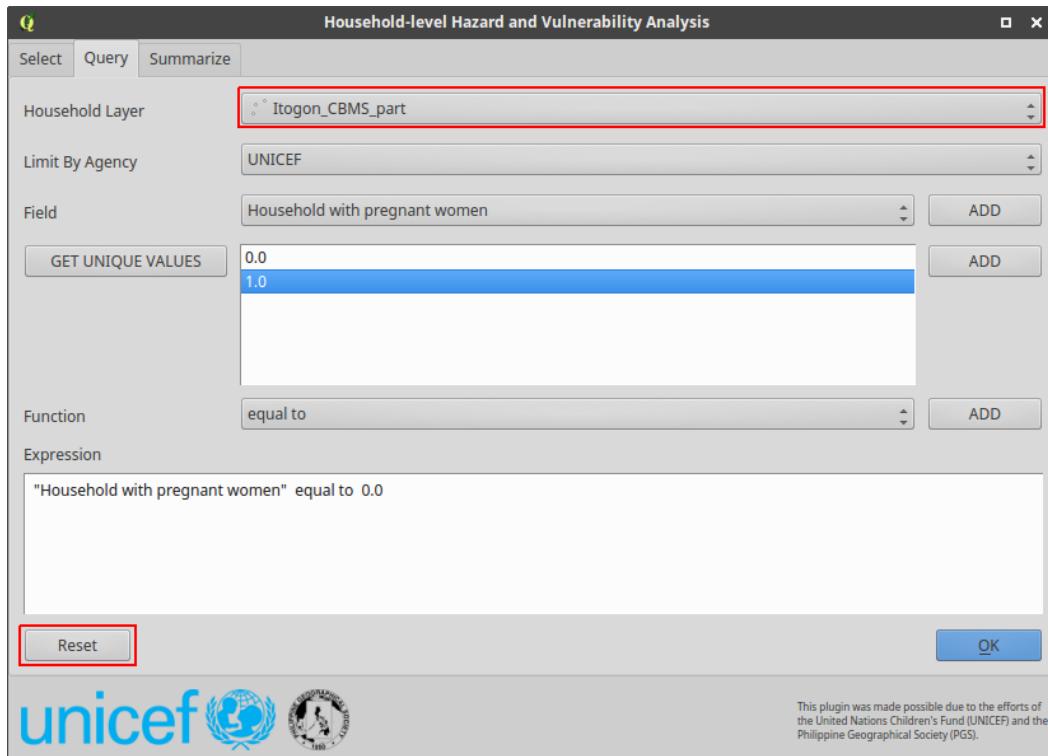
- 3. You can also directly edit the Expression.



4. Once you are satisfied with the query expression, click **OK**. The tool will select the barangays that meet the query expression and show only these barangays.

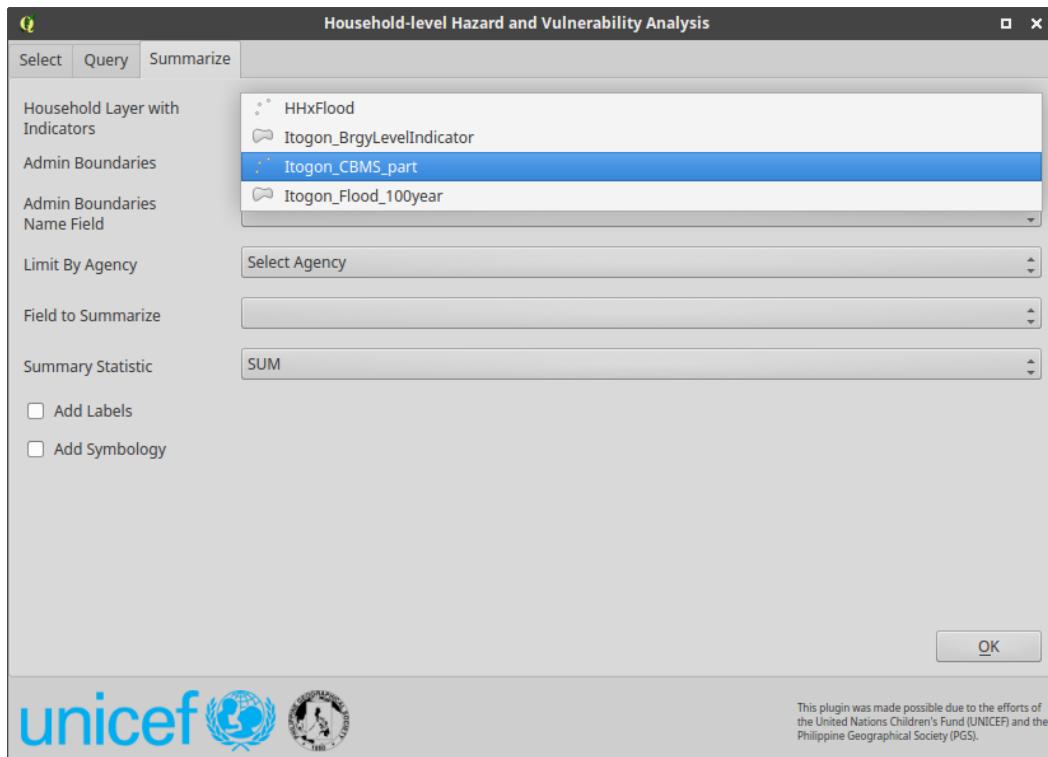


5. You can reset or cancel the selection using the **Reset** button. Resetting the query will unselect the selected households in the **Household Layer** based on the query. Make sure that the **Household Layer** selected is the one whose query you want to reset.



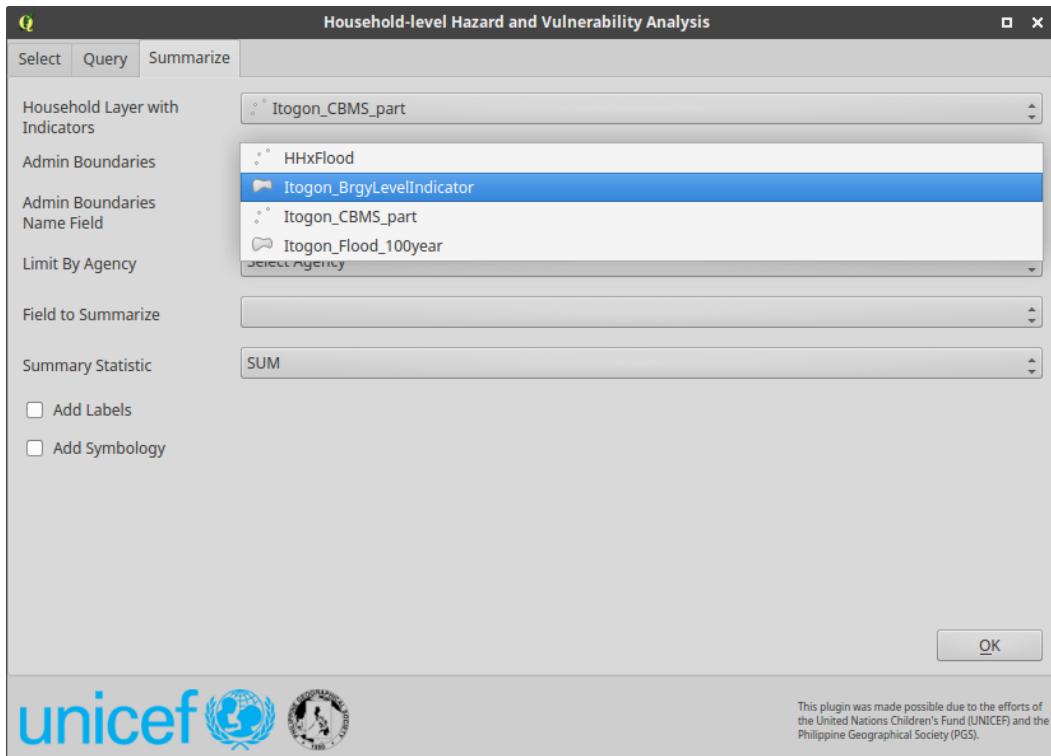
## Summarize

1. Select the Household Layer you want to Summarize.

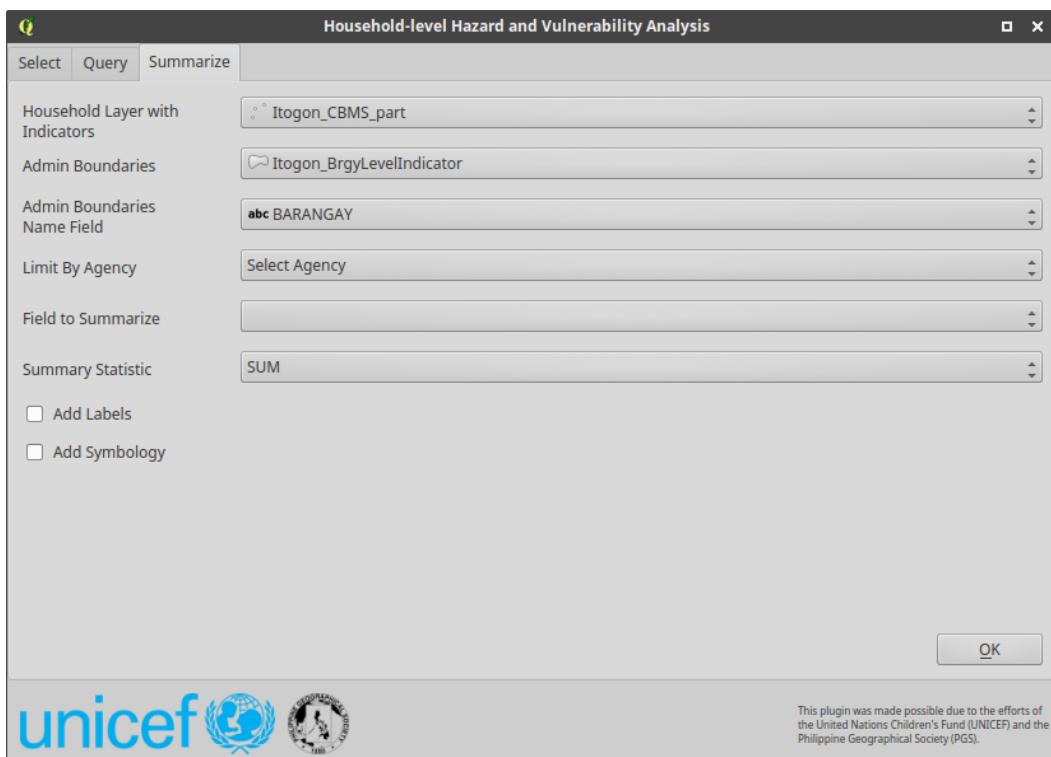


2. Select the Field corresponding to the barangay/city/municipality names.

a. Select the layer holding the administrative boundaries.



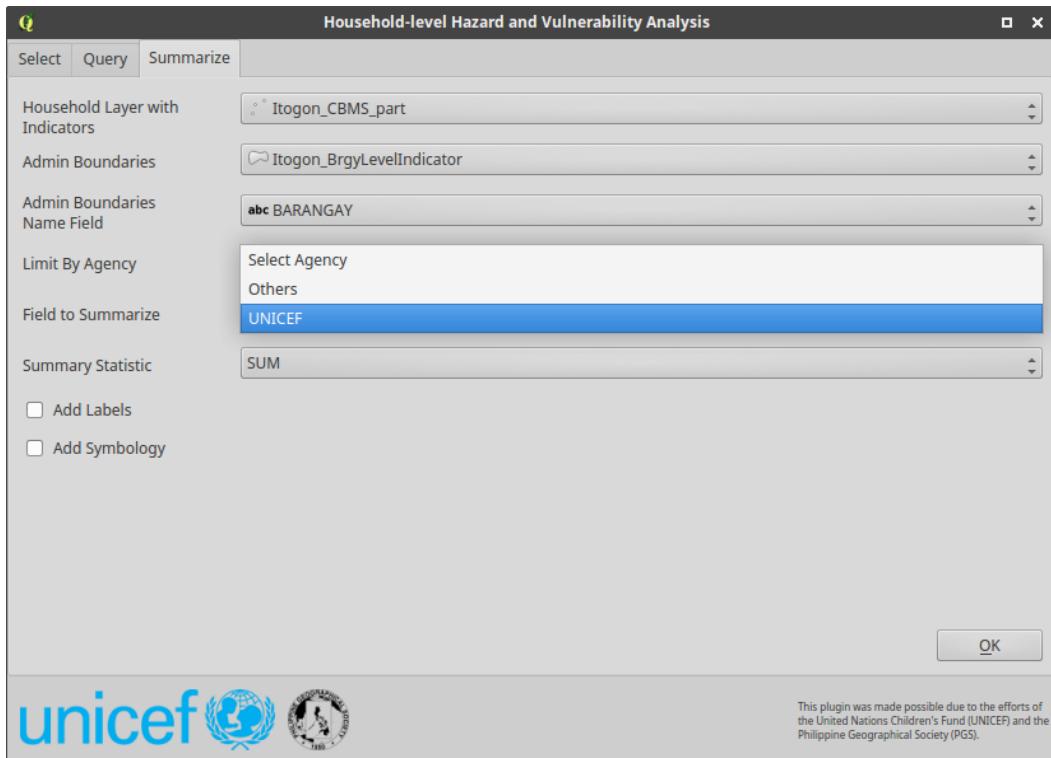
b. Select the field that holds the names of the administrative boundaries.



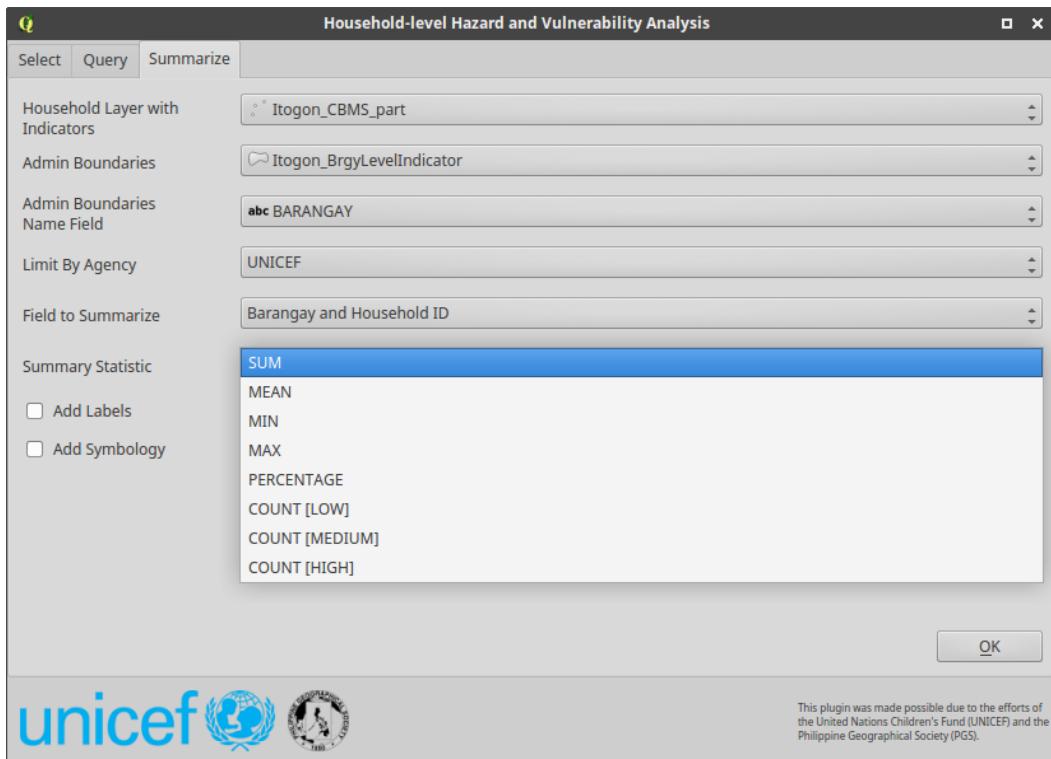
**IMPORTANT:** Make sure that the names of the barangay/city/municipality in the Field chosen here is the same as the names of the barangays/city/municipality in the Household layer chosen above. If not, the tool will not work.

3. Choose the Field you want to summarize.

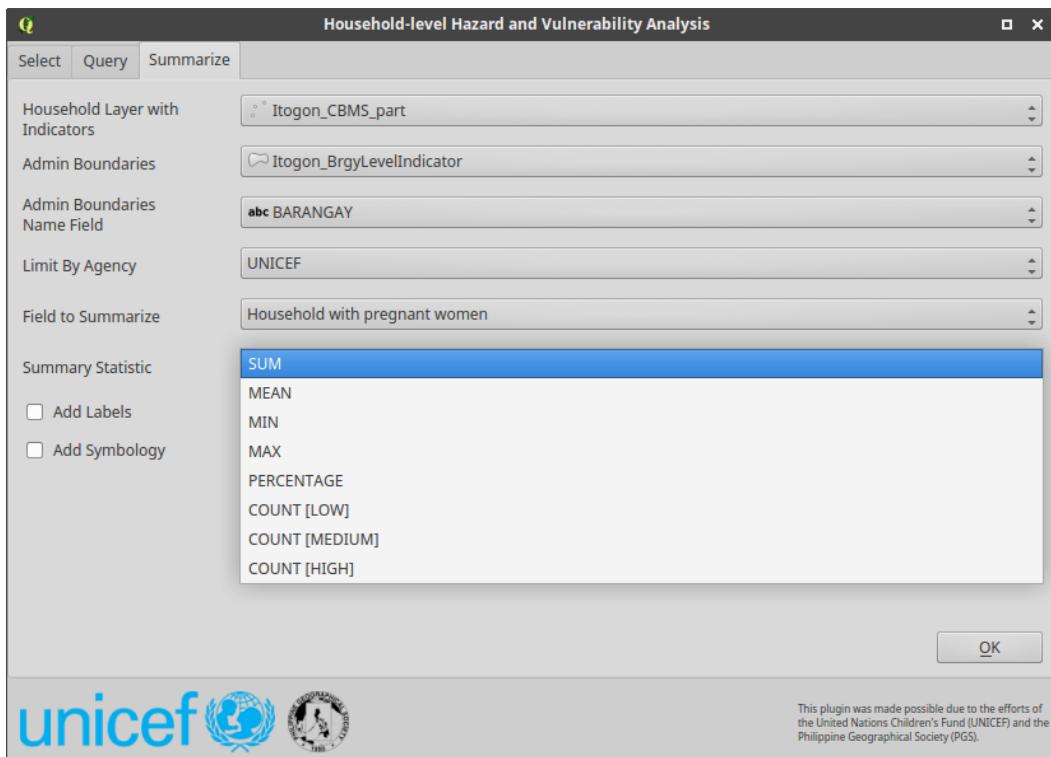
a. Limit by Agency



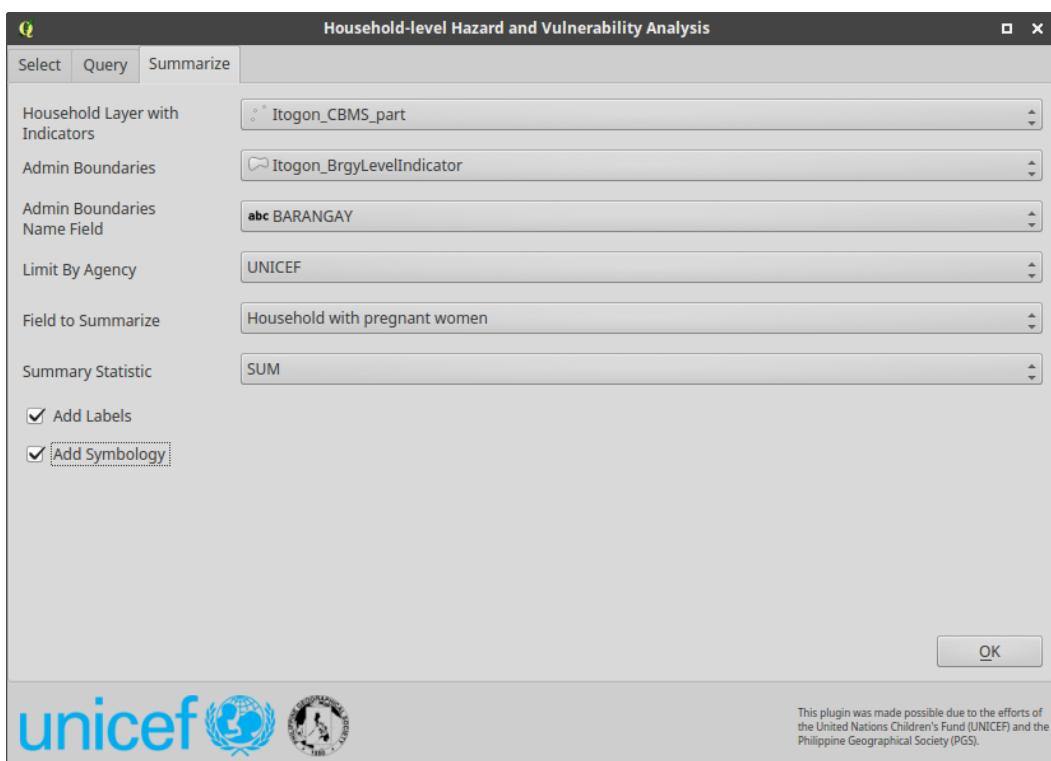
4. Choose the Field to Summarize



5. Choose the **Summary Statistic** you want to compute.

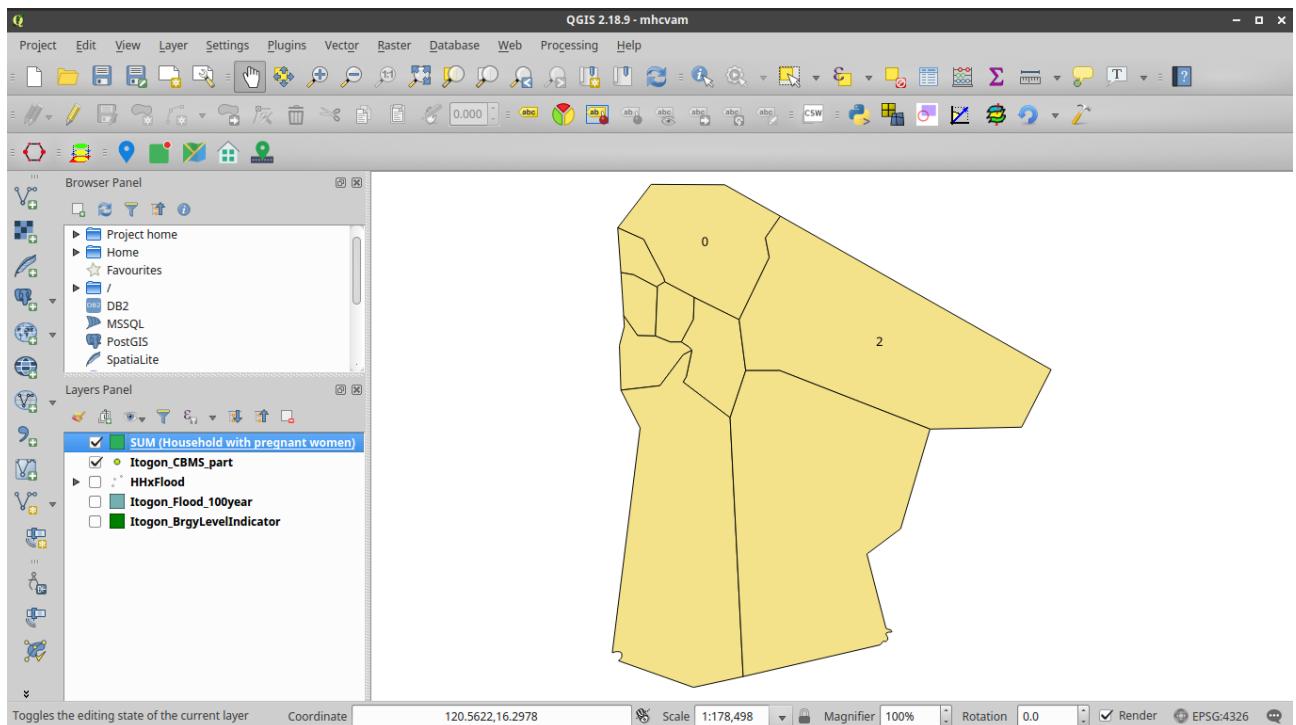


6. Add **Labels** and **Symbology** if you want.



7. Click **OK**.

The resulting layer's name will be <Summary Statistic> (Indicator Name) and the labels will be the value of the Summary Statistic in the chosen administrative boundary.



# Infrastructures Hazard Analysis

**IMPORTANT:** The plugin will only run if Layers are already loaded in QGIS.

## What It Does

The Infrastructure Hazard Analysis tool tags infrastructure layers (Points, Lines, Polygons) which are within a certain hazard level ("High", "Medium", or "Low") based on a hazard layer.

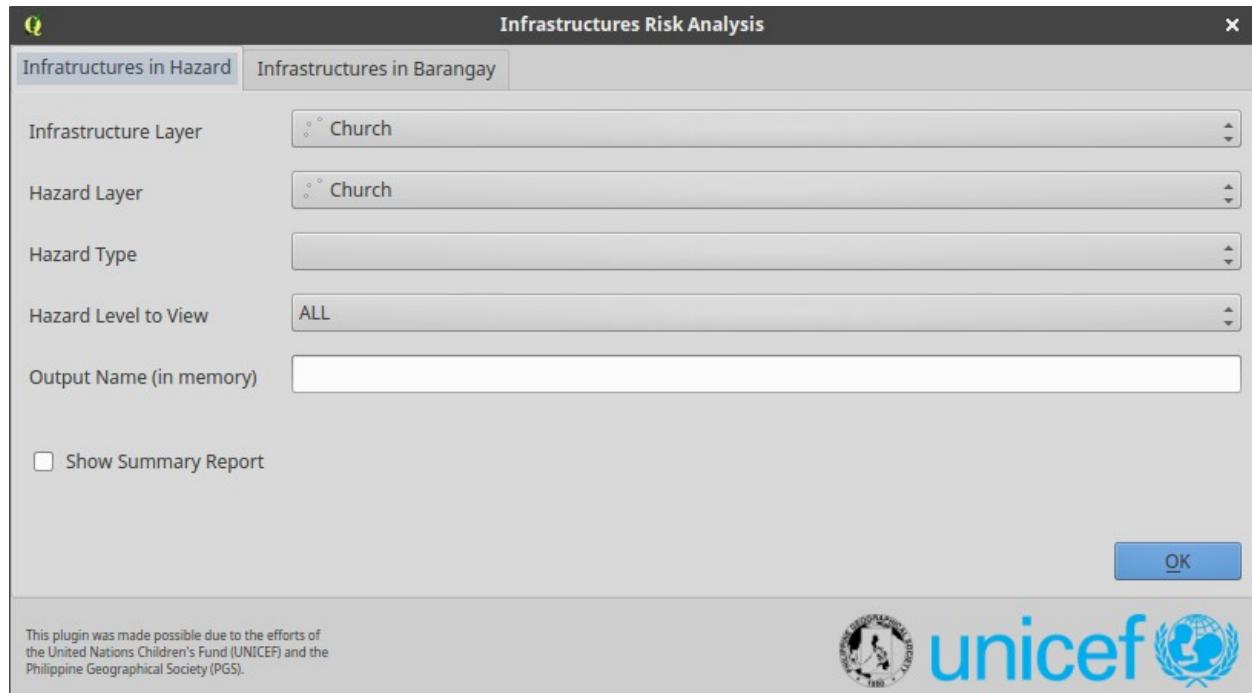
It also allows the user to summarize the number of Infrastructures in hazard within a barangay.

## Layer Inputs

- Infrastructure layer
  - The layer representing the infrastructures. Can be Points, Lines, or Polygons.
- Hazard layer
  - A vector file of the hazard (e.g. Fire, Flood, Landslide, etc.) with values corresponding to the Hazard-level (i.e. Low, Medium, High).
- Administrative boundaries layer
  - A polygon vector file of the administrative boundaries.

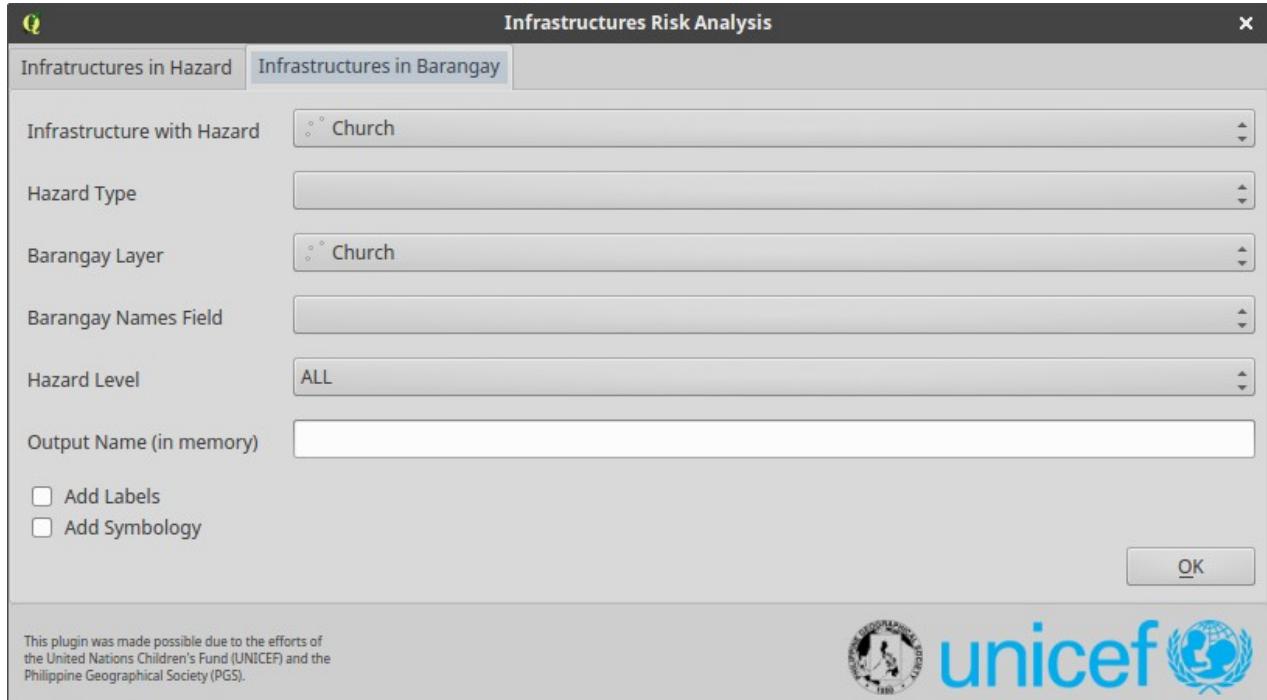
## Parts of the Tool

### Infrastructures in Hazard



1. **Infrastructure Layer** – Select the vector layer representing the infrastructures.
2. **Hazard Layer** – Select the Hazard layer.
3. **Hazard Type** – Select the Hazard type (field) in the Hazard layer.
4. **Output name** – The name of the output map.
5. **Show Summary Report** – Select to show the summary report.

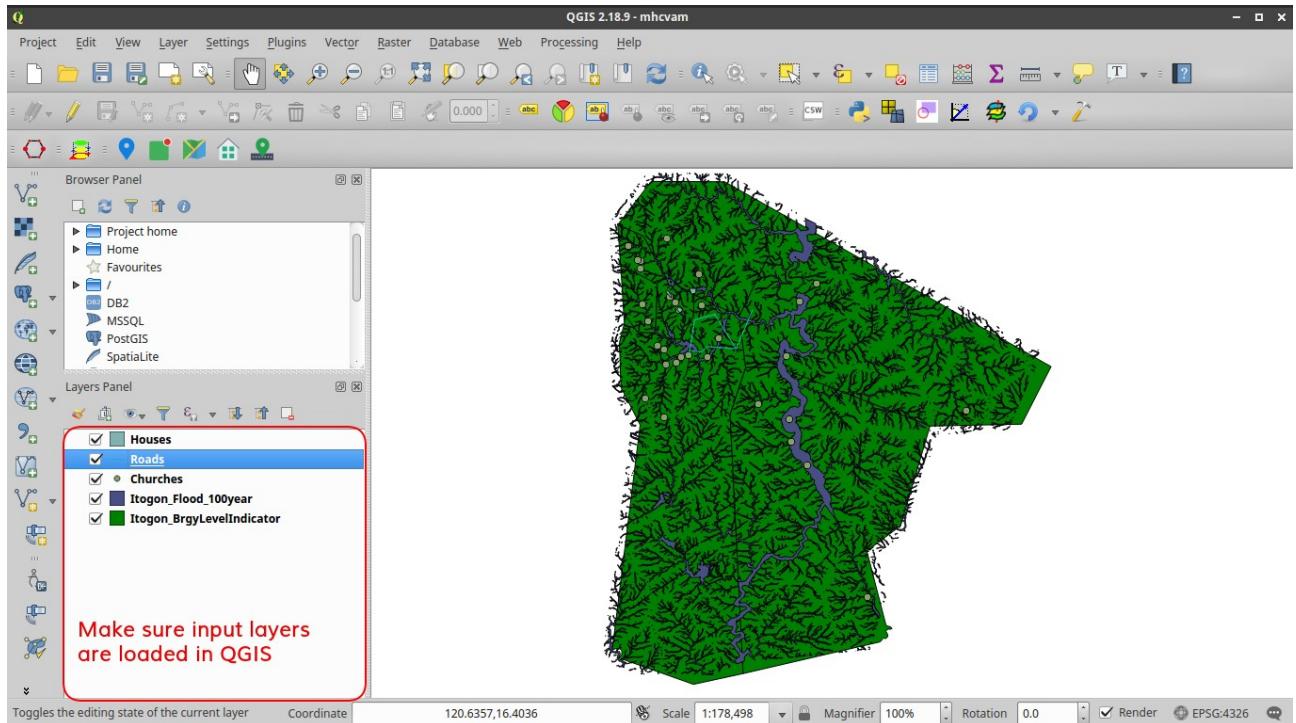
## Infrastructures in Barangay



1. **Infrastructure with Hazard Layer** – Select the Infrastructure with Hazard Layer (the result of the Infrastructure in Hazard tool).
2. **Hazard Type** – Select the Hazard type.
3. **Barangay Layer** – Select the barangay layer holding the barangay boundaries.
4. **Barangay Names Field** – Select the barangay names field.
5. **Hazard Level** – Select the Hazard Level to include.
6. **Output name** – The output name of the result.
7. **Add Labels** – Add labels to the output map.
8. **Add Symbology** – Add symbology to the output map.
9. **OK** – Run the tool.

# Running the Tool

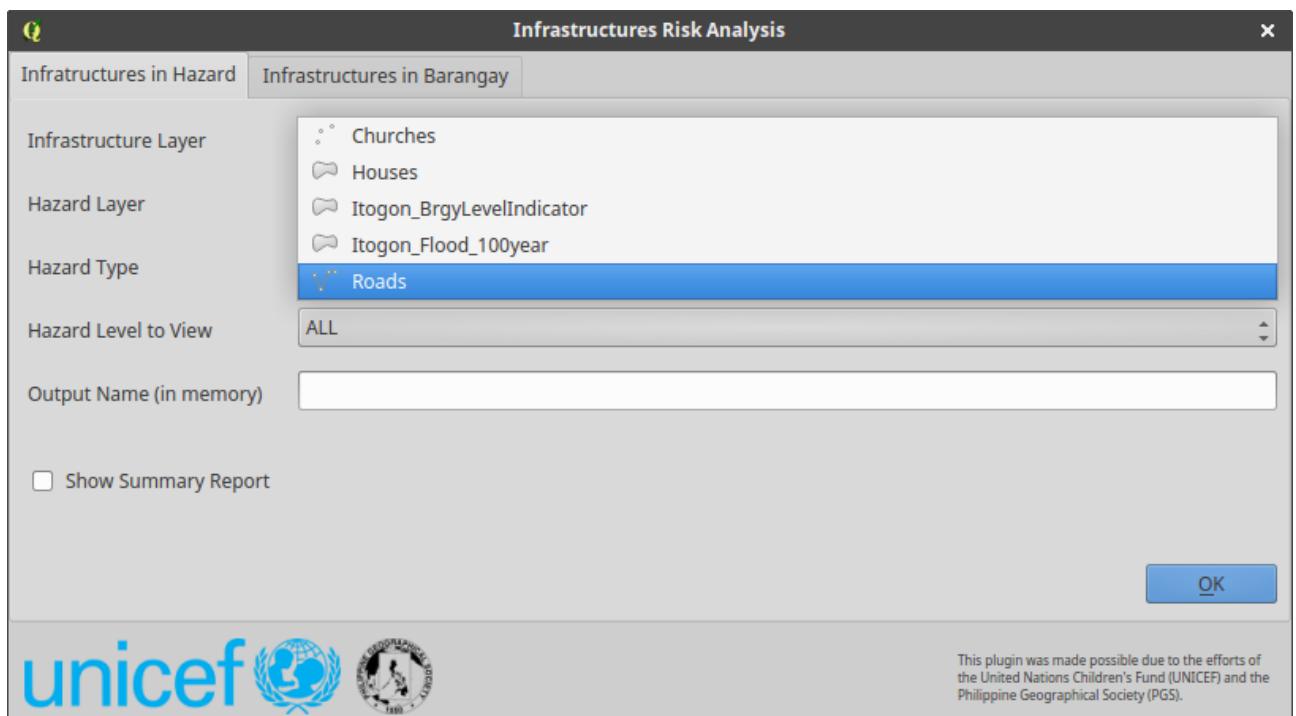
1. Make sure that your input layer/s are already loaded in QGIS (Check the Layers Panel).



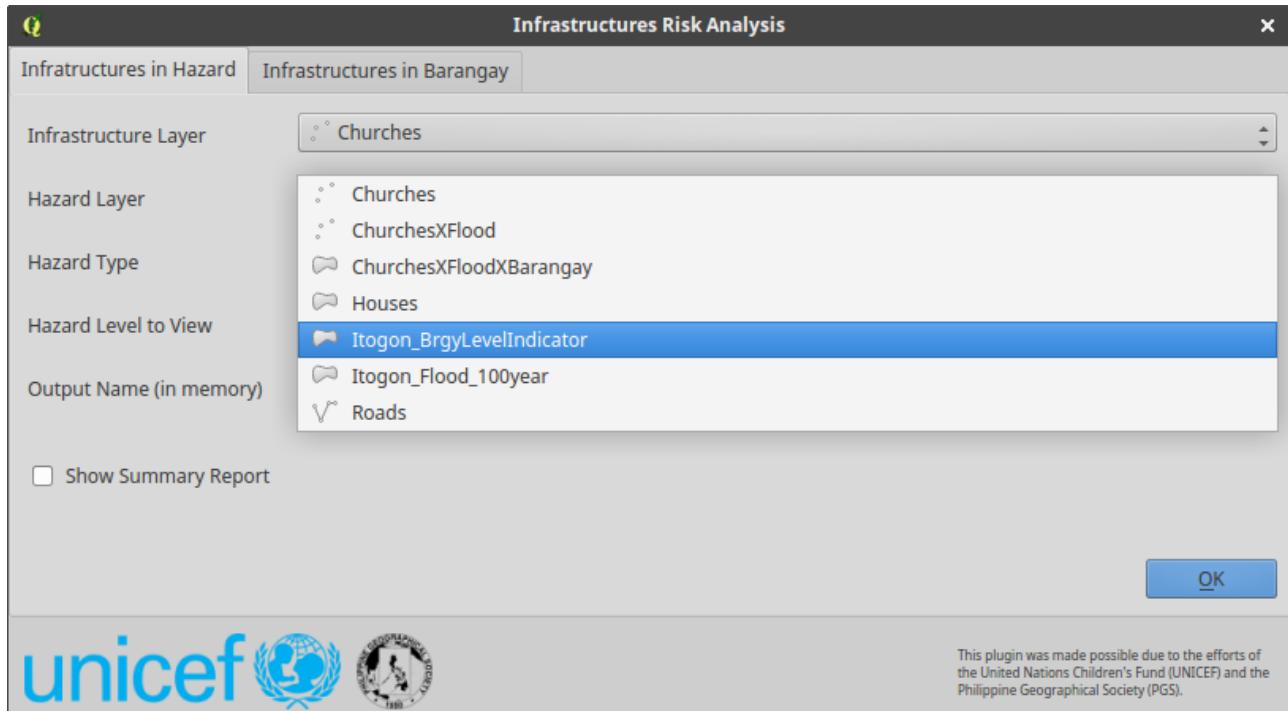
2. Run the plugin [ ] via the Menu bar: Plugins -> MHCVAM -> Infrastructures Hazard Analysis or the MHCVAM Toolbar.

## Infrastructures in Hazard

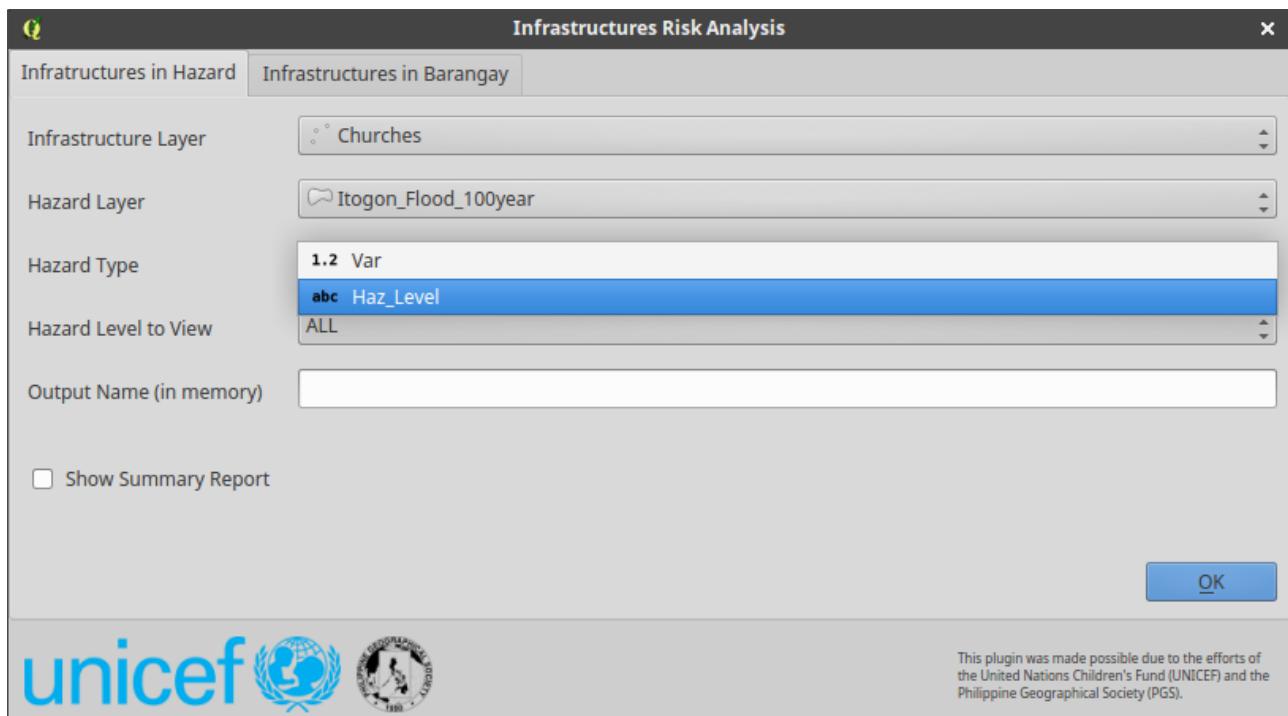
1. Select the Infrastructure layer.



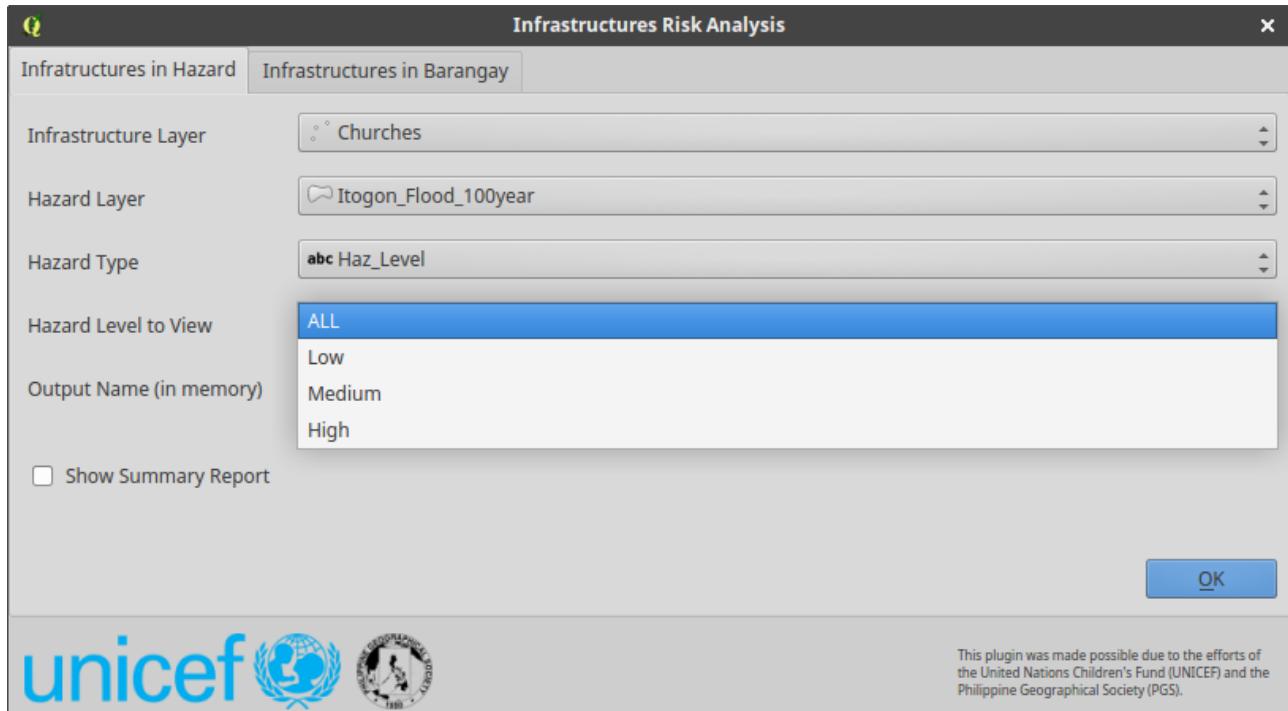
2. Select the Hazard layer.



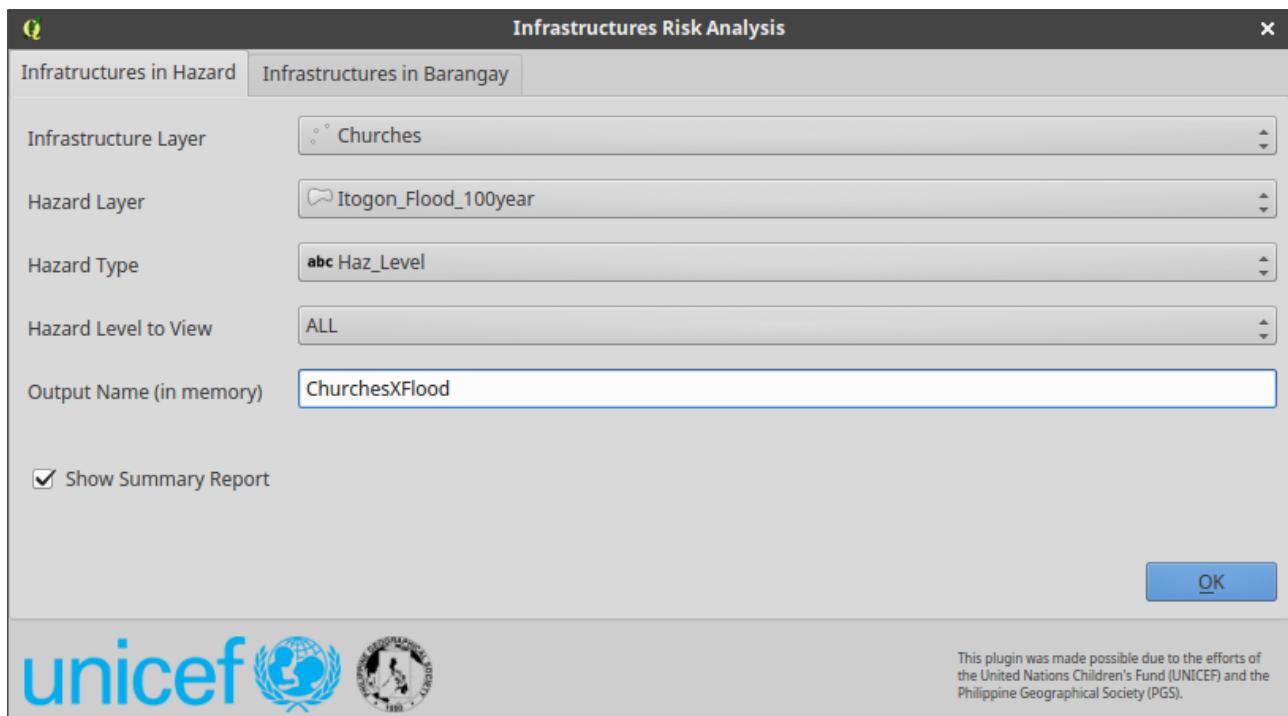
3. Select the Hazard type.



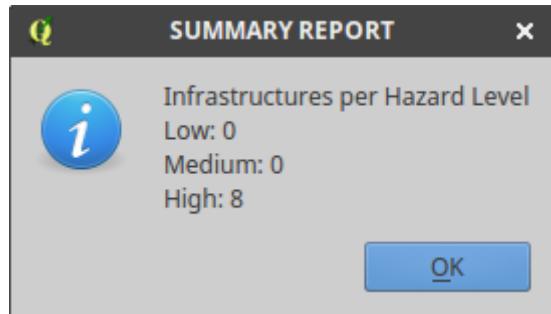
4. Select the Hazard level to view.



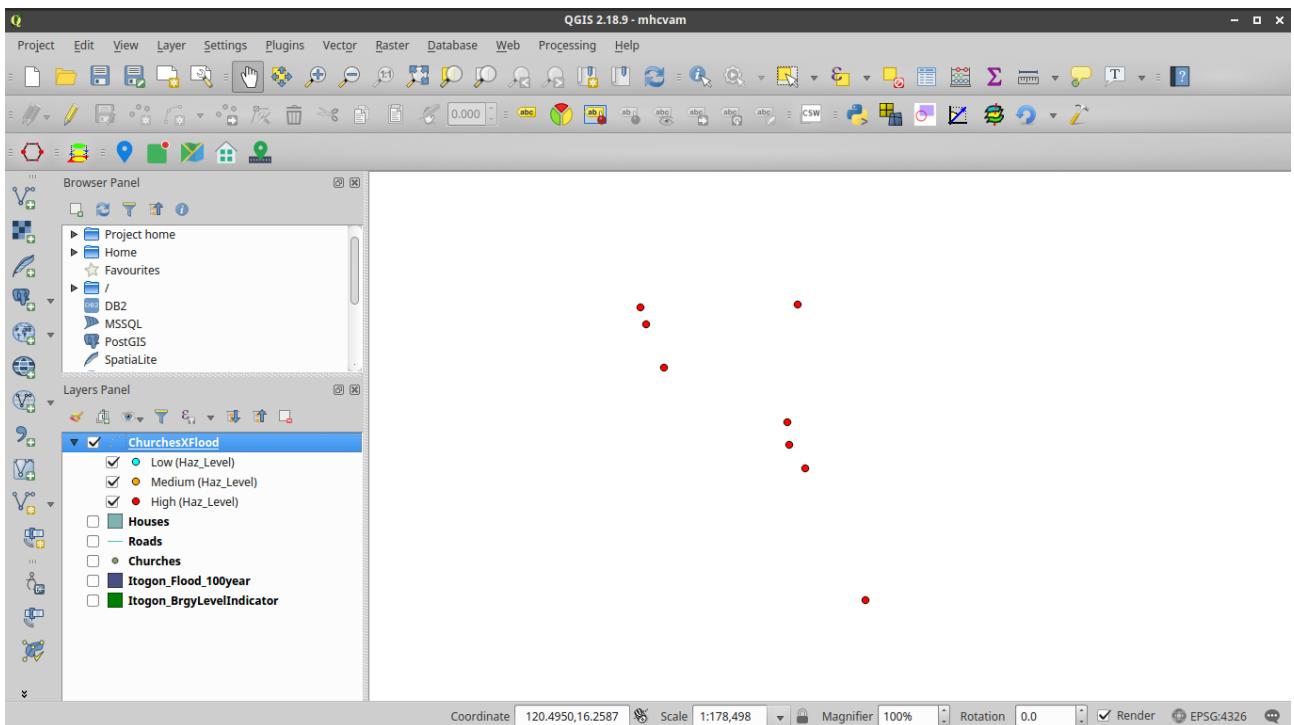
5. Enter output name.



6. If Show Summary Report is selected, the following will be shown:



The output map should look like the one below:

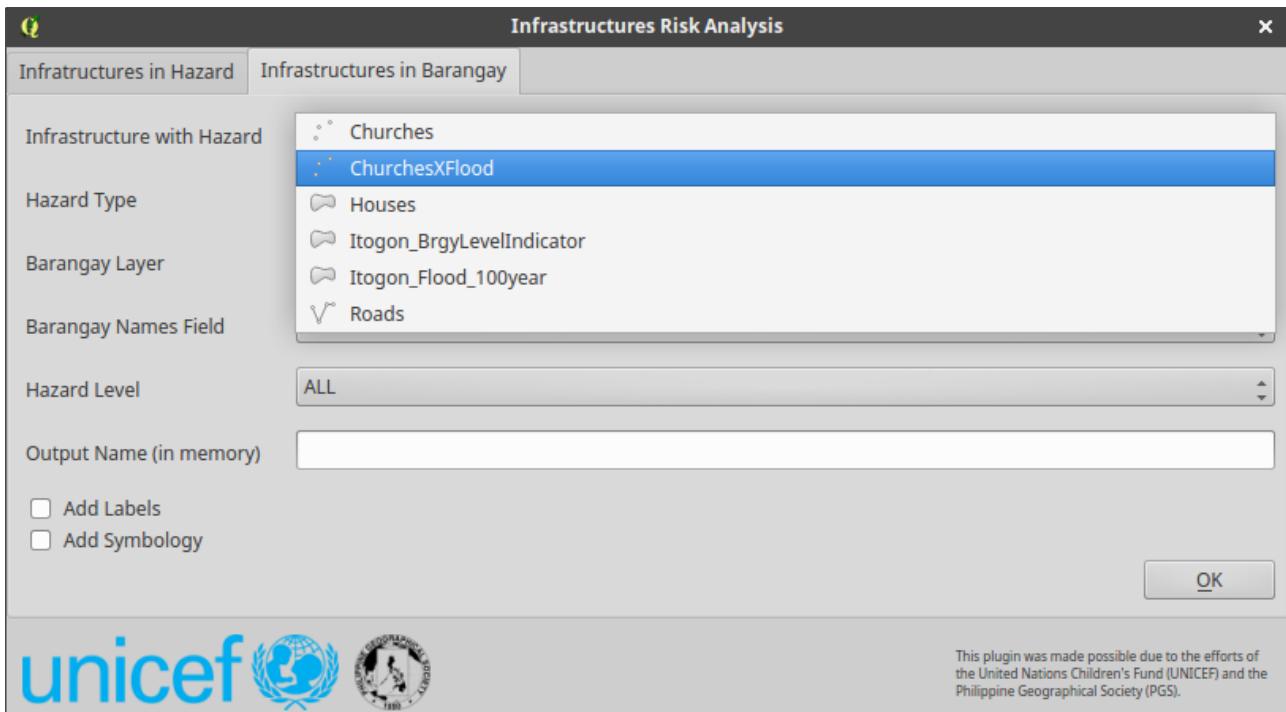


**IMPORTANT:** Points and Polygons will be tagged as in the hazard if they “touch” the hazard layer. Lines will be clipped and only those that are “in” the hazard will be tagged.

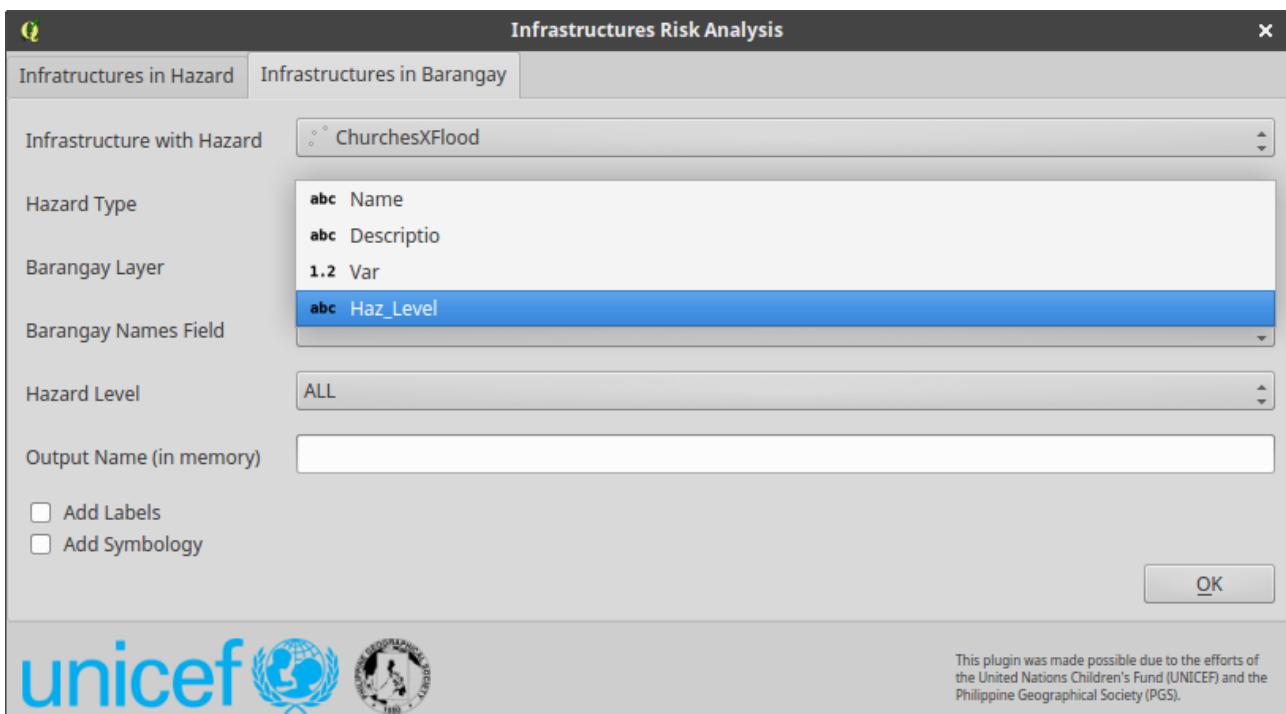
Make sure that there are no topological errors in the vector layers.

## Infratructures in Barangay

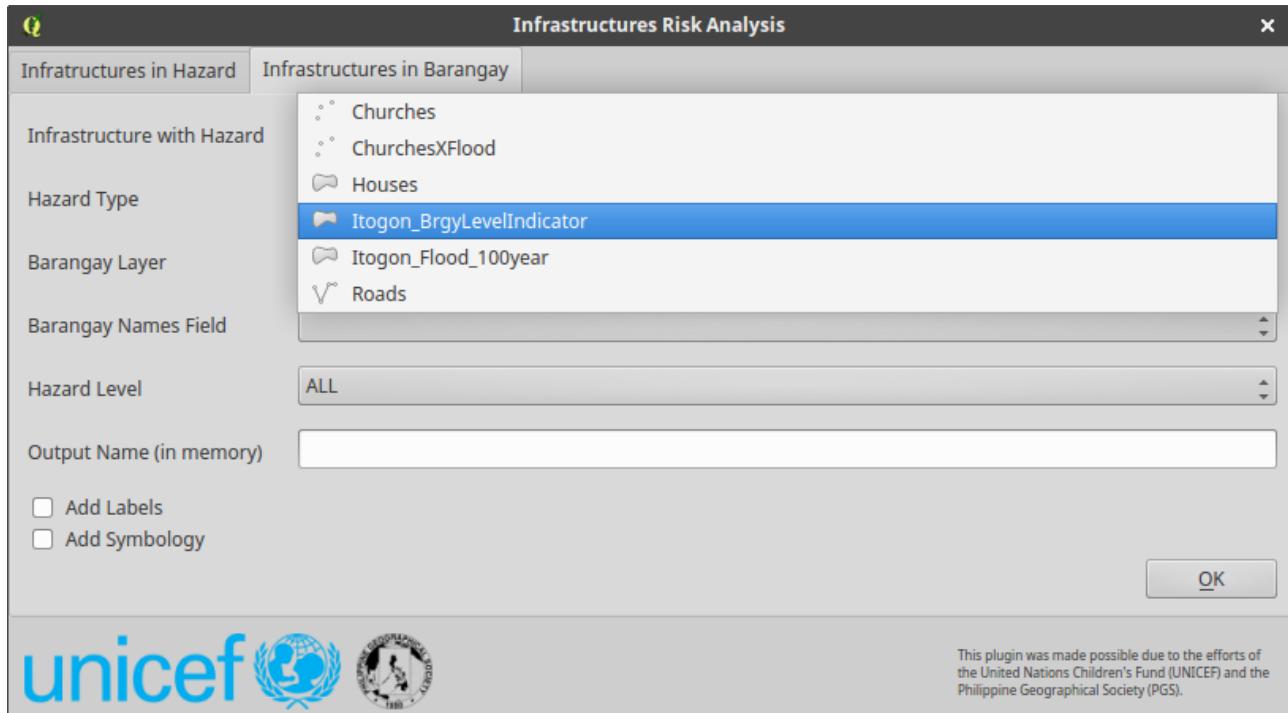
1. Select the Infrastructures in Hazard layer (the output of the Infrastructure in Hazard tool).



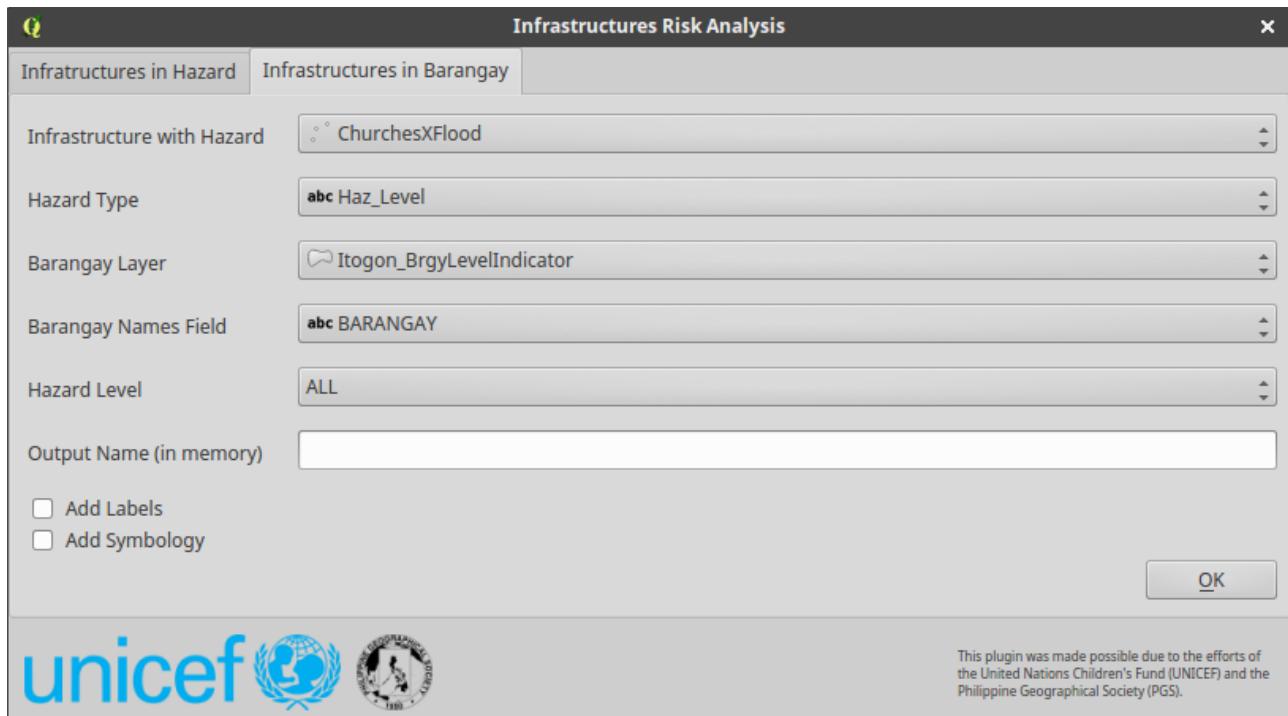
2. Select the Hazard type.



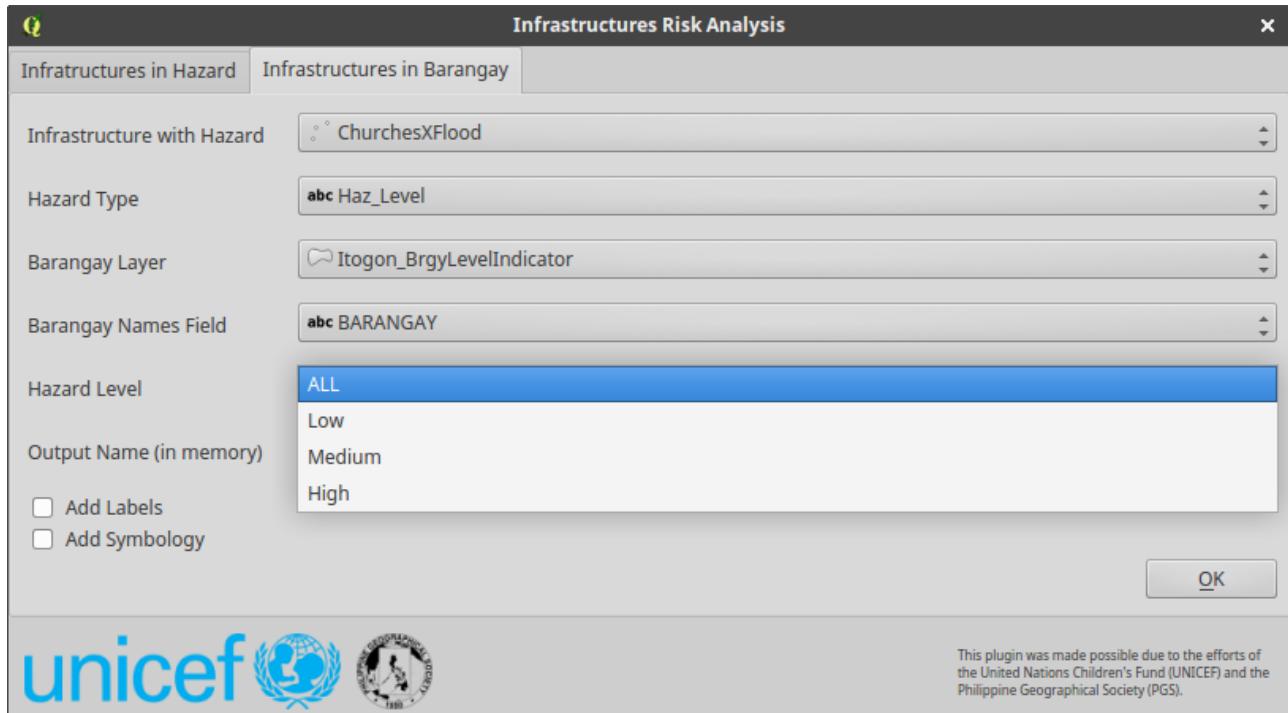
3. Select the Barangay layer.



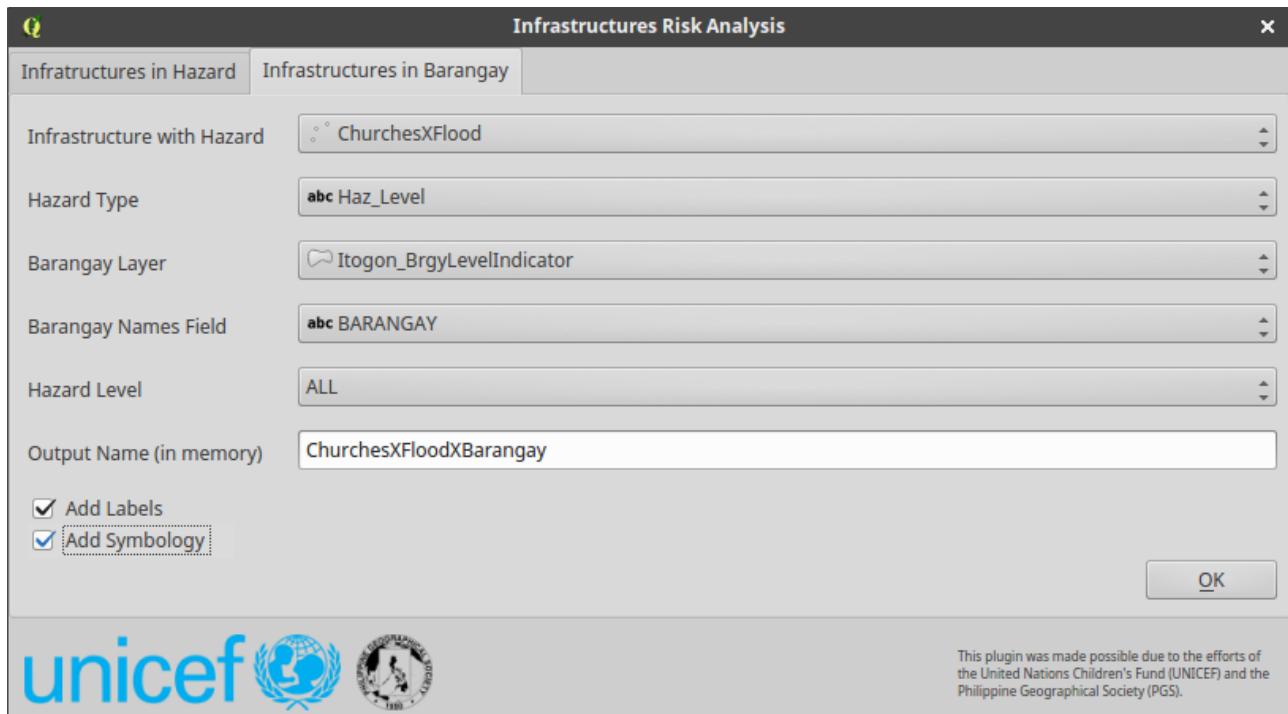
4. Select the Barangay name field.



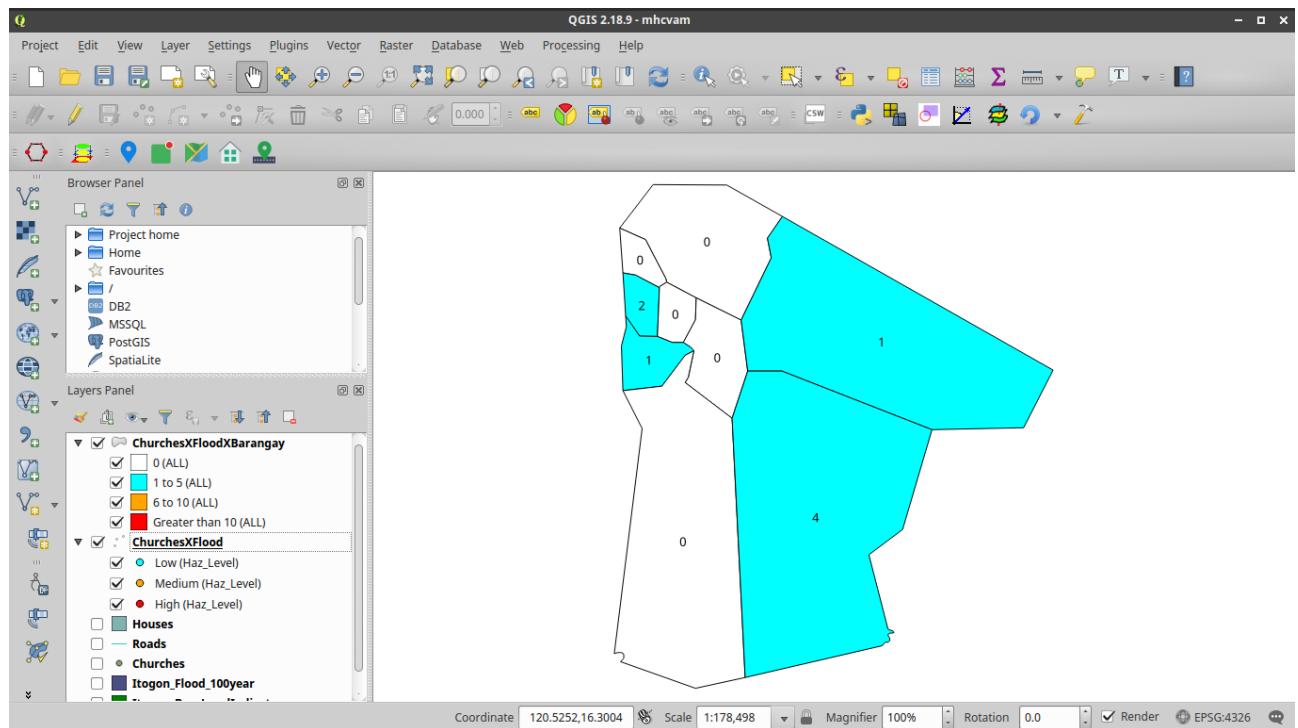
5. Select the Hazard level to count.



6. Enter the output name and add Labels and/or Symbology.



The output layer should look like:



# The .csv files for Indicators

The indicators used by the plugin are saved in .csv files located with the main source code. You can edit these files to remove or add indicators to be used by the different tools of the plugin.

There are four (4) .csv files corresponding to the 4 tools used by the plugin. These are:

1. indicators\_unicef\_barangay.csv
2. indicators\_unicef\_household.csv
3. indicators\_barangay.csv
4. indicators\_household.csv

On Windows these can be found in: C:\Users\<your username>\qgis2\python\plugins\

On Linux, they can be found in: ~/qgis2/python/plugins/

You can use a spreadsheet application (LibreOffice Calc, Microsoft Excel, etc) or a text editor to open the files. Using a spreadsheet application is recommended.

INDICATOR_CODE	INDICATOR_NAME	AGENCY	CATEGORY	LOW_LOWER	LOW_UPPER	MEDIUM_LOWER	MEDIUM_UPPER	HIGH_LOWER	HIGH_UPPER
BRGY_E_1_1	Total Male Population per barangay	UNICEF	Exposure						
BRGY_E_1_2	Total Female Population per barangay	UNICEF	Exposure						
BRGY_E_2_1	Total population (under 18-years-old) per barangay	UNICEF	Exposure						
BRGY_E_2_2	Total population (0-6 months old) per barangay	UNICEF	Exposure						
BRGY_E_2_3	Total population (0-12 months old) per barangay	UNICEF	Exposure						
BRGY_E_2_4	Total population (under 5-years-old) per barangay	UNICEF	Exposure						
BRGY_E_2_5	Total population (3-4 years old) per barangay	UNICEF	Exposure						
BRGY_E_2_6	Total population (5-years-old) per barangay	UNICEF	Exposure						
BRGY_E_2_7	Total population (6-11 years old) per barangay	UNICEF	Exposure						
BRGY_E_2_8	Total population (12-17 years old) per barangay	UNICEF	Exposure						
BRGY_E_3	Percentage of barangay population that are indigenous people	UNICEF	Exposure						
BRGY_E_4_1	Structured Neighborhood Play (SNP)	UNICEF	Exposure						
BRGY_E_4_2	Day Care Center	UNICEF	Exposure						
BRGY_E_4_3	Elementary School	UNICEF	Exposure						
BRGY_E_4_4	High School	UNICEF	Exposure						
BRGY_E_4_5	Tertiary/College/University	UNICEF	Exposure						
BRGY_E_5	All infrastructure designated as an evacuation center	UNICEF	Exposure						
BRGY_E_6_1	Rural Health Units	UNICEF	Exposure						
BRGY_E_6_2	Barangay Health Station	UNICEF	Exposure						
BRGY_E_6_3	Birthing Clinic	UNICEF	Exposure						
BRGY_E_6_4	Public Hospital	UNICEF	Exposure						
BRGY_E_6_5	Private Hospital	UNICEF	Exposure						
BRGY_E_6_6	Private Clinic	UNICEF	Exposure						
BRGY_E_7	Police Station or Precinct	UNICEF	Exposure						
BRGY_E_8	Airports, seaports, bus terminals	UNICEF	Exposure						
BRGY_V_1	Measles immunisation coverage rate per barangay	UNICEF	Vulnerability	0.95	1	0.81	0.9499	0	0.8099
BRGY_V_2	Fully immunised child coverage rate	UNICEF	Vulnerability	0.95	1	0.81	0.9499	0	0.8099
BRGY_V_3	Combined immunisation coverage rate per barangay	UNICEF	Vulnerability	0.95	1	0.81	0.9499	0	0.8099

## Headers

Below are the headers used in the .csv files and what they correspond to.

HEADER NAME	MEANING
INDICATOR_CODE	The corresponding FIELD NAME of the indicator in the shapefiles used by the plugin. (Maximum of 10 characters)
INDICATOR_NAME	The "long name" or description of the indicator. This is the name shown in the plugin when selecting indicators.
AGENCY	The agency that provides the indicator (e.g. MHO, LGU, etc.).
CATEGORY	The category of the indicator (e.g. Exposure, Vulnerability, Capacity, Others).
LOW_LOWER	The lower limit (number) for "Low" hazards (if applicable)
LOW_UPPER	The upper limit (number) for "Low" hazards (if applicable)

MEDIUM_LOWER	The lower limit (number) for “Medium” hazards (if applicable)
MEDIUM_UPPER	The upper limit (number) for “Medium” hazards (if applicable)
HIGH_LOWER	The lower limit (number) for “High” hazards (if applicable)
HIGH_UPPER	The upper limit (number) for “High” hazards (if applicable)

## indicators\_unicef\_barangay.csv

This is the file that holds the indicators used by the [MHCVAM usimg Child-centered Indicators \(BARANGAY\)](#) tool.

To add a new indicator, open the .csv file (using a spreadsheet application is recommended). Add a new row by filling up the columns of the file. The INDICATOR CODE, INDICATOR NAME, AGENCY, and CATEGORY columns are **required**. You can leave the LOW\_LOWER, LOW\_UPPER, MEDIUM\_LOWER, MEDIUM\_UPPER, HIGH\_LOWER, and HIGH\_UPPER columns blank. Save the file.

To remove an indicator, just remove the row of the indicator (i.e. using **Delete Row** in your spreadsheet application). Save the file.

## indicators\_unicef\_household.csv

This is the file that holds the indicators used by the [MHCVAM usimg Child-centered Indicators \(HOUSEHOLD\)](#) tool.

To add a new indicator, open the .csv file (using a spreadsheet application is recommended). Add a new row by filling up the columns of the file. The INDICATOR CODE, INDICATOR NAME, AGENCY, and CATEGORY columns are **required**. Save the file.

To remove an indicator, just remove the row of the indicator (i.e. using **Delete Row** in your spreadsheet application). Save the file.

## indicators\_barangay.csv

This is the file that holds the indicators used by the [Barangay-level Hazard and Vulnerability Analysis](#) tool.

To add a new indicator, open the .csv file (using a spreadsheet application is recommended). Add a new row by filling up the columns of the file. The INDICATOR CODE, INDICATOR NAME, AGENCY, and CATEGORY columns are **required**. You can leave the LOW\_LOWER, LOW\_UPPER, MEDIUM\_LOWER, MEDIUM\_UPPER, HIGH\_LOWER, and HIGH\_UPPER columns blank. Save the file.

To remove an indicator, just remove the row of the indicator (i.e. using **Delete Row** in your spreadsheet application). Save the file.

## indicators\_household.csv

This is the file that holds the indicators used by the [Household-level Hazard and Vulnerability Analysis](#) tool.

To add a new indicator, open the .csv file (using a spreadsheet application is recommended). Add a new row by filling up the columns of the file. The INDICATOR CODE, INDICATOR NAME, AGENCY, and CATEGORY columns are **required**. Save the file.

To remove an indicator, just remove the row of the indicator (i.e. using **Delete Row** in your spreadsheet application). Save the file.

## Add New Indicator to the csv

Add a new indicator by adding a new row in the .csv file.

The screenshot shows a LibreOffice Calc spreadsheet titled "indicators\_unicef\_barangay.csv". The data starts at row 35 and ends at row 56. A new row, row 57, has been added with the following content:

	A	B	C	D	E	F	G	H	I	J
35	BRGY_V_8	Percentage of 6-11 years old not enrolled in school per barangay	UNICEF	Vulnerability	0	0.055			0.05501	1
36	BRGY_V_9	Percentage of 12-17 years old not enrolled in school per barangay	UNICEF	Vulnerability	0	0.138			0.13801	1
37	BRGY_V_10	Dropout rate by secondary schools per barangay	UNICEF	Vulnerability	0	0.0782			0.078201	1
38	BRGY_V_11	Dropout rate by elementary schools per barangay	UNICEF	Vulnerability	0	0.0638			0.063801	1
39	BRGY_V_12	Number of child labour cases per barangay	UNICEF	Vulnerability	0	15	16	25	26	9999999
40	BRGY_C_13	Percentage of children under 18 years old with disabilities per barangay	UNICEF	Vulnerability	0	0.1	0.1001	0.15	0.1501	1
41	BRGY_V_13_2	Percentage of adults aged 18-59 years old with disabilities per barangay	UNICEF	Vulnerability	0	0.1	0.1001	0.15	0.1501	1
42	BRGY_C_14_3	Percentage of senior citizens aged 60 years old and above per barangay	UNICEF	Vulnerability	0	0.1	0.1001	0.15	0.1501	1
43	BRGY_V_15	Percentage of households in barangay with incomes below per barangay	UNICEF	Vulnerability	0	0.15	0.1501	0.25	0.2501	1
44	BRGY_C_1	Barangays with organized and trained DRRM teams	UNICEF	Capacity	0	0	1	1	2	2
45	BRGY_C_2	Barangays with a community-managed Early Warning System	UNICEF	Capacity						
46	BRGY_C_3	Barangays that have done risk assessment and drafter their EWS	UNICEF	Capacity						
47	BRGY_C_4	Barangays that have evacuation plans and done emergency drill	UNICEF	Capacity						
48	BRGY_C_5	Barangays that have Civil Society Organizations (CSO), Non-Govt Orgs	UNICEF	Capacity						
49	BRGY_C_6	Schools with updated preparedness plans as part of School IP	UNICEF	Capacity						
50	BRGY_C_7	Schools that have evacuation plans and done emergency drill	UNICEF	Capacity						
51	BRGY_C_8	Barangays with organised and trained Infant and Young Feeding	UNICEF	Capacity						
52	BRGY_C_9	Barangays with functional out-patient therapeutic centers for children	UNICEF	Capacity						
53	BRGY_C_10	Barangays with functional Community Health Teams (CHT)	UNICEF	Capacity						
54	BRGY_C_11	Barangays with organised WASH committees and contingencies	UNICEF	Capacity						
55	BRGY_C_12	Barangays with functional Barangay Council for the Protection of Children	UNICEF	Capacity						
56	BRGY_C_13	Barangays with operational referral system for incidence of child abuse	UNICEF	Capacity						
57	ADD_NEW_INDICATOR	by adding a new row				cutoff	values	are	optional	

## Remove an Indicator from the csv

Remove an indicator by completely deleting the contents of a row.

The screenshot shows a LibreOffice Calc spreadsheet titled "indicators\_unicef\_barangay.csv". The data starts at row 35 and ends at row 56. A new row, row 57, was added in the previous section. A context menu is open over the cell A57, which contains the text "ADD\_NEW\_INDICATOR". The menu options include:

- Cut
- Copy
- Paste
- Paste Special...
- Insert Rows Above
- Insert Rows Below
- Delete Rows
- Clear Contents... BackSpace
- Format Cells...
- Row Height...
- Optimal Height...
- Hide Rows
- Show Rows

The "Delete Rows" option is highlighted with a red box. The rest of the spreadsheet content is identical to the one shown in the previous screenshot.

## Indicator Codes

The indicator codes are used to connect the content of the csv files with the fields of the input shapefiles. They serve as the field names of the shapefiles used by the plugin. As such they must not exceed 10 characters.

Below are the Indicator Codes and their corresponding Indicator Names:

## Barangay-level Indicators

### Other Category

BARANGAY Barangay Name/Number

### Exposure Category

BRGY_E_1_1	Total Male Population per barangay
BRGY_E_1_2	Total Female Population per barangay
BRGY_E_2_1	Total population (under 18-years-old) per barangay
BRGY_E_2_2	Total population (0-6 months old) per barangay
BRGY_E_2_3	Total population (0-12 months old) per barangay
BRGY_E_2_4	Total population (under 5-years-old) per barangay
BRGY_E_2_5	Total population (3-4 years old) per barangay
BRGY_E_2_6	Total population (5-years-old) per barangay
BRGY_E_2_7	Total population (6-11 years old) per barangay
BRGY_E_2_8	Total population (12-17 years old) per barangay
BRGY_E_3	Percentage of barangay population that are indigenous people
BRGY_E_4_1	Structured Neighborhood Play (SNP)
BRGY_E_4_2	Day Care Center
BRGY_E_4_3	Elementary School
BRGY_E_4_4	High School
BRGY_E_4_5	Tertiary/College/University
BRGY_E_5	All infrastructure designated as an evacuation center
BRGY_E_6_1	Rural Health Units
BRGY_E_6_2	Barangay Health Station
BRGY_E_6_3	Birthing Clinic
BRGY_E_6_4	Public Hospital
BRGY_E_6_5	Private Hospital
BRGY_E_6_6	Private Clinic
BRGY_E_7	Police Station or Precinct
BRGY_E_8	Airports, seaports, bus terminals

### Vulnerability Category

BRGY_V_1	Measles immunisation coverage rate per barangay
BRGY_V_2	Fully immunised child coverage rate
BRGY_V_3	Combined prevalence of moderate and severe wasting in children 0-59 years old
BRGY_V_4	Percentage of households in the barangay with unimproved main source of water supply (dug well, unprotected spring, lakes, rivers, rain)
BRGY_V_5	Percentage of households in the barangay using unsanitary toilet facilities and practices (closed/open pit, open defecation)
BRGY_V_6	Percentage of 3-4 years old who are not in school per barangay
BRGY_V_7	Percentage of 5 years old not enrolled in kinder per barangay
BRGY_V_8	Percentage of 6-11 years old not enrolled in school per barangay
BRGY_V_9	Percentage of 12-17 years old not enrolled in school per barangay
BRGY_V_10	Dropout rate by secondary schools per barangay
BRGY_V_11	Dropout rate by elementary schools per barangay
BRGY_V_12	Number of child labour cases per barangay
BRGY_V_13_1	Percentage of children under 18 years old with disabilities per barangay
BRGY_V_13_2	Percentage of adults aged 18-59 years old with disabilities per barangay
BRGY_V_14_3	Percentage of senior citizens aged 60 years old and above with disabilities per barangay
BRGY_V_15	Percentage of households in barangay with incomes below poverty threshold

### **Capacity Category**

<b>BRGY_C_1</b>	Barangays with organized and trained DRRM teams
<b>BRGY_C_2</b>	Barangays with a community-managed Early Warning System in place
<b>BRGY_C_3</b>	Barangays that have done risk assessment and drafter their DRRM Plans
<b>BRGY_C_4</b>	Barangays that have evacuation plans and done emergency drills as part of preparedness
<b>BRGY_C_5</b>	Barangays that have Civil Society Organizations (CSO), Non-Government Organizations (NGO), People's Organization and Community-Based Organizations (CBO) involved in DRR Work
<b>BRGY_C_6</b>	Schools with updated preparedness plans as part of School Improvement Plan (SIP)
<b>BRGY_C_7</b>	Schools that have evacuation plans and done emergency drills during the year
<b>BRGY_C_8</b>	Barangays with organised and trained Infant and Young Feeding (IYCF) counsellors
<b>BRGY_C_9</b>	Barangays with functional out-patient therapeutic centers for MAM (wasted) and SAM (severely wasted)
<b>BRGY_C_10</b>	Barangays with functional Community Health Teams (CHT)
<b>BRGY_C_11</b>	Barangays with organised WASH committees and contingency plans
<b>BRGY_C_12</b>	Barangays with functional Barangay Council for the Protection of Children (BCPC)
<b>BRGY_C_13</b>	Barangays with operational referral system for incidence of child abuse

### **Household-level Indicators**

#### **Others Category**

<b>BRGY_HH_ID</b>	Barangay and Household ID
<b>BARANGAY</b>	Barangay Number
<b>HOUSEHOLD</b>	Household Control Number
<b>STREET</b>	Street Name
<b>RESPONDENT</b>	Name of Respondent
<b>LONGITUDE</b>	Longitude of household
<b>LATITUDE</b>	Latitude of household
<b>RISK</b>	The risk of the household as computed in the UNICEF Household-level indicators Tool
<b>Haz_Level</b>	The hazard level resulting from the Household Hazard Vulnerability and Analysis Select Tool

#### **Exposure Category**

<b>HH_E_1_1</b>	Household with 0 to 6 months old
<b>HH_E_1_2</b>	Household with 0 to 12 months old
<b>HH_E_1_3</b>	Household with under 5 years old
<b>HH_E_1_4</b>	Household with 3 to 4 years old
<b>HH_E_1_5</b>	Household with 5 years old
<b>HH_E_1_6</b>	Household with 6 to 11 years old
<b>HH_E_1_7</b>	Household with 12 to 17 years old
<b>HH_E_2</b>	Household type of construction materials used on the outer walls of the house
<b>HH_E_3</b>	Household who are 4Ps (Conditional Cash Transfer) recipients
<b>HH_E_4</b>	Household who are Indigenous Peoples (ethnicity)

#### **Vulnerability Category**

<b>HH_V_1</b>	Household with 12 month old not fully immunized
<b>HH_V_3</b>	Household with 0 to 59 months old
<b>HH_V_2</b>	Household with under 2 years old who have not received at least one dose of measles immunisation
<b>HH_V_4</b>	Household with pregnant women
<b>HH_V_5</b>	Household with lactating women
<b>HH_V_6</b>	Household by access to source of safe water supply
<b>HH_V_7</b>	Household by type of toilet facility
<b>HH_V_8</b>	Household with 3 to 4 years old not enrolled in pre-school education
<b>HH_V_9</b>	Household with 5 years old not enrolled in kinder education
<b>HH_V_10</b>	Household with 6 to 11 years old not in school
<b>HH_V_11</b>	Household with 12 to 17 years old not in school
<b>HH_V_12</b>	Household with no member who reached high school level

<b>HH_V_13</b>	Household with child/children whose birth has not been registered with the civil registry office
<b>HH_V_14_1</b>	Household with PWD (children - under 18 years old)
<b>HH_V_14_2</b>	Household with PWD (adult - 18 to 59 years old)
<b>HH_V_14_3</b>	Household with PWD (senior - 60 years old and above)
<b>HH_V_15</b>	Single-headed (solo parent) household by sex of head of the family
<b>HH_V_16</b>	Household who have experienced hunger or had nothing to eat during reporting period
<b>HH_V_17</b>	Household whose family income fall below the poverty threshold
<b>HH_V_18</b>	Household with no access to electricity

**Capacity Category**

<b>HH_C_1</b>	At least 1 household member with PhilHealth Insurance
<b>HH_C_2</b>	Household with at least 1 member who has participated in a learning session on emergency preparedness
<b>HH_C_3</b>	Household with at least 1 adult who has participated in a community DRR activity
<b>HH_C_4</b>	Household with disaster preparedness kit

Users can add new Indicator Codes as long as they do not exceed 10 characters in length. Also, make sure that the Indicator Codes correspond to the Field Names used in the shapefiles and vice versa.