

## Environmental Deterioration Evaluation plugin User's Guide

### 1. Provision of Global Map

#### (1) Download

Following site of the Geographical Survey Institute explains how to get Global Map.

[http://www.gsi.go.jp/kankyochiri/gm\\_data.html#gm\\_data](http://www.gsi.go.jp/kankyochiri/gm_data.html#gm_data)

International Steering Committee for Global Map (ISCGM) provides Global Map of each countries. Japanese Global Map can be also downloaded from the Geographical Survey Institute web site.

[http://www.gsi.go.jp/kankyochiri/gm\\_jpn.html](http://www.gsi.go.jp/kankyochiri/gm_jpn.html)

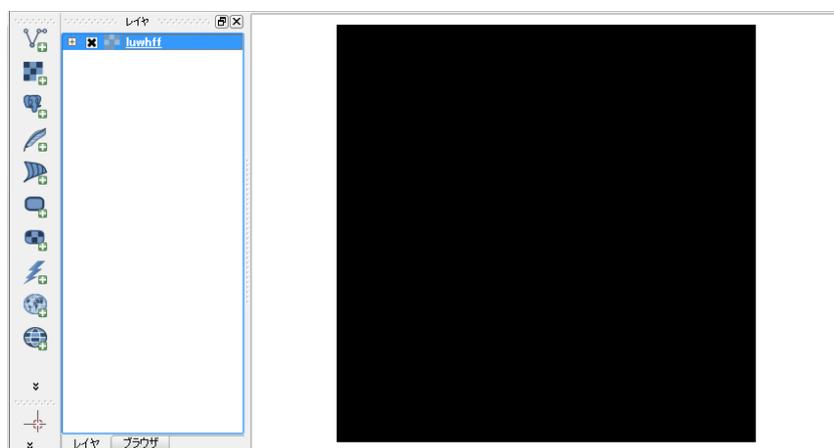
#### (2) Conversion of the data format

Global Map data is available in BIL, GML, JPG, Shape, TIFF, etc. In this guide, we will notify about the usage of BIL and GML format especially.

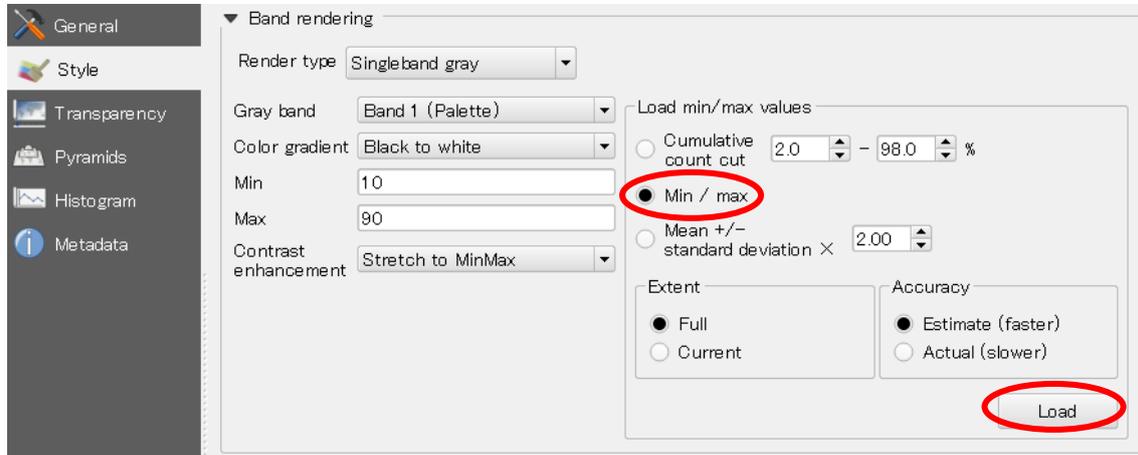
- BIL data

GDAL that are used for data conversion library of QGIS, supports BIL format. Therefore, you can add the BIL data as a raster layer by running the "Add Raster Layer" menu in QGIS.

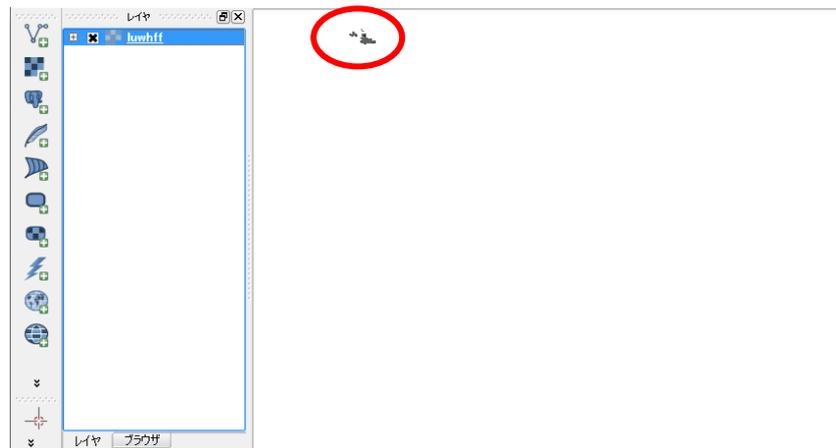
However, you should take care about area mostly covered by sea, such as Okinawa and Ogasawara Island in Japan. The default style settings of QGIS, the cumulative number of counts 2.0 - because only fit value to 98.0% of the range not been adopted, there is the image of one side in the following manner has been blacked out is displayed.



In such a case, please you can change the "load of minimum / maximum value" of the style set to "Min / Max" Click Load button.

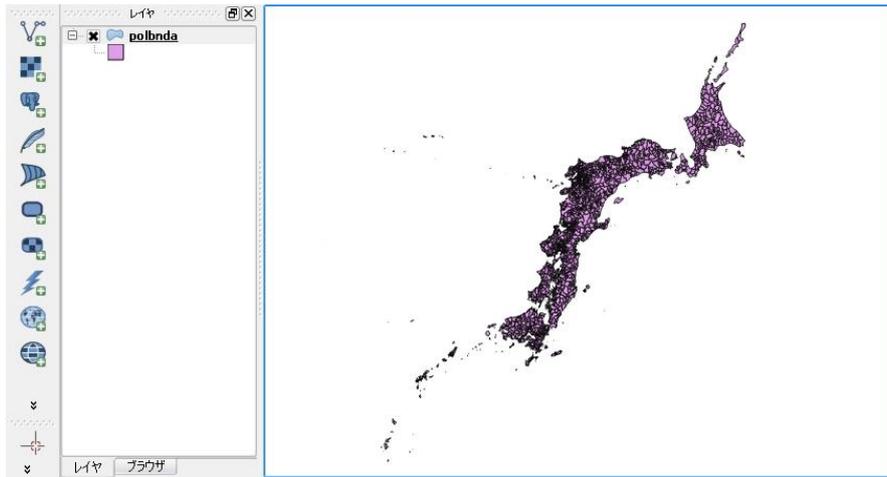


As a result, the low cell value of the ratio will also be displayed.



- GML

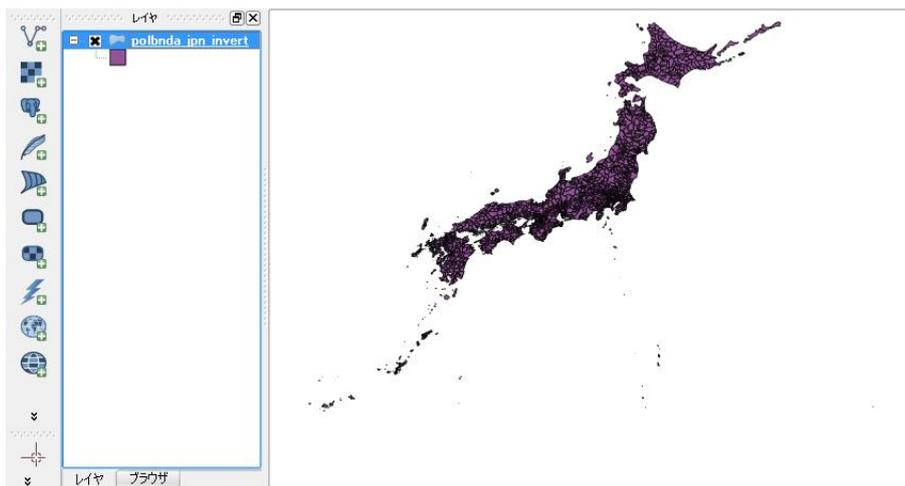
As it is load a GML from "Adding a vector layer" menu of QGIS, latitude and longitude it will appear inverted.



By using the config option of OGR, so that you to read in QGIS you can create the shape of the once normal latitude and longitude. OGR command to be executed is as follows.

```
> ogr2ogr -f "ESRI Shapefile" --config GML_INVERT_AXIS_ORDER_IF_LAT_LONG YES
--config GML_CONSIDER_EPSG_AS_URN YES outputfile (shp) inputfile (gml)
```

When you add the outputted shpefile as vector layers, you can see that the reversal of latitude and longitude is eliminated.



## 2. Installing plugin

### (1) Copy plugin source file

EnviromentalEvaluation folder should be copied in the QGIS plugin folder. Path of

QGIS plugin folder differs by OS.

- Windows

C:\Users\username\.qgis2\python\plugins

\* “*username*” indicates the login account.

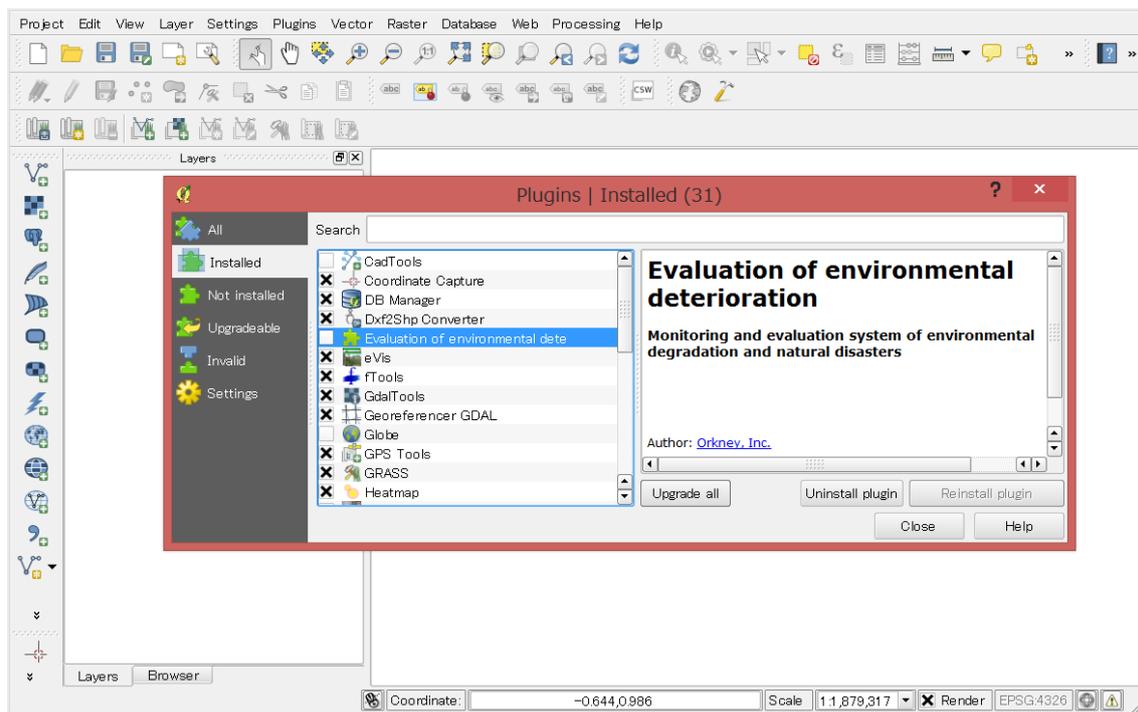
- Linux

\$HOME/.qgis2/python/plugins

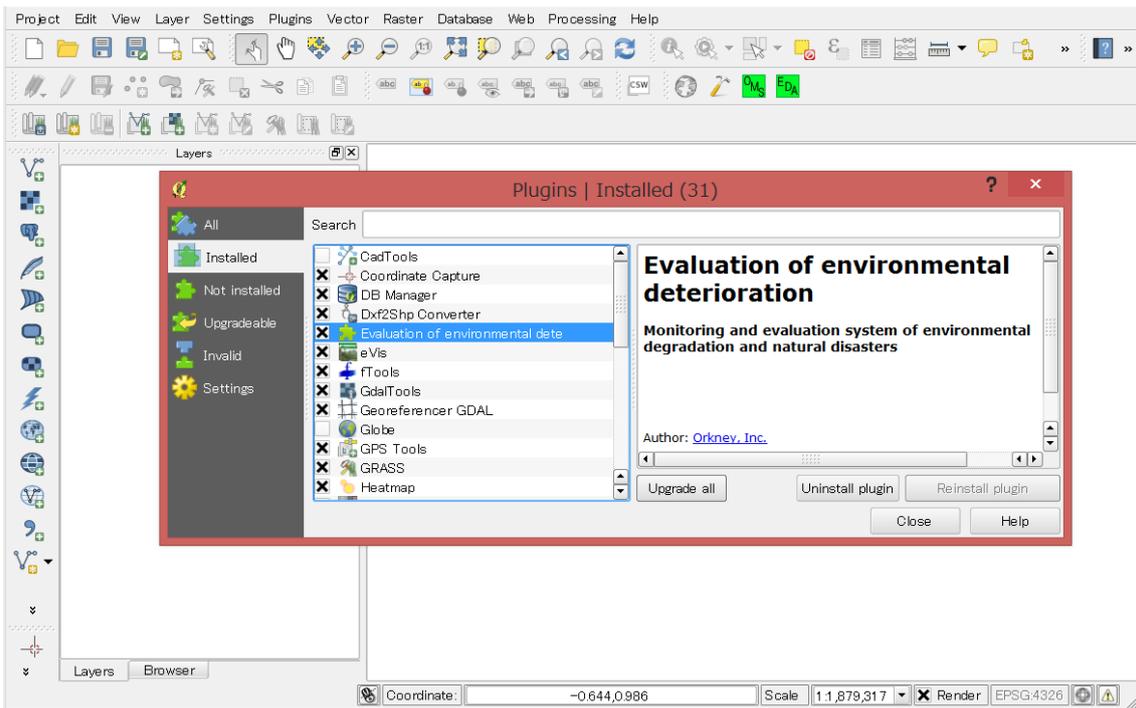
## (2) Registration

Evaluation of environmental deterioration plugin must be activated by the following steps.

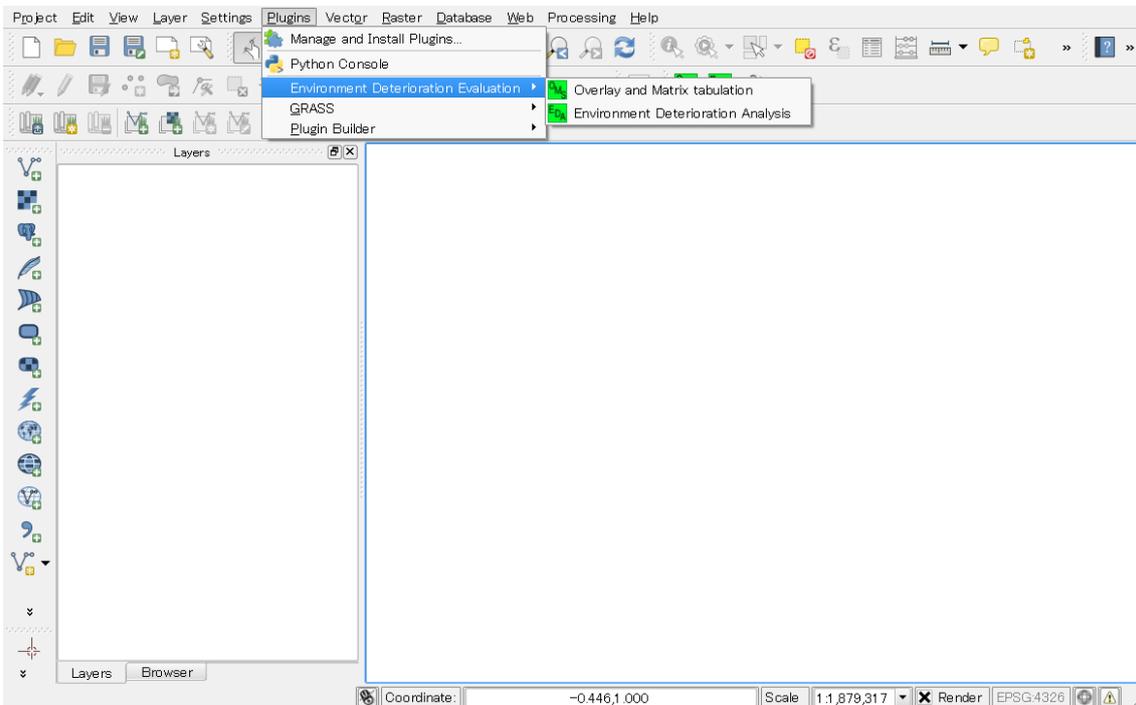
- ① On the QGIS menu bar, click “Plugins” > “Manage and install plugins”. Plugins dialog will be displayed.



- ② In the dialog, select “installed” tab and check “Evaluation of environmental deterioration”.



③ Installed properly, then menu of "Environmental Degradation Evaluation", "Overlay and Matrix tabulation" and "Environmental Degradation Analysis" are added in "Plug-ins" menu. In addition, as a plug-in icon, two icons (characters of OMS and EDA are displayed on green space) will also be added.



### 3. How to use plugins

#### (1) Load input data on QGIS

Target data should be loaded on QGIS for calculation. Both raster and polygon data are required.

##### ① Raster data

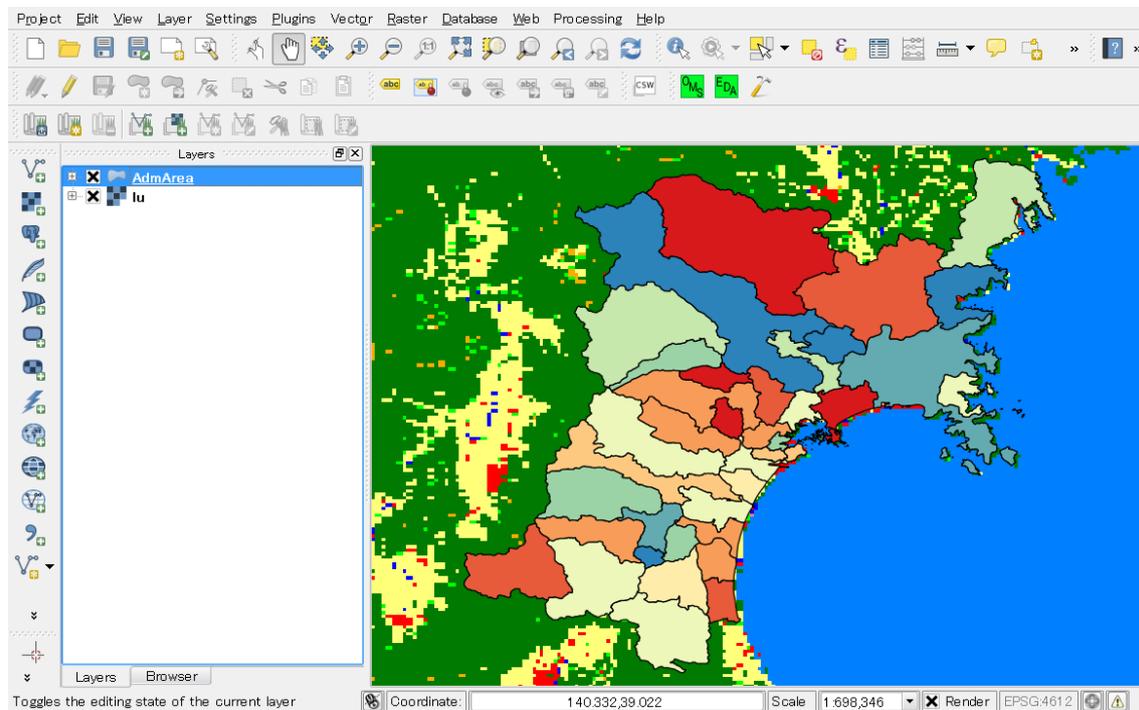
Single band and integer type data is available.

e.g. Land use classification data

##### ② Polygon data

By this polygon data such as administrative division, raster value is aggregated.

This is an example. "lu" layer is raster data and "AdmArea" layer is polygon data.

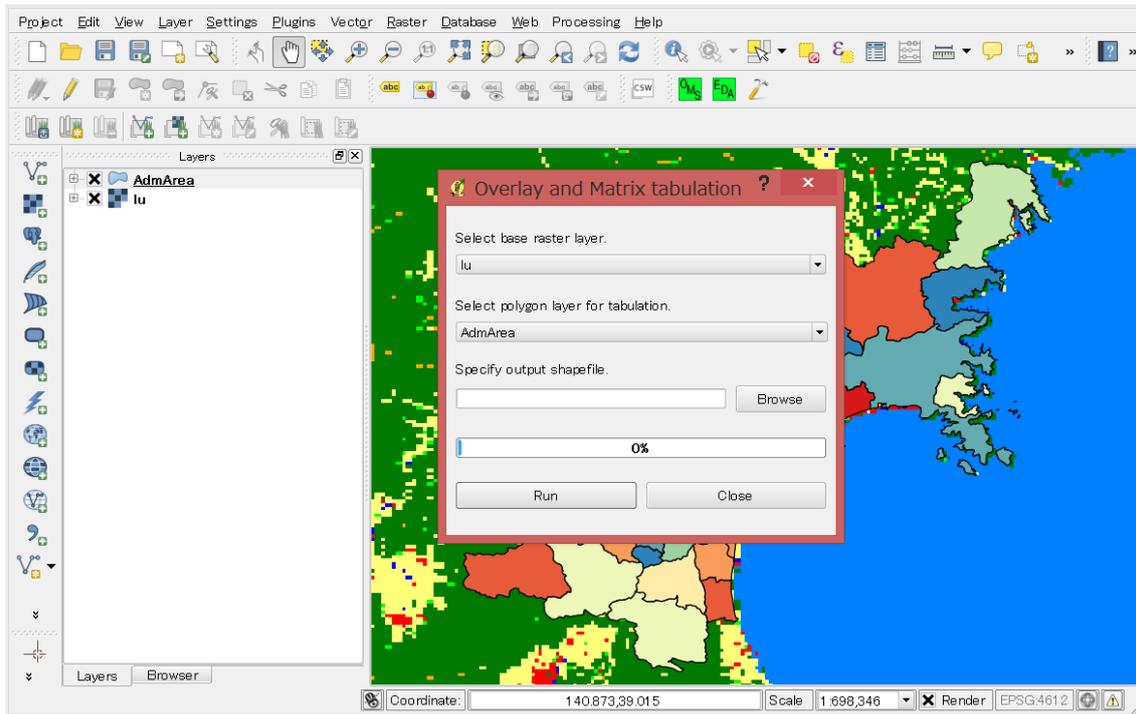


#### (2) Overlay and Matrix tabulation

This plugin totalizes the raster value for each polygon feature. Result will be exported as a shapefile.

##### ① Start Overlay and Matrix tabulation plugin

In QGIS menu bar, select the "Plugins" > "Environmental Deterioration Evaluation" > "Overlay and Matrix tabulation".



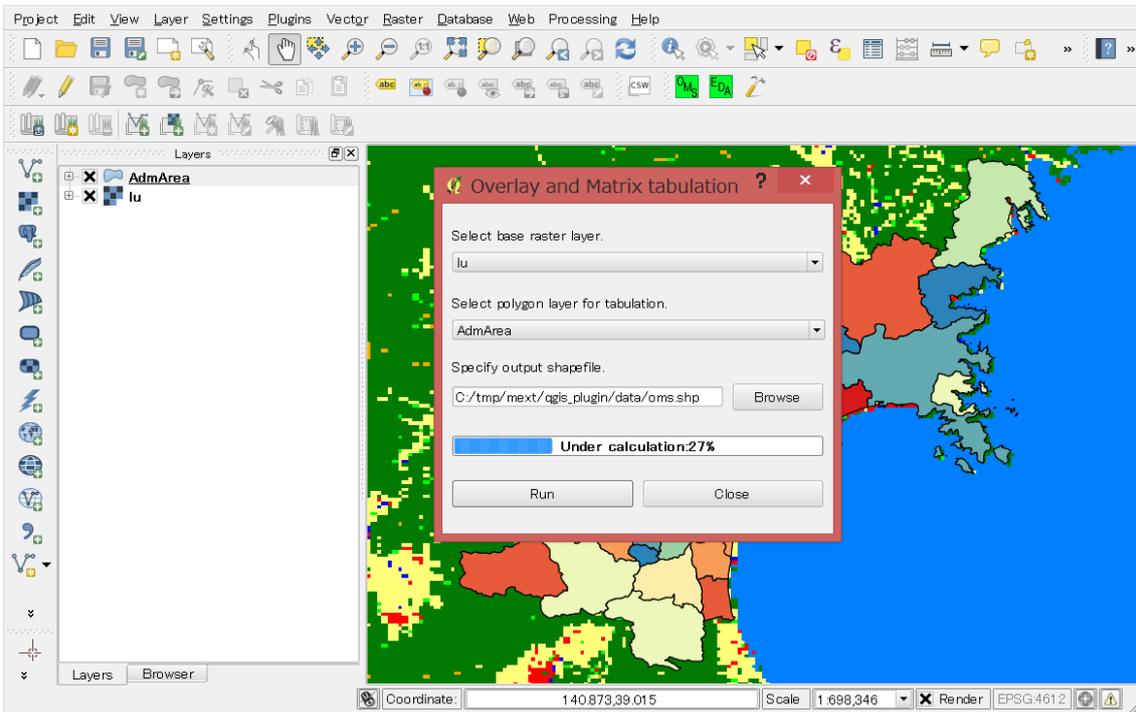
② Specify input/output file

Input/output data should be specified to execute the plugin.

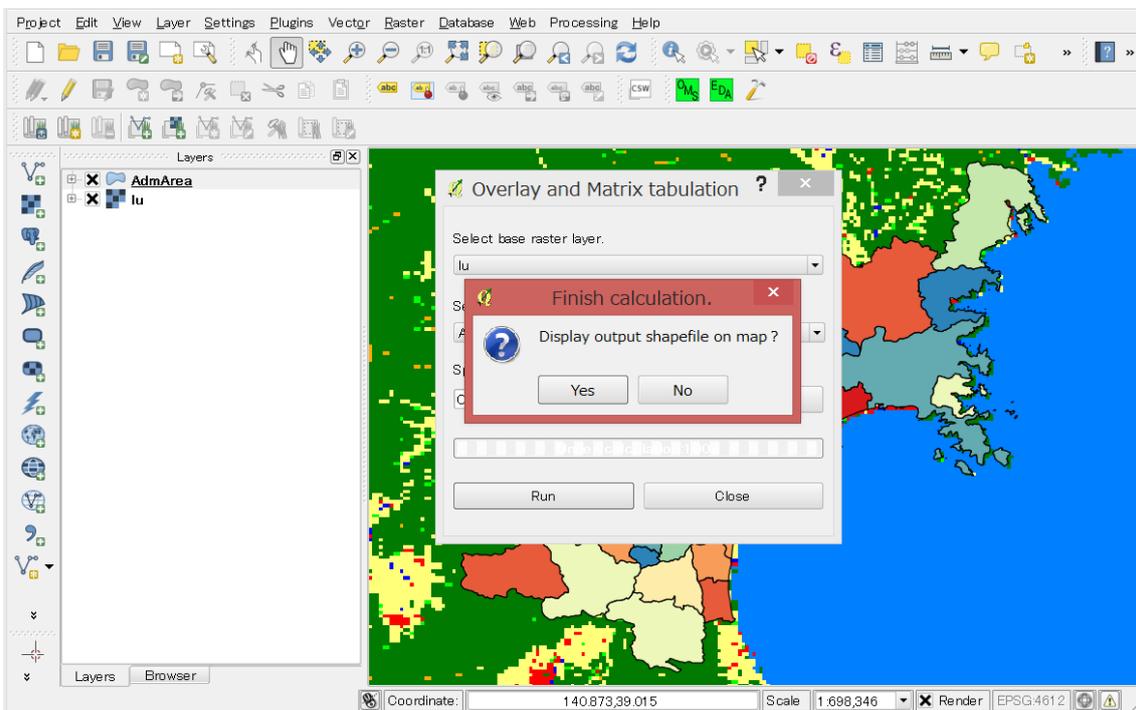
- Input
  - Base raster layer
  - Polygon layer for tabulation
- Output
  - Result shapefile

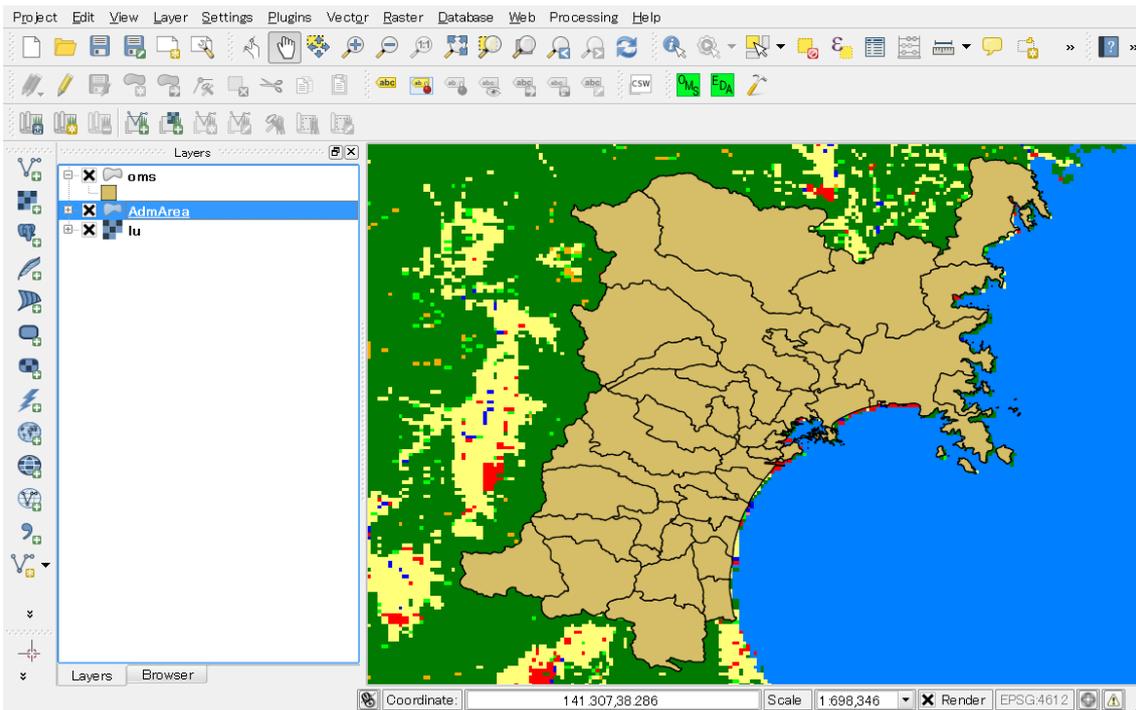
③ Execute calculation

You can execute calculation by pressing the run button. Progress bar will be displayed to notify which step is performed.



When the calculation completes, you can choose whether to display the result shapefile on map.





④ Calculation result

Calculated values are registered in attribute table of the output shapefile. Field names are defined as "C + raster values". For example, the raster value of "10" is counted on the "C10" field. Data type of these fields are integer.

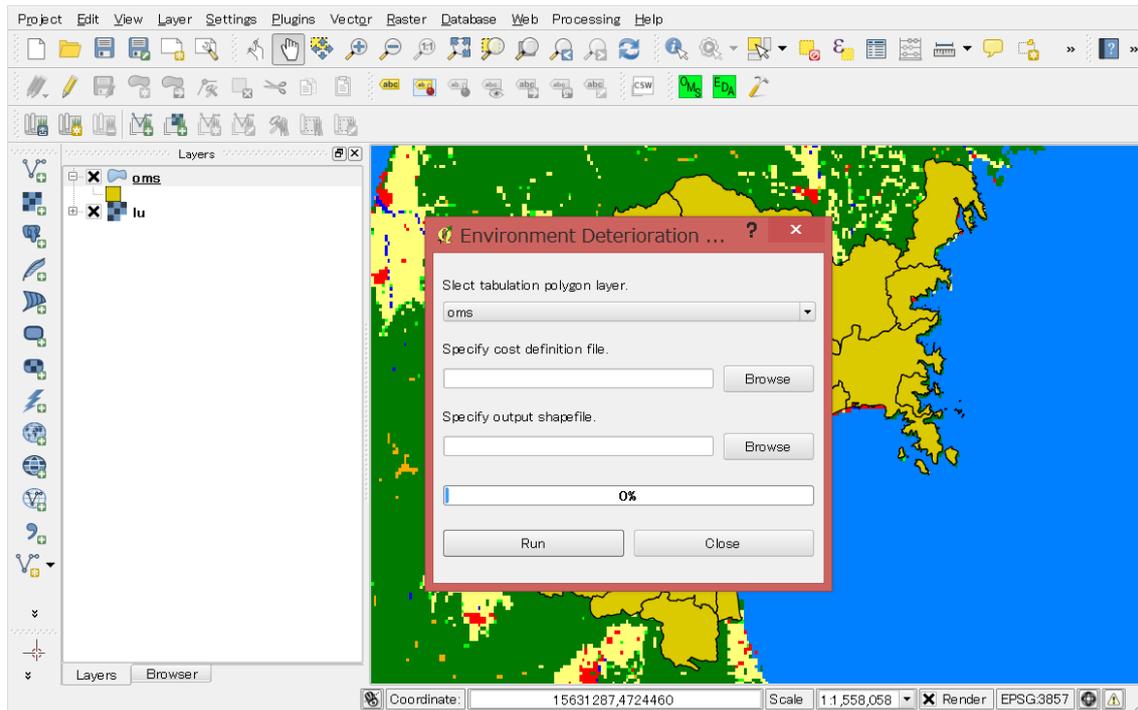
	表示区分	種別	名称	行政コード	C10	C20	C30	C40	C60	C70
0	表示	その他	宮城県伊具...	4341	404	7	0	54	0	
1	表示	その他	宮城県白石市	4206	379	16	10	82	0	
2	表示	その他	宮城県亶理...	4362	52	4	0	61	0	
3	表示	その他	宮城県刈田...	4302	439	3	9	1	0	
4	表示	その他	宮城県柴田...	4324	419	5	3	37	0	
5	表示	その他	宮城県刈田...	4301	217	5	20	51	0	
6	表示	その他	宮城県仙台...	4104	351	5	4	29	0	
7	表示	その他	宮城県仙台...	4101	417	13	9	20	0	
8	表示	その他	宮城県加美...	4444	134	3	5	76	0	
9	表示	その他	宮城県加美...	4445	639	8	4	124	0	
10	表示	その他	宮城県大崎市	4215	843	19	6	471	0	
11	表示	その他	宮城県栗原市	4213	911	31	5	363	0	
12	表示	その他	宮城県角田市	4208	125	2	2	102	0	
13	表示	その他	宮城県亶理...	4361	29	2	0	85	0	
14	表示	その他	宮城県柴田...	4321	21	0	0	31	0	
15	表示	その他	宮城県柴田...	4322	108	0	0	51	0	
16	表示	その他	宮城県柴田...	4323	63	0	3	28	0	

### (3) Environment Deterioration Analysis

Using the results of the "Overlay and Matrix tabulation", this plugin calculates the total cost in the polygon.

#### ① Start Environment Deterioration Analysis plugin

In QGIS menu bar, select the "Plugins" > " Environment Deterioration Evaluation" > " Environment Deterioration Analysis".



#### ② Specify input/output file

Input/output data should be specified to execute the plugin.

- Input
  - Tabulation polygon layer
  - Cost definition file
- Output
  - Result shapefile

Sample of cost definition file is as follows.

```
C10,1.24  
C20,2.2  
C30,3.3  
C40,5.1
```

C50,8.678

C60,10.45

C70,20.2

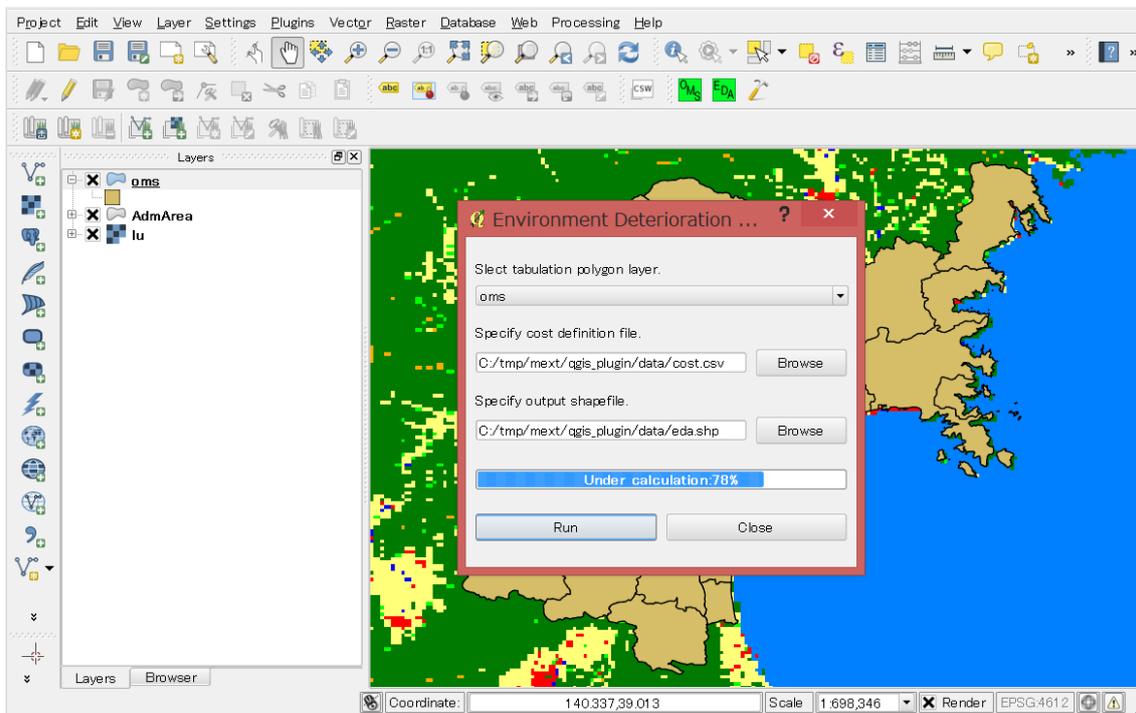
C80,30.1

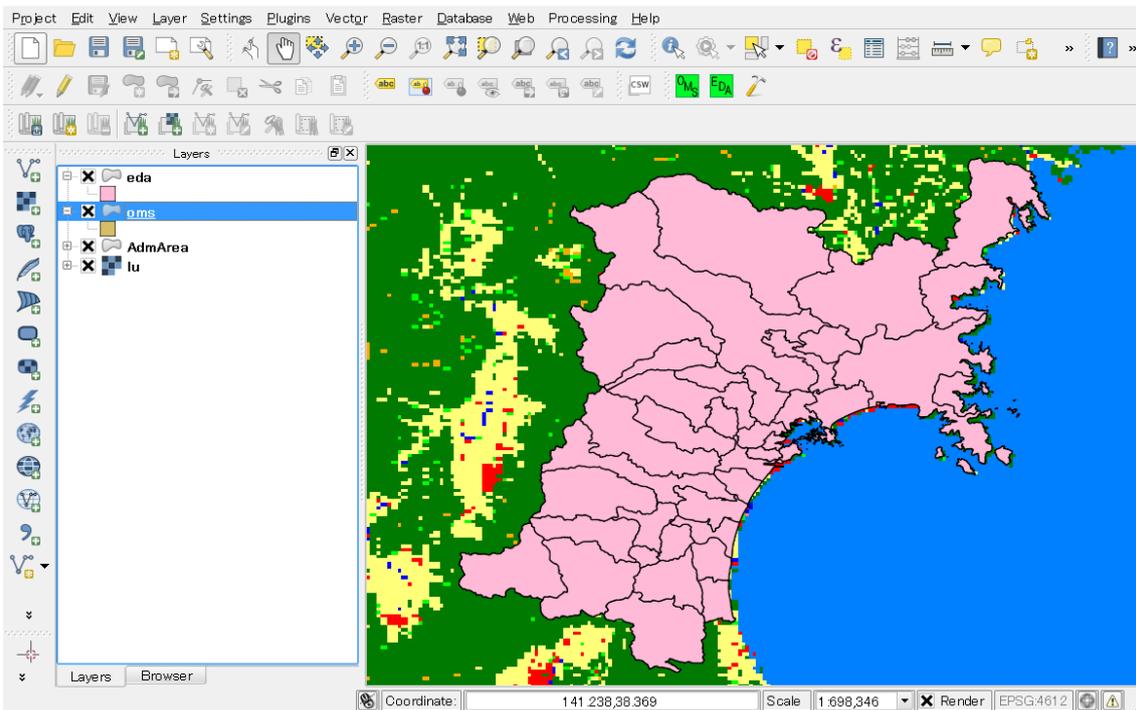
C90,50

### ③ Execute calculation

You can execute calculation by pressing the run button. Progress bar will be displayed to notify which step is performed.

When the calculation is complete, you can choose whether to display the result shapefile on map.





④ Calculation result

Calculated values are registered in the field of "TOTAL". By the TOTAL value, you can evaluate the effects of environmental deterioration quantitatively.

