

I. Constitution of GIS Data and How to Use GIS Software

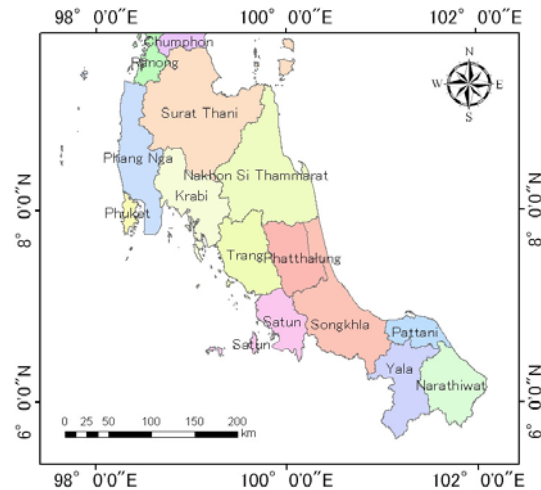
I.1 GIS data and Outline of the Inventory map

What is GIS data ?
Geographical Information System (GIS) data is attribute database referenced to location information.

Example of GIS data...

Attribute	Location
...Province Name	...Longitude
...Population	...Latitude
...etc.	...Shape

↔
referenced

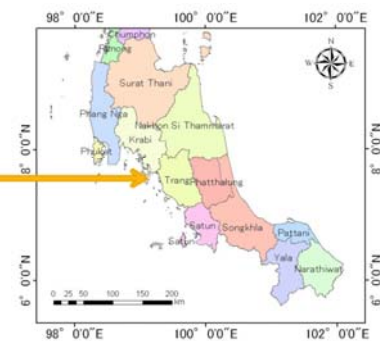


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The points, lines and polygons are called “**vector layer**”. Each **vector layer** has attributes such as ID number, name and so on.

The attributes are contained in the GIS database as “Attribute Table”.

AREA	PROV_CODE	PROV_NAM_T	PROV_NAM_E	population	RC_Code	pop_den
1566.623	10	กรุงเทพมหานคร	Bangkok	6355144	NULL	4056.69
967.116	11	จังหวัดฉะเชิงเทรา	Changwat Sam...	1028401	RC03	1063.37
636.4	12	จังหวัดชลบุรี	Changwat Nont...	816614	RC01	1283.18
1520.801	13	จังหวัดพระนครศรีอยุธยา	Changwat Pathr...	677649	RC01	445.69
2547.348	14	จังหวัดพระนครศรีอยุธยา	Changwat Phra...	727277	RC01	285.5
950.497	15	จังหวัดอ่างทอง	Changwat Ang ...	269419	RC16	283.45
6502.715	16	จังหวัดลพบุรี	Changwat Lopburi	745506	RC16	114.65
817.007	17	จังหวัดสิงห์บุรี	Changwat Sing...	232766	RC16	284.9



Integrate

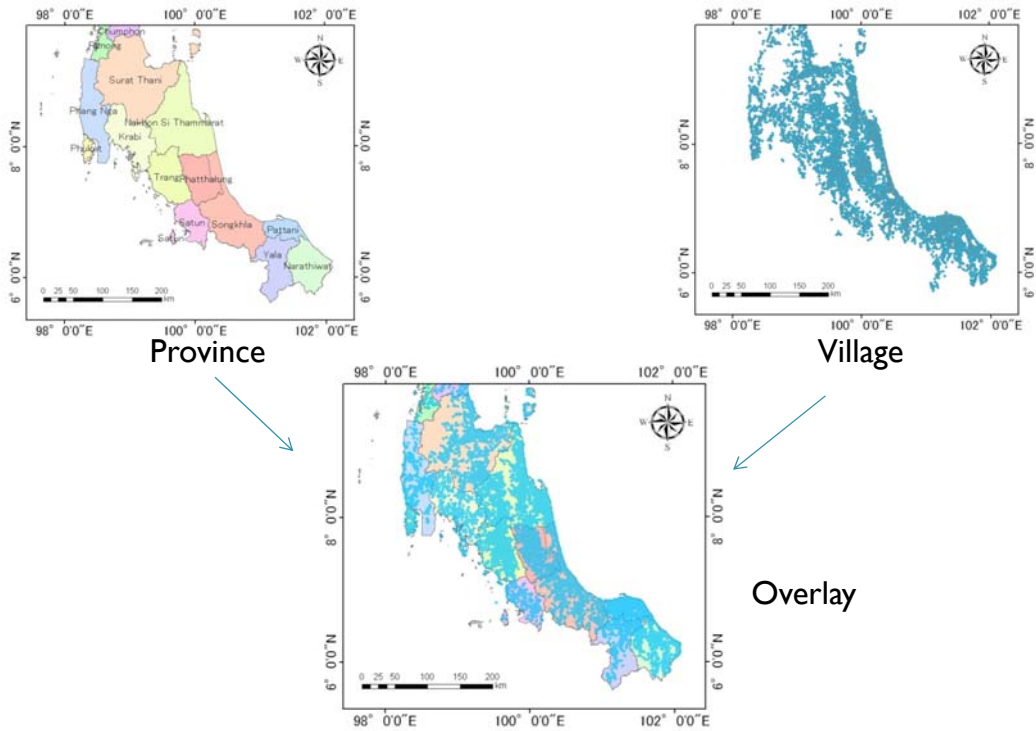
1	2	3	4	5	6	7	8	9	10
Villa_Code	Villa_Name	Prov_Code	Prov_Name	Amp_Code	Amp_Name	CBDRM_done	Type_Flood	Type_Other	Year
13011102	บ้านคลองเปรมประชา	13	Pathum Thani	1301	เมือง	1	1	1	40
13011103	บ้านบางเขน	13	Pathum Thani	1301	เมือง	1	1	1	40
13011105	บ้านบางเขน	13	Pathum Thani	1301	เมือง	1	1	1	48
13010201	บ้านคลองสามวา	13	Pathum Thani	1301	เมือง	1	1	1	48
13010202	บ้านคลองสามวา	13	Pathum Thani	1301	เมือง	1	1	1	49
13010203	บ้านคลองสามวา	13	Pathum Thani	1301	เมือง	1	1	1	49
13010204	บ้านคลองสามวา	13	Pathum Thani	1301	เมือง	1	1	1	49
13010205	บ้านบางเขน	13	Pathum Thani	1301	เมือง	1	1	1	49
13010206	บ้านบางเขน	13	Pathum Thani	1301	เมือง	1	1	1	49
13010501	บ้านคลองสามวา	13	Pathum Thani	1301	เมือง	1	1	0	50
13010502	บ้านคลองสามวา	13	Pathum Thani	1301	เมือง	1	1	0	50

In order to make inventory map, inventory table (list of the CBDRM conducted village) will be integrated into the “attribute table”.

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Each GIS data is able to be overlaid on any other GIS data.

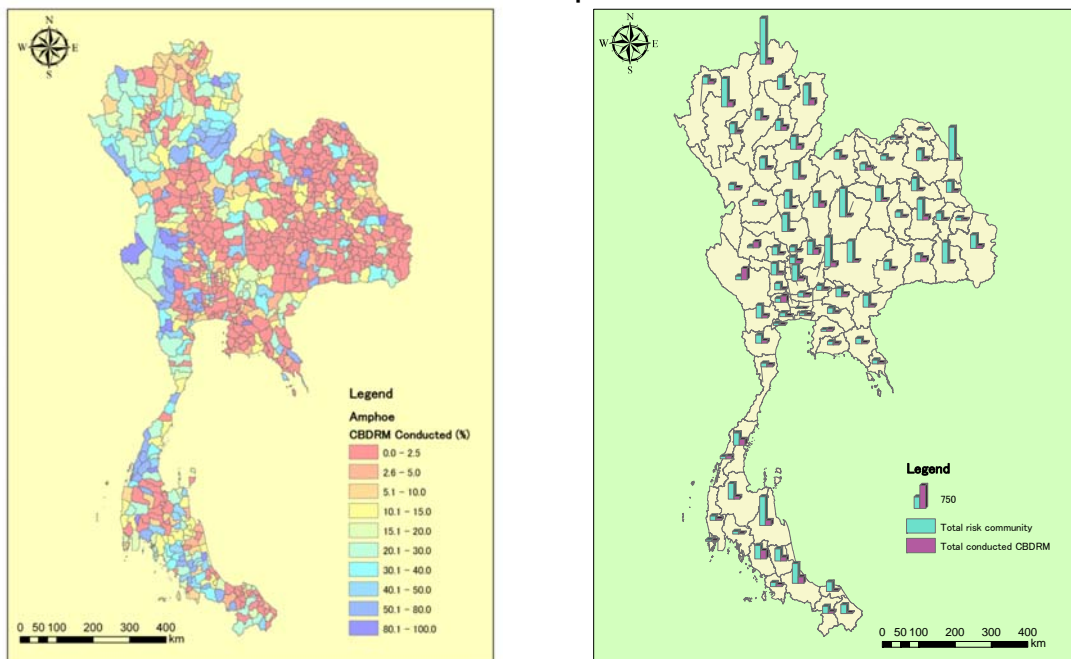
Inventory map may consists of some layers (Province map, Village map and so on).



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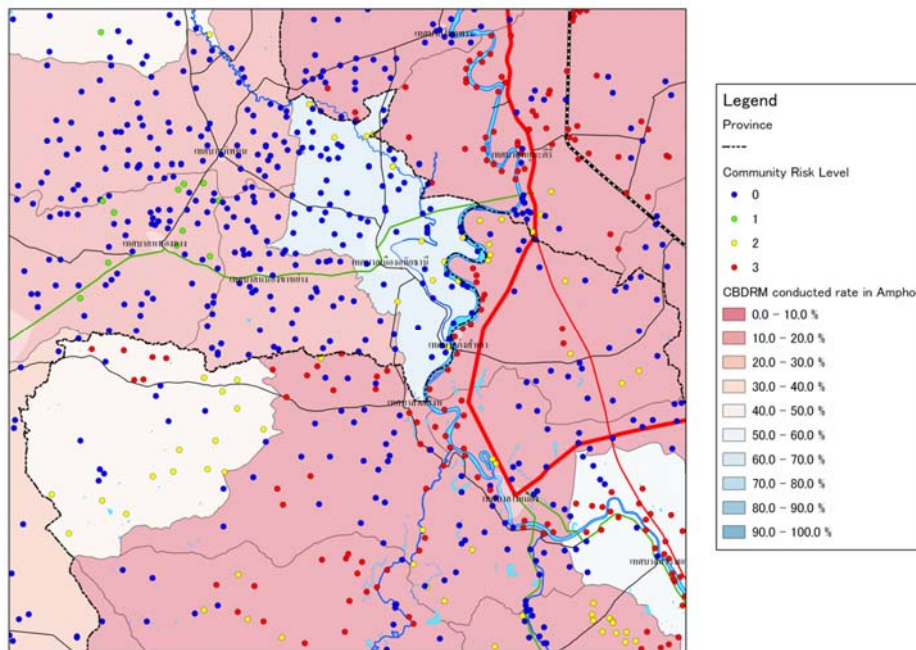
By using attribute table (including CBDRM conducted number of villages), enforcement rate chart and map can be created. The goal is to make inventory map as below.

The inventory maps are helpful to monitor the progress of project activities and useful to make future plan.



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GIS enables to display multiple data into one map. Thus, you can easily recognize the progress and issues of the project activities.



Ex) Red points are high risk communities. These are distributed in eastern and southern area, but the CBDRM conducted rate is relatively low in the area (red colored area).

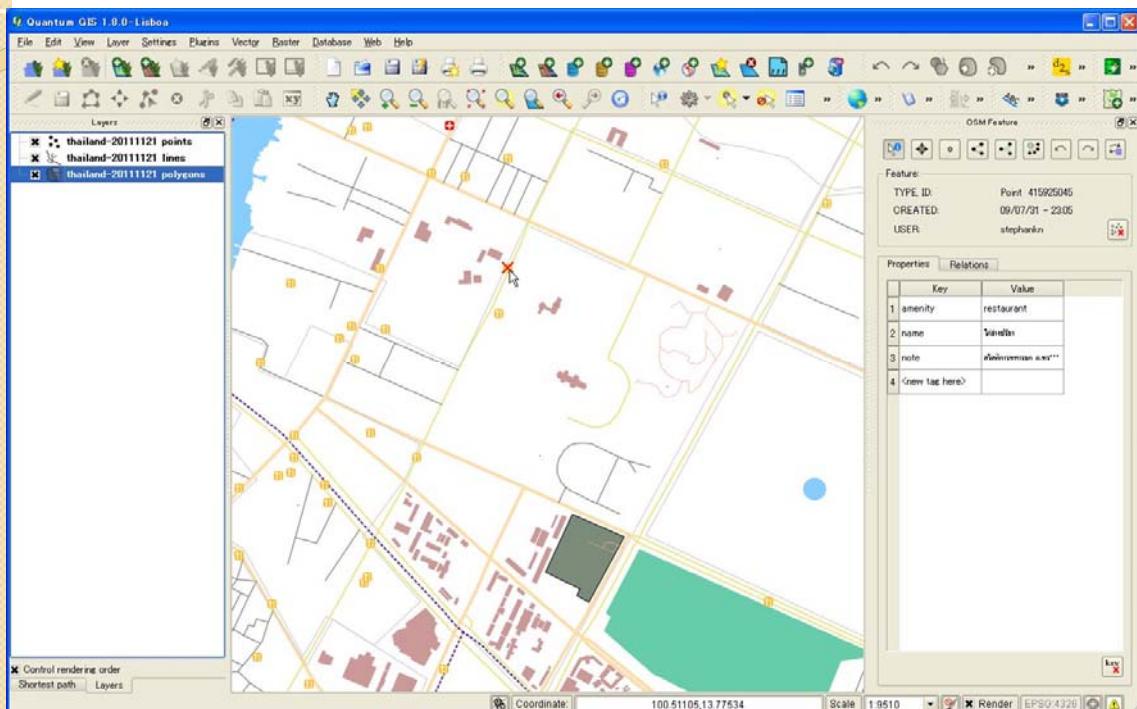
You can judge that the CBDRM activities should be reinforced in the risky area.

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I.2 Examples of GIS Software

Quantum GIS

Open source GIS software. Many functions and plugins are packaged.



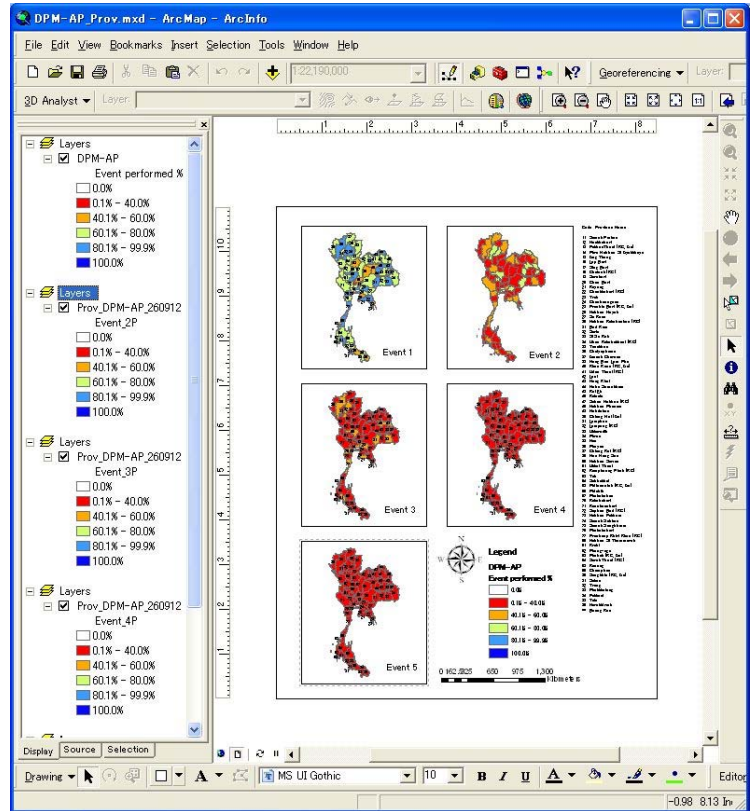
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I.2 Examples of GIS Software

Arc GIS

Famous GIS software.

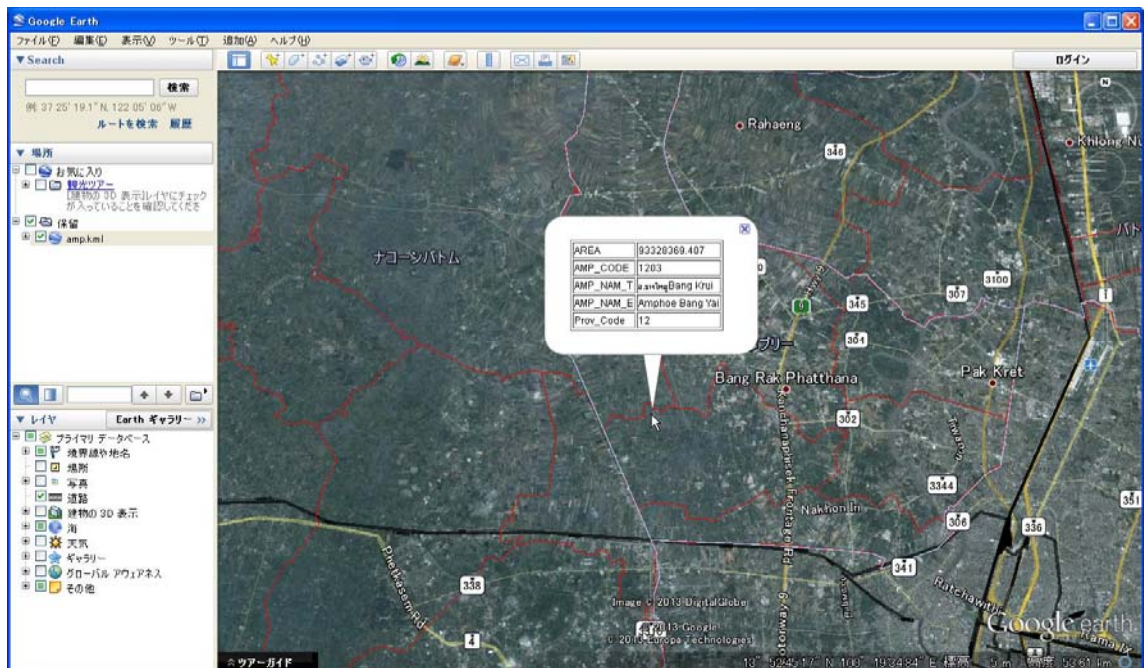
Too expensive...



I. Constitution of GIS Data and How to Use GIS Software

I.2 Examples of GIS Software

It is possible to export GIS data to kml file and display by Google Earth, Google Map and etc..



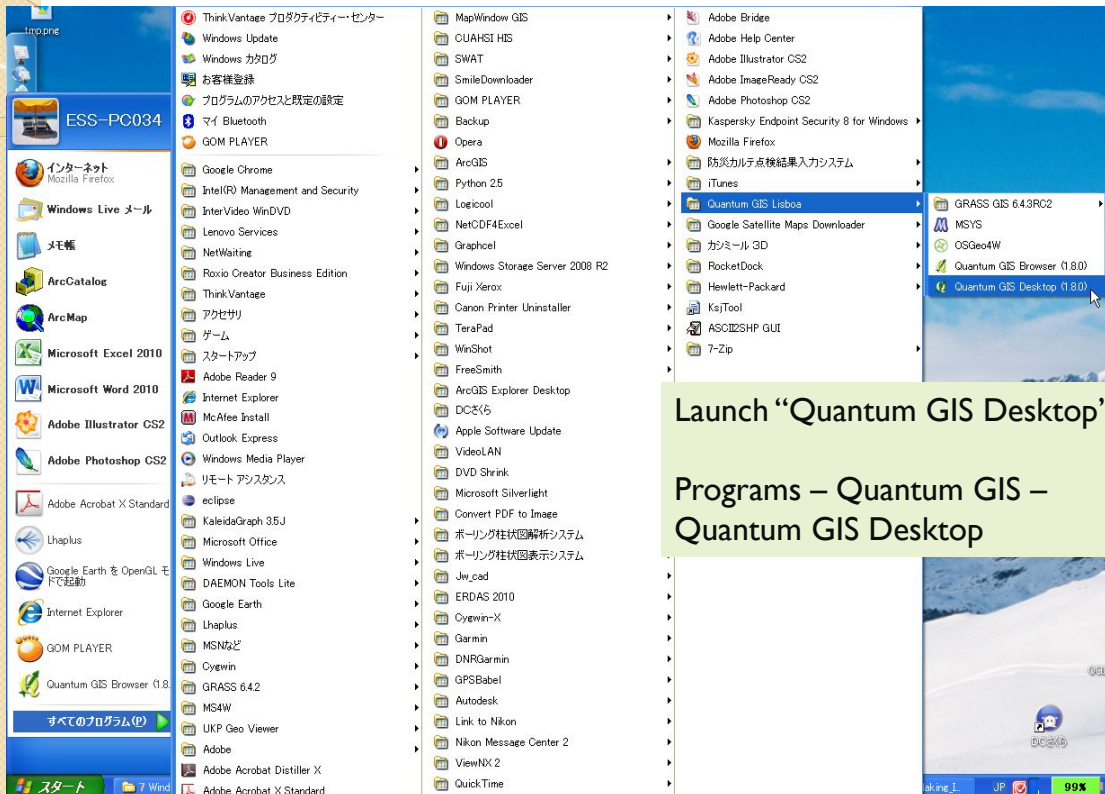
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I.3 How to use GIS Software

- 1) **Quantum GIS**  Quantum GIS Desktop (1.8.0)
GIS mapping software
- 2) **Microsoft Excel**  Microsoft Excel 2010
for data input

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I.3.1 Quantum GIS (GIS data mapping software)



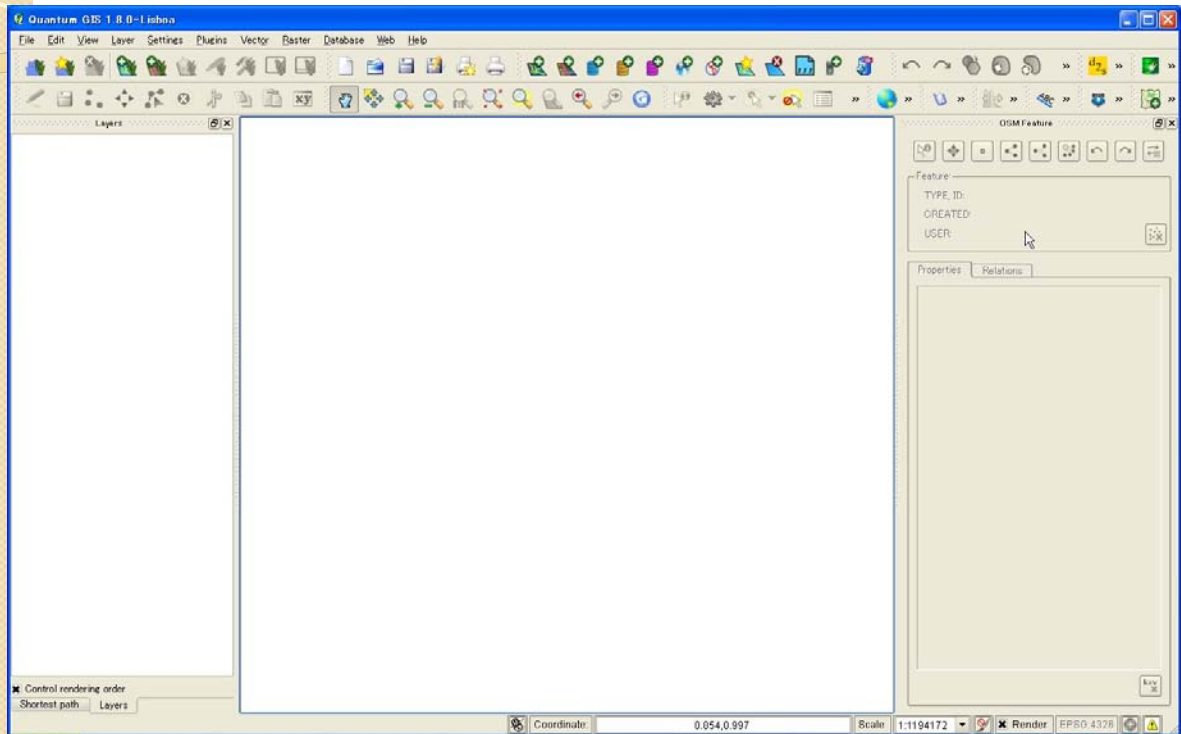
The screenshot shows a Windows XP desktop environment. The Start menu is open, displaying a list of installed applications. The application 'Quantum GIS Desktop (1.8.0)' is highlighted in blue. A green callout box with white text is overlaid on the right side of the screen, containing the following text:

Launch “Quantum GIS Desktop”
Programs – Quantum GIS –
Quantum GIS Desktop

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I.3.1 Quantum GIS (GIS data Mapping software)

The following window should appear.
GIS data has not been imported yet.

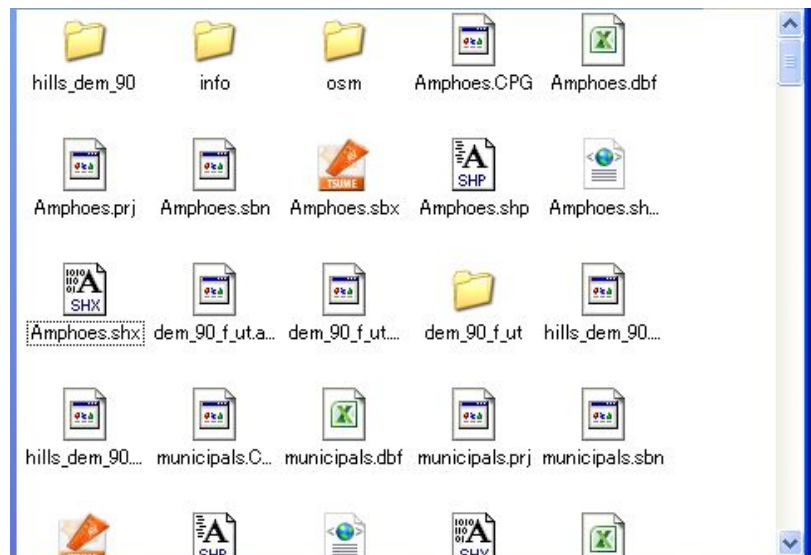


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I.3.1 Quantum GIS (GIS data Mapping software)

Kinds of GIS data

Open "C:\GIS_data" folder.

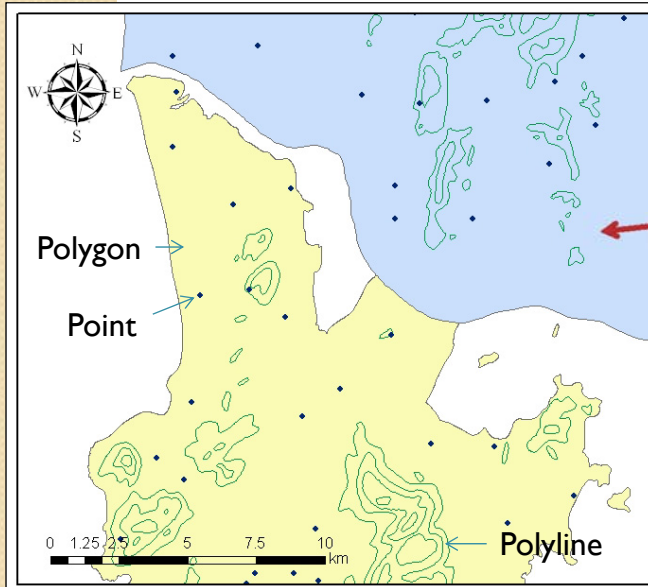


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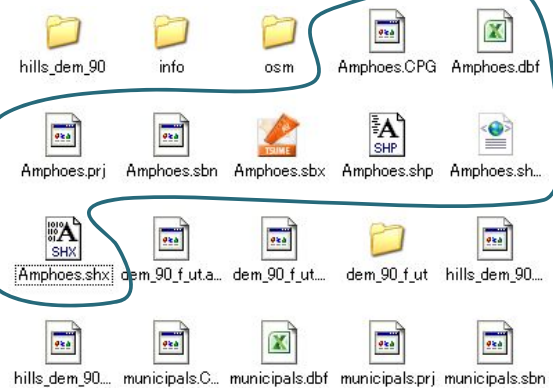
I.3.1 Quantum GIS (GIS data Mapping software)

Kinds of GIS data

Shape files are vector data, such as village (point), province (polygon), contour (Polyline). Shape file consists of several files. Don't move or delete only a part of the file series.



shape file (vector data)



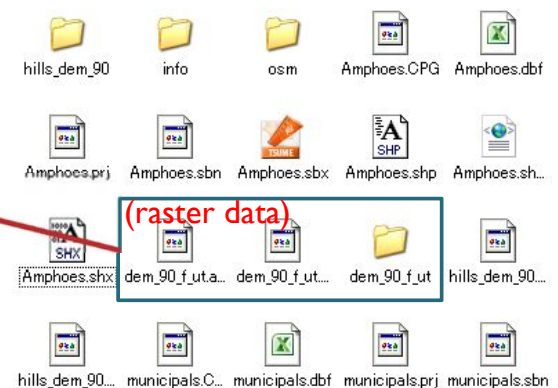
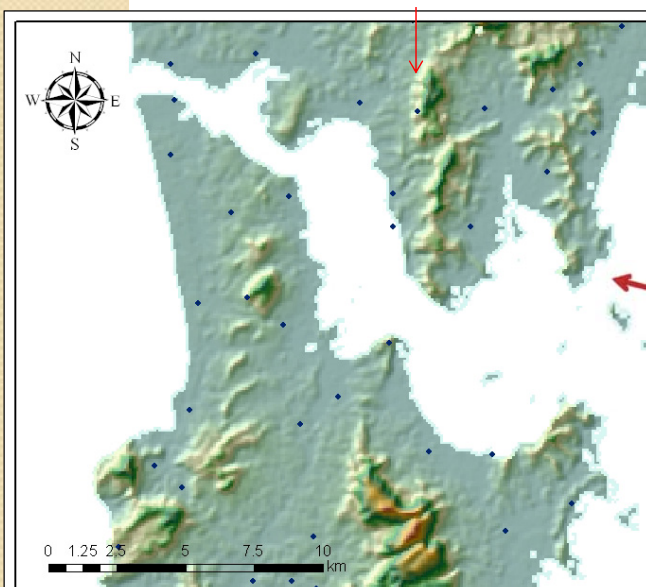
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I.3.1 Quantum GIS (GIS data Mapping software)

Kinds of GIS data

Raster Datasets are image data, such as elevation, satellite image.

Elevation and topography

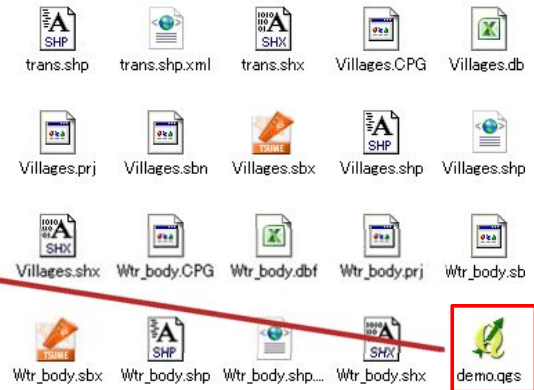
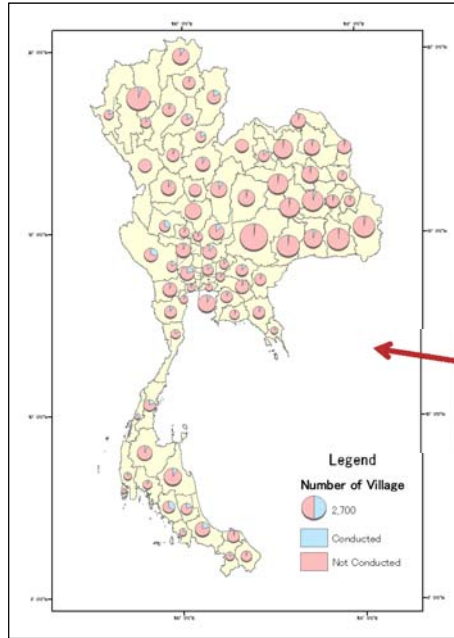


I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Kinds of GIS data

Qgis files(.qgs) are not GIS data file. These are configuration files of GIS mapping, such as color profile, chart setting and etc..



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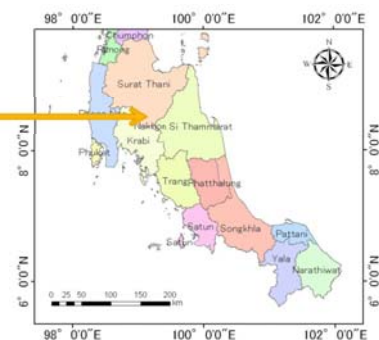
I.3.1 Quantum GIS (GIS data Mapping software)

It is able to load Excel files into GIS database.

The screenshot shows a 'Provinces' attribute table with the following data:

AREA	PROV_CODE	PROV_NAME	population	RC_Code	pop_den
1566.623	10	กรุงเทพมหานคร	6355144	NULL	4066.69
967.116	11	สมุทรปราการ	1028401	RC03	1063.37
636.4	12	นนทบุรี	816614	RC01	1283.18
1520.801	13	ปทุมธานี	677649	RC01	445.59
2547.348	14	พระนครศรีอยุธยา	727277	RC01	285.5
960.497	15	อ่างทอง	269419	RC16	283.45
6602.715	16	ลพบุรี	745506	RC16	114.65
817.007	17	สิงห์บุรี	232766	RC16	284.9

Integrate



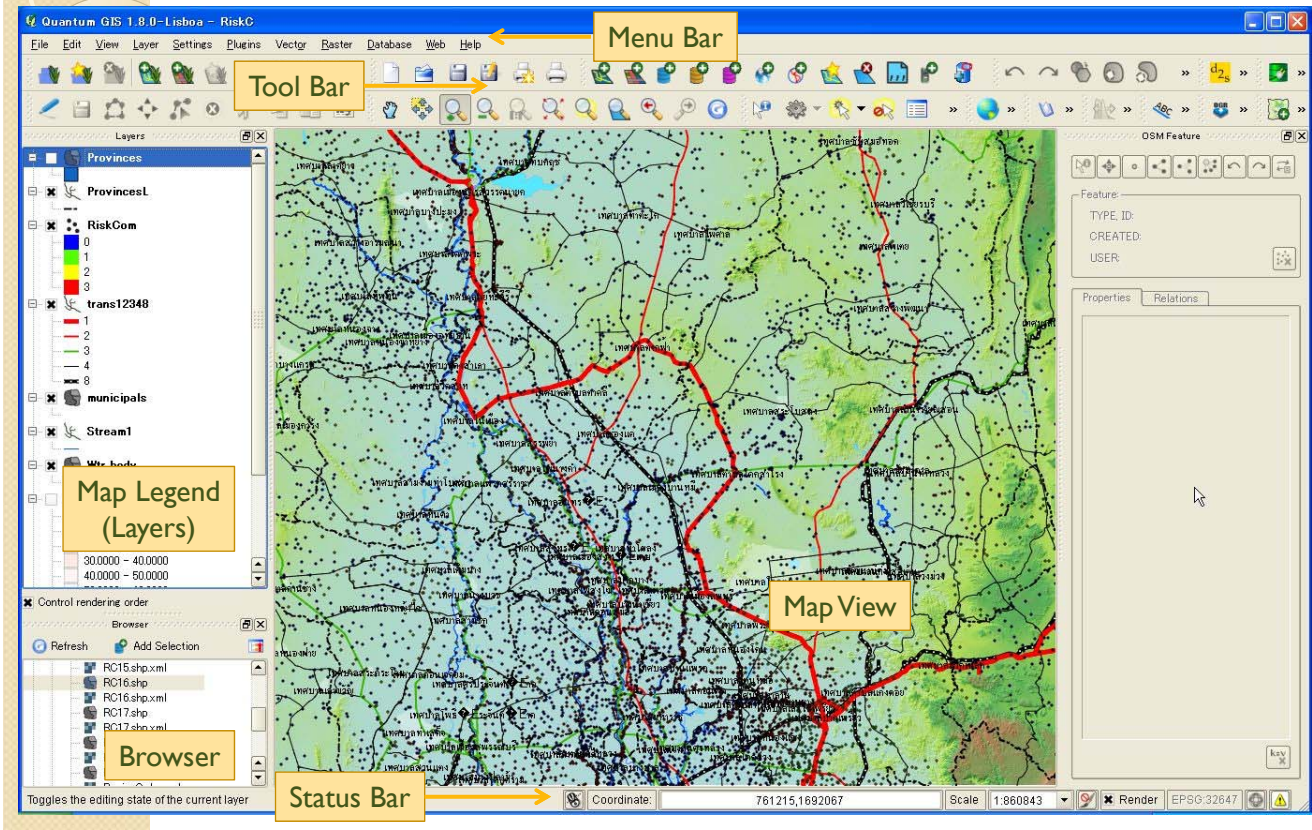
The screenshot shows an Excel spreadsheet with the following data:

Villa_Code	Villa_Name	Prov_Code	Prov_Name	Amp_Code	Amp_Name	OBDRM_done	Type_Flood	Type_Other	Year
13011102	บ้านคลองเปรมประชา	13	Pathum Thani	1301	เมือง		1	1	48
13011103	บ้านบางเขน	13	Pathum Thani	1301	เมือง		1	1	48
13011106	บ้านบางขน	13	Pathum Thani	1301	เมือง		1	1	48
13010201	บ้านคลองขาม	13	Pathum Thani	1301	เมือง		1	1	49
13010202	บ้านคลองขาม	13	Pathum Thani	1301	เมือง		1	1	49
13010203	บ้านคลองขาม	13	Pathum Thani	1301	เมือง		1	1	49
13010204	บ้านคลองขาม	13	Pathum Thani	1301	เมือง		1	1	49
13010205	บ้านบางสน	13	Pathum Thani	1301	เมือง		1	1	49
13010206	บ้านบางสน	13	Pathum Thani	1301	เมือง		1	1	49
13010501	บ้านคลองขาม	13	Pathum Thani	1301	เมือง		1	0	50
13010502	บ้านคลองขาม	13	Pathum Thani	1301	เมือง		1	0	50

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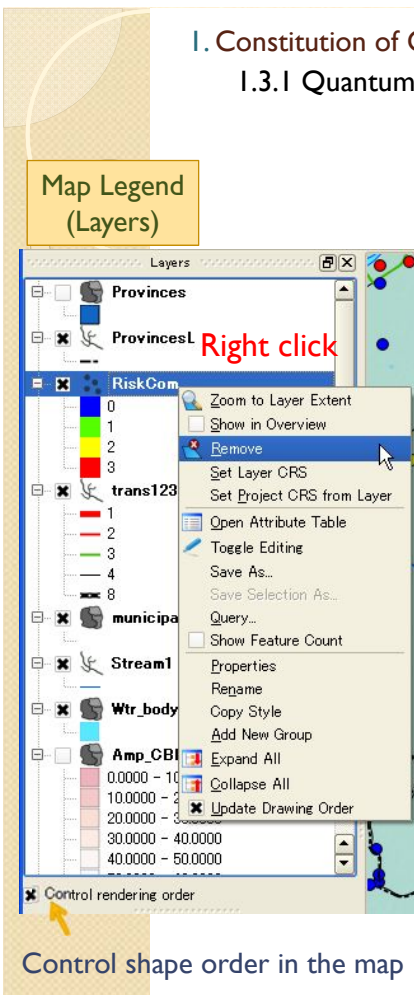
I.3.1 Quantum GIS (GIS data Mapping software)

Window layout of the QGIS is as below.



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)



Explanation of sub windows and fields

1) Map Legend (Layers)

General controls for the map

/ Adding GIS data

/ Indicating loaded GIS data.

/ Removing GIS data from QGIS (data files are not deleted, only disappear from this window)

/ Change color profiles and chart settings of loaded GIS data

/ Make or clear labels

Control shape order in the map

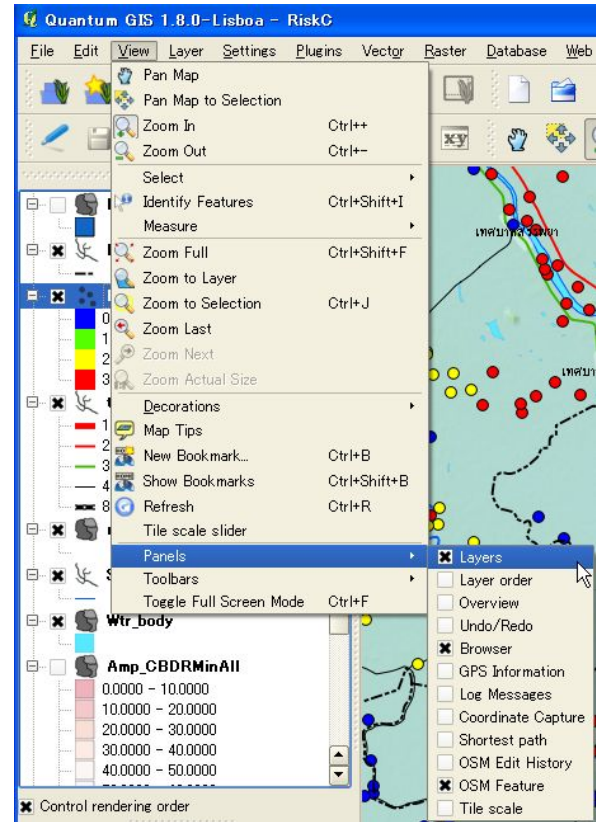
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I.3.1 Quantum GIS (GIS data Mapping software)

Explanation of sub windows and fields

1) Map Legend (Layers)

If "Layers" disappears in QGIS window, check menu bar [View] – [Panels] – [Layers]



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Explanation of sub windows and fields

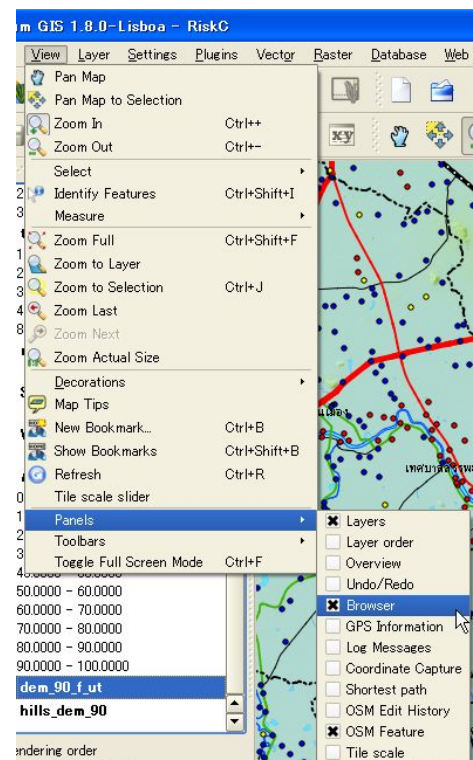
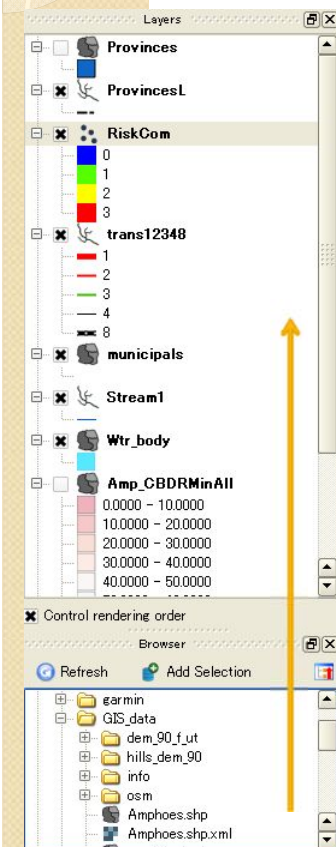
2) Browser

Add GIS data to the map

Drag to import data

If "Browser" disappears in QGIS window, check menu bar [View] – [Panels] – [Layers]

Browser

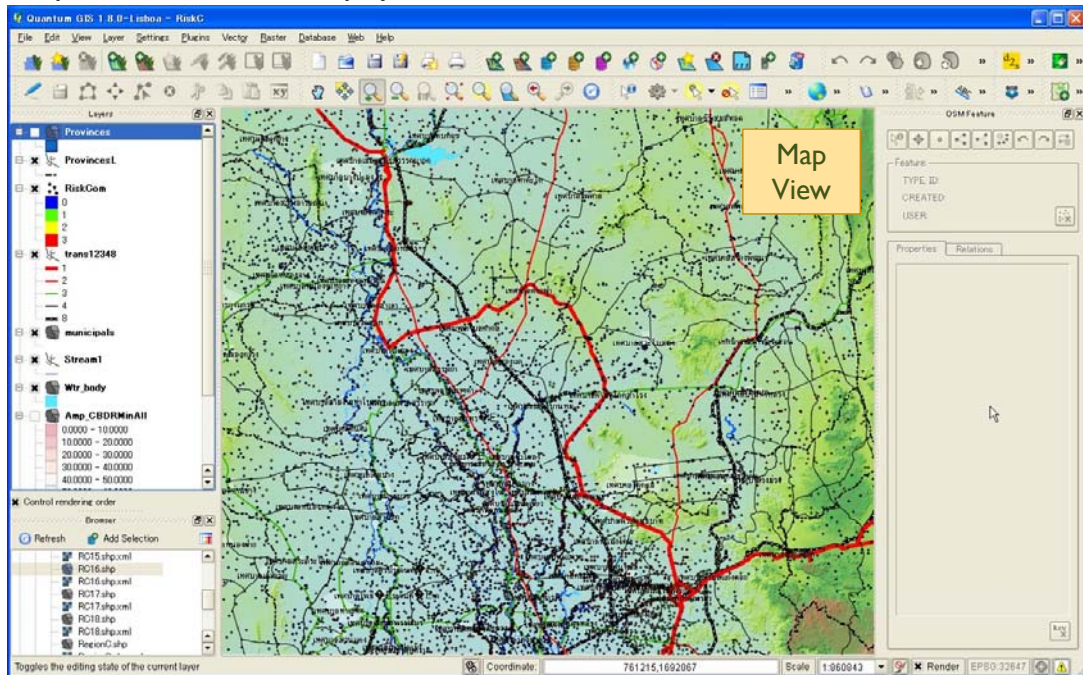


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I.3.1 Quantum GIS (GIS data Mapping software)

Explanation of sub windows and fields

3) Map View

Map View is a field to display GIS data.



I. Constitution of GIS Data and How to Use GIS Software
I.3.1 Quantum GIS (GIS data Mapping software)

Explanation of sub windows and fields

4) Tool bar

/ New Project

/ Open Project

/ Save Project

/ Save Project As



/ New Print Composer

/ Composer Manager

* Project files (Qgis file) are not GIS data file. These are configuration files of GIS mapping, such as color profile, chart setting and etc..

* Print Composer is layout canvas for print or export pdf or image files.

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Explanation of sub windows and fields

4) Tool bar



/ Add Vector Layer
(point, line and polygon)

/ Add Raster Layer
(image data like satellite image)

/ Add another data formats file

/ Create New Shapefile Layer (Vector Layer)

/ Remove Layer (remove only from map, source data remains on folder)

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Explanation of sub windows and fields

4) Tool bar



/ Toggle Editing
(Vector Layer)

/ Save Edits

/ Edit Tools

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Explanation of sub windows and fields

4) Tool bar

/ Pan Map

/ Pan Map to Selected Feature

/ Zoom In and Out

/ Zoom Full Area of the Map

/ Zoom to Selected Feature or Layer

/ Zoom Last or Next

/ Refresh



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Explanation of sub windows and fields

4) Tool bar

/ Feature Information

/ Feature Select and Deselect

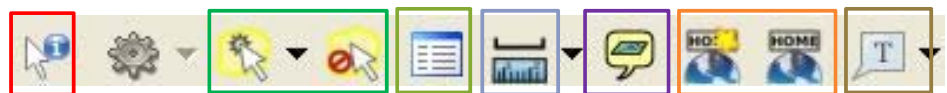
/ Open Attribute Table

/ Measure Line, Area and Angle

/ Map Tips

/ Bookmark Location

/ Annotation (Text Box)



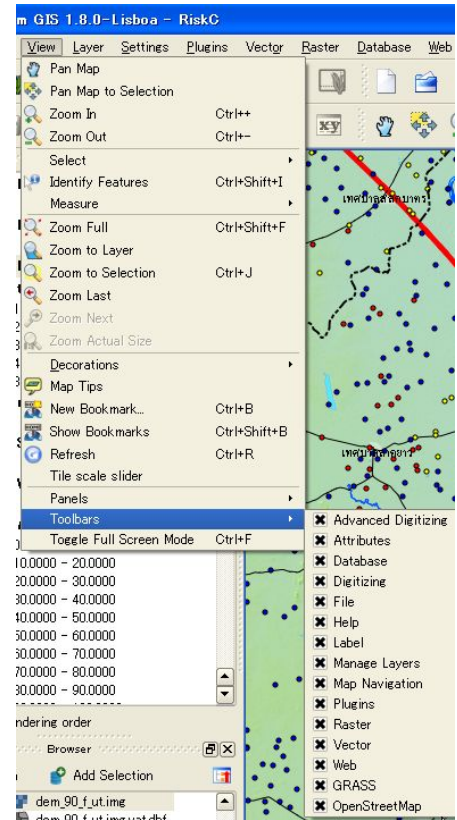
I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Explanation of sub windows and fields

4) Tool bar

If these toolbars disappear in QGIS window, check menu bar [View] – [Toolbars]



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

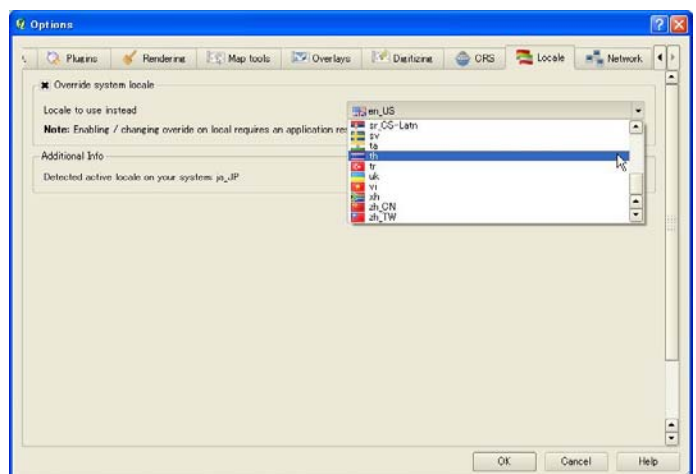
Locale Setting

You can choose Thai Language.

Select menu [Settings] – [Options] then, “option” window should appear.

Select “Locale” tab and “TH” from pull down field.

As a result, your QGIS should be indicated by Thai language.



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

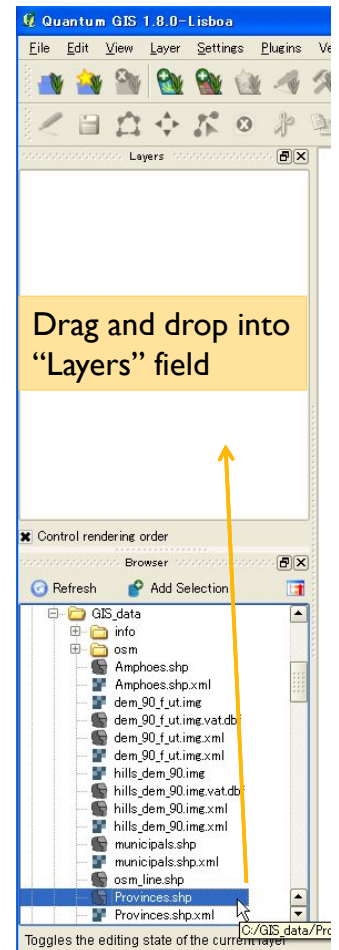
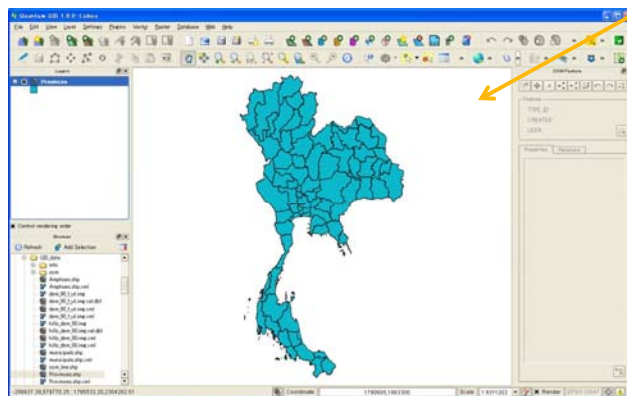
Add layers

There are several ways to import GIS data to QGIS.

i. Add by “browser”

Choose “GIS_data” folder and select data you want to import in the “browser” field.

Drag and drop the file into “Layers” field, then the file should be shown in the map.



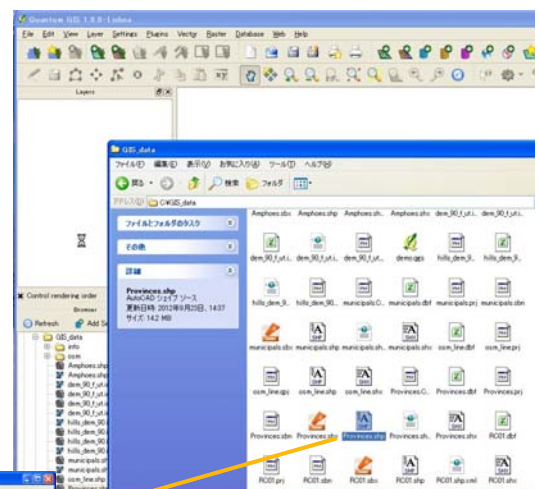
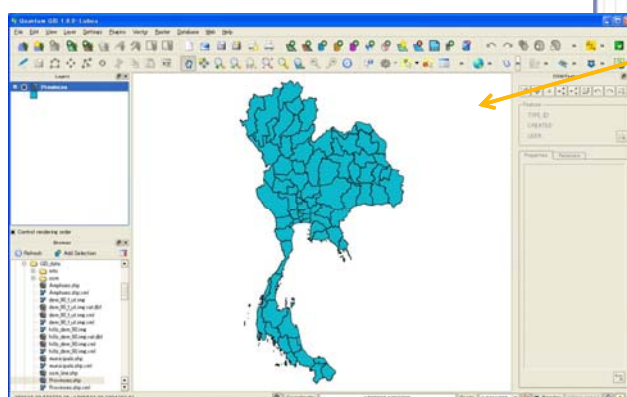
I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Add layers

ii. Add by explorer

You can drag and drop the file directly from folder window.



Drag and drop

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Add layers

iii. Add by toolbar



/ Add Vector Layer
(point, line and polygon)

/ Add Raster Layer
(image data like satellite image)

/ Add another data formats file

/ Create New Shapefile Layer (Vector Layer)

/ Remove Layer (remove only from map, source data remains on folder)

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Add layers

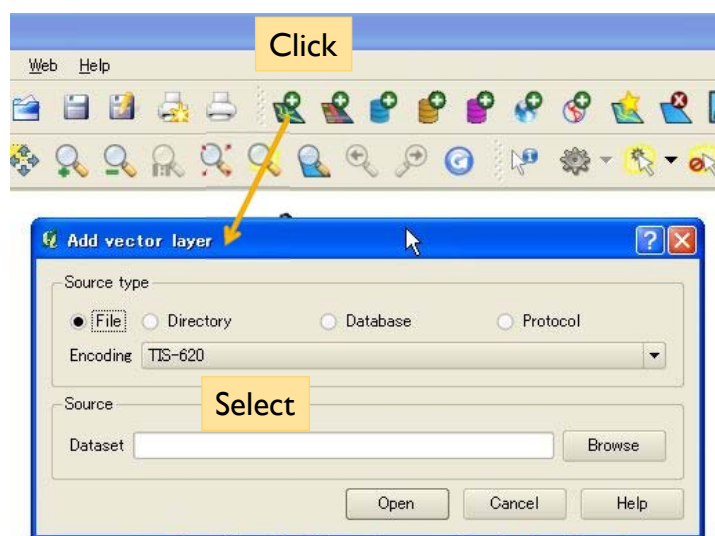
iii. Add by toolbar

Click “Add vector layer” and select file type (in this case “File”).

Choose “Encoding” tab as “TIS-620” to import Thai language files.

Click “Browse” button to find data file (in this case, select “GIS_data” folder and shapefile).

Finally, push “OK” to load the GIS data.



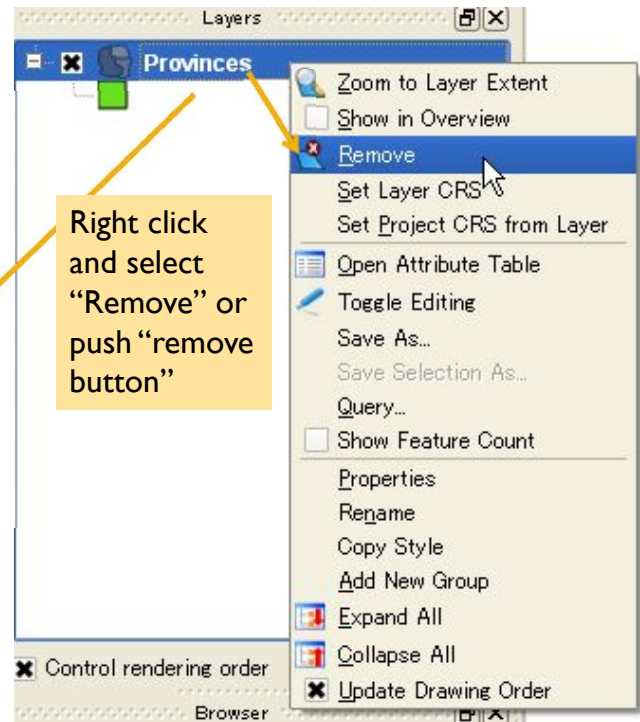
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I.3.1 Quantum GIS (GIS data Mapping software)

Remove layers

To remove features, right click and select "Remove".

Other way to remove features, select feature and push remove button in the toolbar.



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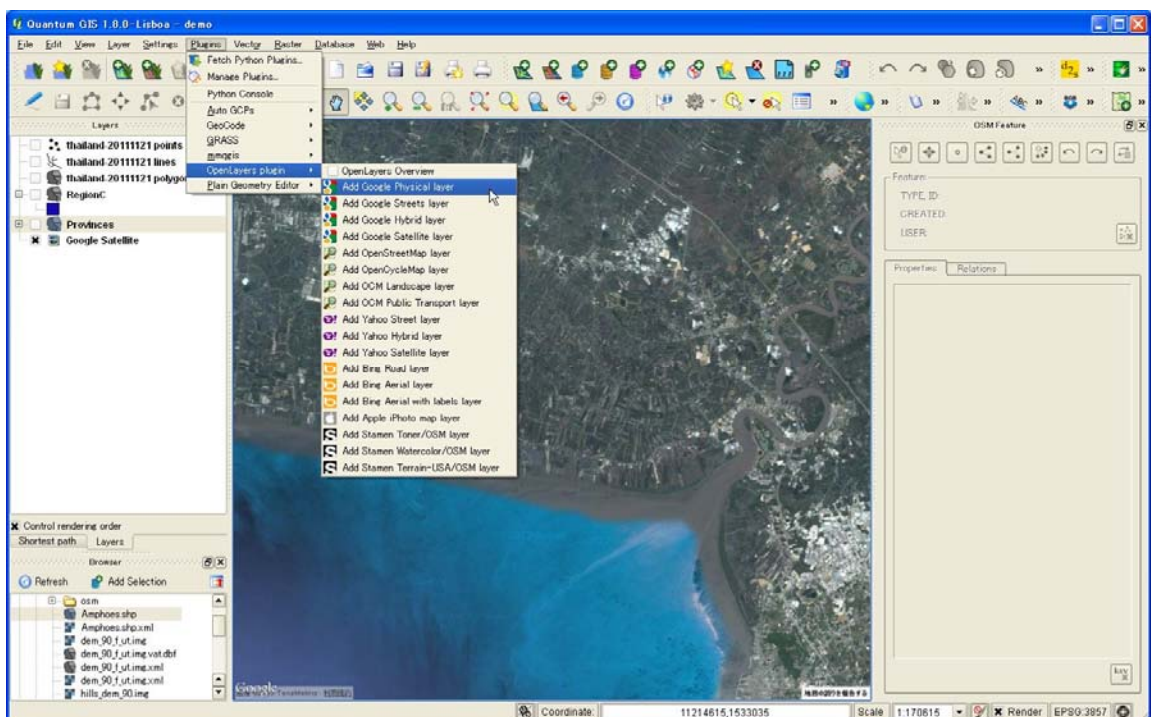
I.3.1 Quantum GIS (GIS data Mapping software)

Add web map layer (online)

Online map layers are able to load into QGIS. (online connection is required)

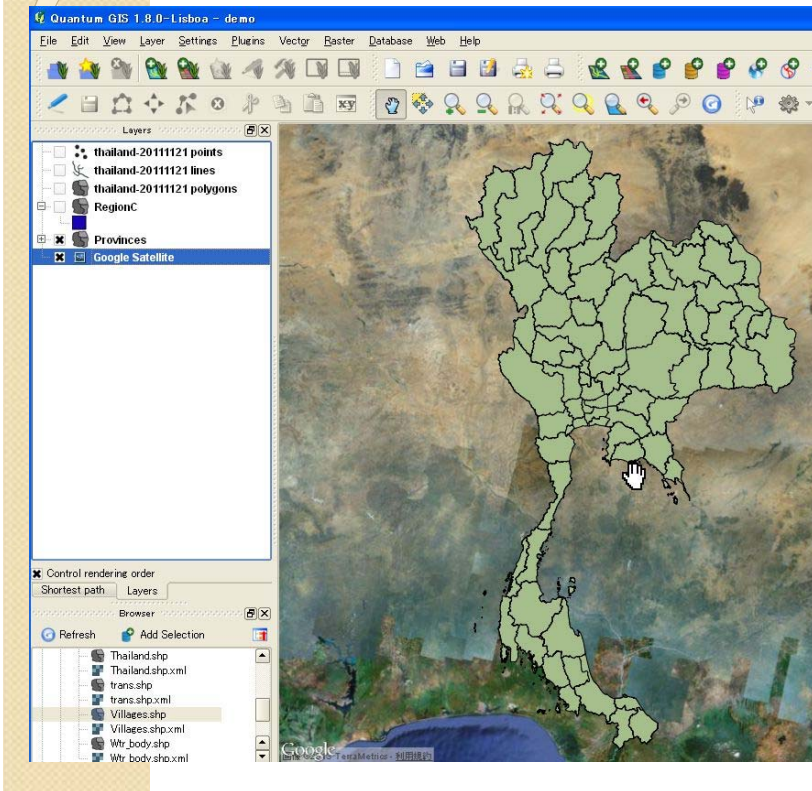
Choose [Plugins] – [Open Layers Plugin] – [map name to load]

It is necessary to pay attention terms of use of online maps.



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 I.3.1 Quantum GIS (GIS data Mapping software)

CRS (Coordinate Reference System)



Each layer has CRS (Coordinate Reference System).

Ex.) Longitude and latitude

If the CRS of layers does not match, the layers is not displayed on correct position.

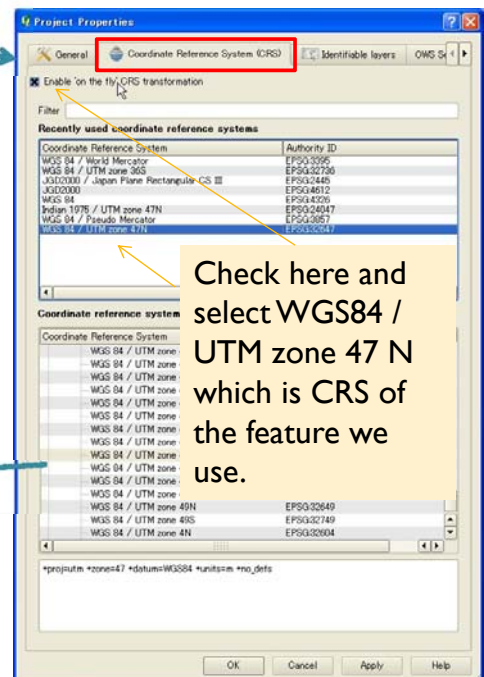
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 I.3.1 Quantum GIS (GIS data Mapping software)

CRS (Coordinate Reference System)

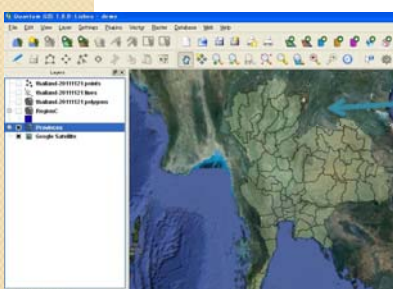


To solve this problem, select [Settings] – [Project Properties].

Then, property window will appear.



Select “Coordinate Reference System (CRS)” tab and check “Enable ‘on the fly’ CRS transformation. Then, you can find the layers move to correct position.



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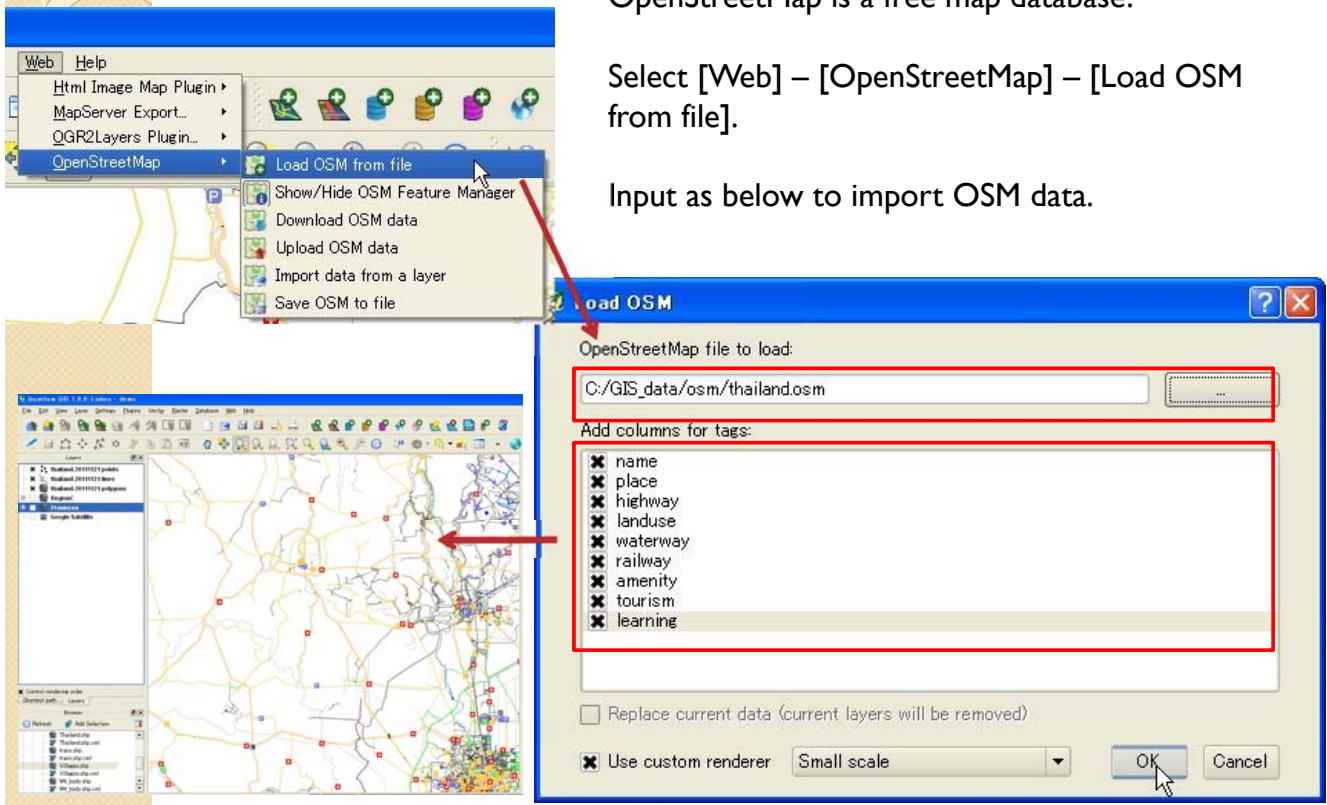
I.3.1 Quantum GIS (GIS data Mapping software)

Open Street Map

OpenStreetMap is a free map database.

Select [Web] – [OpenStreetMap] – [Load OSM from file].

Input as below to import OSM data.



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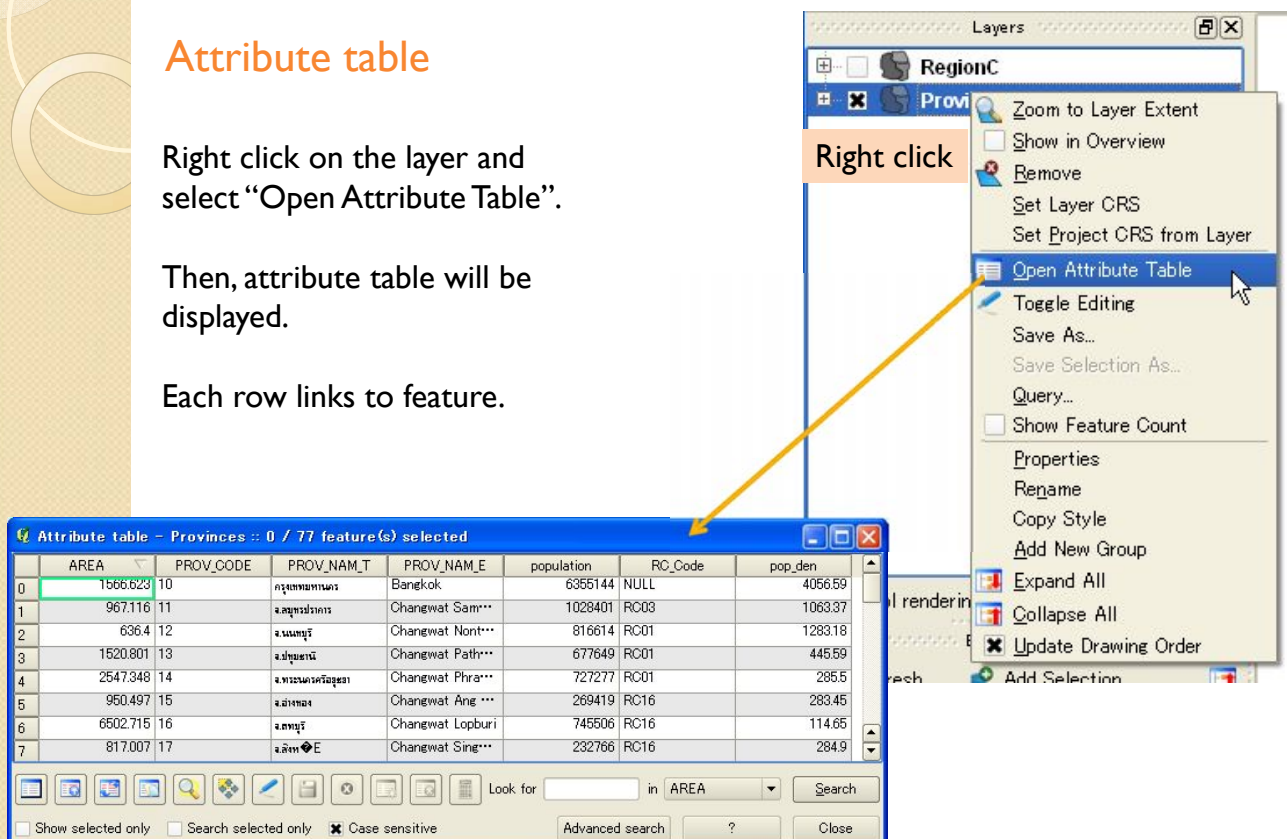
I.3.1 Quantum GIS (GIS data Mapping software)

Attribute table

Right click on the layer and select "Open Attribute Table".

Then, attribute table will be displayed.

Each row links to feature.



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Attribute table

Attribute table functions

Attribute table - Provinces :: 0 / 77 feature(s) selected

	AREA	PROV_CODE	PROV_NAM_T	PROV_NAM_E	population	RC_Code	pop_den
0	1566.623	10	กรุงเทพมหานคร	Bangkok	6355144	NULL	4056.59
1	967.116	11	จ.สมุทรปราการ	Changwat Sam...	1028401	RC03	1063.37
2	636.4	12	จ.นนทบุรี	Changwat Nont...	816614	RC01	1283.18
3	1520.801	13	จ.ปทุมธานี	Changwat Path...	677649	RC01	445.59
4	2547.348	14	จ.พระนครศรีอยุธยา	Changwat Phra...	727277	RC01	285.5
5	950.497	15	จ.อ่างทอง	Changwat Ang ...	269419	RC16	283.45
6	6502.715	16	จ.ลพบุรี	Changwat Lopburi	745506	RC16	114.65
7	817.007	17	จ.สิงห์	Changwat Sing...	232766	RC16	284.9

Look for in AREA Search

Show selected only Search selected only Case sensitive Advanced search ? Close

Pan or zoom
to selected feature

Delete
selected features

Add and delete columns

Field calculator

Start/stop editing and save editing

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Attribute table

Editing

After "edit" button is pushed, it is possible to edit field values.

Attribute table - Provinces :: 0 / 77 feature(s) selected

	AREA	PROV_CODE	PROV_NAM_T	PROV_NAM_E	population	RC_Code	pop_den
0	1566.623	10	กรุงเทพมหานคร	Bangkok	6355144	NULL	4056.59
1	967.116	11	จ.สมุทรปราการ	Changwat Sam...	1028401	RC03	1063.37
2	636.4	12	จ.นนทบุรี	Changwat Nont...	816614	RC01	1283.18
3	1520.801	13	จ.ปทุมธานี	Changwat Path...	677649	RC01	445.59
4	2547.348	14	จ.พระนครศรีอยุธยา	Changwat Phra...	727277	RC01	285.5
5	950.497	15	จ.อ่างทอง	Changwat Ang ...	269419	RC16	283.45
6	6502.715	16	จ.ลพบุรี	Changwat Lopburi	745506	RC16	114.65
7	817.007	17	จ.สิงห์	Changwat Sing...	232766	RC16	284.9

Look for in Search

Show selected only Search selected only Case sensitive Advanced search ? Close

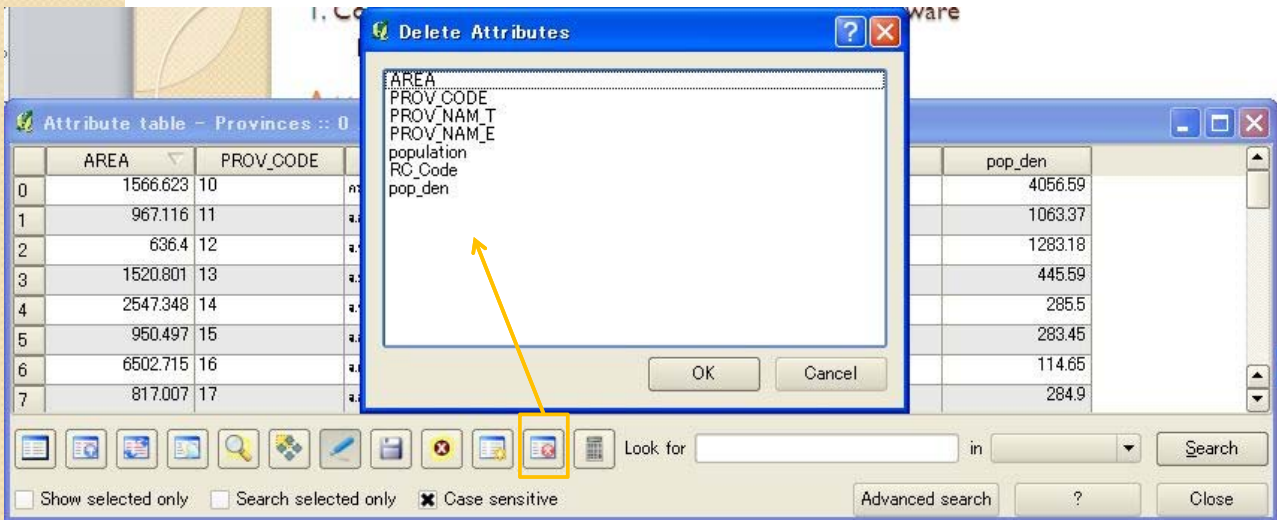
I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Attribute table

Delete column

To delete column, push “delete column” button and select column name to delete.



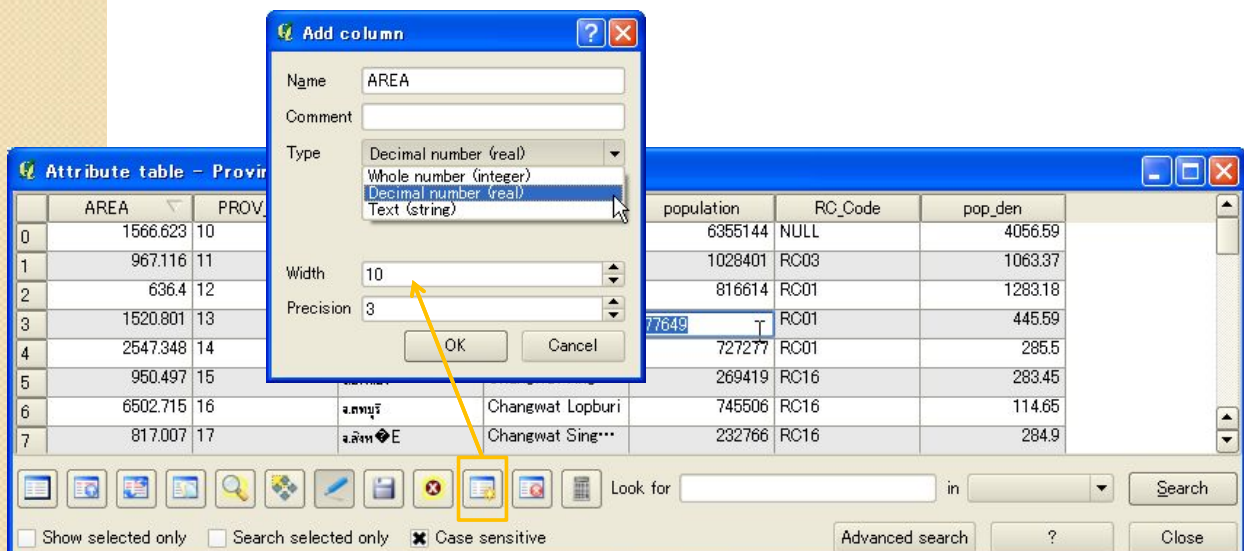
I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Attribute table

Add column

To add new column, push “new column” button and input column name, type, width (number of character) and precision (number of character under decimal point).



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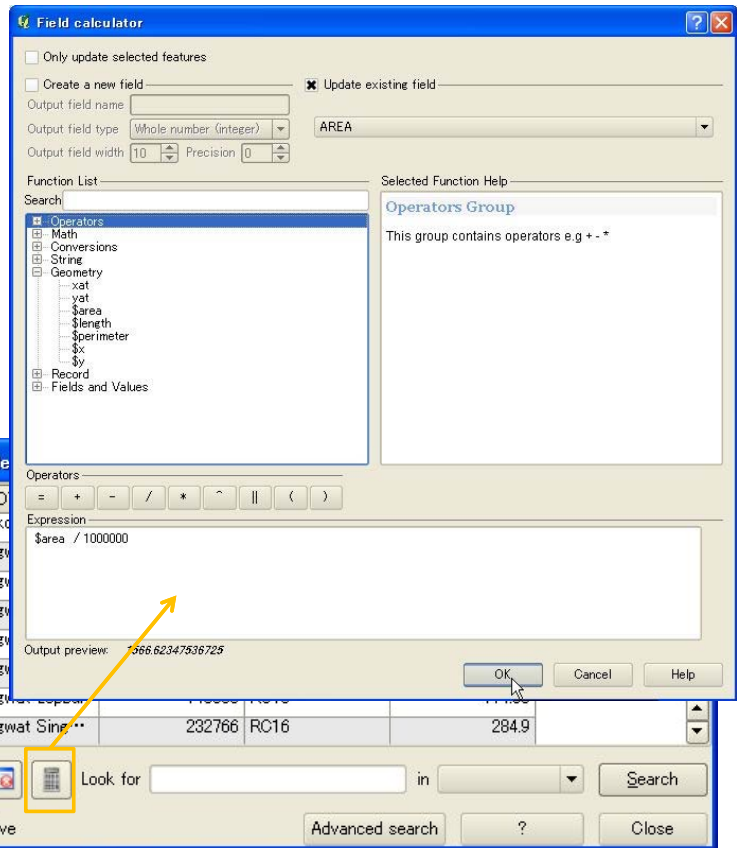
I.3.1 Quantum GIS (GIS data Mapping software)

Attribute table

Field calculator

Field calculator is a tool to carry out arithmetic operation between columns and to calculate geometry (area, length...).

	AREA	PROV_CODE	PROV_NAM_T	PROV_CODE
0	1566.623	10	กรุงเทพมหานคร	Bangkok
1	967.116	11	ฉะเชิงเทรา	Changwat
2	636.4	12	ชลบุรี	Changwat
3	1520.801	13	สมุทรสาคร	Changwat
4	2547.348	14	พระนครศรีอยุธยา	Changwat
5	950.497	15	อ่างทอง	Changwat
6	6502.715	16	ลพบุรี	Changwat
7	817.007	17	สิงห์บุรี	Changwat Sing...



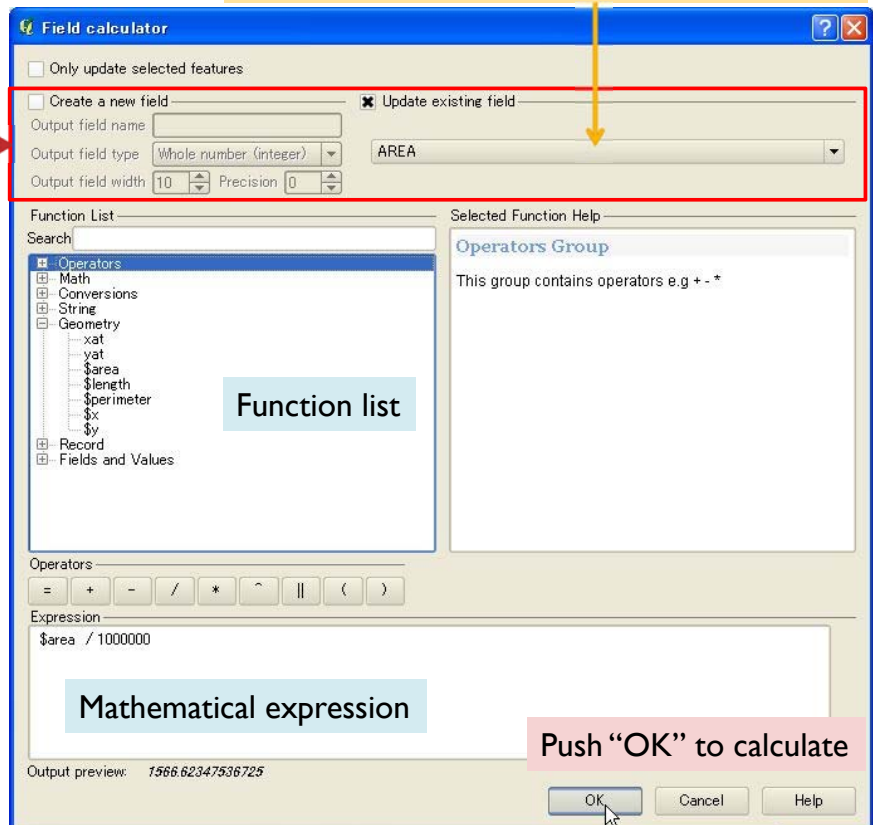
I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Attribute table

Select column name to input calculated result

Choose creating a new field to input calculated result or update existing field



This expression means...
"\$area" = area of feature (m²)

Mathematical expression

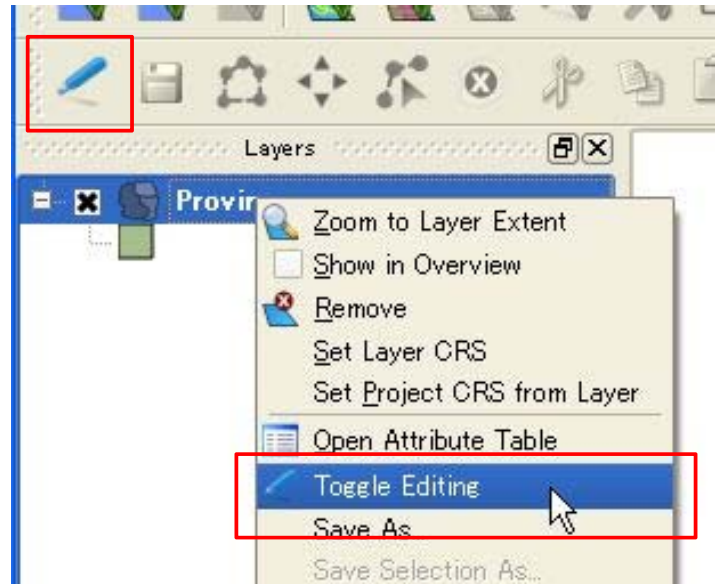
Push "OK" to calculate

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Editing

Other buttons to start editing are located at “Right click” – “Toggle Editing” or in toolbar.

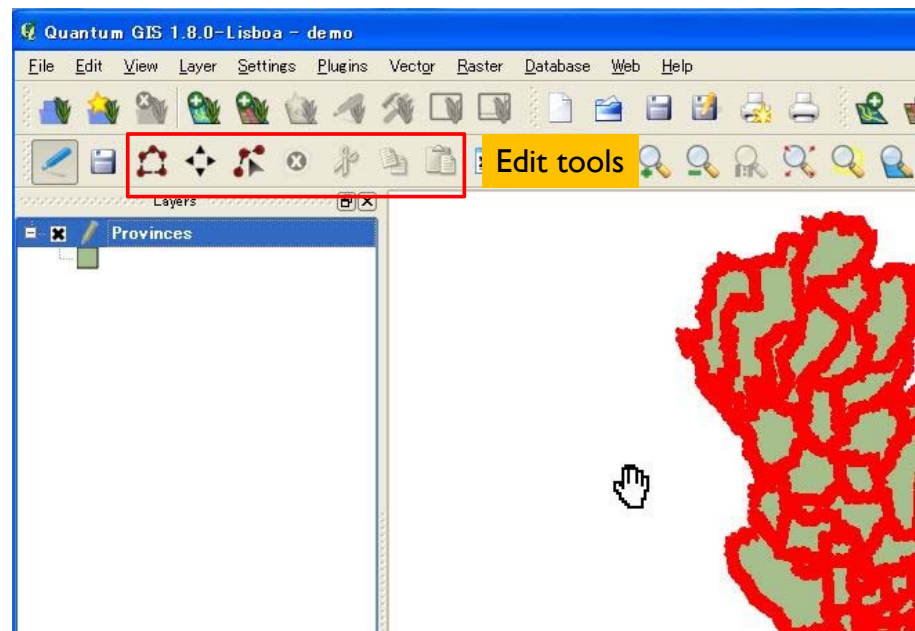


I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Editing

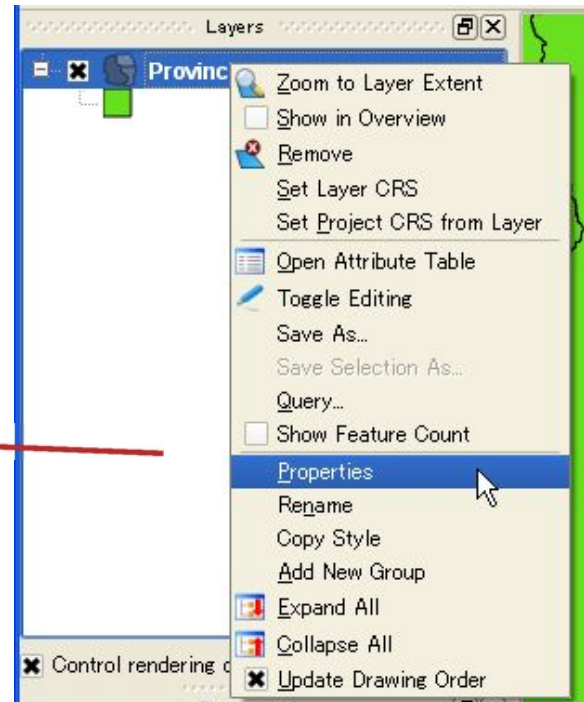
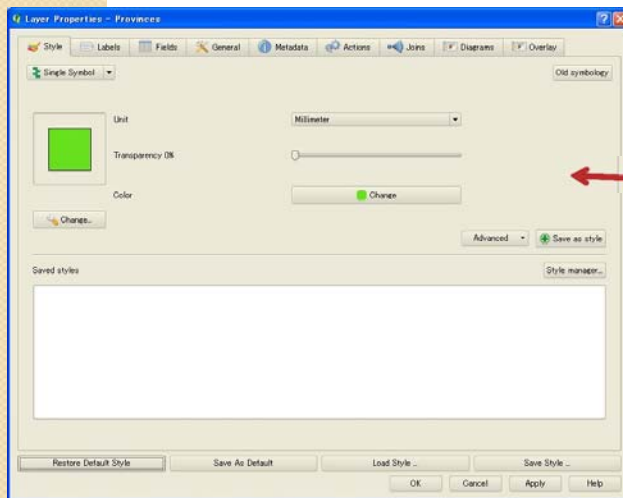
While “Edit” button is on, editable features get red.
You can use edit tools on the toolbar.



I. Constitution of GIS Data and How to Use GIS Software
I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers

Double click or right click and select “Properties” to show layer properties as below.



I. Constitution of GIS Data and How to Use GIS Software
I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers



“Style” : color and symbol settings

“Labels” : label setting

“Fields” : add/delete attribute, set alias name of attribute

“General”: change display name, CRS (Coordinate Reference System) and encoding.
set “query” (screening display data... ex. population > 10,000)

“Metadata”: general information of the layer

“Actions”: set “actions”

“Joins” : join attribute table

“Diagrams”: make text diagrams and pie charts

“Overlay”: make pie charts and bar charts

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “General” settings tab

Display name on the layer

Primary attribute column

CRS (Coordinate Reference System) setting

Text Encoding (TIS-620 is for Thai language)

“query” (screening display data. This example means that if “AREA” column value is higher than 8000, then display feature)

You can restore these settings into style file and apply to other layer

Layers

Provinces

Properties - Provinces

Style Labels Fields General Metadata

Options

Display name Provinces Display field PROV_NAME

Edit UI Create Spatial Index

Init function Update Extents

EPSG:32647 - WGS 84 / UTM zone 47N Specify CRS

Use scale dependent rendering

Minimum 0.000000 Maximum 100000000.000000

Provider-specific options

Encoding TIS-620

Subset

“AREA” > 8000

Query Builder

Restore Default Style Save As Default Load Style ... Save Style ...

OK Cancel Apply Help

RC03.shp

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Labels” tab

Input text for data blank feature

Font and color

Font size setting
In points ; fixed font size
In map units ; font size varies depends on scale

Check to display labels

Select column name to display

Layer Properties - Provinces

Style Labels Fields General Metadata Actions

Display labels

Label Properties Advanced

Basic label options

Field containing label PROV_NAME

Default label

Font size 20.000000 In points Font

Angle (deg) 0° Color

Size and angle

Label only selected features

Placement

Preview: QGIS Rocks!

Restore Default Style Save As Default Load Style ... Save Style ...

OK Cancel Apply Help

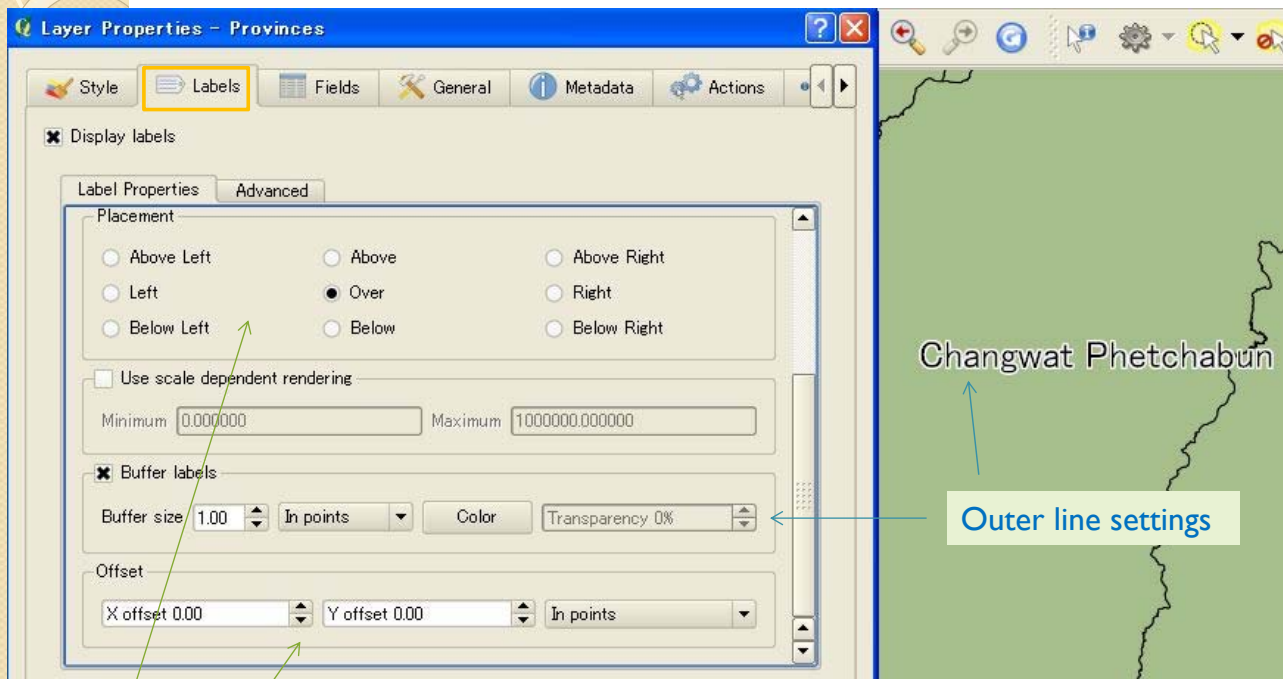
RC01.shp

Changwat Phetchabun

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Labels” tab



Placement settings

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Join” tab

Attribute table - Provinces :: 0 / 77 feature(s) selected

	PROV_CODE	PROV_NAM_T	PROV_NAM_E	population	RC_Code	pop_den	AREA
0	10	กรุงเทพมหานคร	Bangkok	6365144	NULL	4056.59	1566.623
1	11	ฉะเชิงเทรา	Changwat Sam...	1028401	RC03	1063.37	967.116
2	12	นนทบุรี	Changwat Nont...	816614	RC01	1283.18	636.4
3	13	พิจิตร	Changwat Path...	677649	RC01	445.59	1520.801
4	14	พระนครศรีอยุธยา	Changwat Phra...	727277	RC01	285.5	2547.348
5	15	อ่างทอง	Changwat Ang ...	269419	RC16	283.45	950.497
6	16	ลพบุรี	Changwat Lopburi	745506	RC16	114.65	6502.715
7	17	สิงห์	Changwat Sing...	232766	RC16	284.9	817.007

Look for: in PROV_NAM_E Search

Show selected only Search selected only Case sensitive Advanced search ? Close

It is able to join plural attribute tables by using key column.

Attribute table - RegionC :: 0 / 19 feature(s) selected

	AREA	RC_Code	R_Name
0	1566.623	NULL	NULL
1	20175.015	RC03	Prachin Buri (R...
2	8192.726	RC01	PathunThani (R...
3	10775.481	RC16	Chainat (RC)
4	17413.6	RC17	Chanthaburi (RC)
5	52367.876	RC05	Nakhon Ratcha...
6	31983.63	RC13	Ubon Ratchath...
7	32948.884	RC14	Udon Thani (RC)

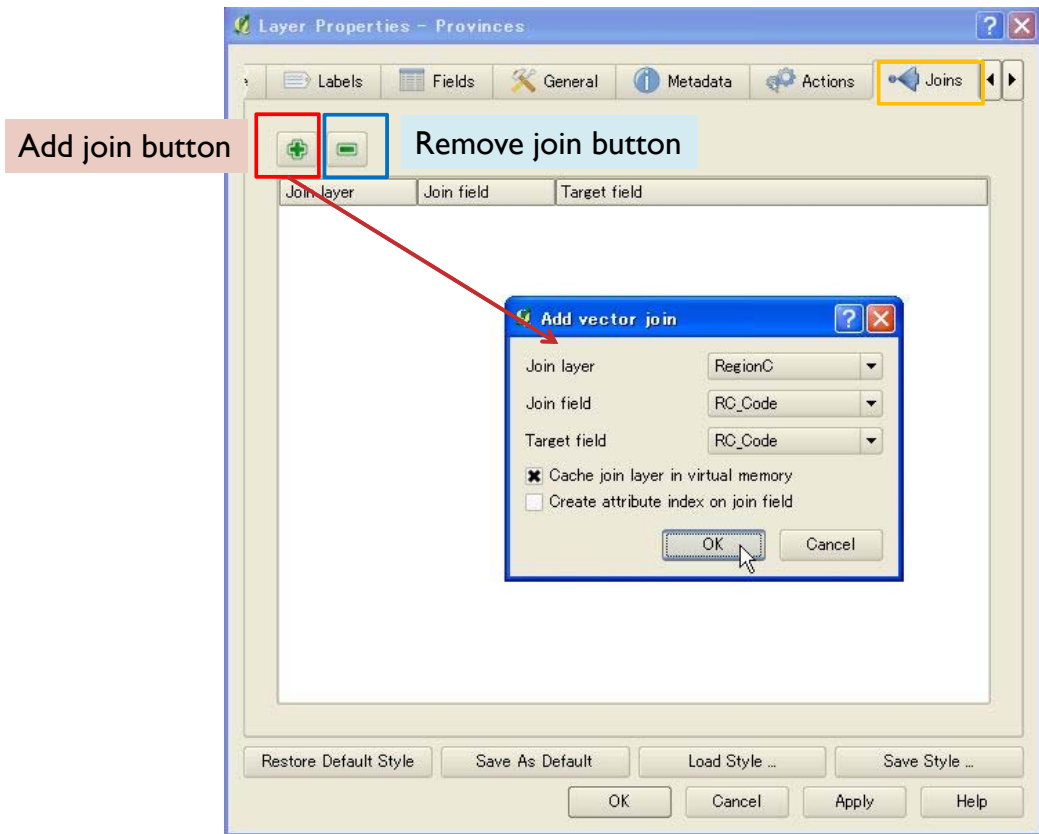
Look for: in Search

Show selected only Search selected only Case sensitive Advanced search ? Close

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

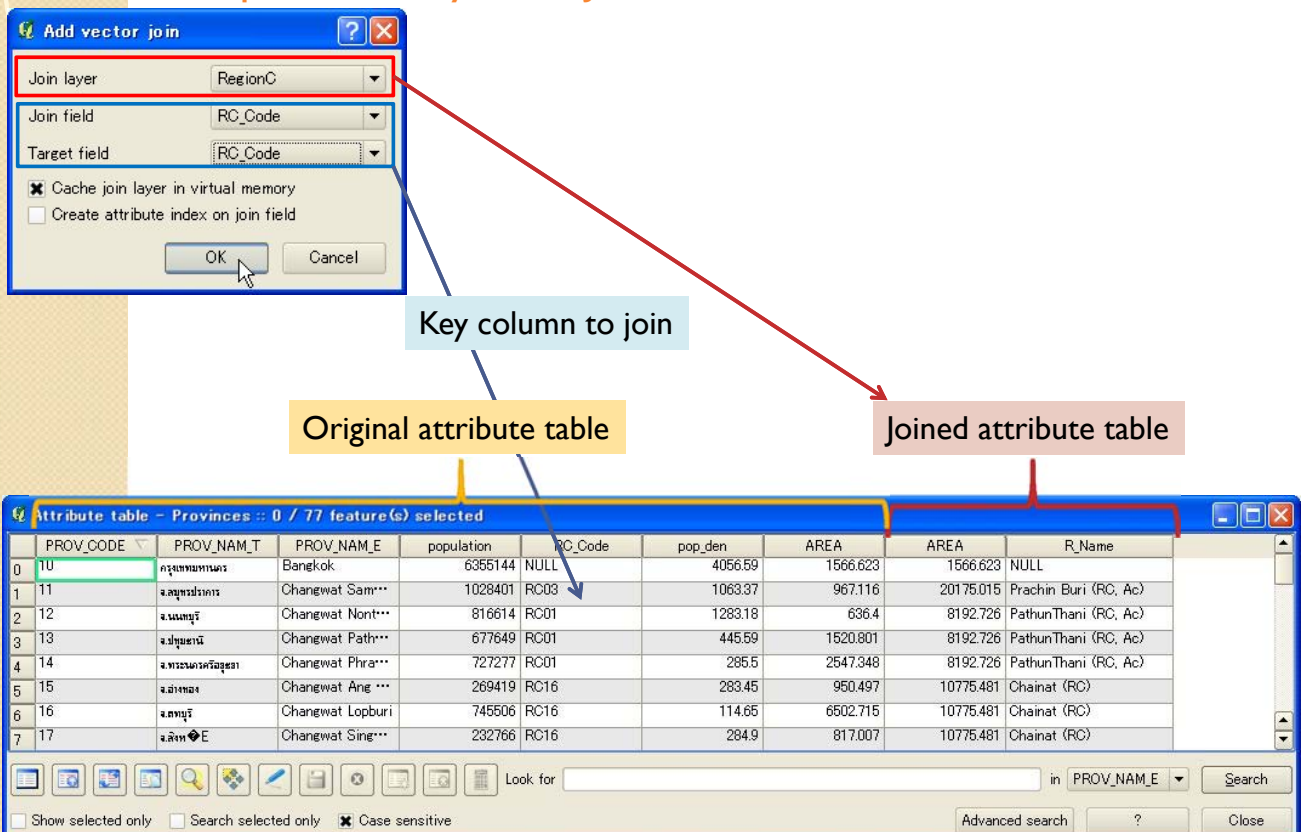
Properties of layers – “Join” tab



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Properties of layers – “Join” tab



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I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Join” tab

PROV_CODE	PROV_NAME	PROV_NAME	population	RC_Code	pop_jm	AREA	AREA	R_Name
0	กรุงเทพมหานคร	Bangkok	695744	NULL	495255	1566223	1566223	NULL
1	ฉะเชิงเทรา	Changest Saen...	1028481	RC03	106327	967116	20176215	Prachin Buri (RC, Ac)
2	ชลบุรี	Changest Nant...	816614	RC01	128316	6364	8192726	PathumThani (RC, Ac)
3	ปราจีนบุรี	Changest Path...	677649	RC01	44559	1520301	8192726	PathumThani (RC, Ac)
4	สุพรรณบุรี	Changest Phra...	727277	RC01	38651	2547348	8192726	PathumThani (RC, Ac)
5	กาญจนบุรี	Changest Aca...	284419	RC16	28345	950437	10776481	Changest (RC)
6	ราชบุรี	Changest Labu...	749506	RC16	11486	8922715	10776481	Changest (RC)
7	ลพบุรี	Changest Siam...	232766	RC16	3849	817007	10776481	Changest (RC)

Remove join button

PROV_CODE	PROV_NAME	PROV_NAME	population	RC_Code	AREA	R_Name
0	กรุงเทพมหานคร	Bangkok	695744	NULL	1566223	NULL
1	ฉะเชิงเทรา	Changest Saen...	1028481	RC03	967116	Prachin Buri (RC, Ac)
2	ชลบุรี	Changest Nant...	816614	RC01	6364	PathumThani (RC, Ac)
3	ปราจีนบุรี	Changest Path...	677649	RC01	1520301	PathumThani (RC, Ac)
4	สุพรรณบุรี	Changest Phra...	727277	RC01	2547348	PathumThani (RC, Ac)
5	กาญจนบุรี	Changest Aca...	284419	RC16	950437	Changest (RC)
6	ราชบุรี	Changest Labu...	749506	RC16	8922715	Changest (RC)
7	ลพบุรี	Changest Siam...	232766	RC16	817007	Changest (RC)

AREA	RC_Code	R_Name	
1	NULL	NULL	
1	20176215	RC03	Prachin Buri (RC, Ac)
2	8192726	RC01	PathumThani (RC, Ac)
3	10776481	RC16	Changest (RC)
4	174131	RC17	Changest (RC)
5	1028749	RC06	Nakhon Pathom (RC, Ac)
6	3198262	RC12	Ubon Ratchasima (RC, Ac)
7	3246884	RC04	PathumThani (RC)

in layer	Join field	Target field
RegionC	RC_Code	RC_Code

Joined field can be re-separate.

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Join” tab

- Zoom to Layer Extent
- Show in Overview
- Remove
- Set Layer CRS
- Set Project CRS from Layer
- Open Attribute Table
- Toggle Editing
- Save As...**
- Save Selection As...
- Query...
- Show Feature Count
- Properties
- Rename
- Copy Style
- Add New Group
- Expand All
- Collapse All
- Update Drawing Order

If you want to save completely joined attribute table, right click layer and select “save as” to save new file.

Select format
Input file name

Format: ESRI Shapefile

Save as: [] Browse

Encoding: TIS-620

Layer CRS: []

CRS: WGS 84 / UTM zone 47N

OGR creation options

Data source: []

Layer: []

Skip attribute creation

Add saved file to map

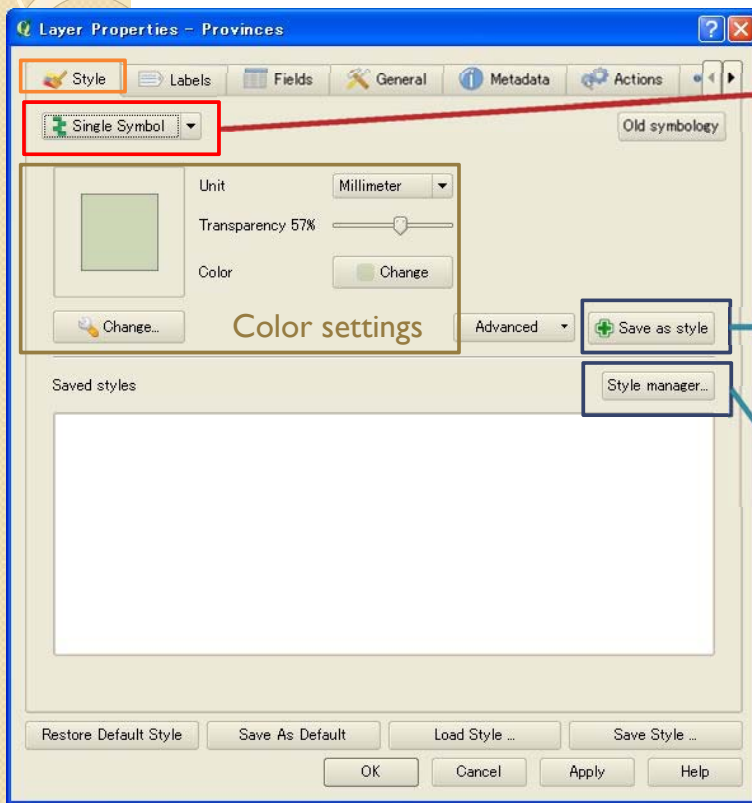
OK Cancel Help

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Style” tab

“Style” tab is color setting tab.



Single Symbol : single color feature
Categorized : set color to each attribute column value
Graduated : set color to each range of attribute column value

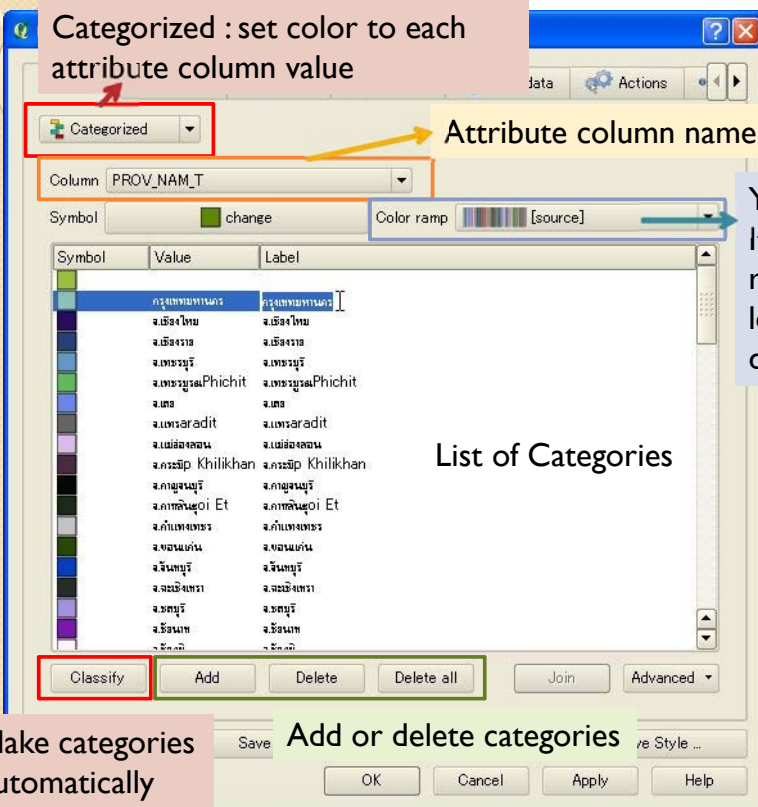
You can save settings as style file and apply same setting to other layers.

Load or manage saved styles.

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Style” tab



Categorized : set color to each attribute column value

Attribute column name to set color

You can set color ramp here. It is able to make new color ramp by “New Color Ramp...” located at the bottom of pull down.

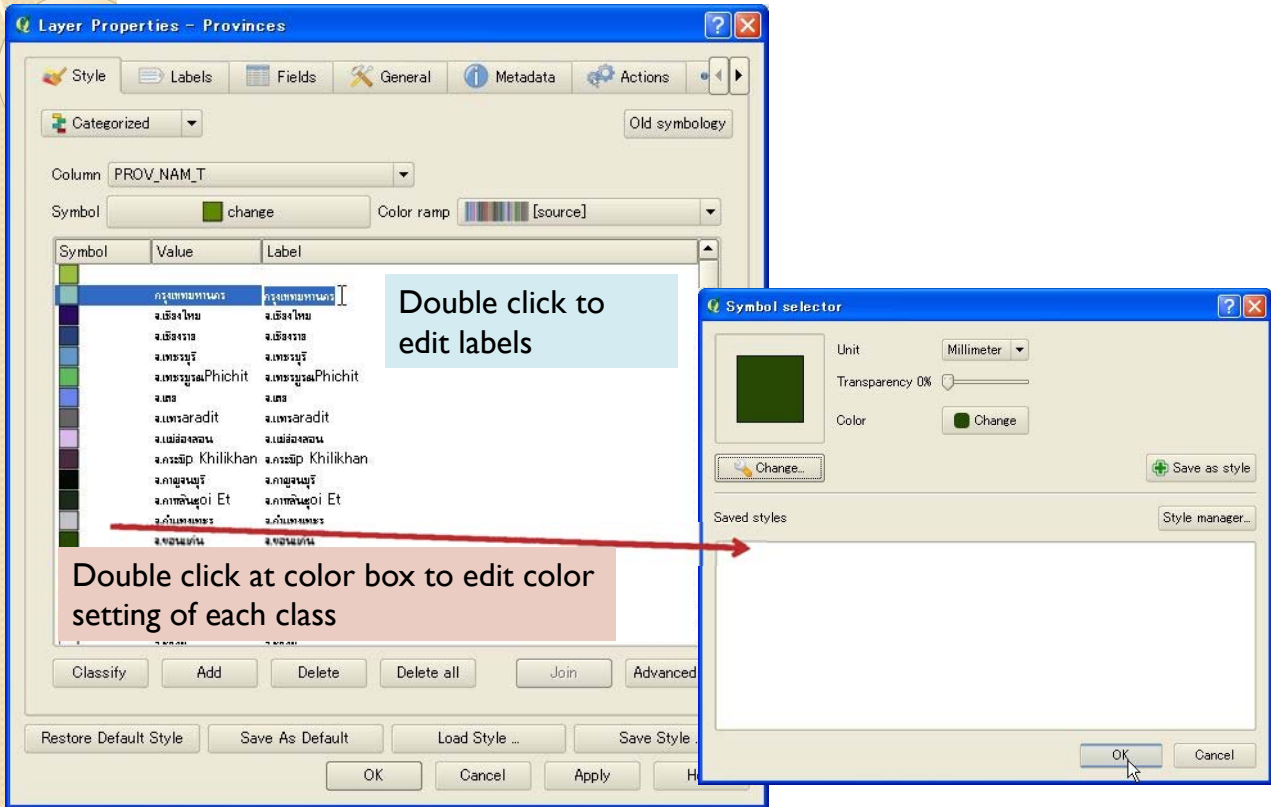
Make categories automatically

Add or delete categories

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I.3.1 Quantum GIS (GIS data Mapping software)

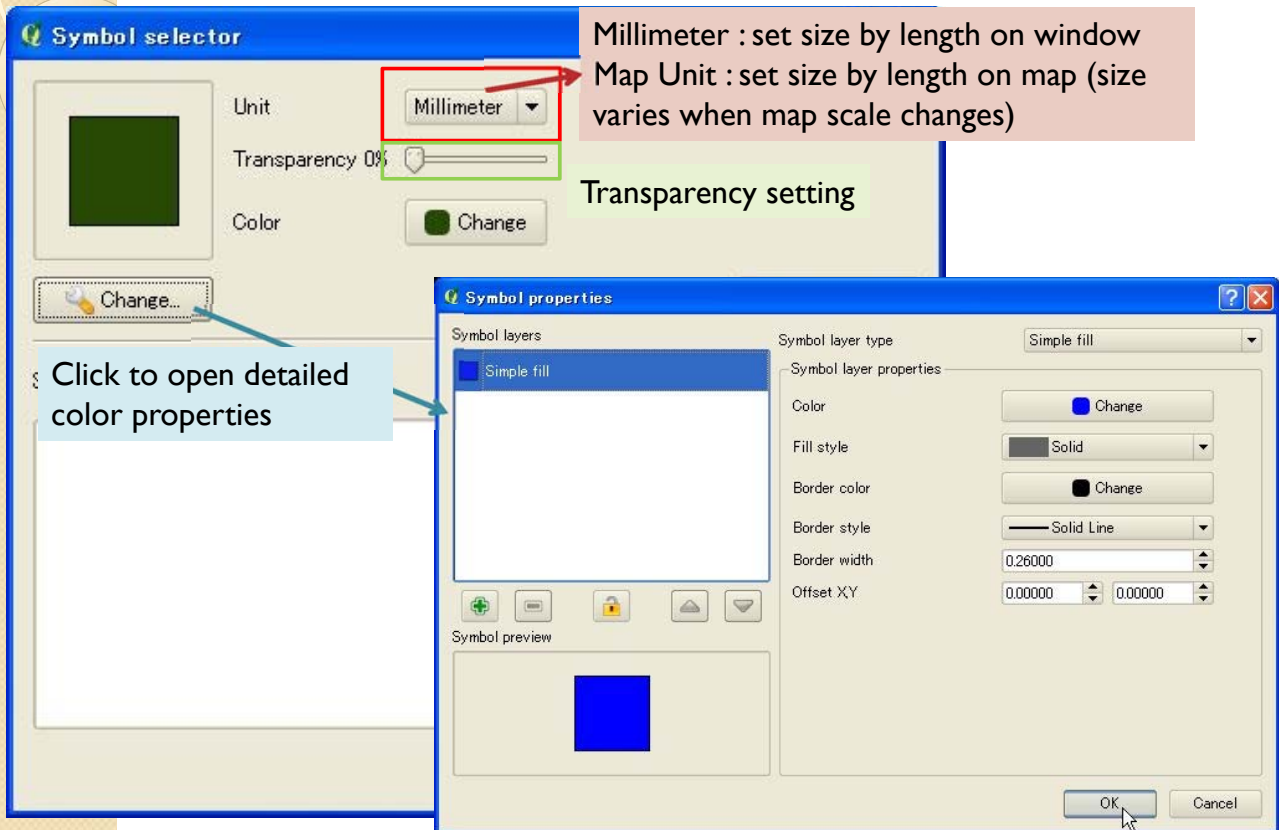
Properties of layers – “Style” tab



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I.3.1 Quantum GIS (GIS data Mapping software)

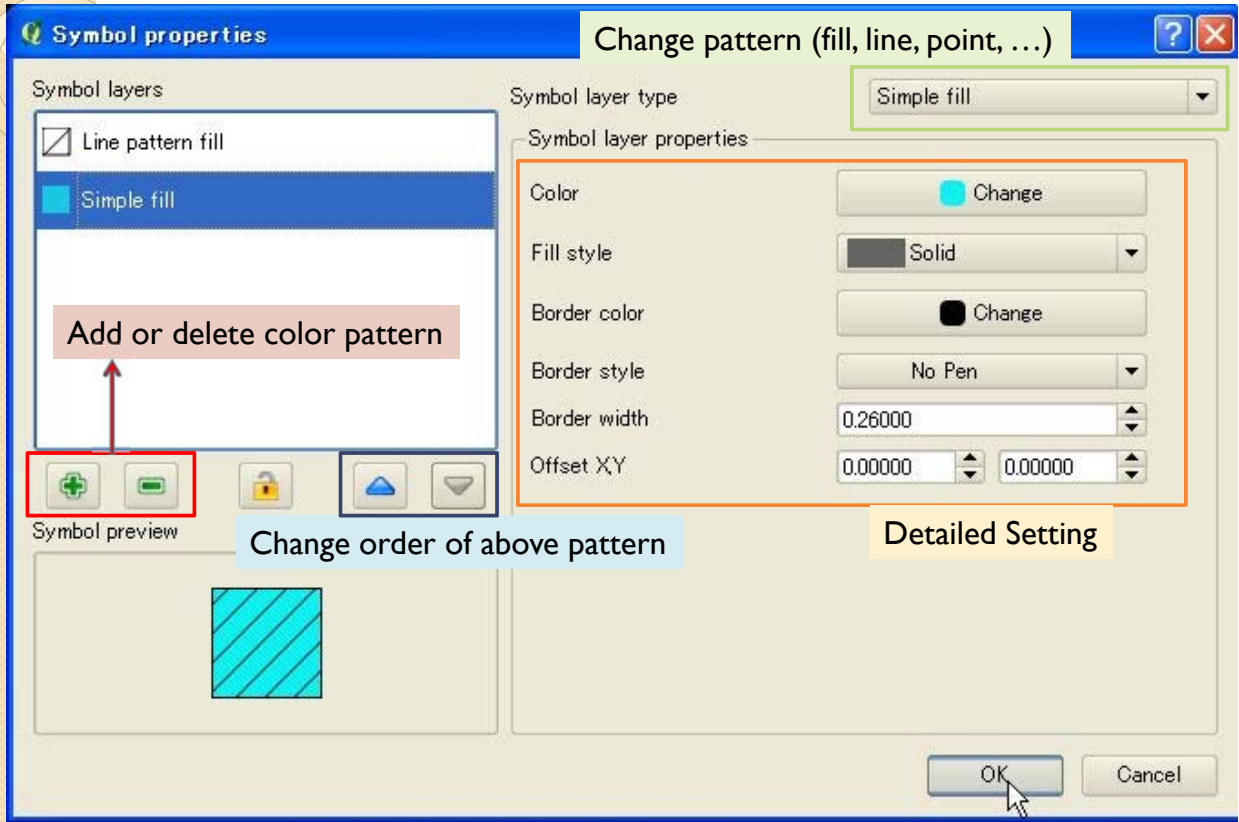
Properties of layers – “Style” tab



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I.3.1 Quantum GIS (GIS data Mapping software)

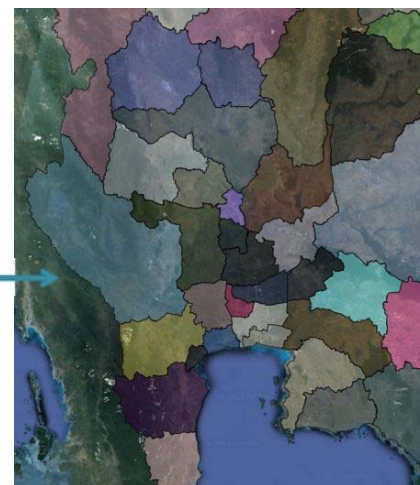
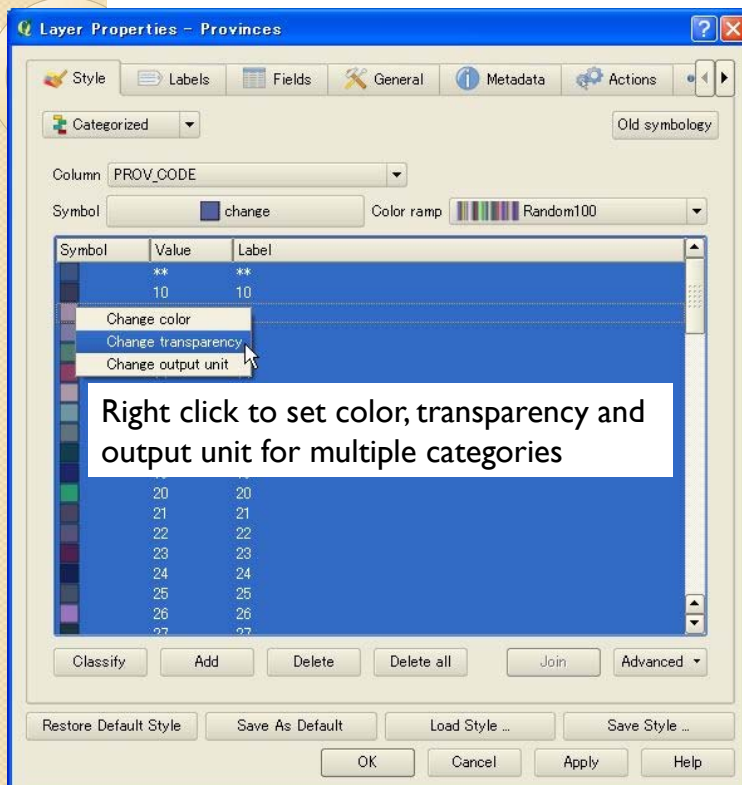
Properties of layers – “Style” tab



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I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Style” tab



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Style” tab

Graduated : set color to each range of attribute column value

Attribute column name to set color

Number of classes and class separation setting

You can set color ramp here. It is able to make new color ramp by “New Color Ramp...” located at the bottom of pull down.

Symbol	Range	Label
	161210.0000 - ...	< 0 Std Dev
	791086.1948 - ...	0 Std Dev - 1 Std Dev
	1564985.5427 - ...	1 Std Dev - 2 Std Dev
	2338884.8906 - ...	2 Std Dev - 3 Std Dev
	3112784.2386 - ...	3 Std Dev - 4 Std Dev
	3886683.5965 - ...	4 Std Dev - 5 Std Dev
	4660582.9344 - ...	5 Std Dev - 6 Std Dev
	5434482.2823 - ...	6 Std Dev - 7 Std Dev
	6208381.6302 - ...	>= 7 Std Dev

List of Classes

Classify Add class Delete class Advanced

Make classes automatically Add or delete classes Save Style ...

OK Cancel Apply Help

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Diagram” tab

Check to display diagram

Display diagrams Diagram type Text diagram

Select diagram type

Color and font settings

Size and position settings

Add or delete attribute columns to display

Attribute	Color
AREA	
population	

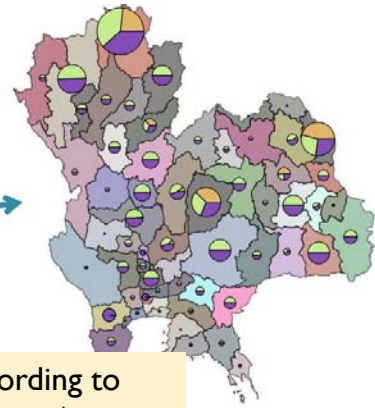
Restore Default Style Save As Default Load Style ... Save Style ...

OK Cancel Apply Help

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Properties of layers – “Diagram” tab



Select fixed size or variable size according to value of attribute column (see next page)

Add or delete attribute columns to display. Color settings are also here.

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I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Diagram” tab

Set size and check here to use fixed scale

mm : set size by length on window
Map Unit : set size by length on map (size varies when map scale changes)

Select attribute column to determine size

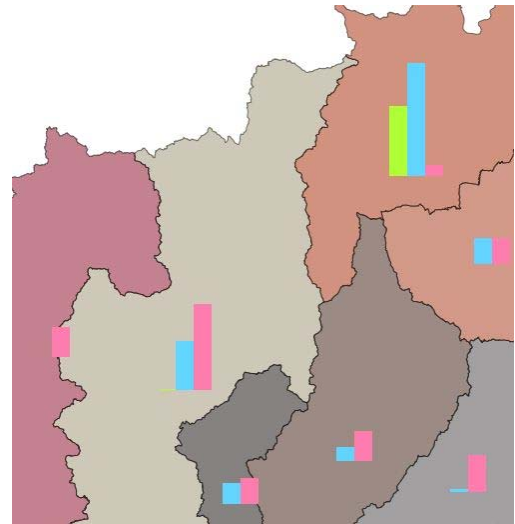
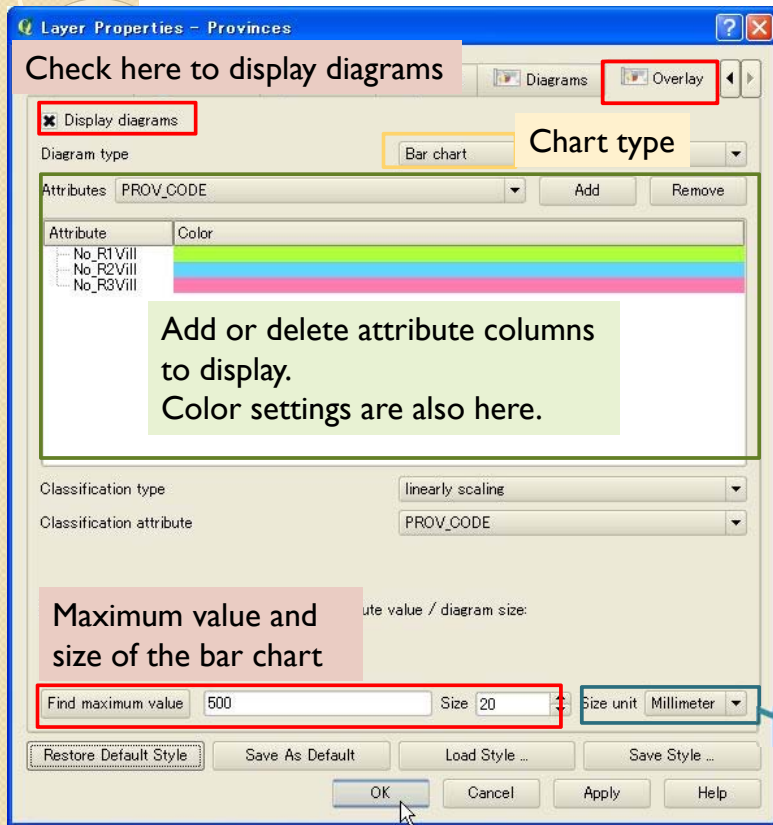
Set maximum value of attribute column value

Set maximum size of pie chart

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Properties of layers – “Overlay” tab



mm : set size by length on window
Map Unit : set size by length on map (size varies when map scale changes)

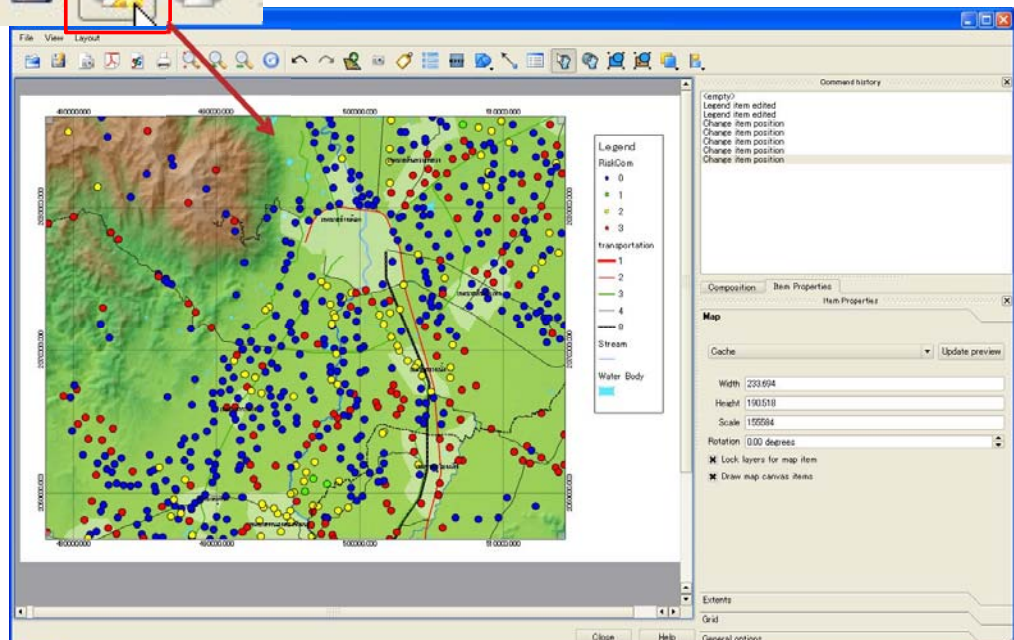
I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Print composer

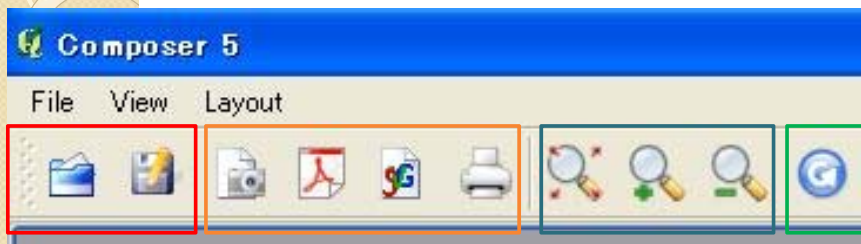


Print composer is canvas window for print or export image file, such as pdf, jpg...



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 I.3.1 Quantum GIS (GIS data Mapping software)

Print composer

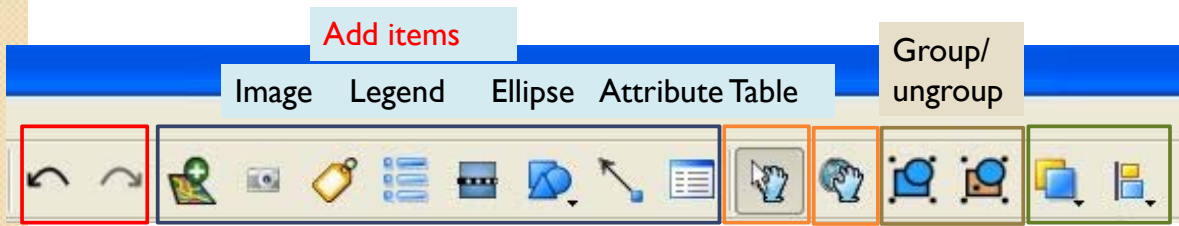


Load and save

Export to file or print

Zoom in/out

Refresh canvas



Redo/undo

Map

Label

Scale bar

Arrow

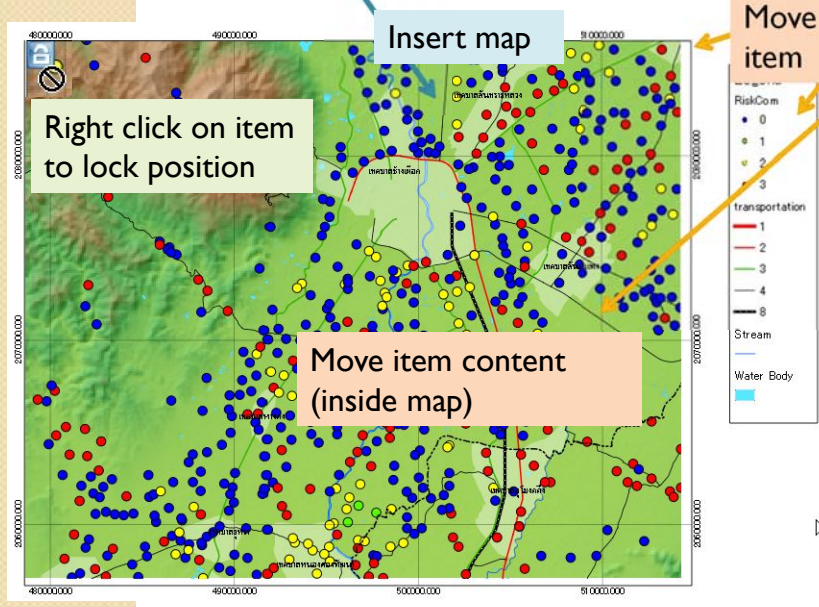
Move item

Move item content

Change item order and align

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 I.3.1 Quantum GIS (GIS data Mapping software)

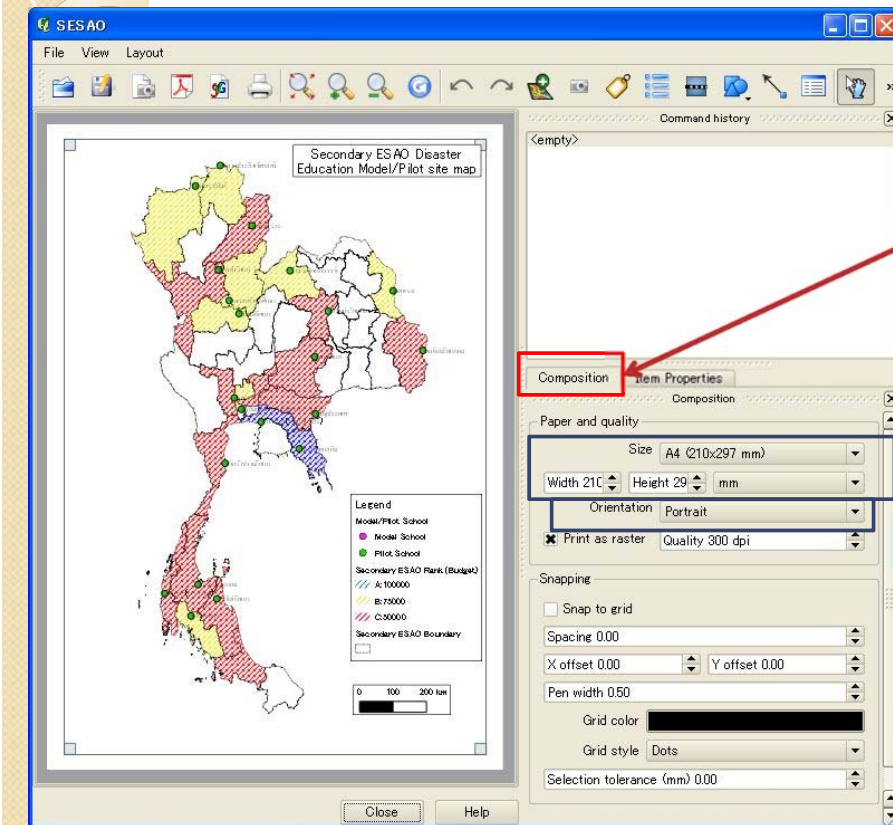
Print composer



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Print composer



Composition tab is for General settings of the canvas

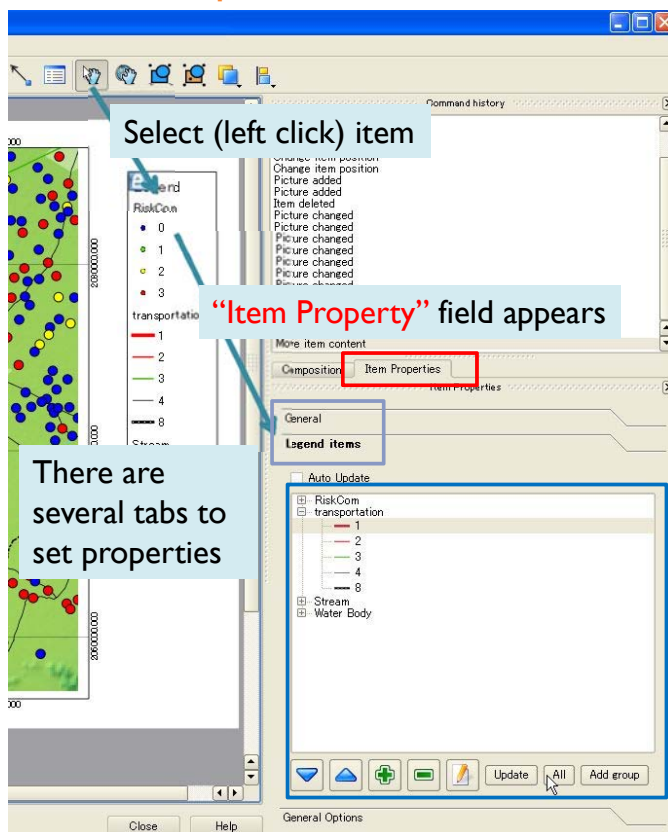
Size

Orientation

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I.3.1 Quantum GIS (GIS data Mapping software)

Print composer



Select (left click) item

"Item Property" field appears

There are several tabs to set properties

When you select a item on canvas, property field appears at bottom of right side.

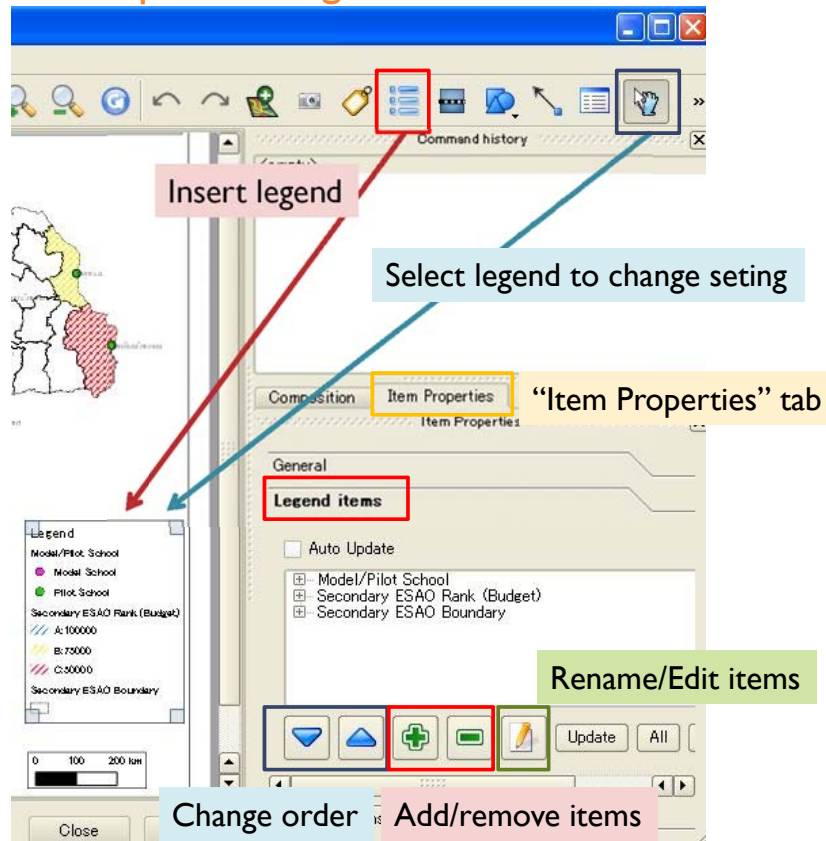
You can arrange several settings.

You can add, remove or edit legend items.

I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

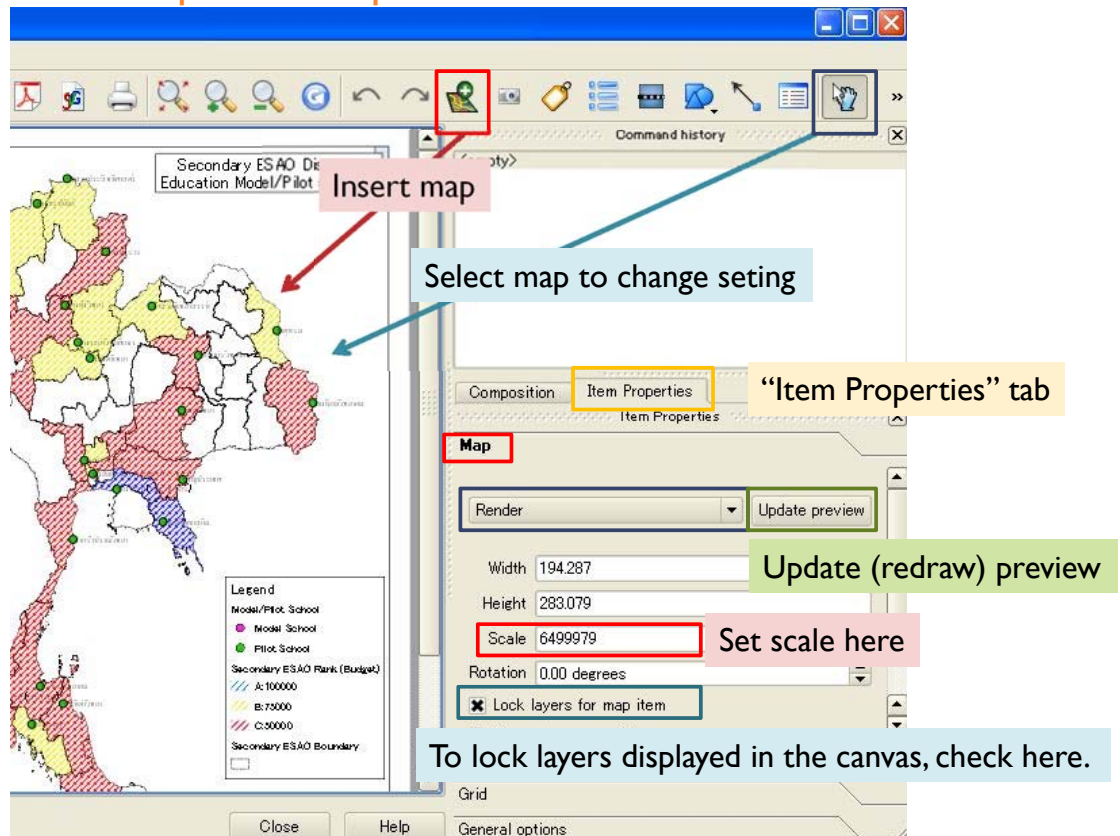
Print composer - Legend



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

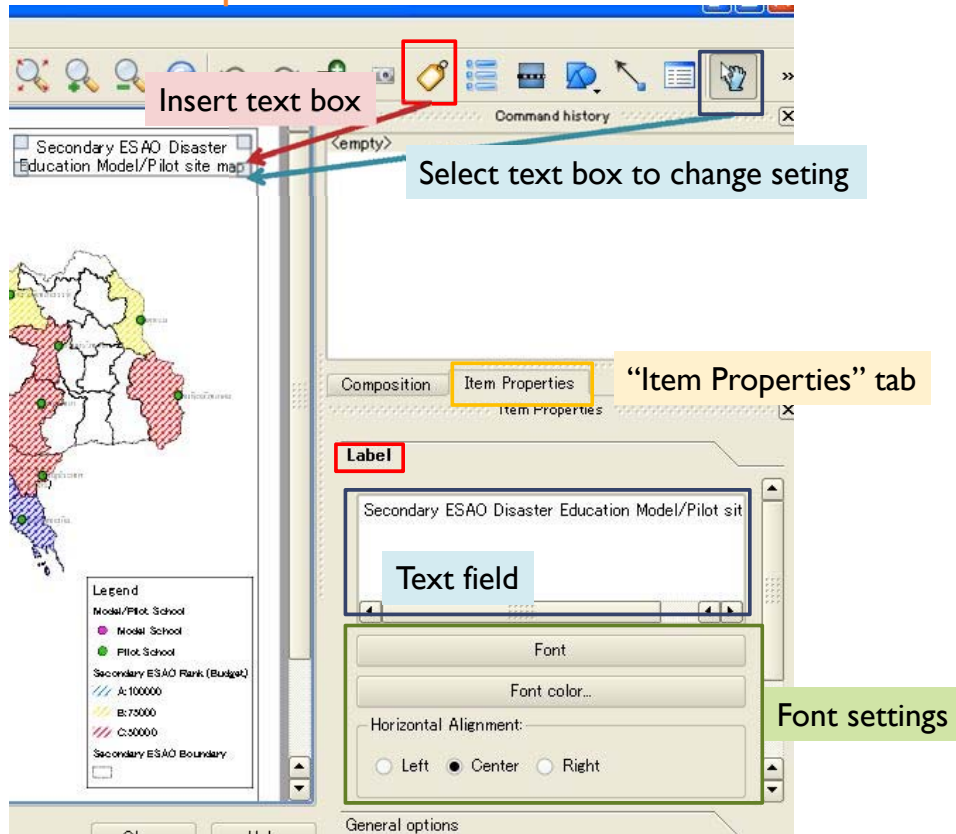
Print composer - Map



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Print composer – Text box



I. Constitution of GIS Data and How to Use GIS Software

I.3.1 Quantum GIS (GIS data Mapping software)

Print composer



You made composer once, you can reload the composer from this button. You also remove or rename the composer.

