

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

1.1 GIS data and Outline of the Inventory map

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



Attribute



Location

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

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".





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





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



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 reinfoeced in the risky area.

#### I. Constitution of GIS Data and How to Use GIS Software I.2 Examples of GIS Software Quantum GIS Open source GIS software. Many functions and plugins are packaged. 🔐 🕾 🔂 🖄 🖓 🖓 🗔 💷 🗀 🖴 🖴 € € € € ₽ 0 0 . A 2 2 % 5 B E E E 日白々だの非 Q. Q 2.9 ۲ 0 0 810 10 4 8 ... x : thailand-20111121 poin x ≿ thailand-20111121 lines Feature: TYPE, ID CREATED 09/07/31 - 23:05 USER 1 stephankn restaurant Mandan 4 Control rendering order Shortest path Layers 100.51105,13.77534 • 9 X Render EPS0:4328 0 Scale 1.9510





### 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..







#### I. Constitution of GIS Data and How to Use GIS Software 1.3.1 Quantum GIS (GIS data Mapping software) The following window should appear. GIS data has not been imported yet. Quantum GIS 1.8.0-Lisboa jile Edit View Layer Settings Plugins Vector Baster Database Web Help 🙀 🏘 🐚 🖓 🐏 🔃 🐗 🕼 🗊 💷 💷 🖆 🔄 🛃 🔮 👻 👻 😭 🍄 🄗 🔗 🏡 🗶 🛄 🖗 🔿 🔊 30 dz 30 日二 今 第 9 月 11 回 🗑 🗞 🔍 🔍 🔍 🔍 🔍 🖉 🥬 🕐 🕐 🖉 👘 🔹 🜏 \* 🕖 \* 🖗 \* dag 20 5 0 ð × Layers **OSM** Feature 8 -Feature TYPE, ID. OREATED USER: R Properties Relations kay m Control rendering order Shortest path Layers S Coordinate 0.054,0.997 Scale 1:1194172 - 9 X Render EPSG 4328 0



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

1.3.1 Quantum GIS (GIS data Mapping software)

### Kinds of GIS data

Open "C:¥GIS\_data" folder.



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

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.





#### 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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## 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

I) 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





## Explanation of sub windows and fields





## Explanation of sub windows and fields

3) Map View

Map View is a field to display GIS data.







## Explanation of sub windows and fields





## Explanation of sub windows and fields





## 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.



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## 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 1.3.1 Quantum GIS (GIS data Mapping software) Add layers En Edit Ven Levin Settines Dietrie Vietyn Baiter Detabase 396 Beb 📸 🎒 🐏 🐏 🤮 🏨 🏨 🕸 🎼 🐗 % 🕼 🗐 💷 🛄 🚵 🝰 🚔 R R P P P P P 0 < 日口◇☆ ◇ ◇ ◇ ◎ 単 図 ◆ 2 2 2 2 2 4 0 2 月〇 伊泰ii. Add by explorer 1 Des You can drag and drop the file directly X E den S R from folder window. A A A Provincesale, Provincesale ROOLdd Ł FOITube ROOTube ROOTube \* ..... Drag and drop



## 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.





#### I. Constitution of GIS Data and How to Use GIS Software 1.3.1 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. 22999 -S 🔁 🔮 🙆 1 🗎 🗃 🔡 🎝 🚔 1 P 8 -- 24 目白今下。 0 🗞 C C L C C C C 90 22 30 0 Sec 10 Auto GCPs Launce O'SMEADURA 8 : thailand 20111121 points thailand-20111121 lines thailand 20111121 pol TYPE, ID Regiona Provinces Google Sa CREATE Add Google Hybrid layer Add Google Satellite lav Add OpenStreetMap & erties Relations Add OCM Public Trans Add Yahoo Street lave Add Yahoo Hybrid lave Add Bing Aerial with & nen Terrain-USA/O • 11214615,1533035 Scale 1.170615 . 9 × Render EPS0.3857 O Coordinate:

## 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.

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



### **Open Street Map**



OpenStreetMap is a free map database.

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

Input as below to import OSM data.

Save OSM to file	a oad OSM	? 🛛
	OpenStreetMap file to load:	
an land land and land land land land lan	C:/GIS_data/osm/thailand.osm Add columns for tags:	
	X name X place X highway Ianduse X waterway X railway X amenity X tourism X learning	
N MA Line Data Anno 1 Nacional Anticipation of the second sec	Replace current data (current layers will be removed) Use custom renderer Small scale	OK Cancel





## Attribute table

Editing

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

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2	636.4	12	<b>จ.นนหบุร</b>	Changwat Nont…	816614	RC01	1283.18	
3	1520.801	13	จ.ปทุมธานี	Changwat Path…	677649 т	RC01	445.59	
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5	950.497	15	a.a14ma4	Changwat Ang …	269419	RC16	283.45	
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## Attribute table

#### Delete column

To delete column, push "delete column" button and select column name to delete.

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## 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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## Editing

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





	Properties of layers		
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I. Constitution of GIS Data and How to Use GIS Software 1.3.1 Quantum GIS (GIS data Mapping software) **Properties of layers Q** Layer Properties - Provinces ? 🗙 📄 Labels 🛛 📕 Fields 🛛 🌂 General 🕅 Diagrams 💽 Overlay 🥳 Style Metadata 🛛 🐢 Actions - Joins 🔰 Single Symbol 👻 Old symbology "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" : join attribute table "Joins" "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 – "Labels" tab

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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





I. Constitution of GIS Data and How to Use GIS So	ftware
I.3.1 Quantum GIS (GIS data Mapping software)	)
Properties of layers – "Style" tab	
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I. Constitution of GIS Data and How to Use GIS So I.3.1 Quantum GIS (GIS data Mapping software) Properties of layers – "Style" tab Categorized : set color to each	oftware )
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## 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

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## 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

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I. Constitution of GIS Data and How to Use GIS S I.3.1 Quantum GIS (GIS data Mapping softwar Properties of layers – "Style" tab	Software re)
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I.3.1 Quantum GIS (GIS data Mapping software)
Properties of layers – "Diagram" tab
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 I.3.1 Quantum GIS (GIS data Mapping software)
 Properties of layers – "Overlay" tab

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