

# **Pengenalan Asas Kepada GIS (Geographical Information System)**

Sistem Maklumat Geografi

- ❖ 2D Map
- ❖ 3D Map

**GIS**  
Designing  
our future

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Spatial Data



# GIS Components

A Geographic Information System (GIS) links locational (spatial) and database (tabular) information and enables a person to visualize patterns, relationships, and trends. This process gives an entirely new perspective to data analysis that cannot be seen in a table or list format. The five components of a GIS are listed below.

1)

## HARDWARE

The hardware is the computer and peripherals on which the GIS operates. Today, this could be a centralized computer server running the UNIX or Windows NT operating systems, a desktop PC, or an Apple Macintosh. The computer may operate in isolation or in a networked configuration.

- Computers
- Networks
- Peripheral Devices
- Printers
- Plotters
- Digitizers



2)

## SOFTWARE

GIS software provides the functions and tools users need to store, analyze, and display geographical information. The key software components are:

- GIS Software
- Database Software
- DB Software
- Network Software

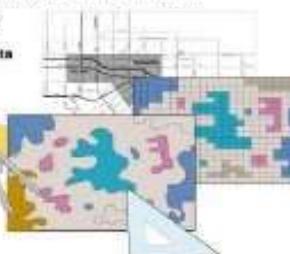


3)

## DATA

One of the most important component of GIS is the data. It is absolutely essential that data be accurate. The following are different data types:

- Vector Data
- Raster Data
- Image Data
- Attribute Data



5)

## PEOPLE

GIS technology is clearly of limited value without people to manage the system and to develop plans for applying it. Users of GIS range from highly qualified technical specialists to planners, foresters, and market analysts who use GIS to help with their everyday work.

- Administrators
- Managers
- GIS Technicians
- Application Experts
- End Users
- Consumers



4)

## METHODS

Methods are well-designed plans and application-specific business rules describing how technology is applied. This includes the following:

- Guidelines
- Specifications
- Standards
- Procedures



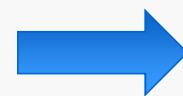
## Applikasi yang digunakan dalam penghasilan peta digital :-

1)



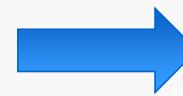
ArcGIS®

ESRI



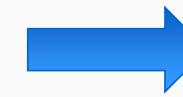
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2)



3)

Others Software



# ArcGIS Desktop components

2D map

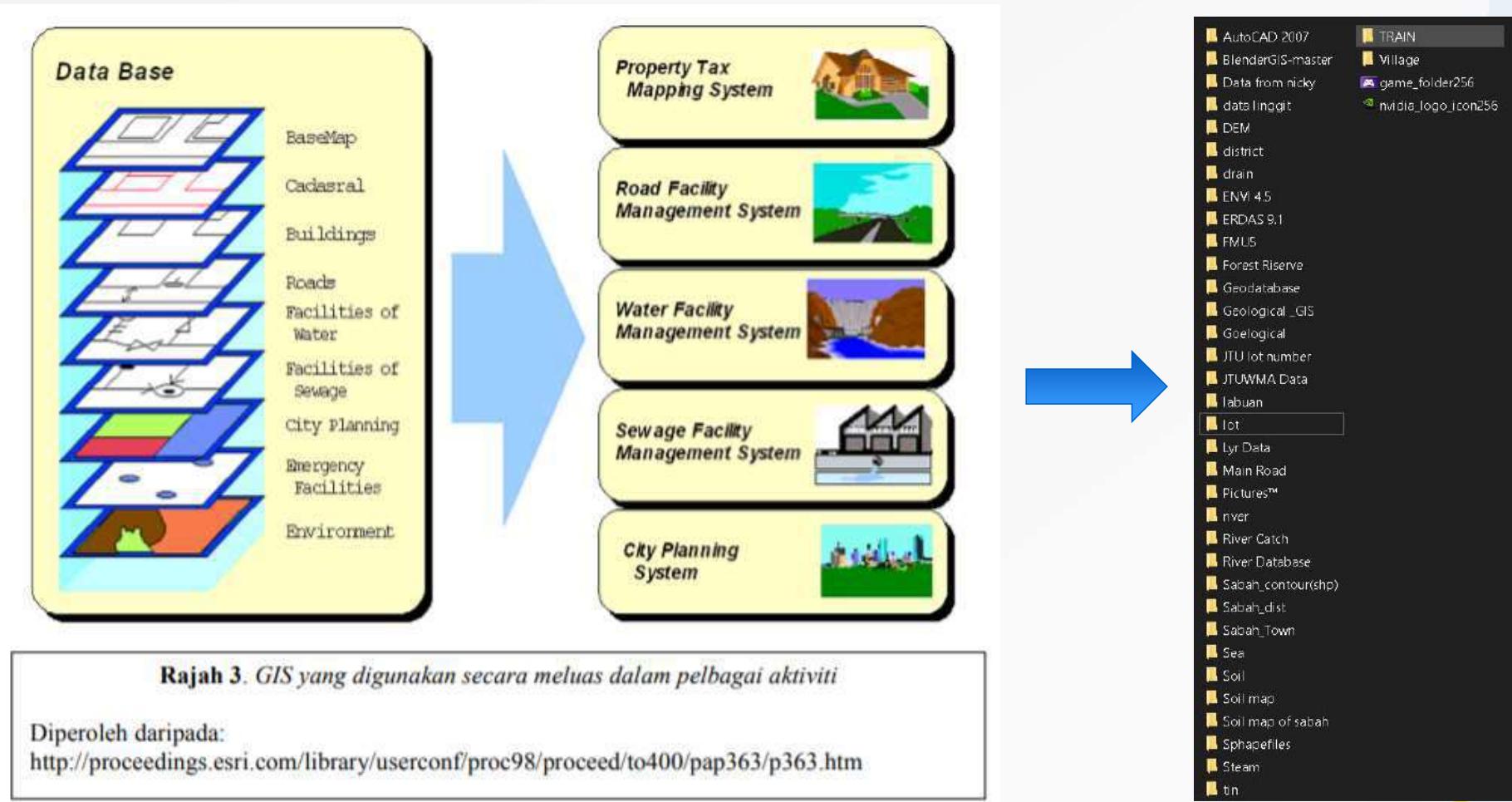


3D map



- ArcGIS
  - ArcCatalog 10.1
  - ArcGIS Administrator
  - ArcGlobe 10.1
  - ArcMap 10.1
  - ArcScene 10.1
- ArcGIS for Desktop Help
- Desktop Tools
- License Manager
- Python 2.7

# Data :-



## Jenis-jenis data yang boleh digunakan :-

- Gambar Satelit/Google Map/Google Earth
- LIDAR
- Drone
- Online sources (Cth: USGS)
- Jabatan-jabatan kerajaan (Cth: Cadastral Lot - JTU, Topografi Map - JUPEM)
- Private Company (Cth: Plantations)
- **Buat Sendiri :-**
  - Digitizing
  - Pemetaan Komuniti/GPS

## Kepentingan Memahami Sistem Kordinat :-

Malaysia

SEMENANJUNG

SABAH & SARAWAK

MRSO - Kertau (Origin)

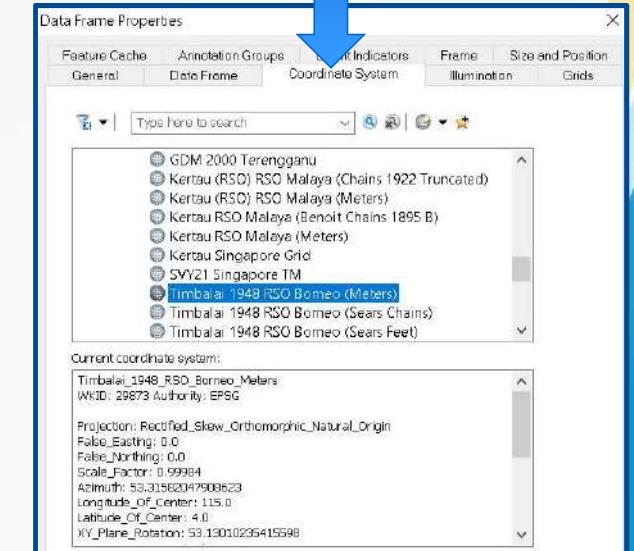
BRSO - Timbalai (Origin)

Worldwide

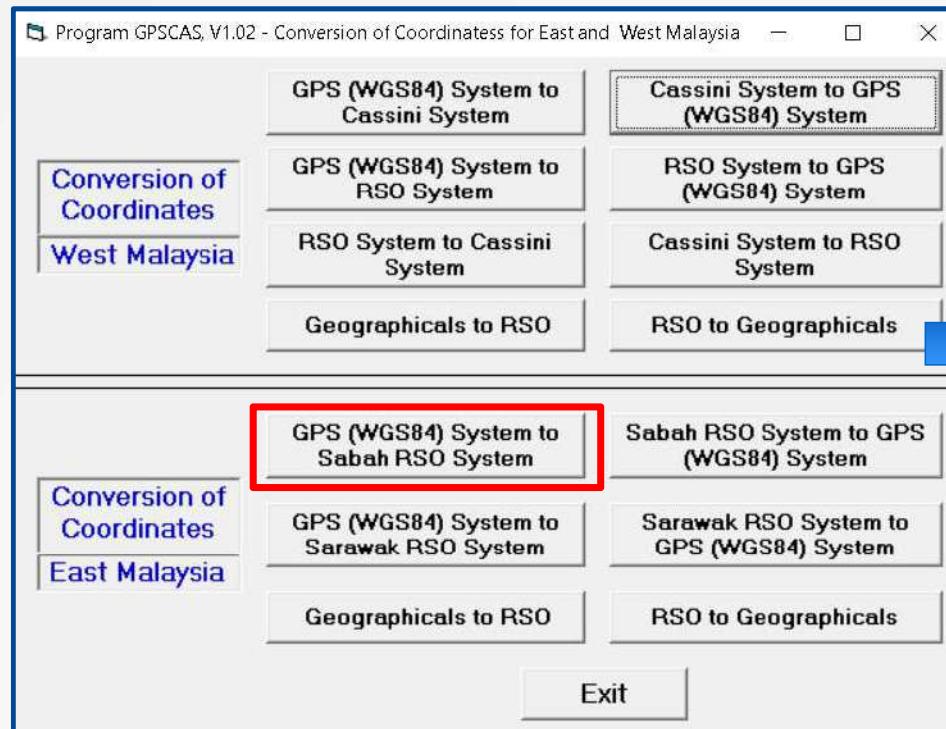
WGS84

Unit = Deg Min Sec

Unit = Meter



# Menukar Sistem Kordinat :-



This window is titled 'WGS84 System to RSO System, Sabah'. It has an 'Output unit' section with radio buttons for 'Metres' (selected), 'Links', and 'Chains'. Below this are input fields for Latitude and Longitude in degrees, minutes, and seconds, along with a height field in meters. At the bottom, there are 'Compute' and 'Close' buttons.

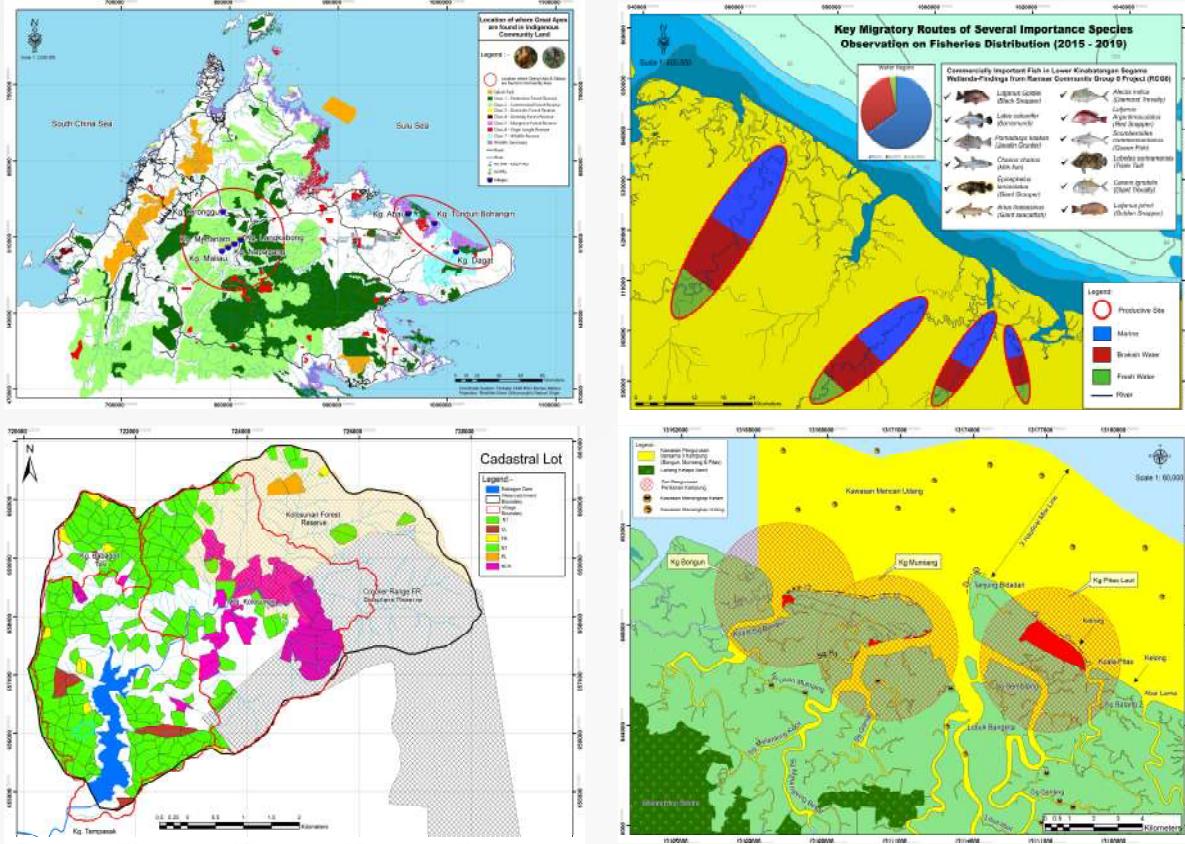
Conversion of Coordinates from GPS (WGS84) System to RSO System Sabah

WGS84 System	RSO System	Sabah			
Latitude	Longitude	Height	Northing	Easting	Unit
6° 45' 20.00000"	117° 7' 45.00000"	0.000	748726.848	824647.016	Metres

**WGS84 - BRSO**

# 2D map

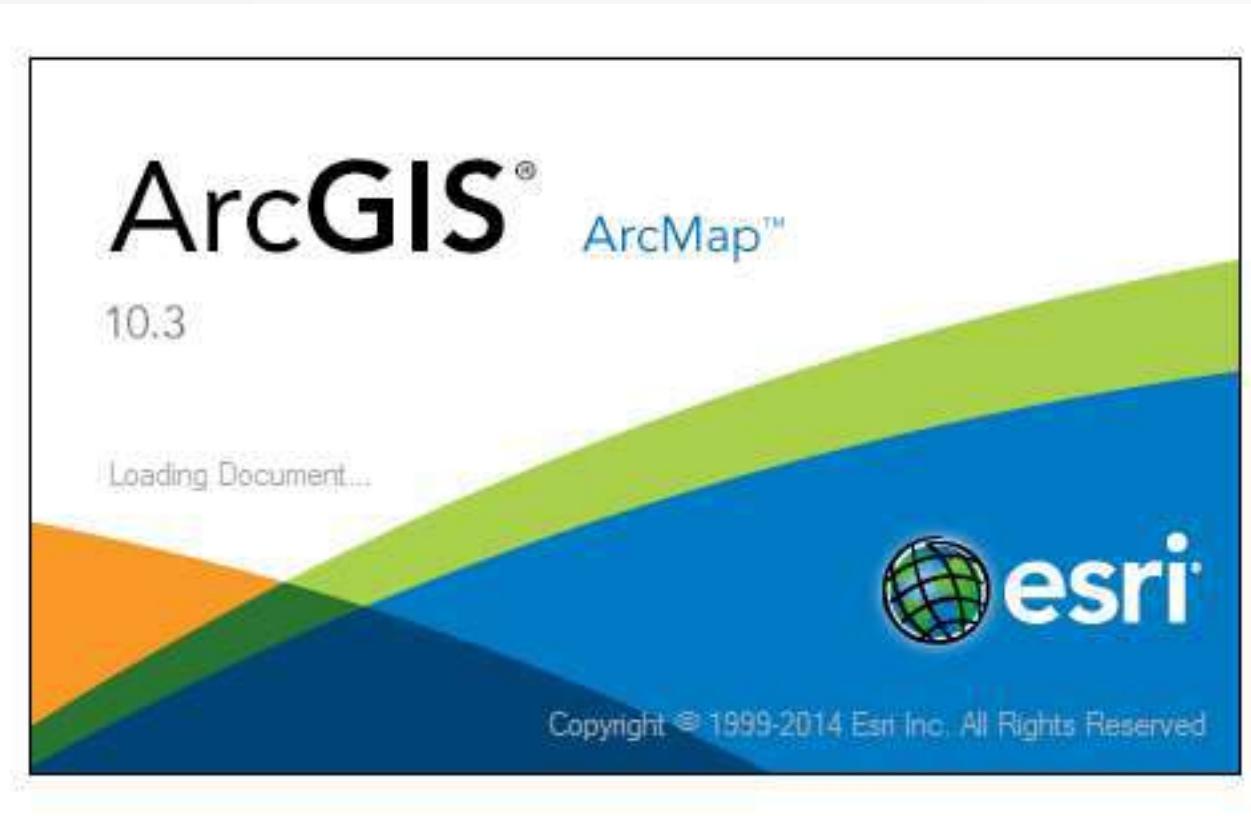
- ❖ x-coordinates
- ❖ y-coordinates



6 Benda yang Perlu ada Didalam Peta :-

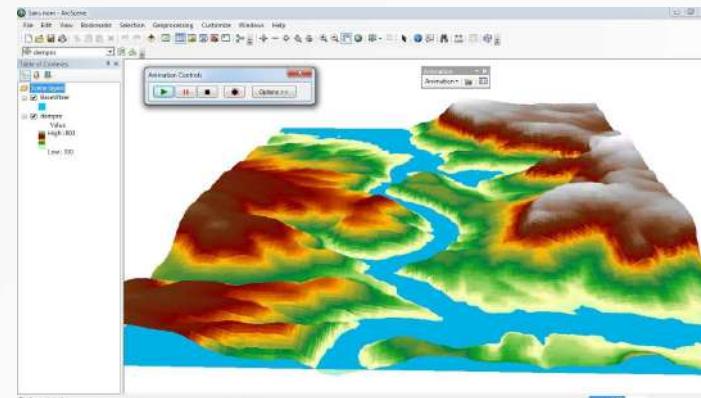
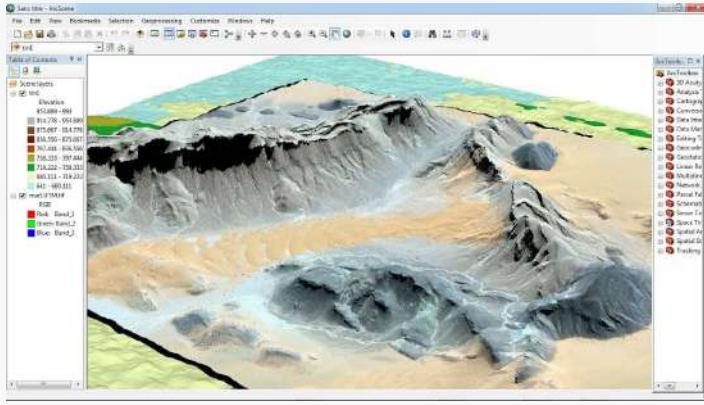
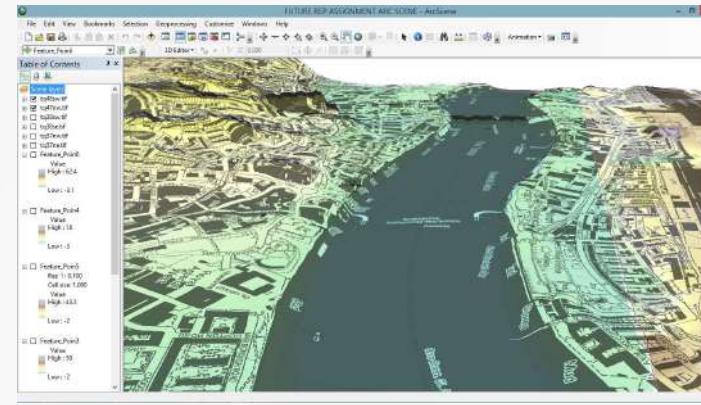
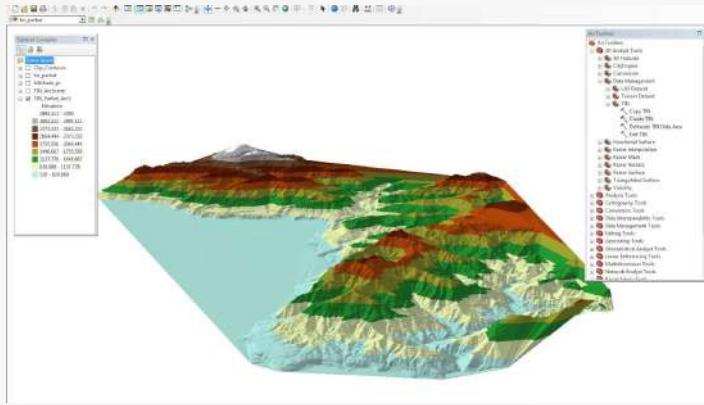
- ❖ Tajuk
- ❖ Scale/Sekala
- ❖ Scale Bar
- ❖ Garis Grid/Kordinat
- ❖ Arah Utara
- ❖ Legend/Penunjuk
- ❖ Gambar jika perlu\*\*\*

## ArcMAP :-



# 3D map

- ❖ x-coordinates
- ❖ y-coordinates
- ❖ z-height



## ArcScene :-



## Menghasilkan Map 3D menggunakan Applikasi **BLENDER** :-

The image shows the official Blender website homepage. At the top, there's a navigation bar with links for Features, Download (which is underlined), Support, Get Involved, Jobs, About, Store, and a blue 'Donate' button. Below the navigation, there's a secondary set of links: Download, Release Notes, Requirements, Demo Files, and Previous Versions. The main banner features a blue-toned image of Earth from space with the text "Download Software Blender" in large white letters. A prominent blue button says "Download Blender 2.82a". Below it, there's a link to "Windows Installer · 129MB · info" and a dropdown menu for "macOS, Linux, and other versions". The page is divided into three main sections: "Fully Featured", "Free & Open Source", and "Be Part of It". Each section has a brief description and a call-to-action link.

**Fully Featured**

Whether you are an animator, modeler, VFX, game developer, 3D Printing, you name it. Blender's got you covered.

[Check out the features >](#)

**Free & Open Source**

Free to Use. Free to Share. Free to Change.  
Free to Sell Your Work.  
Blender is Free Software.

[Learn more about the license >](#)

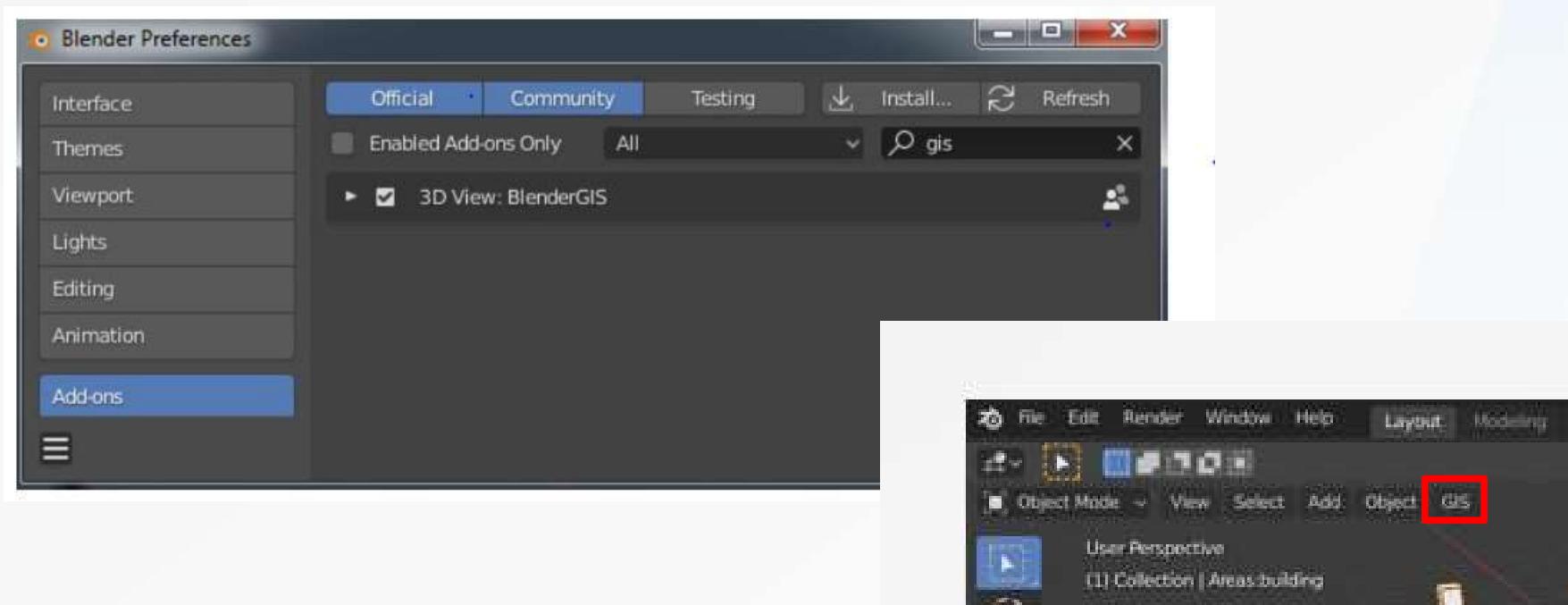
**Be Part of It**

Blender's main strength is its huge community. Made by hundreds of contributors from around the world.

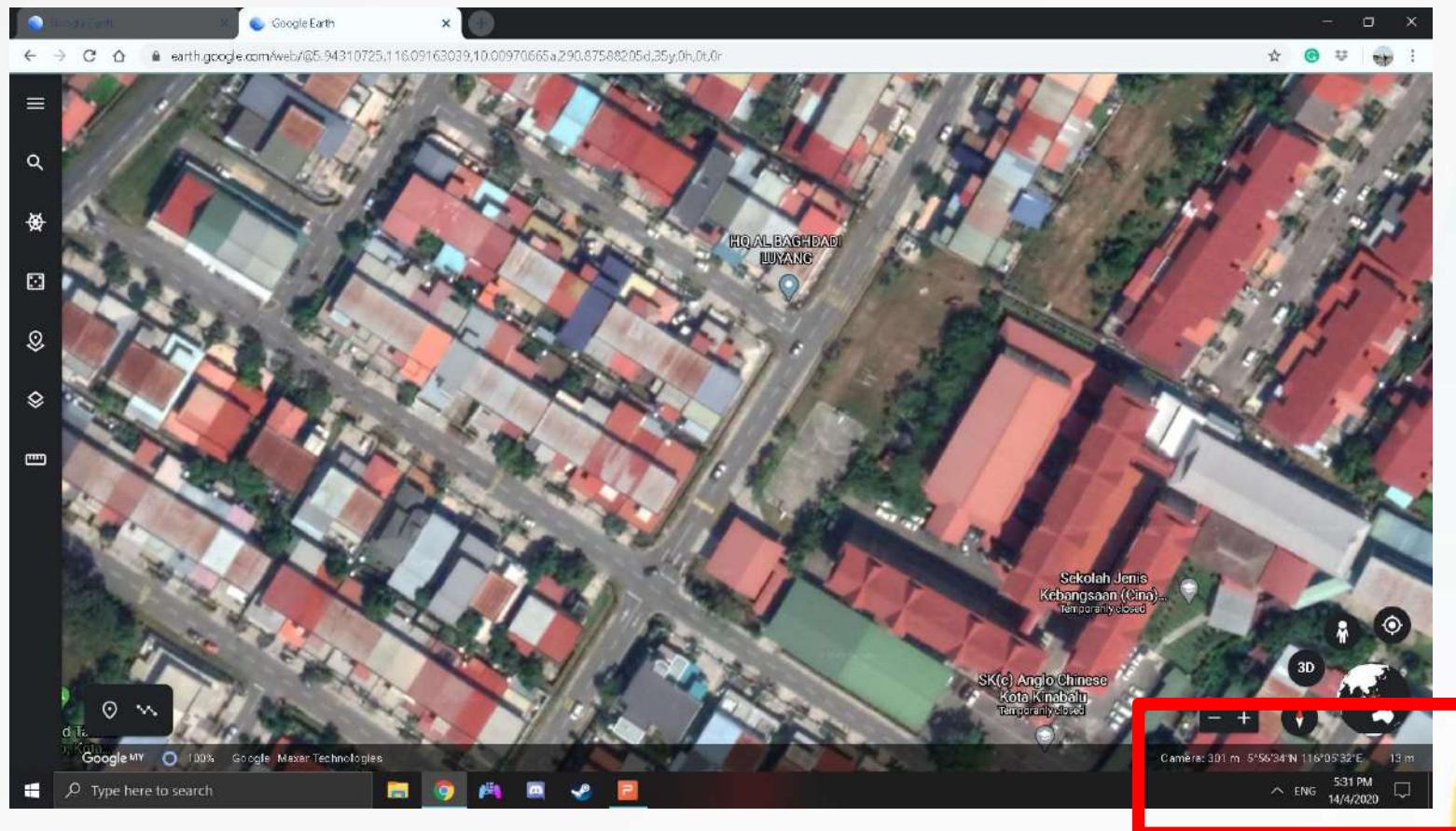
[Get involved >](#)



<https://github.com/domlysz/BlenderGIS>



# Google Earth Pro :-



# Result :-

