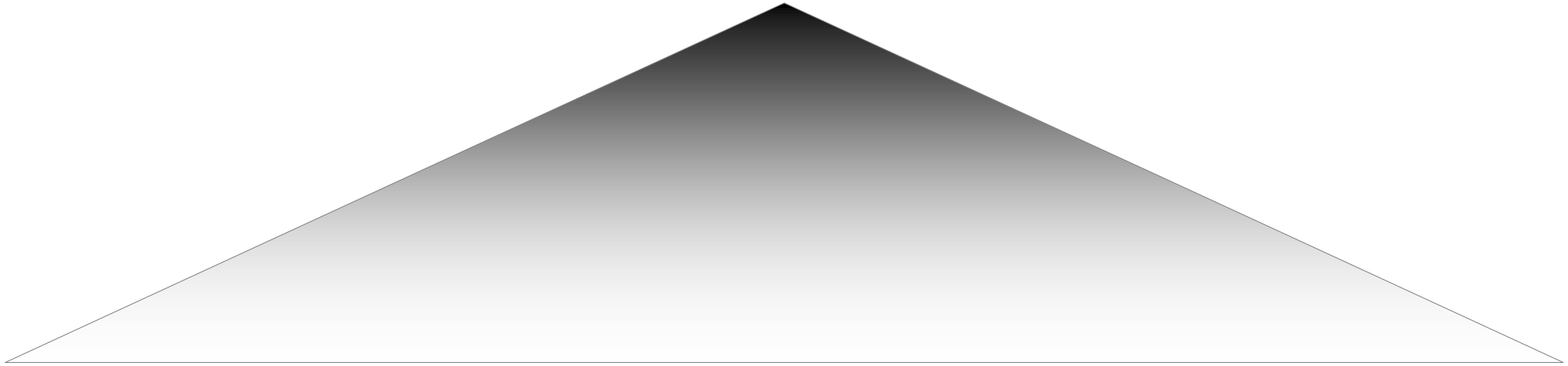
QUANTUM GIS (QGIS)

past, present & future development

at JPBD

PROLOGUE



2009

THE FIRST STEP

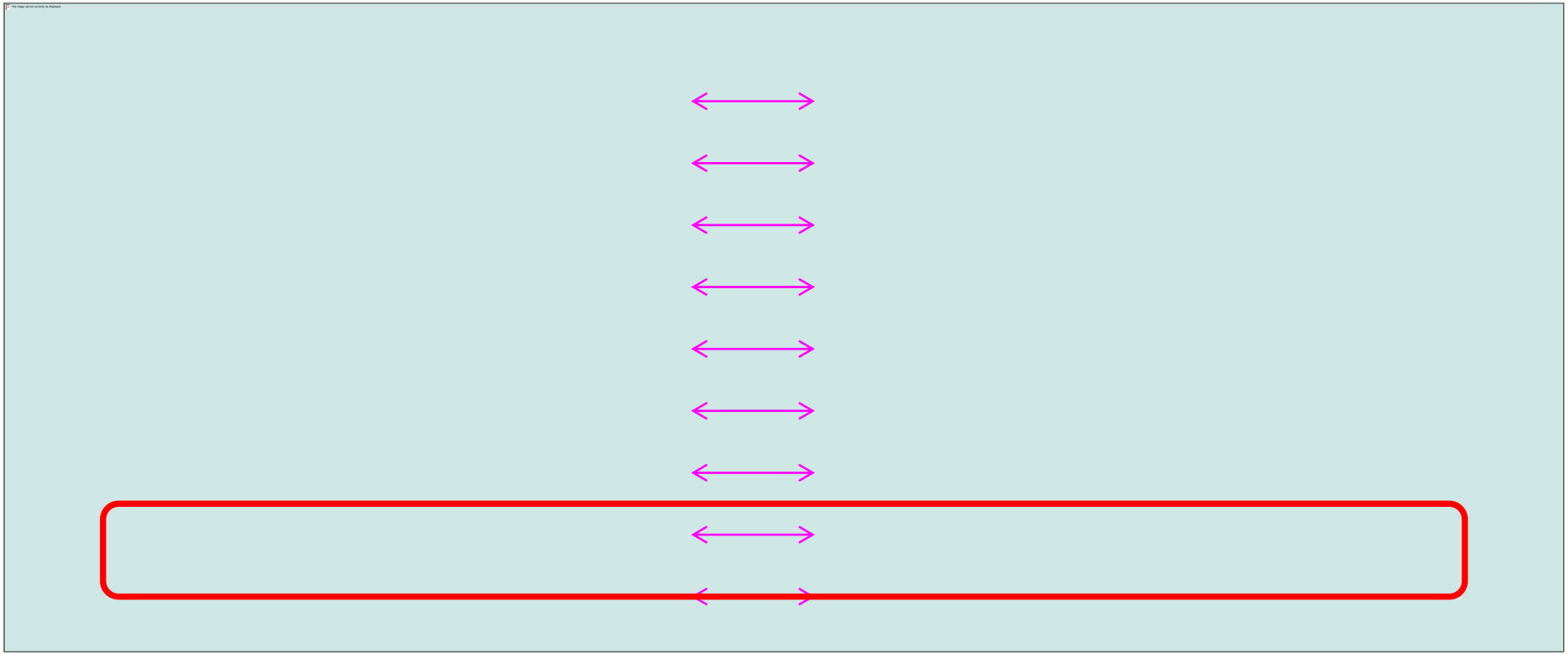
- **Introduce the software:**

QGIS introduced at the **MyGOSSCON 2009** to the Malaysian IT community sponsored by MAMPU, JPM.

QGIS IN BRIEF

- 2009 first stable version released;
- Currently version 1.7 Wrolaw;
- Multi-platform & multi-language versions;
- More than 120 QGIS modules;
- Compatible with 400+ GRASS GIS modules;
- Unlike proprietary GIS, it can stimultaneously view .tab & .shp files;
- Editing is in .shp file, default saving format;
- Forum and active User Mailing lists;
- Integrates with PostgreSQL-PostGIS.

QUANTUM GIS
among other software



COST BENEFITS

A proprietary GIS cost about RM10,000/pax

1 agency uses 100 QGIS saves
RM1million (RM10,000x100)

1 state government uses 100 QGIS saves
RM1million

This does not include 10% annual fee

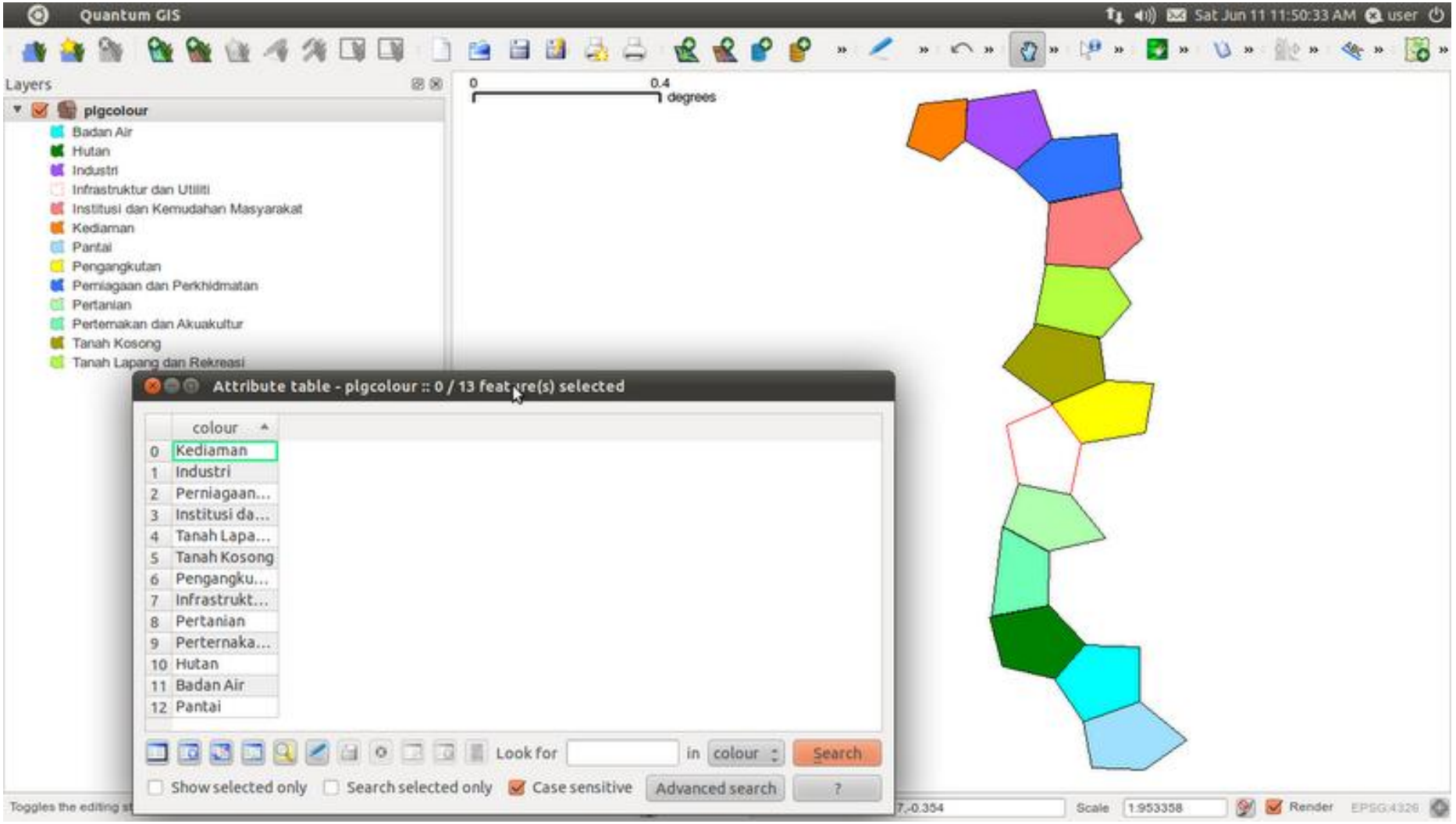
2010

THE NEXT CHALLENGE

- **Introduce the software:**

QGIS introduced at the 4th Nat. GIS Conference & Exhibition 2010 to the Malaysian GIS community sponsored by NRE

JPBD PLANNING COLOUR TEMPLATE



JPBD

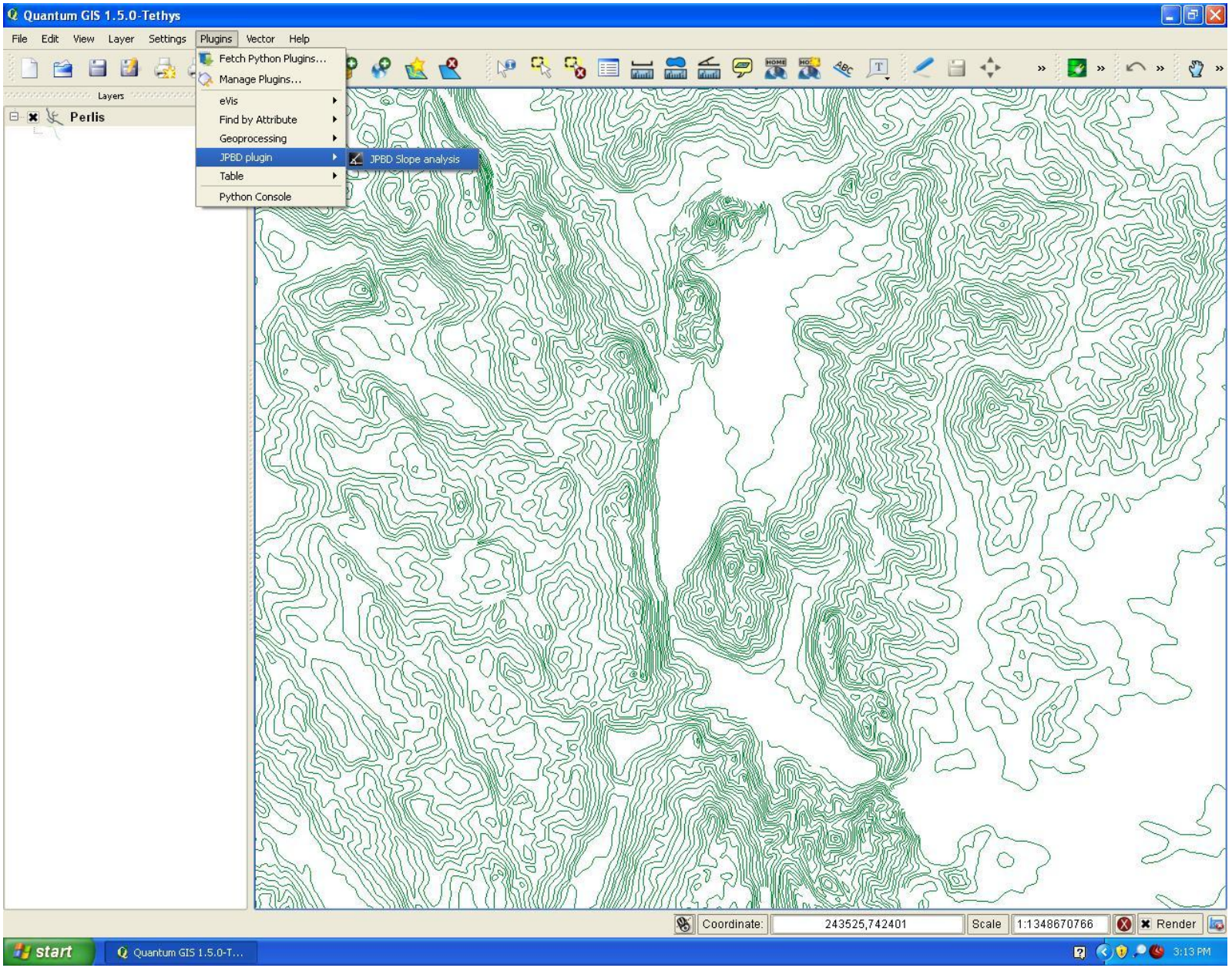
QUANTUM GIS

SLOPE ANALYSIS PLUGIN

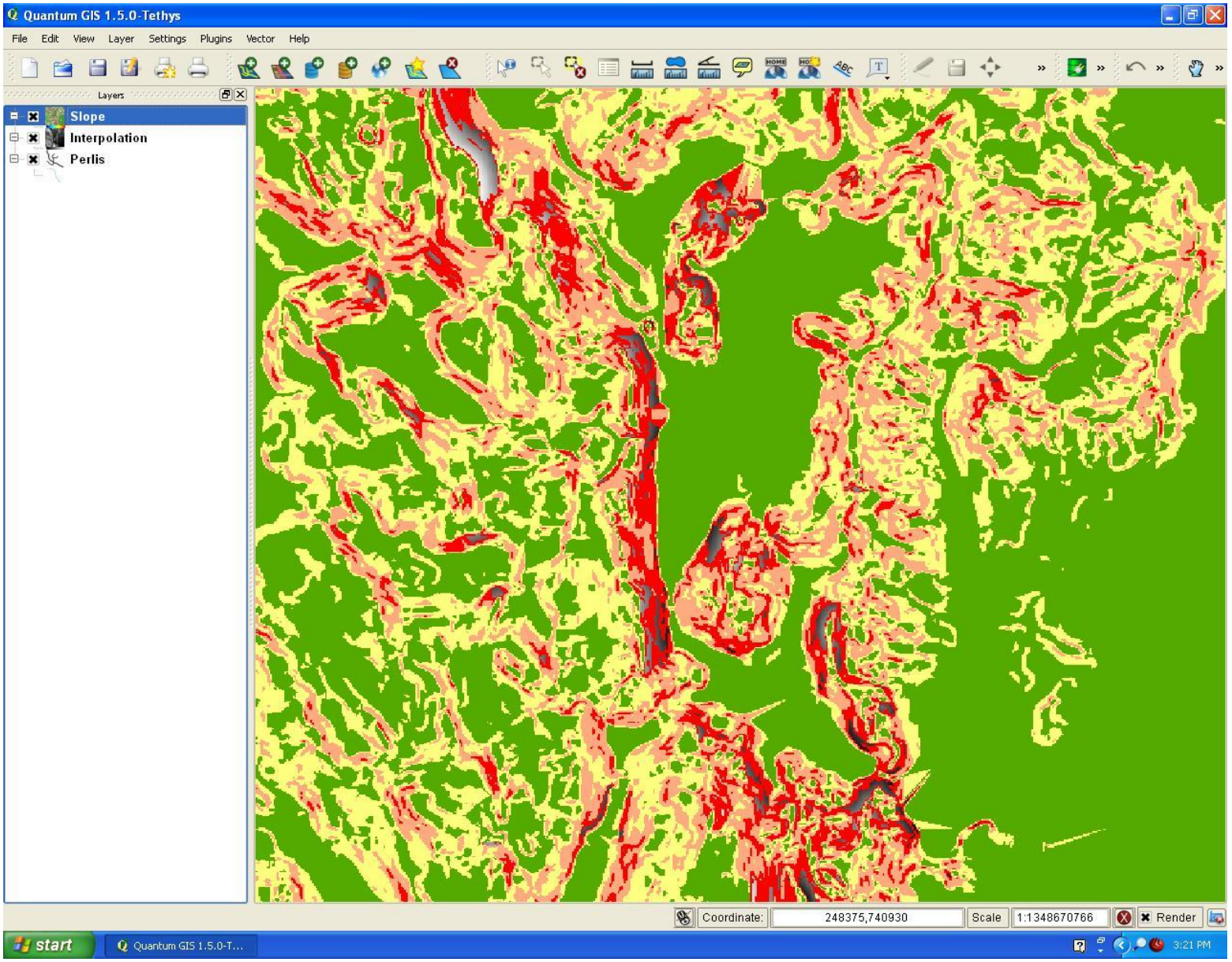
STUDY OBJECTIVE

- **Develop a GIS slope analysis module based on JPBD Hills & Highland Guideline;**
- **Help PBTs overcome financial burden to procure GIS and supporting plugins in contra for up-to-date landuse data;**
- **To value-add OSS QGIS Windows & Linux Ubuntu capability;**

ACTIVATE SLOPE PLUGIN



SLOPE ANALYSIS OUTPUT

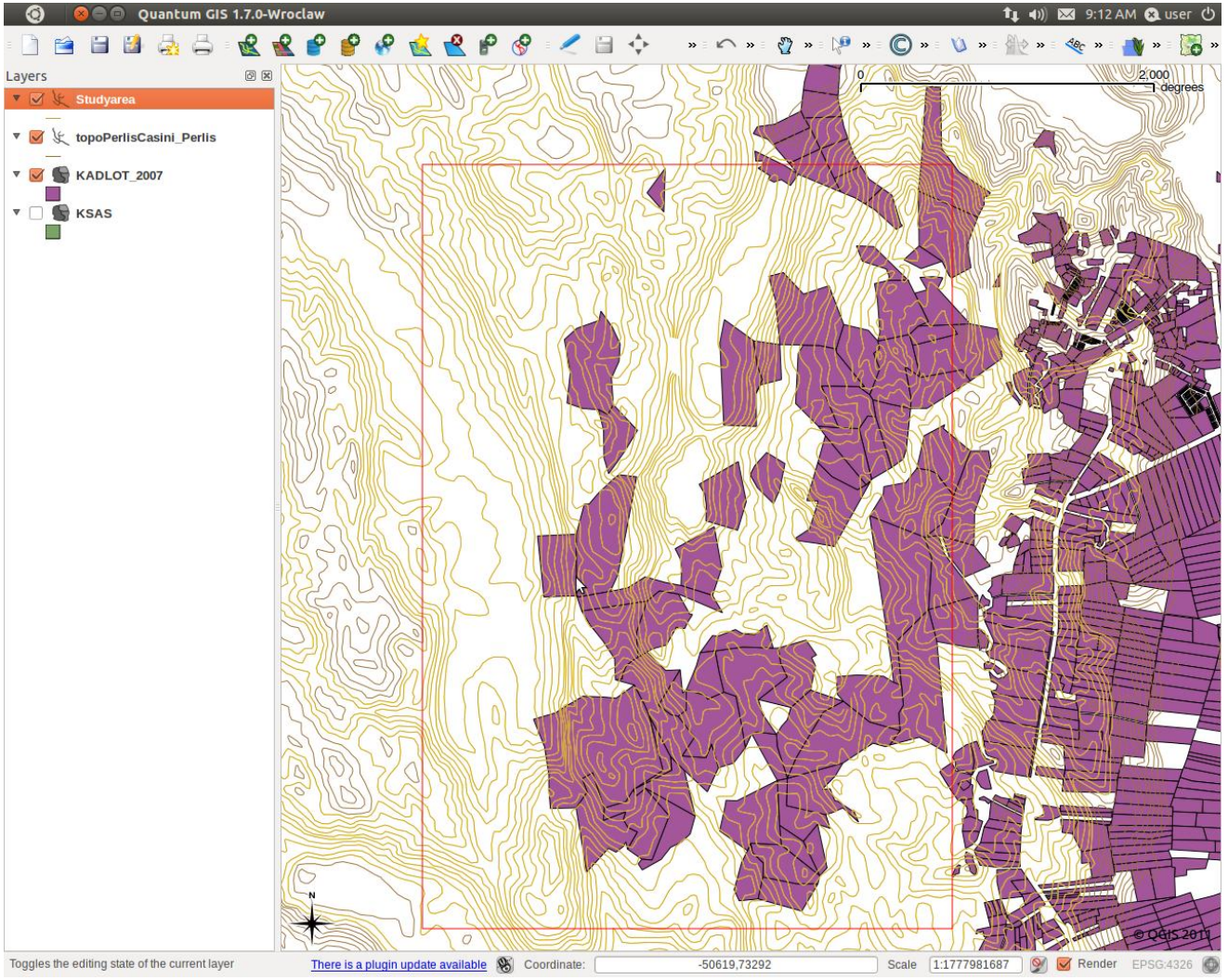


ISSUES

- QGIS version upgrades rapidly:
  - During TOR -1.4
  - During project -1.5
  - After study -1.6
- Plugin out-dated, incompatible with current version.
- Compulsory to upgrade for useability
- Road-show affected by incompatibility
- Will annual budget consistently be

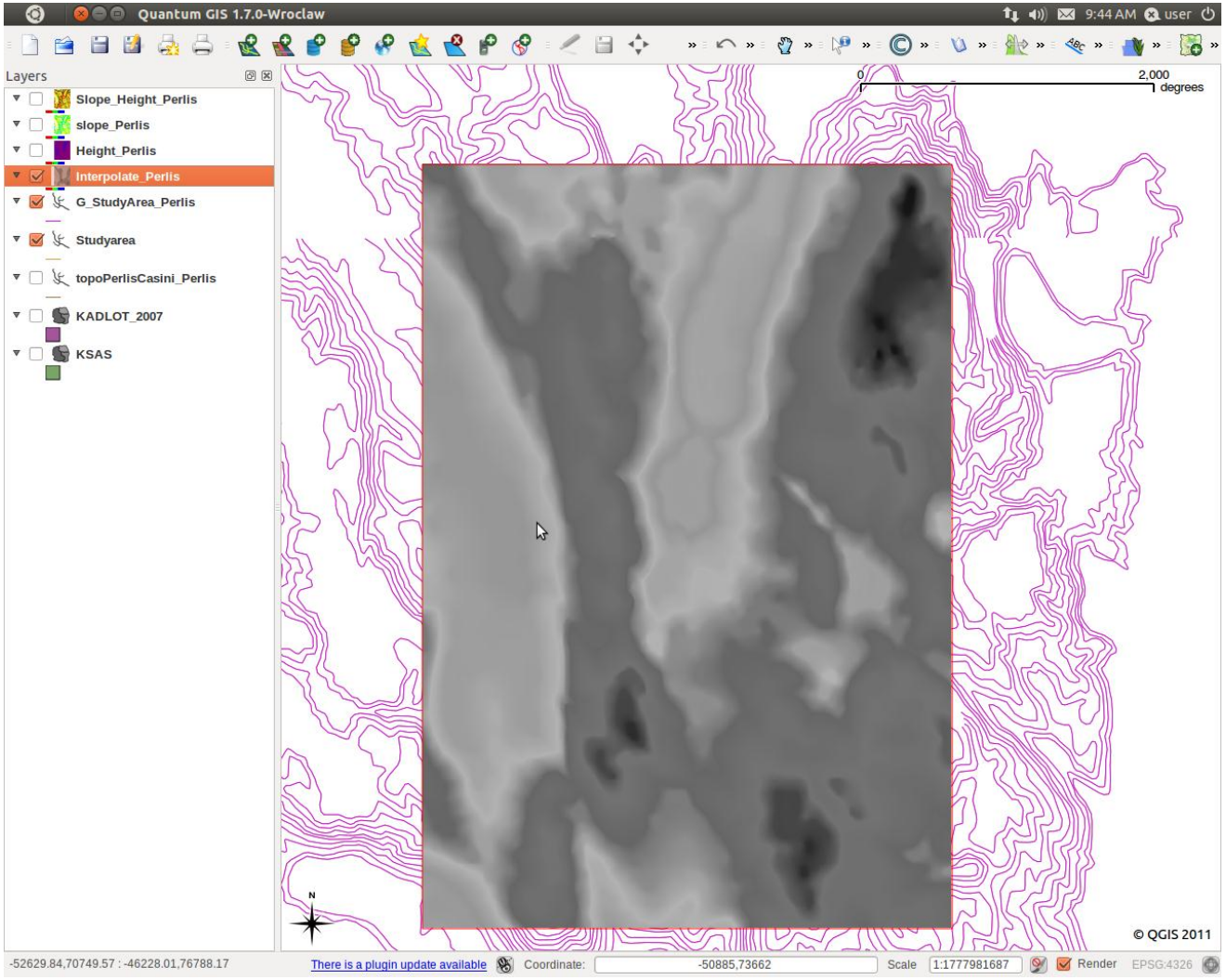
GRASS COMMAND

v.in.ogr.qgis



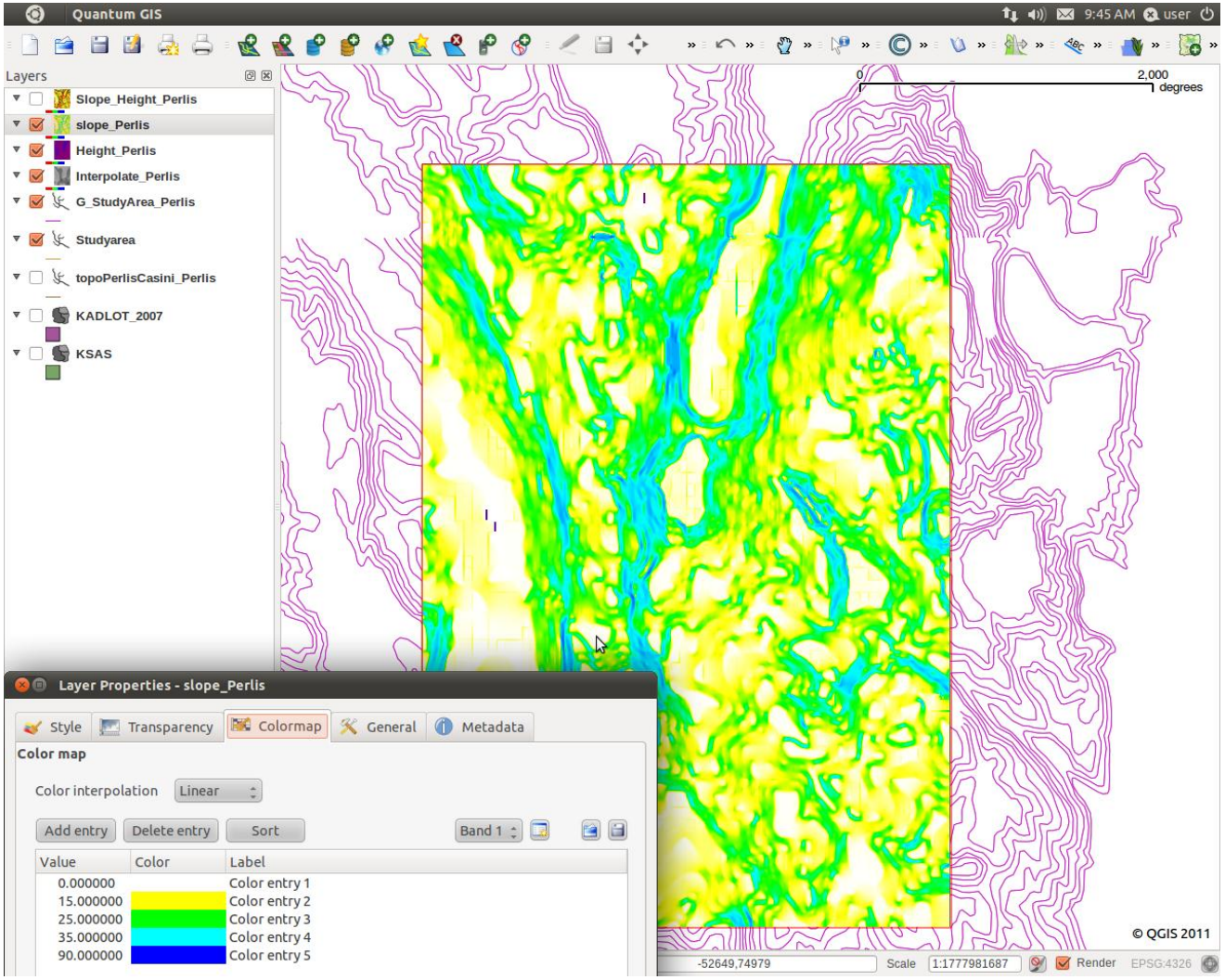
GRASS command

v.surf.rst

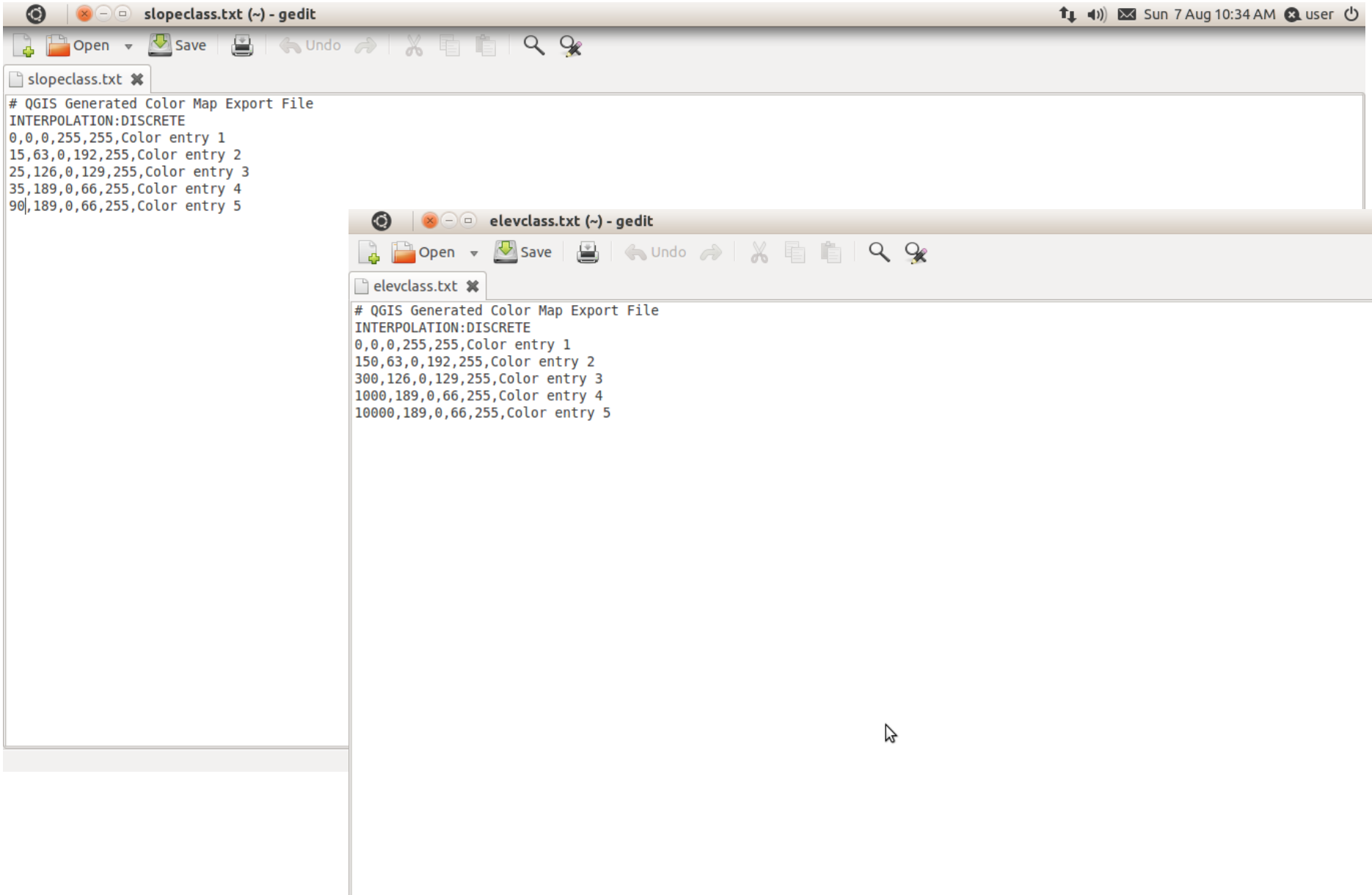


GRASS COMMAND

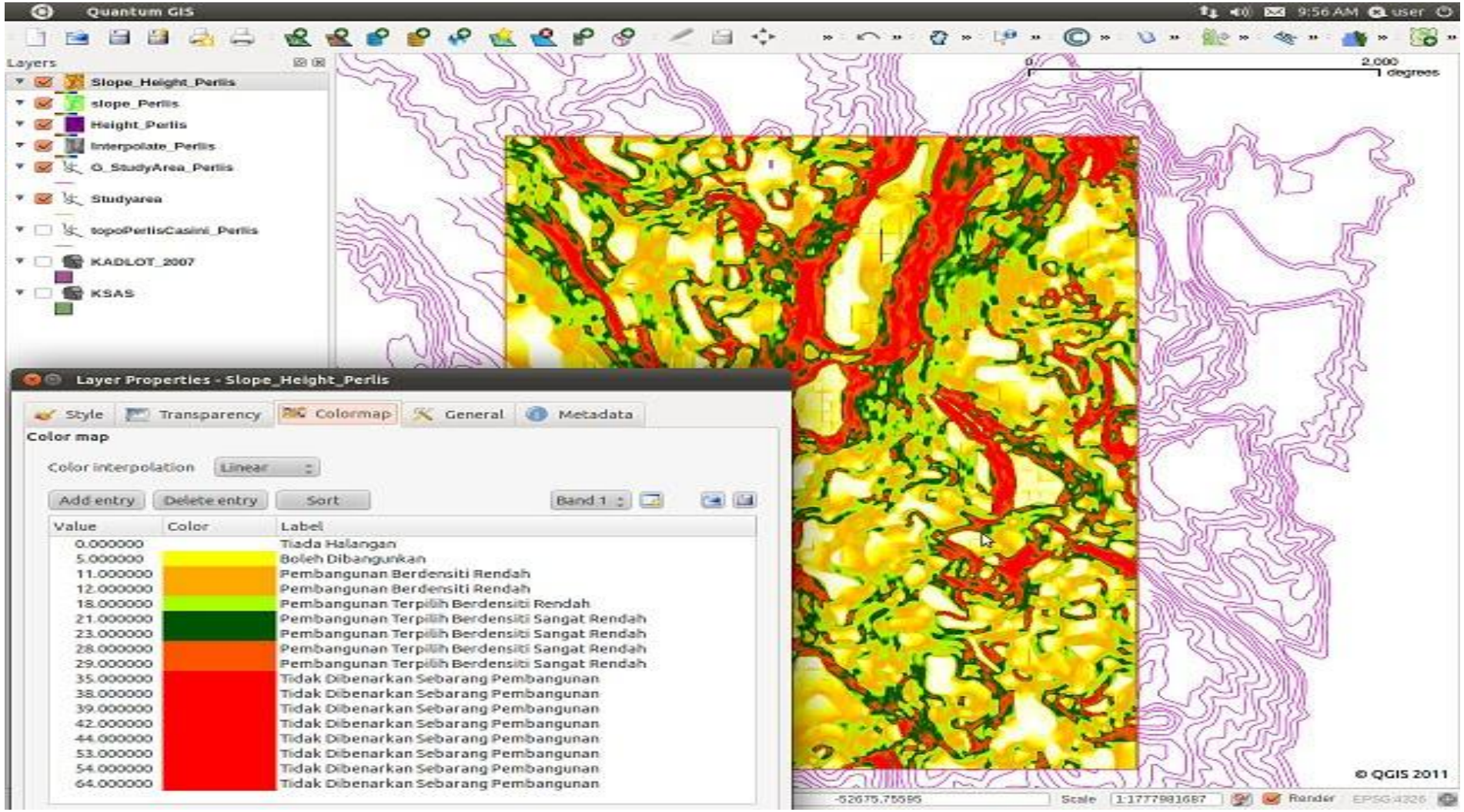
r.param.scale



MODIFY STANDARD INPUTS FOR SLOPE & ELEV OUTPUTS



SLOPE ANALYSIS



PUBLICATIONS

- MAMPU's *OSCC eNEWSLETTER*
- JUPEM's *BULLETIN GIS*
- JPBD's *TOWNPLAN Journal*
- NRE's Public Sector *GEOSPATIAL Bulletin*

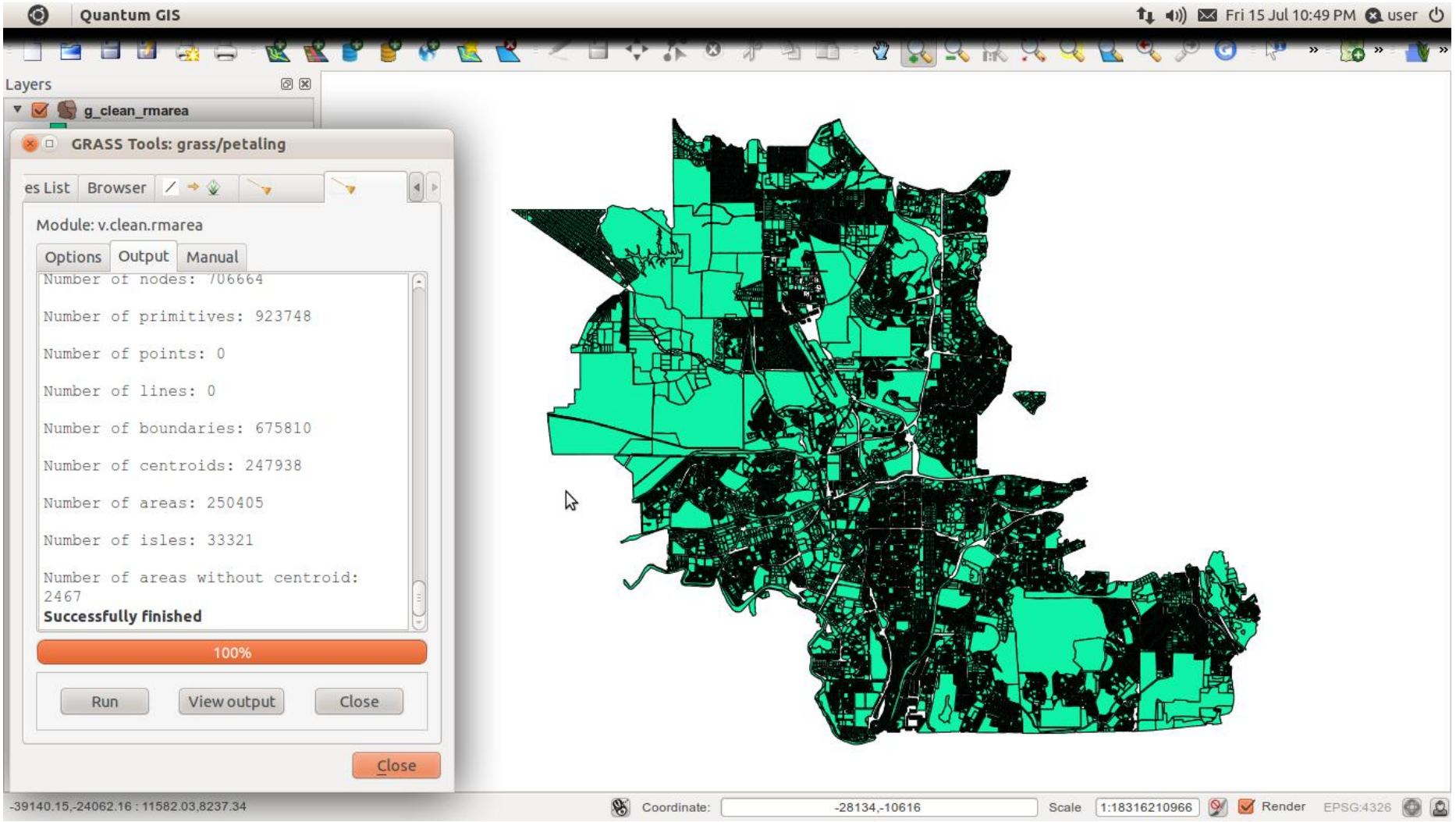
TECHNICAL UPDATES

Jabatan Perparitan & Saliran

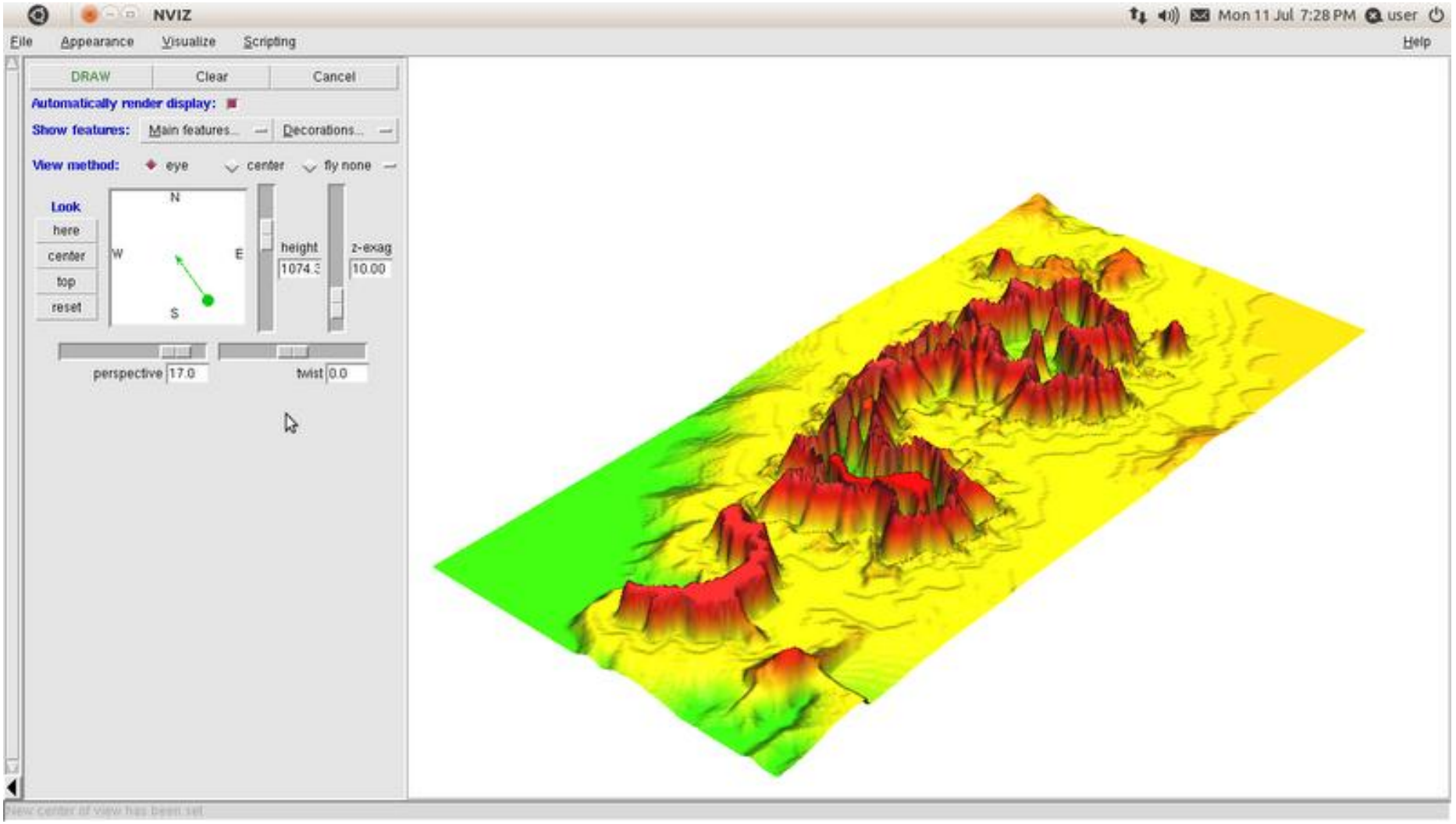
Kementerian Kerjaya Malaysia

2011

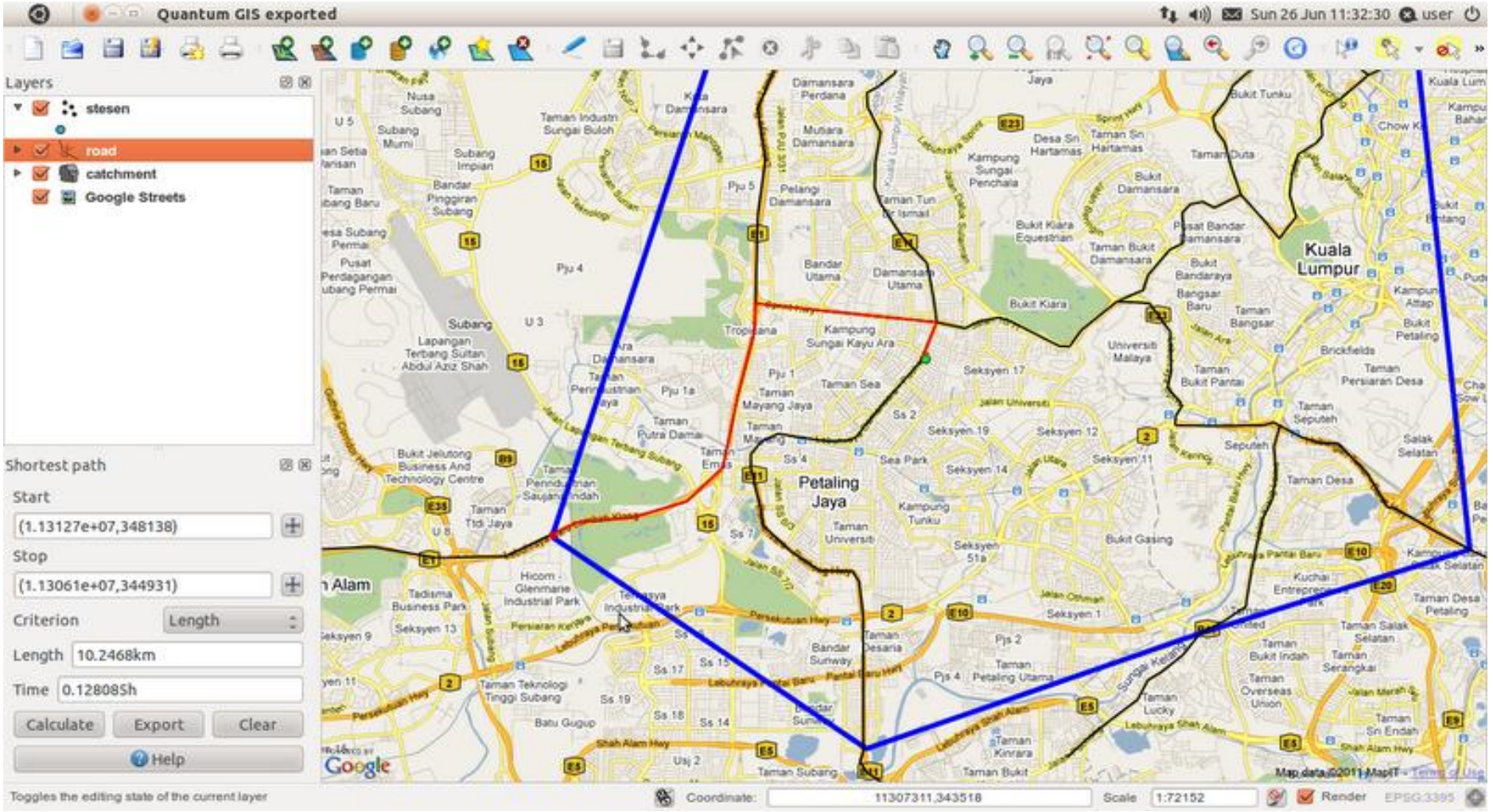
AUTO-CLEANING GAPS (GRASS)



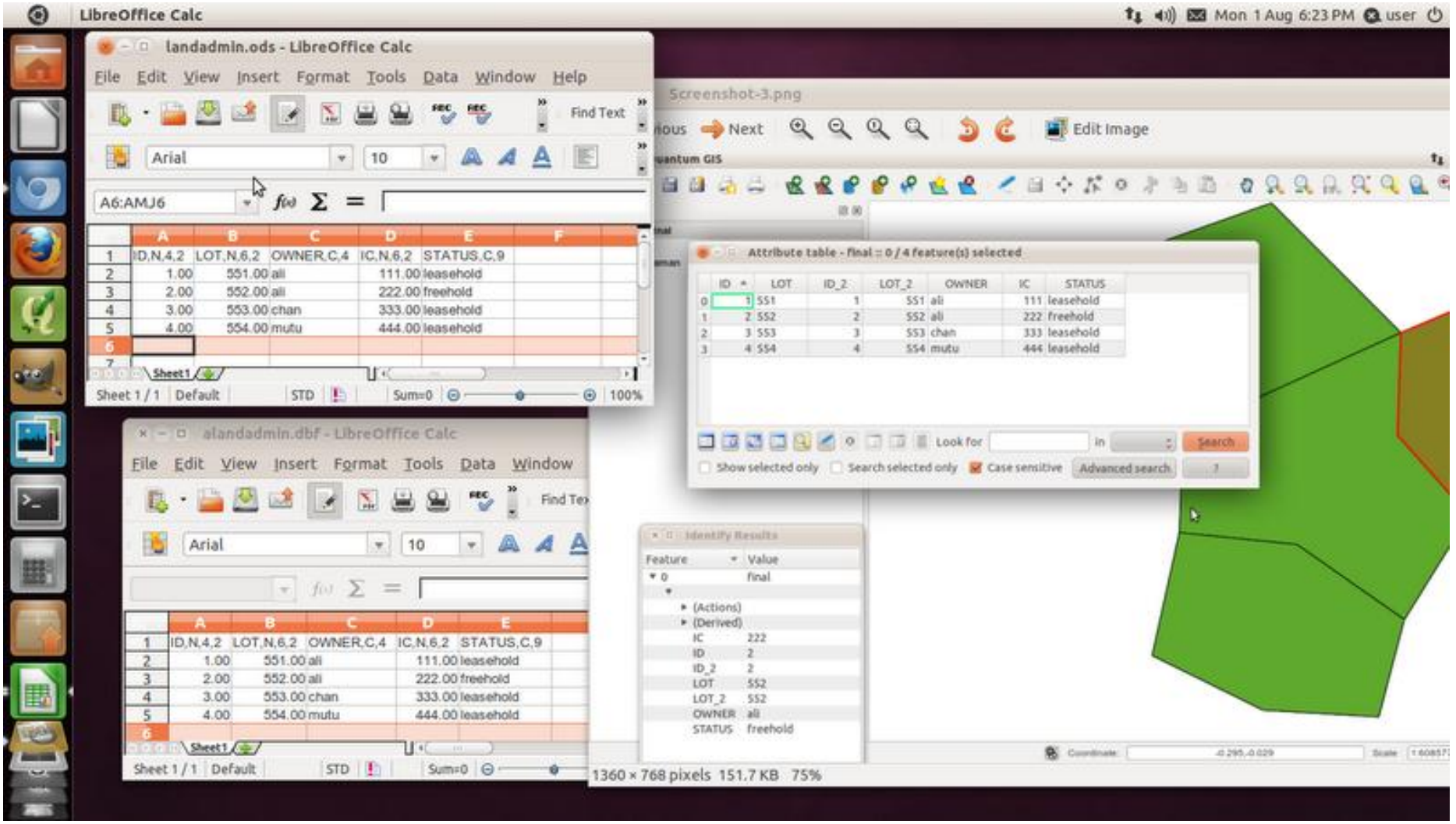
EXTEND TO 3D (GRASS)



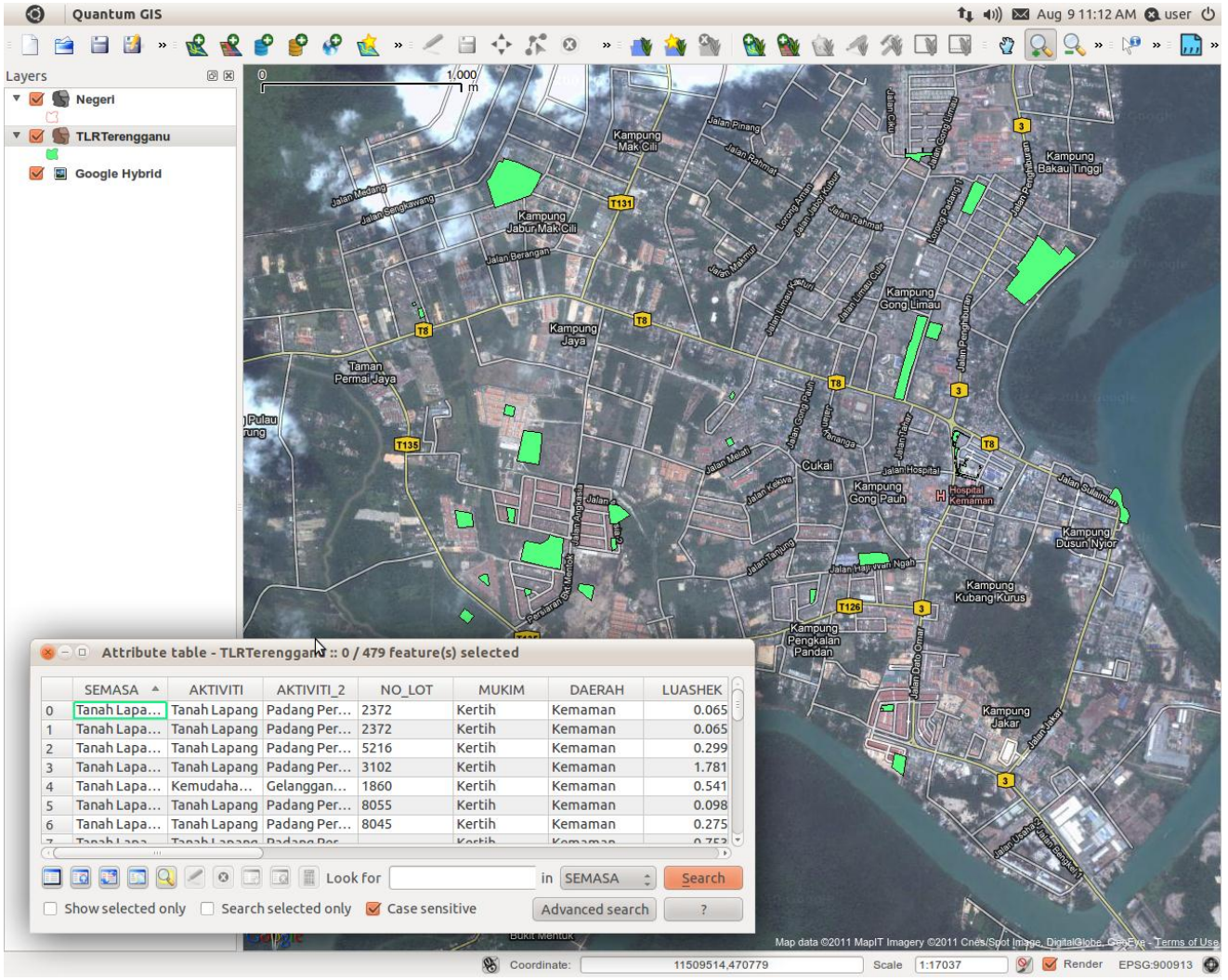
ROAD GRAPH PLUGIN



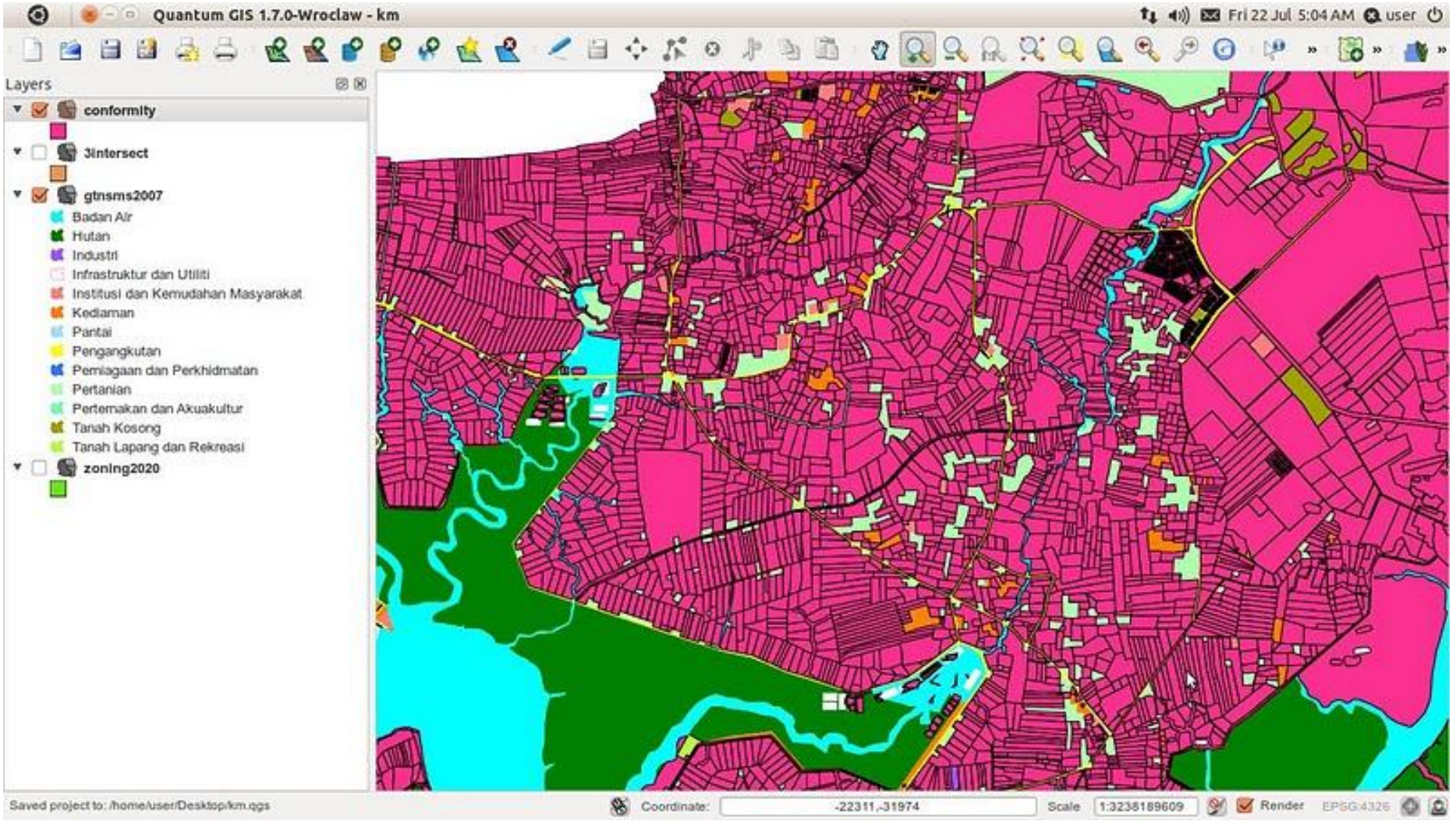
LINK OR TRANSFORM SPREADSHEET DATA INTO SPATIAL DATA



CAPITALIZE SECONDARY DATA FROM INTERNET



MONITOR INCONFORMITY USING ADVANCE SQL QUERY

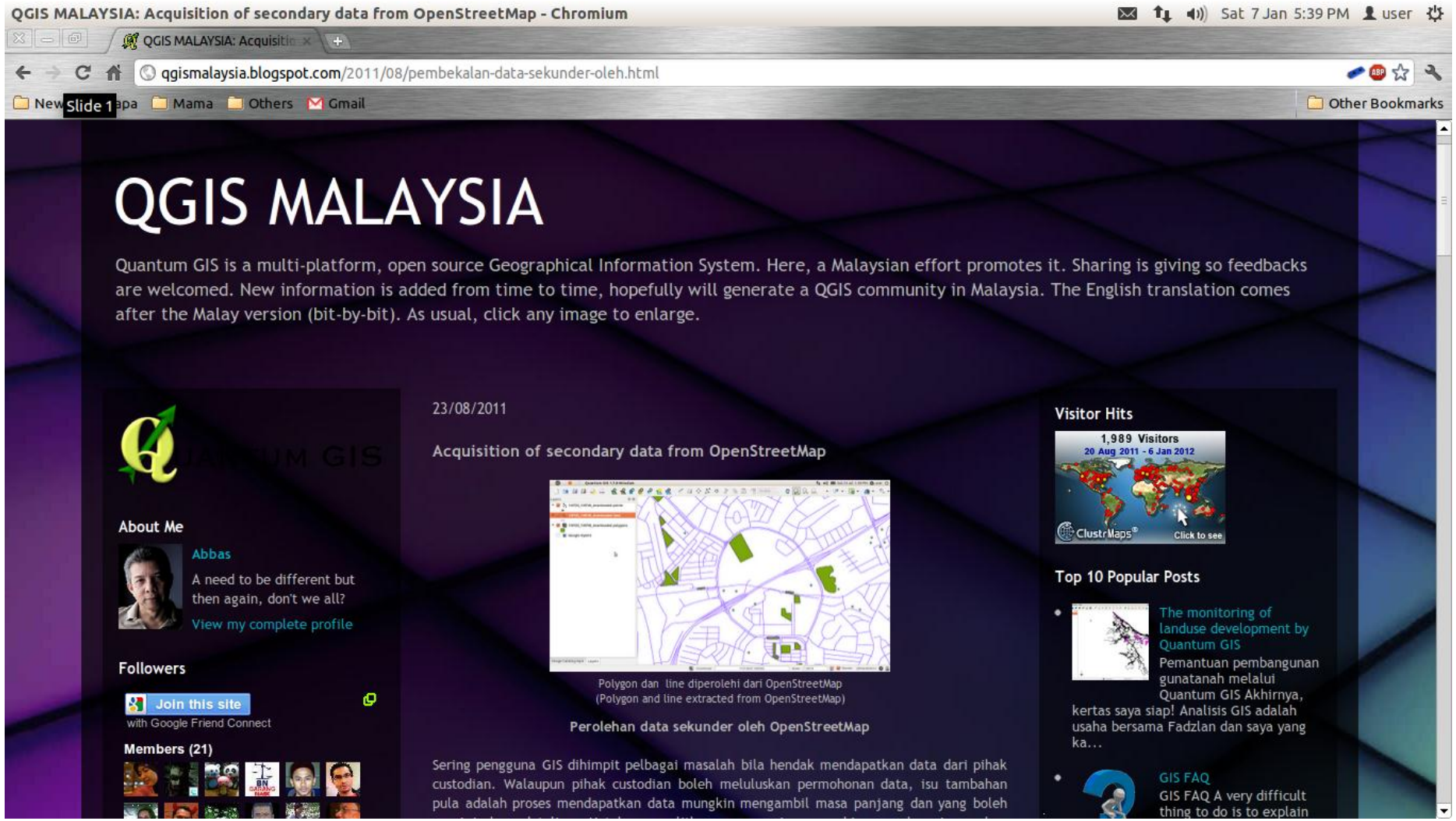


OTHERS

- HOW TO CORRECT SPELLING ERRORS?
- HOW TO CALCULATE AREA?
- HOW TO QUERY OVER A QUERY?
- HOW TO IMPORT GOOGLE HYBRID, ETC, OPEN STREET MAPS INTO QGIS?
- HOW TO MERGE THEMATIC MAPS?
- HOW TO CONVERT GPS DATA FOR GIS?
- HOW TO OPTIMIZE SQL QUERY?

QGIS MALAYSIA BLOG

http://qgismalaysia.blogspot.com



MyGOSSCON 2011

- **Building and ensuring pubic sector confidence:**

  “Sustaining Open Source Software in the public sector” paper presented illustrated by QGIS examples

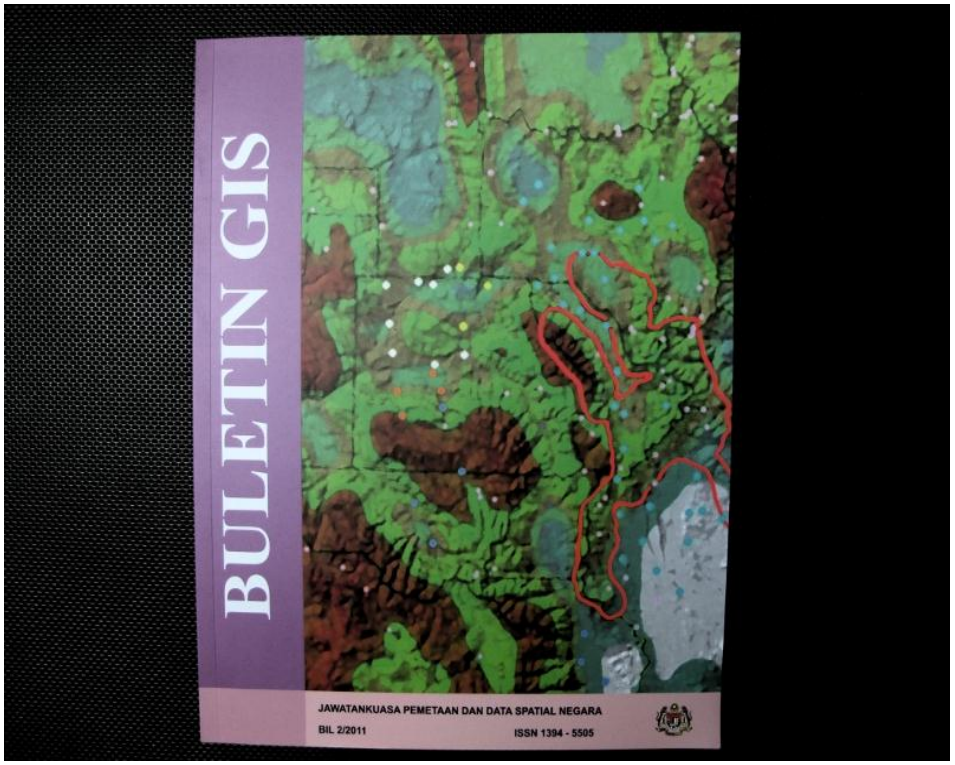
TECHNICAL UPDATES

Kementerian Perumahan & Kerajaan Tempatan

UTM

PUBLICATIONS

- **JUPEM's Bulletin GIS>**
  The many uses of QGIS-GRASS in town & country planning
- **NRE's GEOSPATIAL Bulletin>**
  The monitoring of landuse development by QGIS



QGIS TRAINING

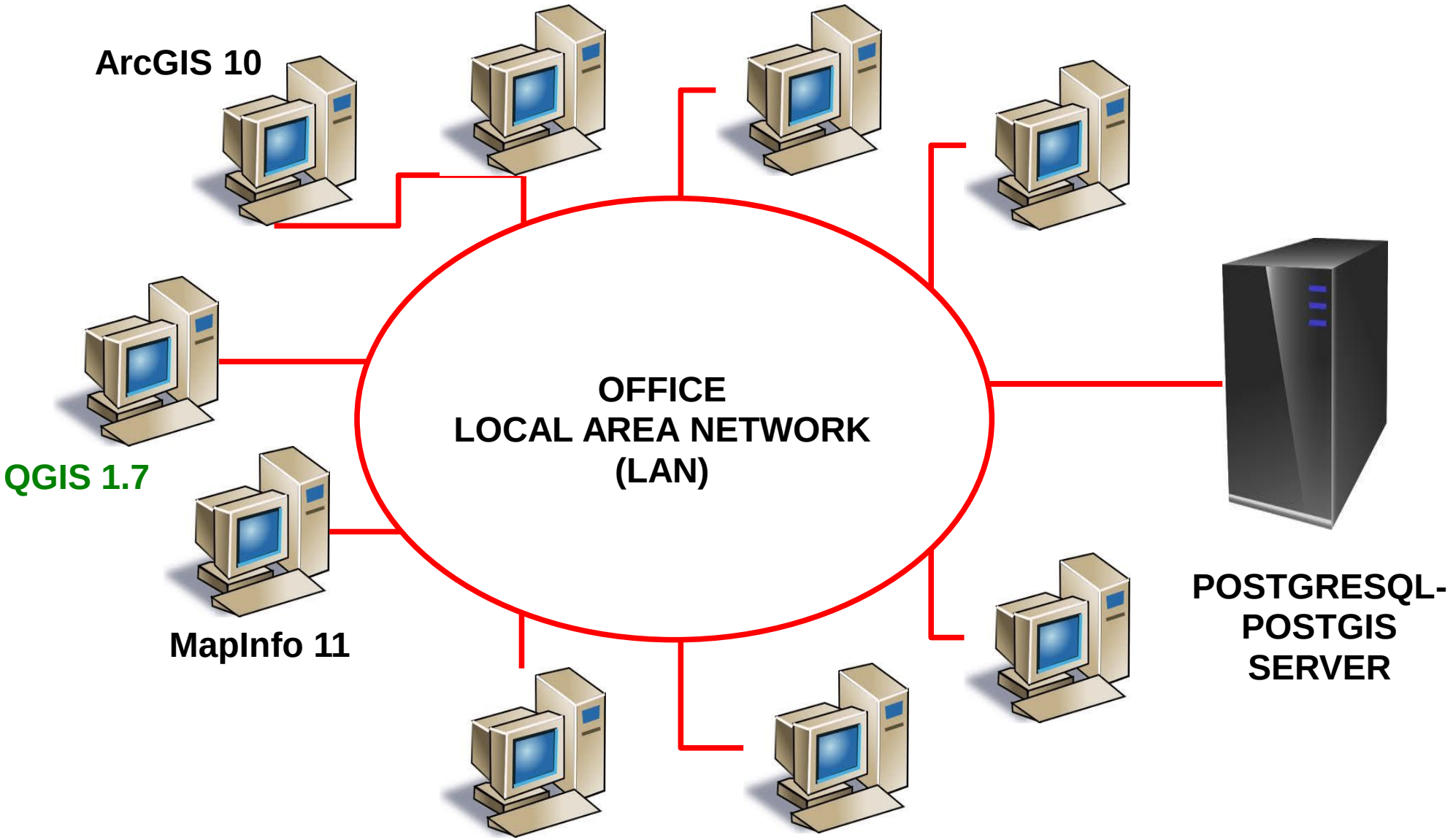
- **BOMBA**
- **Kementerian Pelajaran Malaysia**
- **Bhg. Penyelidikan & Pembangunan, JPBD**

2012

QGIS TRAINING

- Pej.Projek Zon Utara, A.Setar > January
- Pej.Projek Zon Selatan, Melaka > February
- Pej. Projek Zon Tengah, K.Lumpur > March
- Universiti Teknologi Petronas > March
- JPBD Perlis & JPBD Perak > April
- Pej.Projek Zon Timur, K.Trengganu > April
- Bhg.Perancang Wilayah, K.Lumpur > May
- Inst. Latihan KPKT > May-July
- Bhg.Ran.Fizikal Negara, K.Lumpur > June
- Bhg.Korporat, K.Lumpur > July
- Unit Penyelarasan & Pemantauan > August
- Other state JPBDs? > Sept. - December

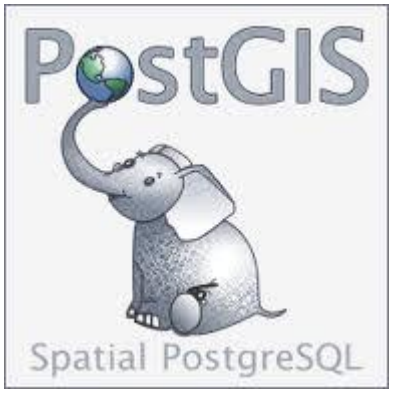
GEODATABASE LINKAGE



GEODATABASE + POINTS

- Concurrent use of the same layer;
- Layers do not get locked if someone runs off;
- Database gets auto-index or catalogued:
  - Panning and zooming in or out is faster;
  - Query and analysis is faster;
  - Processing does not hang;
  - Security is better as data is centralized;
  - Data-sharing better from central

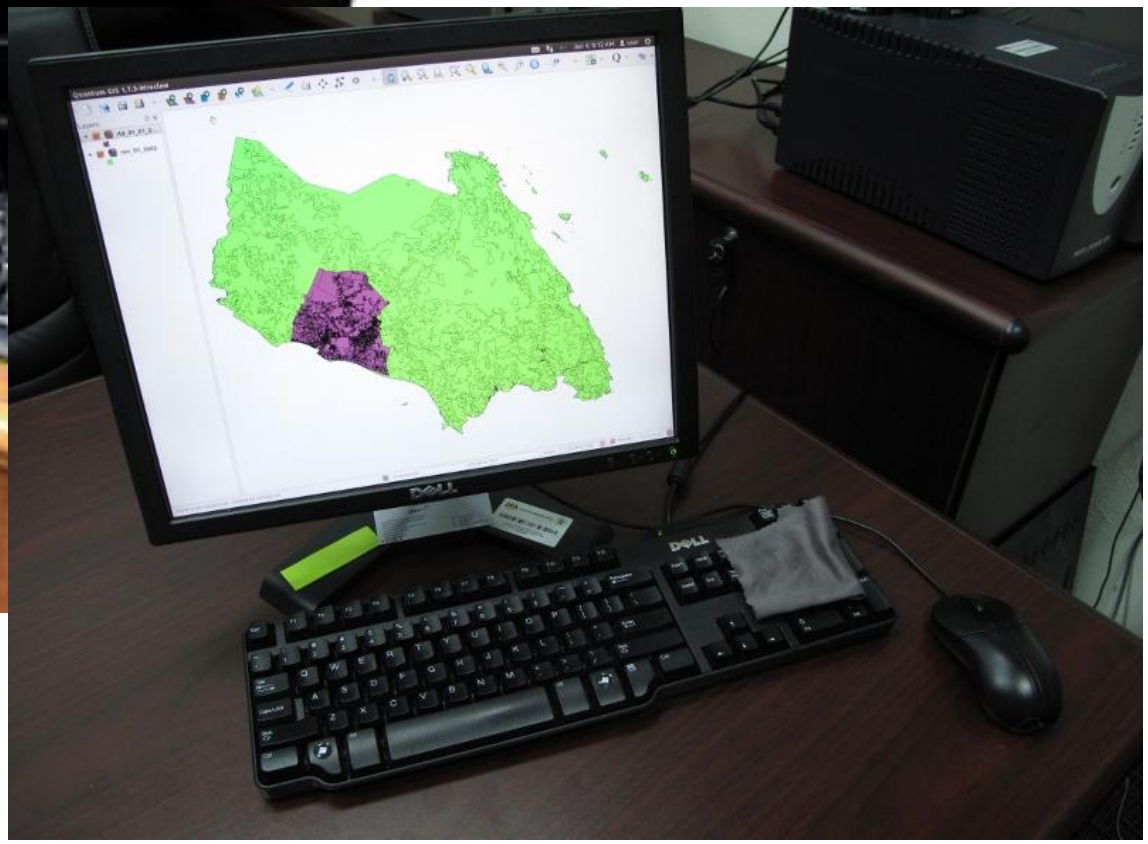
EXPLOIT & INTEGRATE OPEN SOURCE GEOSPATIAL SOFTWARE AT SERVER LEVEL



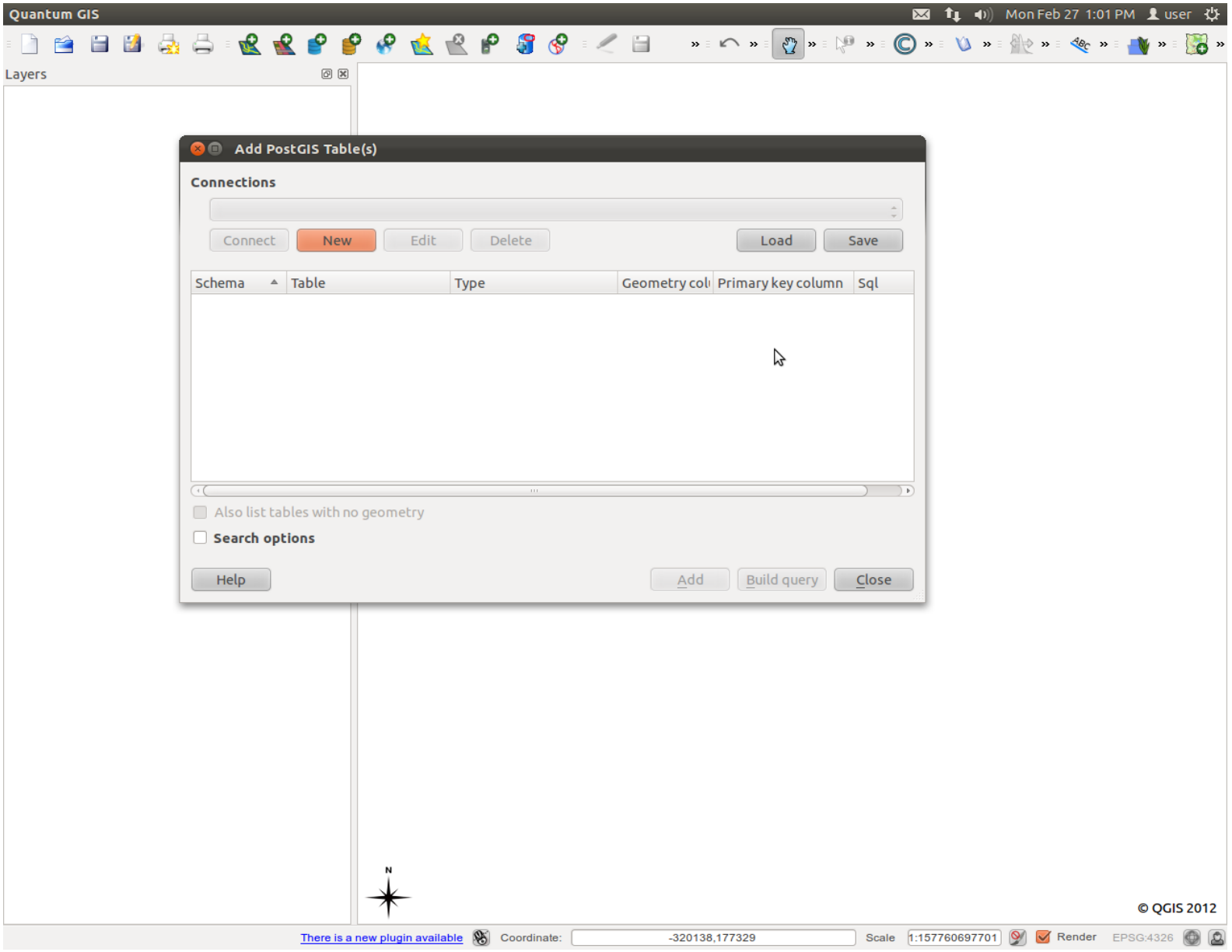
INDIAN INST. TECHNOLOGY POSTGIS-ORACLE SPATIAL TEST

"...we can conclude that Postgres performs better than Oracle 11g both in the Cold Phase and Warm Phase. Though in few queries Oracle 11g performed better but on the whole Postgres overpowered Oracle 11g. In the warm phase in 3 out of 4 queries Postgres performed significantly well, from this we can conclude that Postgres has better automatic memory management capabilities and page replacement policies... On the whole it is the open-source that wins

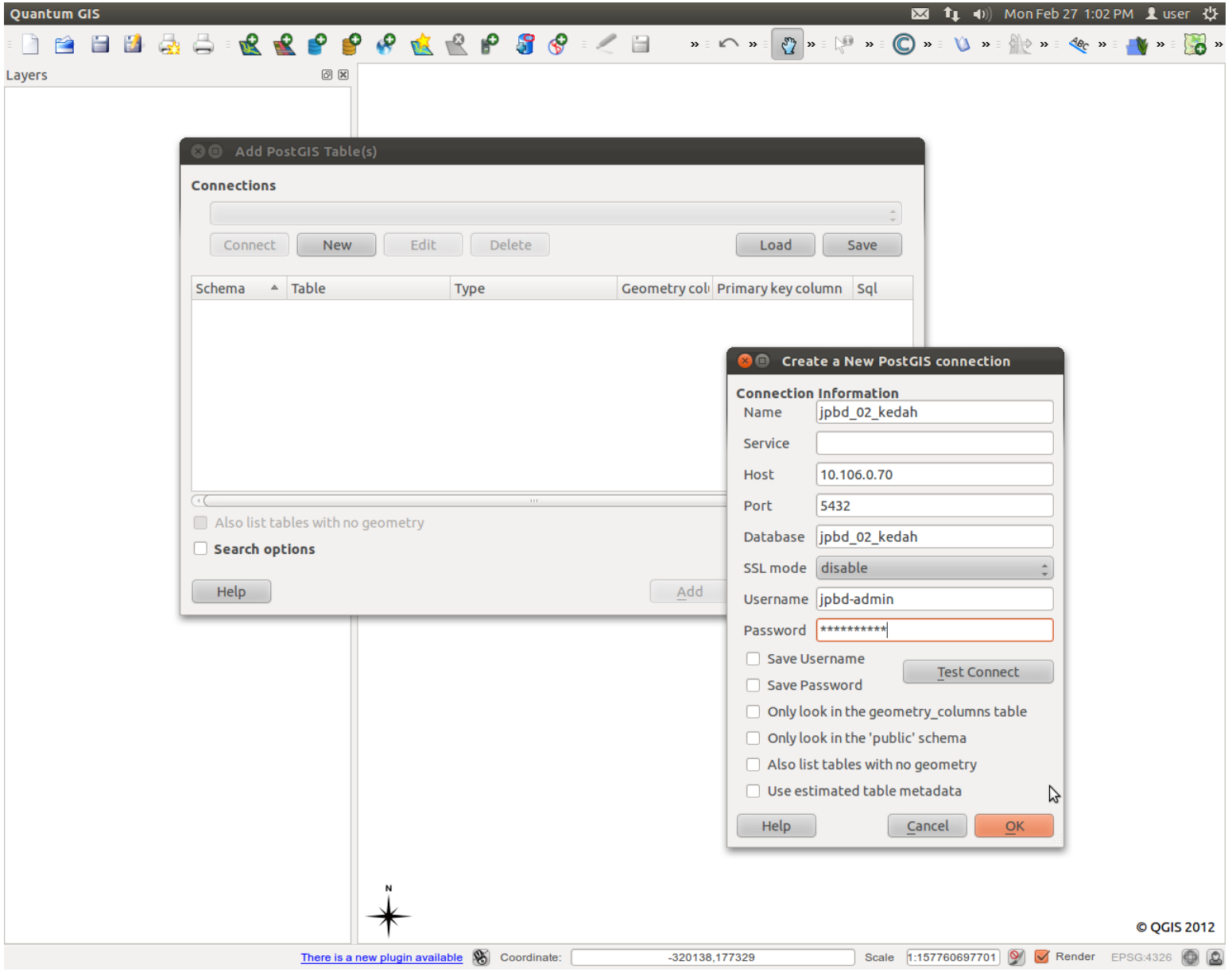
QGIS-POSTGRESQL-POSTGIS SYNERGY



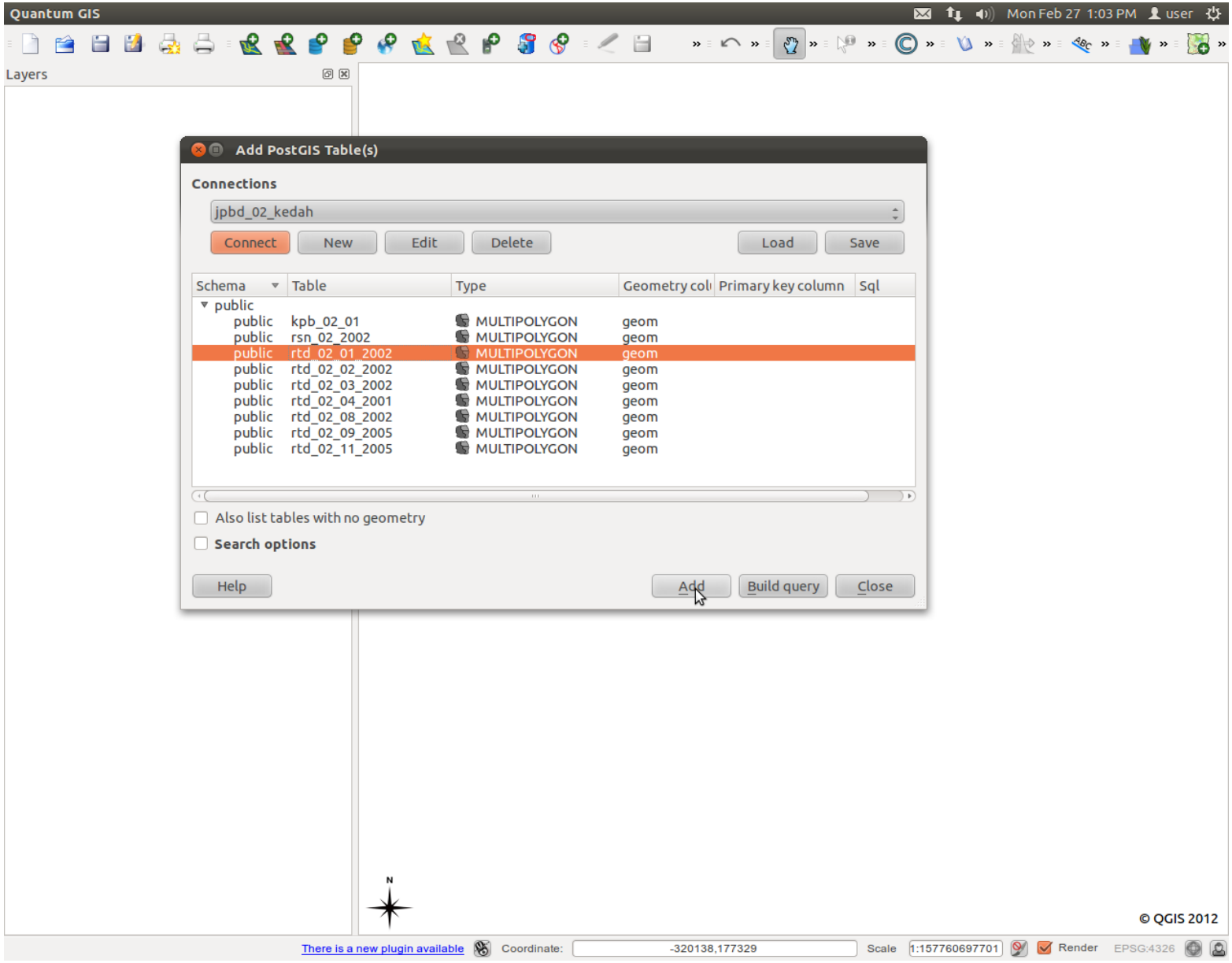
CREATE NEW DATABASE



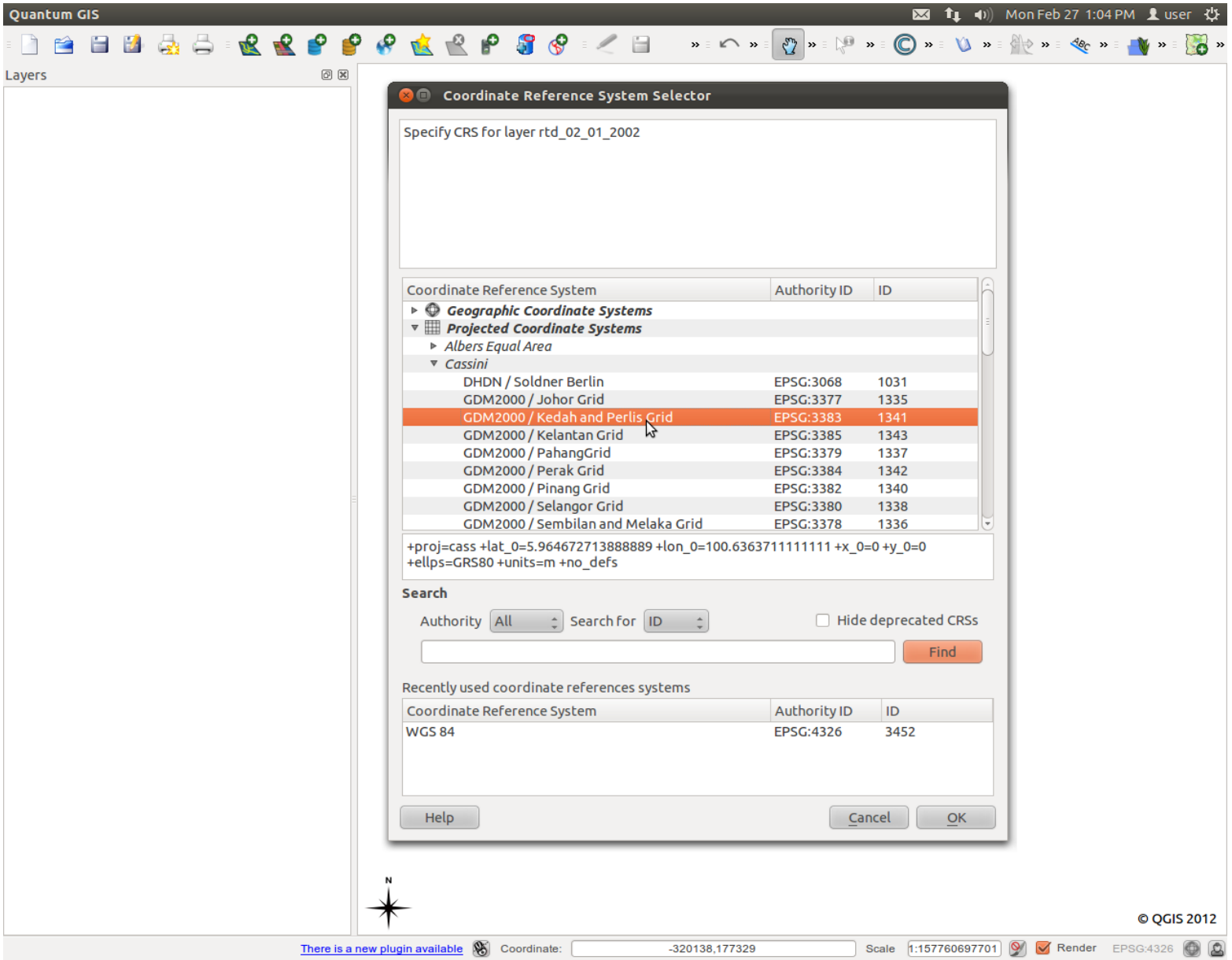
CONFIGURE CONNECTION



SELECT TABLE



SELECT CRS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Coordinate Reference System
Authority ID
ID
Geographic Coordinate Systems
Projected Coordinate Systems
Albers Equal Area
Cassini
DHDN / Soldner Berlin EPSG:3068 1031
GDM2000 / Johor Grid EPSG:3377 1335
GDM2000 / Kedah and Perlis Grid EPSG:3383 1341
GDM2000 / Kelantan Grid EPSG:3385 1343
GDM2000 / PahangGrid EPSG:3379 1337
GDM2000 / Perak Grid EPSG:3384 1342
GDM2000 / Pinang Grid EPSG:3382 1340
GDM2000 / Selangor Grid EPSG:3380 1338
GDM2000 / Sembilan and Melaka Grid EPSG:3378 1336
+proj=cass +lat_0=5.964672713888889 +lon_0=100.6363711111111 +x_0=0 +y_0=0 +ellps=GRS80 +units=m +no_defs
Search
Authority All
Search for ID
Hide deprecated CRSs
Find
Recently used coordinate references systems
Coordinate Reference System
Authority ID
ID
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Help
Cancel
OK
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© QGIS 2012
There is a new plugin available
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Render
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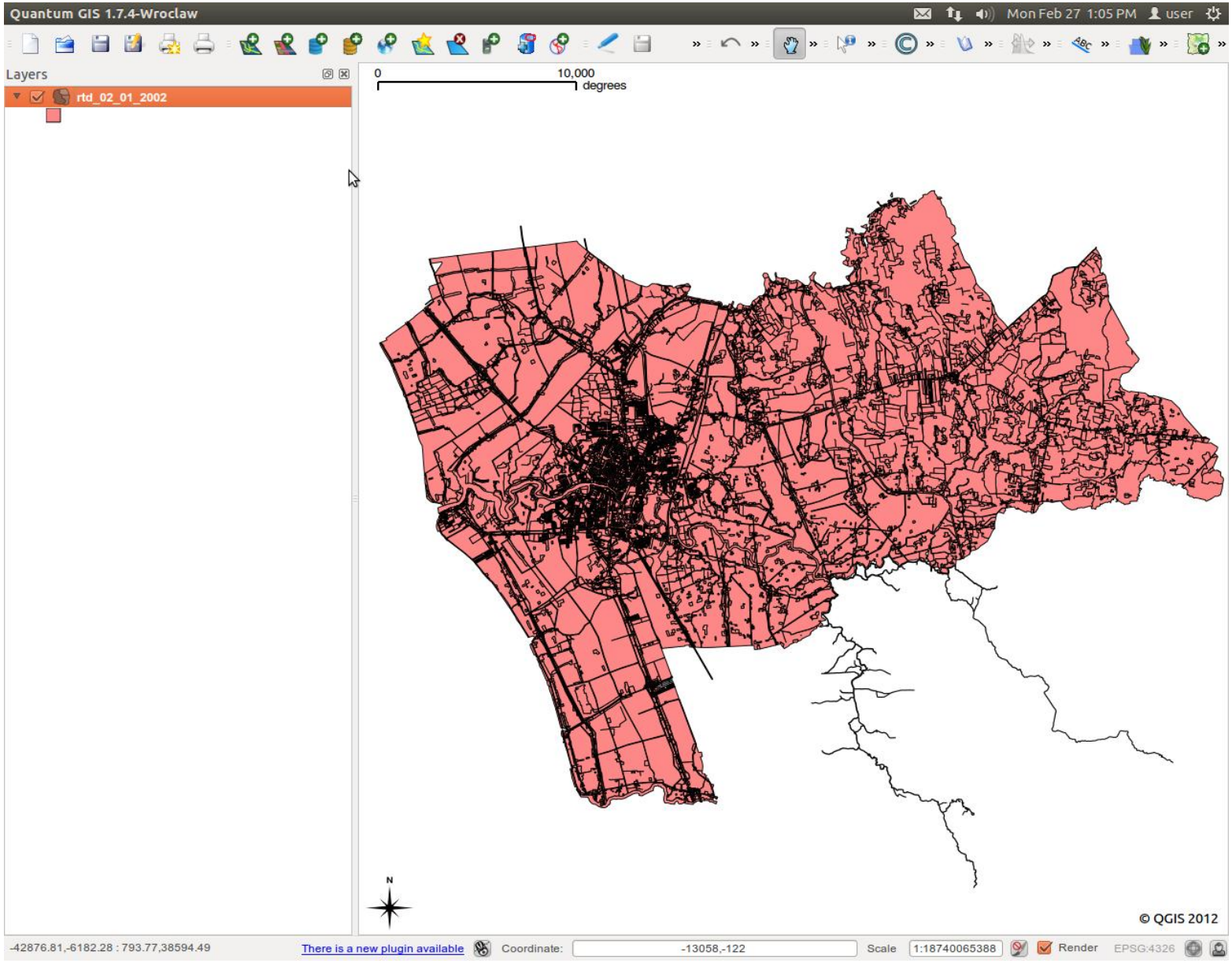
OUTPUT


Quantum GIS 1.7.4-Wroclaw
Mon Feb 27 1:05 PM user
Layers
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10,000
degrees
N
© QGIS 2012
-42876.81,-6182.28 : 793.77,38594.49
There is a new plugin available
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Scale
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Render
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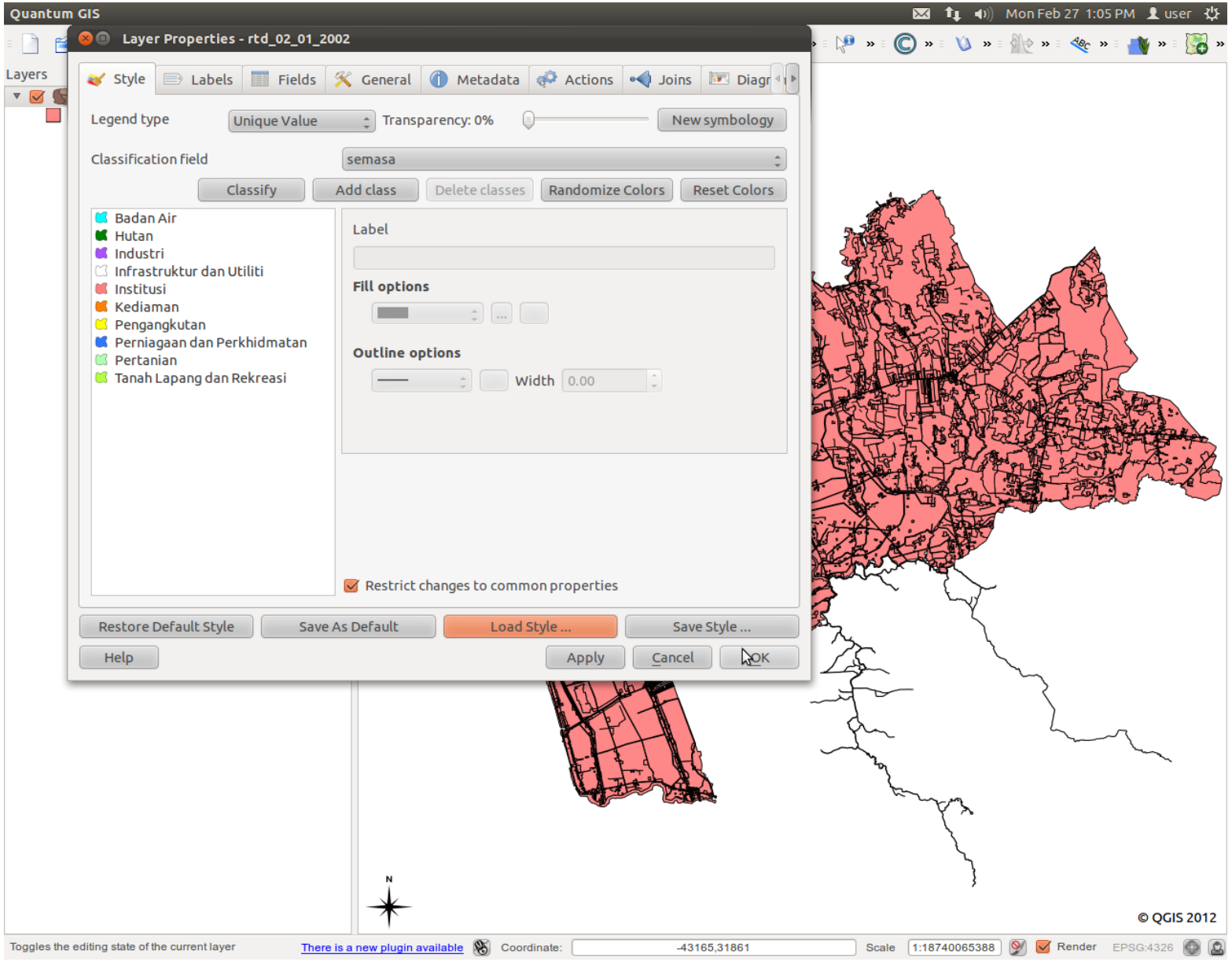
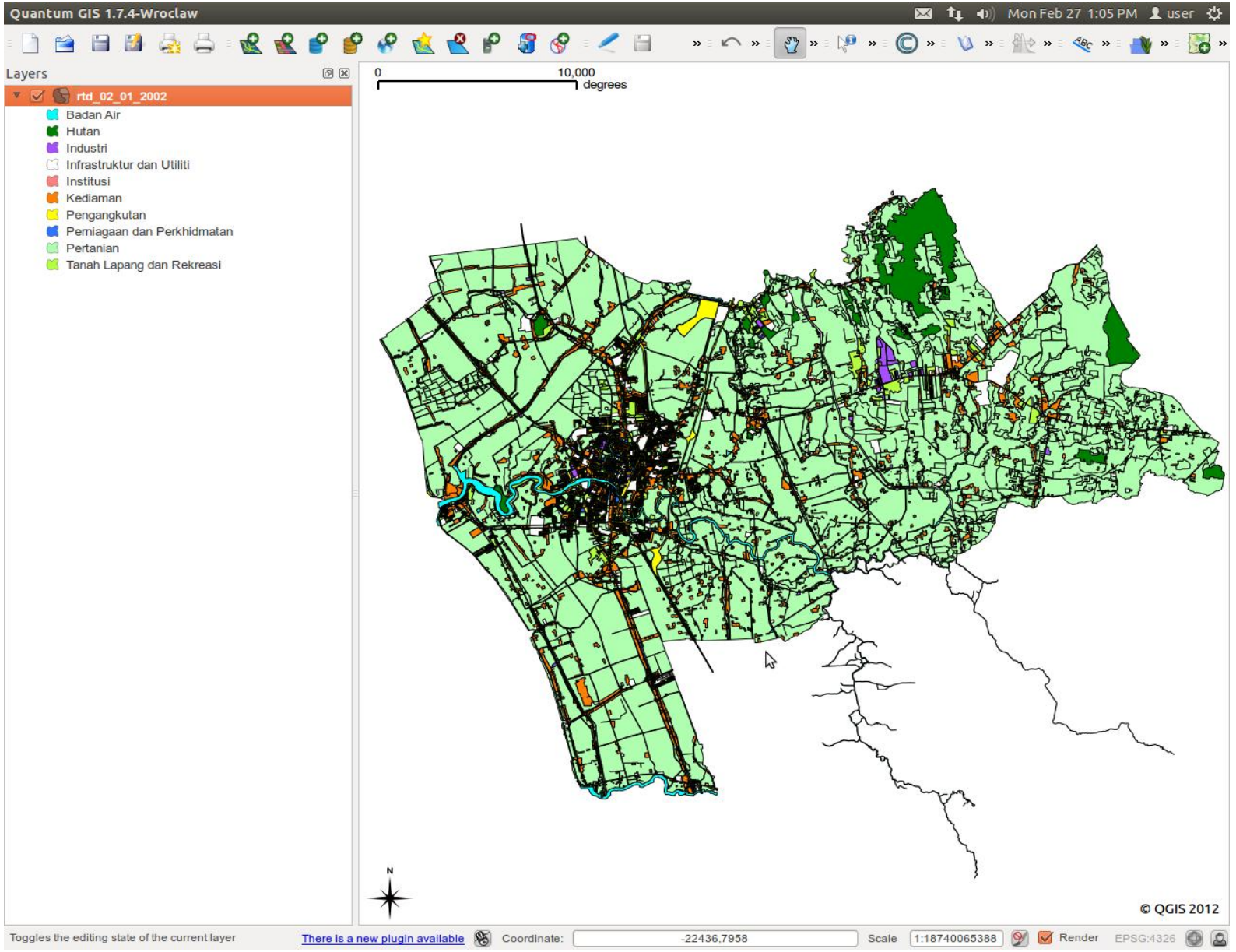
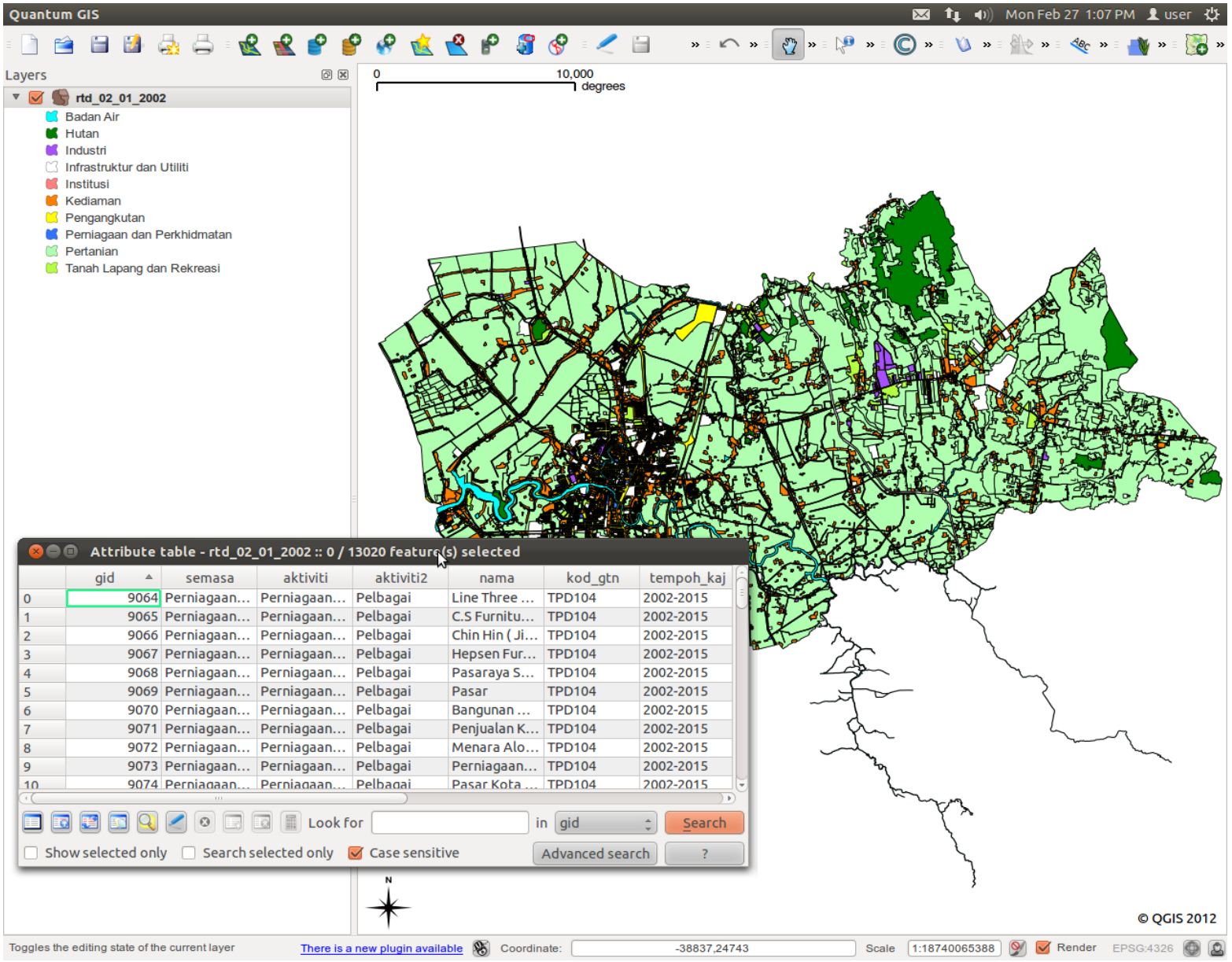
ADD PLG COLOUR TEMPLATE



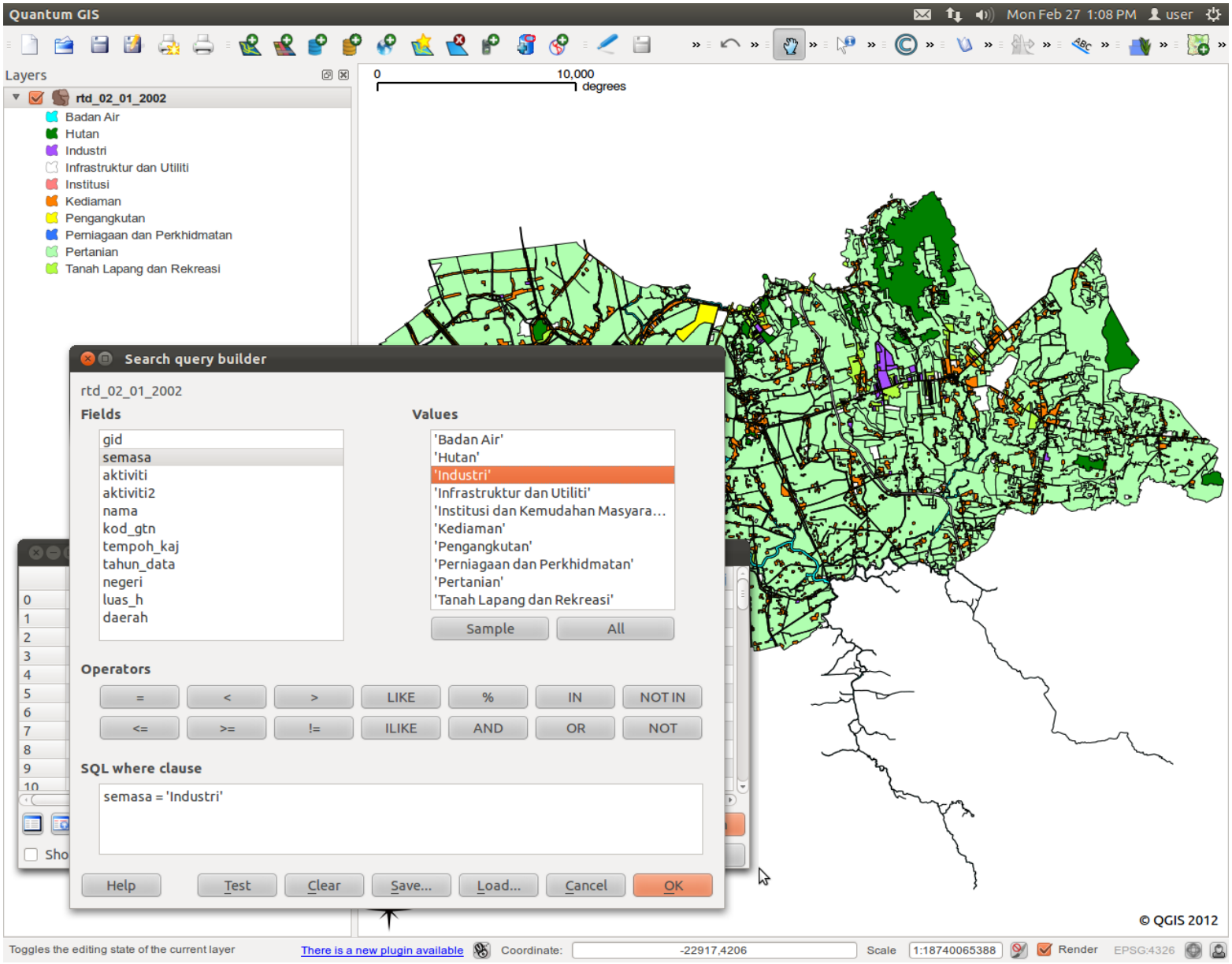
EXISTING LANDUSE



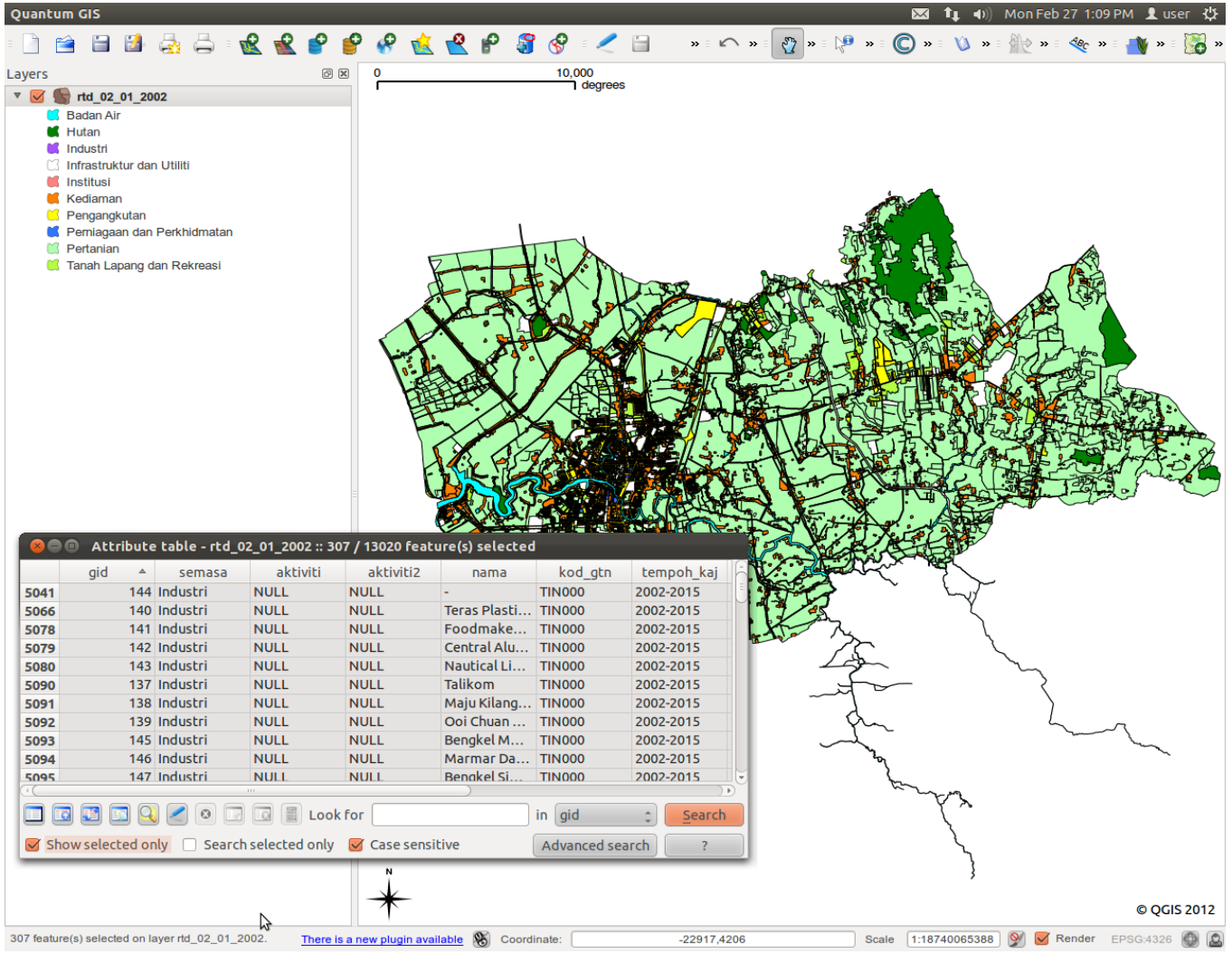
SELECT ATTRIBUTE TABLE



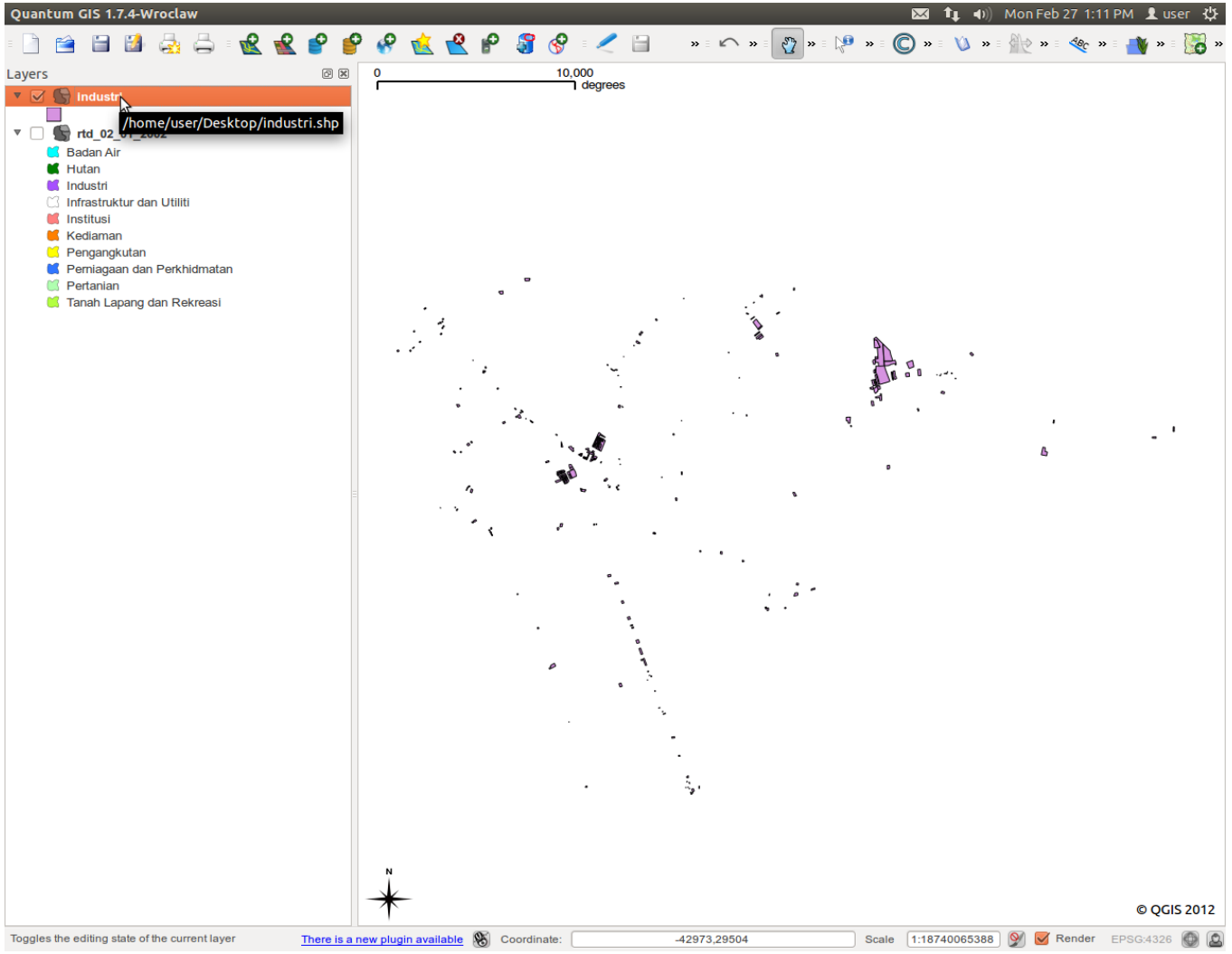
SQL QUERY FOR INDUSTRY



SHOW SELECTION



RESULT


Quantum GIS 1.7.4-Wroclaw
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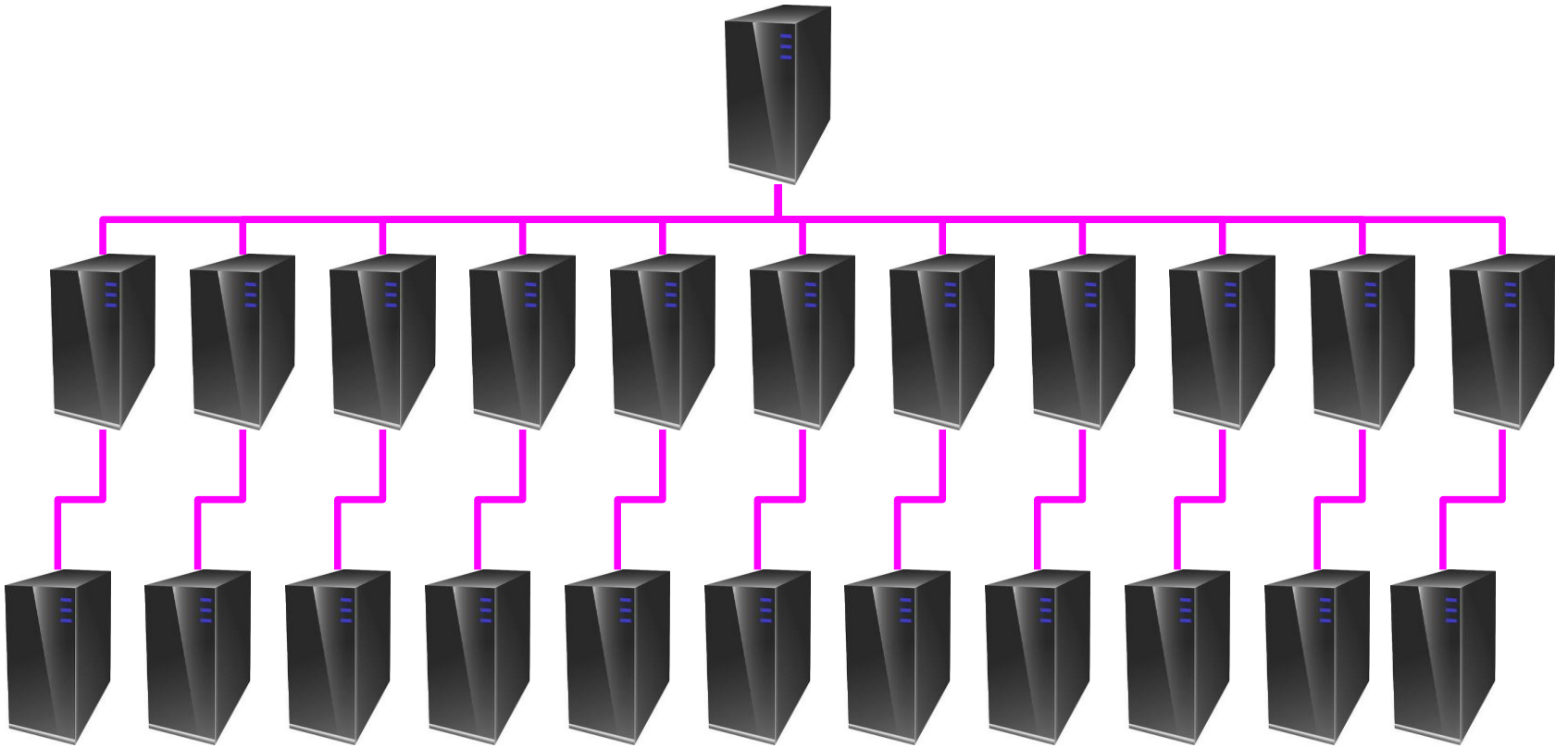
Layers
Industri
/home/user/Desktop/industri.shp
Badan Air
Hutan
Industri
Infrastruktur dan Utiliti
Institusi
Kediaman
Pengangkutan
Perniagaan dan Perkhidmatan
Pertanian
Tanah Lapang dan Rekreasi
0
10,000
degrees
N
© QGIS 2012
Toggles the editing state of the current layer
There is a new plugin available
Coordinate:
-42973,29504
Scale
1:18740065388
Render
EPSG:4326

Post 2012

JPBD INTEGRATED LANDUSE PLANNING SYSTEM (iPLAN)

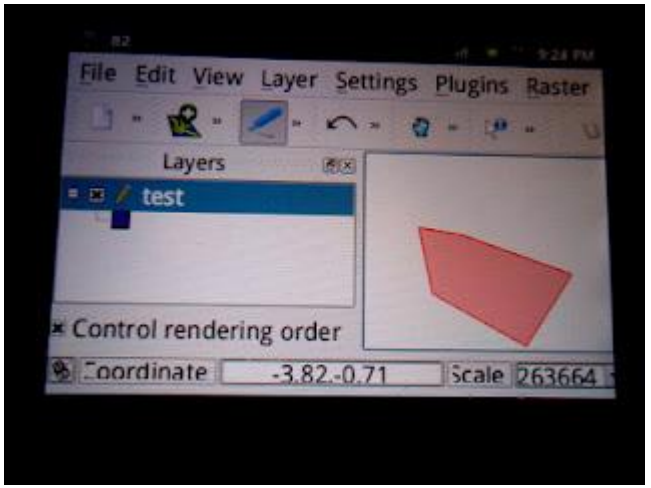


QGIS MOBILE

QGIS
necessitas
Sony Ericsson
XPERIA

Quantum GIS

Source type
File
Directory
Database
Protocol
Encoding System
Source
Dataset
Browse
Open
Cancel
Help
Control rendering order
Render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Layers
test
Control rendering order
Coordinate
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Scale
263664

EPILOGUE

QGIS HELPS:

- SAVE GOVT RM MILLIONS;
- AVOID PIRATE GIS;
- UPDATES ARE FREE & FREQUENT;
- EASILY AVAILABLE & VARIETY OF MODULES;
- CLIENT GIS - GEODATABASE

THANK YOU

JABATAN PERANCANGAN BANDAR DAN DESA SEMENANJUNG MALAYSIA