

Environmental Science for Social Change

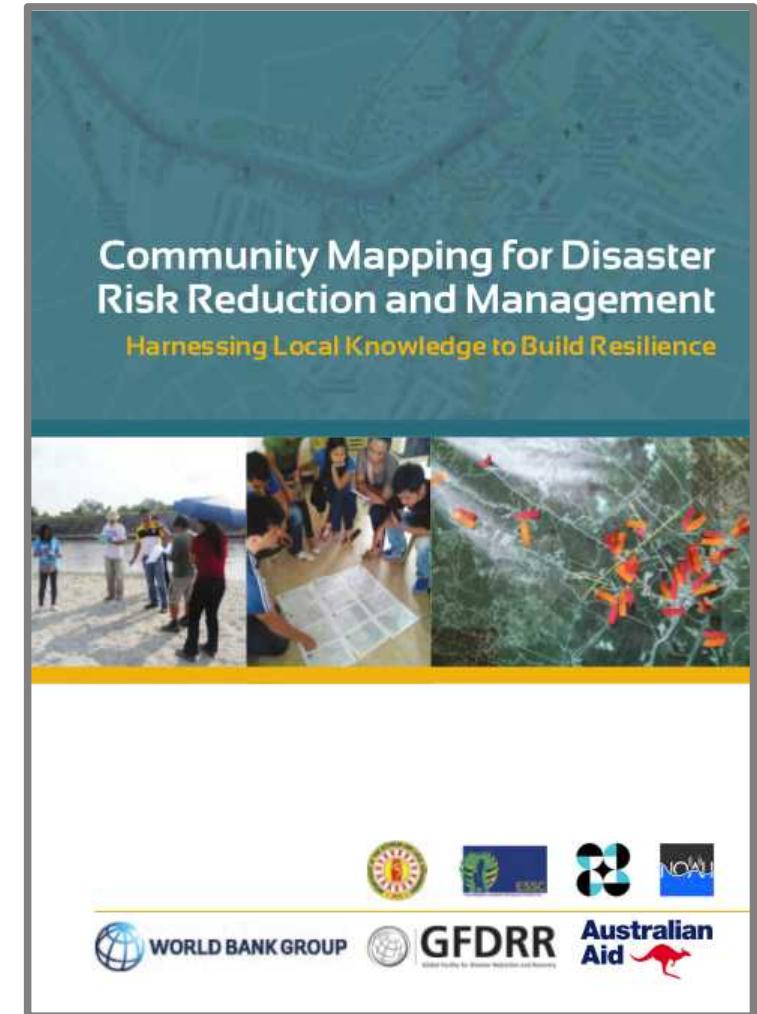


ESSC is a Jesuit research institute that promotes environmental sustainability and social justice through the integration of scientific methodologies and social processes

ESSC also **networks across the Asia Pacific region** in moving an agenda of science for sustainability.

<http://essc.org.ph>

Assisting local governments through mapping and use of decision support tools for disaster risk reduction



<http://bit.ly/1FUpOnz>

Overview

Key elements of the initiative
Tools (OpenStreetMap, InaSAFE)
Capacity building activities
Observations and recommendations

Key elements

Capacity building and partnerships
(inclusive mapping participation, formal and informal partnerships)

Open source and open data
(OPEN - technical, legal, collaboration)

Building upon previous work
(ESSC's community mapping experience, local OSM response,
Haiti, Indonesia)

Replicable methods and tools

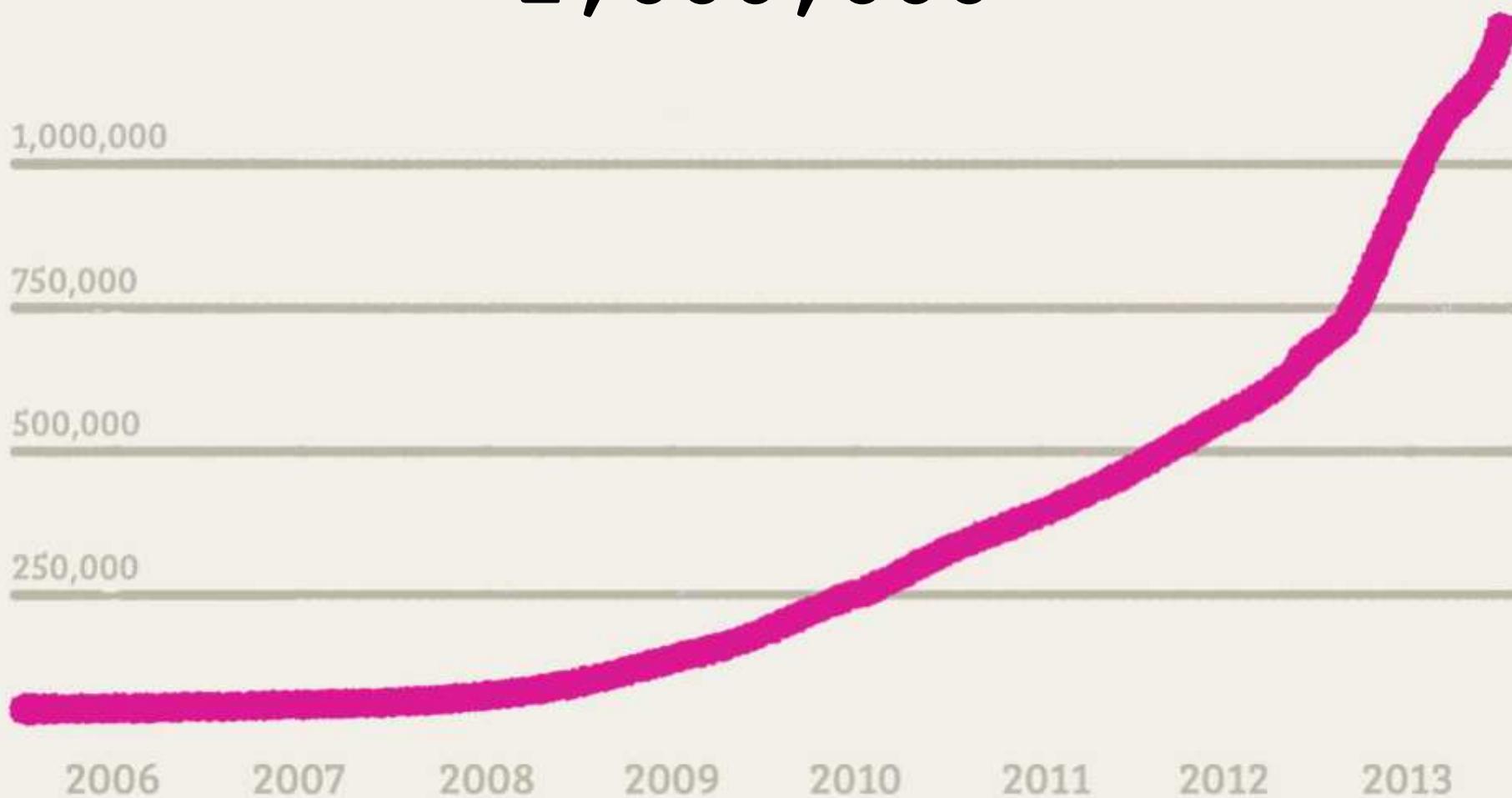
OpenStreetMap

"Wikipedia of Maps"

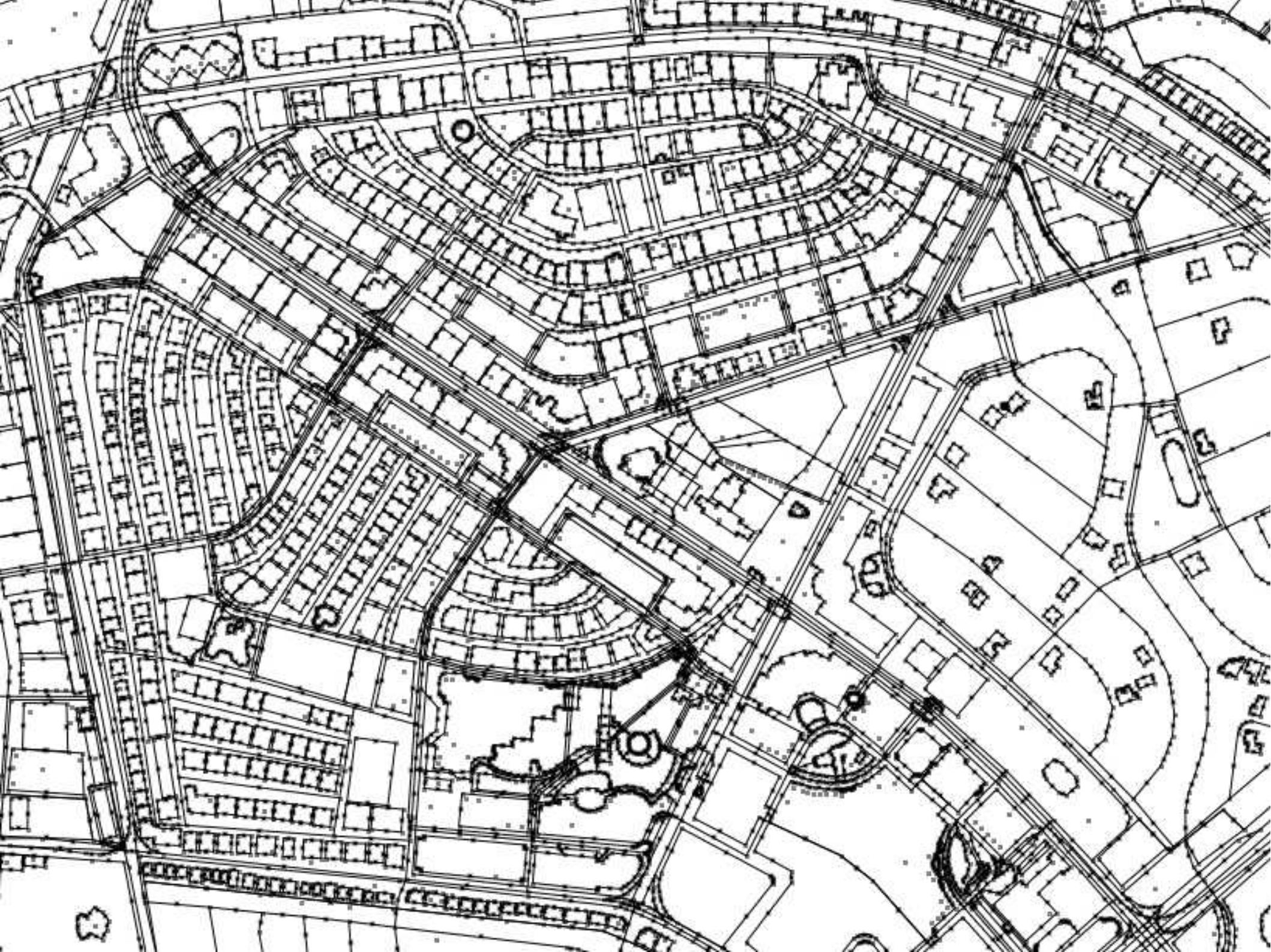


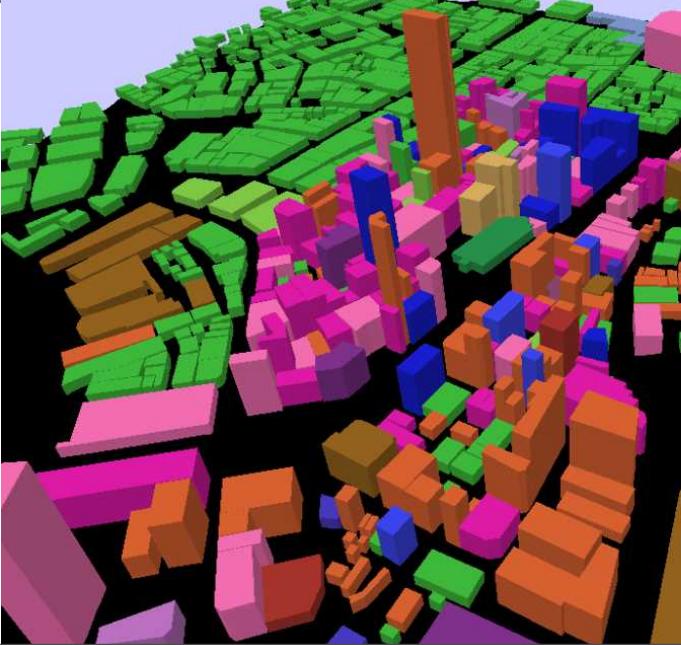
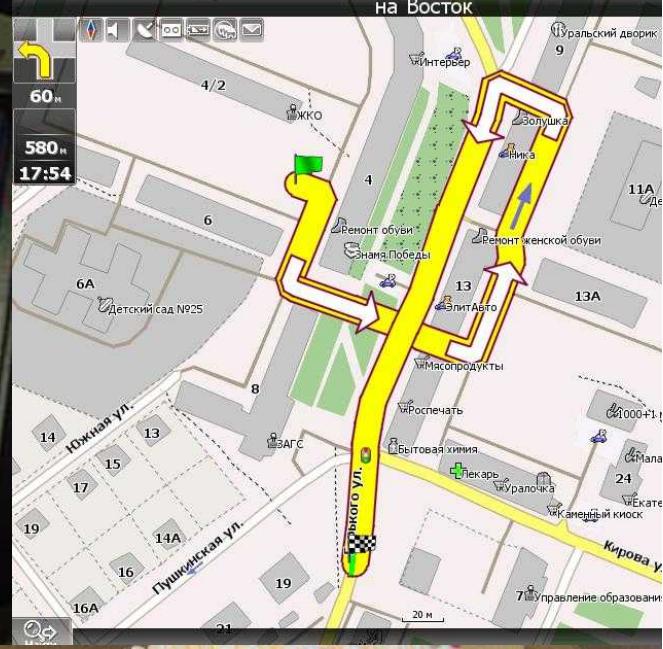
**A project to
map the whole world!**
<http://osm.org>

Over ~~1,000,000~~ users
2 , 000 , 000



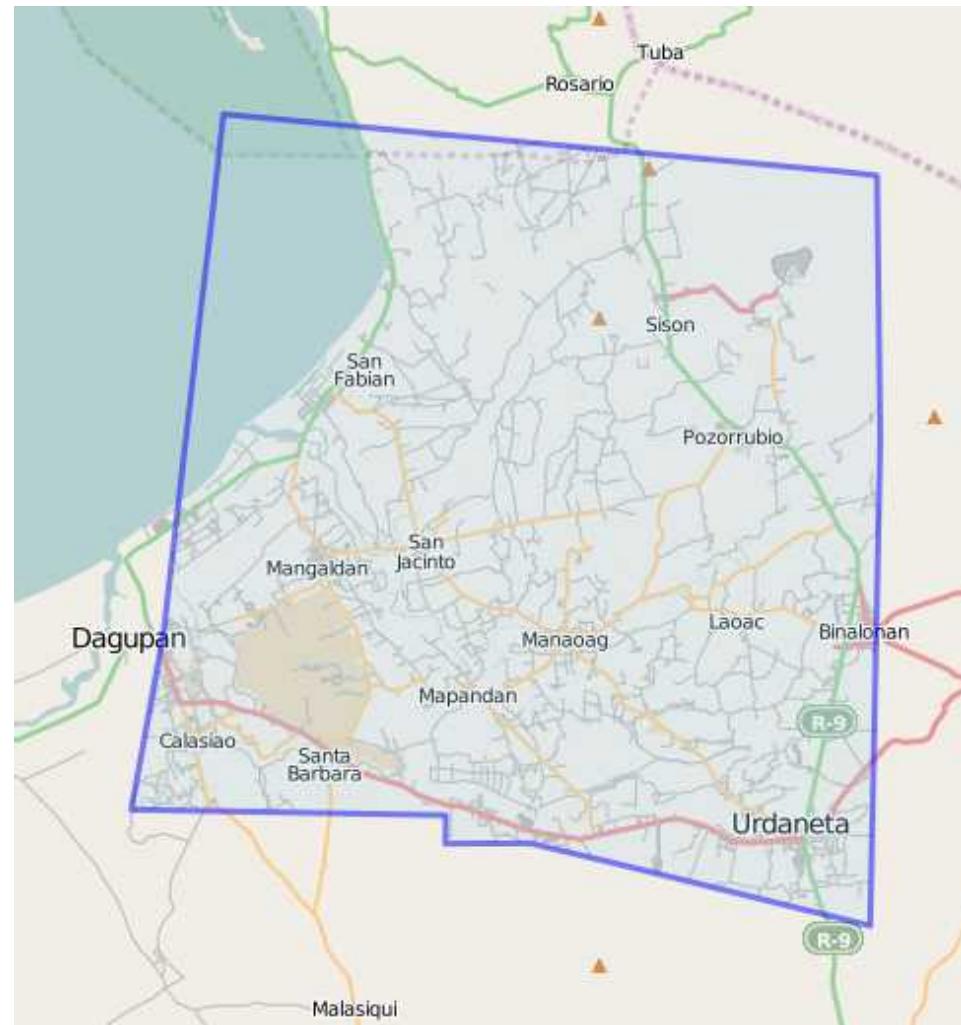
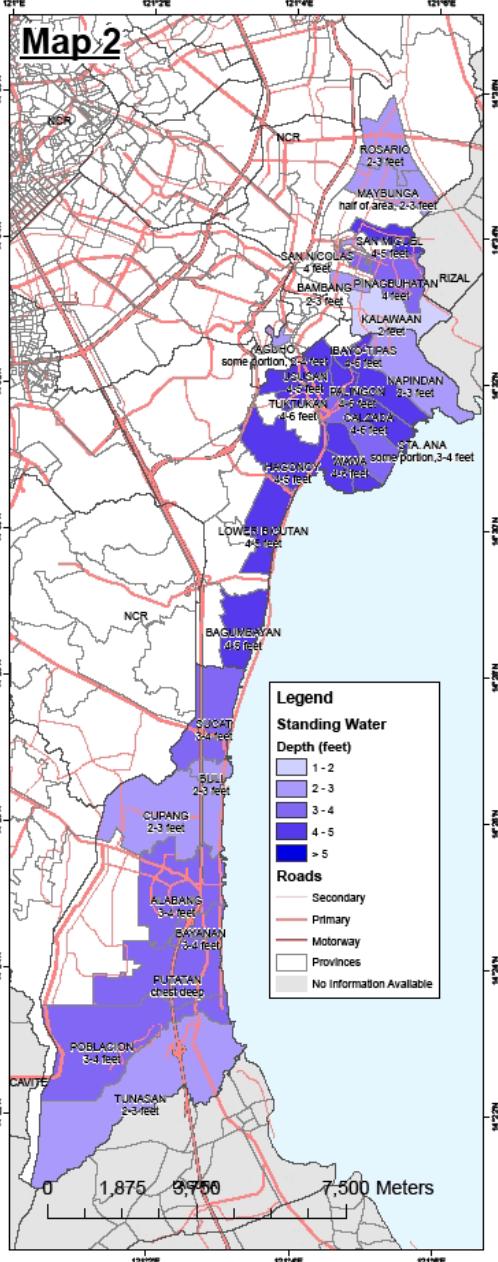
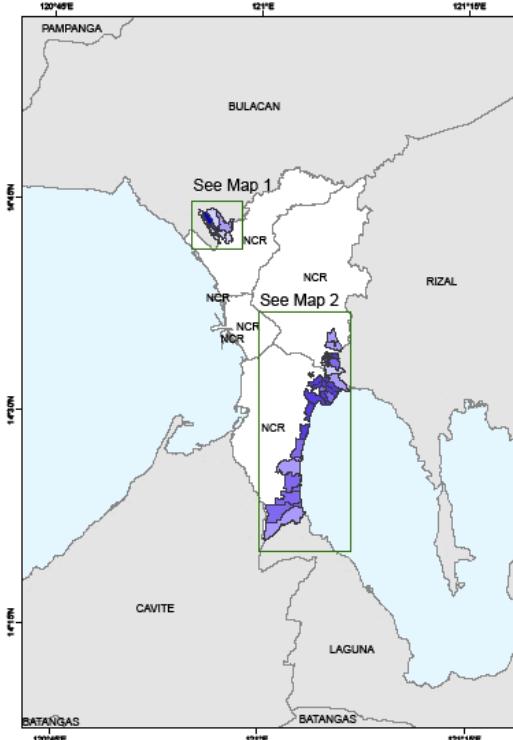
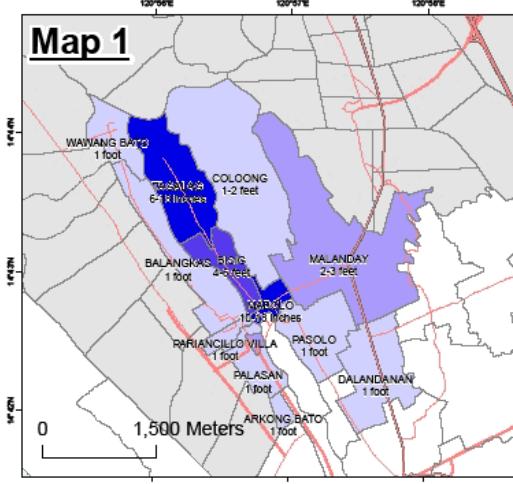






Use data in fun and exciting ways

OpenStreetMap for Disaster Response in the PH



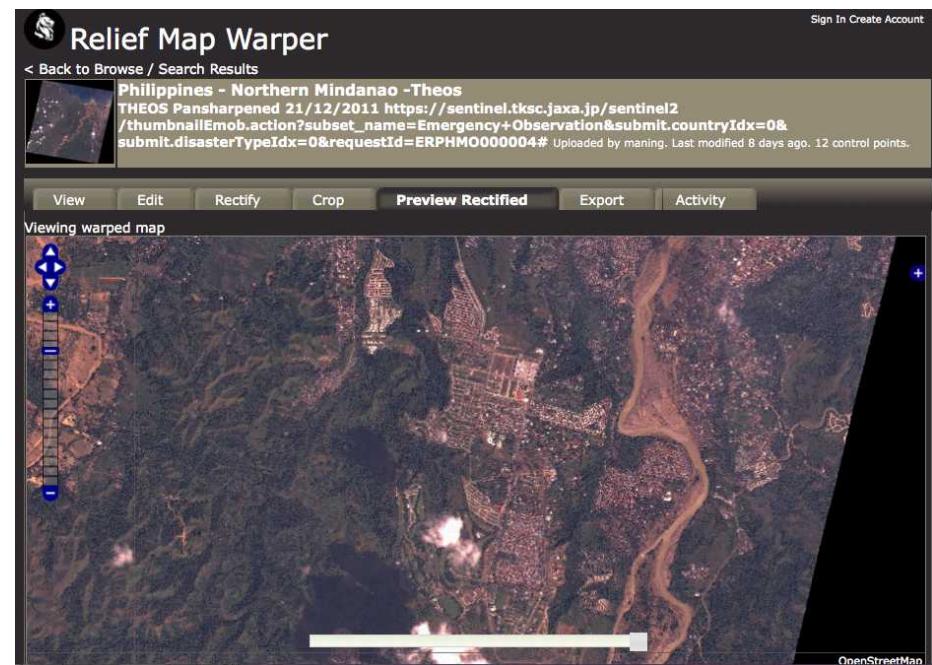
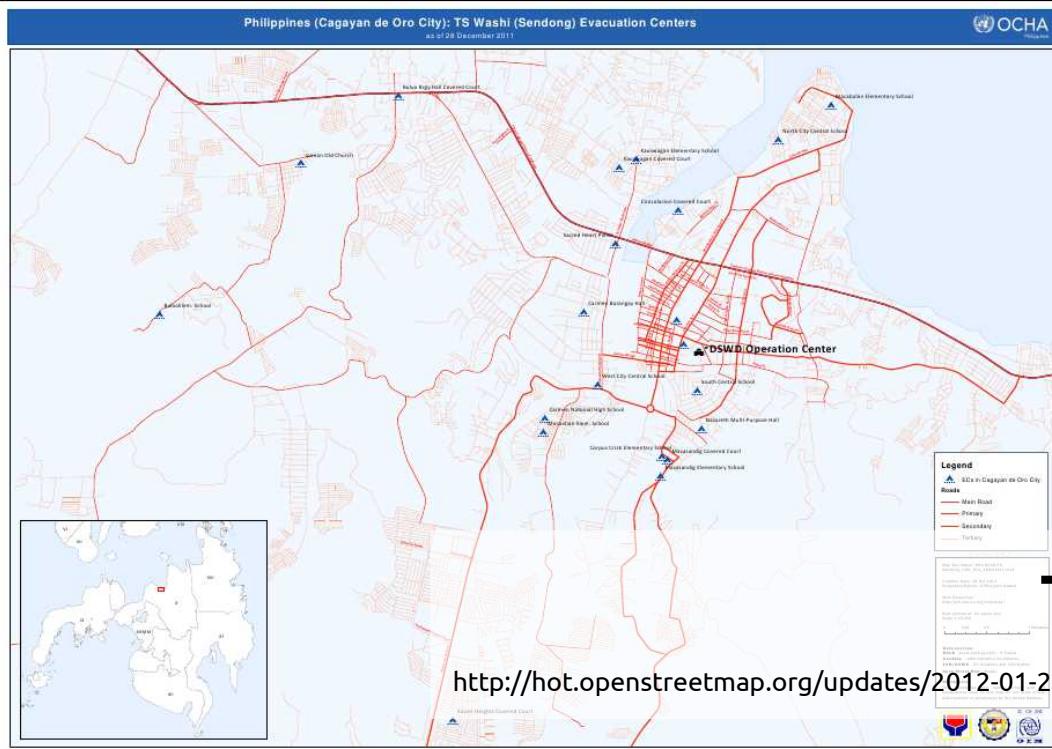
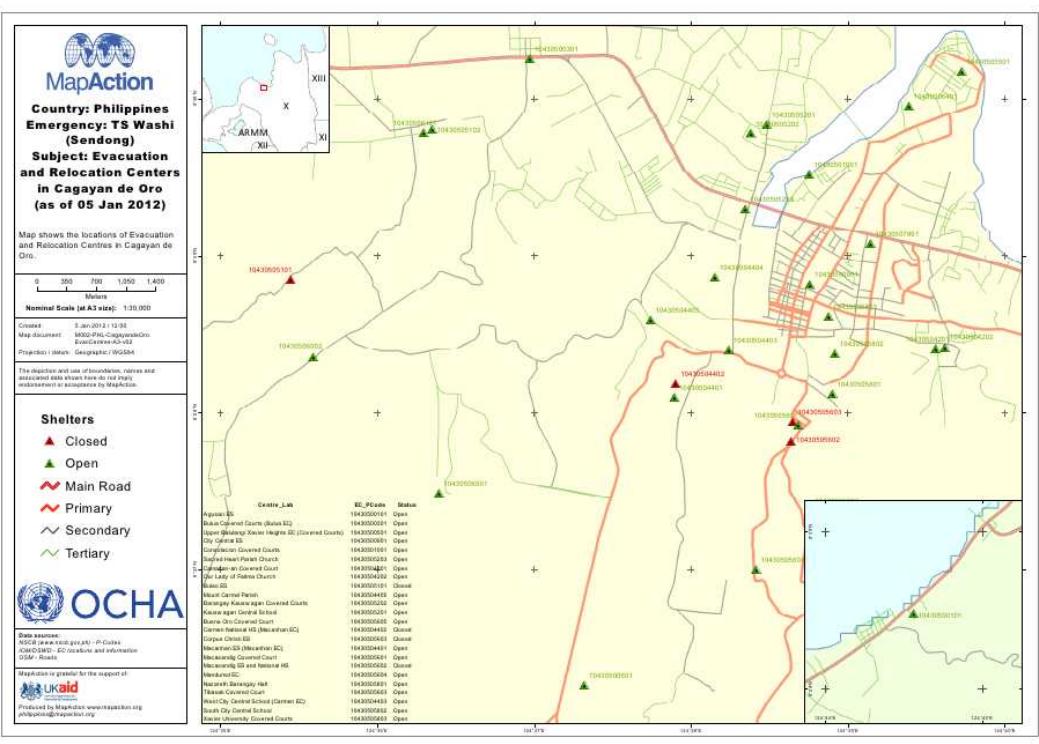
Philippines: Tropical Storm Ondoy Recorded depth of standing water (as of 7 Oct 2009, 17:00)

Note: This map only displays Barangays, within NCR, that are still currently flooded (inundated) and not previously inundated area. The area was assessed by MMDA.

Created: 07 Oct 2009 18:00
Project: Humanitarian_OSM_Tropical_Storm_Ondoy
UTM: 51V NAD 1983
TO: 07000000000000000000
Data source:
MMDA supplied the water depth measurements.
General disclaimer: This map is provided "as is" for informational purposes only.
OpenStreetMap.org (www.openstreetmap.org) is licensed under the Creative Commons Attribution-Share-Alike 2.0 license.
The depiction and use of boundaries, names and associated data shown here do not imply endorsement or acceptance by MapAction or the United Nations.

Typhoon Ondoy and Pepeng 2009

http://wiki.openstreetmap.org/wiki/Humanitarian_OSM_Team/phillippines_ondoy



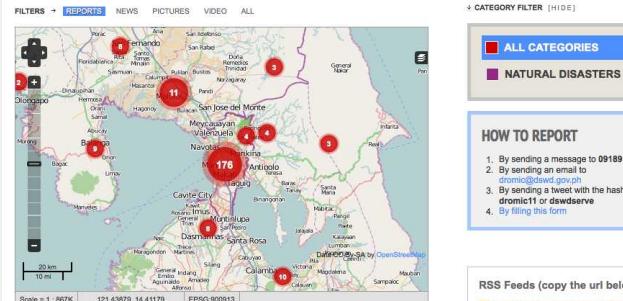
DSWD 2.0 : Citizen Interactive Portal

[SUBMIT A REPORT](#)

engaging you for better, faster and smarter DSWD service delivery

[HOME](#) [REPORTS](#) [SUBMIT A REPORT](#) [CONTACT US](#)

We are monitoring disaster incidents and humanitarian concerns for immediate response... and you are part of it.



RSS Feeds (copy the url below)
<http://report.dswd.gov.ph/feed/>

HOW TO REPORT

1. By sending a message to 09189122813
2. By sending an email to dromic@dswd.gov.ph
3. By sending a tweet with the hashtag/s [#dromic11](#) or [#dswdserve](#)
4. By filling this form

Typhoon Sendong 2011

http://hot.openstreetmap.org/uploads/2012-01-25_hot_mapping_for_flash_flood_affected_areas_in_northern_mindanao_philippines

REPORTS (FROM THE MAP, LISTED IN CHRONOLOGICAL ORDER)

OFFICIAL & MAINSTREAM NEWS

TITLE	LOCATION	DATE	TITLE	SOURCE DATE
Oton Central School, Oton, Iloilo	Oton, Iloilo	Aug 8 2012	Help For Victims of Disaster	DROMIC Sep 7 2012
Sto. Domingo Health Center	Sto. Domingo, Iloilo	Aug 8 2012	Gone Beyond the Call of Duty	DSWD Aug 29 2012

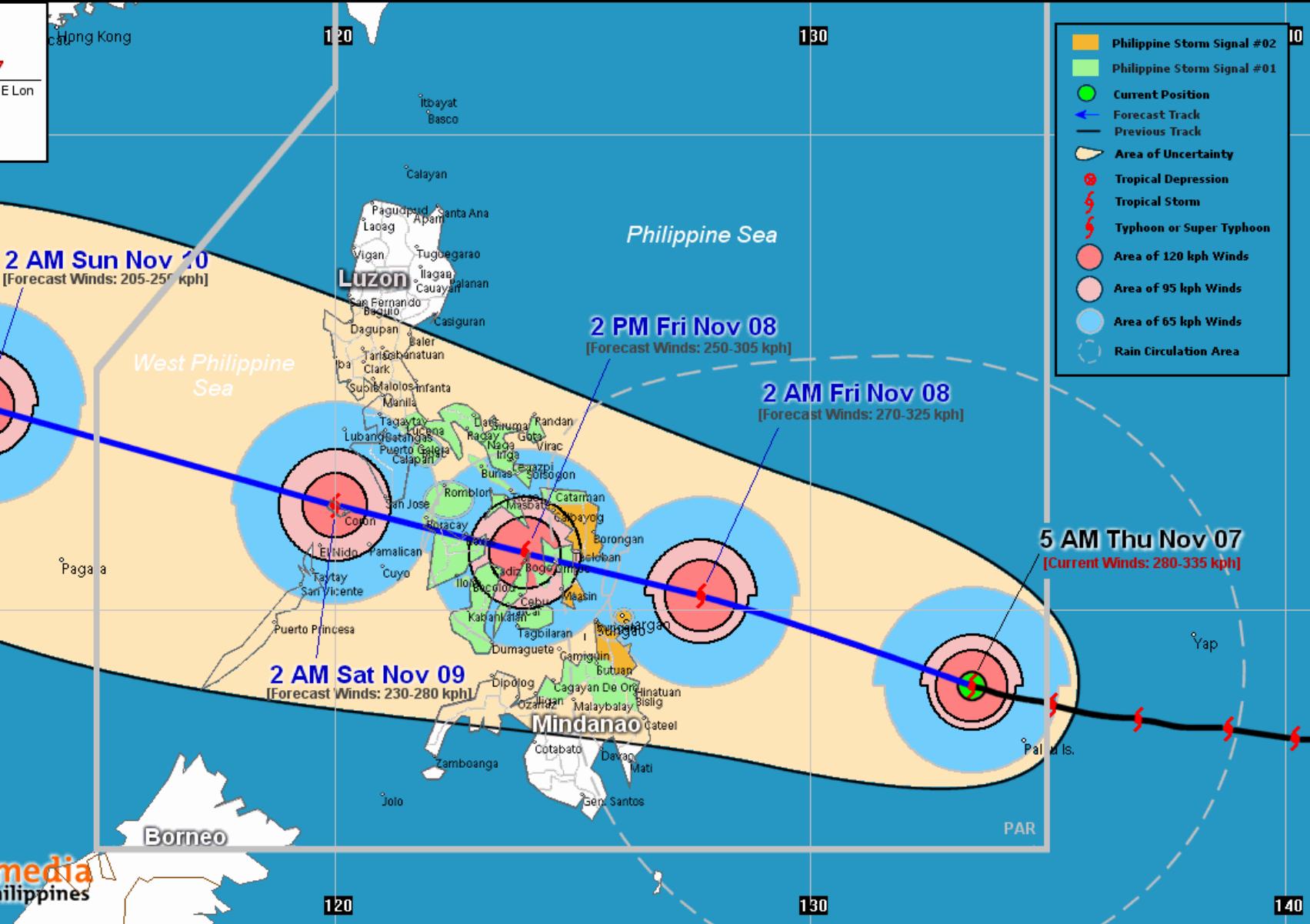
Super Typhoon HAIYAN (YOLANDA)

November 07, 2013

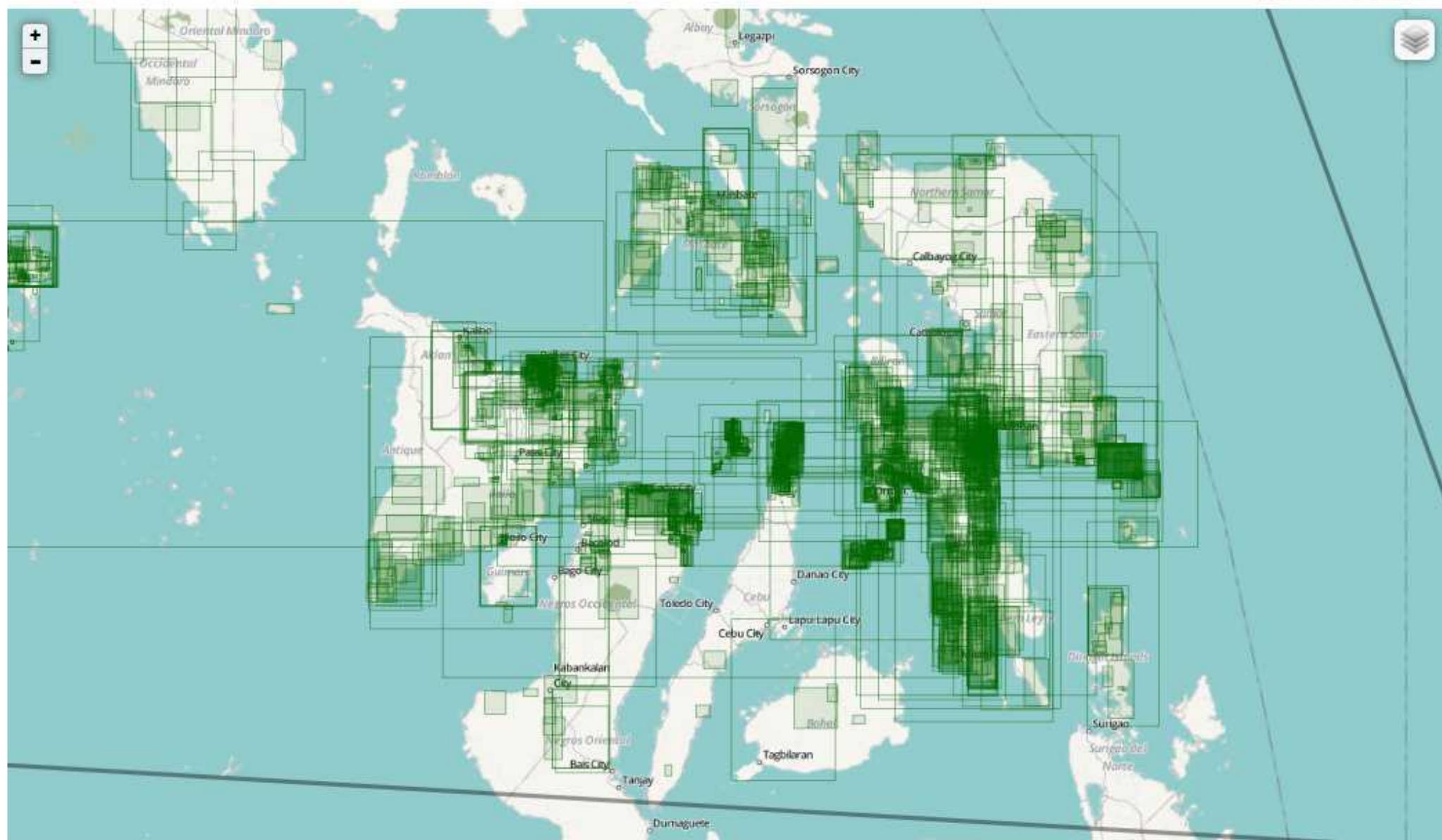
5:00 AM PhT Thursday

Weather.com.ph StormTrack #07

Current Center Location: Near 8.4° N Lat, 133.4° E Lon
Max Sustained Winds: 280 kph | Gusts: 335 kph
Min Central Pressure: 911 millibars (hPa)
Present Movement: WNW @ 35 kph
Towards: Leyte-Southern Samar Area
Max Sea Wave Height: 46 feet



(Data is updated on an hourly basis!)



Last Update: 2013-11-17 21:59:47 UTC

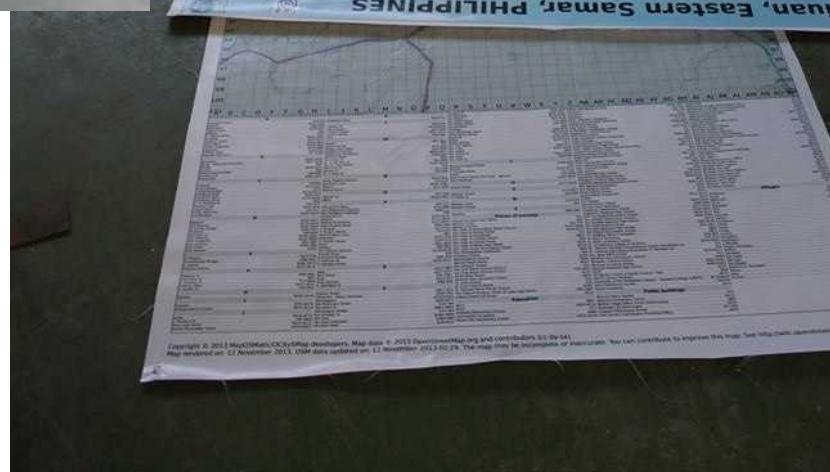
22 days
~1,500 volunteers
82 countries
4.2 millions of changes
448,797 buildings; 34,713 roads; 7,857 residential areas;
4,060 rivers (as of 2013-11-30)

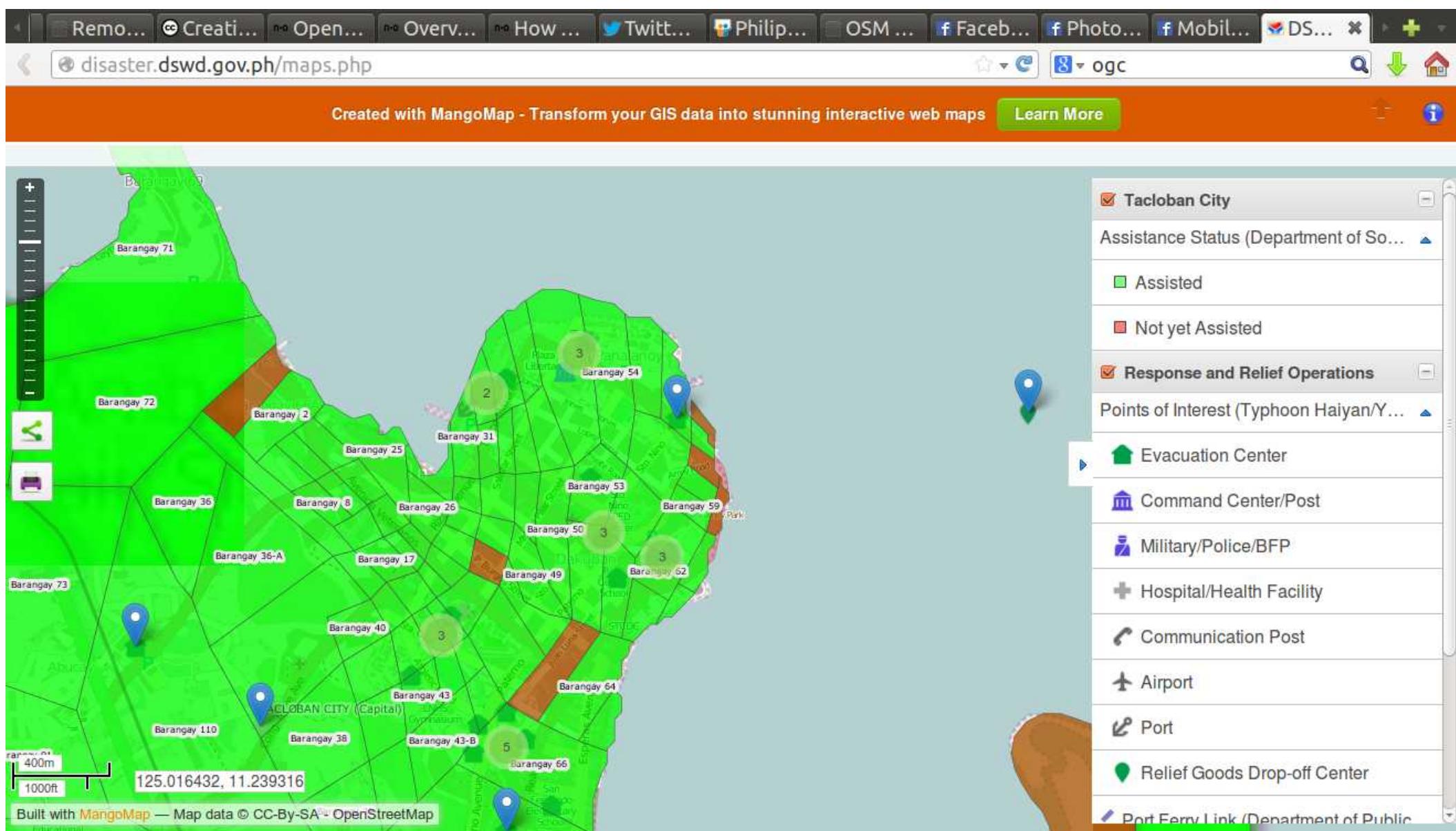




IOM staff showing the large OpenStreetMap posters in the DSWD Operations Center in Tacloban Airport. Photo by Joe Lowry

<http://www.flickr.com/photos/esambale/10937514315/>





<http://disaster.dswd.gov.ph/maps.php>

TYPHOON YOLANDA GEONODE

Several organizations are building damage assessments after Super Typhoon Yolanda (Haiyan). This site serves as a repository of the data "behind" the damage assessments which are available on other web sites. The principles are clear: Data must be legally and technically open. Data must be clean, useful, and findable. Curators will do our best to ensure the resources adhere to these principles. Our mailing list is available here: [mailing list](#).

What is the GeoNode and how to use it? [See the FAQ](#)

[Explore Layers](#)[Explore Maps](#)

LATEST LAYERS

Total: 38



◆ Tacloban Flood Hazard (100yr)

Layer from [marinel](#); 2 weeks, 5 days ago

Flood susceptibility: 100-year return period from Project NOAHE

68
views

0
comments

★ ★ ★ ★ ★
Average rating (0votes)

[Download](#) [Create a map](#)



◆ OpenStreetMap Hospital Polygons

Layer from [boundless](#); 11 months, 3 weeks ago

Hospital (and other medical facility) Polygons extracted from the OpenStreetMap Database using a mapping defined here <https://github.com/ingenieroraniel/yolanda/blob/master/data/osm/mapping.json>

266
views

0
comments

★ ★ ★ ★ ★
Average rating (0votes)

[Download](#) [Create a map](#)



◆ OpenStreetMap Medical Facility Points

Layer from [boundless](#); 11 months, 3 weeks ago

Medical Facility Points Extracted from OpenStreetMap. Polygons extracted from the OpenStreetMap Database using a mapping defined here <https://github.com/ingenieroraniel/yolanda/blob/master/data/osm/mapping.json>

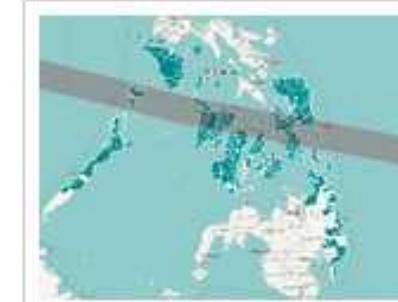
361
views

0
comments

★ ★ ★ ★ ★
Average rating (0votes)

[Download](#) [Create a map](#)

LATEST MAPS



◆ Track + Sitrep51

Map from [jcwawley](#); 8 months, 3 weeks ago

218
views

0
comments

★ ★ ★ ★ ★
Average rating (0votes)

[Download](#) [View](#)



<http://yolandadata.org/>



DOLORE

Typhoon Ruby/Hagupit 2014

Imagery from SkyEye, Inc. Dec 2014. Creative Commons

Assisting local governments through *mapping and use of decision support tools for disaster risk reduction*

Implementing Partners



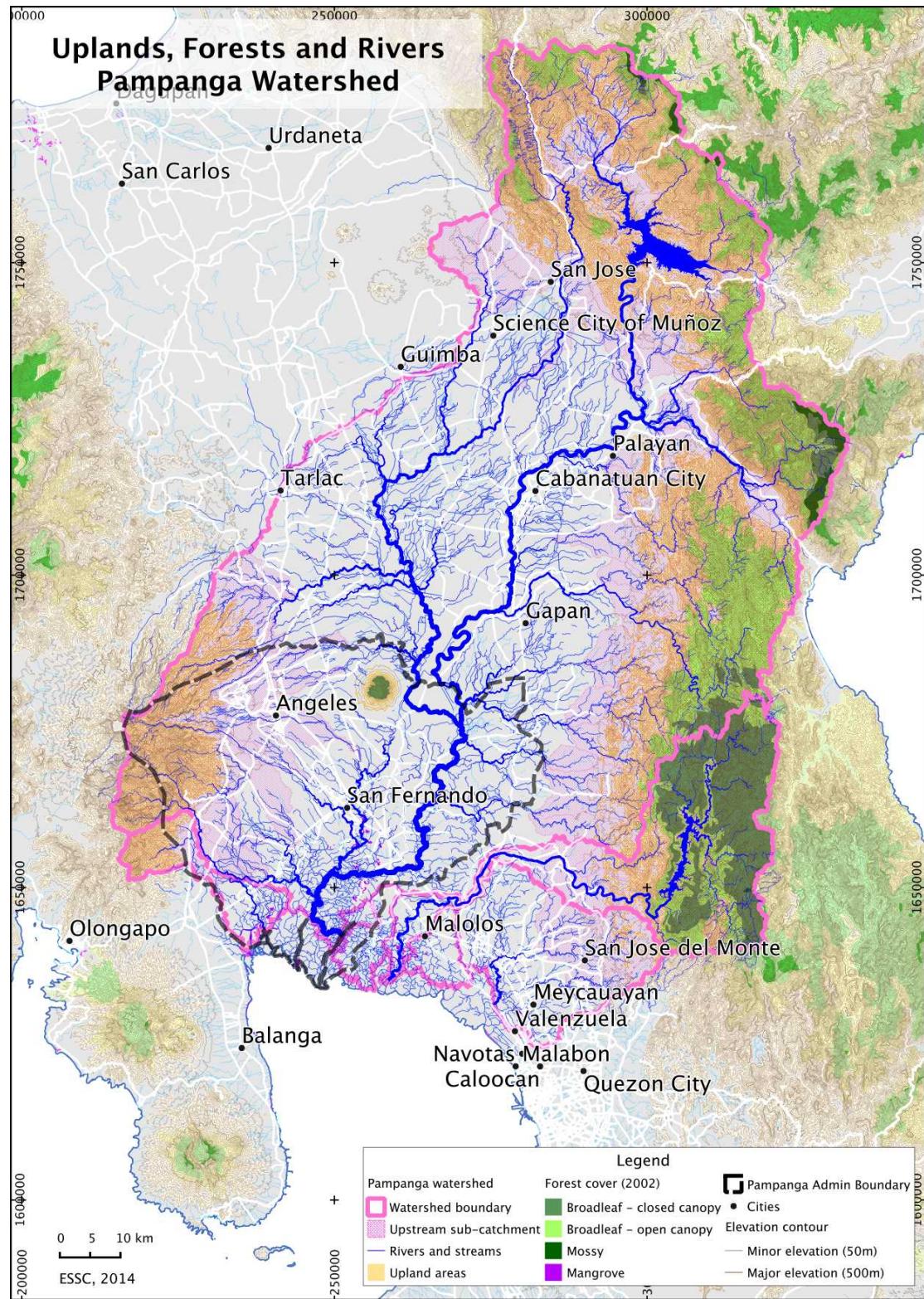
Funding Support



Objectives

Support growth of the
OpenStreetMap (OSM)
community

Support customization of
InaSAFE



Activities and Components

Basemapping updates using OpenStreetMap

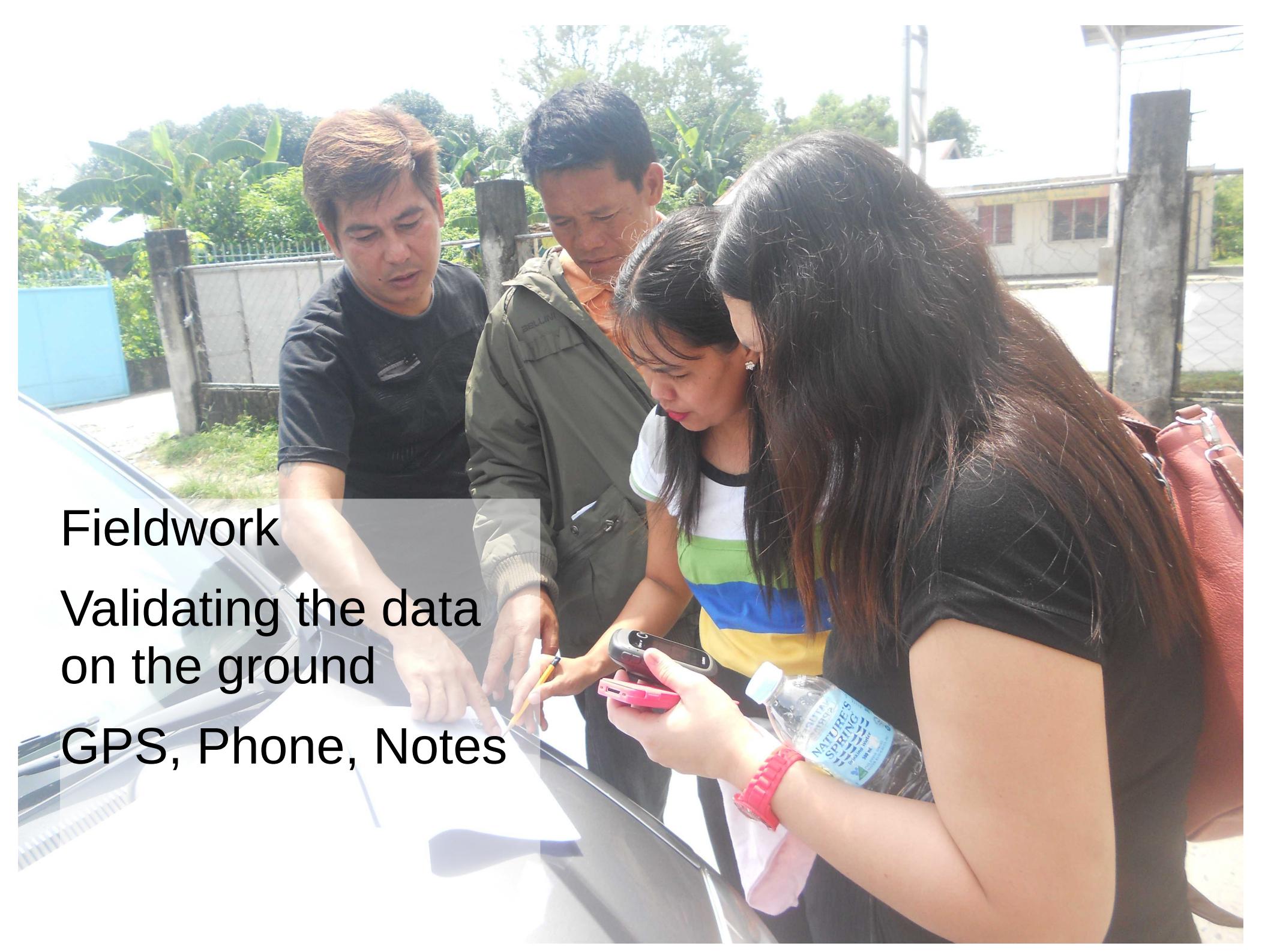
Candaba, Guagua, Lubao in Pampanga



Initial situationer of the
Municipality

Understanding the tools
of mapping

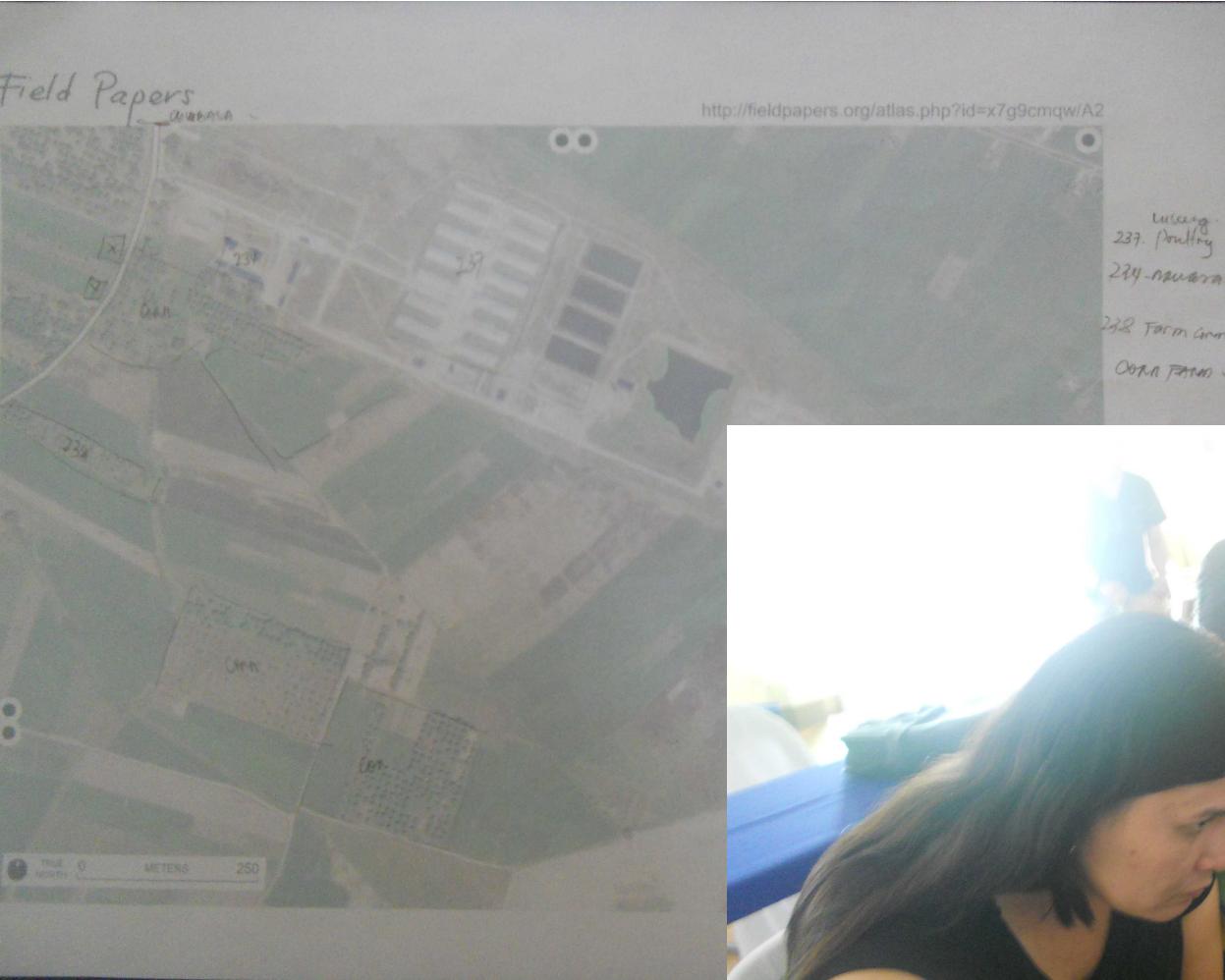


A photograph showing three individuals outdoors, focused on validating data. A man in a dark t-shirt and a woman in a striped shirt are looking at a piece of paper held by a third person whose hands are visible. The woman holds a pink smartphone and a black GPS device. A water bottle labeled "NATURE'S SPRING" is also visible. They are standing near a white car, with a fence and lush greenery in the background.

Fieldwork
Validating the data
on the ground
GPS, Phone, Notes



Field Papers



Quality editing
Division of mapping tasks
Future plans



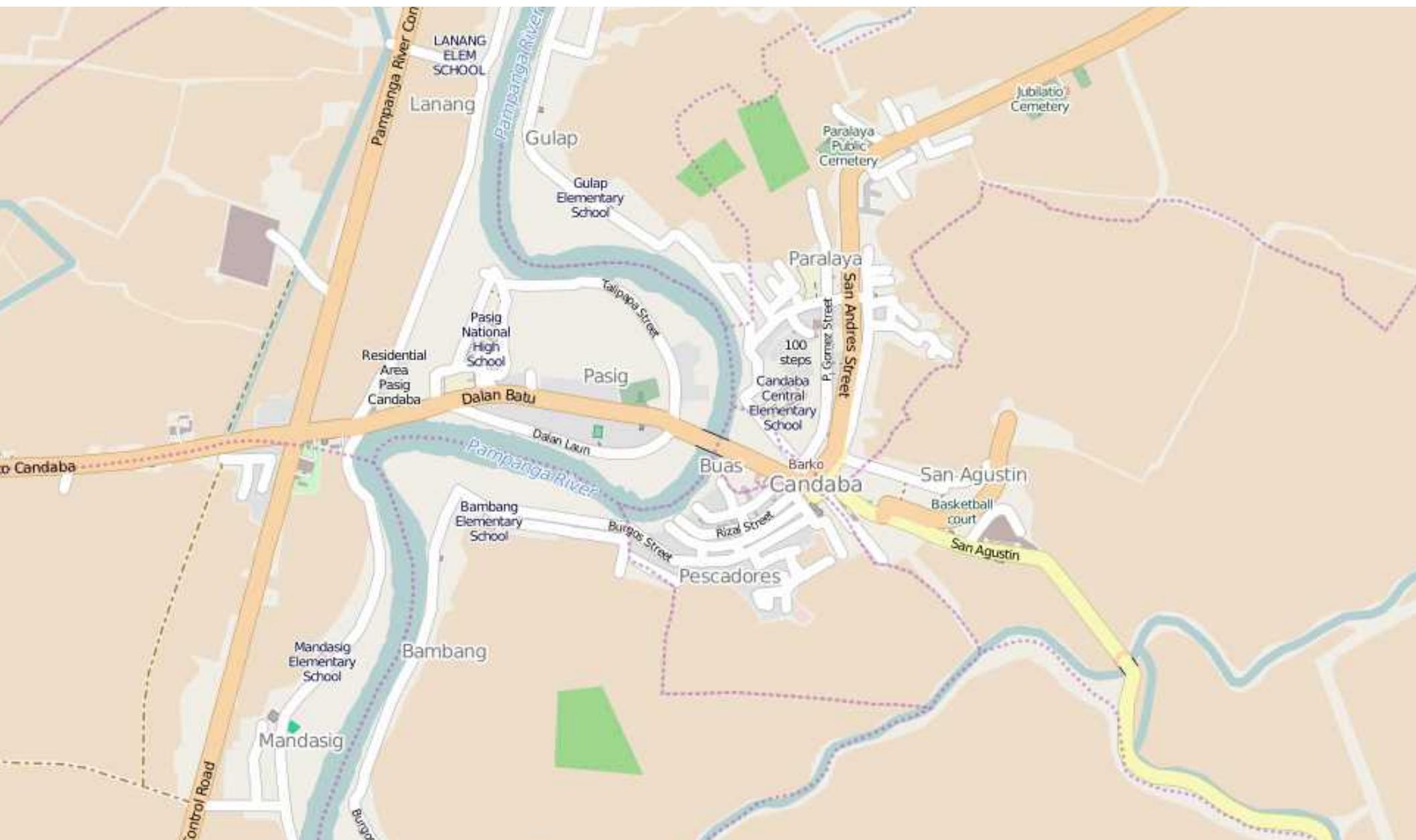
Data collection outcomes

- Roads including road classification and names
- Waterways such as rivers, streams, and irrigation canals
- Public facilities (schools, open spaces, barangay halls, public buildings, place of worships) that serve as evacuation centers during calamities
- Land use (agriculture, commercial, and residential areas)
- Administrative boundaries (municipal and barangay levels)

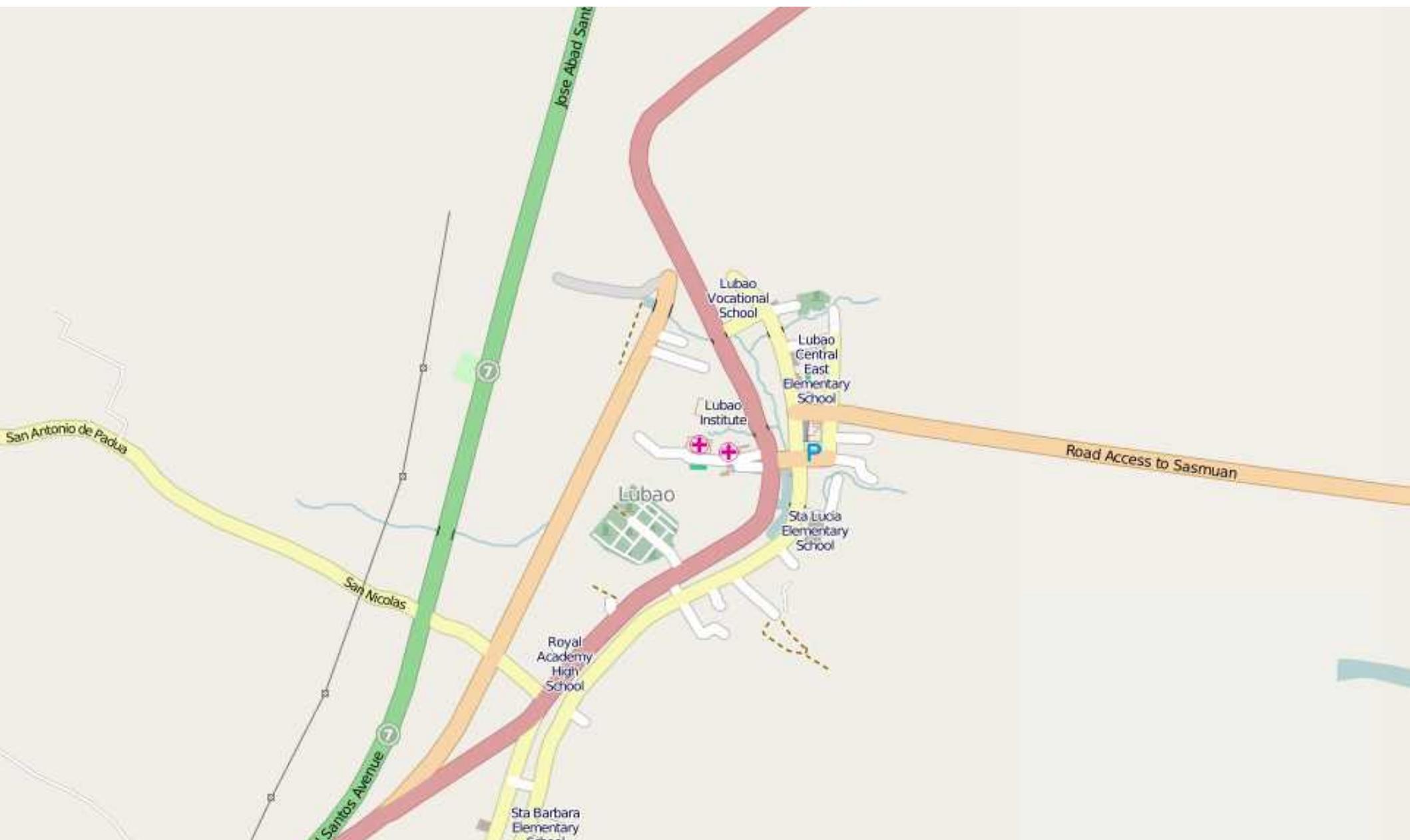
Candaba - Before



Candaba - After



Lubao - Before



Lubao - After



Guagua - Before



Guagua - After



Basic GIS and Impact Scenario Assessment

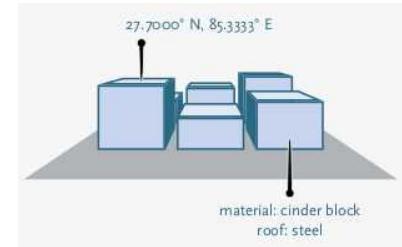
QGIS and InaSAFE

Impact Scenario Assessment



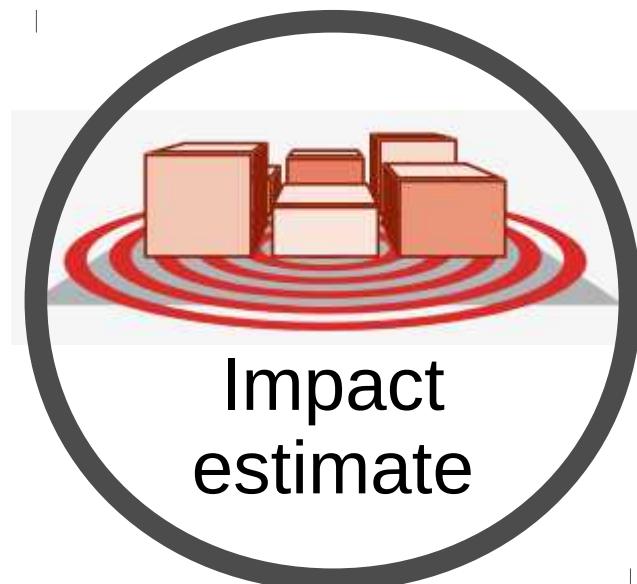
Hazard levels

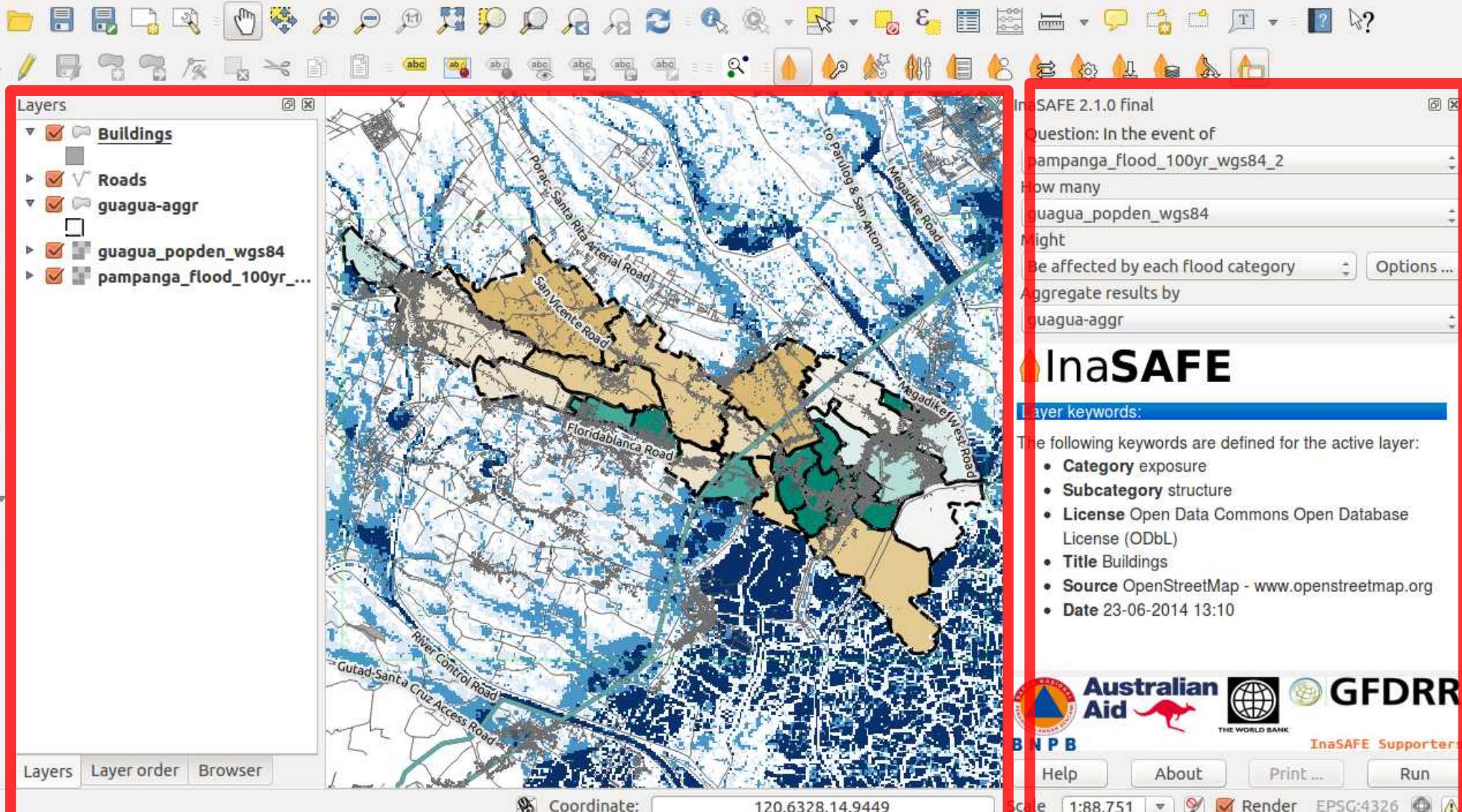
Authoritative information on earthquake ground shaking, inundation, landslide, etc. from government, academic and research institutions



Exposure information

Population densities, building surveys, road network from local data or community led data sources like OpenStreetMap.

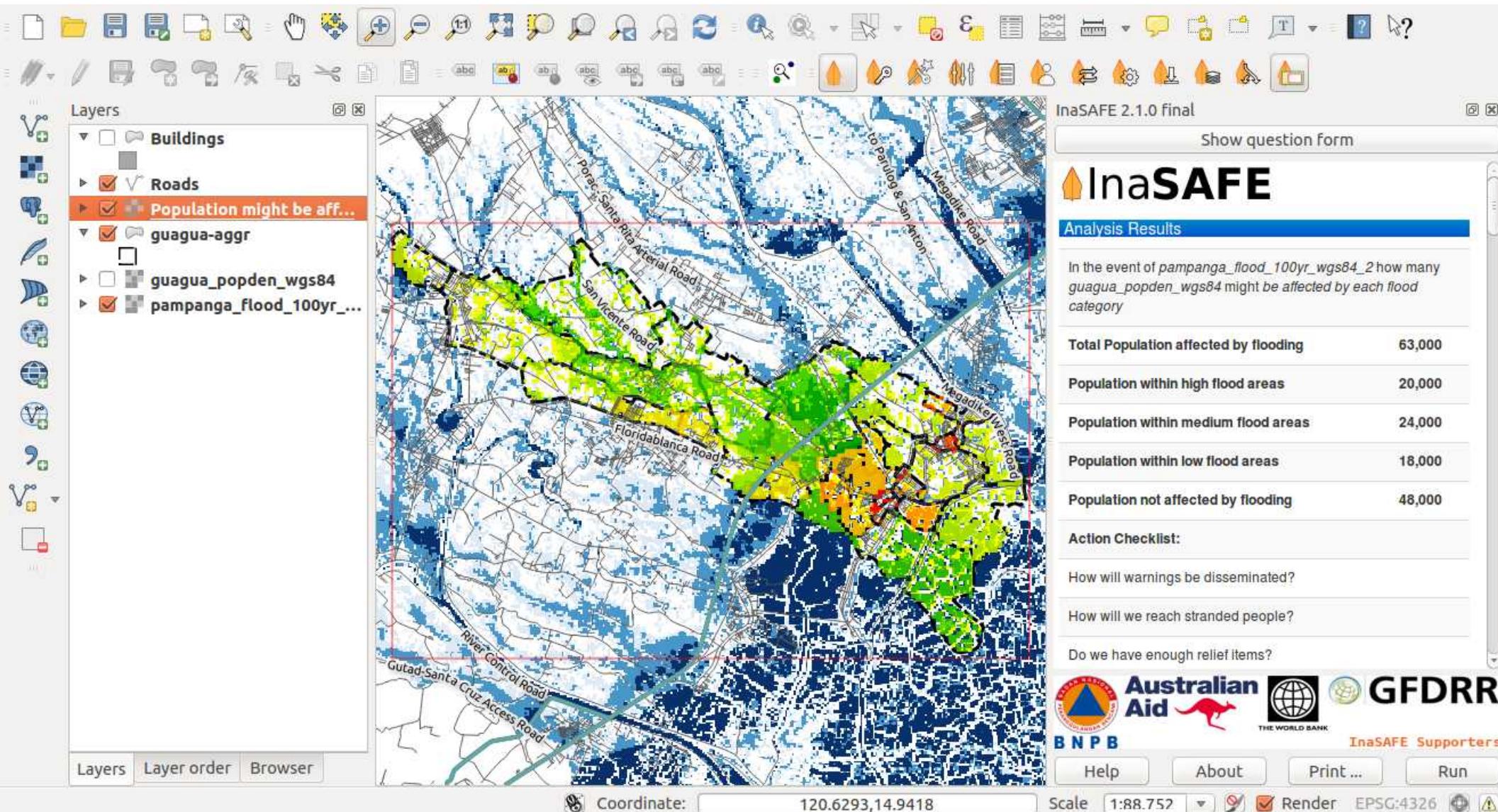


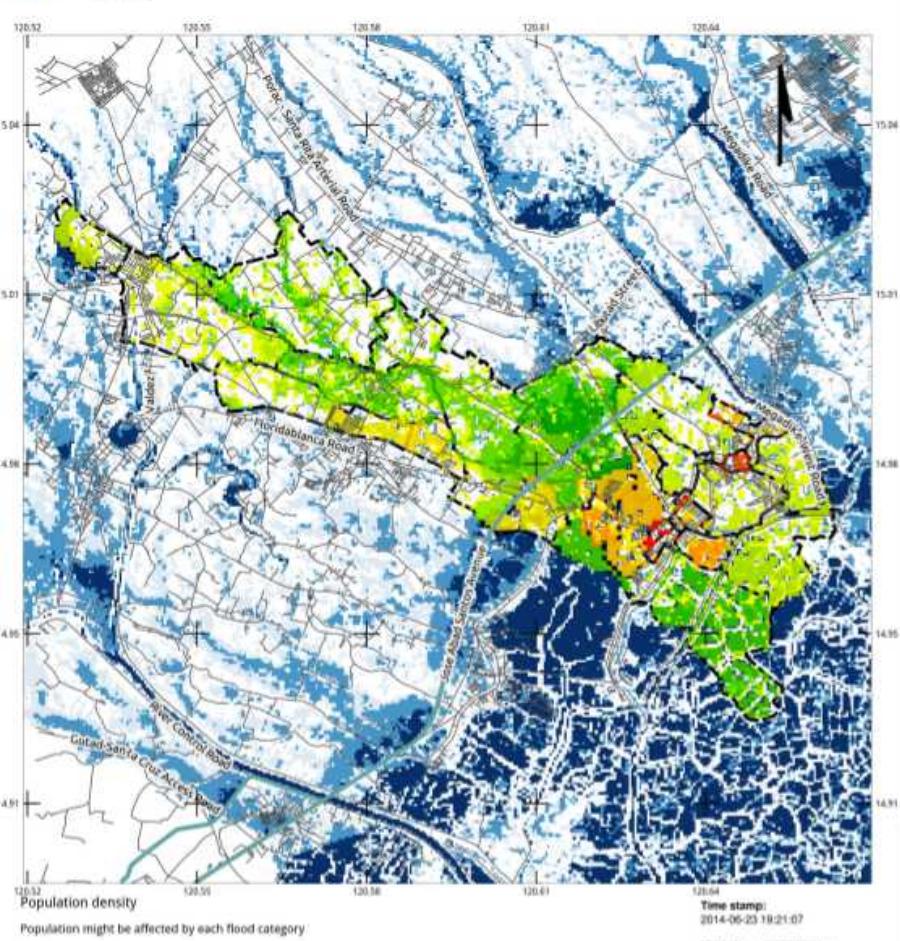


Hazard (flood) and
Exposure (population)
data

InaSAFE
interface

In the event of a *100-year flood*,
how many *people* might be
affected?





Summary Table

In the event of pampanga_flood_100yr_wgs84_2 how many guagua_popden_wgs84 might be affected by each flood category

Total Population affected by flooding	63,000
Population within high flood areas	20,000
Population within medium flood areas	24,000
Population within low flood areas	18,000
Population not affected by flooding	48,000

Action Checklist:

How will warnings be disseminated?

How will we reach stranded people?

Do we have enough relief items?

If yes, where are they located and how will we distribute them?

If no, where can we obtain additional relief items from and how will we transport them to here?

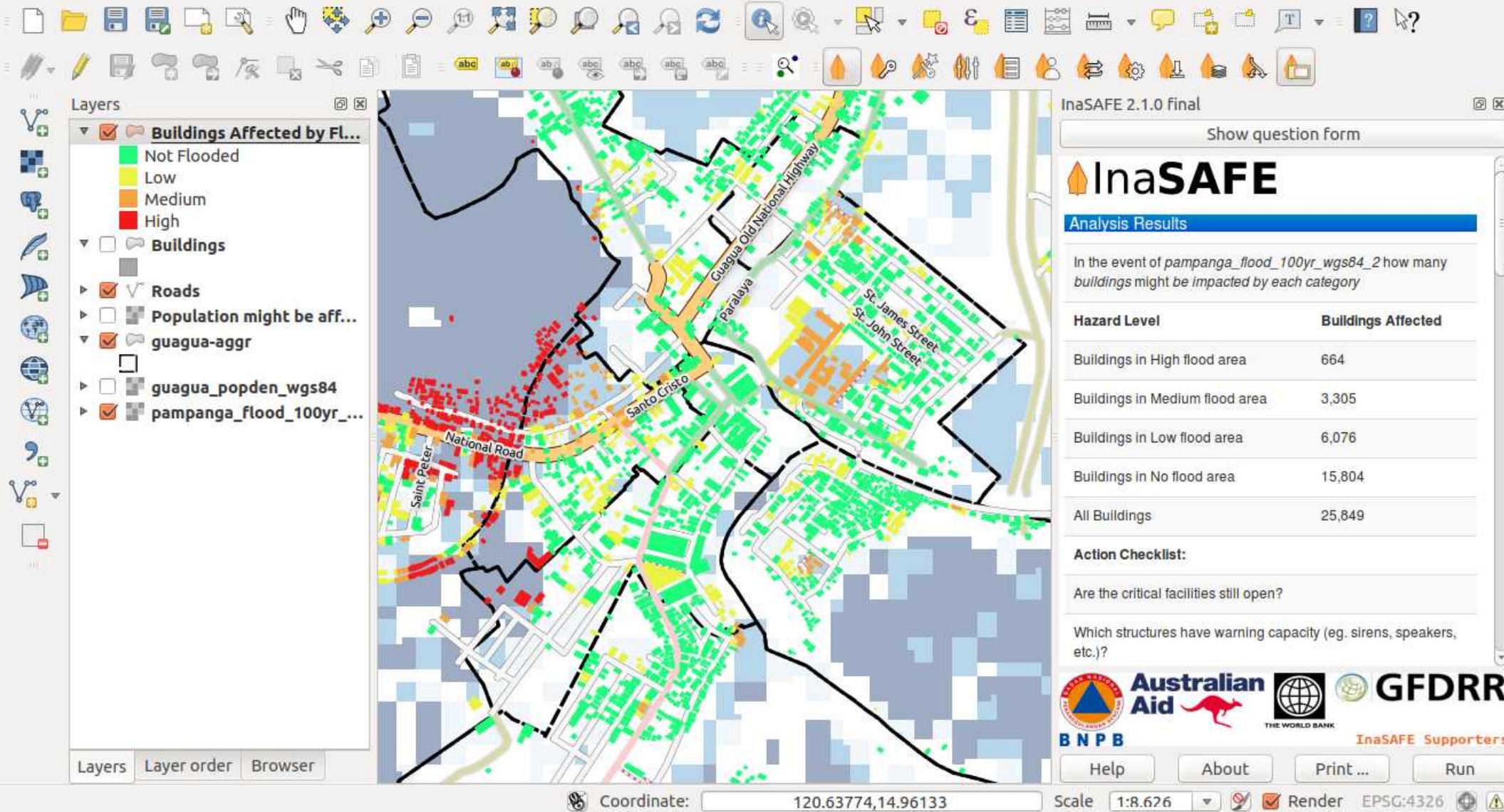
Notes

Map shows population density in high, medium and low flood areas

Total population: 111,000

Detailed gender report

Barangay	Total	Female population (affected)	Weekly hygiene packs	Additional weekly rice kg for pregnant and lactating women
BANCAL	4,145	2,073	1,645	193
SAN PEDRO	3,980	1,990	1,579	185
PULUNGMASLE	3,674	1,837	1,458	171
STA. URSSULA	3,522	1,761	1,398	164
NATIVIDAD	3,244	1,622	1,287	151
TOTAL	21,241	11,620	8,679	1,011



In the event of a **100-year flood**, how many **buildings** might be **flooded**?

How many schools will be closed?

What buildings are high enough to serve as evacuation centers?

How many women and children needs to be evacuated?

How many rice (kg), family kit, medicine should be prepared?

Thumbnails



4



5



6



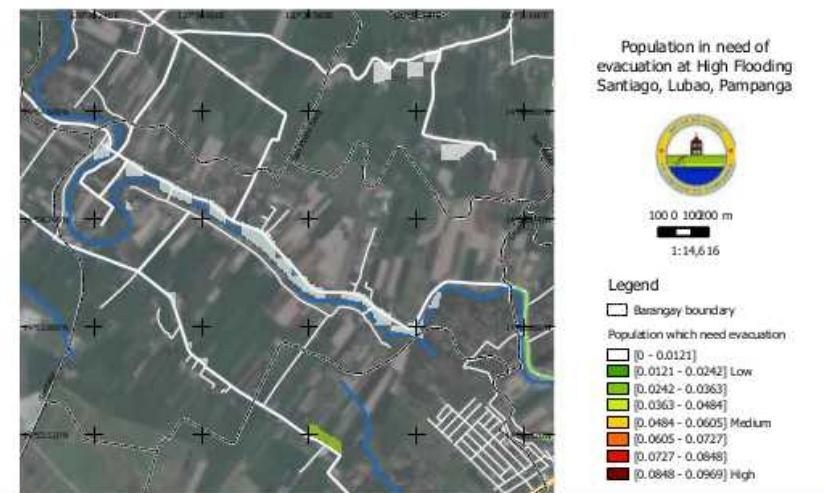
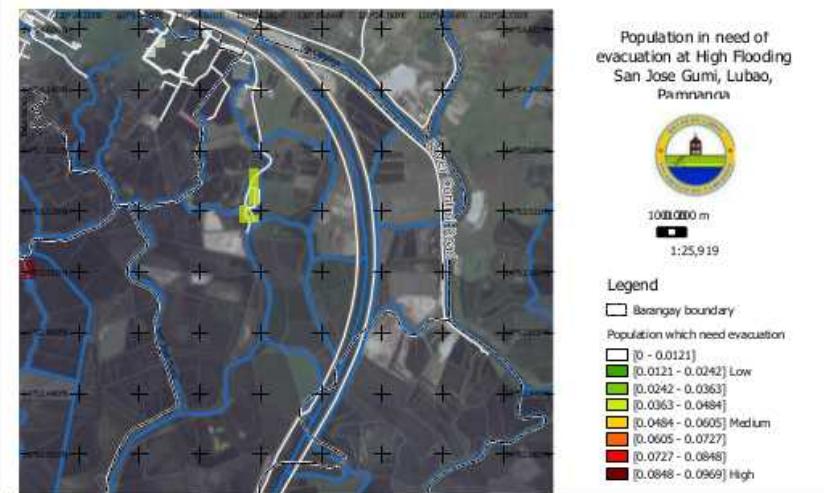
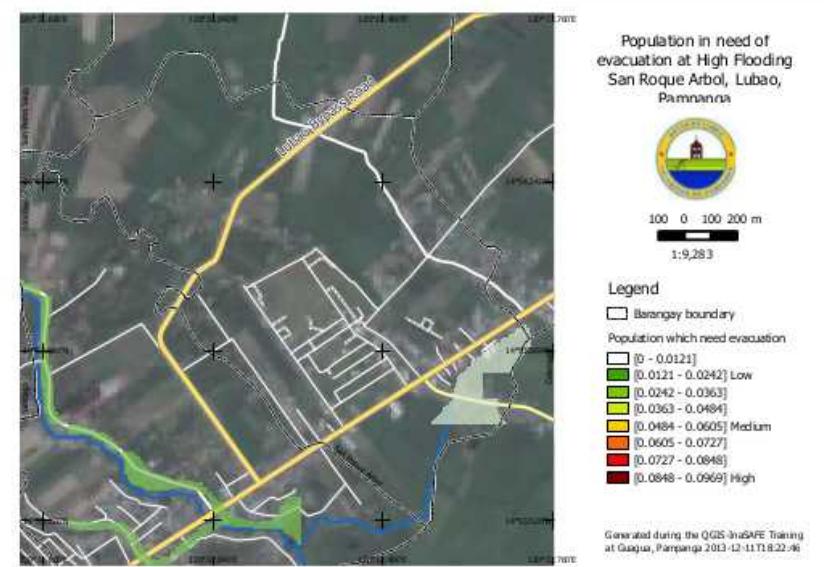
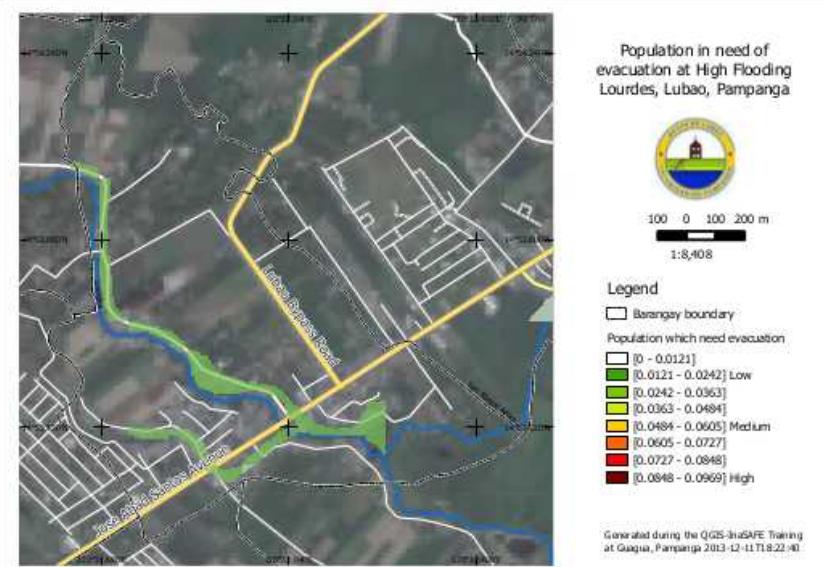
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8



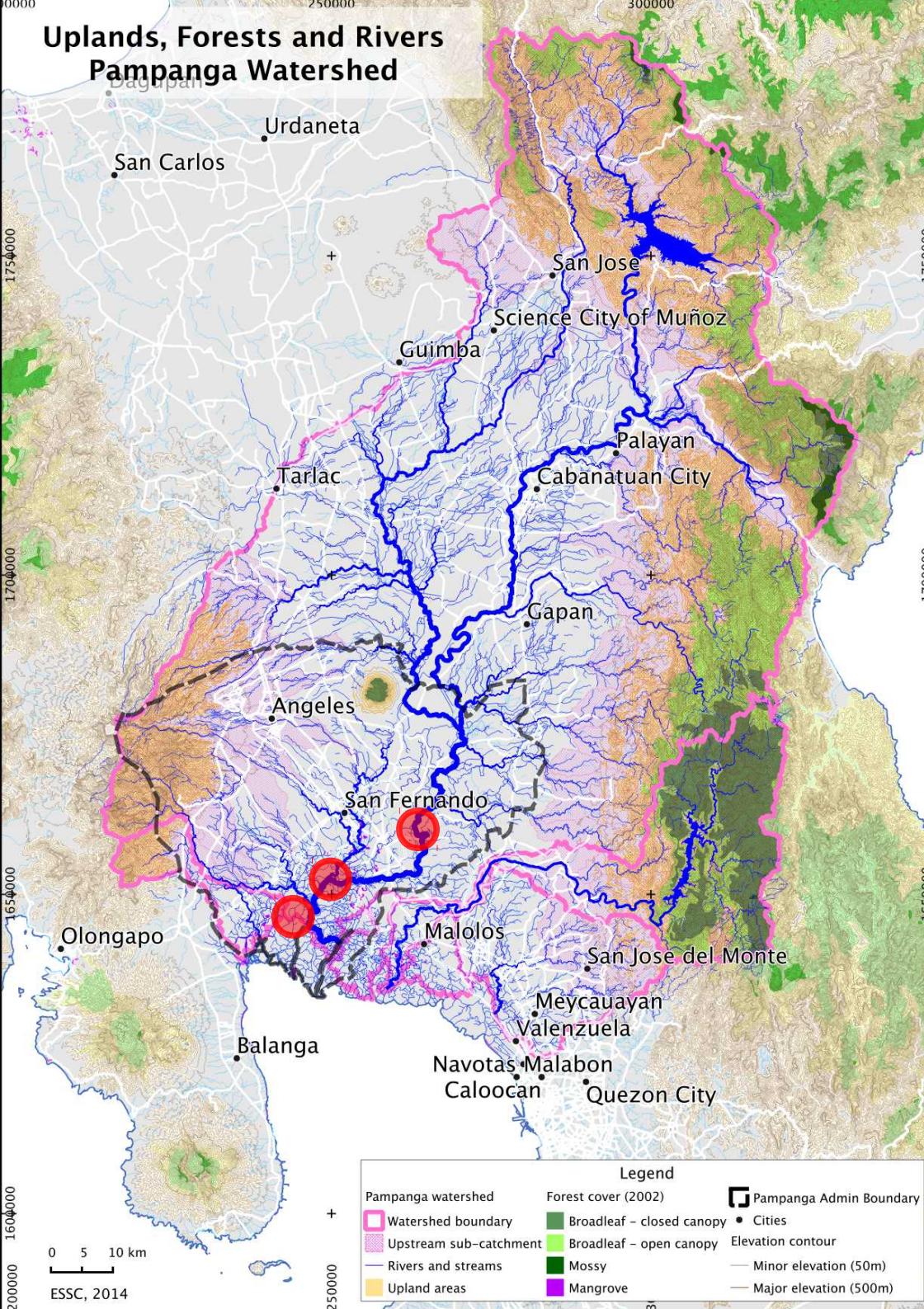
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Observations and Recommendations



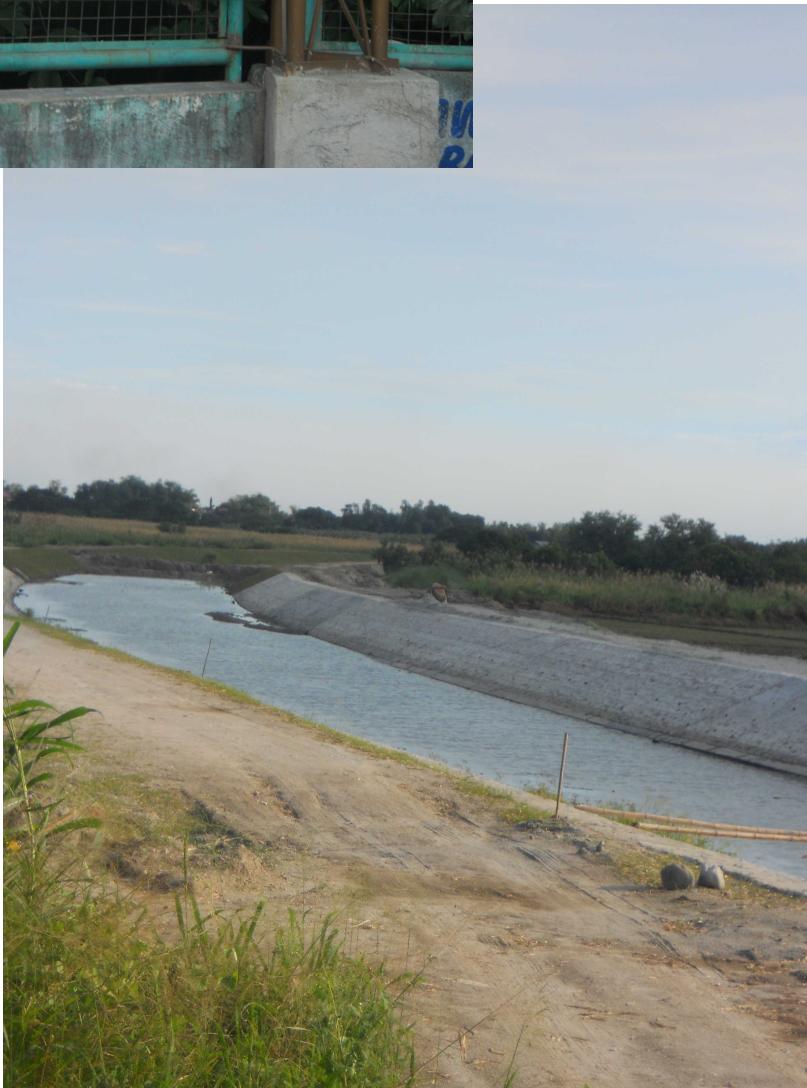
Continuous basemap updates (through OSM) should become part of the work of the LGU.



Planning for local DRRM actions needs to include a **broader understanding** of the dynamics within the context of a **watershed** and consider **coordination at various levels** that could promote **collaboration** between municipalities.

Different levels of information should be translated to actionable response.





Prioritize
management,
maintenance,
and clearing of
rivers and
streams



**Newly constructed covered court
as evacuation center appropriate
only for flooding.**

Evaluate the quality and capacity of evacuation centers.

- type of disaster
- structural integrity
- number of evacuees it can accommodate
- length of time of the evacuees to stay depending on the resources available

Prioritize for accessibility during emergencies.



Elevated roadways to facilitate access during emergencies.



Houses on stilts in
Candaba, Pampanga



**Document and
share local
wisdom and
adaptation.**

“When Typhoon Glenda struck we were able to use the updated maps to support evacuations in our coastal barangays. The mapping process helped us to identify better access roads and to capture this in our maps.”

Edgar Dabu, Disaster Risk Reduction & Management Officer of Lubao

Maning Sambale

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OpenStreetMap Philippines
<http://openstreetmap.org.ph>

Environmental Science for Social Change
<http://www.essc.org.ph>