

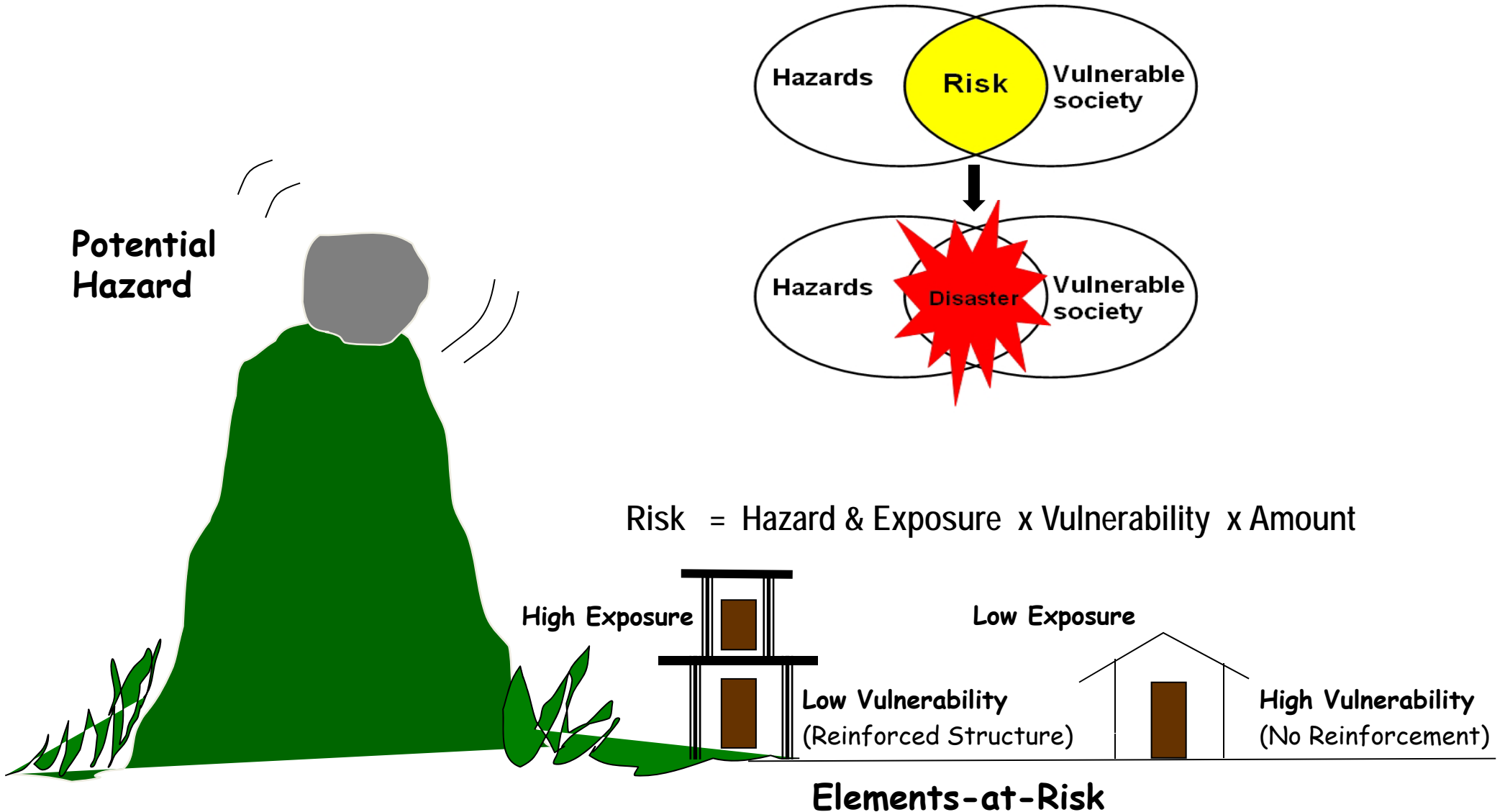
JAXA Mini-Projects for Supporting Sentinel Asia Step-III

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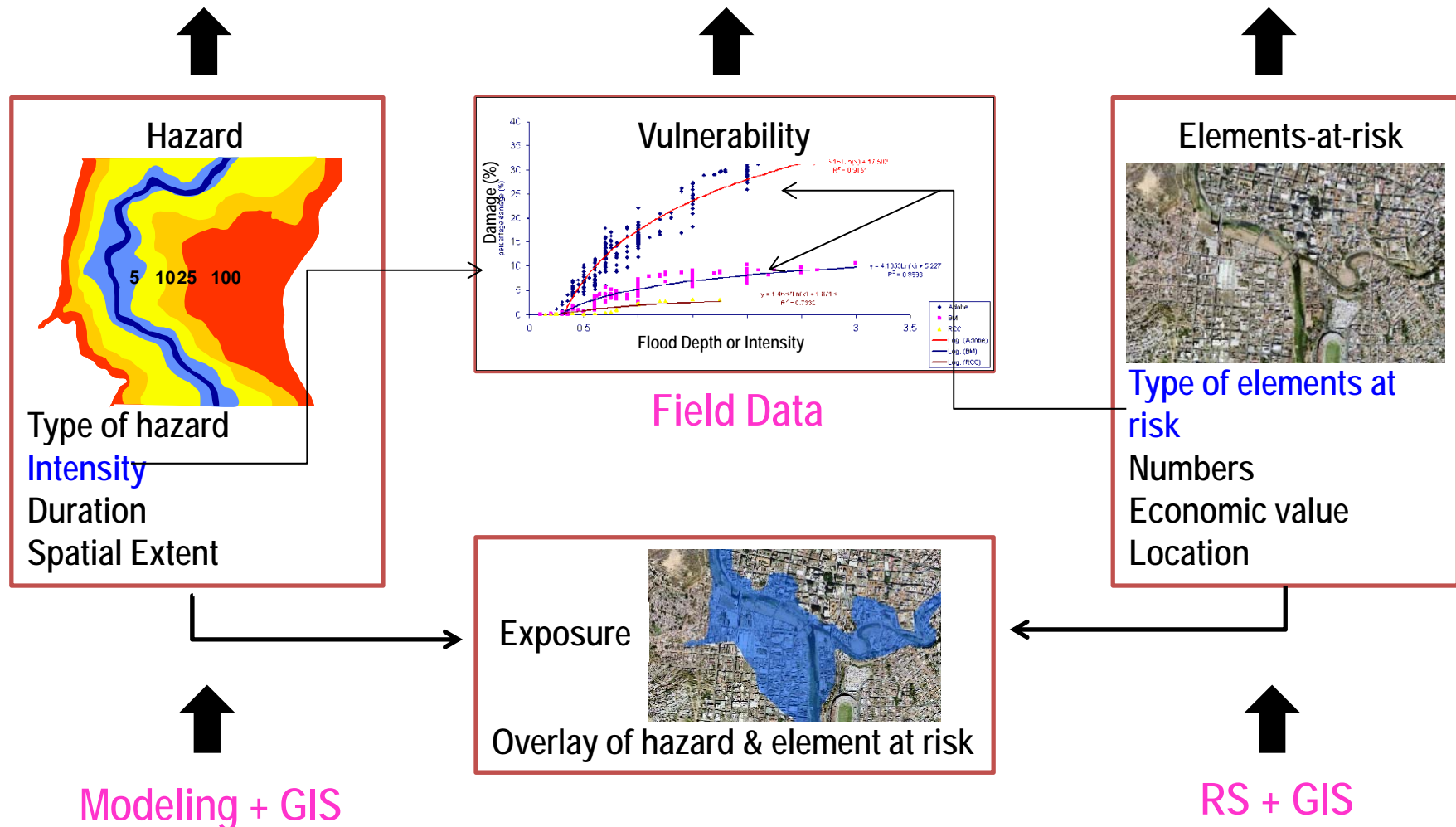


Importance of Elements-at-Risk for Disaster Management

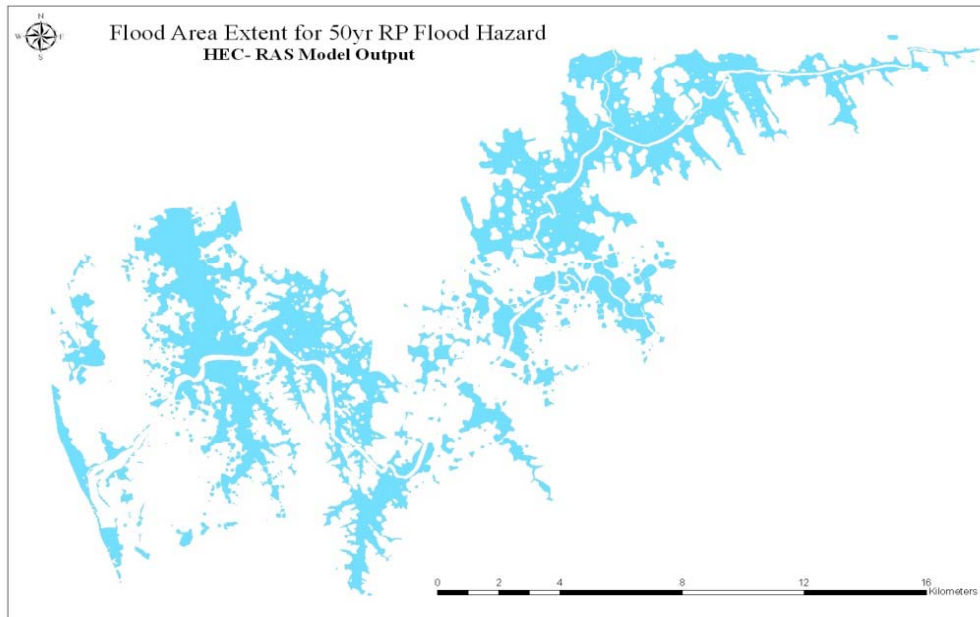


Spatial Representation of Disaster Risk

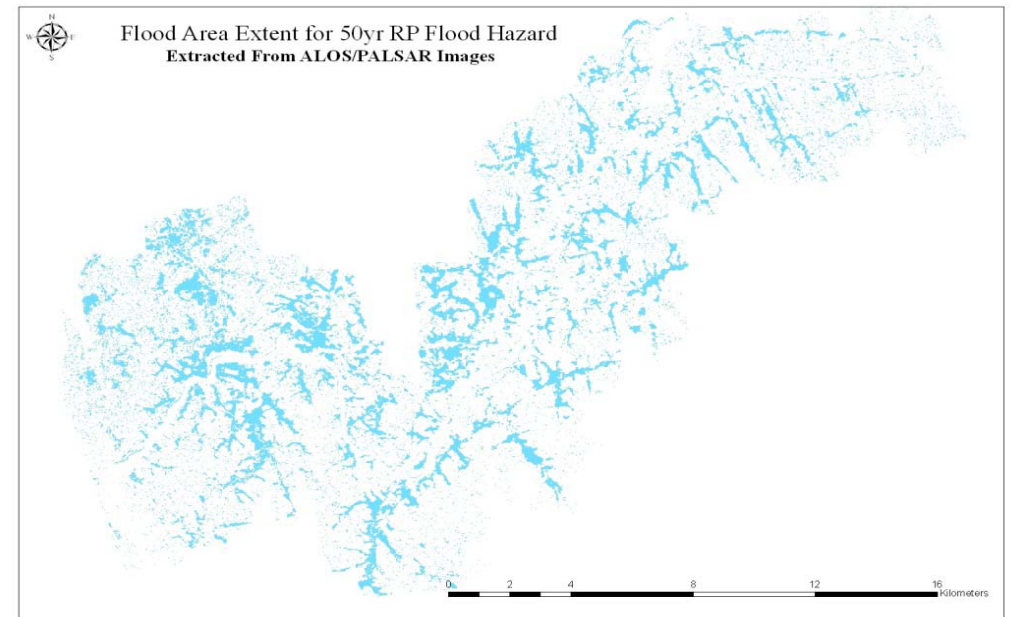
Risk = Hazard (Probability of occurrence) x Physical Vulnerability (Degree of losses to elements at risk) x Amount/Number (Quantification of exposed elements)



Comparison for Model Result with Satellite Data Derived Flood Map



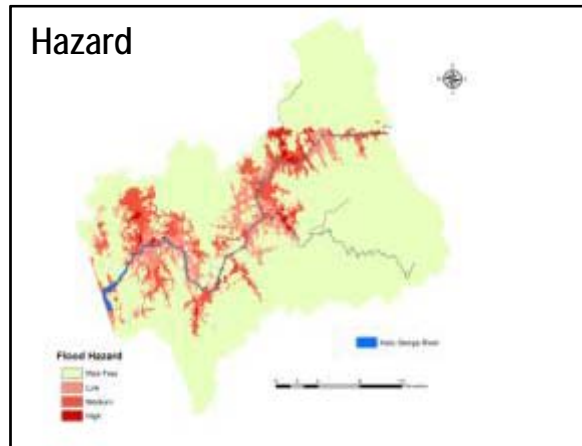
Model Derived Flood Map



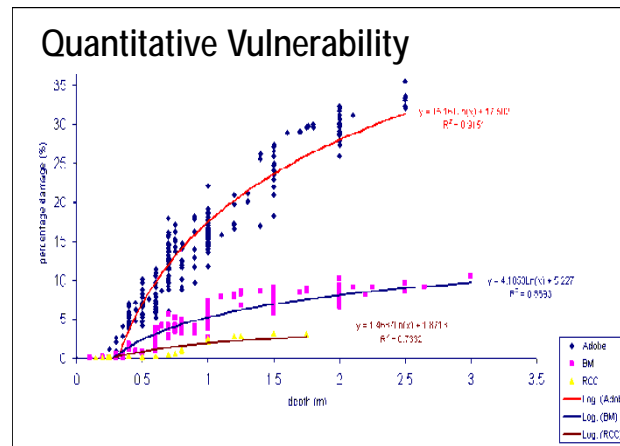
Satellite Data Derived Flood Map



Quantitative Risk Map for Flood in Sri Lanka

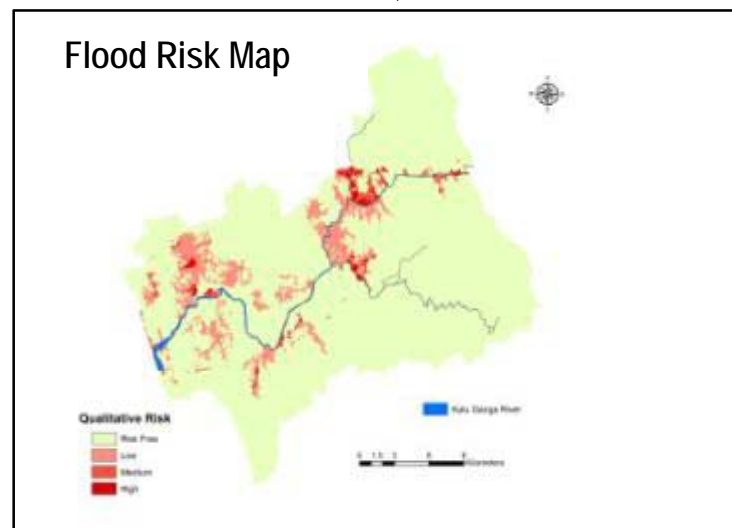


X



X

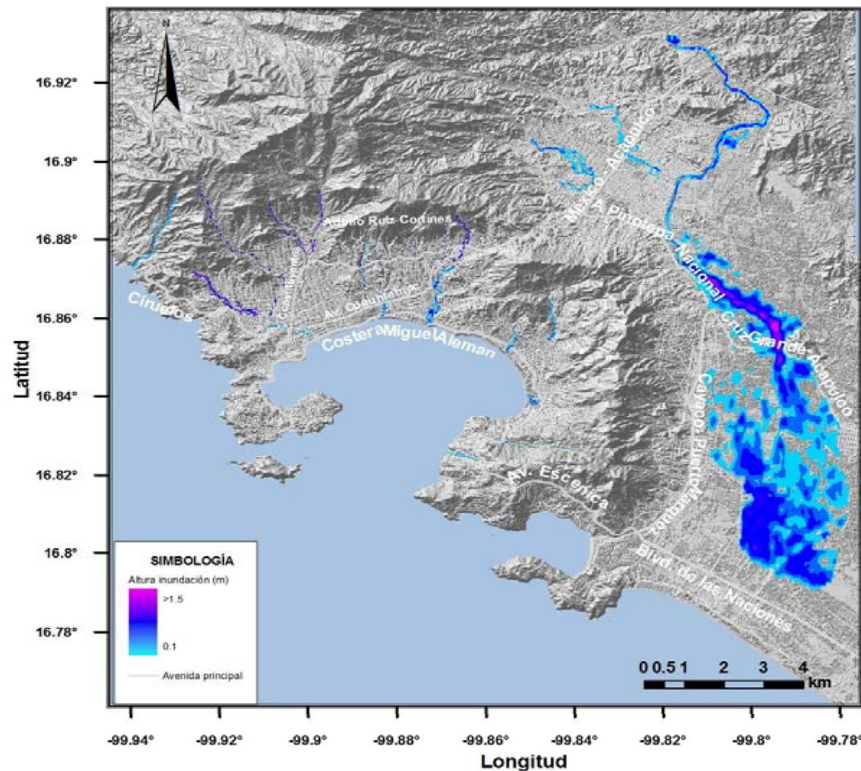
Amount of loss for various types of buildings



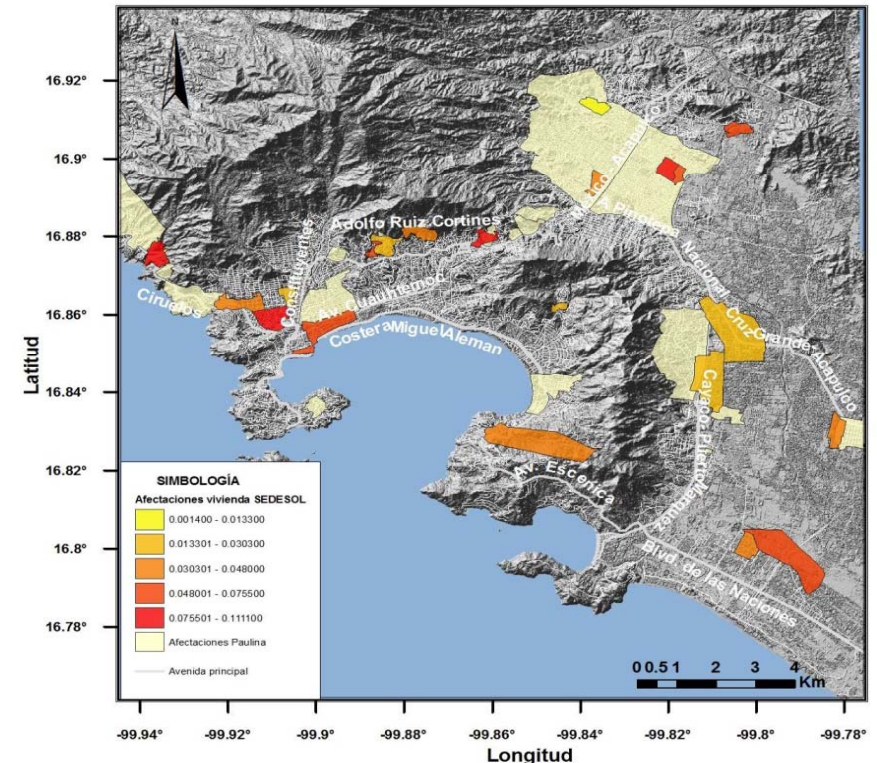
Hazard Maps versus Risk Maps

Event: Hurricane Pauline (1997) in Acapulco, Mexico

Flood Hazard Map



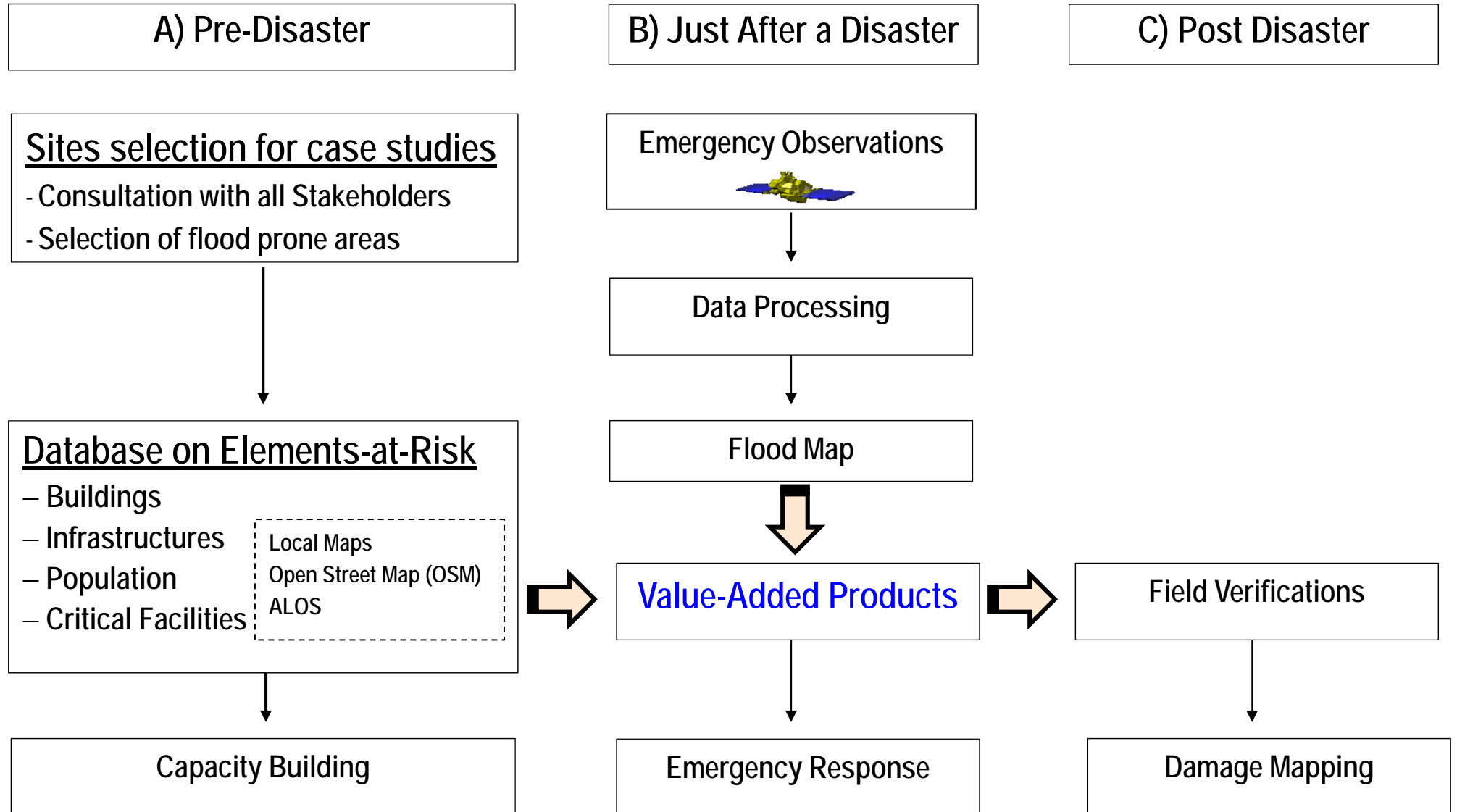
Flood Risk Map



This risk map provides information on

- Where risk mitigation/management necessary
- Where response and relief teams should focus
- Where most damages are expected
- Where insurance premium will high

JAXA Mini-Project for SA Step-III



A) Pre Disaster

Pre Disaster Satellite Image



Post Disaster Satellite Image



Affected area mapping

- Is that enough?
- Is that useful?
- What decision makers need?

GIS Data

National data

- Good quality
- Difficult to access
- Not free

Global initiatives

- [OpenStreetMap](#)
- Bing map
- MapQuest Open

Features

- Open to public
- Up-to-date
- Free to use
- Crowdsourcing

Affected area + GIS data

- Value added product
- Useful for decision makers
- Affected buildings, roads, population can be mapped

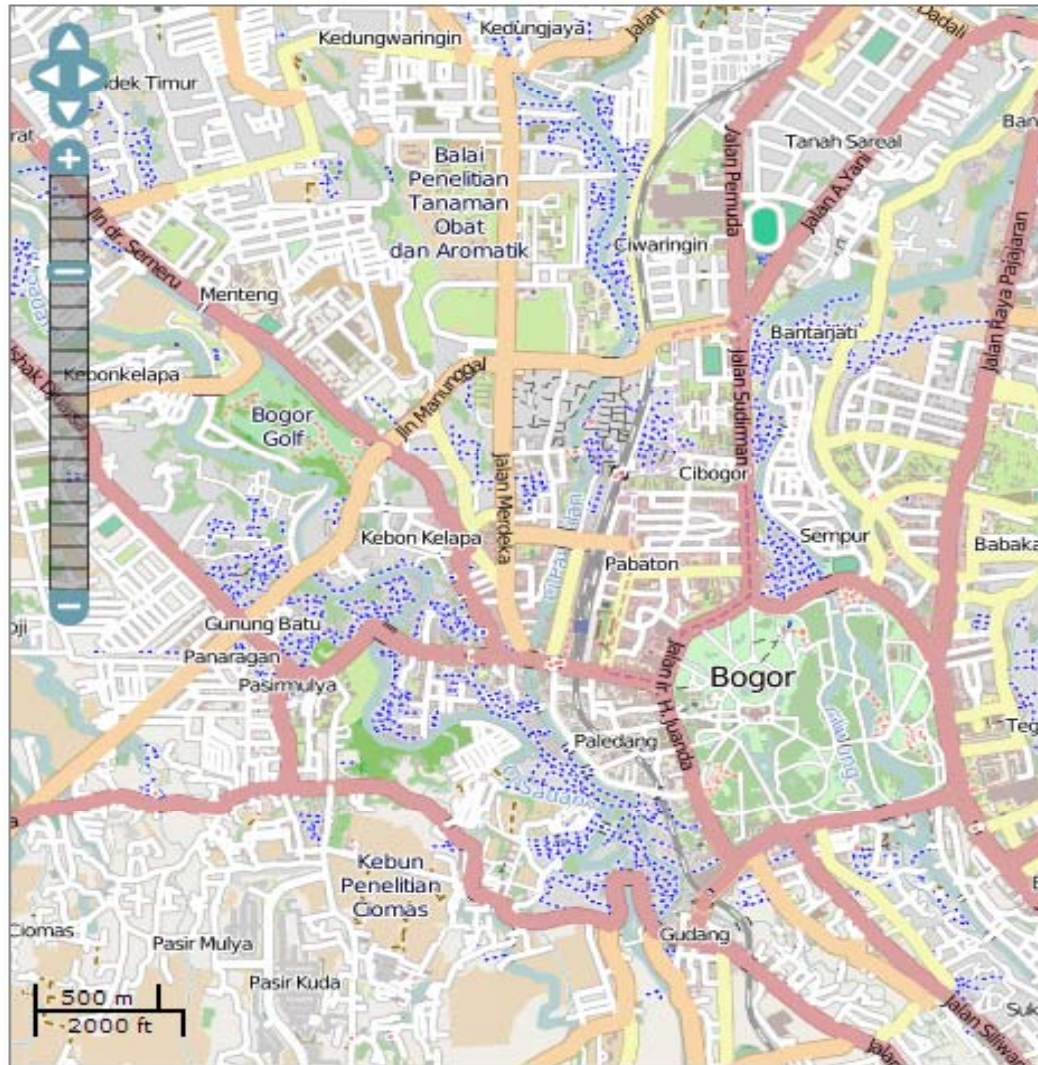
National Dataset (Option I)

- 1) These are the probably best available data in a country
- 2) Higher-scale data are available for city areas only
- 3) Are they available for use for Sentinel Asia ? (Bangladesh and Sri Lanka have some detail datasets and they agree to provide to SA Step-III)

OpenStreetMap (Option II) - Bogor, Indonesia

Map Compare

Choose map type:

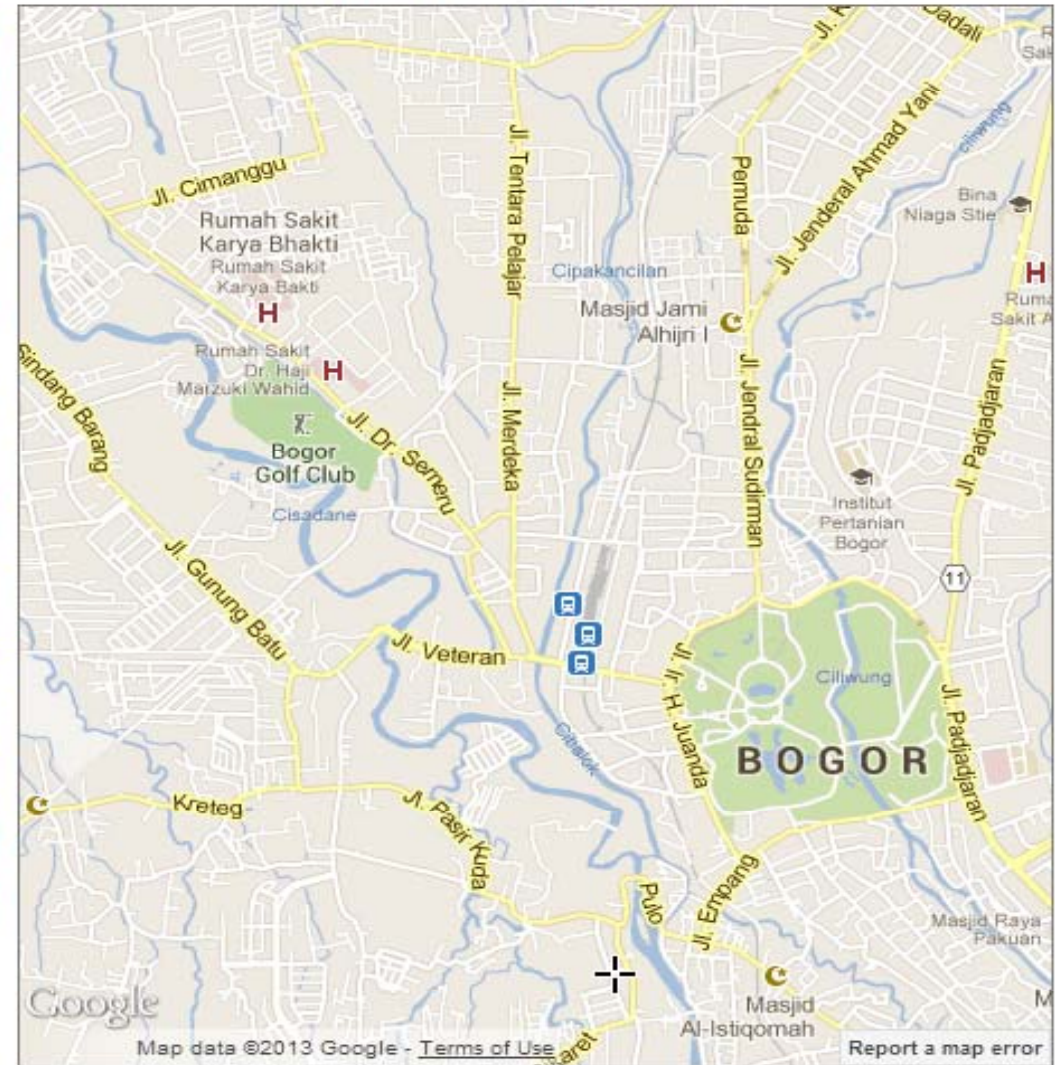


Help

GEOFABRIK *tools*

Switch tool...

Choose map type:



106.79669, -6.61166 zoom=14 number of maps: [1](#) [2](#) [3](#) [4](#) [6](#) [8](#) [permalink](#)

Flood Affected Areas Mapping in Philippines : Mini-Project

OSM Tasking Manager

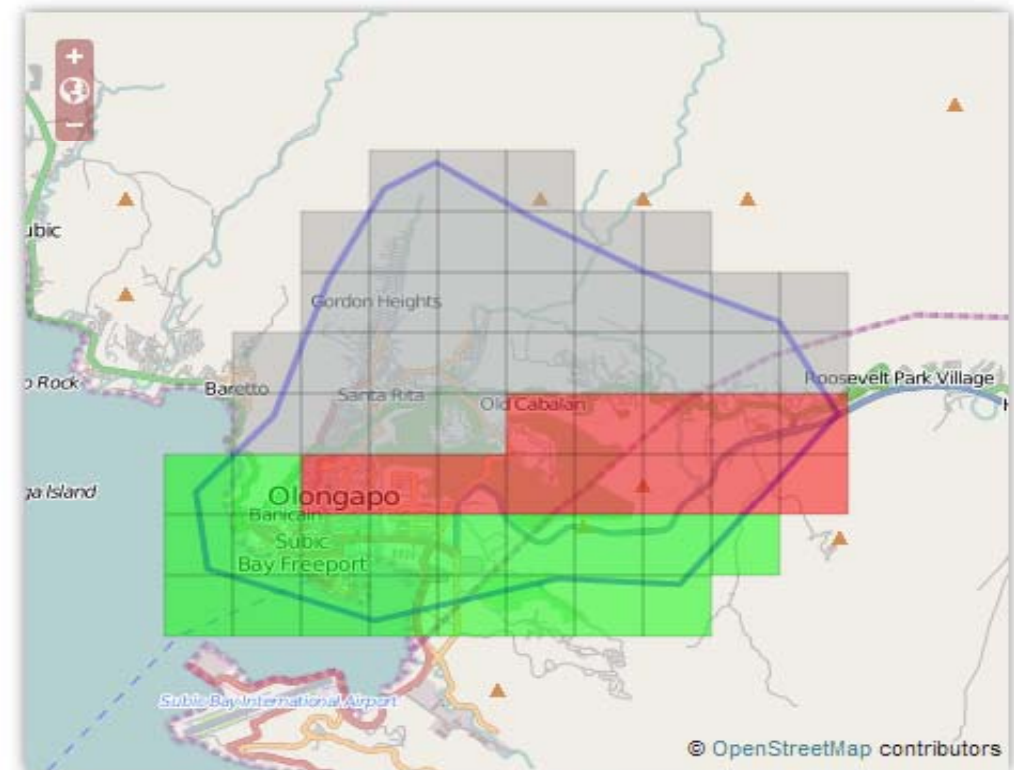
You are nashr

Mapping in Olongapo city - SA activities



Description Workflow Task Users Stats

HOT Tasking Manager is a tool that can be used to sort an area into a grid, and work together to map an area in an organized way.



Legend: Total (62) Done (32) Validated (19) Curr. worked on (0)

Designed and built for the Humanitarian OpenStreetMap Team with initial sponsorship from the Australia-Indonesia Facility for Disaster Reduction. See the [about page](#) for complete information.

[Fork the code on github.](#)



Layers

- Data Layer 1
- Bing Sat

Tags / Memberships

Select objects for which to change tags.

Selection

Command Stack

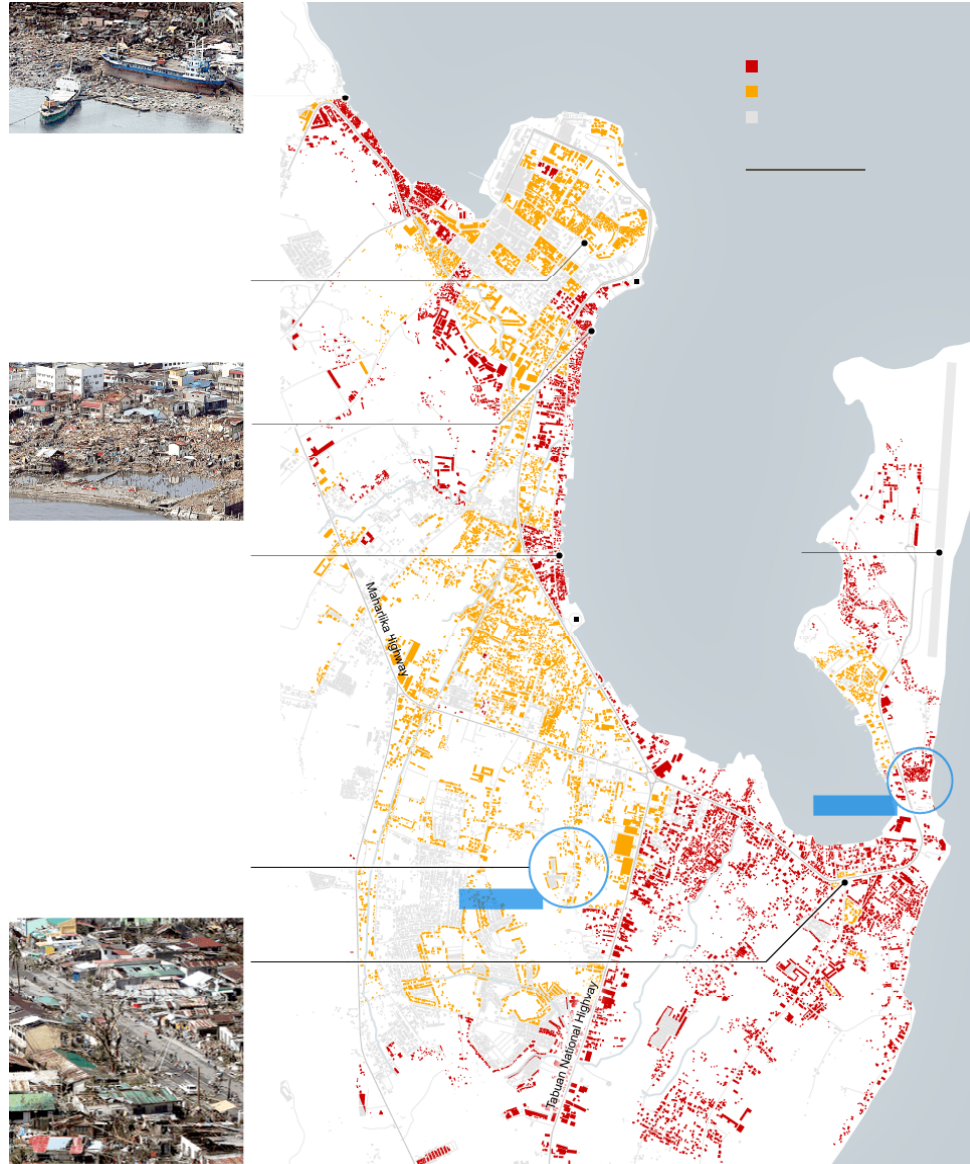
Conflict

Validation Results

Hurricane Haiyan in the Philippines - Damages



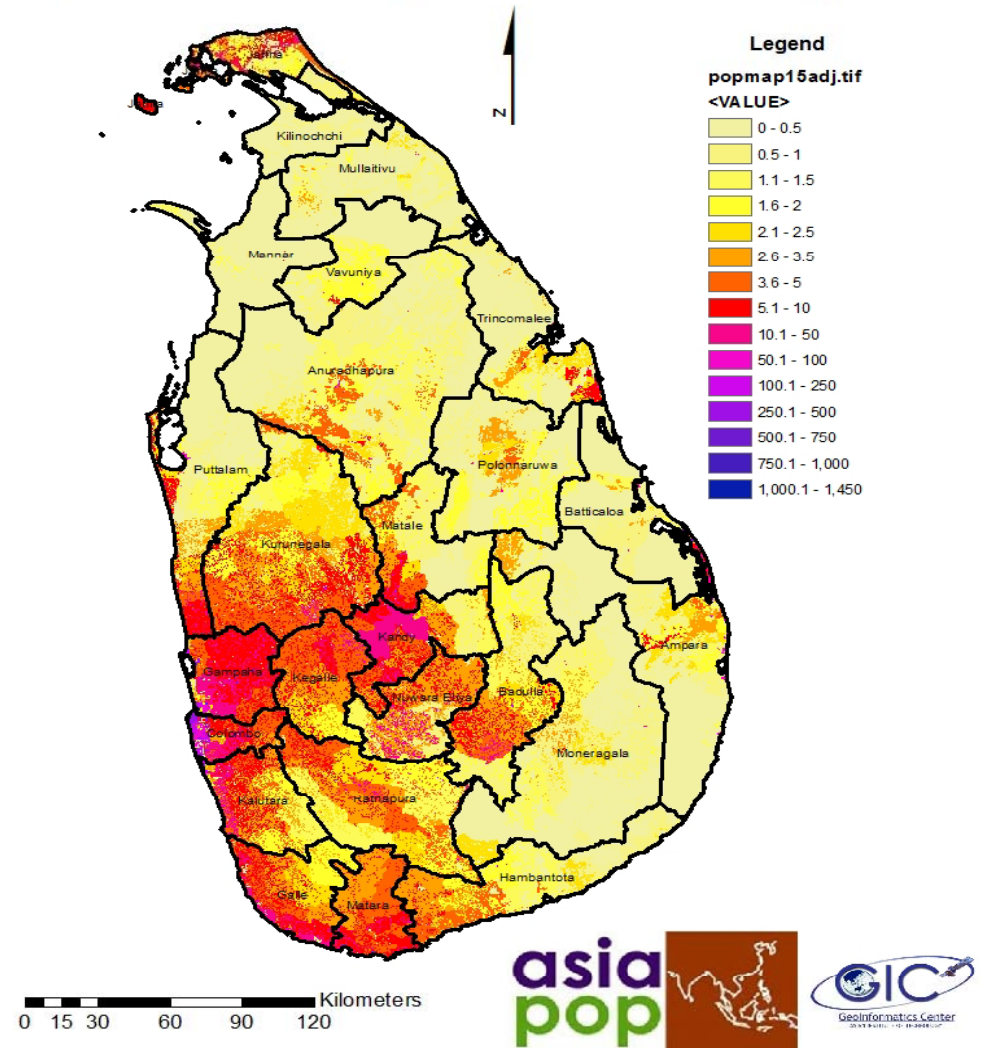
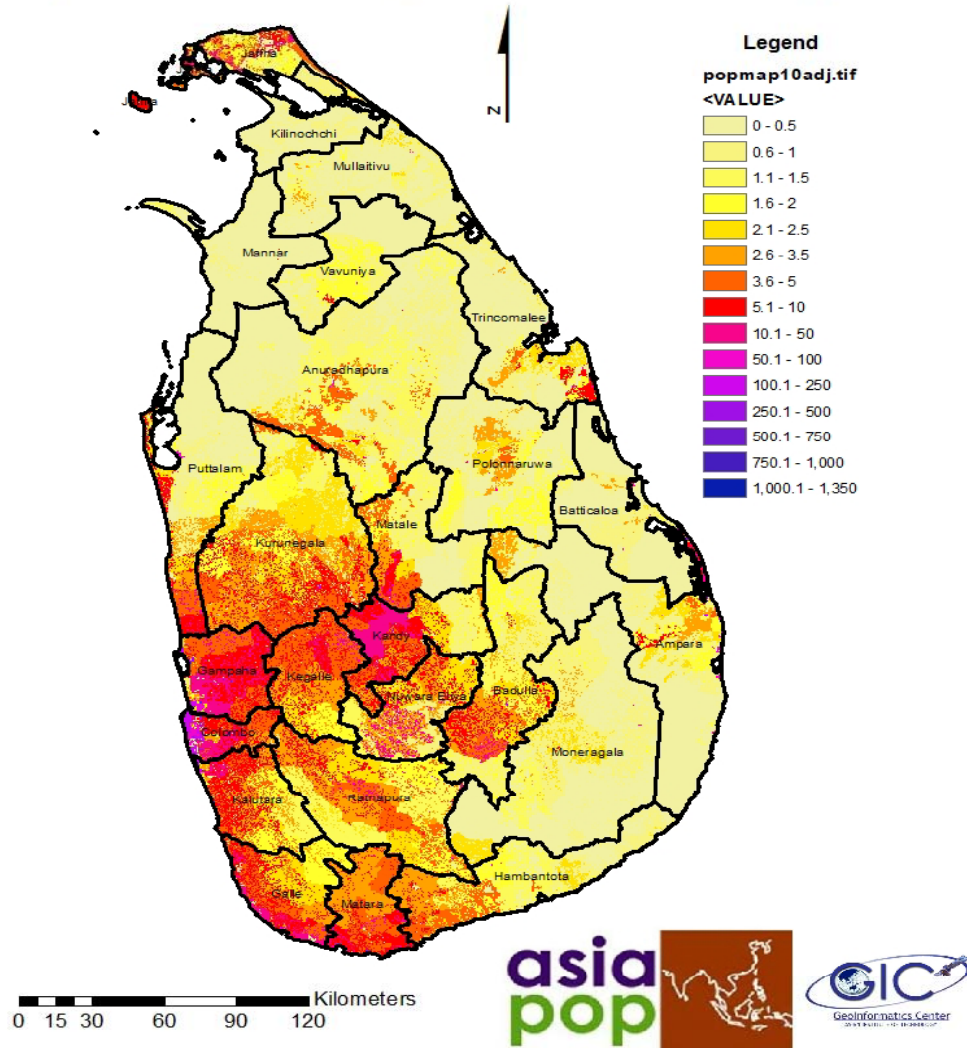
Hurricane Haiyan in the Philippines - OSM Activities



Population Exposure - AsiaPop Map for Sri Lanka

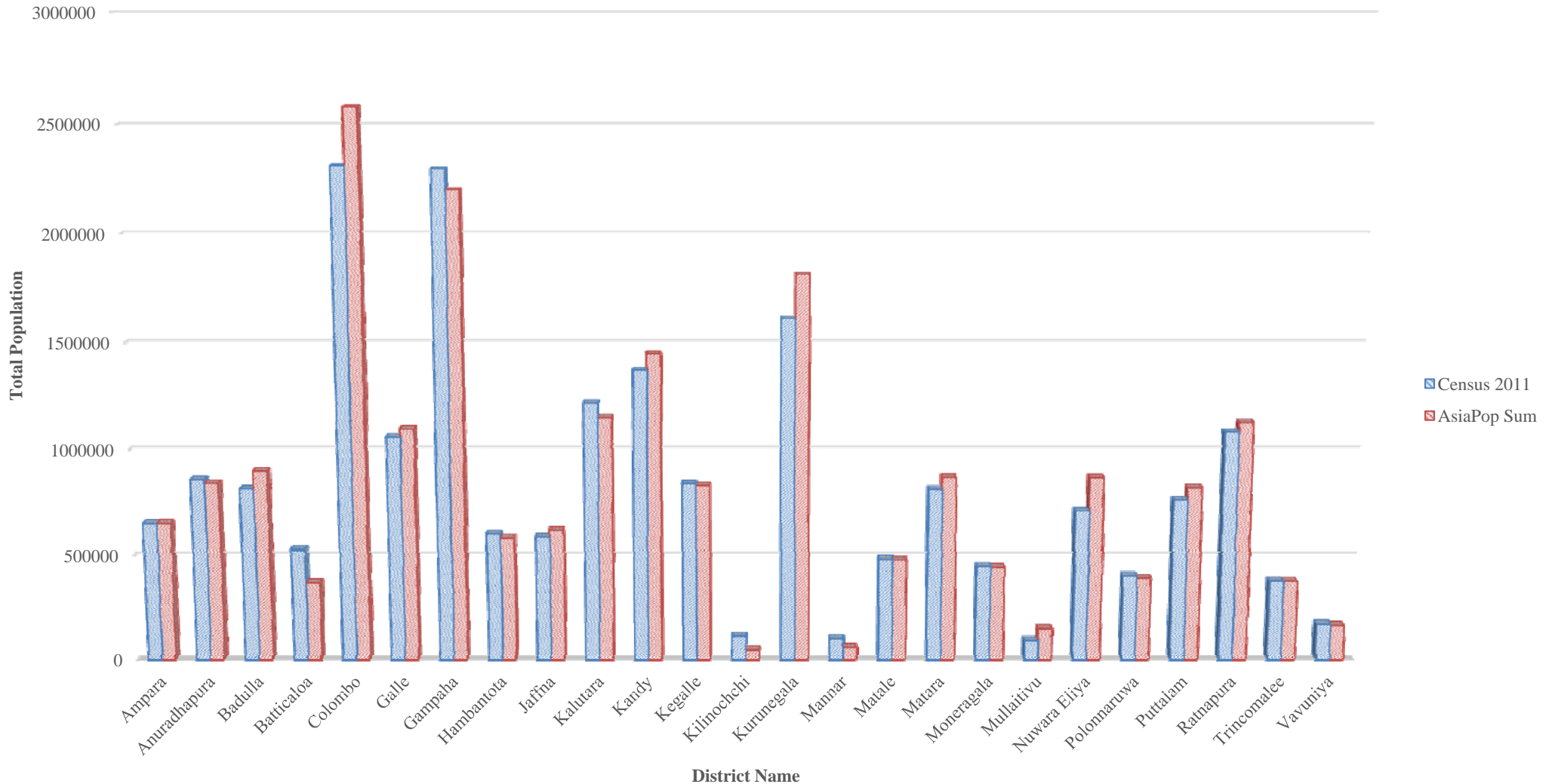
Population Density in 2010 - Asia Pop Data

Population Density in 2015 - Asia Pop Data



Comparison of AsiaPop and Census Data

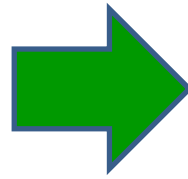
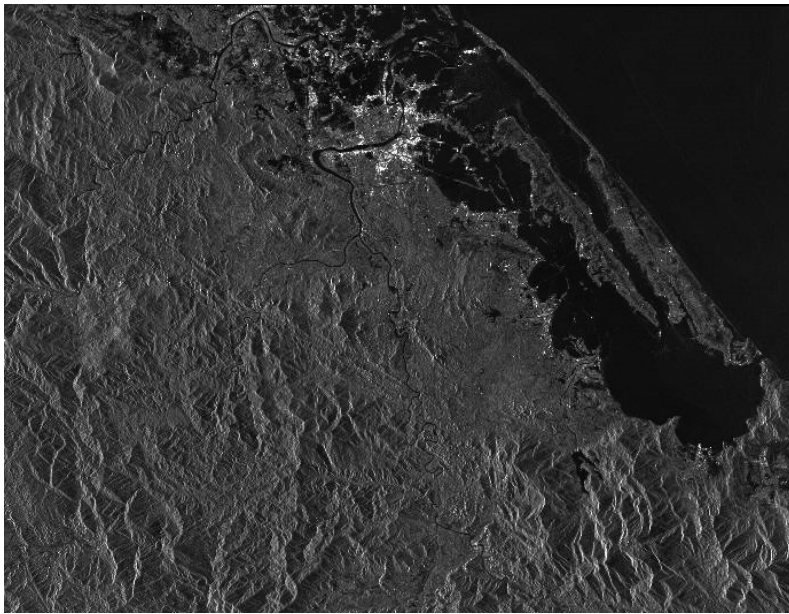
CENSUS DATA VS ASIA POP DATA



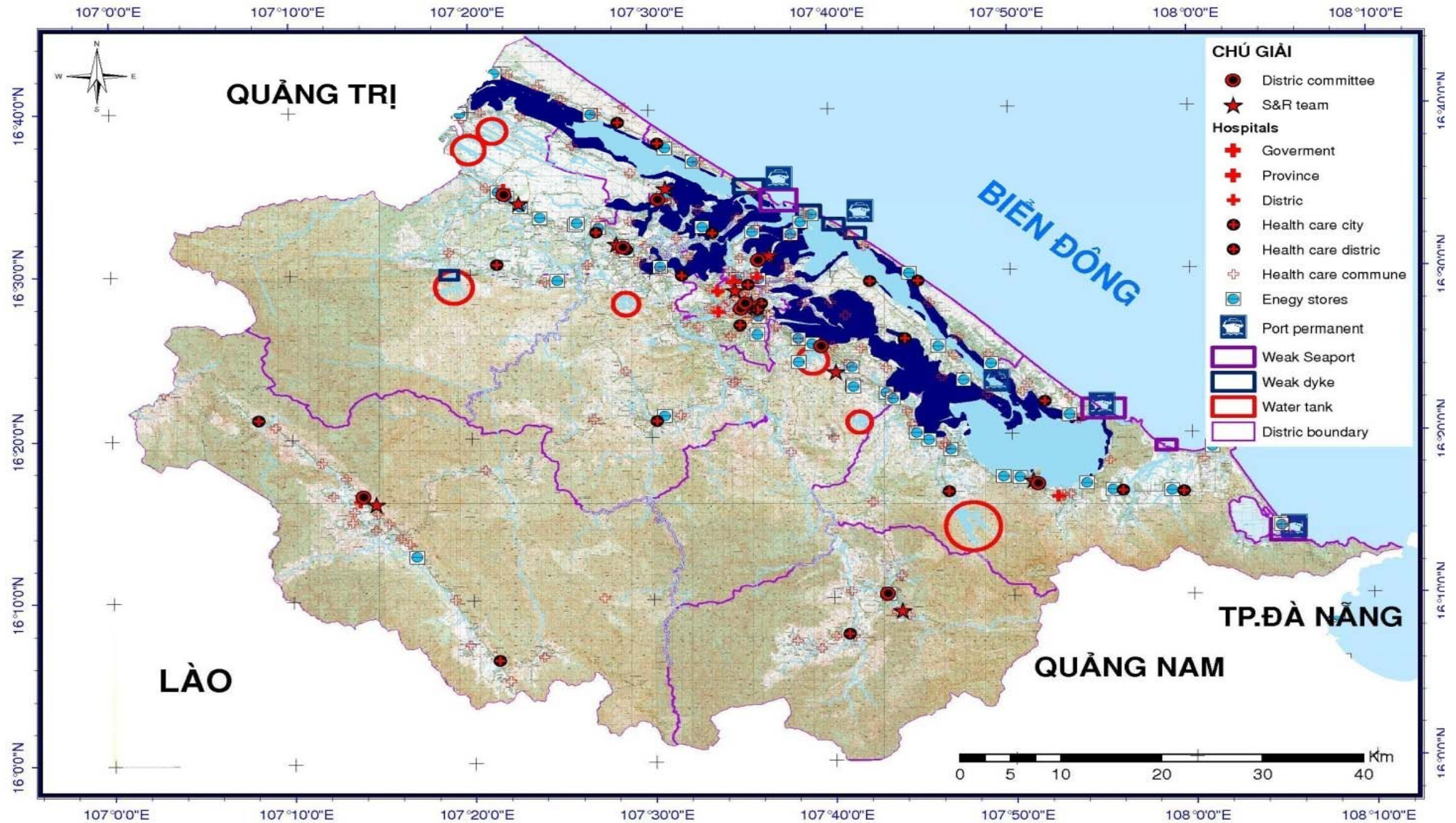
B) Just After a Disaster - Emergency Data Processing - Hue Province, Vietnam



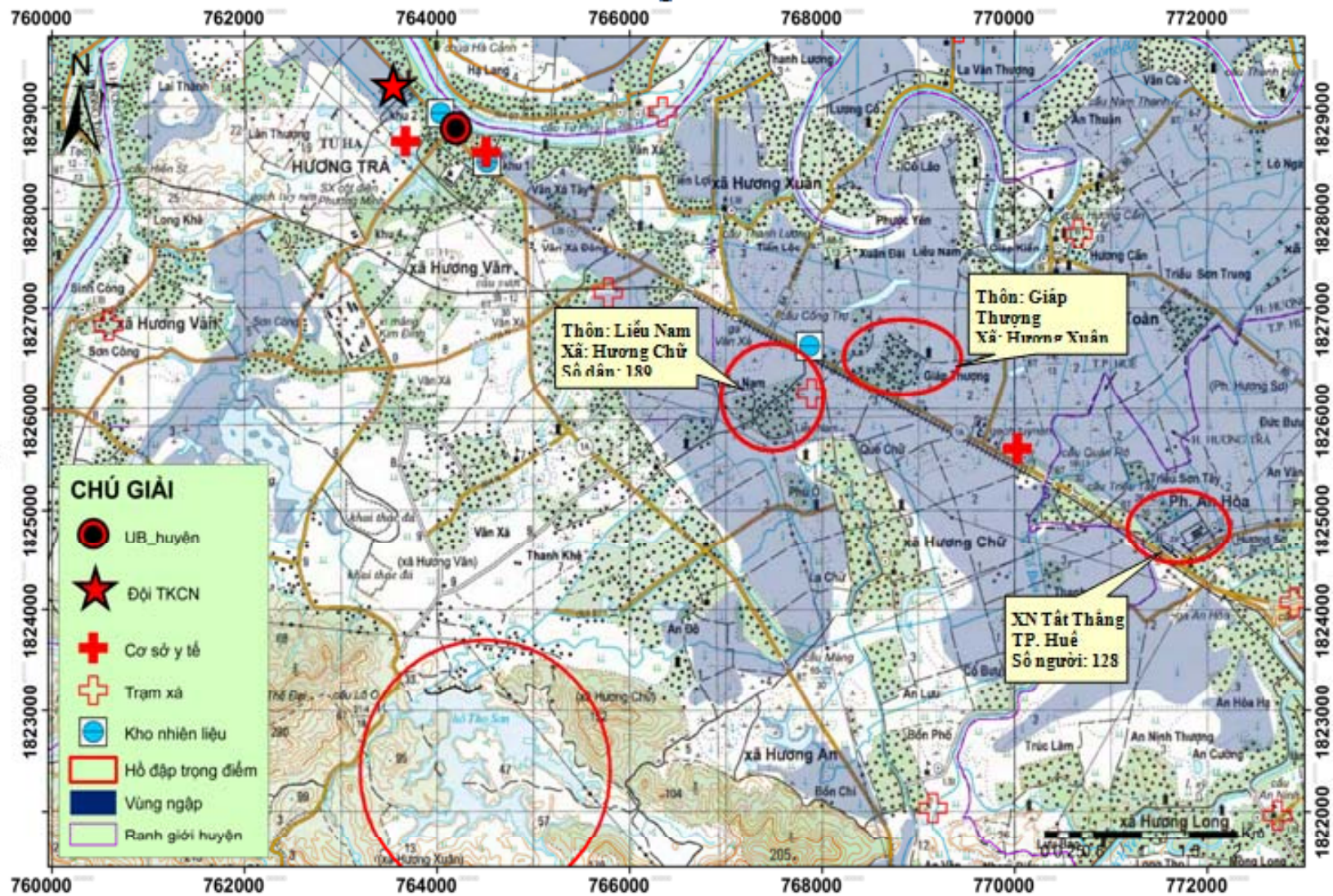
Field Verification of Past Flood



Value Added Map Products for Disaster Response



C) Post Disaster - Field Verifications & Damage Mapping



Flood extent and elements-at-risk for S&R team

JAXA Mini-Projects for SA STEP-III

Mini-Projects are being implemented in

- 1) Bangladesh – SPARRSO and BWDB
- 2) Myanmar - DMH
- 3) Philippines – PhiVolcs, PAGASA, NAMRIA
- 4) Sri Lanka – Survey Dept. and DMC

Implementation Plan

Phase-I: Stakeholder Consultation ~ Sep.- Nov. 2013 (30-40 Senior and Mid-level Officials)

Workshop - Identification of hazard prone areas

- Available database on "Elements-at-Risk" and database need to be created

Training - Processing of ALOS-PALSAR Data (15-20 Mid-level Officials)

- Open Street Map
- Asia Population data analysis (Human Exposure)

Phase-II: Capacity Building Workshop and Training at AIT ~ 02-20 Dec. 2013

- Preparation of hazard maps
- Preparation of exposure maps - Building and Population (Asia Population)
- Preparation of Elements-at-Risk databases
- Geo-portal for hosting the databases

Phase-III: Field Verifications and Workshop for Dissemination of Results ~ Jan.- Feb. 2013

- Prepare case studies
- Presentation of findings and lessons learned
- Field verifications

Thank you for your kind attention

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