JPTM2013
International Organization Report
- Asian Development Bank

Presentation by
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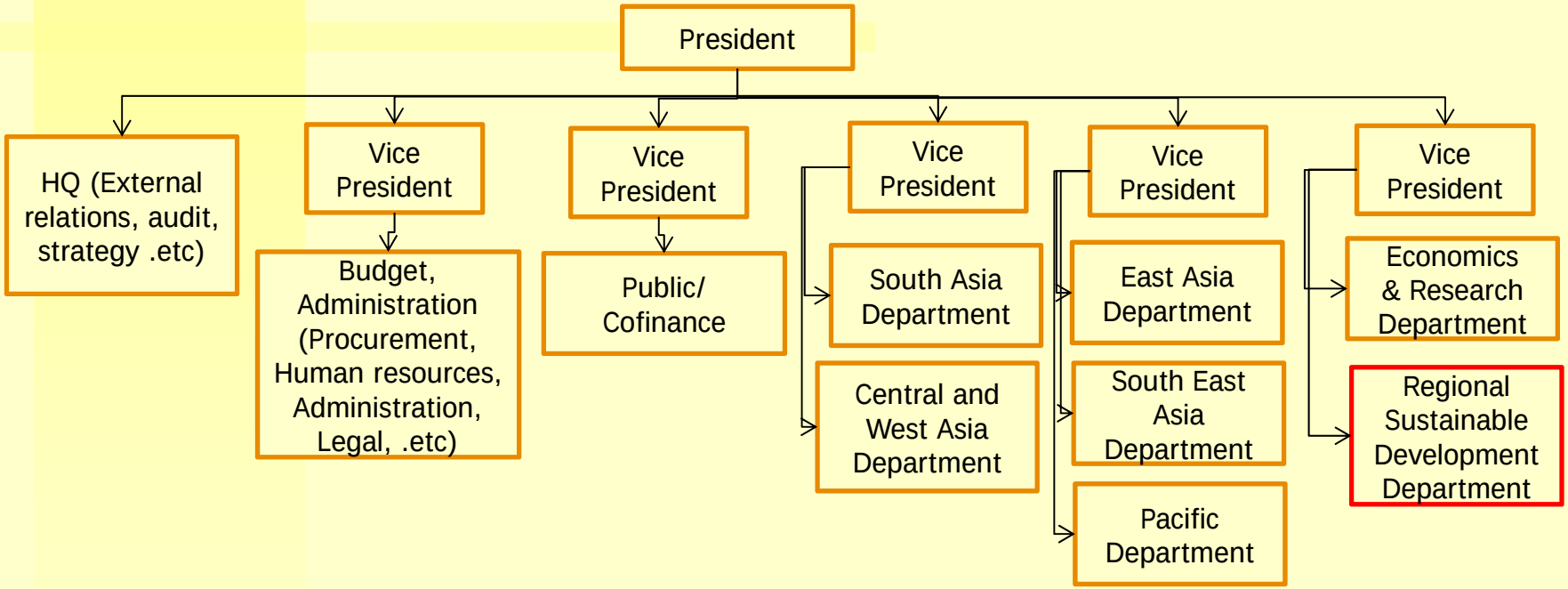
Space Technology Specialist
Asian Development Bank
November 27 2013

1. Introduction

Introduction of ADB

- Regional development bank
  - Economic development and Poverty reduction
- Projects
  - Loan, grant, and technical assistance (TA)
  - With knowledge to address development issues
- $15.3 billion assisted in 2013

Introduction of ADB



Headquarters
in Manila, Philippines

Introduction of ADB

- Sectors
  - Agriculture, Rural Development, and Food Security
  - Education
  - Energy
  - Environment (Inc. Climate change)
  - Financial Sector Development
  - Gender Equity
  - Health
  - Public Management and Governance (Inc. Disaster Risk Management)
  - Public-Private Partnership
  - Regional Cooperation and Integration
  - Social Development and Poverty
  - Transport
  - Urban
  - Water

Introduction of ADB

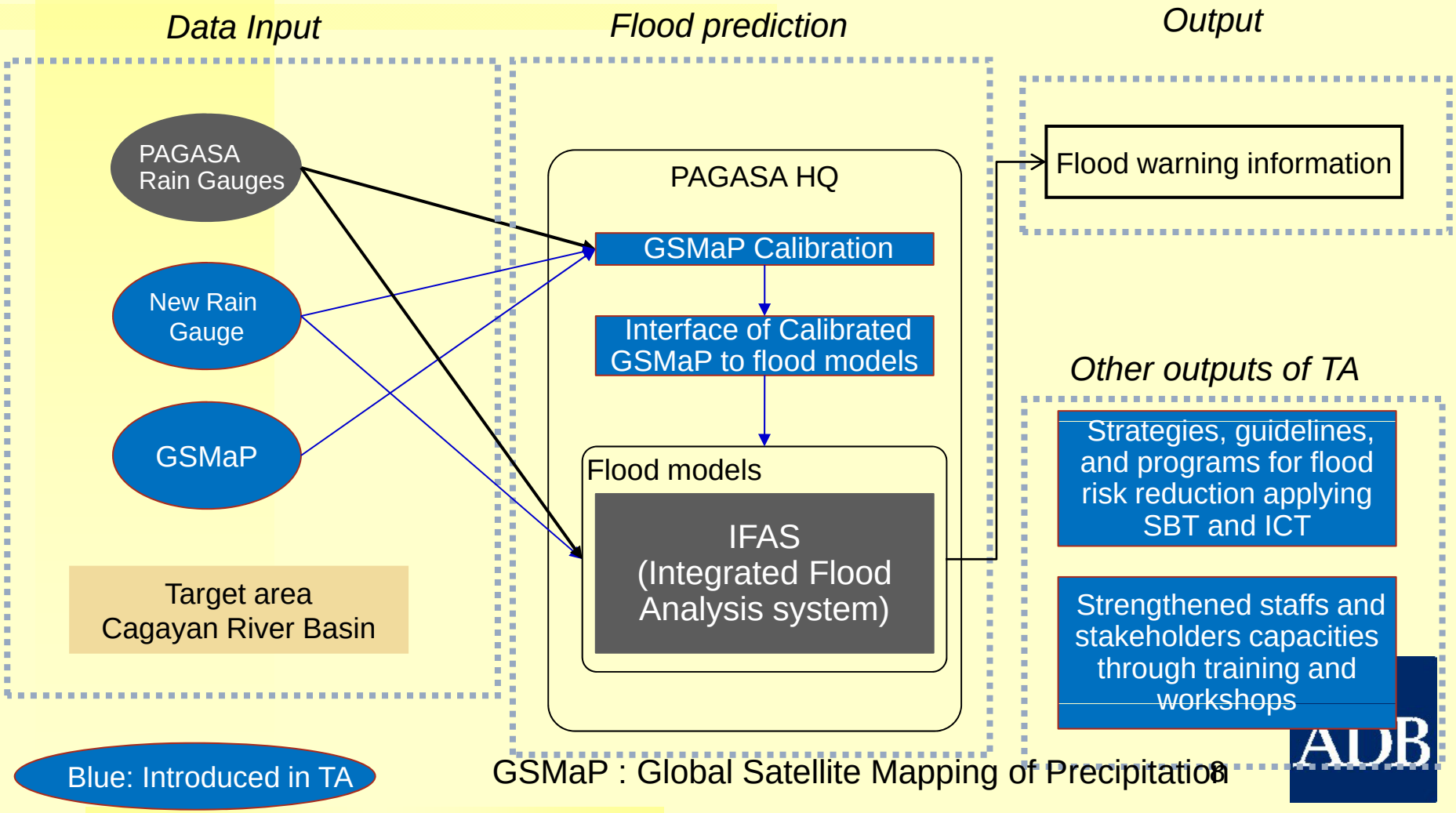
- ADB concluded LOI with Japan Aerospace Exploration Agency (JAXA) in 2010 to promote space technology applications in its activities.

- “Workshop on GIS and Space Technology for Sustainable Development of Asia” was held in ADB HQ in February 2011.

2. DRM activities in ADB using Remote Sensing

TA8074 Applying Remote Sensing Technology In River Basin Management

- **Improved flood prediction with satellite precipitation data in river basin in Bangladesh, Vietnam and the Philippines.**



Training Program for Philippines under TA8074

Internal Web-GIS to share data

Satellite data

Moderate resolution data from Sentinel Asia → Freely available

High-resolution data from International Charter → **Request from governmental agency is required**

GIS Map data

Publicly available map data (OpenStreetMap etc.) → Freely available

Map data provided by government → **If provided**

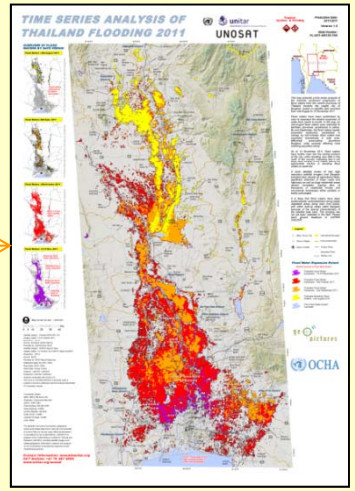
Disaster information

Information collected by government and ADB → **If provided**

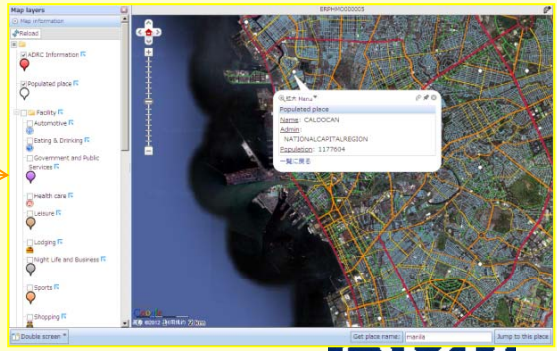
SDIS Team

- Identification of flooded are and landslides using satellite data (depending on availability of satellite data)
- Mapping information of damages reported from governmental agencies
- Consolidating information for disaster maps and Web-GIS{{

Disaster map



Sharing on Web-GIS



Seminars

- Five courses of Space Technology and GIS Seminar Series for ADB staffs in May to July 2013.

- SBT and ICT applications for IDRM for ADB staffs in November 2013.

Post Disaster Needs Assessment for the Typhoon Yolanda

Image from Openstreetmap

Base maps
(Layers of houses, infrastructure, roads, etc.)

GIS Analysis

Image from International Charter

Damaged infrastructure by visual check of satellite imagery

Initial Data Source
-Open Street Map

1. Number of damaged infrastructure
2. Damaged infrastructure maps

Initial Data Source
-Open Street Map

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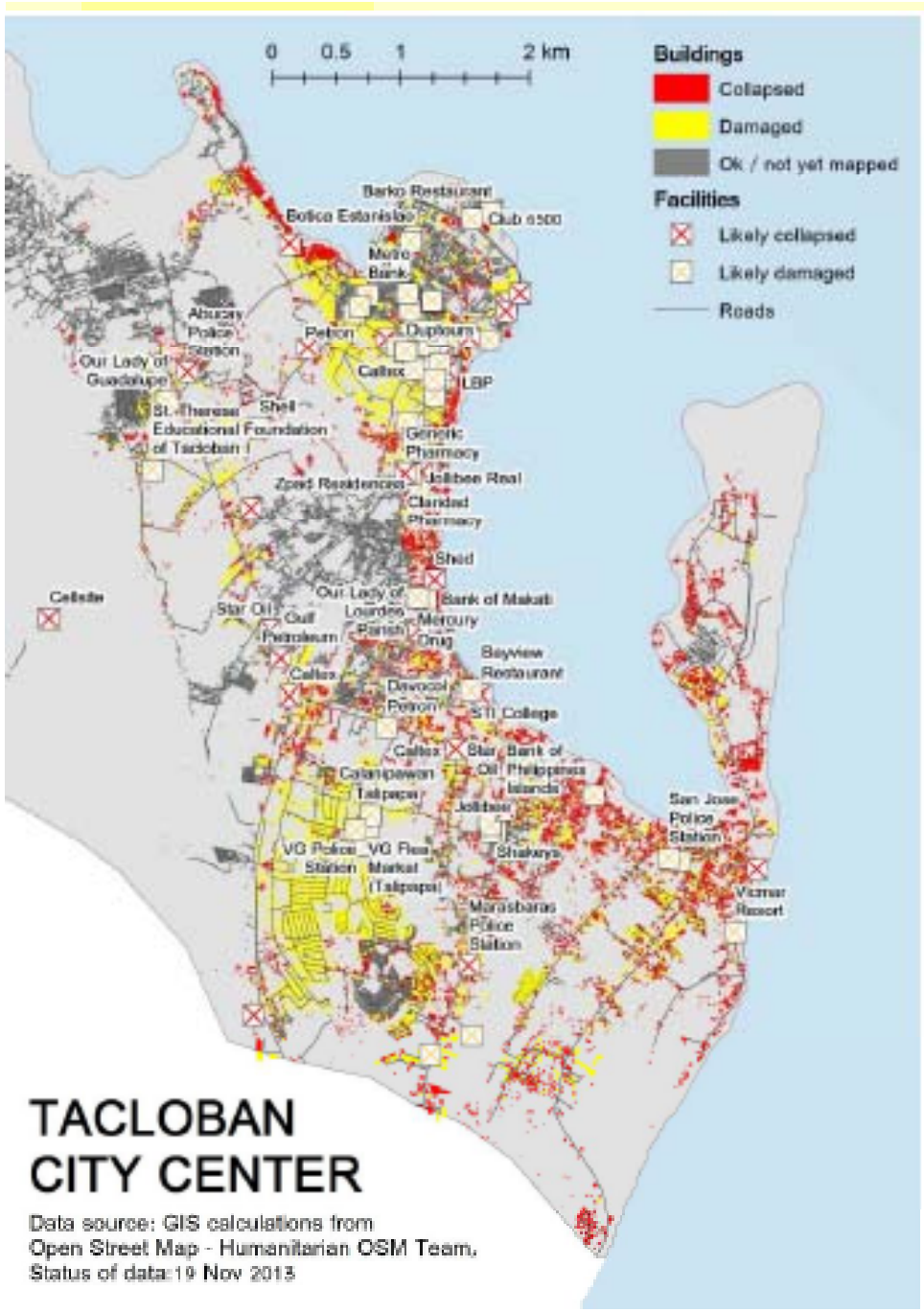
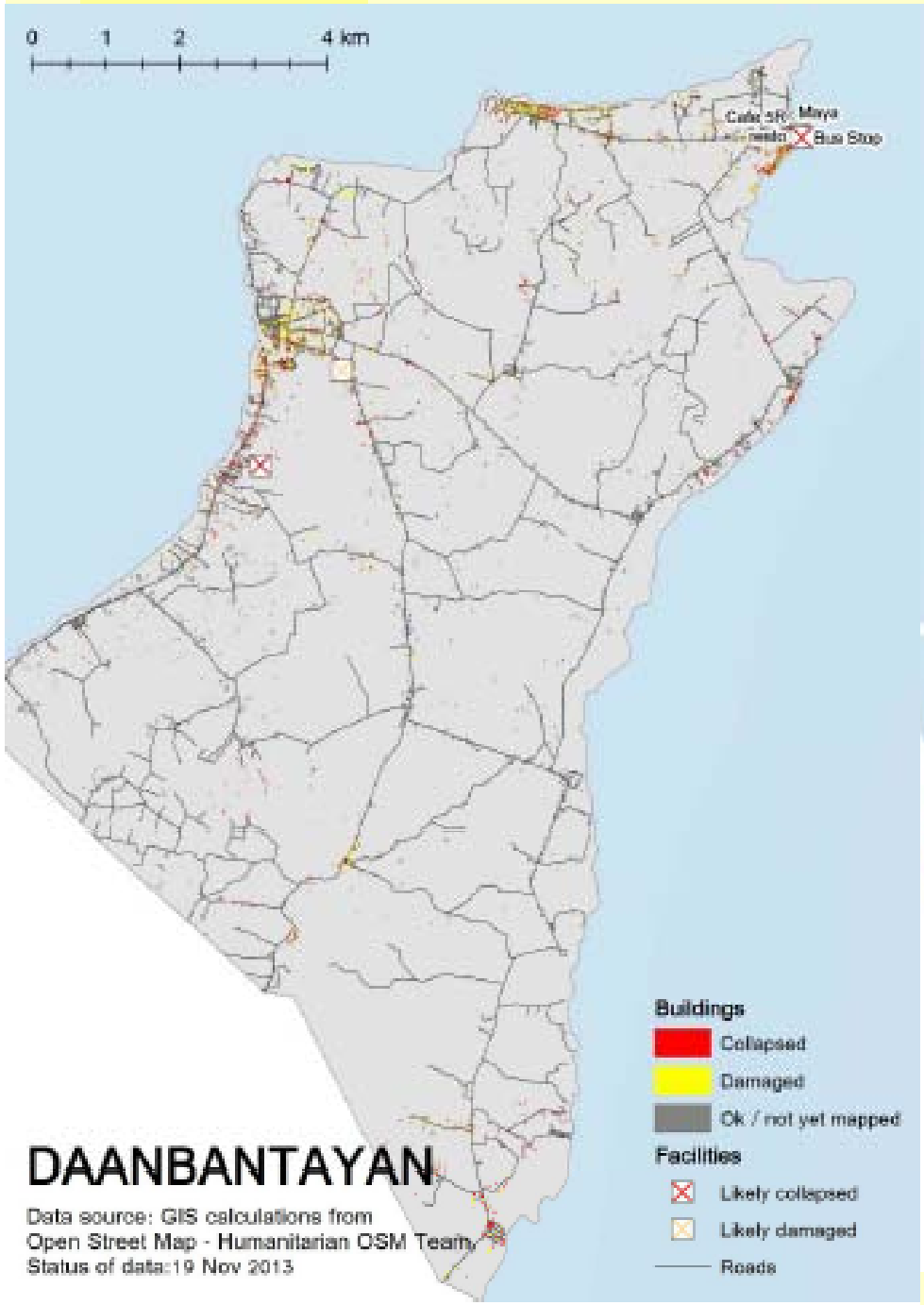
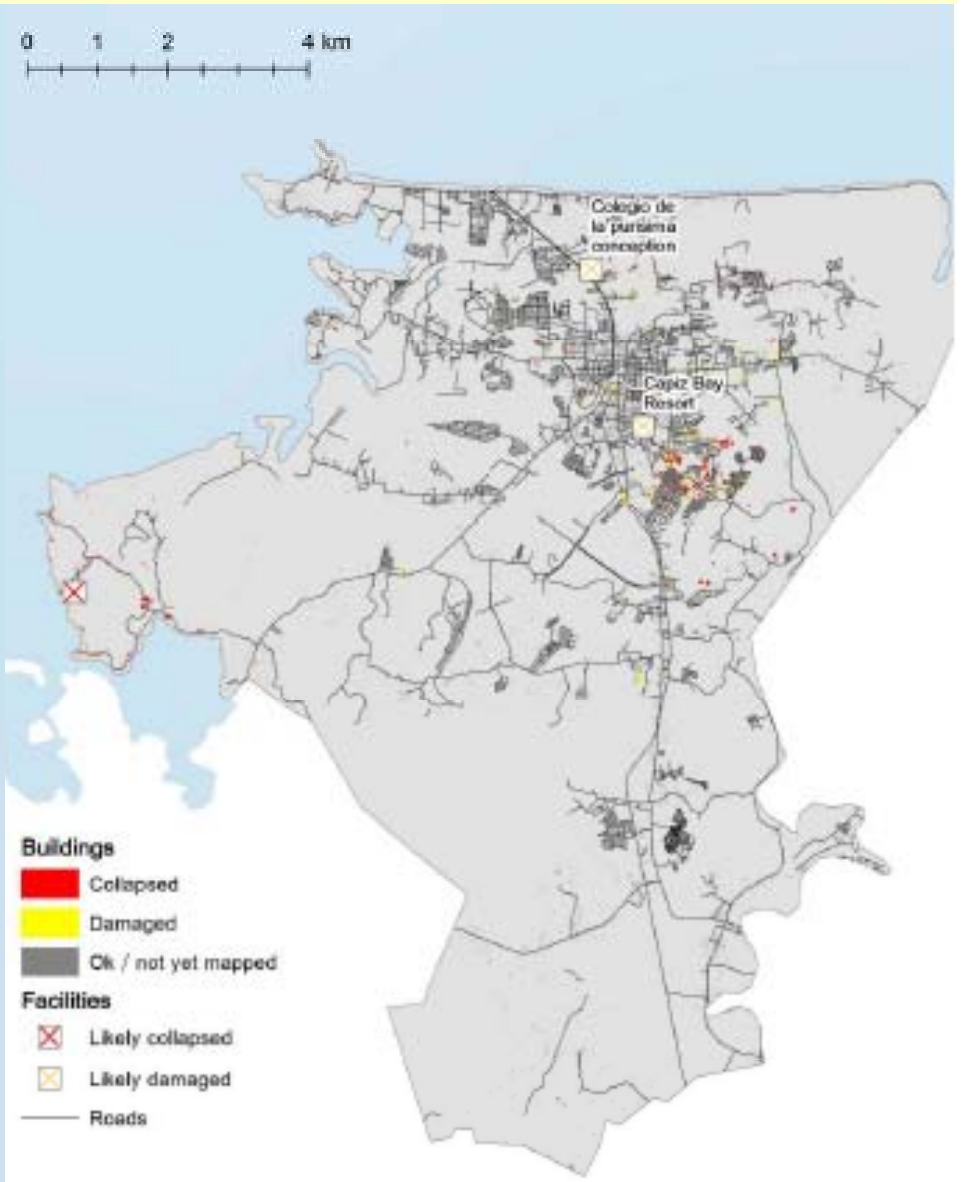
Results of initial work by ADB RS-GIS team


0 0.5 1 2 km
Buildings
Collapsed
Damaged
Ok / not yet mapped
Facilities
Likely collapsed
Likely damaged
Roads
Barko Restaurant
Botica Estanislao
Club 6500
Metro Bank
Abucay Police Station
Petron
Duptours
Our Lady of Guadalupe
Caltex
LBP
Shell
St. Therese Educational Foundation of Tacloban
Generic Pharmacy
Zpad Residences
Jollibee Real
Clarded Pharmacy
Shell
Bank of Makati
Our Lady of Lourdes Parish
Mercury Drug
Star Oil
Gulf Petroleum
Caltex
Bayview Restaurant
Dawood
Petron
STI College
Caltex
Star Oil
Bank of Philippines Islands
Calanipawan
Talipapa
Jollibee
San Jose Police Station
VG Police Station
VG Flea Market (Talipapa)
Shakeys
Marasbaras Police Station
Victor Resort
TACLOBAN
CITY CENTER
Data source: GIS calculations from
Open Street Map - Humanitarian OSM Team.
Status of data:19 Nov 2013
Tanghay Lodge
South Samar General Hospital
Buildings
Collapsed
Damaged
Ok / not yet mapped
Facilities
Likely collapsed
Likely damaged
Roads
0 0.25 0.5 1 km
GUIUAN CITY CENTER
Data source: GIS calculations from
Open Street Map - Humanitarian OSM Team.
Status of data:19 Nov 2013



DAANBANTAYAN

Data source: GIS calculations from
Open Street Map - Humanitarian OSM Team.
Status of data:19 Nov 2013



ROXAS

Data source: GIS calculations from
Open Street Map - Humanitarian OSM Team.
Status of data:19 Nov 2013

Table 1: *Buildings collapsed or damaged (mapping status as of 19 Nov 2013)*

Buildings	Tacloban	Guiuan	Daanbantayan	Roxas	Bantayan	Grand Total
Collapsed	11931	4189	1125	555		**17800**
Damaged	8235	24	1170	476		**9905**
Ok / not mapped	13185	2909	4940	15000	16656	**52690**
Grand Total	**33351**	**7122**	**7235**	**16031**	**16656**	**80395**
Total affected	**20166**	**4213**	**2295**	**1031**	**0**	**27705**
% affected	**60%**	**58%**	**32%**	**14%**	**0%**	**34%**

Table 2: *Facilities collapsed or damaged (mapping status as of 19 Nov 2013, proximity to collapsed or damaged building)*

	Tacloban		Guiuan		Daanbantayan	Roxas City	Grand Total
Facility	*Collapsed*	*Damaged*	*Collapsed*	*Damaged*	*Collapsed*	*Damaged*	
Attraction	3	3					**6**
Bank	3	8					**11**
Bus station		1			1		**2**
Entertainment	1	2					**3**
Ferry terminal					1		**1**
Gas station	5	9	1				**15**
Hospital	1			1			**2**
Hotel		13	1			1	**15**
Pharmacy	5	5					**10**
Police	2	2					**4**
Religion	1	5					**6**
Restaurant	4	17			1		**22**
School	1	5	1				**7**
Shopping	1	2					**3**
University						1	**1**
Grand Total	**27**	**72**	**3**	**1**	**3**	**2**	**108**

Could calculate the number and locate the damaged hospitals, hotels, schools, etc. on maps

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Observation from the initial results

- Number of damaged houses for Tacloban city from the results is 20166 / 33351 (60%)

- Number of damaged houses for Tacloban city reported in NDRRMC update (as of Nov. 20) is only 382.

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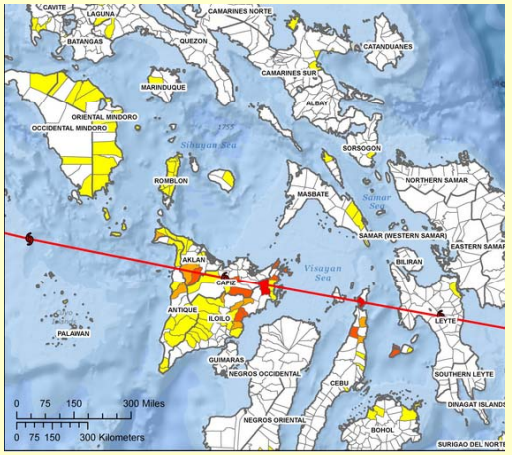
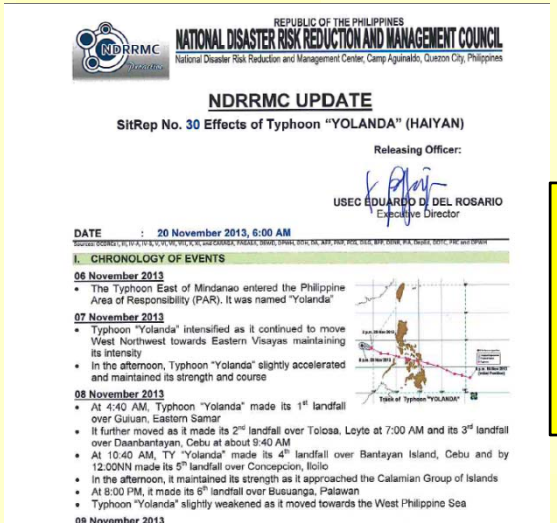
Mapmaking from reports

- NDRRMC update report
  - Dead and missing people by province
  - Affected population by municipality
  - Damaged houses by municipality
  - Cost of damages by sector by province
  - Power outages by province
  - Water supply by province
  - Network coverage by province
  - Cost of assistance by province





REPUBLIC OF THE PHILIPPINES
NATIONAL DISASTER RISK REDUCTION AND MANAGEMENT COUNCIL
National Disaster Risk Reduction and Management Center, Camp Aguinaldo, Quezon City, Philippines

NDRRMC UPDATE

SitRep No. 30 Effects of Typhoon "YOLANDA" (HAIYAN)

Releasing Officer:

USEC EDUARDO D. DEL ROSARIO
Executive Director

DATE : 20 November 2013, 6:00 AM

I. CHRONOLOGY OF EVENTS

06 November 2013
- The Typhoon East of Mindanao entered the Philippine Area of Responsibility (PAR). It was named "Yolanda"

07 November 2013
- Typhoon "Yolanda" intensified as it continued to move West Northwest towards Eastern Visayas maintaining its intensity
- In the afternoon, Typhoon "Yolanda" slightly accelerated and maintained its strength and course

08 November 2013
- At 4:40 AM, Typhoon "Yolanda" made its 1st landfall over Guiuan, Eastern Samar
- It further moved as it made its 2nd landfall over Tolosa, Leyte at 7:00 AM and its 3rd landfall over Daanbantayan, Cebu at about 9:40 AM
- At 10:40 AM, TY "Yolanda" made its 4th landfall over Bantayan Island, Cebu and by 12:00NN made its 5th landfall over Concepcion, Iloilo
- In the afternoon, it maintained its strength as it approached the Calamian Group of Islands
- At 8:00 PM, it made its 6th landfall over Busuanga, Palawan
- Typhoon "Yolanda" slighty weakened as it moved towards the West Philippine Sea

09 November 2013

Make maps with coloring by province / municipality

-No digital data now (in PDF)
-> **Need to coordinate with NDRRMC to provide ADB with the excel sheet daily.**

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Lessons Learned

- ADB needs damage assessment to estimate the necessary financial support.
  - Not only for emergency response, the government also needs comprehensive damage information to mobilize budgets as early as possible.
    - Sentinel Asia can target this purpose as well.
  - However, it's difficult to get accurate damage data from the field.
  - The coverage of satellite data is also limited.

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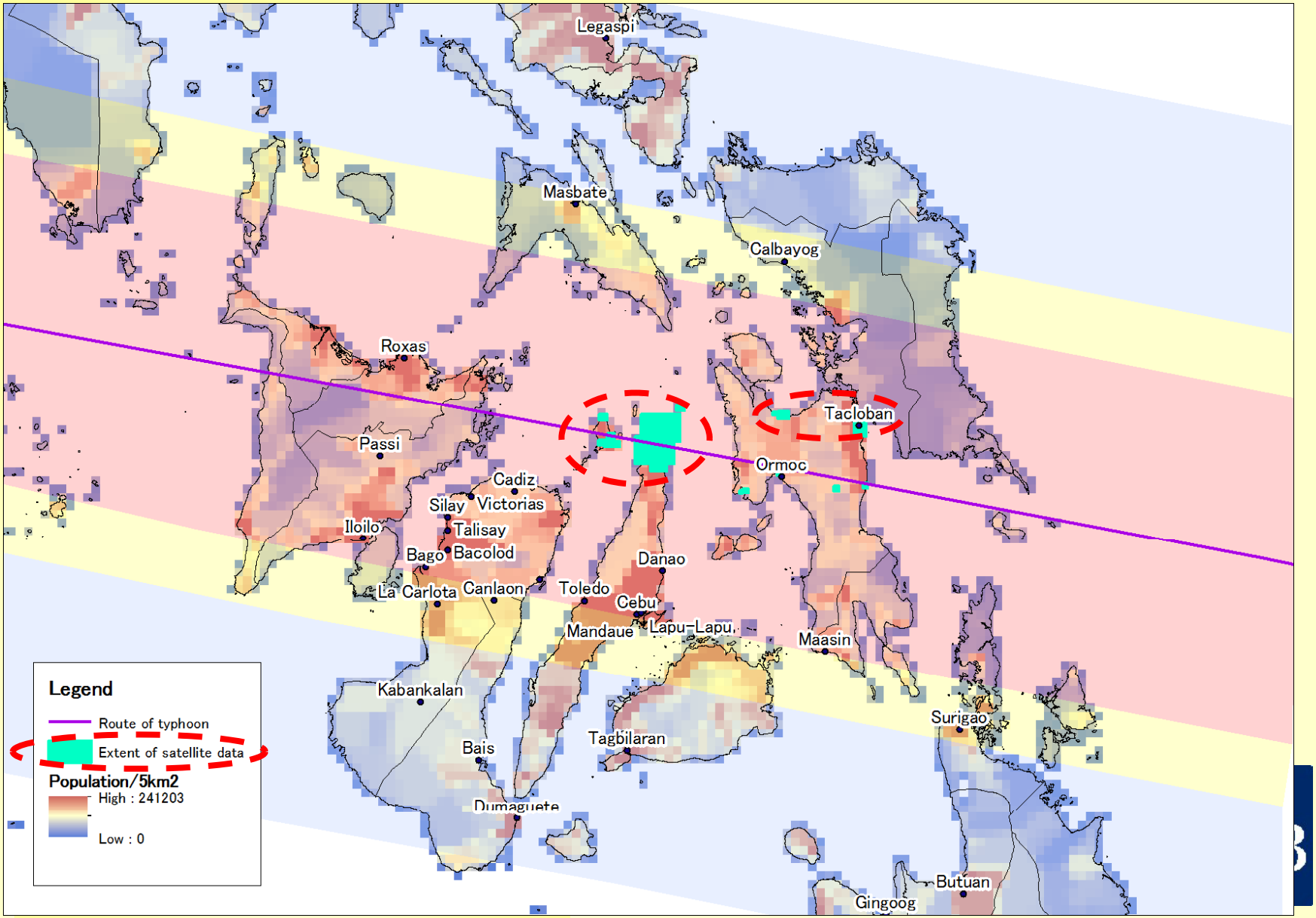
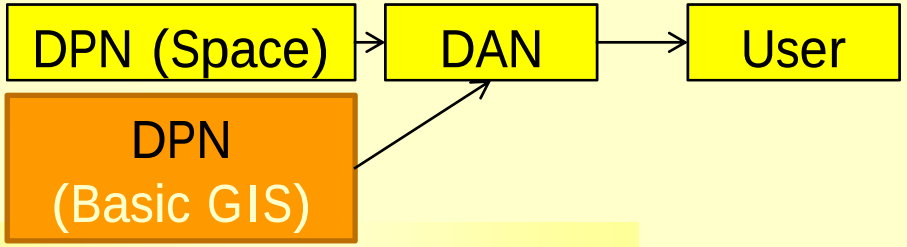
However, Data availability is limited....



Lessons Learned

- Basic geospatial dataset was not easily available to estimate damages.
  - Types of infrastructure is necessary.
  - OSM data was only available data for this.
  - It was difficult to contact the government agency.
- It is important to prepare such dataset and make them accessible before disasters.
- It would be good to include agency in charge of such basic geospatial dataset to Sentinel Asia Community.



Lessons Learned

- In order to conduct damage assessment for wide coverage, the window that DAN can access the data from international charter is too short.
  - It is important to discuss how Sentinel Asia or the International Charter can support damage assessment in later phase of disaster responses.

- It was difficult to know what geospacial processing other agencies were conducting, which made ADB's decision making much slower to decide where and what to focus.
  - Information exchange of DAN is very important.

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Lessons Learned

- There are potential users of satellite-based information (international organizations) such as red cross, or other NGOs. It would be useful to expand the collaboration with such agencies.

- It would be useful to make platform to collect proposals about satellite-based data analyses from private sectors. There would be a chance to incorporate some of effective approaches to ADB's short term technical assistance to support the disaster recovery.

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3. Conclusion

- ADB hopes to have more opportunities to expand its experience and capacities in applying remote sensing for disaster monitoring in Asia and Pacific region, and also have the chance to contribute to the strengthening of Sentinel Asia's activities and partnership.

- ADB would like to strengthen partnership with disaster management agencies in DMCs which is a member of Sentinel Asia and collaborate to maximize benefits of its network.

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Thank you!

If you have any questions,
please contact
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