Applying Space-based Technology and ICT to Strengthen Disaster Resilience

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ASIAN DEVELOPMENT BANK

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ADB

ADB at a Glance

ABOUT ADB

ADB is an international development finance institution. We provide loans, grants, and expertise to our developing member countries to help them alleviate poverty and create a world in which everyone can share in the benefits of growth.

President
Takehiko Nakao

Headquarters
Manila, Philippines

Founded
1966

67	48	19	31	3,105
Members	Regional members	Nonregional members	Field offices	Total employees

ADB

ADB strategy 2030

What is the ADB's 2030 vision

PROSPEROUS
INCLUSIVE
RESILIENT
SUSTAINABLE

ASIA AND THE PACIFIC

Fragile and conflict-affected situations

Small island developing states

Low-income and lower middle-income countries

Upper middle-income countries

ADB

ADB strategy 2030

What operational areas will ADB focus on?

Addressing remaining poverty and reducing inequalities

human development and social inclusion, quality jobs, education and training, better health, social protection

Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability

low greenhouse gas emissions development, approach to building climate and disaster resilience, environmental sustainability, water–food–energy security nexus

Promoting rural development and food security

market connectivity and agricultural value chain linkages, agricultural productivity and food security, food safety

Strengthening governance and institutional capacity

public management reforms and financial sustainability, service delivery, capacity and standards

Fostering regional cooperation and integration

connectivity and competitiveness, regional public goods, cooperation in finance sector, subregional initiatives

Accelerating progress in gender equality

scaled-up support for gender equality; women's economic empowerment; gender equality in human development, decision-making, and leadership; reducing time poverty for women; strengthening women's resilience to shocks
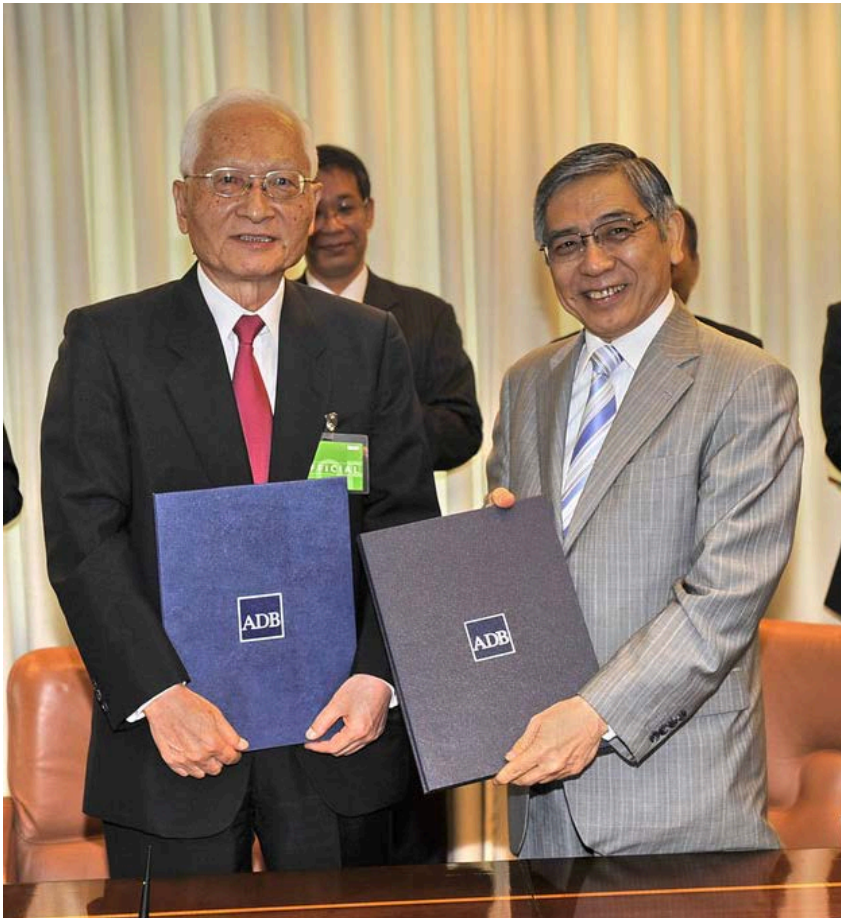
Making cities more livable

integrated solutions, funding for cities, inclusive and participatory urban planning, climate resilience and disaster management

ADB

ADB Rendezvous With JAXA

How does ADB link with space?

- LoI with JAXA in 2010
  - Disaster Management
  - Climate Change Mitigation and Adaptation
  - Forest Monitoring
  - Water Resources Management
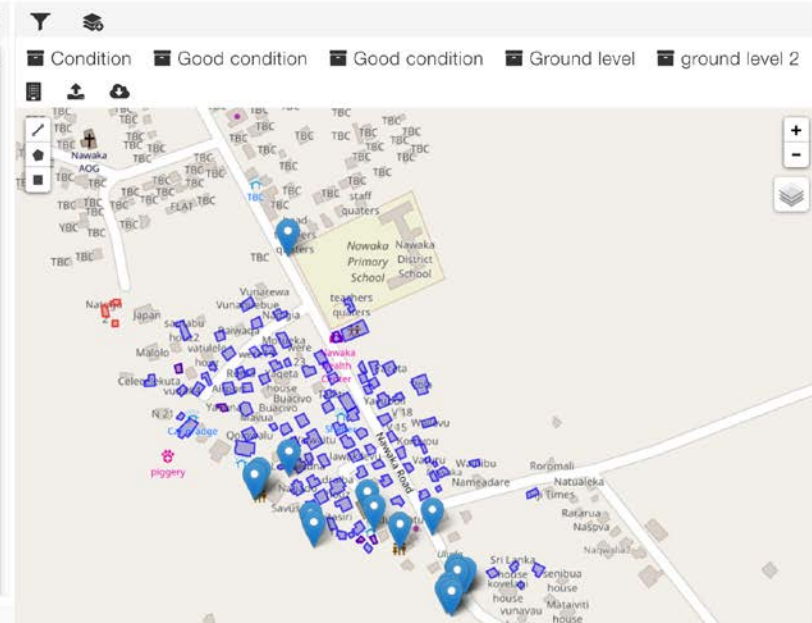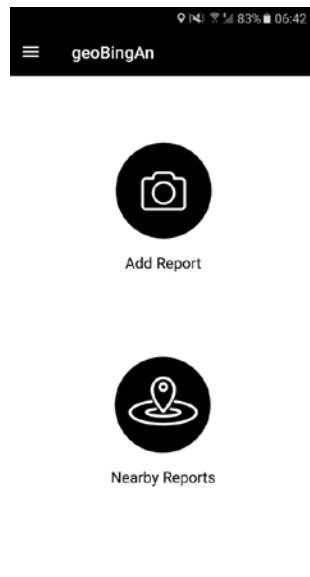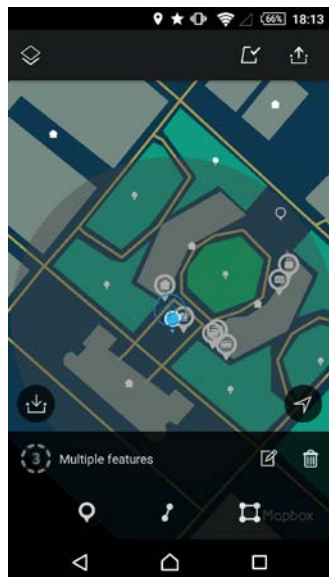 - Agriculture
  - Urban Management

ADB

Community-based Disaster Risk Management

Applying Space-Based Technology and ICT to Strengthen Disaster Resilience

Improve quality and timeliness of information for disaster preparedness and response using SBT and ICT (Armenia, Bangladesh, Fiji and Philippines)

1. Enhanced disaster-related information collection, sharing, and utilization of applying SBT and ICT in selected communities

2. Expanded knowledge on SBT and ICT applications for DRM in each country and the region

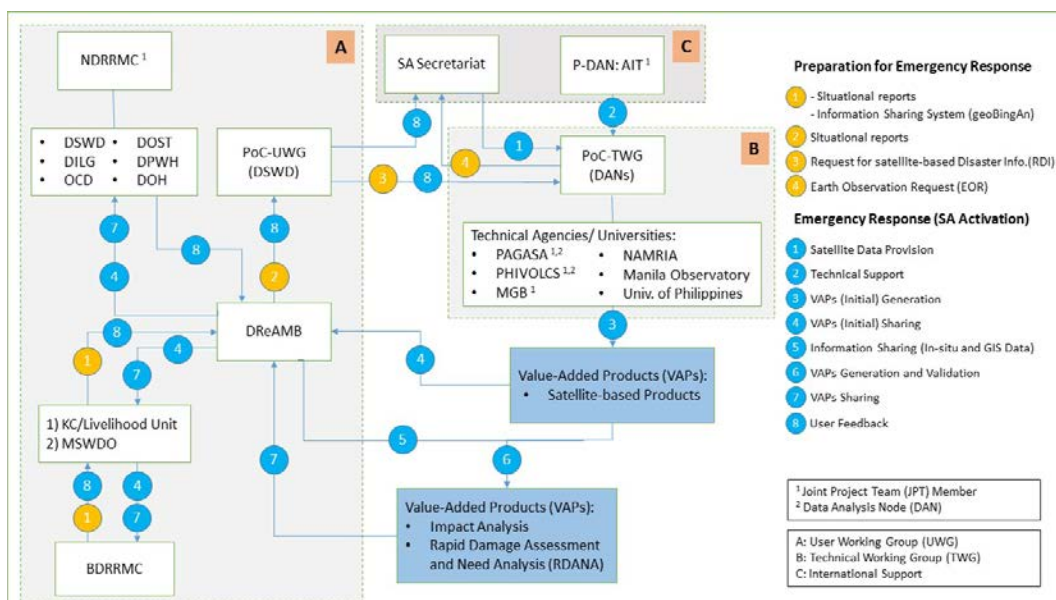3. Policy guidelines developed regarding sustainable SBT and ICT applications for DRM in each country

http://www.geoinfo.ait.ac.th/resilience/

Proposed Framework in the Philippines

Connecting Sentinel Asia to the National DRRM System with the Support of ADB TA and JAXA

- The Sentinel Asia – National Disaster Risk Reduction Management (NDRRM) framework was designed during the ADB TA

- Requirement for updating the framework considering future NDRRM system (ex. Department of Disaster Management)

Follow-up actions

- Update

- Share the idea with stakeholders

S P A D E
Spatial Data Analysis Explorer

How to build resilient, livable cities

--- **WHAT IS SPADE** ---

SPADE is a web-based platform on a centralized cloud-based server that contains various geospatial data which can be utilized for consultation, project preparation, production of maps, and analysis of climate change impacts.

Can support ADB strategies and projects, and scale up climate resilience thinking in urban planning

Funded by the Urban Climate Change Resilience Trust Fund

Piloted in 5 cities in 2 countries: Bagerhat and Patuakhali (Bangladesh), and Ha Giang, Hue, and Vinh Yen (Viet Nam)

Spatial Data Analysis Explorer

SPADE overview

─── **HOW IT WORKS** ───

1 **Data is gathered from different sources**

Earth observation and meteorological satellite data, and hydrometeorological data
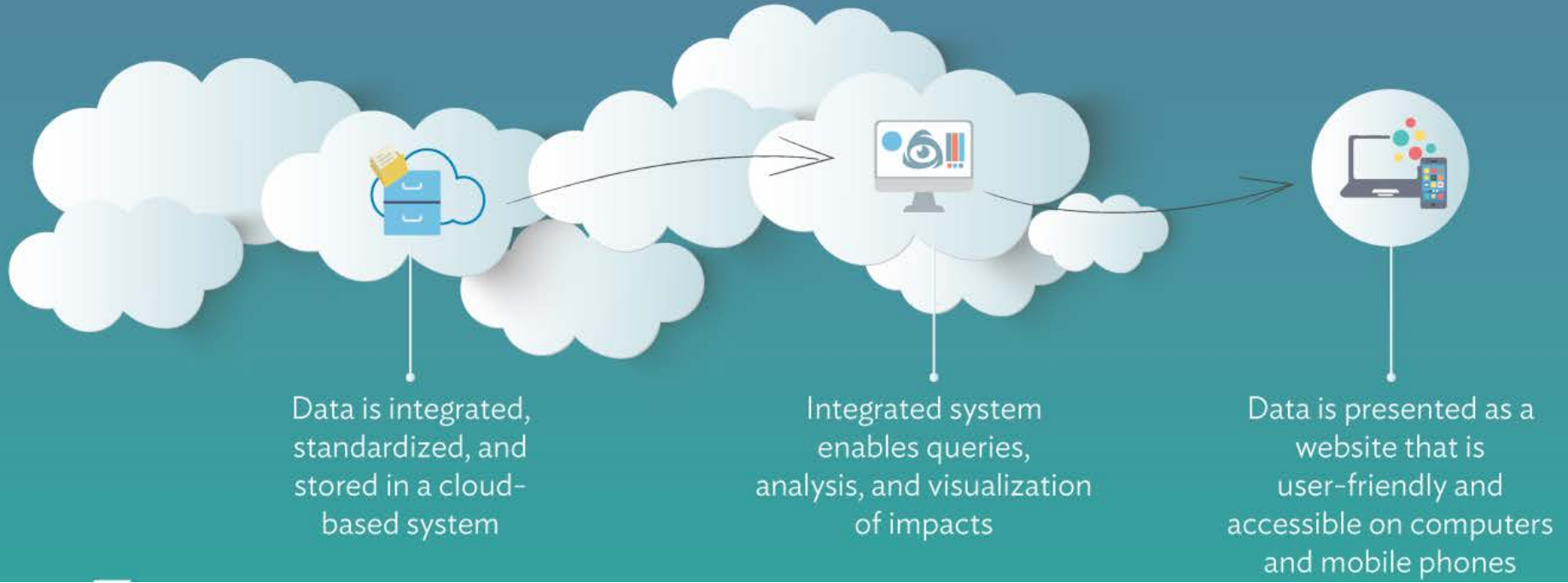
Climate change simulations from University of Tokyo's Data Integration and Analysis System

Socioeconomic data from field surveys and a mobile application for data collection created by Asian Institute of Technology

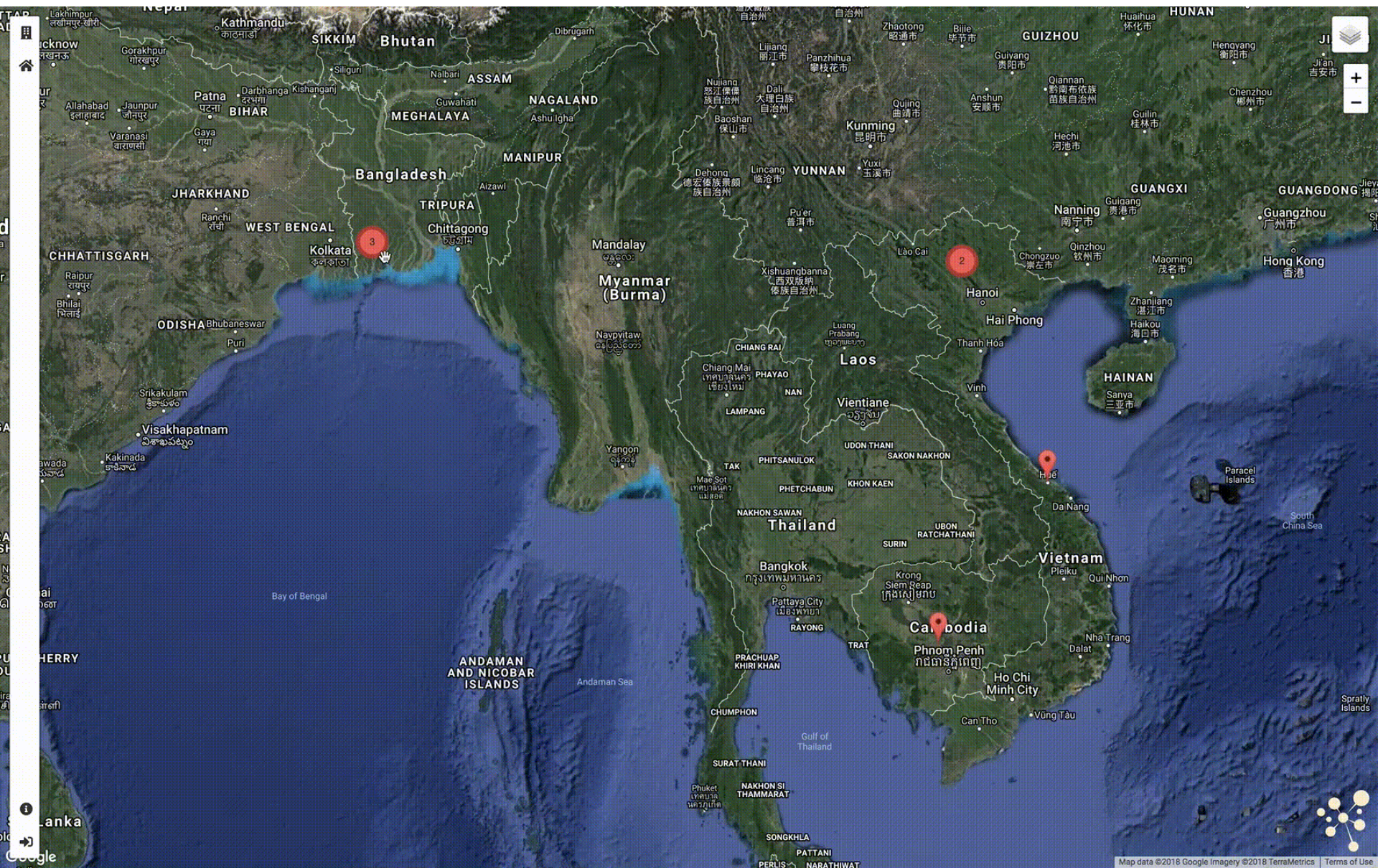**2** **Data is integrated into a cloud-based database**

3 **Data becomes SPADE**

Data is integrated, standardized, and stored in a cloud-based system

Integrated system enables queries, analysis, and visualization of impacts

Data is presented as a website that is user-friendly and accessible on computers and mobile phones

Spatial Data Analysis Explorer

SPADE overview

Spatial Data Analysis Explorer

SPADE for Disaster Risk Management

- In addition to climate resilient infrastructure design and disaster risk assessment, SPADE has a capability for a GIS data repository

- Post-disaster spatial information (emergency observation and historical archive) is useful for disaster risk assessment and disaster & emergency assistance planning in ADB

- SPADE has a function to link with external GIS database (ex. web mapping services)

ADB

Summary

- In ADB strategy 2030, building climate and disaster resilience is the one of 7 operational priorities and satellite data has a potential to support the priority

- ADB TA was conducted with JAXA and Sentinel Asia on DRM in four countries, and the Sentinel Asia framework in the Philippines is under follow up activities

- SPADE, ADB web-GIS system was developed and ADB expects to utilize disaster spatial information on SPADE in cooperation with Sentinel Asia

Thank you.

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