Enhancing Resiliency through Community Participatory Flood Observation System for the Laguna Lake Basin

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Countries most vulnerable to climate change:

1. Vanuatu
2. Tonga
3. **The Philippines**
4. The Solomon Islands
5. Guatemala
6. Bangladesh
7. Timor-Leste
8. Costa Rica
9. Cambodia
10. El Salvador

As reported by the United Nations University's Institute for Environment and Human Security and the German Alliance Development Works

SUPER TYPHOON YOLANDA (HAIYAN), November 2013

Death toll : 6193
Injured : 28,689
Missing : 1061
Damage: 89 Billion Pesos (2 Billion USD)

(Official data from the National Disaster Risk Reduction Management Council)

Flooding during and after Typhoon *Ondoy* (Ketsana) in the Metro Manila area, September 2009

Nationwide Operational Assessment of Hazards (NOAH)

Project NOAH

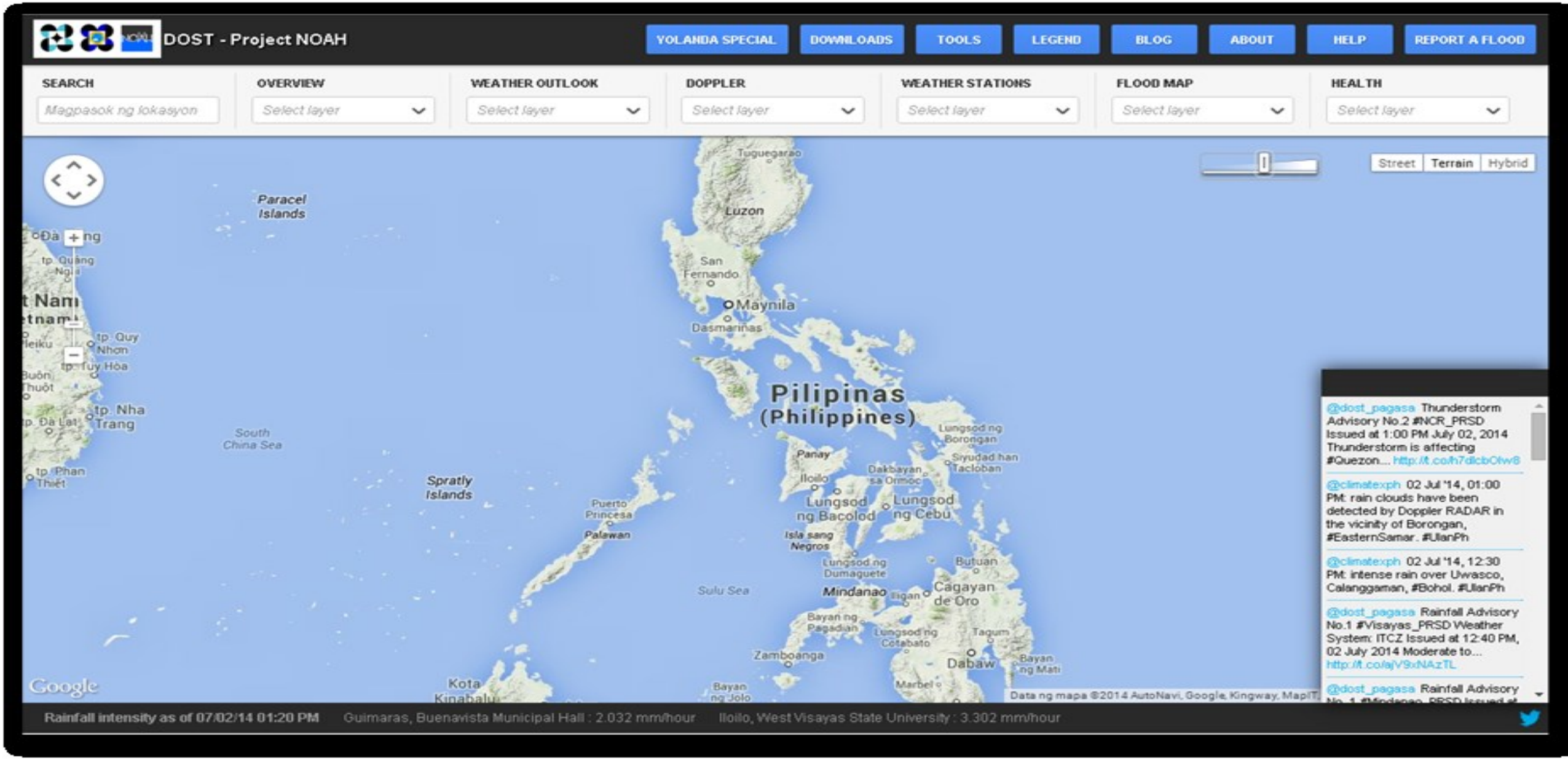
Launched by the Department of Science and Technology (DOST) in 2012 as a response to the following instructions of President Aquino:

- to put in place a responsive program for disaster prevention and mitigation
- to be able to provide a 6 hour lead-time warning to vulnerable communities against impending floods
- to use advanced technology to enhance current geo-hazard vulnerability maps

Priority areas are the 18 Major River Basins

The Project Team is composed of academics, researchers, planners, government and private agencies, Non-government organizations. It is based at the Institute for Geological Sciences of the University of the Philippines in Diliman, Quezon City.

Nationwide Operational Assessment of Hazards (NOAH)



DOST-Project NOAH Homepage

Components of Project NOAH

1. Distribution of Hydro-meteorological Devices in hard-hit areas in the Philippines (Hydromet)
2. Disaster Risk Exposure Assessment for Mitigation – Light Detection and Ranging (DREAM-LIDAR Project)
3. Flood Information Network Project or Flood NET
4. Weather Hazard Information Project
    a. Strategic Communication Intervention
    b. Disaster Management Using WebGIS
5. Enhancing Geo-hazards Mapping through LIDAR
6. Local Development of Doppler Radar Systems (LaDDers)
7. Landslide Sensors Development Project
8. Coastal Hazards and Storm Surge Assessment and Mitigation (CHASSAM)
9. Weather Information – Integration for System Enhancement (WISE)

Human Resource Development Plan for Natural Disaster Prevention

Hazards Mapping and Assessment for Effective Community Based Disaster Risk Management (READY PROJECT)

The READY Project is a collaborative effort of the Government of the Republic of the Philippines, the United Nations Development Program (UNDP) and the Government of Australia Australian Aid (AusAID)

Building Community Resilience and Strengthening Local Capacities for Recovery and Disaster Risk Management (RESILIENCE Project)

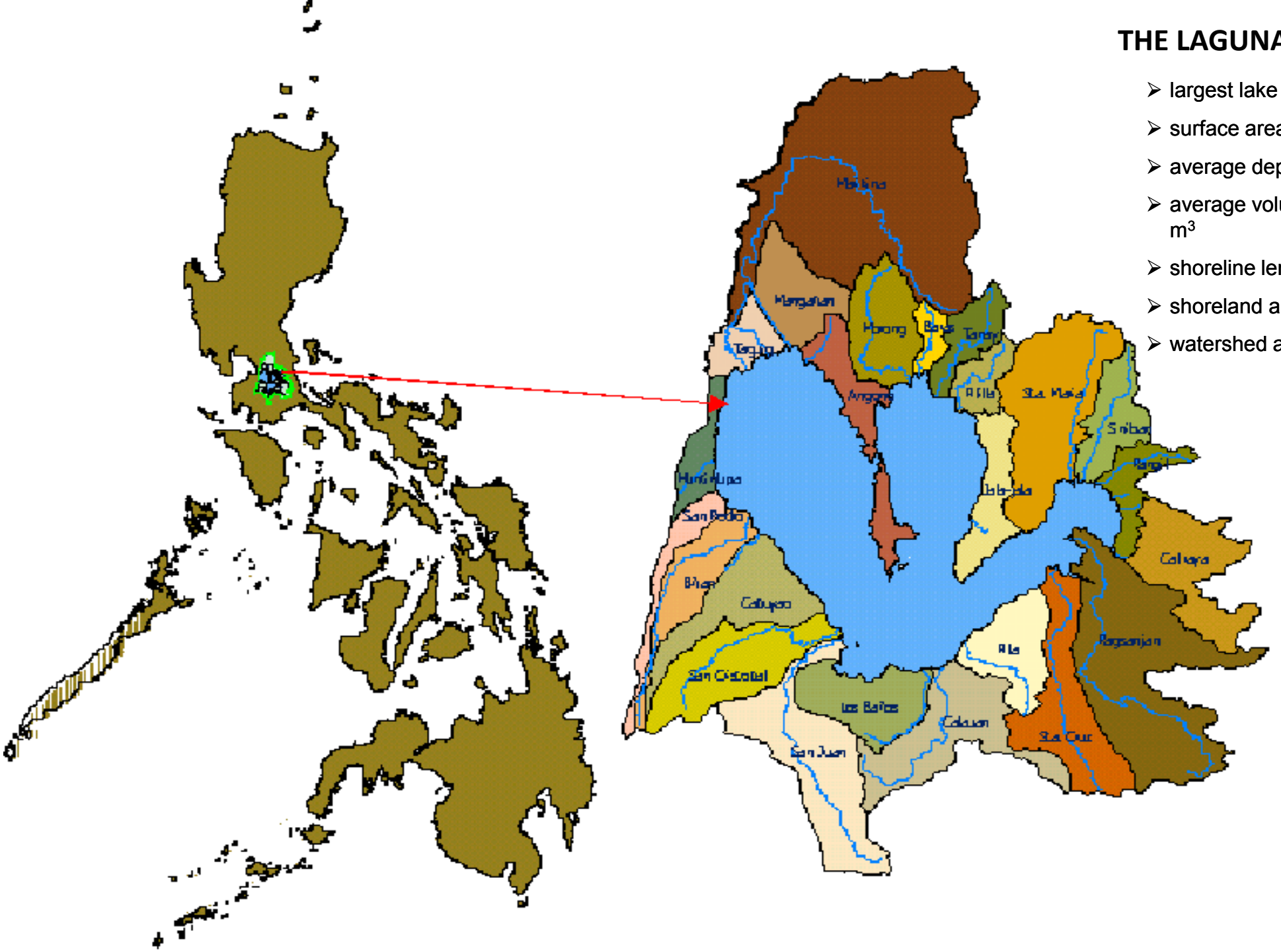
Office of Civil Defense (OCD), the Local Governments Units of Marikina City, Pasig City and Cainta Rizal, Collective Strengthening of Community Awareness on Natural Disasters (CSCAND) agencies

LOCAL FLOOD EARLY WARNING SYSTEM (LFEWS)

LFEWS evolved from the Community-Based Flood Early Warning System (CBFEWS) of the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) in connection with the READY Project.

Source: http://aboutphilippines.ph/filer/READY-Project.pdf

THE LAGUNA LAKE BASIN



- largest lake in the Philippines
- surface area = 900 km^2
- average depth = 2.5 meters
- average volume = 2.25 billion m^3
- shoreline length = 285 km
- shoreland area = 140 km^2
- watershed area = 2920 km^2

A Simple and Community Friendly Independent Floods Observation System for the Laguna Lake District and National Capital Region in the Republic of the Philippines

Flood Awareness and Community Empowerment (FACE) Project

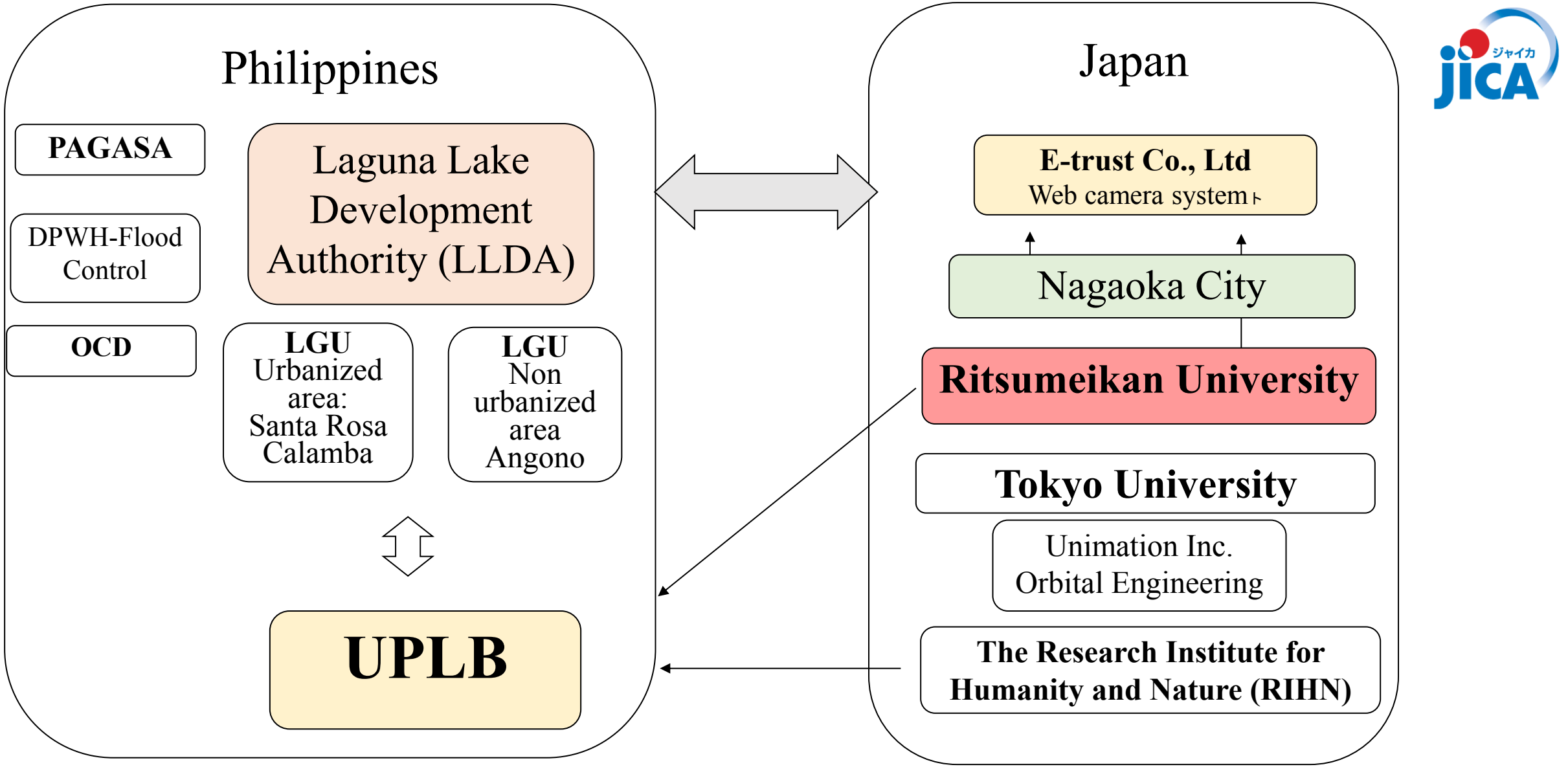
Project period: October 2013 to September 2016
Budget: 56,000,000 JPY (JICA Technical Cooperation for Grassroots Project)

Overall Goal

To mitigate flood damage in the Laguna Lake Basin and enhance the resiliency of communities through participatory flood observation system, which can contribute to sustainable economic development in the target areas.

Main Objective

To capacitate the Disaster Risk Reduction Management Officers and the respective communities in the project sites through the installation and operation of a simple community-based flood observation system and to manage the information generated by the system (enhance the use of disaster information by the local people).



JICA Partnership Program

- **Activities in the pipeline:**

- Installation of additional web-camera flood observation system

- Capacity building activities for the DRRM Officers and communities , which include training on the operation and maintenance of the flood observation system, problem mapping exercises

- Conduct of socio-economic survey

- Development of a flood risk management program

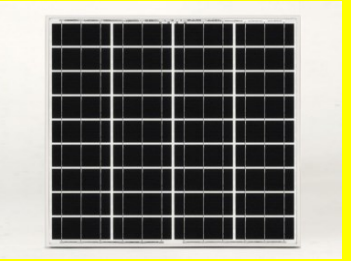
- Sharing of the gains of the project to other Local Government Units and hopefully, to our ASEAN neighbors

Simple web camera system for flood observation and monitoring

SMART Phone

Mobile Network

SMART



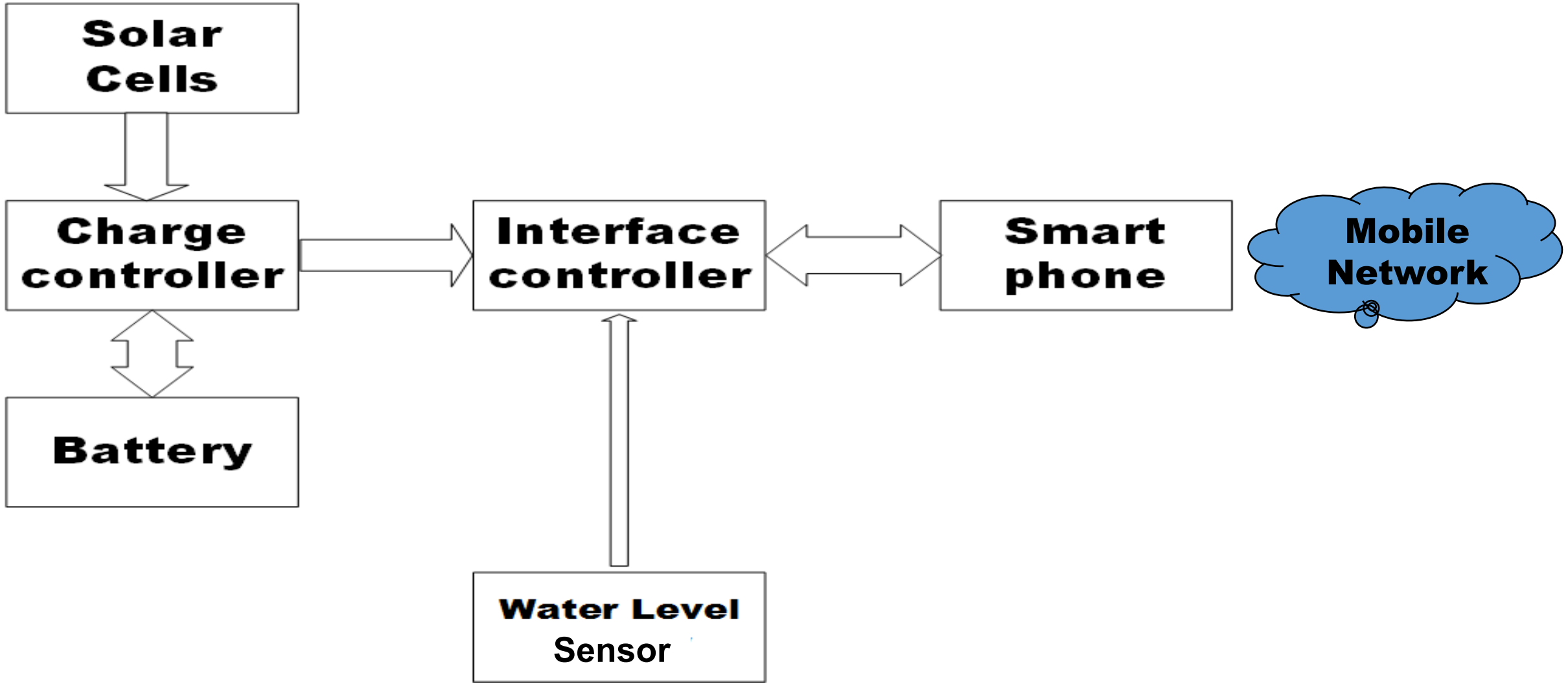
Solar Panel

Battery

PHP

Reduced cost compared to the standard type of web camera

Simple Web Camera circuit diagram



Rizal Province

Laguna Province

MARKETING OF THE PROJECT; MEMORANDUM OF UNDERSTANDING WITH THE LOCAL GOVERNMENT

Installation of monitoring equipment

Typhoon Glenda, 16 July 2014

Image of Angono River at 9:05 am

Image of Angono River at 2:05 pm

Intensive Rain in Calamba City, 24 December 2014

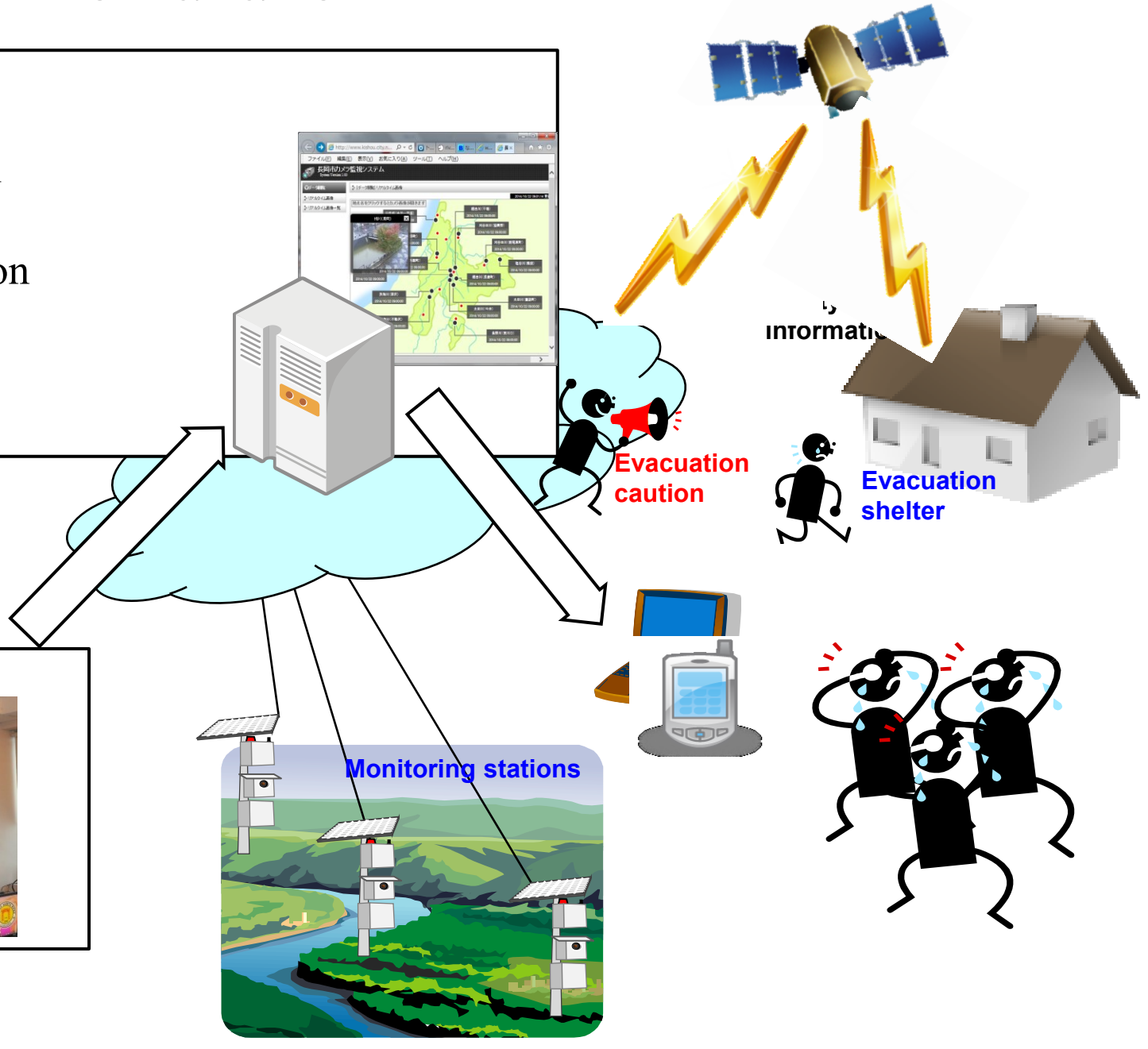
Image of San Juan River at 7:01 am

Image of San Juan River at 14:05 pm

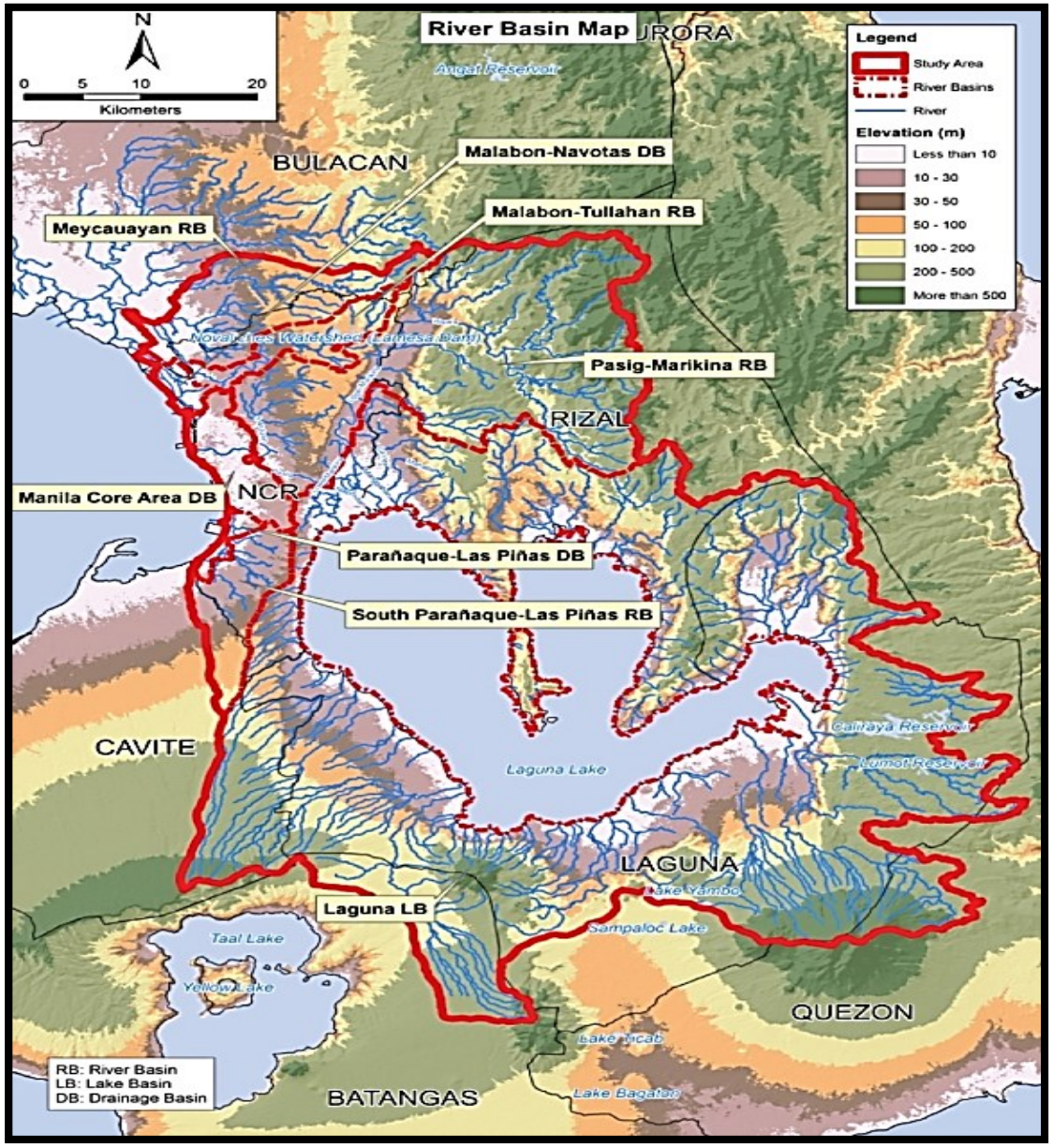
Landscape, Ideas for the future

Disaster Information Portal

- Integrate disaster related information
- Help the control center to manage the situation and the information
- Provide the communities with safety information



Disaster & Risk Control Center



The FACE Project is complementary to the Metro Manila Flood Management Master Plan* that establishes the road map for sustainable and effective Flood Risk Management in Metro Manila and Surrounding areas.

***Principal implementor is the Department of Public Works and Highways (DPWH)**

"Maraming Salamat Po!"
THANK YOU VERY MUCH!