



History of SAFE activities

Space
Application
For
Environment



JAXA EORC/SAPC

29th -30th September, 2012

The 9th AWCI International Coordination Meeting

Outline of SAFE initiative



1. Establishment

At the APRSAF-15th in 2008 in Hanoi, as the 4th initiative in the APRSAF

2. Purpose

To provide information for environment using satellite data.

3. Initiative Concepts by 3 Keywords;

a. Voluntary based initiative under the APRSAF

c. Encourage EO data applications

d. Responsible for environment (climate change mitigation or adaptation).



SAFE Terms of Reference (TOR)

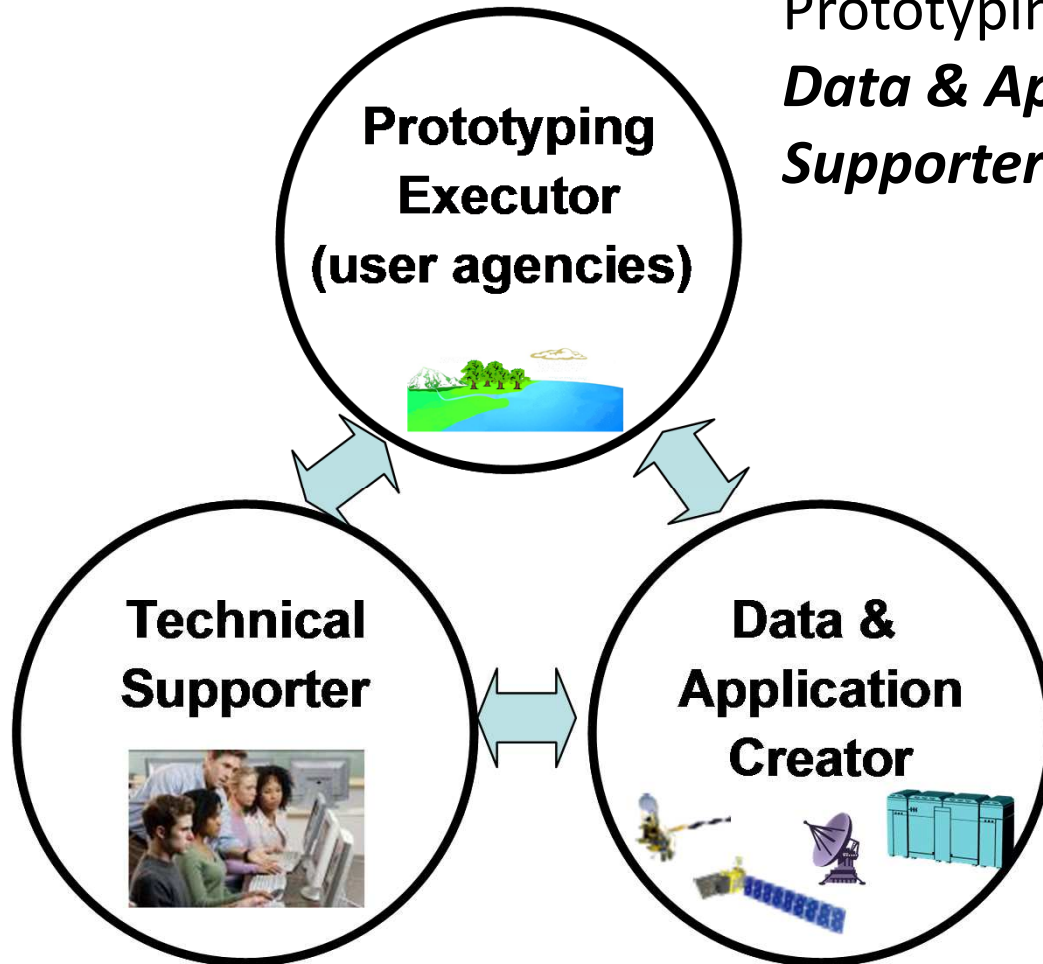


1. **two years** period.
2. Publish and promote **own result**
3. Participate and report own status and outcome to **SAFE workshop and APRSAF/EOWG.**
4. Put into **practice** in an appropriate **operational use (pilot project).**
5. **Hold stake holder meeting** before completion.
6. Seek other SAFE fraternity to support their activities and the members are expected to extend their kind support in resolving pertinent problems.

Formation on implementing



Prototyping formation is consisted of ***Data & Application Creators, Technical Supporters*** and ***Prototyping Executors***.



Public agencies for the environment that have the authority to carry out SAFE activities as official.

Educational agencies can support the prototyping executor regarding technical aspects

Space related agencies can create satellite datasets and/or analyzing tools to support environment monitoring.



Prototype Authorization Process



From Terms of Reference

1. Call for and **Applying** proposals

2. **Evaluation** by a review board

3. **Submitted** to the SAFE workshop **by the review board**

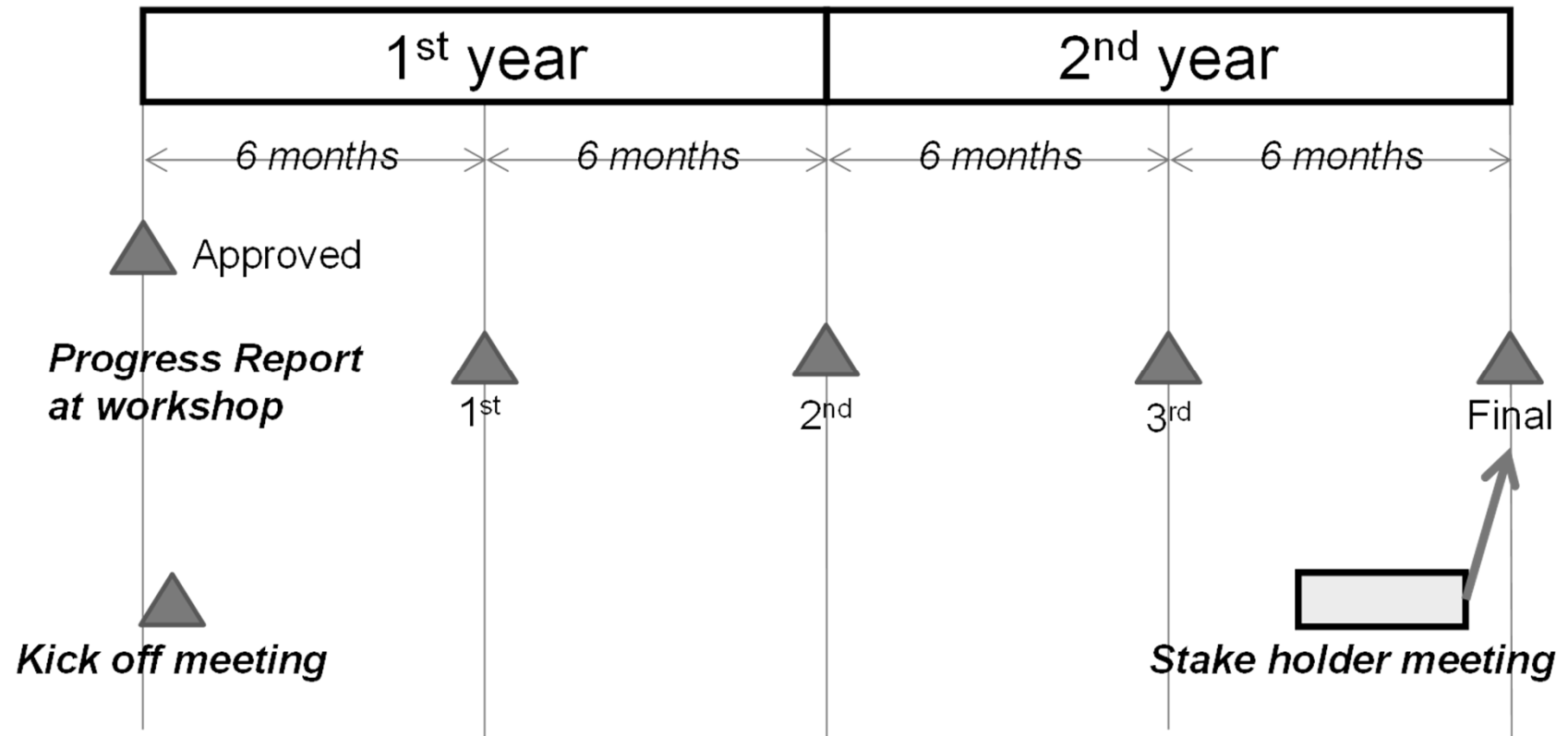
4. Reports the **decision taken** by SAFE workshop at APRSAF

5. New Prototype activity is **launched**





SAFE milestone of 2 years



SAFE Resource Bank



Technical Supporter

JAXA, Japan

AIT, Thailand

Univ. of Tokyo, Japan

Univ. of Kyoto, Japan

GISTDA, Thailand

CRISP, Singapore

CSIRO, Australia

LAPAN, Indonesia

FSF, Japan

Data & Application Creator

JAXA, Japan

AIT, Thailand

Univ. of Tokyo, Japan

Univ. of Kyoto, Japan

GISTDA, Thailand

CRISP, Singapore

CSIRO, Australia

RSC, Mongolia



SAFE WS in APRSAF-18 in Singapore



December 5th, 2011



- ✓ About 50 participants
- ✓ SAFE Term of Reference (TOR) revision was agreed
- ✓ 1 proposal was newly approved and 2 proposals were requested to revise



SAFE Prototyping Status



Status	Country Executor	Theme	APPROVED	COMPLETION
Success Story	VIETNAM / NHMS,MONRE	Integrated water resource management	May,2008	2ndWS
	VIETNAM / FIPI,MARD	Forest monitoring	May,2008	2 nd WS
	CAMBODIA / MOWRAM	Water Cycle and Agricultural Activities	May,2009 @1st WS	3rdWS
	LAO PDR / WREA,WERI	Forest monitoring and management	May,2009 @1st WS	3rdWS
Com-pleting	INDONESIA / LAPAN	Potential Drought Monitoring	Jan,2010 @APRSAF16	APRSAF18
	SRI LANKA / CCD	Risk of Sea Level Rise on Coastal Zone	Jan,2010 @APRSAF16	APRSAF18
On-Going	PAKISTAN / PMD	Monitoring Water Cycle Variations & Assessing Climate Change Impacts	Jun,2010 @2 nd WS	(Jun,2012)
	SRI LANKA / NARA	NARA Modeling ocean frontal zones using high resolution satellite and float data to locate tune fish aggregations	Jun,2010 @2nd WS	(Jun,2012)
	THAILAND / DOF	Economic Fish Larvae Mapping and Monitoring	Nov,2010 @APRSAF17	(Dec,2012)
	VIETNAM / FIPI,MARD	Mangrove Forest Mapping and Carbon Stock Estimation	Nov,2010 @APRSAF17	(Dec,2012)
	SRI LANKA / GI,CEA	Mapping and Detecting Wetlands in River Basin	Nov,2010 @APRSAF17	(Dec,2013)
	INDONESIA / ICALRD, IAARD, MOA	Assessment of drought impact on rice production in Indonesia by satellite remote sensing and dissemination with web-GIS	May,2012 @SAFE4th WS	
	CAMBODIA / MOWRAM	Water and Flood Security under the Climate Change	May,2012 @SAFE4th WS	
	BANGLADESH / LGED	Investigation of sedimentation process and stability of the area around the cross-dams in Meghna estuary	May,2012 @SAFE4th WS	

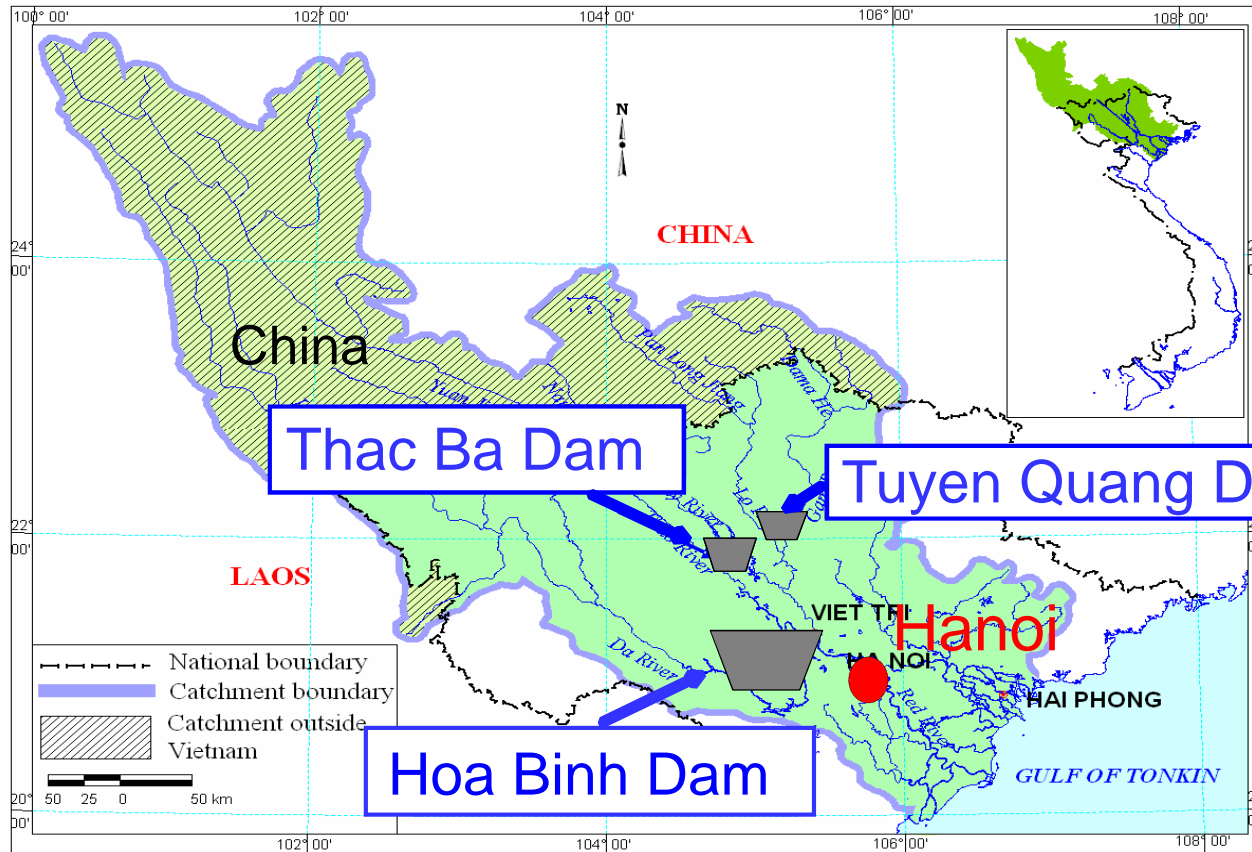


As of May 2012



Case 1: Vietnamese's Prototyping

Project Name	Toward Optimized Integrated Water Resources Management in the Hong River Basin in Vietnam
Period	May 2008 – June 2010
Prototyping Executor	Vietnamese National Hydro-Meteorological Service, Ministry of Natural Resources and Environment (NHMS/MONRE)
Technical Supporter	University of Tokyo
Data & Application Provider	Japan Aerospace Exploration Agency (JAXA)
Objective	Strengthen precipitation monitoring and reservoir management at Hong River by using satellite data and model calculation



Hong River Basin and 3 multi-purpose dams in the basin

Flood disaster in Hanoi

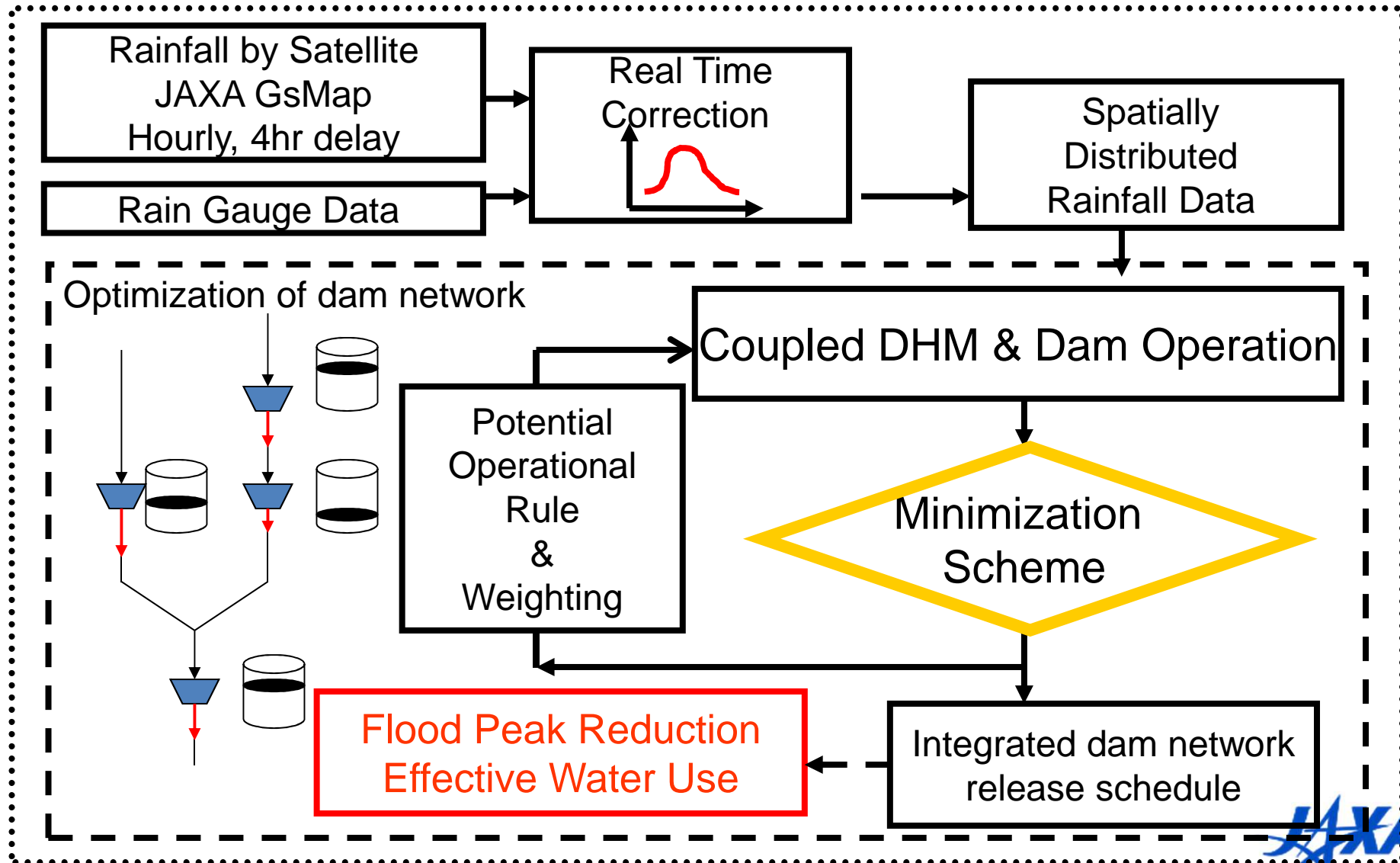
- Faces frequent tropical cyclones in the rainy season
- many historical flood events with huge damages are recorded
- Death toll: around 100psn/year
- Economic loss: \$1.2 billion (2006)

Increasing demand for hydropower generation

- Increasing by **15%** in each year (due to economic growth & urbanization)
- Hydropower: **60%** of total electricity
- **Unstable water supply** (70% of annual rainfall accumulates in Jul-Sep)



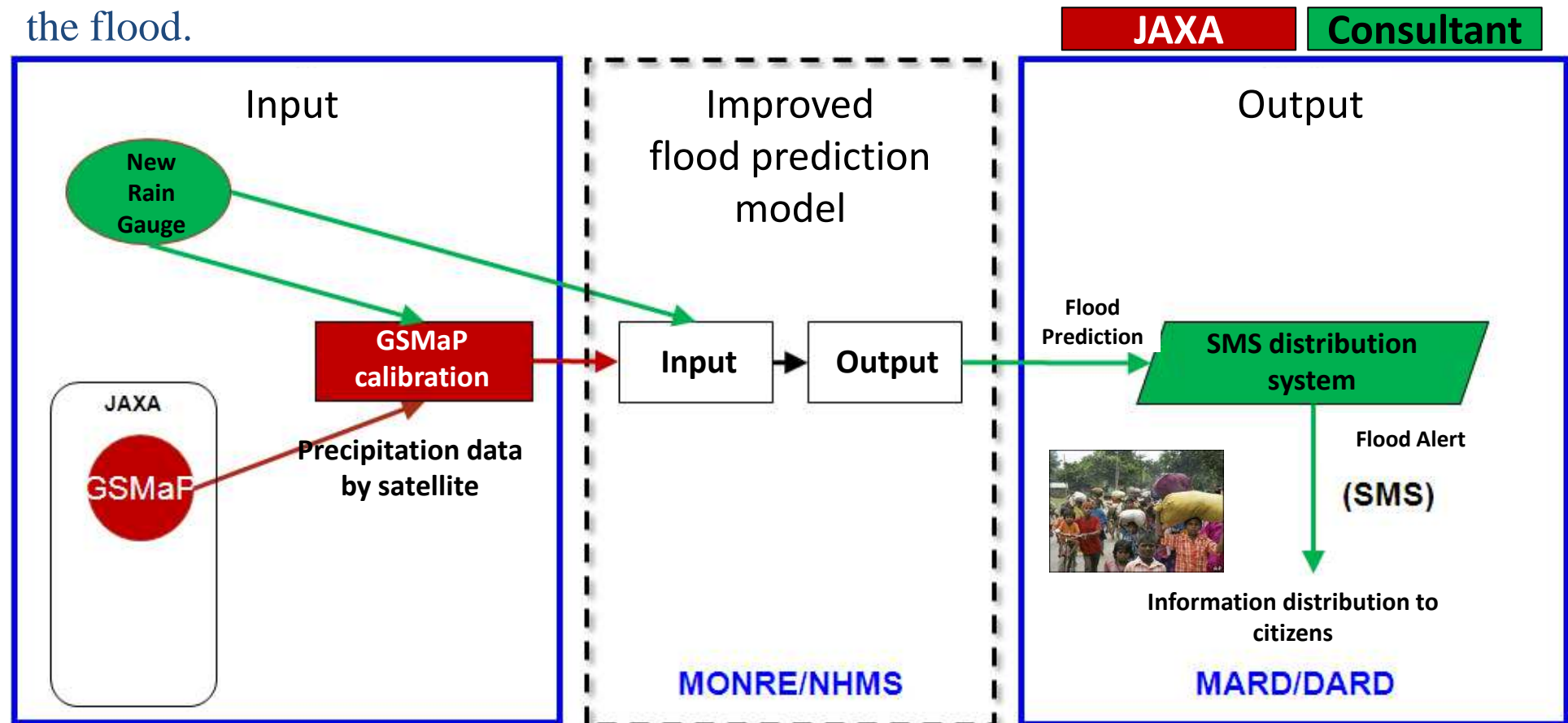
Methodology





The system for optimization operation of dams developed by SAFE is going to be adapted into technological assistance project of the Asian Development Bank (ADB).

It is necessary to grasp a water level of the river and a water quantity of dams with the optimization dam operation, and those information is used for evaluation of the outbreak possibility of the flood.



SAFE Achievement

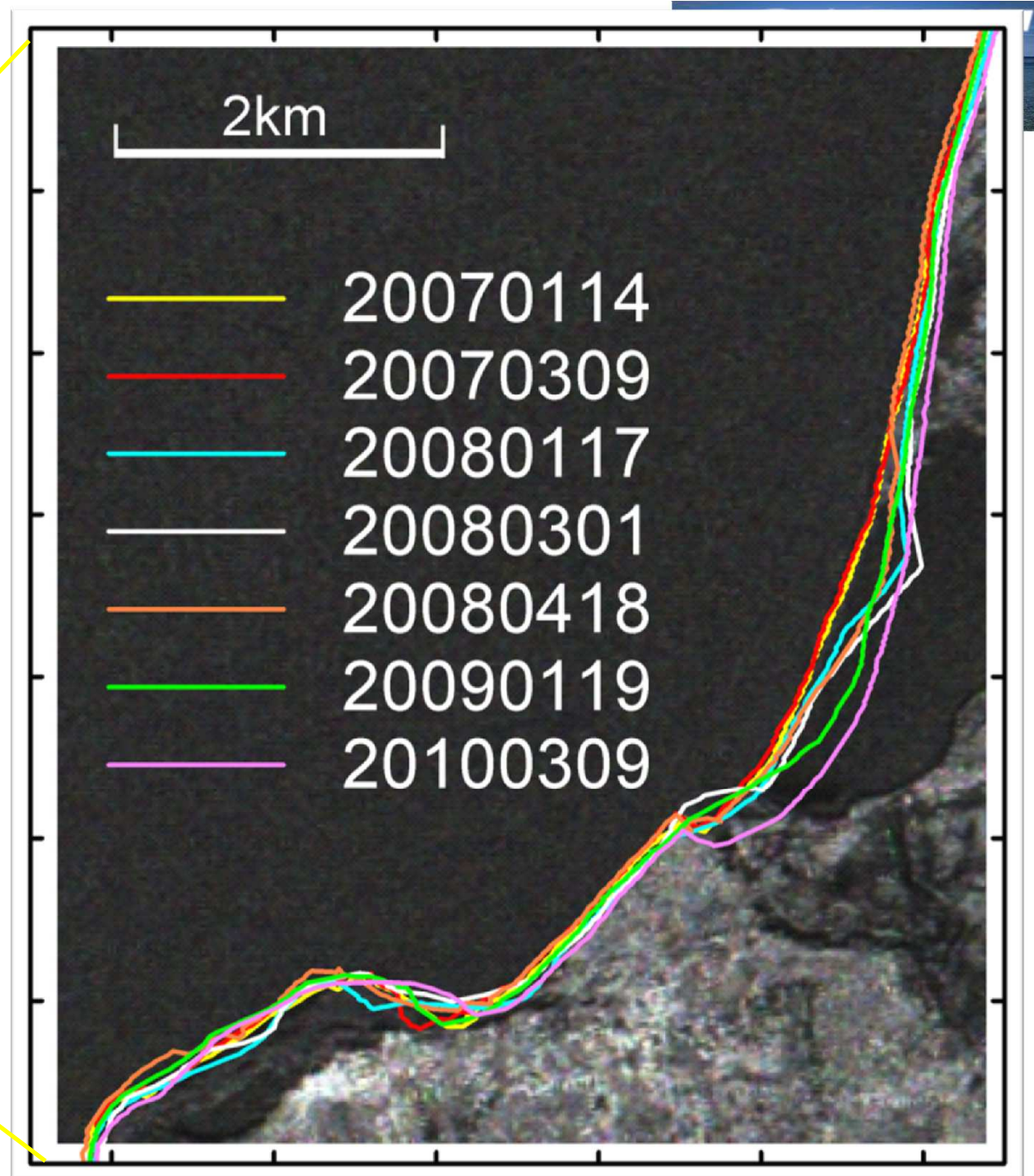
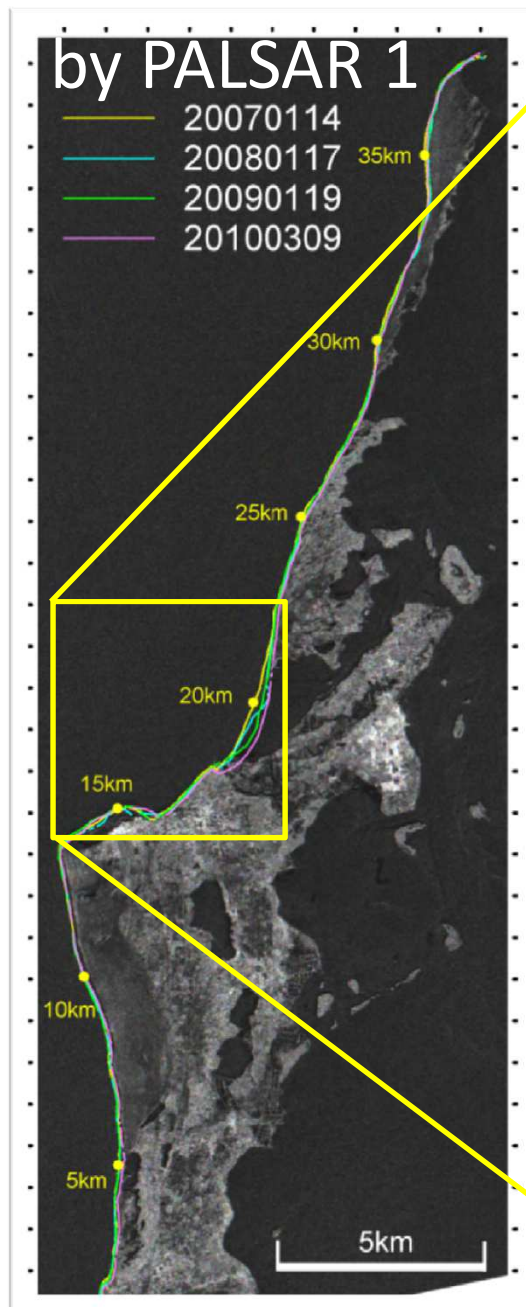




Case 2 : Sri Lanka's Prototyping

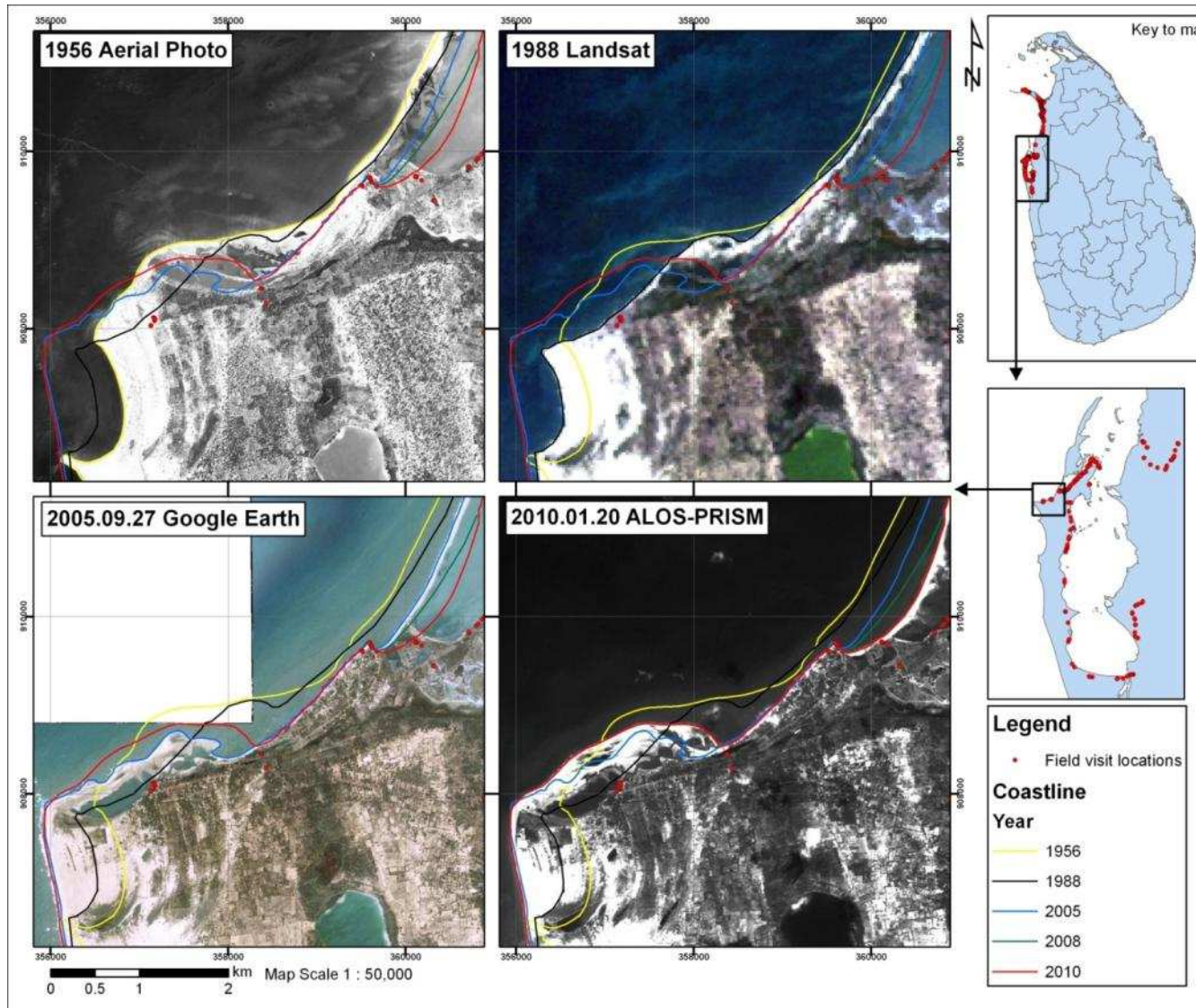
Project Name	Risk of Sea Level Rise on Coastal Zone Assessment of Reliability of Fairly Accessible Data & Tools for Analyzing Impacts of Climate Change and Analysis of Risk of Sea Level Rise on Coastal Zone, Sri Lanka
Period	Jan 2010– Dec 2011
Prototyping Executor	Coast Conservation Department (CCD), Sri Lanka
Technical Supporter	Coastal Engineering Laboratory, The University of Tokyo, Japan GeoInformatic Center, Asian Institute of Technology, Thailand
Data & Application Provider	Japan Aerospace Exploration Agency (JAXA)
Objective	Development of “Coastal Monitoring System” for near-shore environments based on Satellite data for the West coast of Sri Lanka

Shoreline Extraction





Shoreline changes - Kalpitiya



By prototyping achievement, the erosion situation became to be shown in visible (visualization) for the person concerned of the local work-site organization.



The Stakeholder meeting in CCD, Sri Lanka



- ✓ The stakeholder meeting was held on Aug 24th, 2011, and several people, who are officials in administration and vice-president in public corporation, attended. They are concerned with developing the Kalipita area in the west coast in Sri Lanka.
- ✓ Based on the objective information by the result of SAFE activity, the committee to consider developing the area was decided to organize as the governmental policy. And to start discussion statute for was reported in the stakeholder meeting.





The other achievement of SAFE

- **In Vietnam; forest monitoring**, the database using MODIS data was built, and training for using it has been completed on June 2010, and the stakeholder meeting was held in November 2010.
- **In Cambodia; Water Cycle and Agricultural Activities**, the understanding of mechanisms behind the unique post-monsoon water cycle in the western Cambodia has been cleared, and the numerical prediction model for the influence that meteorological mechanism gives to neighboring environment from the view of water resource management and agricultural productivity using satellite data has been developed.
- **In Laos; forest monitoring**, the forest monitoring database using ALOS and MODIS data has been built and carried out the training for operation. The stakeholder meeting was held on September 12-13, 2011, and the cooperation with the agriculture organization in Laos is advancing.
- **In Indonesia; Potential Drought Monitoring**, the research of prediction by using satellite data is promoted by LAPAN, and the cooperation with Ministry of Agriculture is advancing to use the result.





Thank you

