



# **AWCI Capacity Building**

**September 9, 2007**

**Japan Aerospace Exploration Agency  
Chu Ishida**



# International Workshop on Capacity Building in Asia “Earth Observations in the service of Water Management”

September 26-28, 2006, Bangkok

Co-hosted by GEO, IGWCO, JAXA, Univ. of Tokyo, AIT, UNU, WMO, WCRP, UNESCAP, ICHARM

The 1st Asian Water Resource Management Capacity Building Workshop was held on Sep 26-28, 2006 in Bangkok, Thailand.

The objectives of the workshop were:

- Exchange of information on best practices
- Review regional requirements for capacity building
- Discuss WRM capacity building program

Total 121 policy makers, experts and researchers from 22 countries attended.





# Asian Water Resource Management Capacity Building Workshop

## Outcomes

### *Day 1 Workshop for policy makers*

- Increasing frequency and severity of floods, droughts and water quality problems were reported in many countries
- National capacities for IWRM, modeling, forecasting and application of satellite data were found rapidly emerging in the region
- Local issues and requirements for Earth observations and capacity building in each country were identified.
- International organizations (WMO, UNESCO, UNESCAP, ICHARM, ITC), space agencies (GISTDA, JAXA), universities (UNU, AIT) are conducting education and training programs.



# Asian Water Resource Management Capacity Building Workshop

## Outcomes

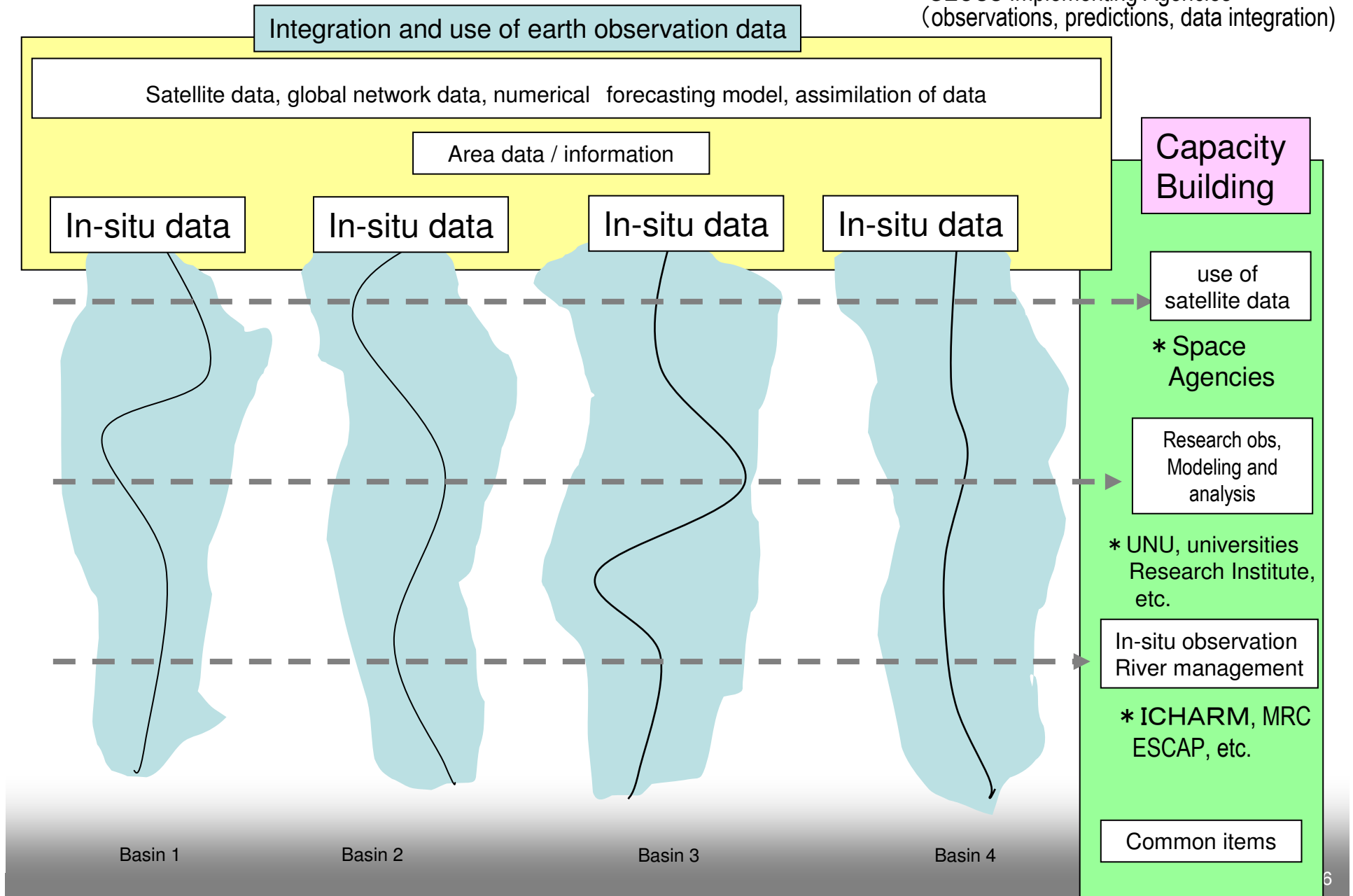
### *Day 2-3 Workshop for WRM managers*

- International research programs (MAHASRI, PUB, JEPP, CliC, CEOP, MAIRS) provides opportunities for cooperation and participation in Earth observations and access to data.
- 3 WGs (Flood, Drought and Water Quality) recommended **initiation of demonstration projects** based on regional needs.
- Water quality WG reported arsenic contamination of drinking water in Bangladesh and serious needs for alternative water resources. It proposed a specific GEO task on water quality monitoring.
- Needs for regular workshops to address capacity building were recognized.

# GEOSS/Asian Water Cycle Initiative

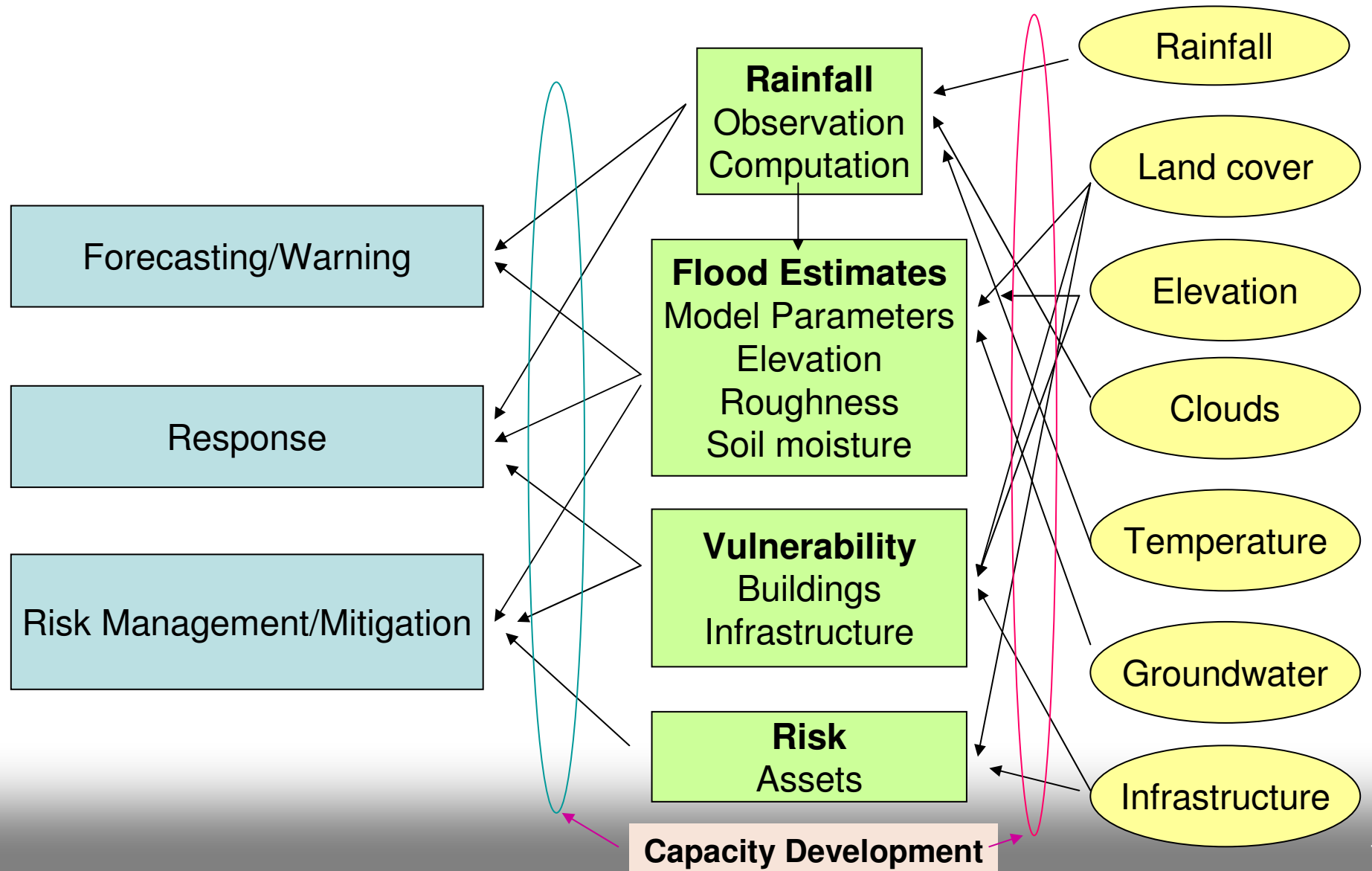
[integration of earth observation data] + [capacity development] programme

\* GEOSS Implementing Agencies  
(observations, predictions, data integration)





# Use of Satellite information in Flood Risk Management Demonstration Programs





# GEOSS AP Symposium

- GEOSS Symposium on Integrated Observation for Sustainable Development in the Asia-Pacific Region was held in Tokyo, Jan 11-12, 2007 in order to review GEOSS implementation in this region.
- One of the technical sessions is “Climate change and the water cycle” and addressed AWCI capacity building program.
- In the session, **capacity building needs and proposals** were presented by national representatives, while **existing capacity building activities** were reported by participating organizations and research programs.







# GEOSS AP Symposium

The participants agreed that the followings are necessary;

- Identify needs and resources
  - Prioritize and categorize
- Identify communication/implementation mechanism
  - Synchronize with Demonstration Projects
- Next steps



# Capacity Building needs and proposals

Country	Areas			Capacity Building needs	Capacity Building proposals
	Flood	Drought	WQ		
Bangladesh	X		X	RS data, On-site monitoring sys, Software, Training, Info dissemination sys	
Bhutan	X			Flood Forecasting and Early Warning Systems at regional, national and local levels	
Cambodia	X	X	X	Training and skill development on Flood forecasting and warning	
China	X	X	X	Flood and drought forecasting	
Indonesia	X	X			Flood and drought risk map generation
Lao PDR	X			Training (DB management, GIS, watershed management, etc)	Strengthen data collection for flooding in Sebangfai River
Mongolia		X		Data quality check, data sharing, new models	
Myanmar	X			Technology transfer for flash flood forecasting, high spatial satellite RS data	Flash flood forecasting in Shwegyin Basin
Philippines	X			Training on use radar and satellite images in rainfall estimation and forecasting Access to output of GCMs Integration of in-situ and satellite data in flood and drought monitoring Flood hazard mapping Climate change scenario building	Pampganga river basin
Sri Lanka				CB for policy makers, professionals and implementation officers, technical support staff, end users of water resources	
Thailand	X	X		Data assimilation Climatic model for long range forecast Radar interpretation Meteorological early warning system	
Vietnam	X	X	X	Technical transfer of forecasting models and methods Transform satellite data into information Training of GIS and mapping	Proposal of demonstration projects -Flood forecasting: Huong river basin -Water quality: Huong river basin -Drought forecasting: Sough-Central region

# Capacity Building Resources in Asia Pacific

Capacity Building Provisions

January 12, 2007

Program	Policy Maker/Administrator		Experts/Practitioner		Scientists/Researchers		Remarks
	Data to Info	Info to Appli	Data to Info	Info to Appli	Data to Info	Info to Appli	
CEOP	Data/Product access		Data/Product access		Data/Product access		
					Q/C		
			Workshop		Workshop		
GWSP					Training&research workshop for young scientist		
					Devlop new university curricula		
		Web-based teaching packages	Web-based teaching packages		Web-based teaching packages		
UNU			Tools -flood inundation modeling -flood loss estimation -rainfall downscaling and forecasting		Tools -flood inundation modeling -flood loss estimation -rainfall downscaling and forecasting		
			Training program		Training program		
ICHARM	Global Flood Alart System(GFAS)		GFAS		GFAS		
			Integrated Flood Analysis System (IFAS)		IFAS		
			Training coures -Flood hazard mapping -River and dam engeering		Training coures -Flood hazard mapping -River and dam engeering		
			Aftercare program		Aftercare program		
					Master course on flood mitigation		
MRC	Intgrated Capacity Building Program -Training in project management -Training in Information Management and Communication -Training in Environmental Program -Junior Riparian Professional Program -Strengthening Core Activities of MRC -Research Coordination -Gender Mainstreaming		Regional/national trainings/workshops -River basin planning -Watershed managment -Project management -Water quality analysis -Flood hazard mapping -Flodd emergency management -Mediation of trans-boundary conflict issues -Mathematical Modelling -Satellite rainfall estimation		Regional/national trainings/workshops -River basin planning -Watershed managment -Project management -Water quality analysis -Flood hazard mapping -Flodd emergency management -Mediation of trans boundary conflict issues -Mathematical Modelling -Satellite rainfall estimation		
	Flood and Drought Management system		Flood and Drought Management system		Flood and Drought Management system		
China	Training		Training		Training		
Heihe RiverBasin			Data&Product access		Data/Product access		
JACCO							
PUB					WG and Projects		
JAXA/AIT			Mini-projects		Mini-projects		
JAXA/AIT	Caravan training		Caravan training		Caravan training		
JAXA			ALOS Pilot Project		ALOS Pilot Project		Thailand, Indonesia
	Sentinel Asia		Sentinel Asia		Sentinel Asia		
MAIRS			Enhanced observation		Enhanced observation		
			Regional model develo		Regional model develo		

# Capacity Building Needs vs. Resources Matrix

Asia Water Resource Management Capacity Building Matrix

		Bangladesh				Bhutan	Cambodia	China	Indonesia	Lao PDR	Mongolia	Myanmar	Phillippines				Sri Lanka	Thailand			Vietnam				
		RS date	On-site monitoring	Software	Training	Information dissemination sys	Flood forecasting and EWS	Flood forecasting and warning	Flood and drought forecasting	Flood and drought risk map	Flood	Drought	Flash flood forecast	radar and sat data use trainin	Access to GCM output	in-situ and sat data integratio	Flood hazard map	Climate change scenario	Capacity building	Data assimilation	Climate model for long range forecast	Radar interpretation	Meteorological EWS	Flood forecasting	Water quality
CEOP	data integration service	2	2	0	0	0	2	2	2	2	2	2	0	2	2	0	0	0	2	0	0	0	2	1	1
	QC service	2	2	0	0	0	2	2	2	2	2	2	0	2	2	0	0	0	2	0	0	0	2	1	1
GWSP	Global DB(Digital Atlas, Dam)	1	0	0	0	0	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0
	training & research workshop	0	0	0	1	0	1	1	1	1	1	1	0	0	1	1	0	1	0	1	0	0	1	1	1
	University curricula	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Web-based teaching package	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
UNU	flood inundation modelling	0	0	1	1	0	2	2	2	2	2	1	2	0	0	0	2	0	1	0	0	0	2	0	1
	loss estimation	0	0	0	1	0	1	1	1	1	1	1	1	0	0	0	1	0	1	0	0	0	1	0	1
	rainfall downscaling and forecast	0	0	0	1	0	2	2	2	2	2	1	2	0	0	0	2	0	1	0	0	0	2	0	1
ICHARM	Global Flood Alert System	2	0	0	0	0	2	2	2	2	0	2	0	0	0	2	0	0	0	0	0	0	2	0	0
	flood hazard map training	0	0	0	2	0	1	1	1	1	0	1	0	0	0	1	0	2	0	0	0	0	1	0	0
	river and dam engineering training	0	0	0	2	0	1	1	1	1	0	1	0	0	0	1	0	2	0	0	0	0	1	0	0
	Master course on flood mitigation	0	0	0	2	0	1	1	1	1	0	1	0	0	0	1	0	2	0	0	0	0	1	0	0
MRC	river basin management training	0	0	0	2	0	1	1	1	1	0	1	0	0	0	1	0	2	0	0	0	0	1	1	0
	water quality analysis training	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0
	flood hazard mapping training	0	0	0	2	0	2	2	2	2	0	2	0	0	0	2	0	2	0	0	0	0	2	0	0
	flood emergency management training	0	0	0	2	0	2	2	2	2	0	2	0	0	0	2	0	2	0	0	0	0	2	0	0
	mathematical modelling training	0	0	0	2	0	1	1	1	1	0	1	0	0	0	1	0	2	0	0	0	0	1	0	1
	satellite rain estimation training	0	0	0	2	0	1	1	1	1	0	1	0	0	0	1	0	2	0	0	0	0	1	0	1
China	flood and drought management system	0	0	0	0	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	1	0	1
	training	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
	data&product access	1	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
PUB	WGs and projects	0	0	0	1	0	1	1	1	1	1	1	0	0	0	1	0	1	1	1	0	0	1	0	0
JAXA/AIT	Mini-projects	2	2	1	2	0	2	2	2	2	1	2	0	0	2	2	0	2	0	0	0	0	2	0	0
	Sentinel Asia	1	0	0	2	2	2	2	2	2	0	2	0	0	2	2	0	2	0	0	0	0	2	0	0
MAIRS	Enhanced observation	1	1	0	1	1	1	1	1	1	1	1	0	0	1	1	0	1	0	0	0	0	1	0	0
	regional model development	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1

Legend:  
 3: being applied  
 2: applicable  
 1: potentially applicable



## Next step for AWCI Capacity Building

- Implementation Plans for each river basin data integration and common capacity building programs for flood, drought and water quality are being developed.
- Implementation Plans will be prepared by the Asia Pacific Water Forum to be held in Oita, Japan, December 2007.
- Implementation will start from 2008.