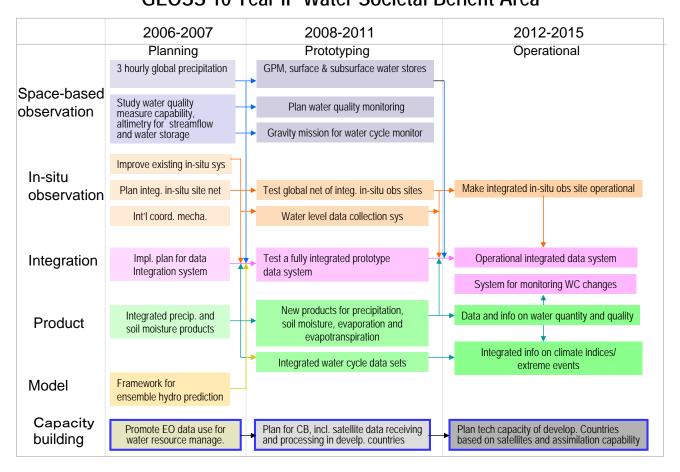


AWCI Capacity Building

December 2, 2007

Japan Aerospace Exploration Agency Chu Ishida

GEOSS 10 Year IP Water Societal Benefit Area



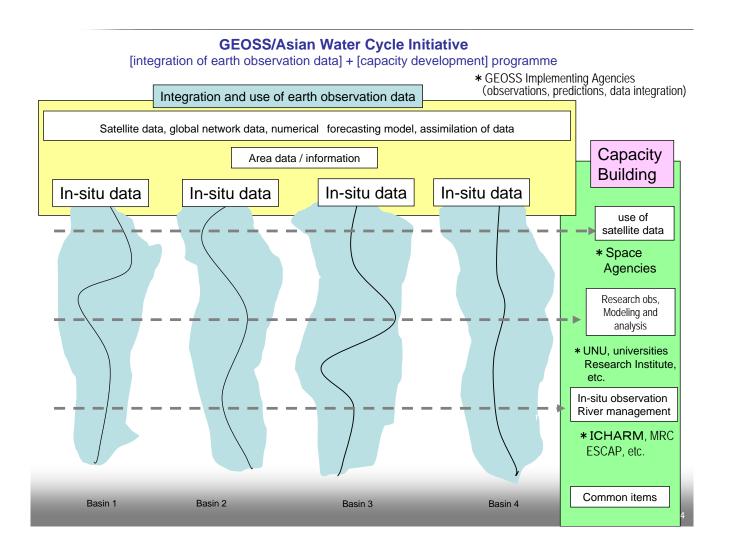


WA-06-06: Workshops for Water Resource Management (completed)

Promote best practices in Earth observation application for integrated water resource management in developing countries by supporting a series of workshops in South America, Asia, Africa, and a Small Island nation.

WA-06-07: Capacity Building Program for Water Resource (ongoing)

Initiate capacity building programs to develop tools for using Earth observations in support of water management, and to show the value of Earth observations generally in water resource management. The program will be initiated in Latin America and will then be extended to Asia and Africa.







AWCI/ICG meeting

Bali, Sep 30, 2007

- International Coordination Group (ICG)
 discussed a draft AWCI Implementation Plan
 and agreed on the content and schedule.
- Each country presented a demonstration project idea for AWCI and capacity building requirements.
- Two page template for a demonstration river basin were requested as basis of individual basin IP.
 - 1) Background, targeted issues and objectives
 - 2) River basin characteristics
 - 3) Observation system
 - 4) Models, GIS, data availability
 - 5) Schedule

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AWCI Implementation Plan as discussed in Bali ICG, Sep 2007

- 1. Objectives
- 2. Convergence of Observation

Data Integration and Analysis

Modeling and Prediction

Data Policy and Information Sharing

3 Capacity Building

General Approach (each WG Priority Area)

Targets & Needs

Resources & Opportunities

Gap Analysis

Proposed Capacity Building Programs

4 Country Activities

Demonstration River Basin

- (1) Background, Targeted Issues and Objectives
- (2) River Basin Characteristics
- (3) Observation Systems and Data
- (4) Models, GIS, Data Integration, Prediction Systems
- (5) Schedule
- 5. Organization and Management
- 6. Schedule



Follow-up activities, proposals

- Prof. Herath/UNU, kindly developed the Capacity Building Frame Work for AWCI
- He also developed Flood WG demonstration project structure.
 - Real time flood forecasting
 - Flood scenario development
- Four proposals to the APN 2007 Annual Regional Call for Proposals (ARCP) were developed.
- Questionare on capacity development priority was prepared by Prof. Herath.

7





Capacity Building needs and proposals

a		Areas		Capacity Building needs	Capacity Building proposals
Country	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 spaptial 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

			Oapaoity Ballo				Garidary 12,				
Program		Administrator		racticionar	Scientists/F		Remarks				
Trogram	Data to Info	Info to Appli	Data to Info	Info to Appli	Data to Info	Info to Appli	rtemants				
	Data/Product access		Data/Product access		Data/Product access						
CEOP					Q/C						
			Work	shop	Work	shop					
					Training& workshop for y						
GWSP					Devlop new curri						
		Web-based teaching	Web-base	d teaching	Web-base	d teaching					
		packages		ages	pack	ages					
UNU			-flood inunda -flood loss	ols tion modeling estimation ng and forecasting	To -flood inunda -flood loss -rainfall downscalii						
			Training	program	Training	nmoram					
	Global Flood Ala	rt System(GFAS)	GF	AS	GF.						
	GIODAI I IOOG 7 IIG	l coyotenikar7107	Integrated Flood Ana		IF/						
			Training		Training						
			-Flood haza		-Flood haza						
ICHARM											
				am engeering	-River and da						
			Aftercare	program	Aftercare						
					Master						
					on flood r						
			Regional/national t	rainings/workshops	Regional/national to	rainings/workshops					
	Intgrated Capacity	/ Building Program	-River bas	in planning	-River bas	in planning					
	-Training in proi	ect management	-Watershed	managment	-Watershed	managment					
		ion Management and	-Project m	anagement	-Project m						
		nication		lity analysis	-Water qual						
MRC		onmental Program		ard mapping	-Flood haza						
WINO		ofessional Program		cy management	-Flodd emergen						
		e Activities of MRC		s-boundary conflict	-Mediatio						
		Coordination	issi		-boundary co						
	-Gender Ma	ainstreaming	-Mathemation -Satellite rain		-Mathematic						
	Fland and Duam	ght Management	l	ght Management	Flood and Droug						
China			1								
Unina		tem ining	sys	ning	sys'		-				
" D' D '	Ira	ning		ning	Trai	ning					
ihe RiverBasin			Data∏ access		Data/Product access						
JACCO					INC.						
PUB				L .		WG and Projects					
JAXA/AIT			Mini-p		Mini-pi						
JAXA/AIT	Caravar	training		ı training	Caravan						
JAXA			ALOS Pile		ALOS Pilo		Thailand, Indone				
3000	Sentin	el Asia	Sentin	el Asia	Sentine	el Asia					
MAIRS			nhanced observations		nhanced observations						
MAIKS			Regional model develo		Regional model develo		1				

Capacity Building Needs vs. Resources Matrix

			Bai	nglad	lesh	1	Bhutan	Cambodi	China	Indonesia	Lao PDF		Mongolia		Myanmai		Phil	lipine	s	Sri Lank	á	Thaila	and	\Box
		RS date	On-site monitoring	Software	Training	Information dissemination sys	Flood forecasting and EWS	Flood forecasting and warnin	Flood and drought forecastin	Flood and drought risk map	Flood	Flood and drought forecastin	Remote sensing application	Drought	Flash flood forecast	radar and sat data use trainir	Access to GCM output	n-situ and sat data integrati	Flood hazard map	Canacity building	Data assimilation	Cliamte model for long range forecast	Radar interpretation	Meteorological EWS
CEOP	data integration service	2	2	0	0	0	2	2		2	2		2	2	2	0	2	2	0	0 (2	0	0	0
	QC service	2	2	0	0	0	2	2	2	2	2	2	2	2	2	0	2	2	0	0 (2	0	0	0
	Global DB(Digital Atalas, Dam)	1	0	0	0			1	1	1	1	1	1	1	1	0		0	1	0 (0		0	0
	training &research workshop	0	0	0	1	0	1	1	1	1	1	1	0	1	1	0	0	1	1	0	0	1	0	0
	University curricula	0	0			0		0		0	0			0	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	0	0	0	0	0	2	2
	flood inundation modelling	0	0		_1	0		2	2	2	2	2	0	1	2	0	0	0	_	0	0		0	2
	loss estimation	0	0			0		1	1	1	1	1	0	1	1	0	0	0		0	0		0	-1
$oxed{oxed}$	rainfall downscaling and forecast	0	0	0	- 1	0	2	2	2	2	2	2	0	1	2	0	0	0	2	0 1	2	2	2	-1
ICHARM	Global Flood Alert System	2	0	0	0	0	2	2	2	2	2	2	2	0	2	0	0	0	2	0 (0	0	0	1
	flood hazard map training	0	0			0		1	1	1	1	1	0	0	1	0	0	0	_	0 3	0			2
	river and dam engineering training	0	0	_		0			1		1	1	0	0	- 1	0	0	0		0 3	0			
	Master course on flood mitigation	0	0			0		1	1		1	1	0	0	1	0	0	0		0 2	0			1
	maded doubt on mode melgacion	Ť	Ť	Ť	_	Ť							Ť			Ť	Ů	Ť	_		Ť	Ť	Ť	_
MRC	river basin management training	0	0	0	2	0	- 1	1	- 1	1	- 1	- 1	0	0	- 1	0	0	0	1	0 3	0	0	0	-1
	water quality analysis training	0	0			0		0	Ö	0	0	Ö	Ö	0	Ö		0	0	Ö	0 2	0			0
	flood hazard mapping training	0	0	0	2	0	2	2	2	2	2	2	0	0	2	0	0	0		0 2	0	0	1	2
	flood emergency management training	0	0	0	2	0	2	2	2	2	2	2	0	0		0	0	0	2	0 2	0	0	0	0
	mathematical modelling training	0	0	0	2	0	1	1	1	1	1	1	0	0	1	0	0	0	1	0 2	0	2	0	0
	satellite rain estimation training	0	0	0	2	0	- 1	1	1	1	1	1	0	0	- 1	0	0	0	1	0 2	0	2	0	2
	ŭ																							_
China	flood and drought management syster	0	0	0	0	1	1	1	1	1	1	1	0	1	1	0	0	0	1	0 (0	0	0	2
	training	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 2	2 2	2	2	1
	data&product access	- 1	- 1	0	2	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0 2	2	1	0	2
PUB	WGs and projects	0	0	0	1	0	1	1	1	1	1	1	0	1	1	0	0	0	1	0	1	1	0	0
		_]		ш												_]		[Ų.				Щ	_]
JAXA/AIT	Mini-projects	2	2	- 1	2	0	2	2	2	2	2	2	2	1	2	0	0	2	_	0 2	0			2
$\vdash \vdash$	Sentinel Asia	- 1	0	0	2	2	2	2	2	2	2	2	- 1	0	2	0	0	2	2	0 2	0	0	0	0
MAIRS	Enhanced observation	- 1	- 4	0	-1	1	- 1		-	-1	- 1	- 1	- 1	- 1	- 1	0	0	-1	1	0	0	0	2	-
	regional model development	0	0			1	0	0	0	0	0	0	0	0	0	0	0	0	0	0 /	2	2	1	1
\vdash	regional model development	U	U	U	0		U	U	U	- 0	U	0	U	U	U	U	U	U	U	-	, 2		-	_
\vdash																		_					\vdash	-
							annli			olicable											_			





Summary of Capacity Building Resources Survey

		Data Service	asts, ale	erta			Research oppo	le le	urtificat	Post
Country/ Organizati on	Contac	- RS data	arge	Rainfall	Water Q	Others	Flood Drought Water Q	Internship e pr	Diplo	ma gradust e
Bhutan	Karma Chhopi Hydro-met Se Div.	- Grid data	sed s,	Daily -media -coutnry	As per requireme	_	Nater Q			$\exists \exists$
	Department of Ministry of Tra Industry	- Point data	1		-print media -country					
		-Other GIS data								
		Temporal data								\perp
Infraesia	Prof. Joesron	- Rainfall								
	Research Insit Water Resour	- River discharge								
Japan	Prof. Toshio K University of 1	- Extremes					Flood Drought Water Q			x x
	Chu Ishida JAXA	Training service (Flood, Drought, Water Q)	_	X TRMM conitunou		T	Water Q			+
		- Title of training		s& event- based global						
Lao PDR	Mr. Chanthach Amphaychit Mr. Khanmany	- Duration					Flood Drought Water Q		X X	#
	Khounphonh Lao national N Committee Prime Minister	- Operation mode							х	
Myarmar	U Tun Lwin Director Gene DMH	- Funding								
Pakistan	Shaukat Ali As Met. Dep.	Tools, models, manuals, methodologies (Flood, Drought, Water Q)	ephone	Rainfall -local						
		Forecast, alers								
Philipines	Flaviana Hilari PAGASA	- Flood	_	Local						+
Sri Lanka	Dr. S.B. Werak University of	-Extreme rain	_			_	I. Hydraulic nodelling			+
	Peradeniyas	- Discharge				ŀ	2.Hydorologic modelling		х	
Thailand	Thada Sukhapunnaph Hydrology and Management Co	- Rainfall								
Uzbekista	Mangement Co for Upper Not Region Myagkov S.V.	- Water Q	_	daily						+
		Research opportunity		regions, capital						
Nepal	Shiv Kumar Si Dep of irrigation	- Internship					I Irrigation system planning and	O pr	portunity is ovided to the offs to accuir	
	Naveen Manga Dep of Water I Disaster Previ	- Certificate					design Elmigation system management	0	ploma d Post gradu gree in rious univers	
UNU		- Diploma		Continuo us Web			Flood	X on X request	Nepal well as abro regular	Joint MENG
		- Post graduate		Web Regional Country			Drought Water Q	X on X request	regular	Joint M.Eng
		Other Environment S seals Regalar / Fall occurs on monatorial seals and seal								11





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Capacity Building Priority Responses

				Seminar									
Country	CB priority	Location	Topics	Participants	Duration	Researcher	Processional pu	Administrator	Human	entribu Enuding	Luip/data coin	Case sudy	Web-based learning
India												Rainfall downscaling and forecast	
												Data integration service	
Indonesia		Bandung	Flood forecasting	25	7 days	Х	Х	X	Х	X	Х	Flood forecasting	
Lao PDR	Flood and drought manag sys	Vientiene	Flood forecasting	10	2 weeks		х	Х				Flash flood forecast in Luangnamtha	
	Flood inundating modelling		Flood inundating modelling	10	2 weeks		Х	Χ			Х	Model result verification	
	Flood simulation		Rainfall downscaling and forecast	20-25	1 week	Х	Х		х	In kind		Rainfall downscaling and forecast	Rainfall downscaling and forecast
Philippines	Flood and drought manag sys	Manila	Flood and drought management system	20-25	2 weeks	Х	Х		Х	In kind		Flood and drought management system	Flood and drought management
	Rainfall downscale and forecas		Flood simulation	20-25	1 week	Х	Х		Χ	In kind	X]	Flood simulation	Flood simulation
Vietnum		Tokvo	Flood and Drought Management System Flood Inundation		10 days 10 days		X X					Flood and drought manage sys Rainfall	
vietnum		TORYO	Modeling: Rainfall Downscaling and Forecast		10 days		Х					downscaling and Flood inundation modeling	

Source: Responses to the CB priority questionaire, Nov 2007





Next steps for AWCI Capacity Building

- Draft AWCI Implementation Plan was developed with inputs from the country representatives.
- Review and revision should be made for finalization and adoption of the document.
- Implementation should start from 2008.
- GEOSS Asia Pacific Symposium (March 2008, Tokyo) should be an occasion to confirm readiness (or progress) of the implementation.