IGWCO COP Planning Meeting in Tokyo
GEOSS Asian Water Cycle Initiative (AWCI)

Summary Report including Updates of the Demonstration Projects

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11 Year History of GEOSS Water
5 Year History of GEOSS/AWCI

2000 – **Integrated Global Observing Strategy (IGOS) Water Theme** Proposal

2001 – Water Theme Approved

2002 –Team Report Writing Team

2003 – Preparation for "**Integrated Global Water Cycle Observation (IGWCO)**"

2004 – IGWCO Team Report → Preparation for 10-year Implementation Plan

2005 – 1st IGWCO in Tokyo

2006 – 2nd IGWCO in Paris

2007 – 3rd IGWCO in DC

2008 – 4th IGWCO in Geneva

2009 – 5th IGWCO in Kyoto

2010 – 6th IGWCO in New York

World Summit on Sustainable Development (WSSD)
Ad-hoc (GEO)

GEO/GEOSS Asian Water Cycle Initiative (AWCI)

1st GEOSS AP in Tokyo

2nd GEOSS AP in Tokyo

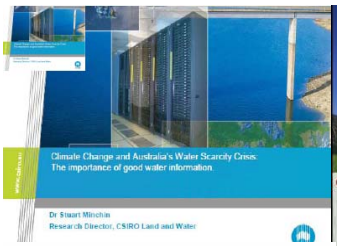
3rd GEOSS AP in Kyoto

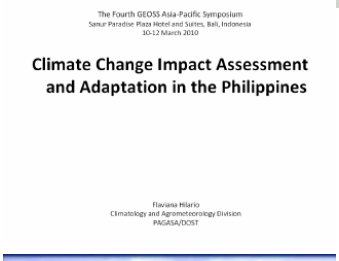
4th GEOSS AP in Bali

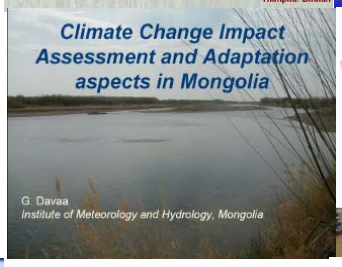
5th EO Summit in Beijing

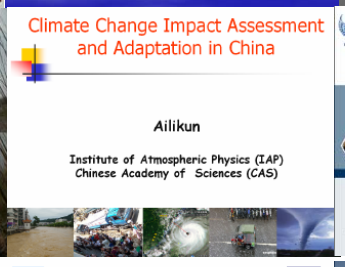
1st Sump. in Tokyo
1st TTM in Bangkok

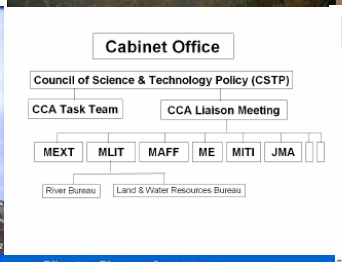
2nd Simp..in Tokyo
1st ICG in Bali
3rd Simp. in Beppu
2nd ICG in Tokyo
3rd ICG in Beijing
4th ICG in Kyoto
5th ICG in Tokyo
6th ICG in Bali
7th ICG in Tokyo

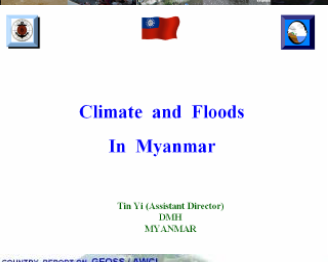


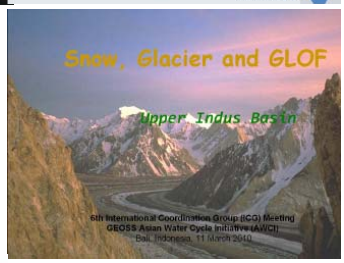


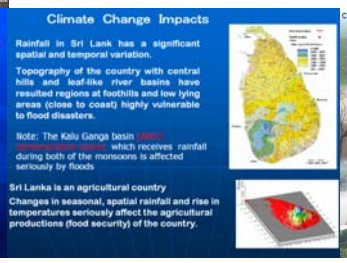












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Relationship between Climate Change and Urbanisation

Implications of urbanisation
- Cities are engines of growth
- High degree of economic dependence on cities
- Urban share of GDP in Asia 80%
- Changes in lifestyles, energy use and fuel consumption

→ **Implications for the climate**
- Changes have serious implications for climate change
- Cities contribute up to 80% of the global CO2 emissions

→ **Implications for cities**
- Health effects
- Implication for food production
- Coastal areas affected
- Infrastructure and economic impact

Therefore in order to fight climate change, it is important to study the role played by urban areas

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What is IPSD?

- Integrated Policy-Making for Sustainable Development (IPSD) is a process by which governments translate the objectives of sustainable development into policy actions in a given policy environment
- Three features of IPSD:
  - It aims at integrating three objectives of sustainable development: economic development, poverty reduction and environmental protection
  - It systematically places sustainable development in the whole policy process
  - It aligns policy actions for implementing sustainable development with critical components in policy environment ("strategic triangle" analysis)

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Achieving a common ground for science and policy

- Current tensions between the two worlds arise mainly due to different language, operational issues, and value systems.
- How does the scientific enterprise operate?
  - objectivity
  - repeatability
  - falsifiability
  - peer review
- Public (and policy makers') perception of science and technology vastly different from the way those enterprises operate
- How does the policy process work?
  - special interests
  - public interest
  - suboptimal results
- Scientists' impatience with the policy process and policymakers' tendency to wait till receiving scientific "certainty".
- Mechanisms for receiving impartial science and technology input for policy process is key for addressing many 21st century challenges.

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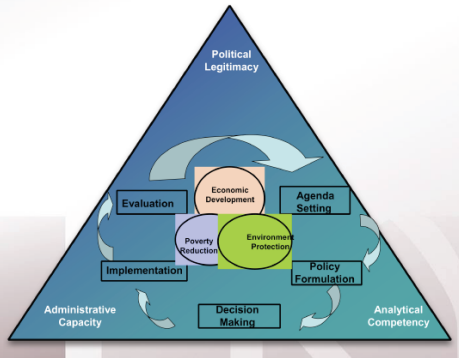
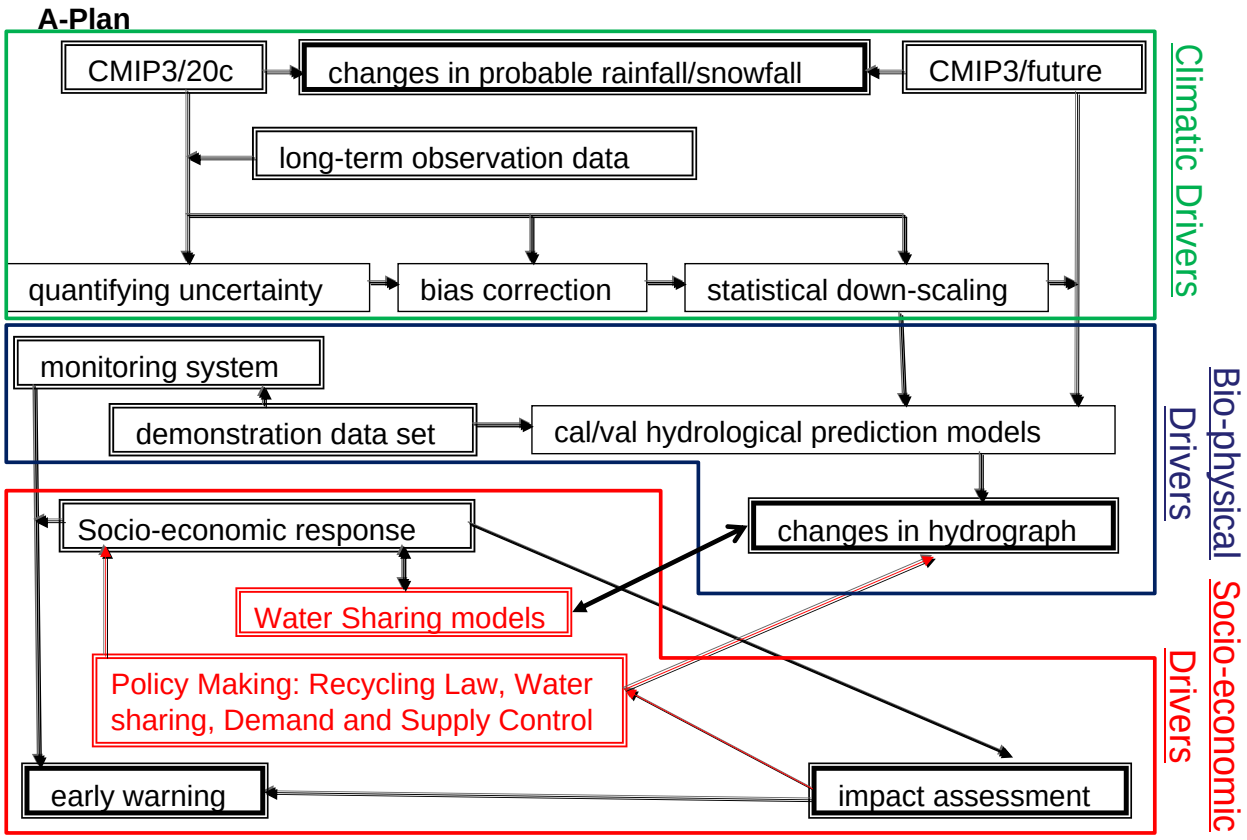
Integration of Policy Objectives, Policy Environment and Policy Process

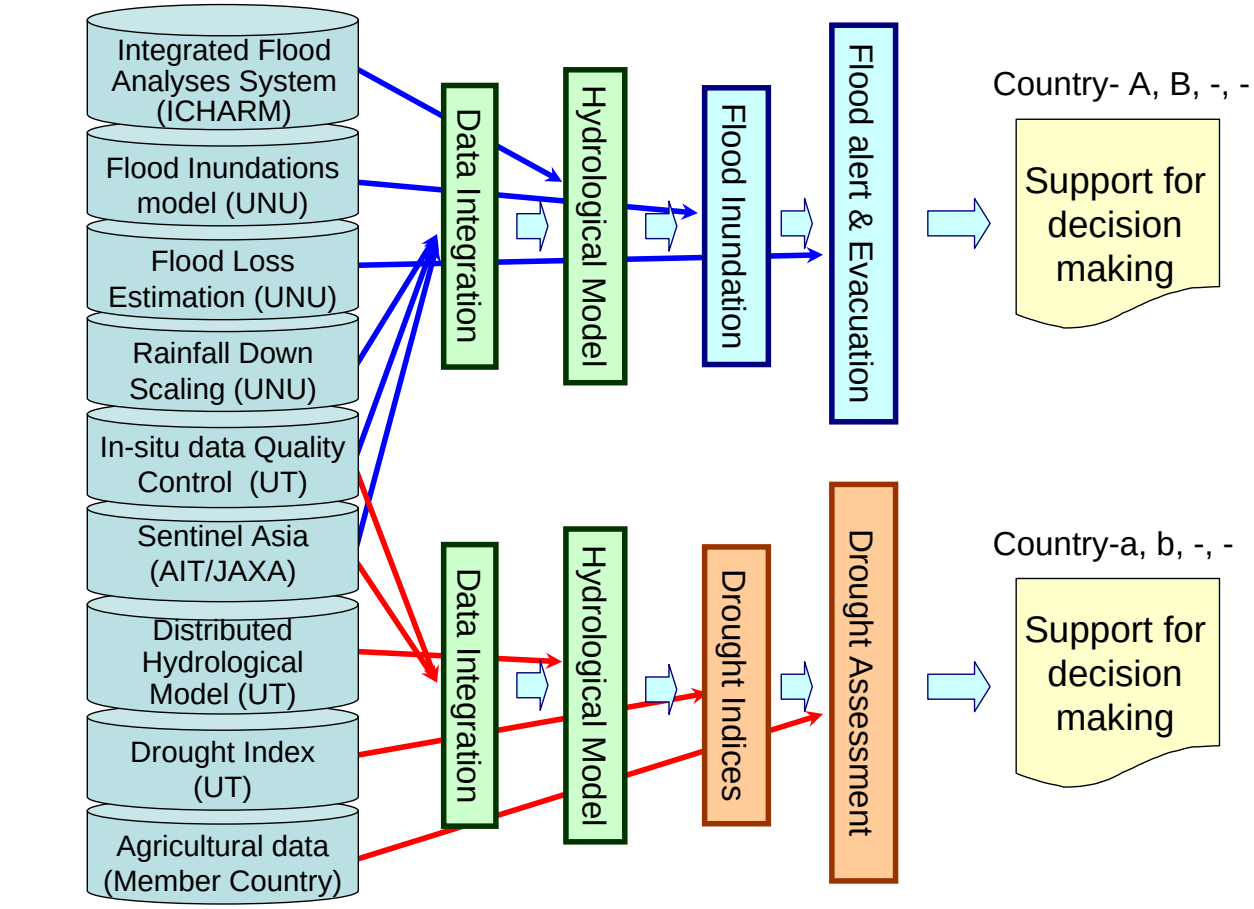


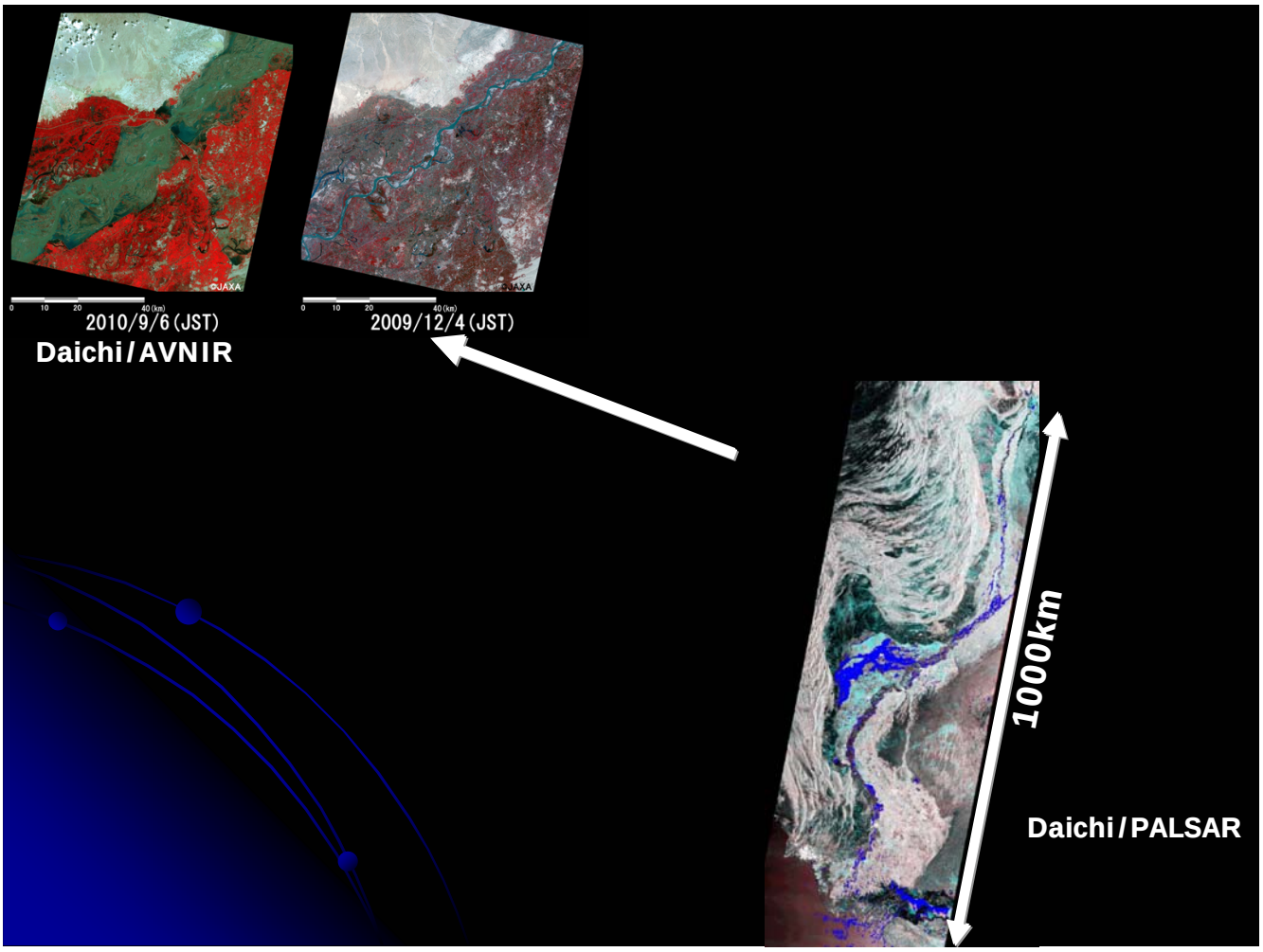
Implementation Planning

Question 1: What should be added, removed and modified?

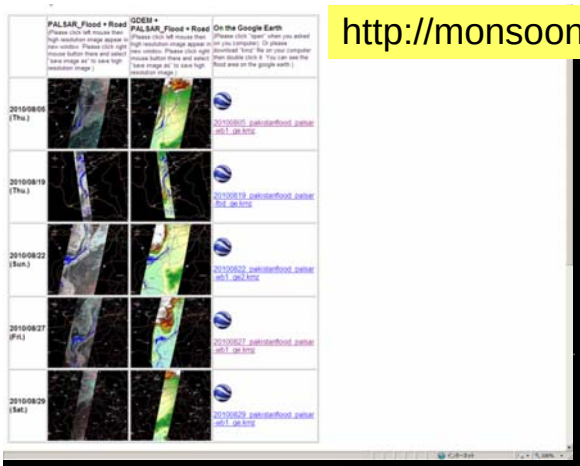


Training Modules Training Course





http://monsoon.t.u-tokyo.ac.jp/AWCI/doc/Pakistan/index.htm



Three steps

1. Evaluation of models -> selecting suitable ones for the region

2. Downloading model precipitation output of selected models and gap-filling

3. Bias correction of historical simulation precipitation output and future projection precipitation output of selected models – using observed precipitation data

Section 1

1. Introduction of the WEB-DHM hydrological model;
2. How to run the hydrological model with long-term forcing data (past and future);
3. How to analyze the simulated long-term discharge, to identify the occurrence of floods and droughts.

Section 2

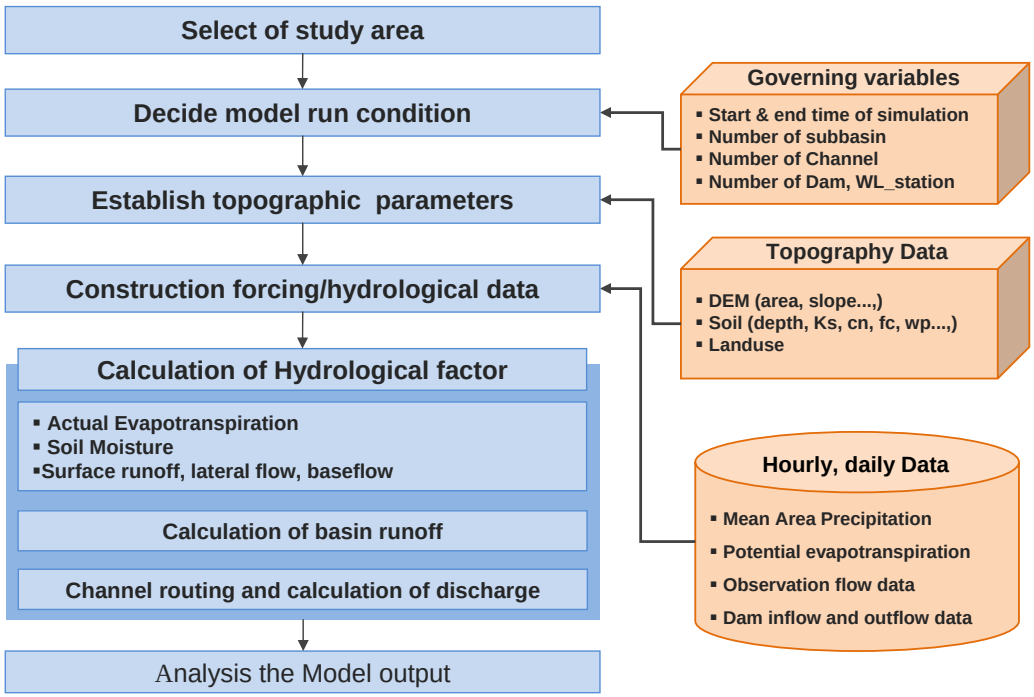
Interactive discussions between the CCAA participants with our UT team (*Wang*, *Tsujimoto*, *Patricia*, *Shrestha*, *Thanda*, *Slamet*).

Contents

- General approaches for climate change impact assessment
- Uncertainties of climate change impact assessment
- GME-based climate change impact assessment
- Concluding remarks

Outline of model Case Study

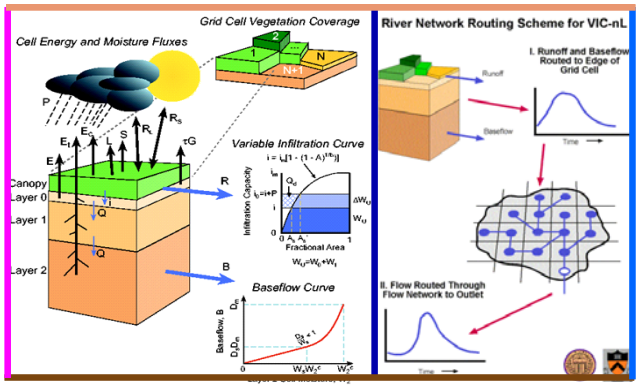
Model simulation process



Hydrologic Model Theory – Macroscale

Global Hydrologic Model

- The VIC(Variable Infiltration Capacity) model is soil vegetation atmospheric transfer scheme that considers both energy and water balances
- A grid-based macro-scale model that is usually implemented at various spatial scales from 1/8 °to 2°
- Widely used for analyzing the variations of water resources due to climate change



Parameter	Input Data
Basin	DEM
Forcing	Precipitation Maximum Temperature Minimum Temperature Wind Speed
Soil	Soil Properties
Vegetation	Landuse

Hydrologic Model Theory – Microscale

SURR(SEJONG University Rainfall-Runoff) Model

- Storage Function Model based Continuous Rainfall-Runoff Model
- Connection of basin and channel storage function model with Physical - based hydrology Component calculation technique(Lee et al. 2010)
- Properties : Lumpt model based on basin
- Water balance & Channel routing
- Simulation time interval : hourly, daily
- Available and useful both monitoring the flood & drought