

Recent Development of the AIM/Impact Model 2003

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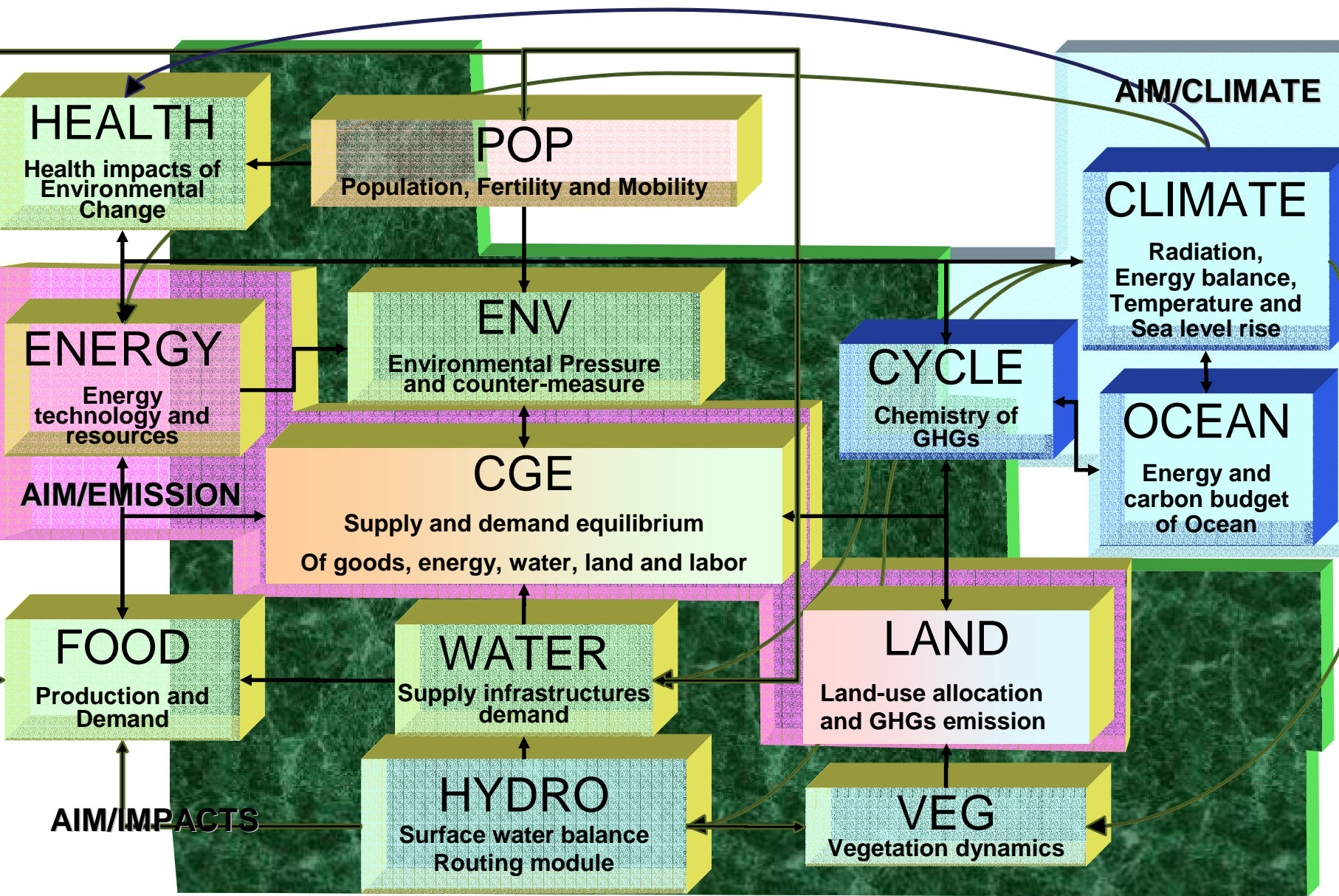
1. Impact Study in AIM, IPCC, and Japan

2. Progress of AIM/Impact Models

- AIM/Ecosystem
- AIM/Impact[Country]: Takahashi
- AIM/Water - Health : Hijioka
- AIM/Impact[Korea]: Jeon & Jung
- Database for AIM/Impact: AIM/Impact-China, Profs. Sun, Li & Y

3. Future Direction

Impact Mode Structure



HEALTH

Health impacts of Environmental Change

ENERGY

Energy technology and resources

FOOD

Production and Demand

AIM/EMISSION

POP

Population, Fertility and Mobility

ENV

Environmental Pressure and counter-measure

CGE

Supply and demand equilibrium
Of goods, energy, water, land and labor

WATER

Supply infrastructures demand

HYDRO

Surface water balance
Routing module

CYCLE

Chemistry of GHGs

LAND

Land-use allocation and GHGs emission

VEG

Vegetation dynamics

AIM/CLIMATE

CLIMATE

Radiation, Energy balance, Temperature and Sea level rise

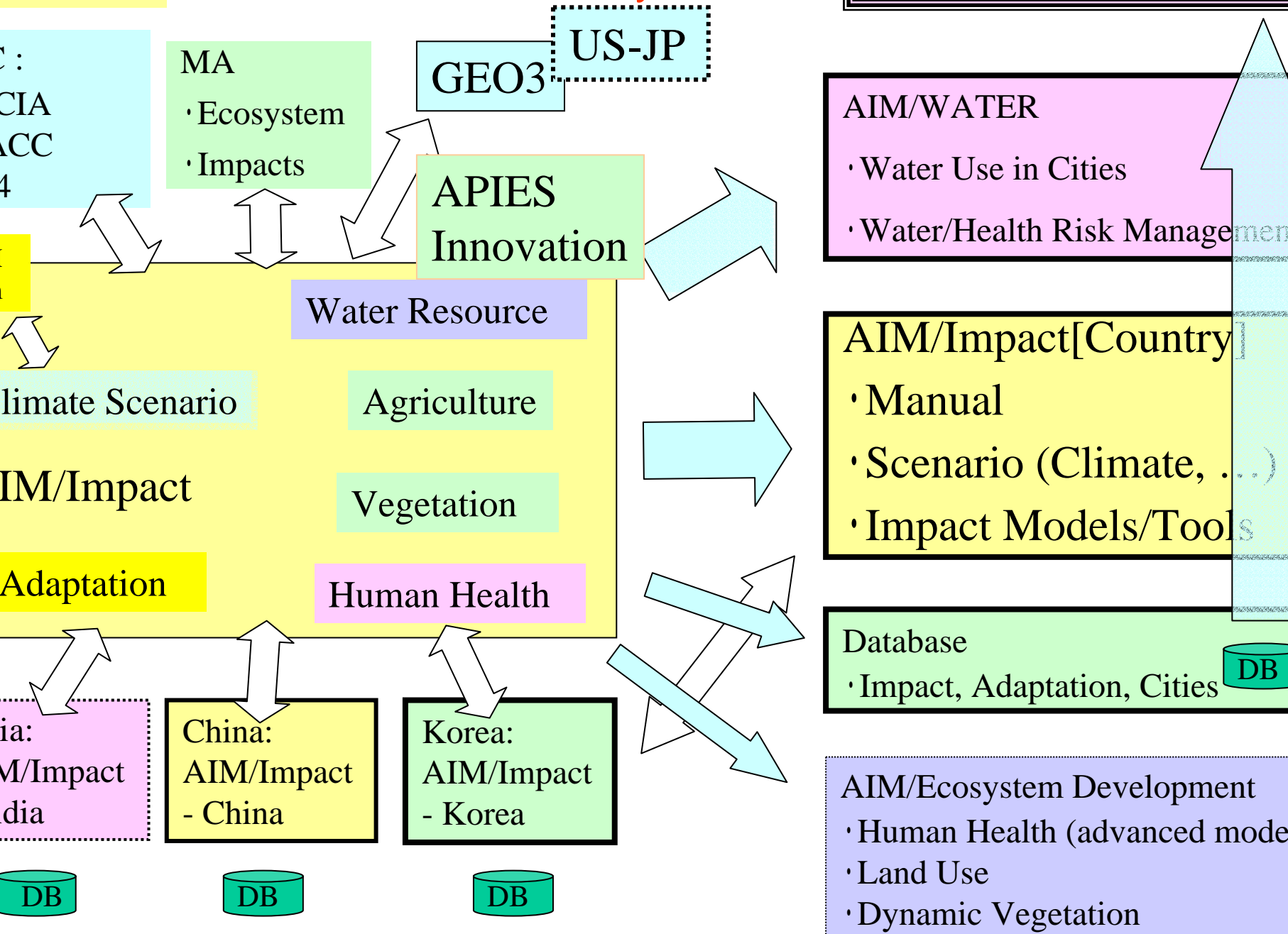
OCEAN

Energy and carbon budget of Ocean

Impact

Global to / and Country

Global Warming Research Initiative



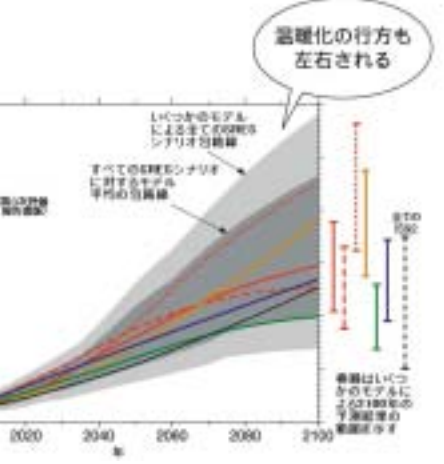
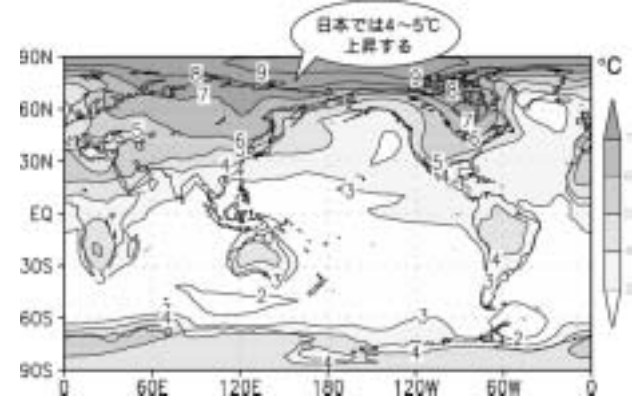
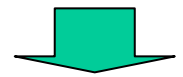
Activities in 2003

2002	AIM	GW Initiative
5		· Impact/Policy Program Meeting #1
6 ~ 7	· AIM/Water-Health	
8	· EMF meeting (Snowmass)	
10	· COP8 Side Event (Impact Demonstration) (Delhi)	
11		· Impact Program Meeting#2 · Policy Workshop
12	· OECD (Adaptation and Mitigation) (Paris)	
2003		
1	· TGCIA	
2	· IPCC Dangerous CO ₂ Concentration WS (Geneva)	
3	· MA Scenario WG Workshop (Costa Rica)	

IS92a ~ f
BaU Scenario

Climate Model (GCM)
A-GCM
AO-GCM
Regional Climate Model

Regional Climate Scenario
· Down Scaling
· (Regional Climate Model



Equilibrium Experiment
× 2 CO2
Transient Experiment
1% Increase
SRES Scenario
Stabilization Scenario

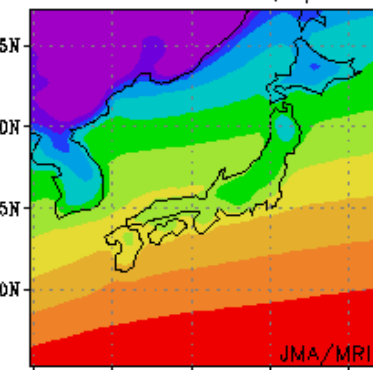
Arbitrary Scenario +/-1,2,..
Equilibrium Experiment
× 2 CO2
Transient Experiment
1% Increase
(SRES Scenario)

onal Climate Scenario (JMA/MRI)

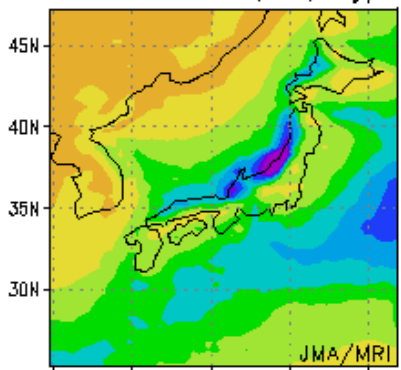
[CTL] January, AVERAGE FOR 61 - 80 YEARS PERIOD

TEMPERATURE (°C)
January, 61 - 80 YEARS

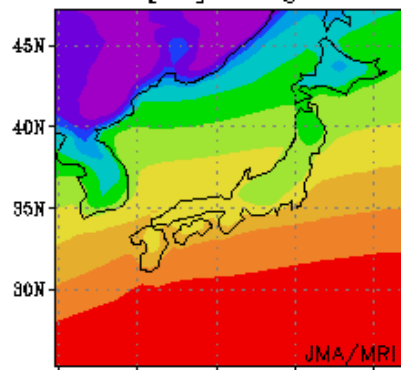
TEMPERATURE (°C)



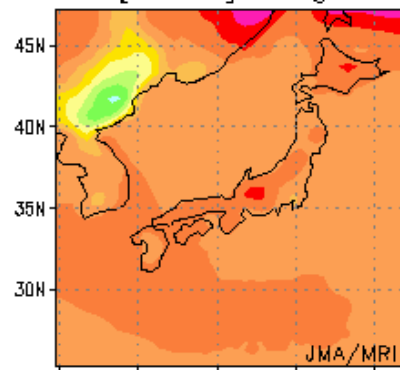
PRECIPITATION (mm/day)



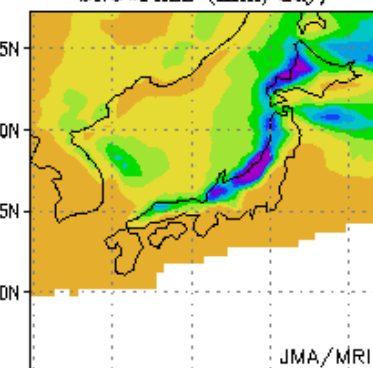
[INC] average



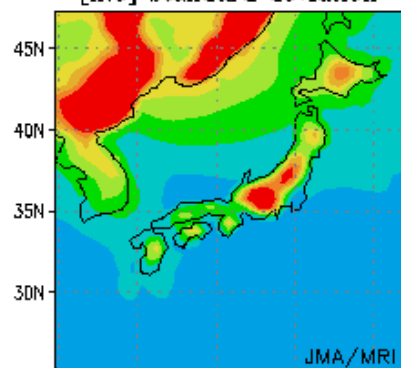
[INC-CTL] average



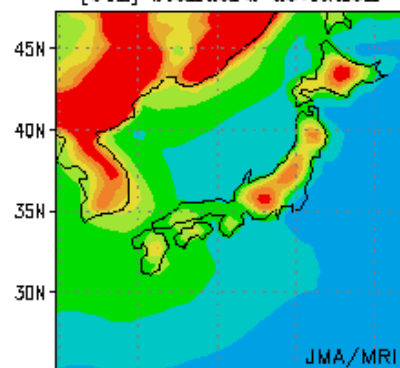
SNOWFALL (mm/day)



[INC] standard deviation



[CTL] standard deviation



2002. 4 IPCC 18th Plenary

- New Bureau for Fourth Assessment Report (AR4)

Technical Paper

- Tech. Paper on Climate Change and Biodiversity
- Tech. Paper on Climate Change and Sustainable Development
- Tech. Paper on Levels of GHG in the Atmosphere and Dangerous Anthropogenic Interference with climate System

AIACC

- Capacity Building (Impact Study by DC, for DC)
- GEF Fund
- UNEP, START, IPCC, TWAS

IPCC: Assessments of Impacts and Adaptations to Climate Change

Objectives:

- a) To advance scientific understanding and fill gaps in knowledge regarding climate change impacts, adaptation and vulnerability in developing countries
- b) To build and enhance capacity in developing countries to carry out and sustain research in these areas

Period / Budget:

2- 3 years / \$100,000 - \$250,000 per project

No. of Projects accepted: 24

Support: UNEP, START, IPCC, Third World Academy of Science

Science Director: Neil Leary (former IPCC WG2 TSU Officer)

Workshop : March 24 ~ 27 (Bangkok)

Asia:

Potential Impacts of Climate Change and Vulnerability and Adaptation Assessment for **Grassland Ecosystem and Livestock** Sector in **Mongolia** (Punsalmaa Batima, Institute of Meteorology and Hydrology, Mongolia) [[AS06](#)]

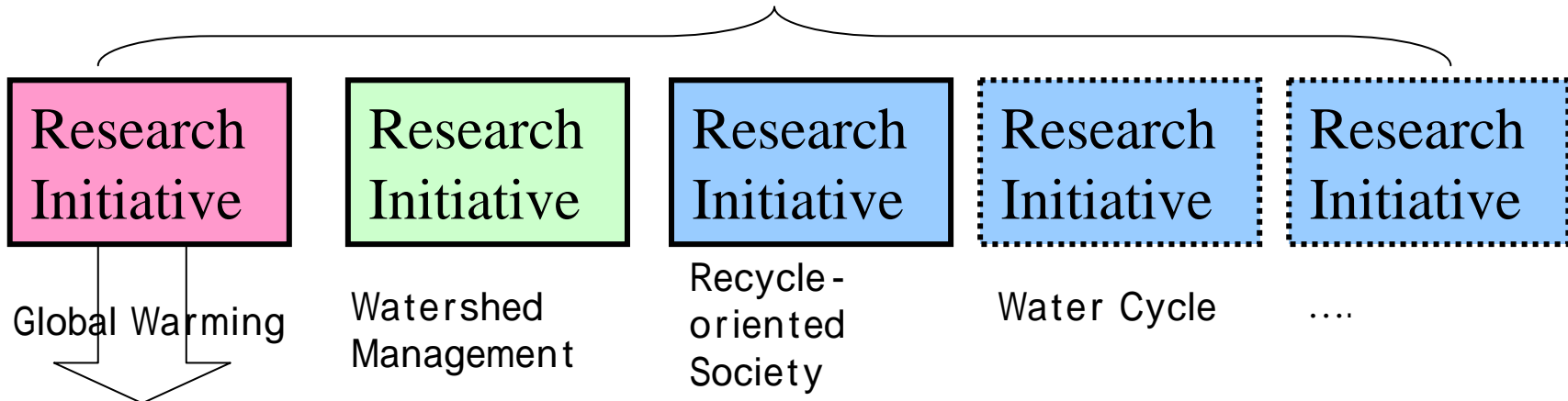
Southeast Asia Regional Vulnerability to Changing **Water Resource and Extreme Hydrological Events** Due to Climate Change (Anond Snidvongs, Southeast Asia START Regional Center, Thailand) [[AS07](#)]

Assessment of the Impacts of and Adaptations to Climate Change in the Plantation Sector, with Particular Reference to **Coconut and Tea**, in **Sri Lanka** (Janaka Ratnasiri, Sri Lanka Association for the Advancement of Science, Sri Lanka) [[AS12](#)]

An Integrated Assessment of Climate Change Impacts, Adaptation, and Vulnerability in **Watershed Areas** and Communities in **Southeast Asia** (Rodel Lasco, University of the Philippines at Los Baños College of Forestry and Natural Resources, Philippines) [[AS21](#)]

Integrated Assessments of Vulnerabilities and Adaptation to Climate Variability and Change in the **Western Region of China** (Yongyuan Yin, International Earth System Sciences Institute at Nanjing University, People's Republic of China, and Sustainable Development Research Institute at the University of British Columbia, Canada) [[AS25](#)]

Council for Science and Technology Policy(CSTP) (Cabinet Office of Japan)

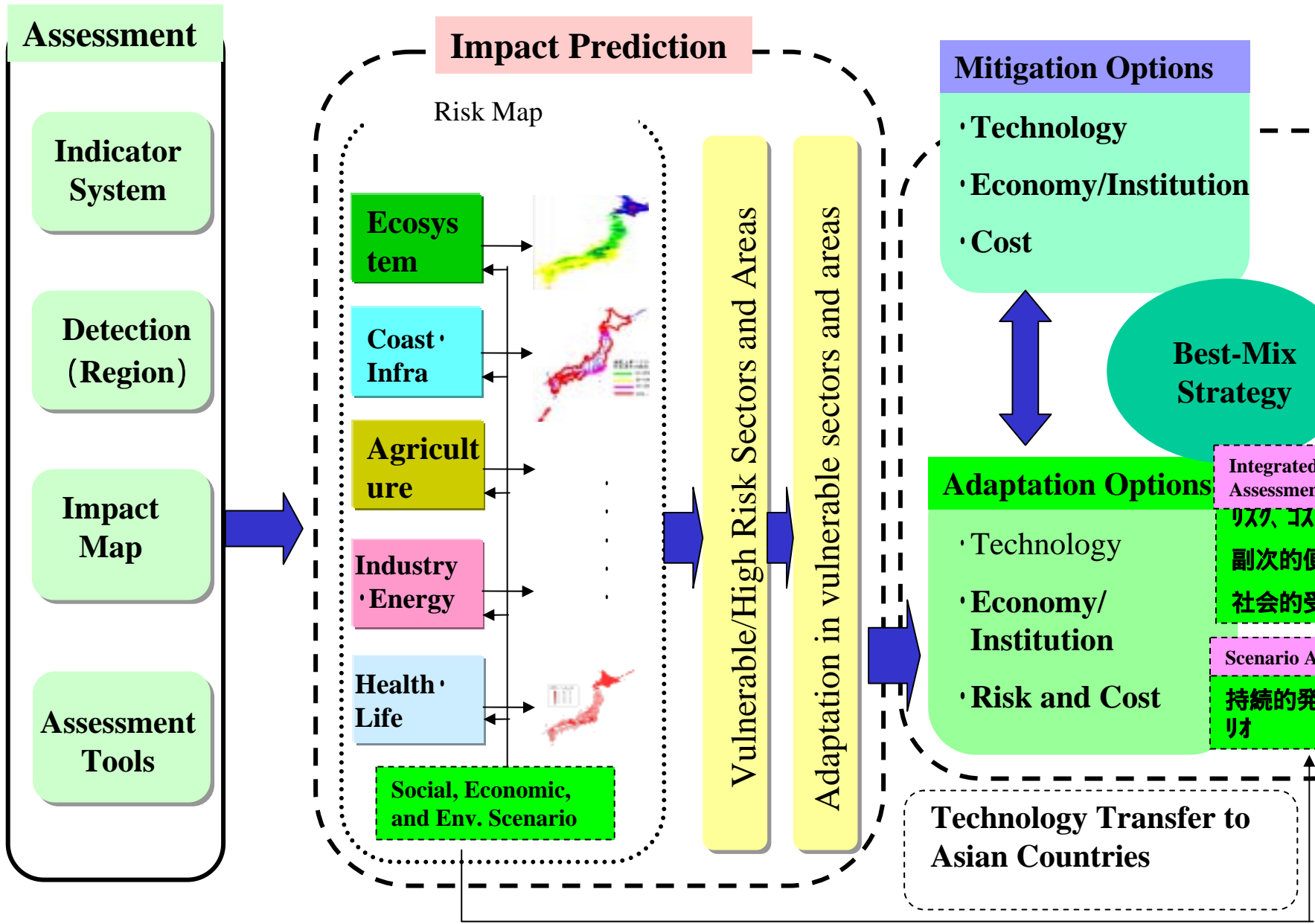


- Components
- Monitoring
 - Climate Modeling
 - Impact & Adaptation Assessment
 - Technology Development
 - Policy

Global Warming
Research Initiative
(FY. 2002 ~ 2006)

AIM

Comprehensive Study on Global Warming Impacts and Adaptation Strategy



Program Meeting



Annual Report



Contents of the Report

GW Initiative

- 1 Monitoring
- 2 Modeling
- 3 Impacts
- 4 Mitigation

Mitigation Policy Workshop



developed by

**Second Meeting of the U.S.-Japan High-Level Consultations on Climate Change
Science and Technology Working Group**

Priority Area 2:

**Impact and adaptation/mitigation policy assessment employing
emission-climate-impact integrated models**

Proposed Topics 2

Scenario Development: Analysis and development of future scenarios for socioeconomic and environmental conditions, and consequent future emission scenarios toward development of new IPCC scenarios for the prediction of future climate change

Integrated Model: Development of a climate-socioeconomic integrated model based on an emission model, climate model and impact model

Impact and Adaptation: Research on current and projected climate change impacts and adaptation options including developing countries in the Asia-Pacific and South American regions

Best mix Policy: Scientific evaluation of mitigation and adaptation options making use of the integrated model

ure Development

AIM / Impact - Global Model

Prediction of Impacts based on SRES-based climate Scenario

Water Supply vs. Water Demand + Food Security

Advanced Model: Health, Land, Dynamic Vegetation

AIM / Impact [Country]

Basic tools/Data/Information

AIM/Impact-Korea, China, India

AIM / Water - City

Adaptation Countermeasures and Cost Estimation

Time Table of Impact Model Development