

# The 12<sup>th</sup> AIM International Workshop



Designed by Hajime Sakai

Session IX & X  
LCS (Low-Carbon Society) Scenario  
Development

Chairperson Junichi Fujino

Why  
We Need  
LCS?

1978



1979



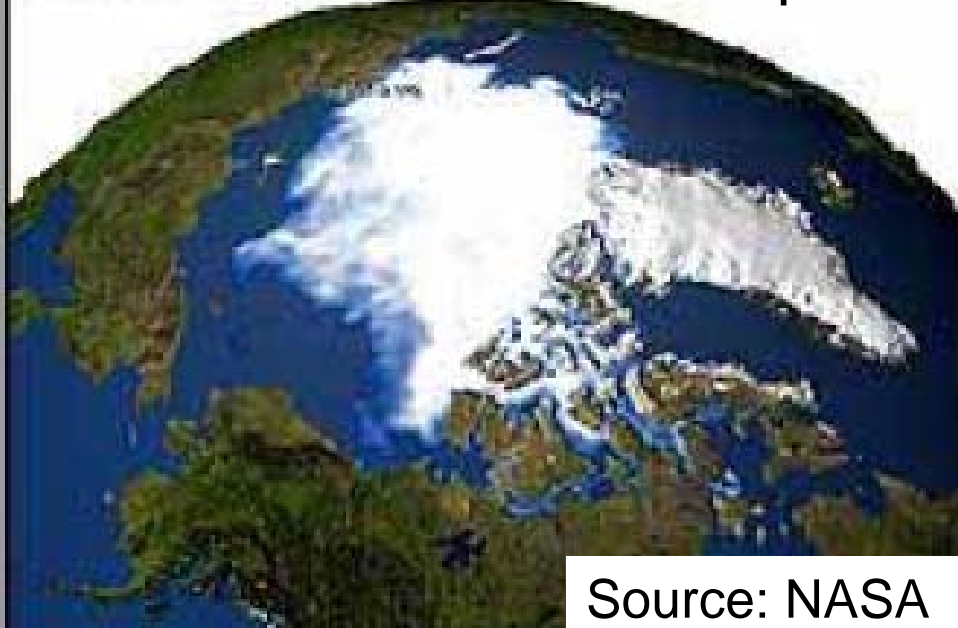
1998

## Himalayan Glaciers



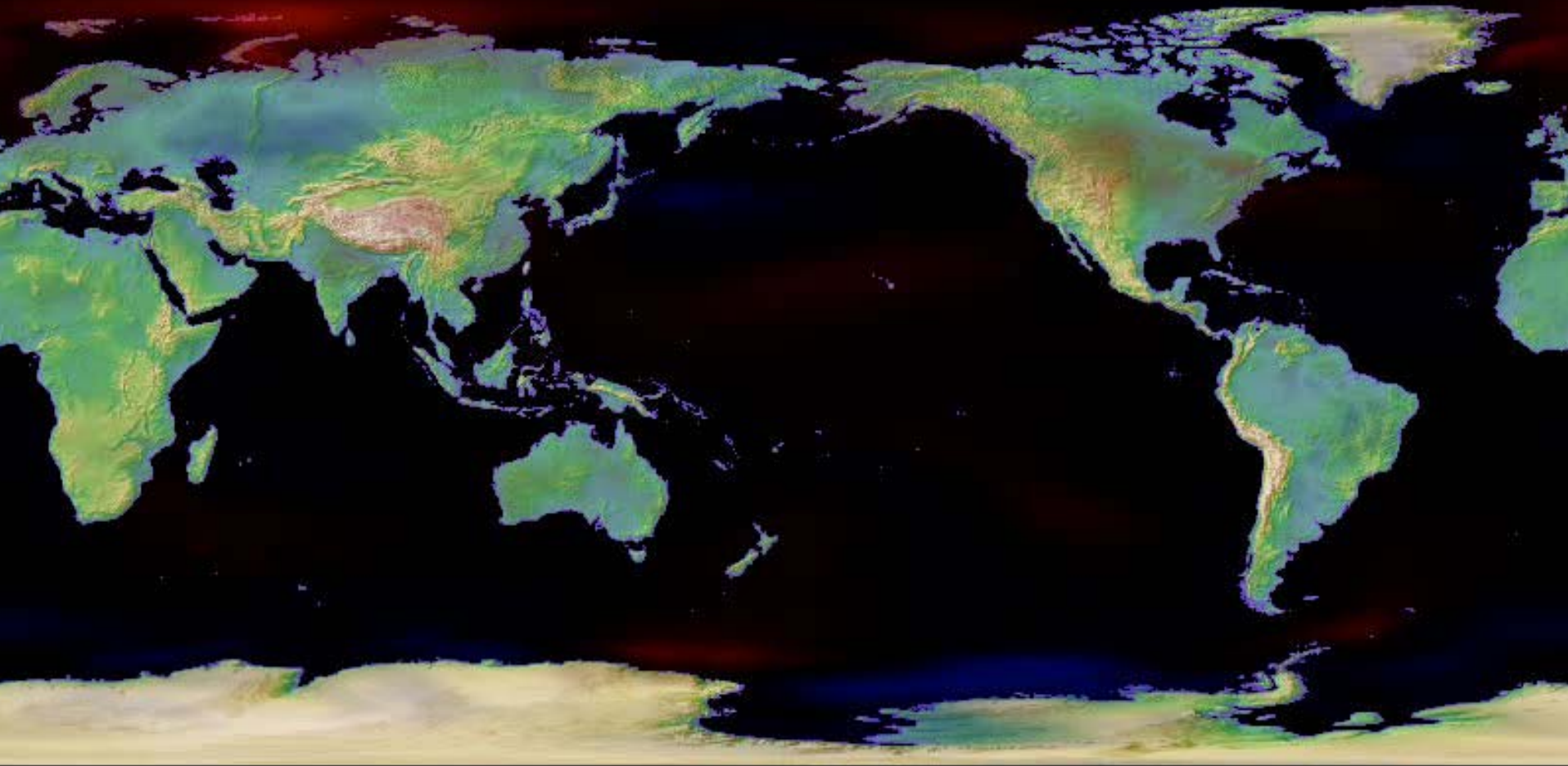
2003

North Pole Ice in Sep.



Source: NASA

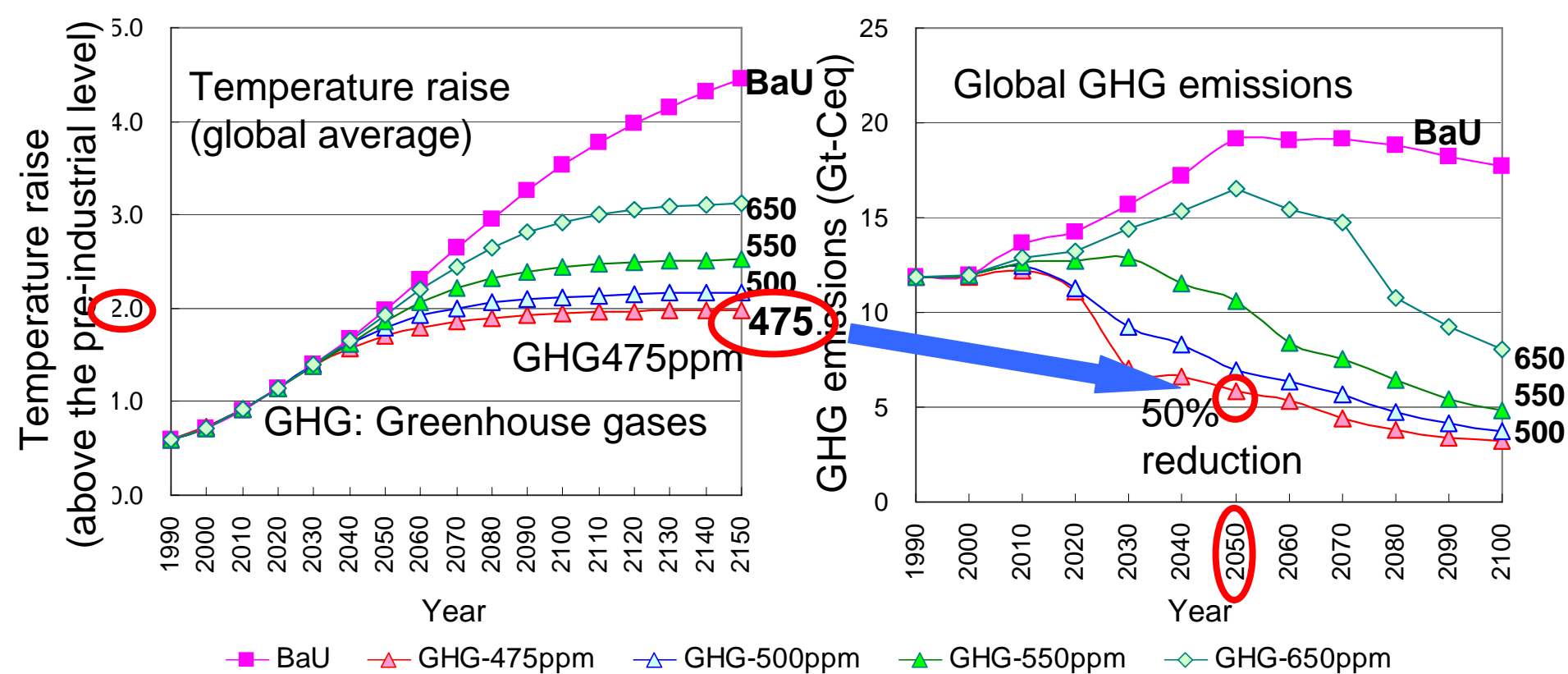
# Surface Air Temperature Change (1900=0 °C)



1950







**•It is estimated that around 50% GHG reductions in 2050 are required to control temperature raise below 2C**

•Japan may be required more reduction (60-80%).  
 Another country-level 2050 scenarios have been studied (UK 60%, Germany 80%, France 75%, and so on).

**•Impacts will be occurred even in 2C temp control.**  
**•Adaptation is necessary.**

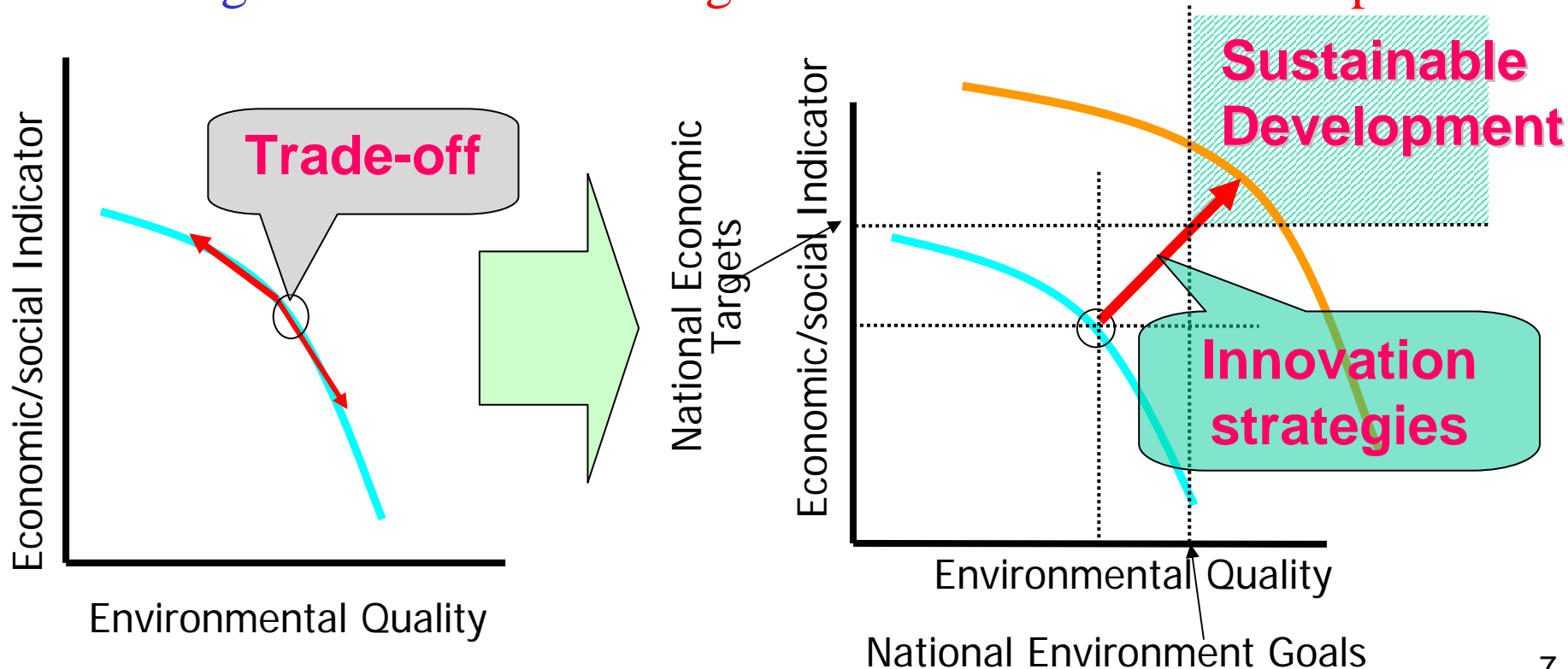
Calculated by  
 AIM/Impact[policy]  
 Model

And

# Objectives of LCS study especially for Developing countries

Developing models to assess innovative options

- **Diffusing** and **applying** models for countries
- Developing **quantitative innovative scenarios** using models
- Linking with **MDG/national goals** and **Sustainable Development**



# MDG, India's National Targets and Climate Change

<b>MDG and global targets</b>	<b>India's National plan targets</b>	<b>Interface with climate change</b>
<p><b><i>Goal 1: Eradicate extreme poverty and hunger</i></b></p> <p><b>Targets:</b> Halve, between 1990 and 2015, the proportion of people with income below \$1 a day and those who suffer from hunger</p>	<ul style="list-style-type: none"> <li>• Double the per capita income by 2012</li> <li>• Reduce poverty ratio by 15% by 2012</li> <li>• Contain population growth to 16.2% between 2001-2011</li> </ul>	<ul style="list-style-type: none"> <li>• Income effect would enhance choices for cleaner fuels and adaptive</li> <li>• Reduce GHG emissions due to lower</li> </ul>
<p><b><i>Goal 7: Ensure environmental sustainability</i></b></p> <p><b>Target 9:</b> Integrate SD principles in country policies/programs to reverse loss of environmental resources</p> <p><b>Target 10:</b> Halve by 2015 the proportion of people without sustainable access to safe drinking water</p>	<ul style="list-style-type: none"> <li>• Increase in forest cover to 25% by 2007 and 33% by 2012 (from 23% in 2001)</li> <li>• Sustained access to potable drinking water to all villages by 2007</li> <li>• Electrify 80,000 additional villages by 2012 via decentralized sources.</li> <li>• Cleaning of all major polluted rivers by 2007 and other notified stretches by 2012</li> </ul>	<ul style="list-style-type: none"> <li>• Enhanced sink capacity, reduced GHG and local emissions; lower fossil imports; reduced pressure on land, resources and ecosystems</li> <li>• Higher adaptive capacity due to enhanced reach of water, health &amp; education facilities in rural areas</li> </ul>



# SD-PAMs: South Africa's example

## Development objectives

Remove backlog of 2.6 million houses

Increased access to affordable energy services

Stimulating economic development

Securing supply through diversity

## Possible shift to more sustainable development

### Housing

All new low-cost houses built with energy efficiency measures

### Energy

Implement free basic electricity (poverty tariff) of 20- 60 kWh / household / month for 1.4 million poor households

National energy efficiency programme to ensure 5% reduction in electricity consumption by 2010

39 000 additional jobs

R800 million add'l income

Renewable Energy Portfolio Standard

- 5% of electricity generation by 2010
- 20% by 2025

## GHG reduction or increase relative to business-as-usual (current stated policy)

0.05 and 0.6 MtCO<sub>2</sub>-equivalent per year, across all low-cost housing

Increase of 0.146 MtCO<sub>2</sub> (upper bound estimate)

Reduce CO<sub>2</sub> emissions by 5.5 million tons in 2010

Reductions in CO<sub>2</sub> emissions of

- 10 MtCO<sub>2</sub> in 2010
- 70 MtCO<sub>2</sub> in 2025.

# Aligning Development and Climate Transition to Low(er) Carbon Society

- Global development along high carbon path is untenable
- Stand-alone decarbonization is costly
- Most sustainable development actions are climate friendly
- Mainstreaming climate change in development actions reduces welfare losses

**AIM/APEIS Training Workshop held at NIES  
in October 2006 to develop LCS scenarios  
for China, India, Thailand, Korea, Taiwan (China),  
Brazil, Mexico, and South Africa.**

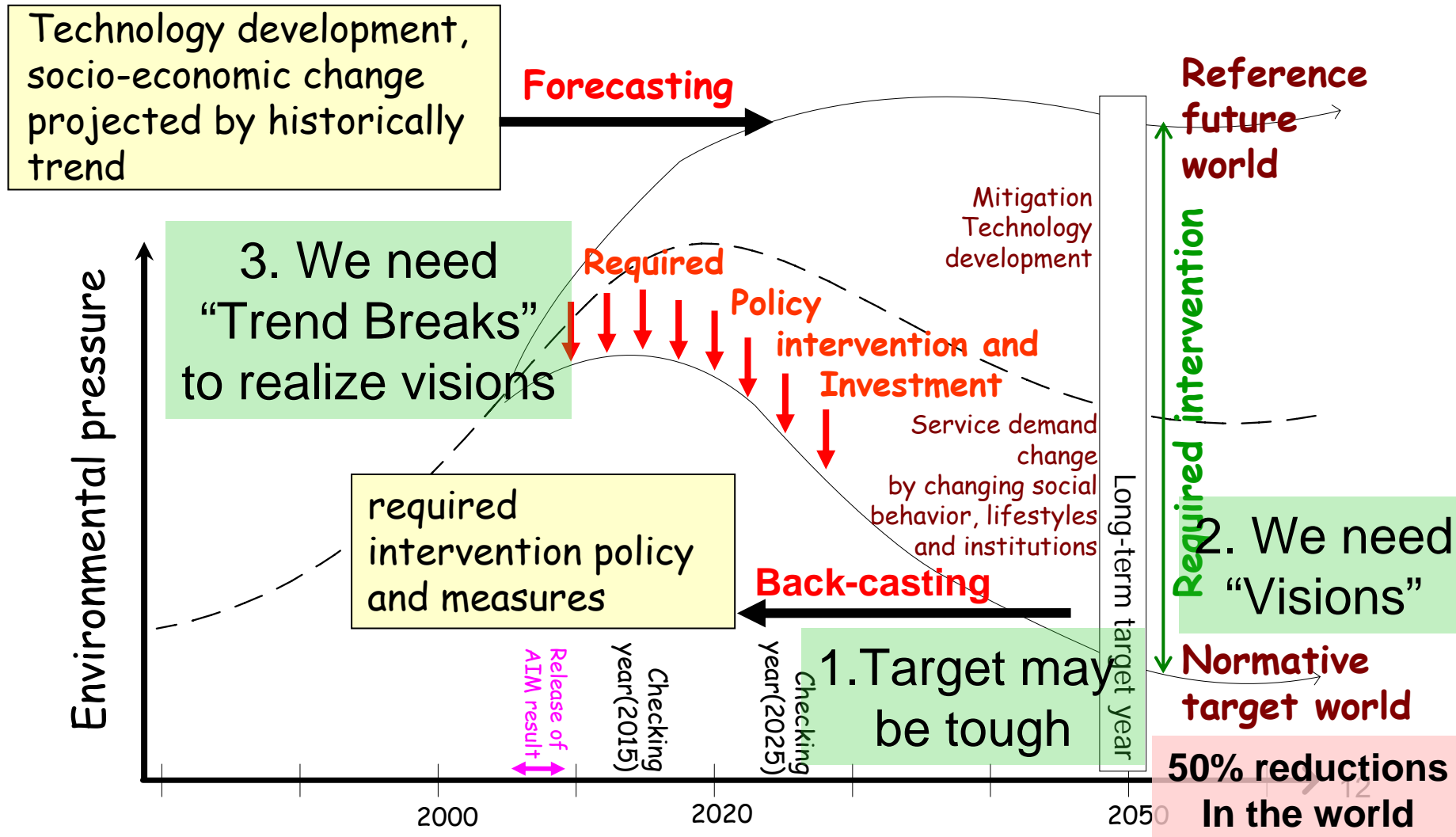
LCS

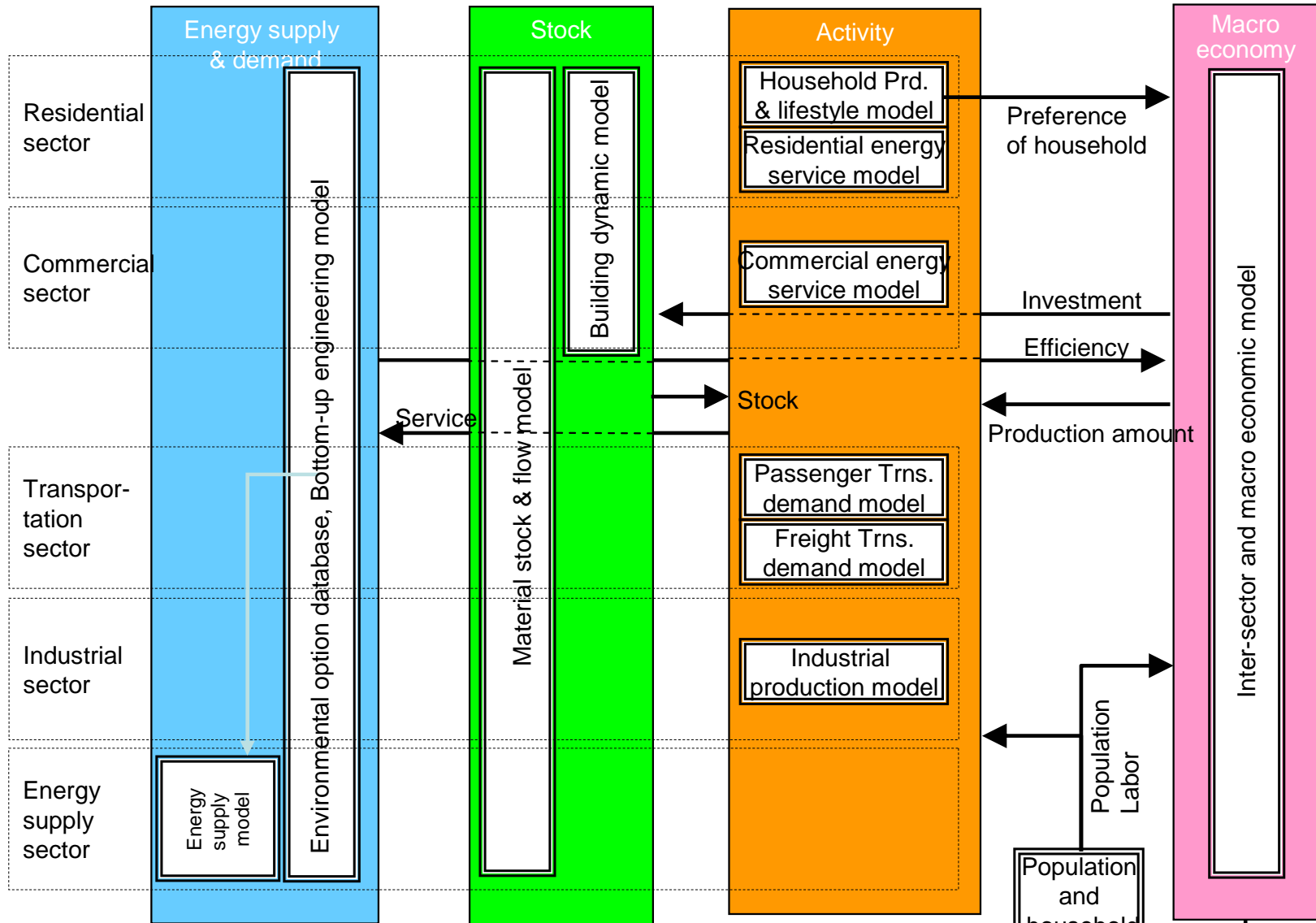
through

Sustainable

Development

# Forecasting from now and Backcasting from future prescribed/normative world





□ : Model  
 □ : Output of model  
 → : Data flow

Energy Snapshot Tool

Energy balance table

Population and household model

Check consistency!

**AIM (Asia-Pacific Integrated Model) for Japan LCS scenarios**



# 1<sup>st</sup> workshop on Japan – UK Joint Research Project Developing visions for a Low Carbon Society (LCS) through sustainable development

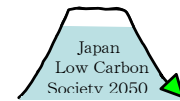
54 Participants from 19 countries and 6 international organizations;  
Asia: Japan, China, India, Thailand, Taiwan (China)  
Africa: South Africa, Nigeria  
Europe: UK, France, Germany, Denmark, Spain, Netherlands, Russia  
Latin America: Brazil, Mexico, Chile  
North America: US, Canada



**A First workshop was held in Tokyo, June 13-16, 2006.**



# We support country-wise LCS modeling through SD for Asia-Pacific and the world



**- We have continued AIM Training Workshops since 1997 -**

**Oct 16-20, 2006 at NIES**



India



China



Thailand



Korea



Malaysia



Indonesia



Brazil



Russia



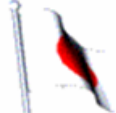
South Africa



Taiwan, China



USA



Japan



## Global challenges toward Low Carbon Society (LCS) through Sustainable Development (SD)



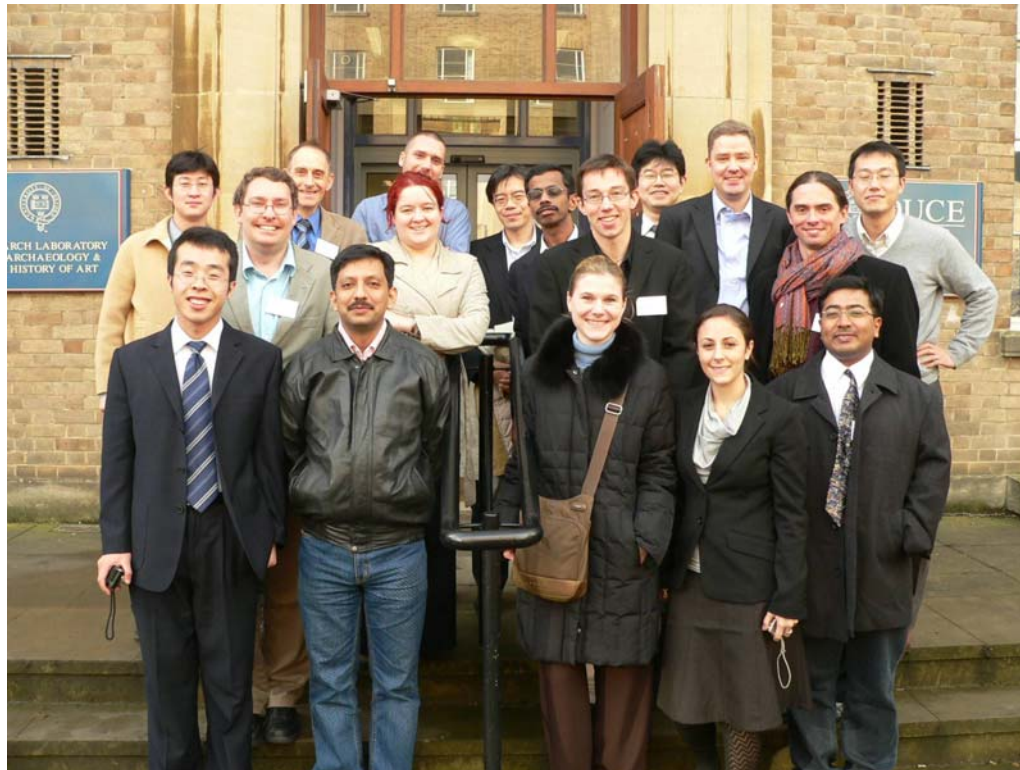
P.R. Shukla,  
IIM (India)



David Warrilow,  
Defra (UK)



# Quantifying Energy Scenarios of a Low Carbon Society – The Annual Energy Modelling Conference (AEMC) of the UK Energy Research Centre (5-7 Dec, 2006)



**LCS Modelling collaboration**  
**UK (Markal, E3MG), Canada (CIMS),**  
**China (AIM/IPAC), IEA (ETP),**  
**India (AIM), South Africa (LEAP),**  
**Thailand (AIM), Japan (AIM, DNE)**

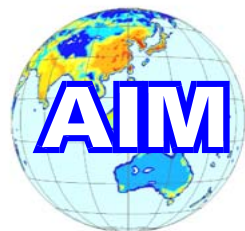


# Session 2 Long Term Scenarios – Regional Sustainability Scenarios

## First part

- Chair: Mikiko Kainuma
- Brief Introduction: Junichi Fujino, National Institute of Environmental Studies (Japan)
- P.R. Shukla , Indian Institute of Management
- Jiang Kejun, Energy Research Institute (China)
- Ram Shresta, Asian Institute of Technology (Thailand)
- Y. Matsuoka, Kyoto University (Japan)

<http://www-iam.nies.go.jp/aim/>





# Japan-UK Joint Research Project

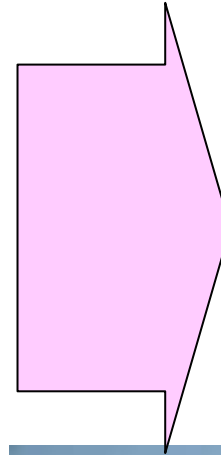
## LCS (Low-Carbon Society)

### for Global Participation

A **First** workshop was held in Tokyo, June 14-16, **2006**.

A **Second** workshop will be held in London, June 13-15, **2007**.

A **Third** workshop may be held in Japan, Feb, **2008**.



**G8 Japan**  
**June 2008**



Now

# Session IX    LCS (Low-Carbon Society) Scenario Development (1)

- **Japan** Study by J. Fujino
- **Shiga** Prefecture (in Japan) study  
by K. Shimada
- **Address** from MOEJ  
by N. Tsukamoto

# Session X      LCS (Low-Carbon Society) Scenario Development (2)

- China Study by K. Jiang
- India Study by PR. Shukla
- Thailand Study by R. Shrestha
  - Brazil Study by W. Wills
- Extended Snapshot by G. Hibino
- Backcast Model by T. Masui
- Future work by J. Fujino

And


- Discussions

# What do you want to do now for our future?



Christmas Concert of Yoko Fujino's  
Piano Class on Dec 23, 2005





Thank you for your attention !

Grace of climate: 気候の恵みをかみしめる