

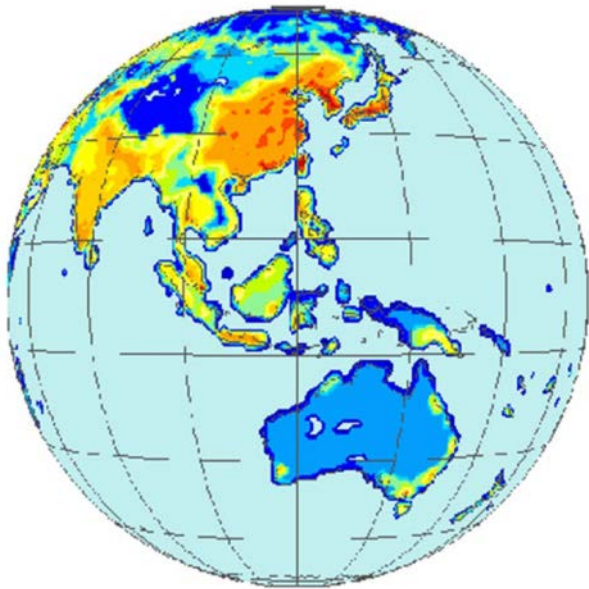
What we have done last 20 yrs, what we will do in next 20 yrs

Mikiko Kainuma
National Institute for Environmental Studies

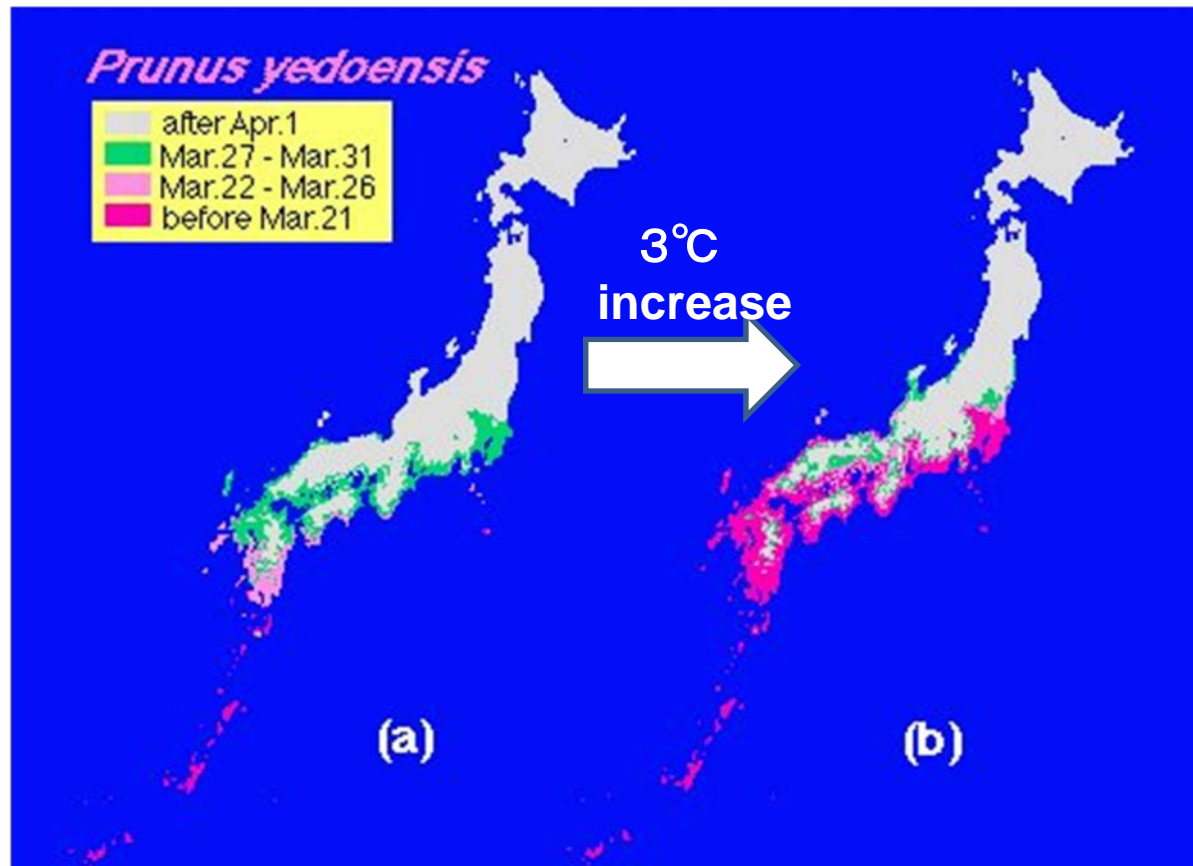
16th AIM International Workshop

20 Feb 2011

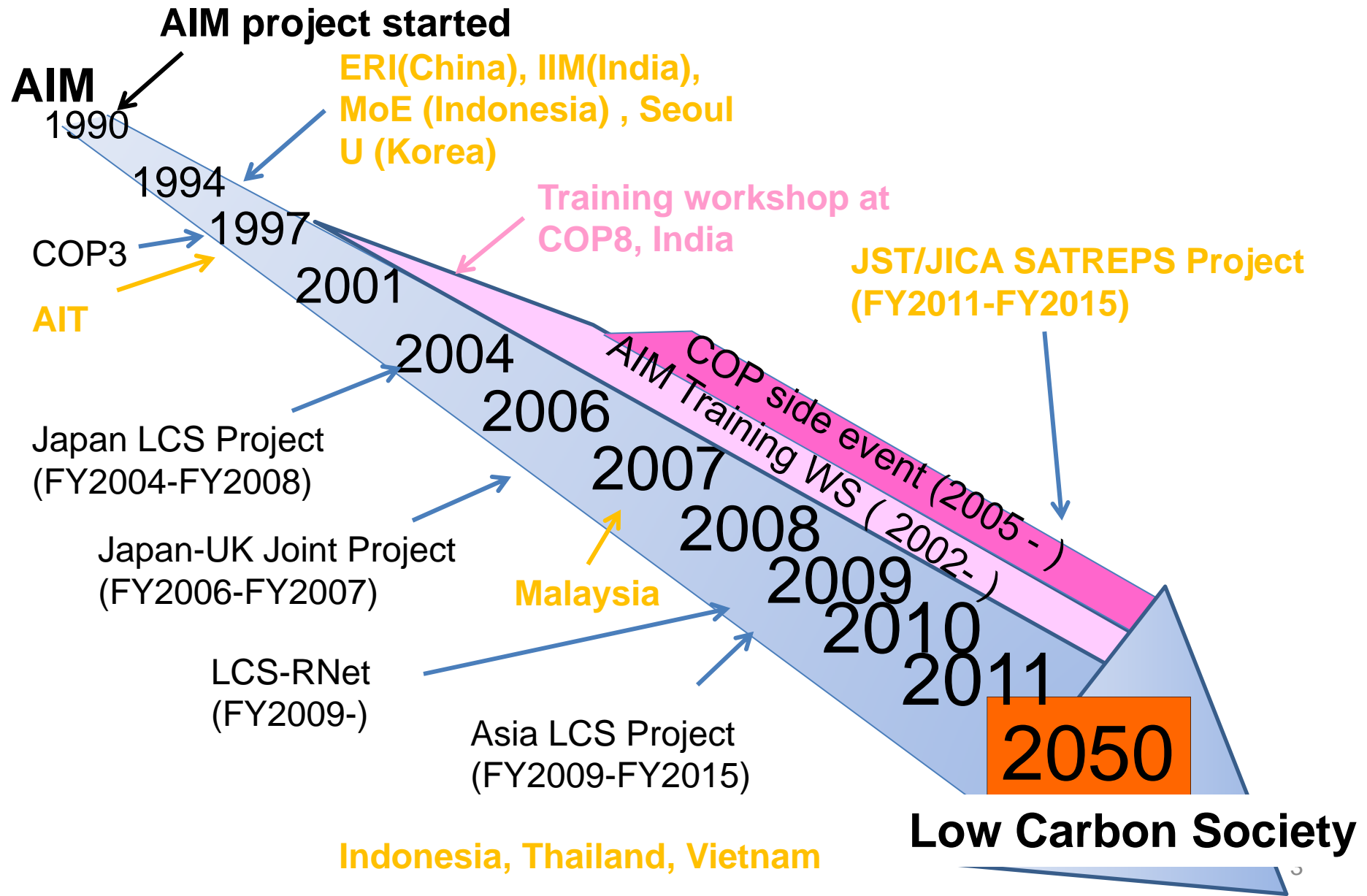
For the opening ceremony of the Center for Global Environmental Research (CGER) in October, 1990, Prof. Nishioka ordered us to prepare some attractive figures.



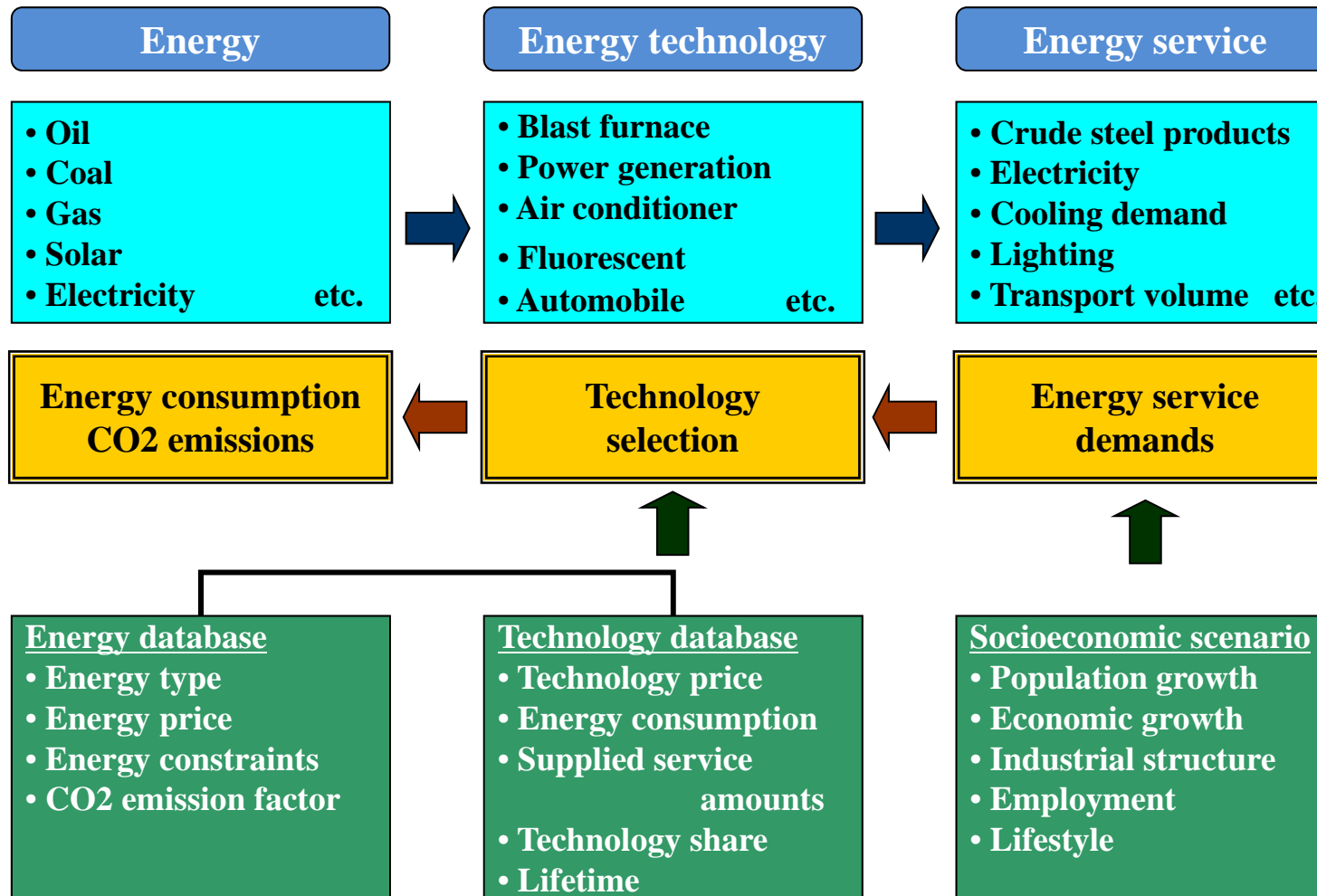
CO2 emissions in 2100



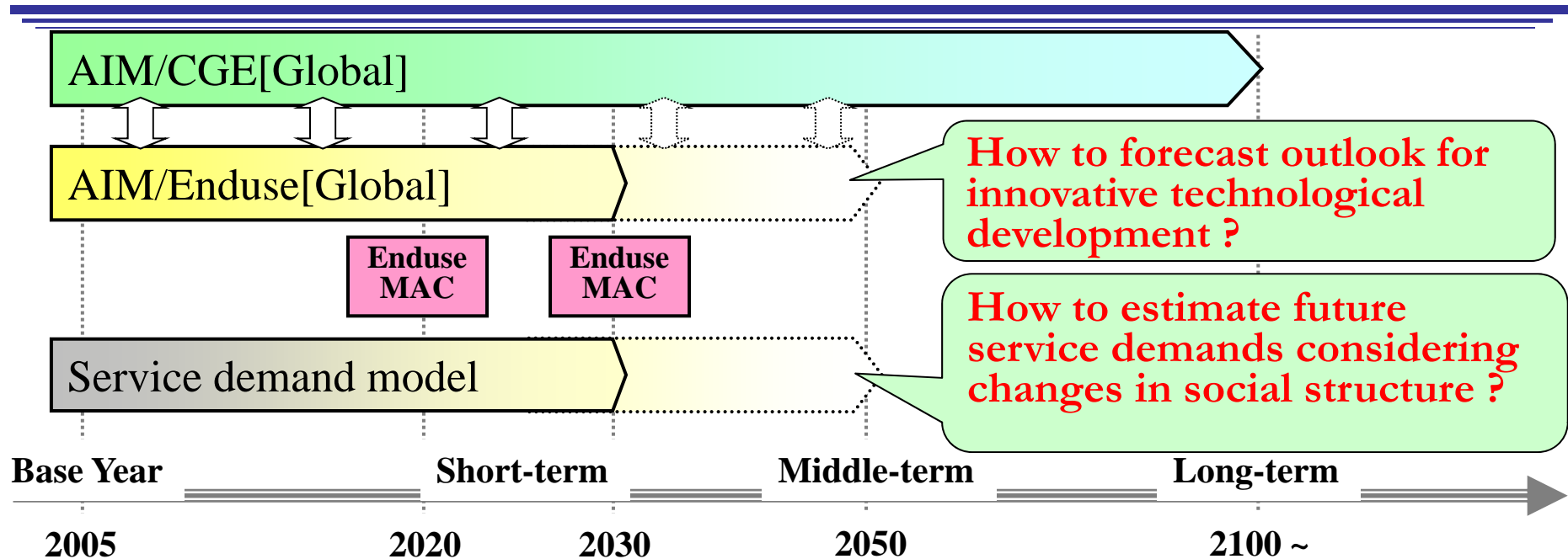
Asia-Pacific Integrated Model (AIM)



First, AIM/Enduse Model was developed



Other AIM models have been developed and used for climate change analysis. Appropriate temporal scale is different



- Due to data constraints of future technology information and service demands, Enduse model analyzes scenarios with horizons of 2030, and up to 2050 at most.
- To utilize Enduse model for Low Carbon Society scenario study toward 2050, it is essential to discuss outlook for innovative technological development and future service demands considering changes in social structure.



Each year, we had AIM international workshop

AIM, Past and Future



1990.7 Start of AIM Project

1992 Enduse model of Energy consumption, AIM/enduse

1993~94 AIM 1st version

1993 Global Long-term Scenario

1994.11 Nikkei Prize

1995.6 Start of International Collaboration

1996.2 Start of AIM International Workshop

1997.8 Start of AIM Training

1998~ AIM/material

2000 AIM/trend

2002~ AIM Strategic Database

2002~ AIM/ecosystem

1994 IS92 Evaluation

1994 ECO-Asia(LTPP)

2000.4 IPCC SRES

2000 GEO2

2001.4 IPCC TAR

2002~ APEIS(IEA)

2002 GEO3

2004 MA Report*

**** IPCC Forth AR

1996~97 Dispute on Japan's Reduction Target for COP3
1997.12 COP3

2001 Three Scenarios toward Eco Society

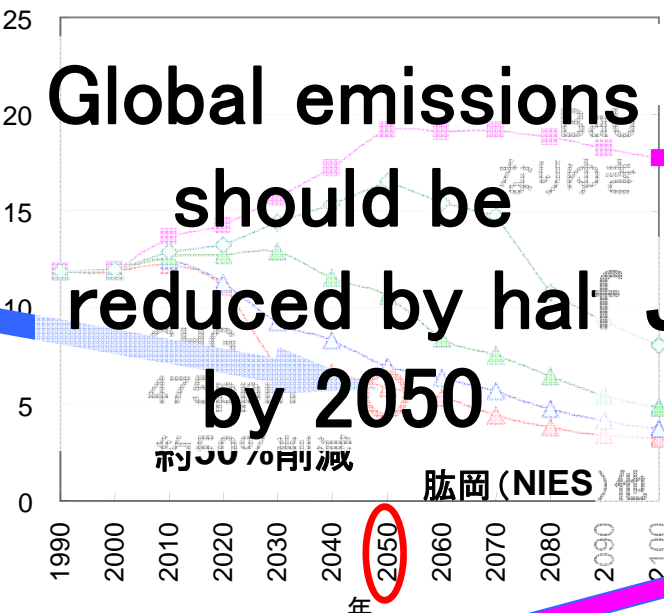
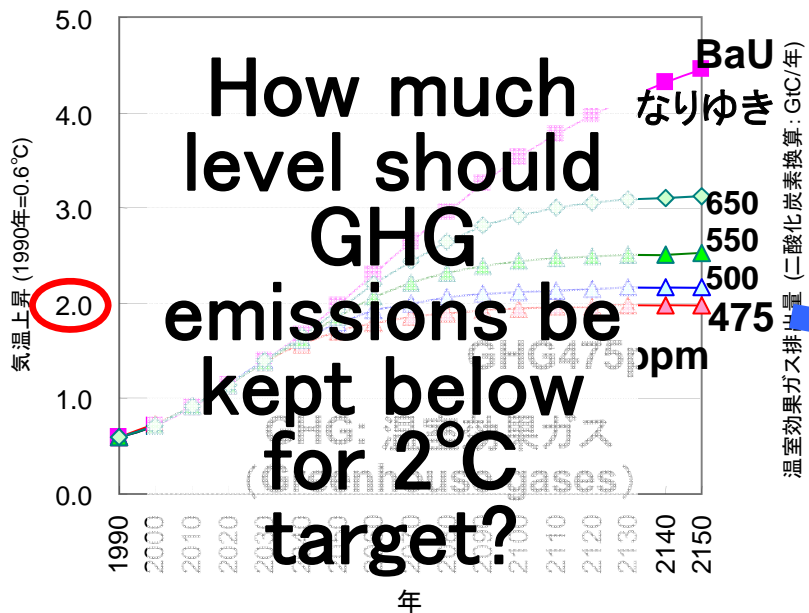
2003 Dispute on Carbon Tax

Japan's Scenario to Low Carbon Society

Debate on Japanese Low Carbon Society in Mid to Lang-term Future

By Y. Matsuoka at Memorial Workshop for Morita-san

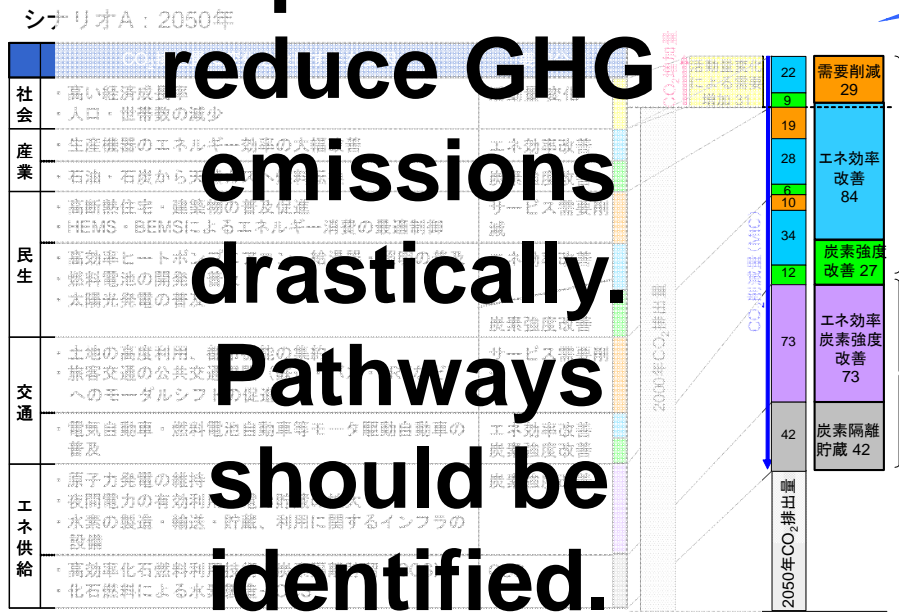
Japan LCS study



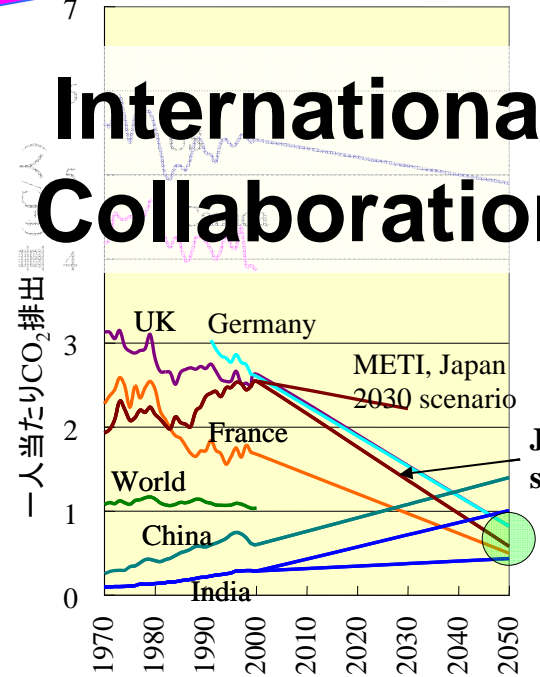
Japanese target: 60-80%

It is possible to

reduce GHG emissions drastically. Pathways should be identified.



International Collaboration



低炭素経済に向けたシナリオ国際比較

光: 技術・温暖化ビジネス市場でのおくれ?

欧州: 国家戦略として検討
日本: 長期戦略確立の要



途上国: 今からの誘導が有効

Japan 2050 scenario
低炭素社会に向けた削減目標 0.5-0.8t/人

Shuzo Nishioka, Junichi Fujino;
NIES COP11 and COP/MOP1 side event
Global Challenges Toward
Low-Carbon Economy (LCE), Dec.3, 2005

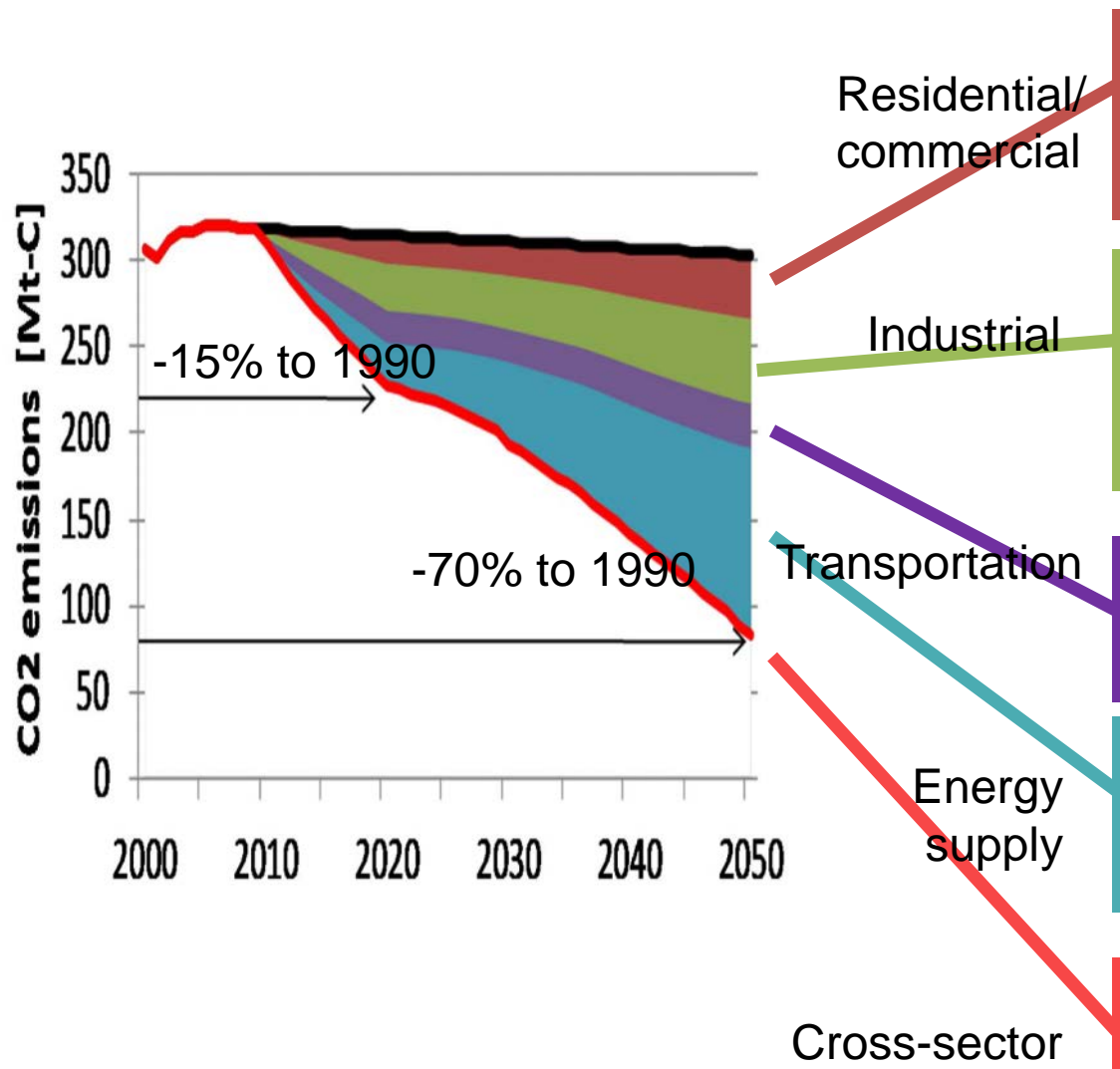
LCS visions in Japan

two different but likely future societies

Vision A	Vision B
Vivid, Technology-driven	Slow, Natural-oriented
Urban/Personal	Decentralized/Community
Technology breakthrough Centralized production /recycle	Self-sufficient Produce locally, consume locally
Comfortable and Convenient	Social and Cultural Values
2%/Cap/year GDP growth	1%/Cap/year GDP growth
	

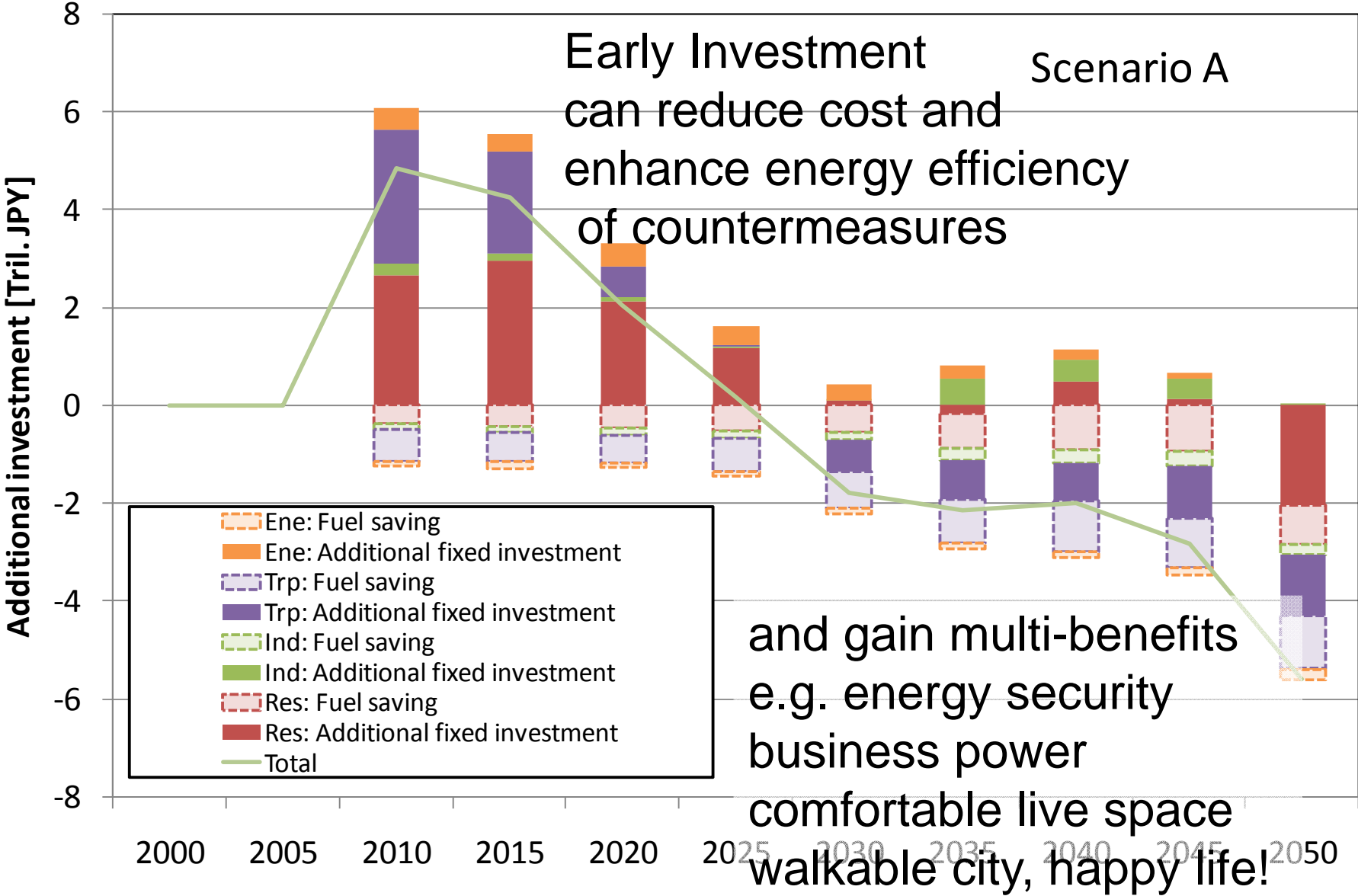
CO2 emission projections based on a dozen actions toward 70% reduction

A Dozen Actions



1. Comfortable and Green Built Environment
2. Anytime, Anywhere Appropriate Appliances
3. Promoting Seasonal Local Food
4. Sustainable Building Materials
5. Environmentally Enlightened Business and Industry
6. Swift and Smooth Logistics
7. Pedestrian Friendly City Design
8. Low-Carbon Electricity
9. Local Renewable Resources for Local Demand
10. Next Generation Fuels
11. Labeling to Encourage Smart and Rational Choices
12. Low-Carbon Society Leadership

How to reach the Japan LCS?



Analysis of mid-term target setting in Japan by AIM model

1 AIM/Enduse[Global]

- How much should we reduce GHG emissions?

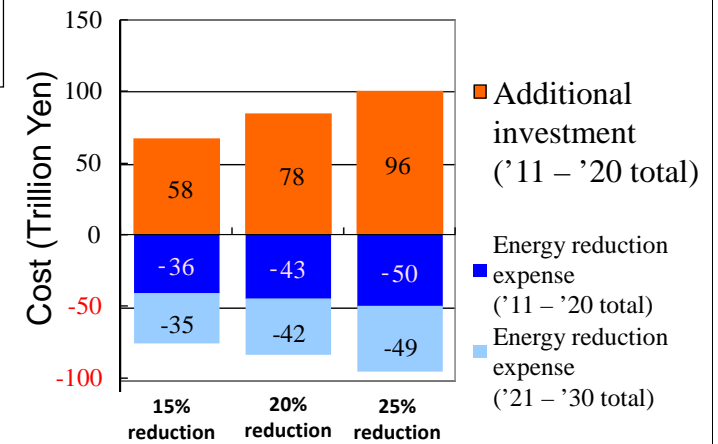
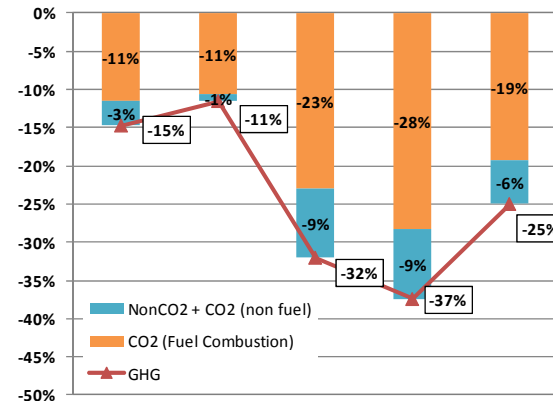
2 AIM/Enduse[Japan]

- Technological potential to reduce GHG emission
- Policies to develop & deployment technologies

3 AIM/CGE[Japan]

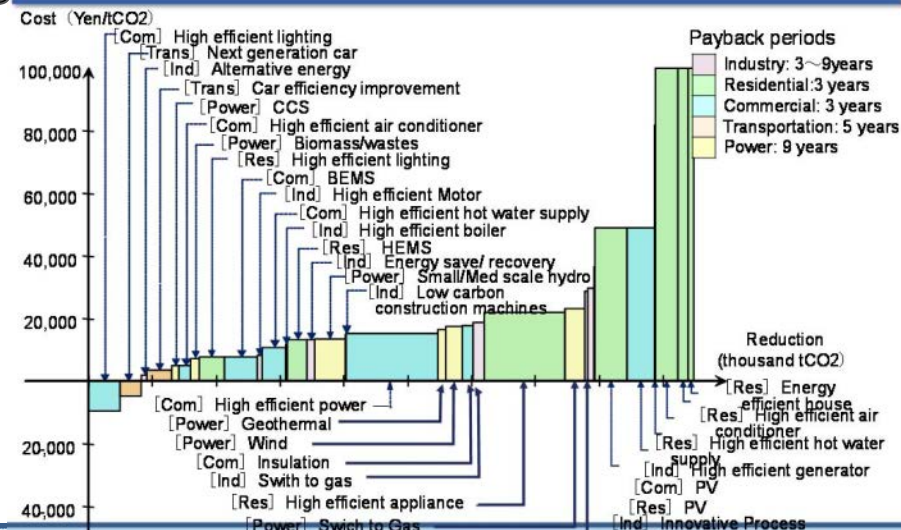
- Economic impacts by the implementation of climate change policies
- Effects of carbon pricing

Equal total abatement cost per GDP
Abatement cost per GDP: 0.74%



← Enduse [Global] ↑ CGE [Japan]
↓ Enduse[Japan]

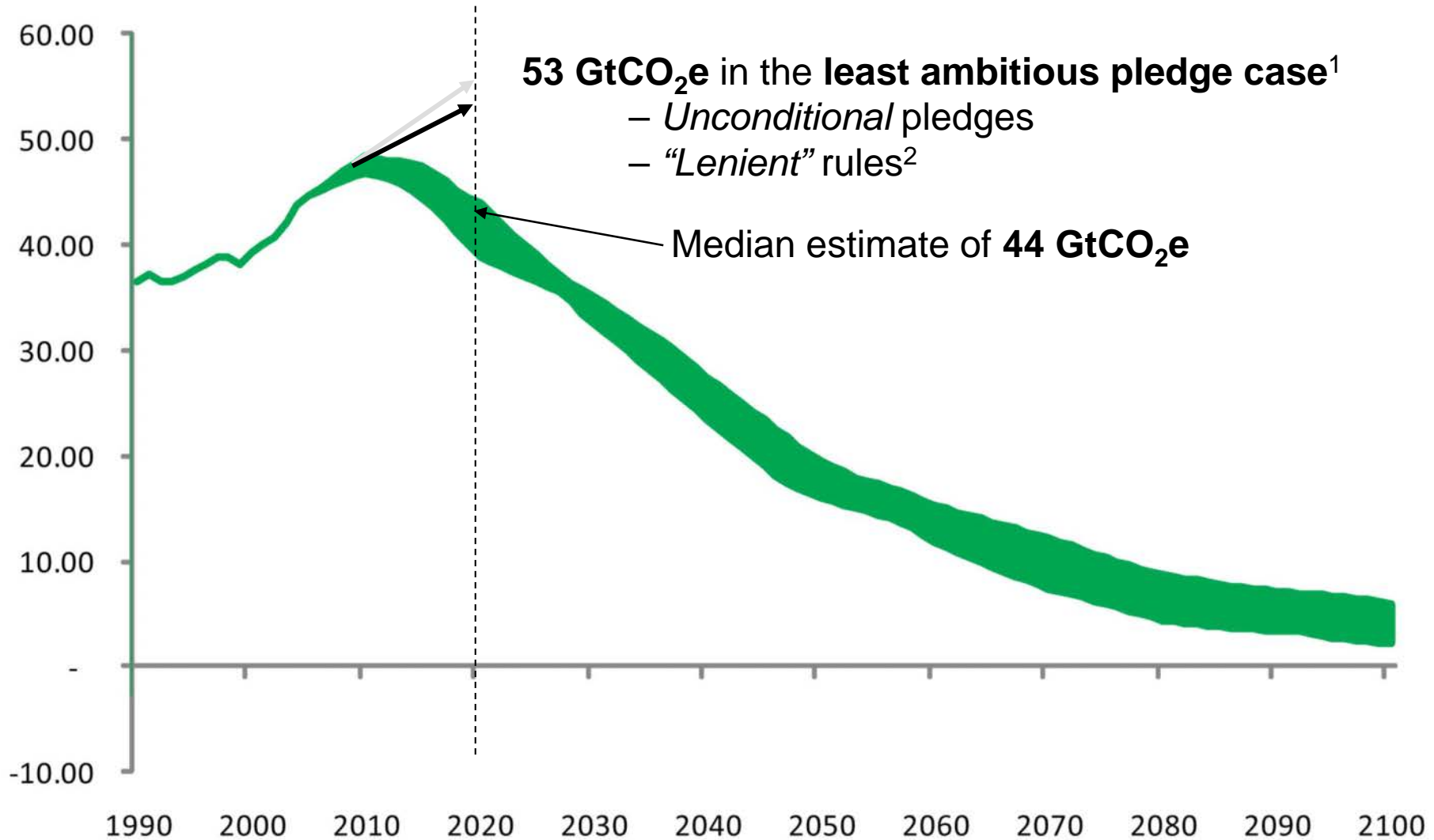
Marginal abatement cost curve for 25% GHG reduction





2. Where are we heading? Findings from Chapter 3

Global emissions, GtCO₂e



UNEP thanks Joeri Rogelj (ETHZ) and the European Climate Foundation for graphics

¹ This is the median estimate of modelling groups, estimates range from 52-57 GtCO₂e (20th to 80th percentile)

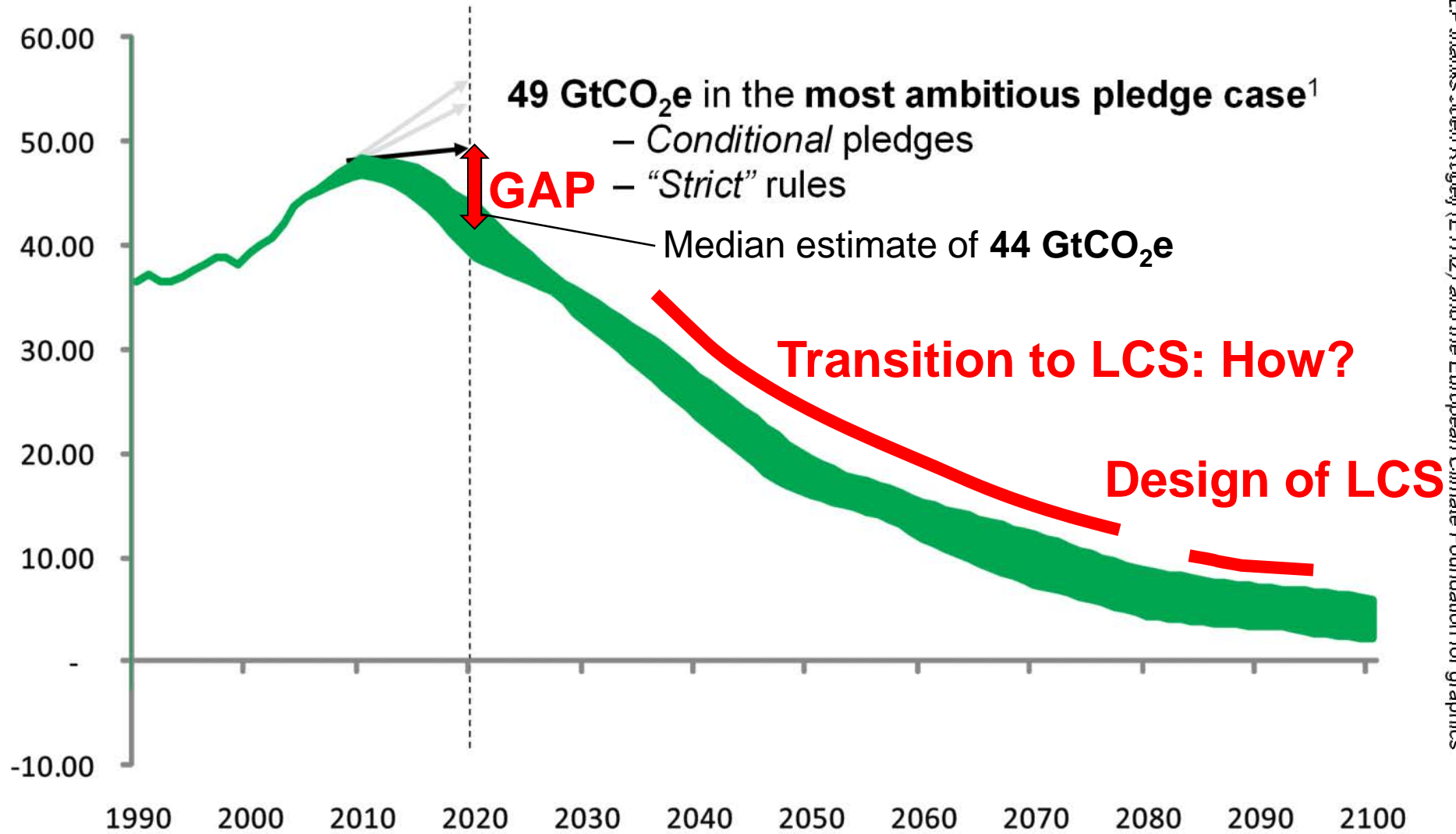
² This relates to rules surrounding the use of surplus emission units (particularly those carried over from this commitment period of the Kyoto Protocol) and LULUCF accounting

Source: Adapted from *The Emissions Gap report*, UNEP, 2010



2. Where are we heading? Findings from Chapter 3

Global emissions, GtCO₂e

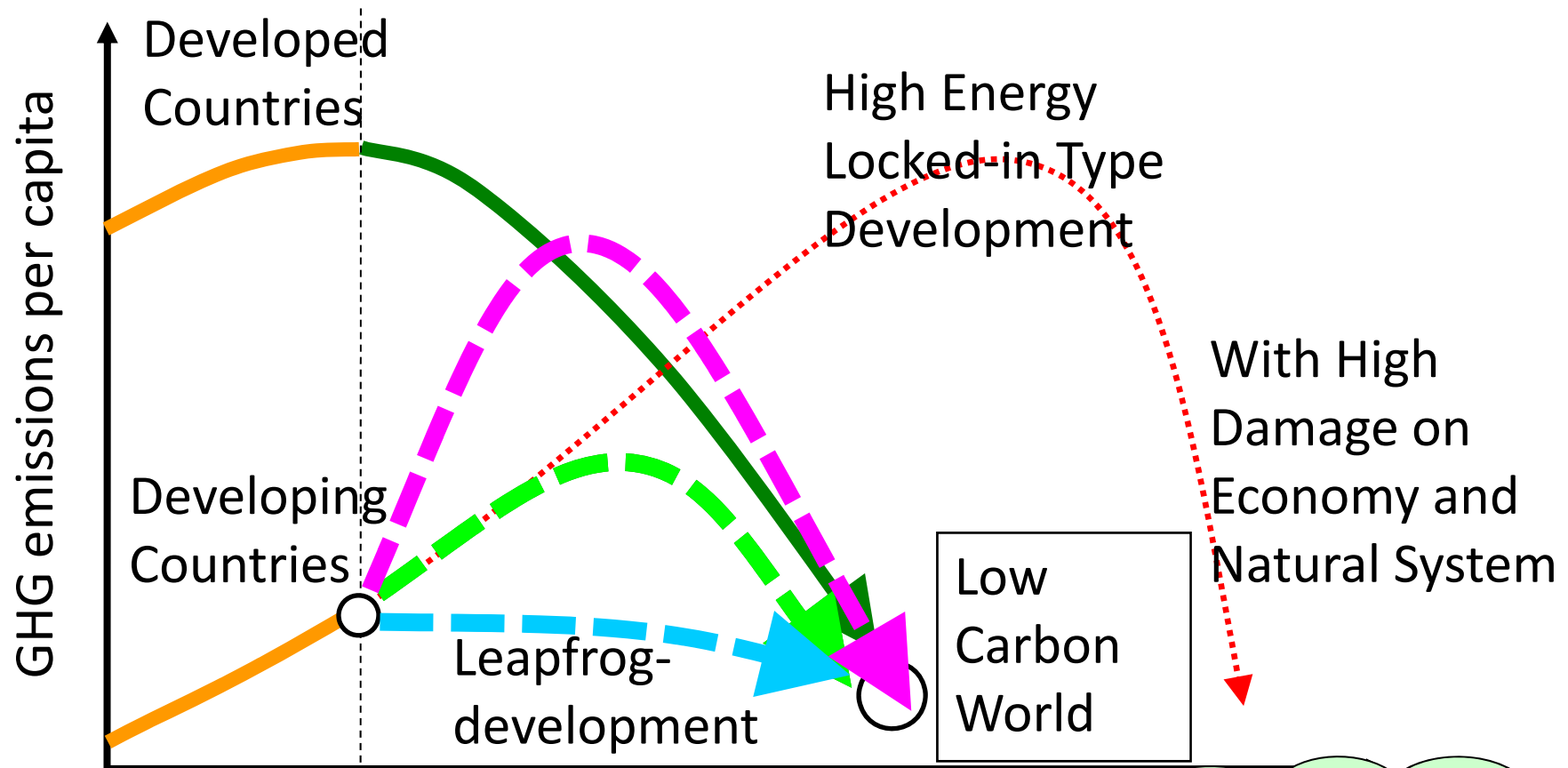


UNEP thanks Joeri Rogelj (ETHZ) and the European Climate Foundation for graphics

¹ This is the median estimate of modelling groups, estimates range from 47-51 GtCO₂e (20th to 80th percentile)
Source: Adapted from *The Emissions Gap report*, UNEP, 2010

How to achieve LCS?

Asian LCS scenarios study



Development of Asia LCS Scenarios

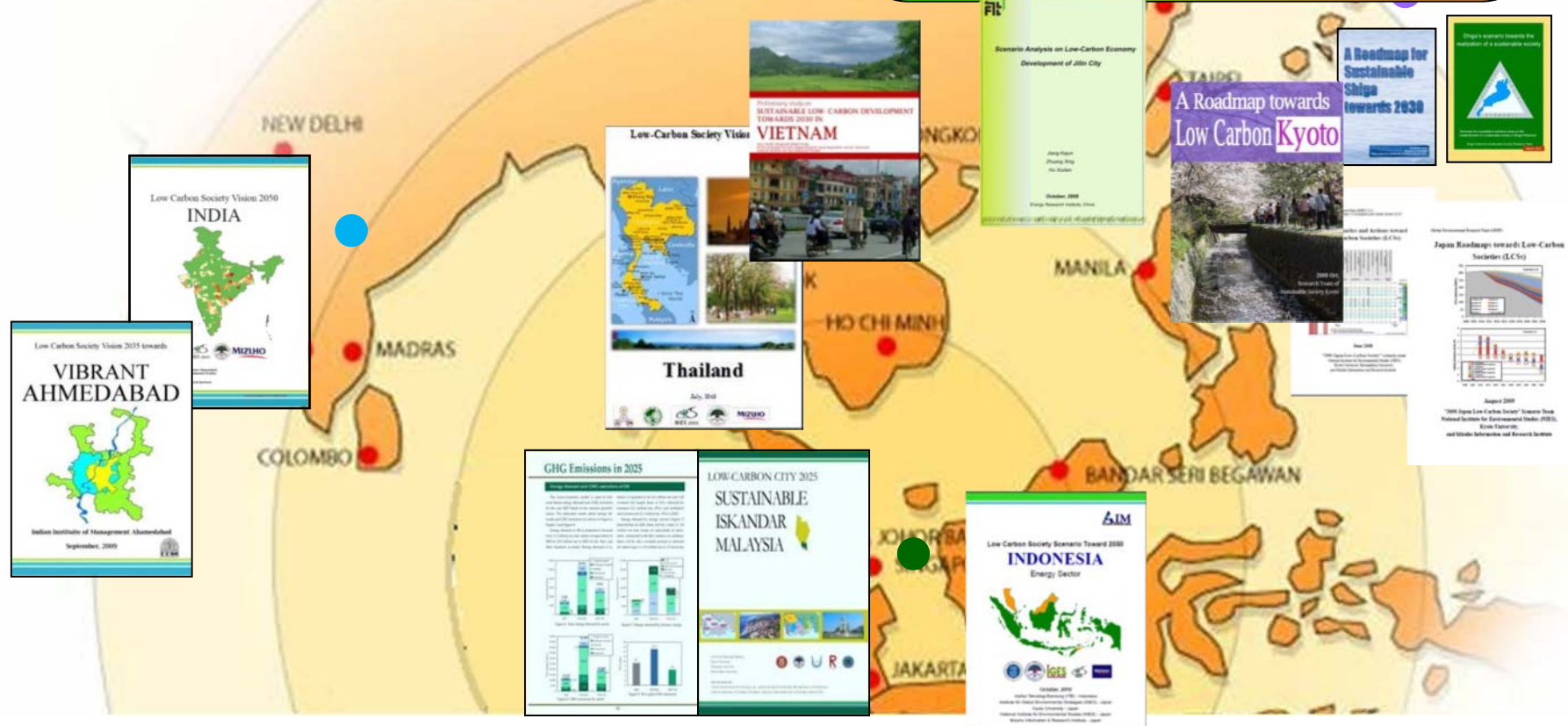
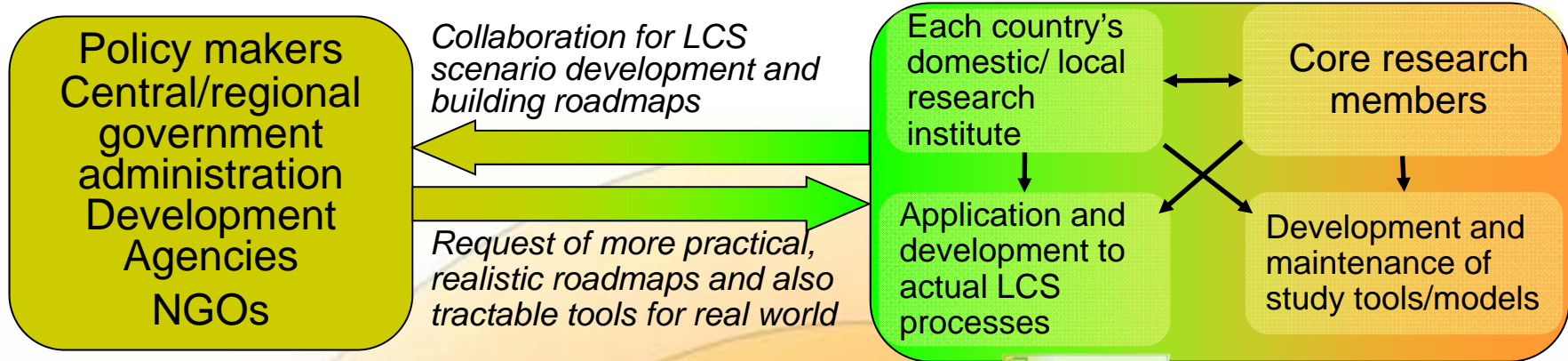
- (1) Depicting narrative scenarios for LCS
- (2) Quantifying future LCS visions
- (3) Developing robust roadmaps



Policy Packages for Asia LCS

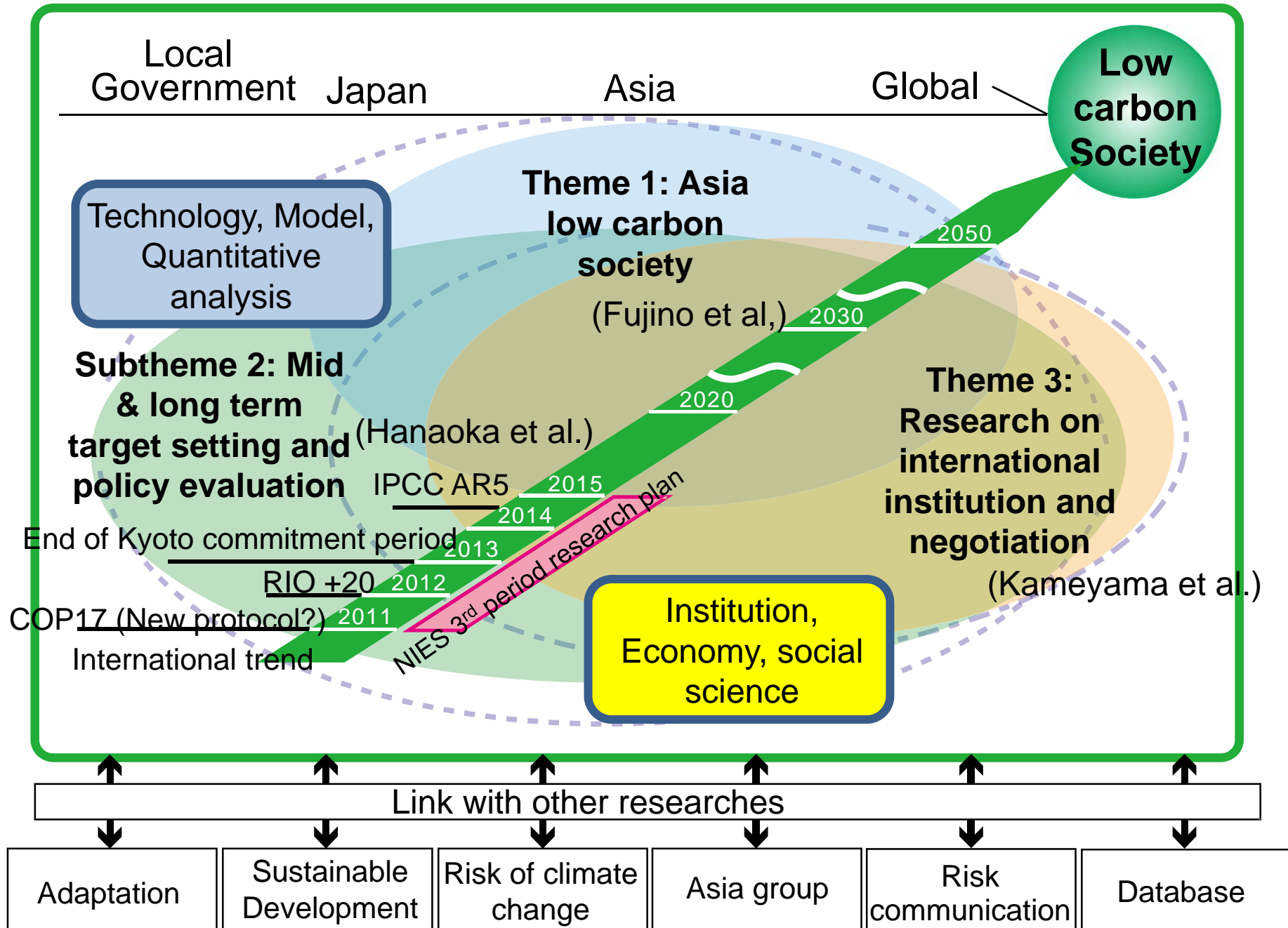
- Encouraging the framing for LC policy in each Asian country
- Assistance for international negotiations with scientific basis
- Networking among LCS research in Asia

How to deploy our study to real world

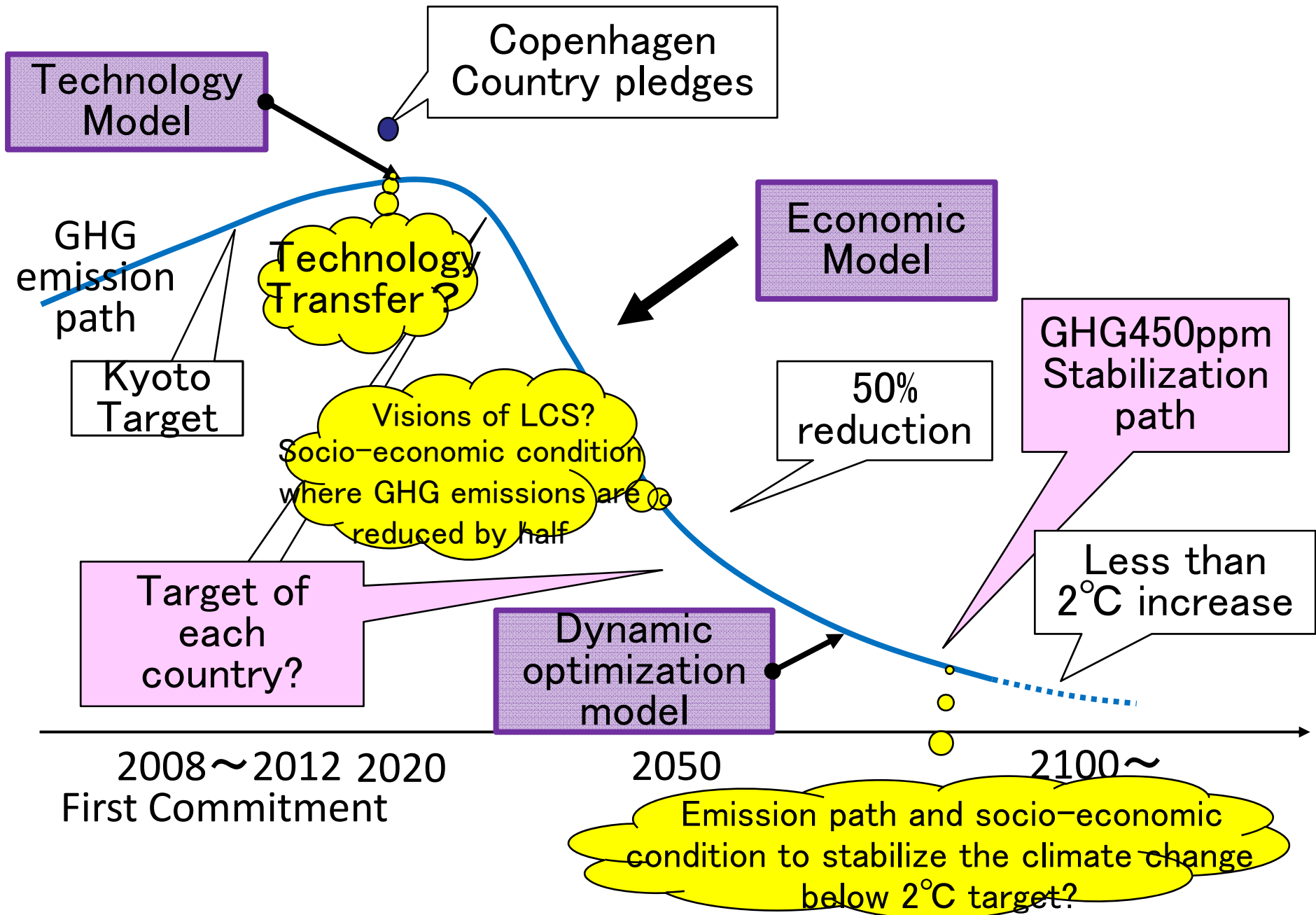


<http://2050.nies.go.jp/LCS>

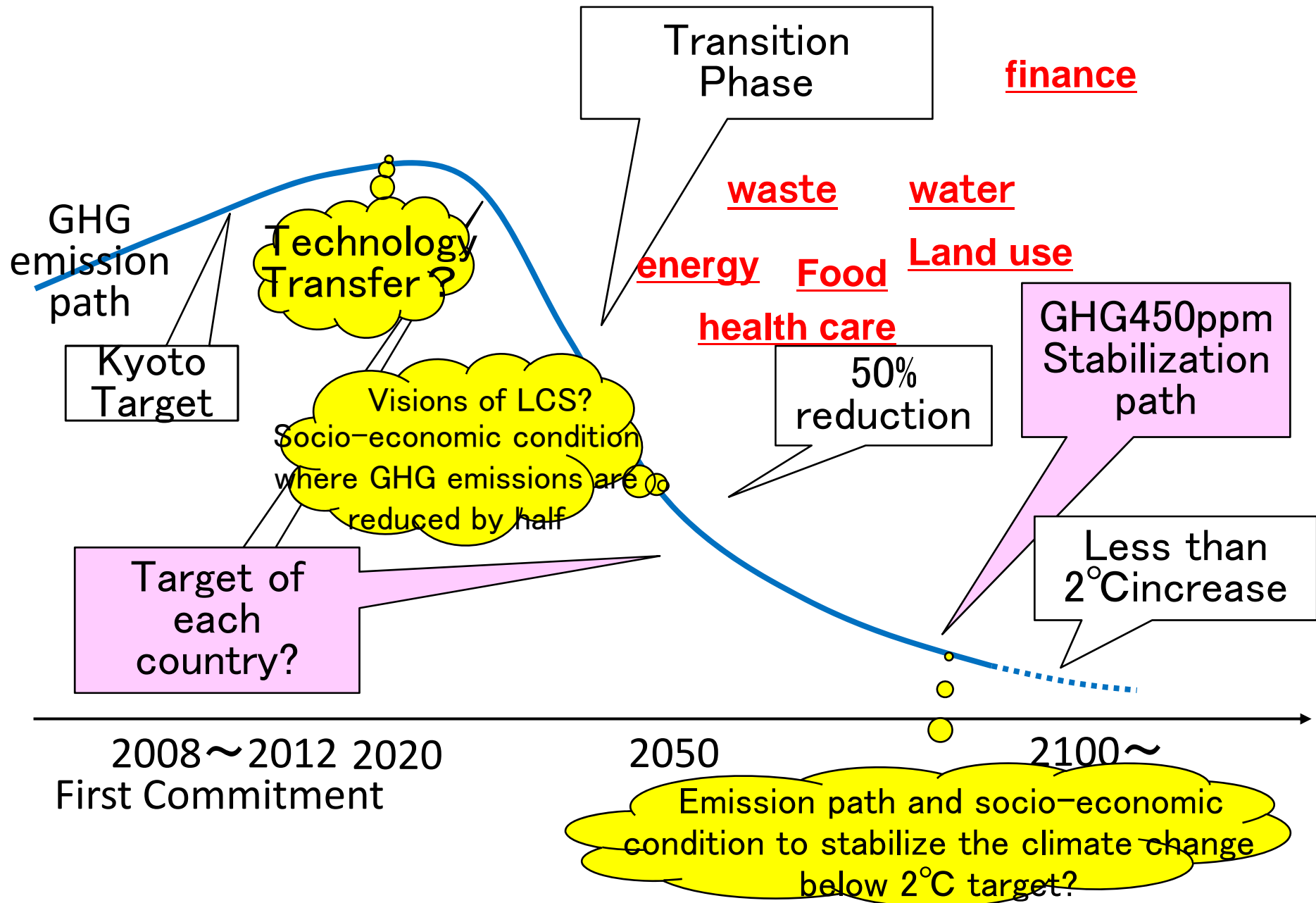
New Project led by Dr. Masui



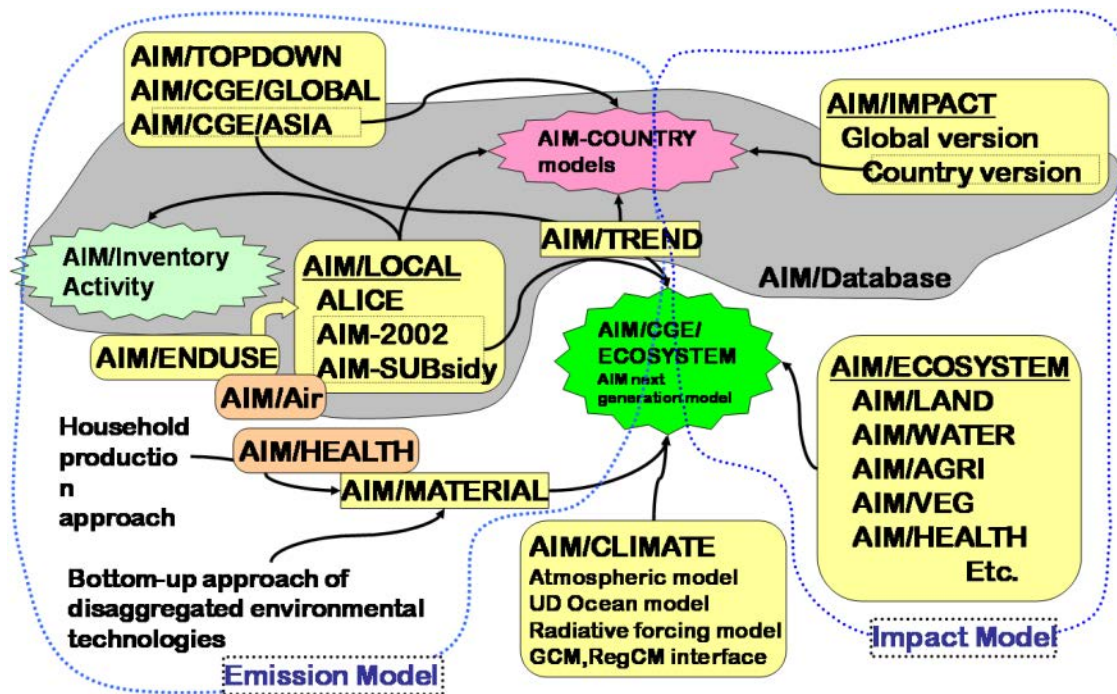
Modeling and Policy Analysis to tackle with climate change



Modeling and Policy Analysis to tackle with climate change



AIM model contribution



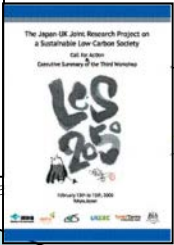
- National/local government
- Development agency
- Private/Business
- NGOs
- Research Institutes & Universities
- LCS-RNet
- IPCC/AR5
- EMF
- AMF
- AMPARE
- UNEP/GE05

Major themes

- New scenario development with integration of adaptation, mitigation, and development
- Roadmap to achieve a low carbon society
- Better understanding of transition to a low carbon society
- More comprehensive treatment of regional aspects of climate change
- Climate change in the context of other dimensions (e.g. poverty, energy security, food security, water security, biodiversity loss, ...)

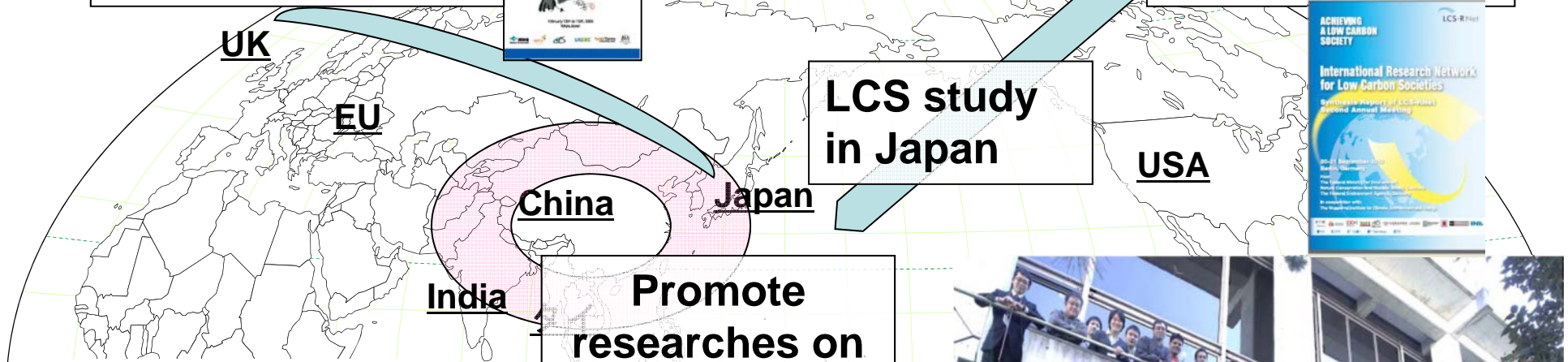
International Cooperation toward Low Carbon Society

Japan-UK Joint Project on LCS
2006, 2007, 2008

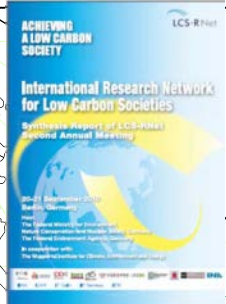


Society

**LCS-RNet:
supported by
G8EMM**



**LCS study
in Japan**



**Promote
researches on
Asia LCS**

- Organize side events on LCS at COP11-16

- International comparison on mitigation potential at OECD meeting/ UNFCCC SBSTA



AIM training workshop at NIES



The 15th AIM International Workshop



LCS model building capacity workshop at Bangkok

Thank you for your contribution!