A photograph of farmers working in a flooded rice paddy field. Several farmers are bent over, planting rice seedlings in the water. They are wearing traditional hats and clothing. In the background, there are snow-capped mountains under a clear blue sky. A white car is visible on a road in the distance.

How to link AIM LCS Scenario development activities to LCS-Rnet: A Dozen Frequently Asked Questions from Decision Makers to Modelers:

**Low Carbon Society Model Capacity Building Workshop
Bridge Simulation Scenarios and Sustainable LCS Policy Implementation
Using AIM , 19 Nov. 2010 Bangkok
Shuzo Nishioka Institute for Global Environmental Strategies (IGES)
National Institute for Environmental Studies (NIES)**

How to reach a Low Carbon Society ?

Low Carbon Society Research Network: LCS-RNet:

International researcher's community responds to
G8 and world leaders' requirements

Shuzo Nishioka

Secretary General of LCS-RNet

Institute for Global Environmental Strategies (IGES)

Transition towards Low Carbon Societies in Thailand and Asia
17-18 Nov. 2010 Bangkok



Antonio
NAVVARA



Stefan
LECHTENBÖHMER



Jim
SKEA



David
MCLAUGHLIN



Mikiko
KAINUMA



P.R. Shukla



NRTEE



NIES JAPAN



IIITM
AHMEDABAD

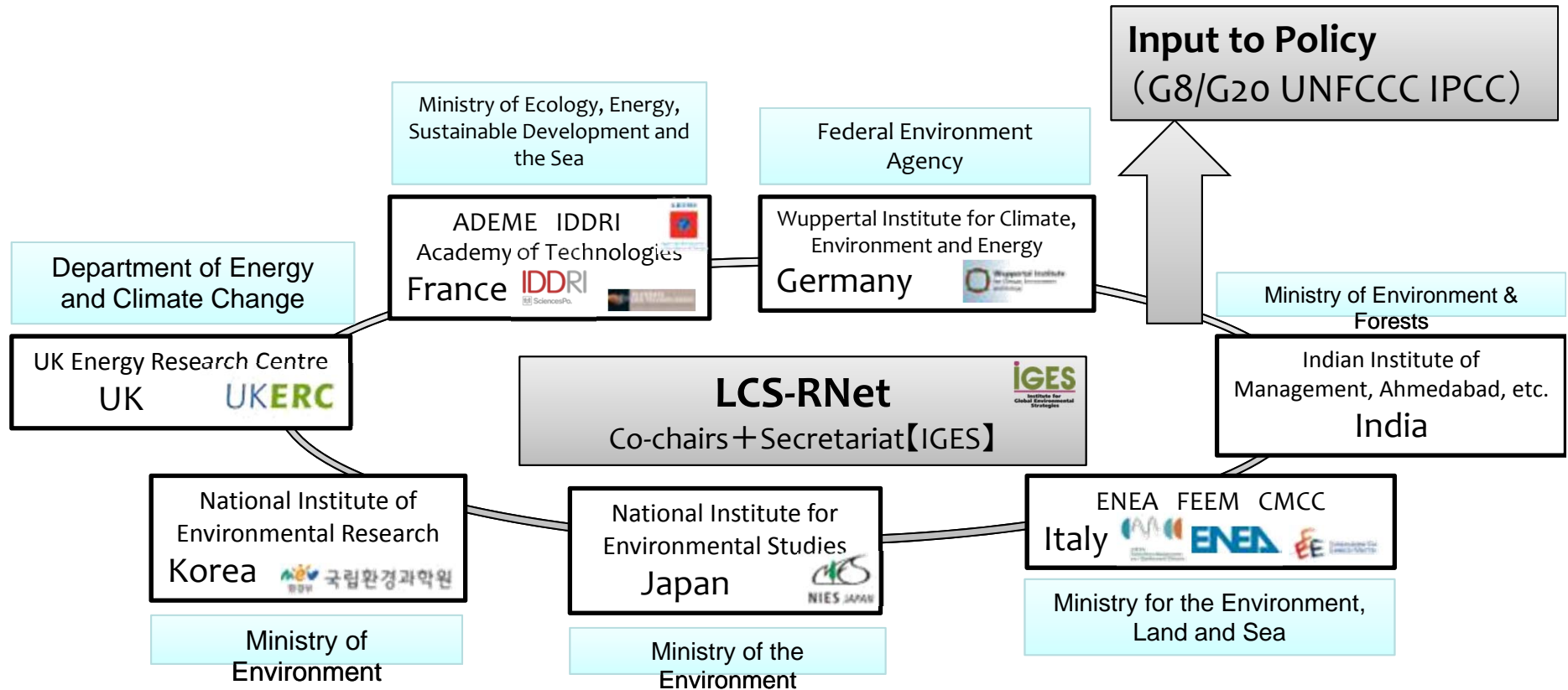


International Low Carbon Society Research Network (LCS-RNet)

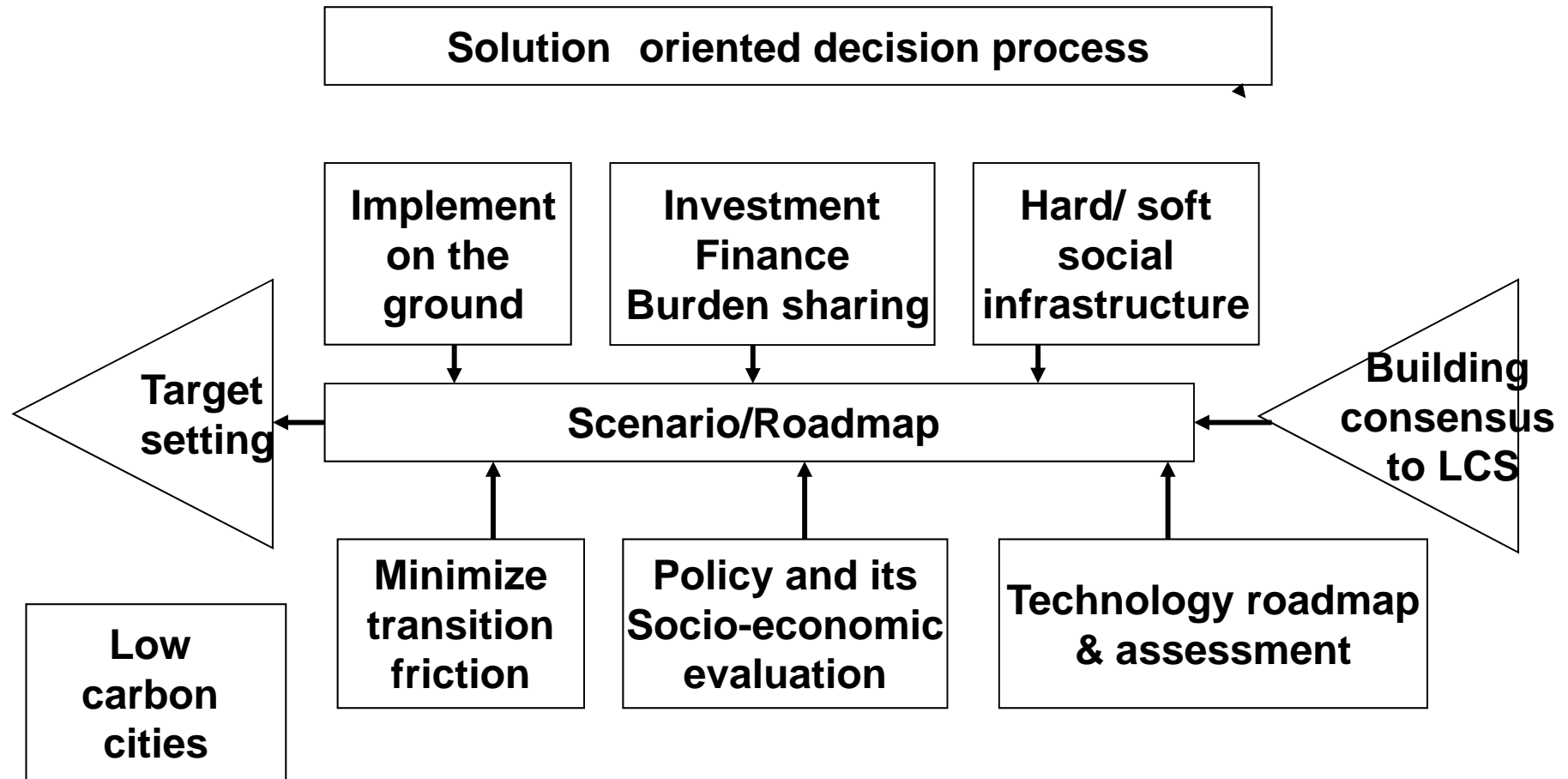
- Established in 2009 on the initiative of the **G8 Environment Ministers** Meeting
- LCS-RNet promotes:
 - 1) **information exchange amongst researchers** to share updated scientific knowledge and information on the various policy tools required to realize low carbon societies and green growth (hereafter “LCS research”);
 - 2) **research cooperation** amongst researchers;
 - 3) international **dialogue between researchers, policy-makers and other stakeholders** from different countries in order to learn from knowledge and experience and to reflect them in LCS research (“LCS dialogue”);
 - 4) the diffusion of scientific inputs and recommendations to international climate change **policy-making fora including G8, G20 and the UNFCCC COP’s**
- Network of research institutions: 15 institutions from 7 countries in 2010
- Secretariat: Institute for Global Environmental Strategies (IGES), Japan
- Annual Meeting: 2009 in Bologna, October 2009 hosted by Italy
- 2010 in Berlin, September 2010 hosted by Germany
- Other information is provided in <http://lcs-rnet.org/>

LCS-RNet(International Research Network for Low Carbon Societies)

- Supported its foundation by G8 Environment Ministers Meeting.
- Research network to foster researches to realize low-carbon societies.
- 7 countries and 15 research institutes (currently)



Formulation of LCS



Collaborative works between policy makers and research society to achieve Low Carbon Society

A Dozen Frequently Asked Questions from decision makers to modelers

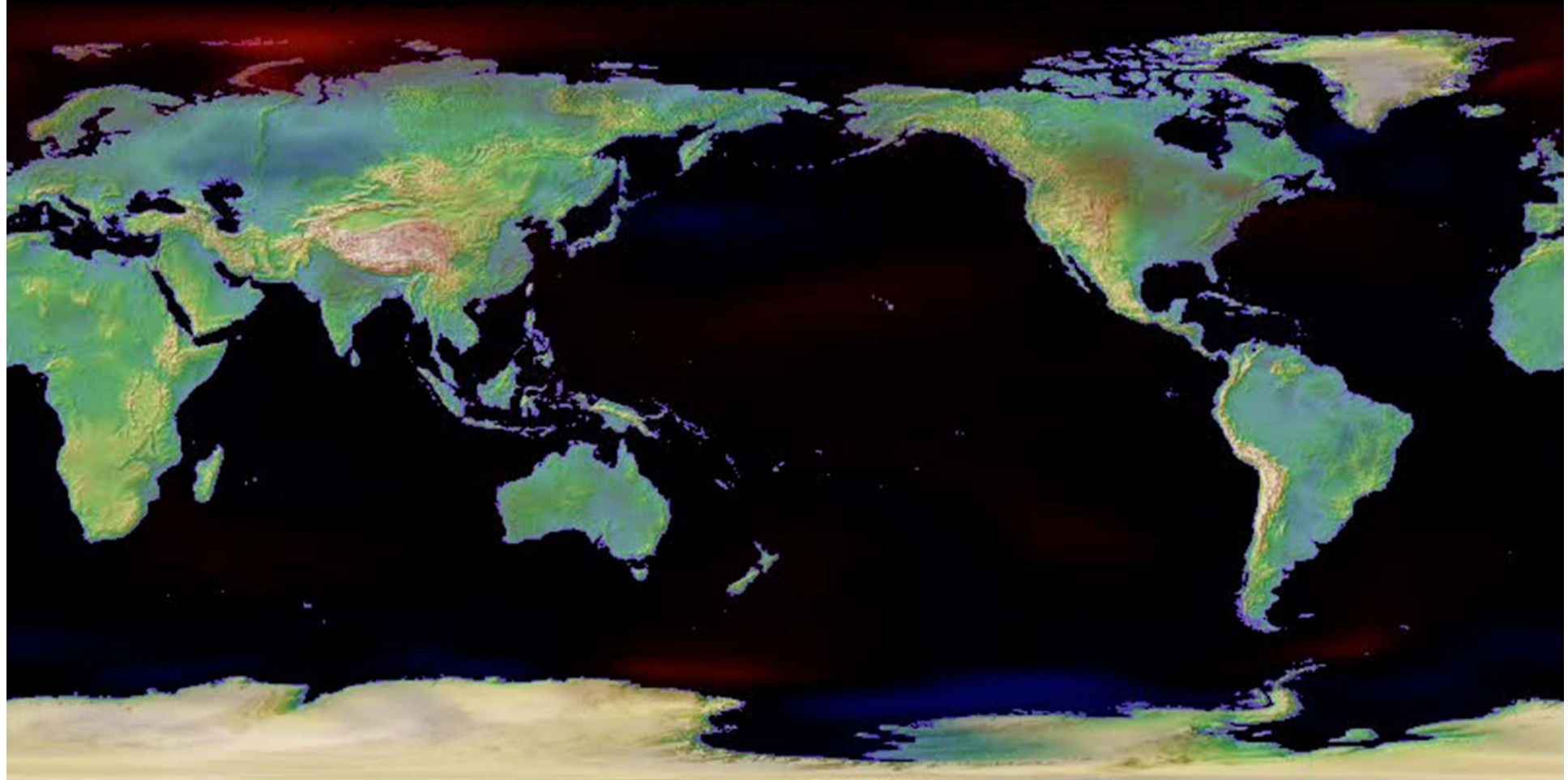
- * What happens without climate policy ?**
- * How much reduction needed ultimately ?**
- * How to set world reduction target ?**

- * Options of country's reduction target: long/mid- term**
 - * Should industrial structure change ?**
 - * How much reduction potential each sector has ?**
 - * How to change land use ?**
 - * How much is the cost of reduction ?**
 - * What policy options exist to attain the goal ?**
 - * How much is the impact to country's economy ?**
 - * Can we win in international technology competition ?**

- * How Japan can contribute internationally?**

Q1: What happens without climate policy ?

Building consensus for action Projection of surface temperature from 1900



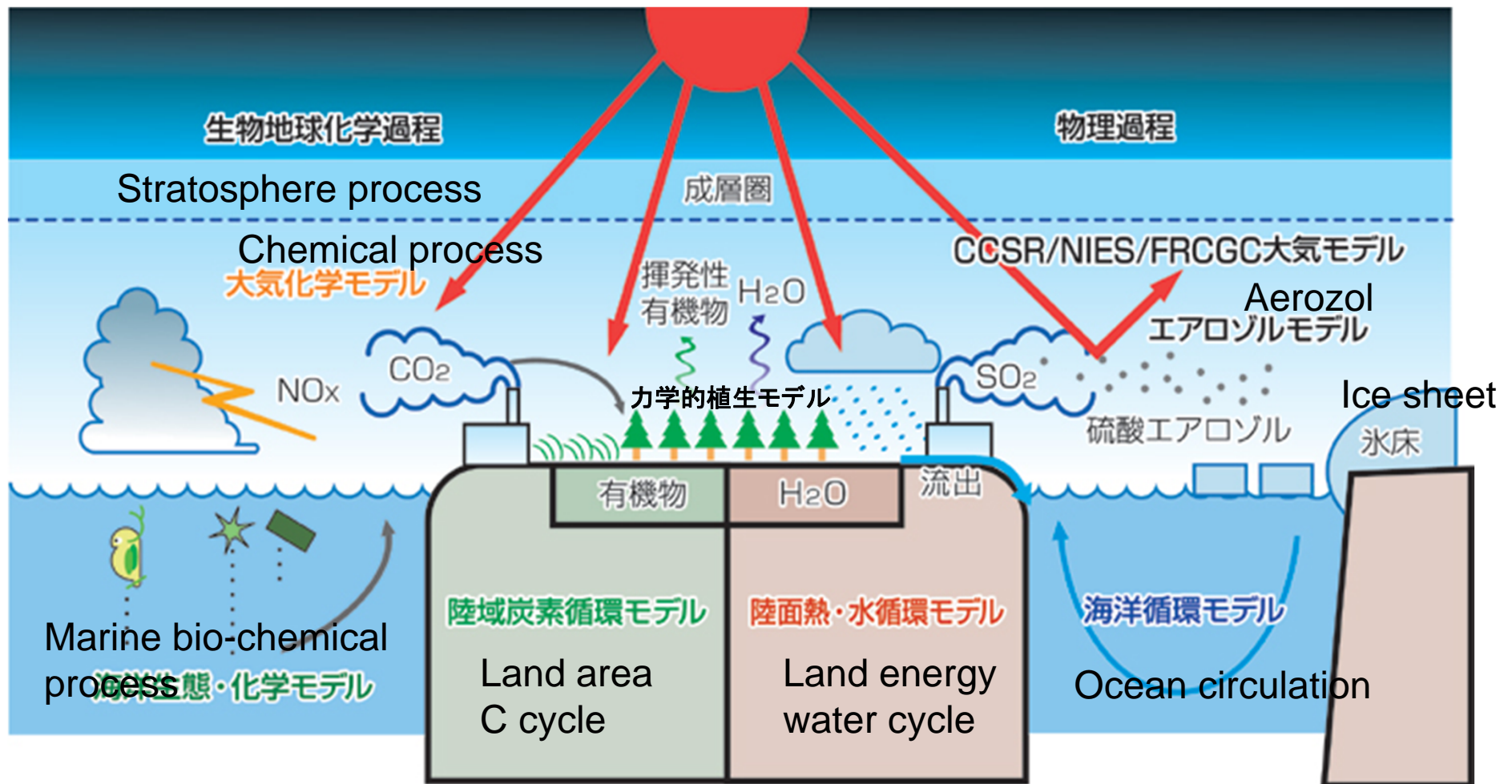
1950



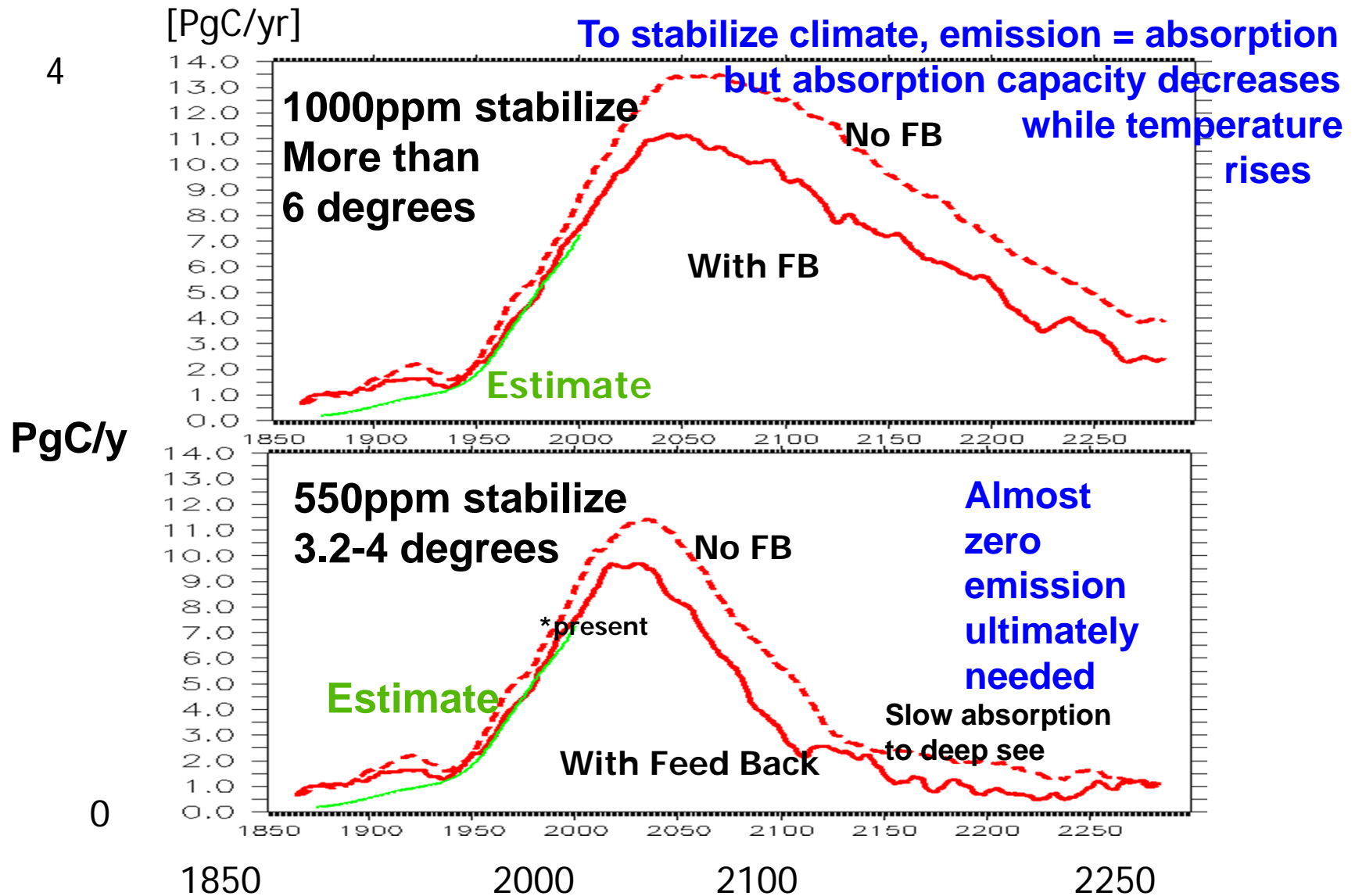
Climate model: CCSR/NIES/FRSGC

Q2: How much reduction needed ultimately ?

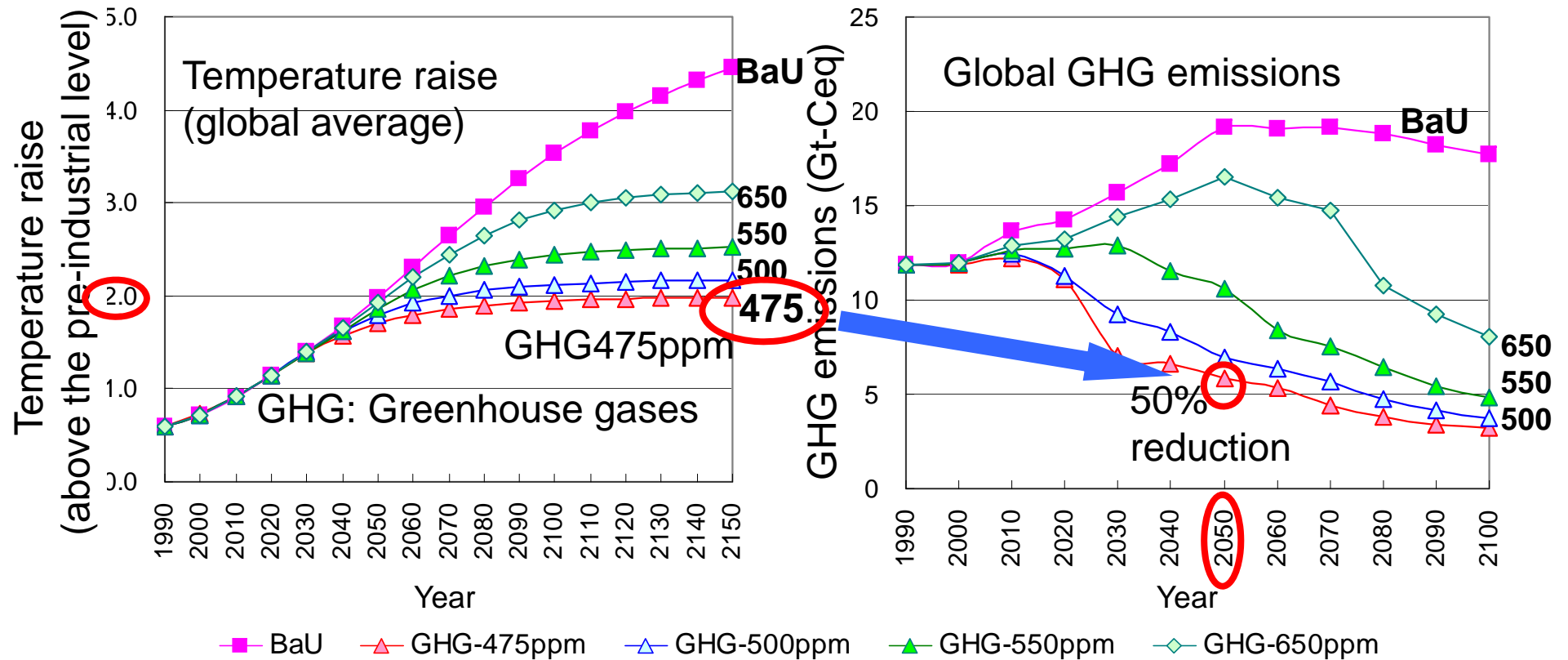
Earth System Integrated Model: climate +carbon cycle model



Q2: How much reduction needed ultimately ?



Interim research findings of "Innovative" Earth System Model
 JAMSTEC(2007)



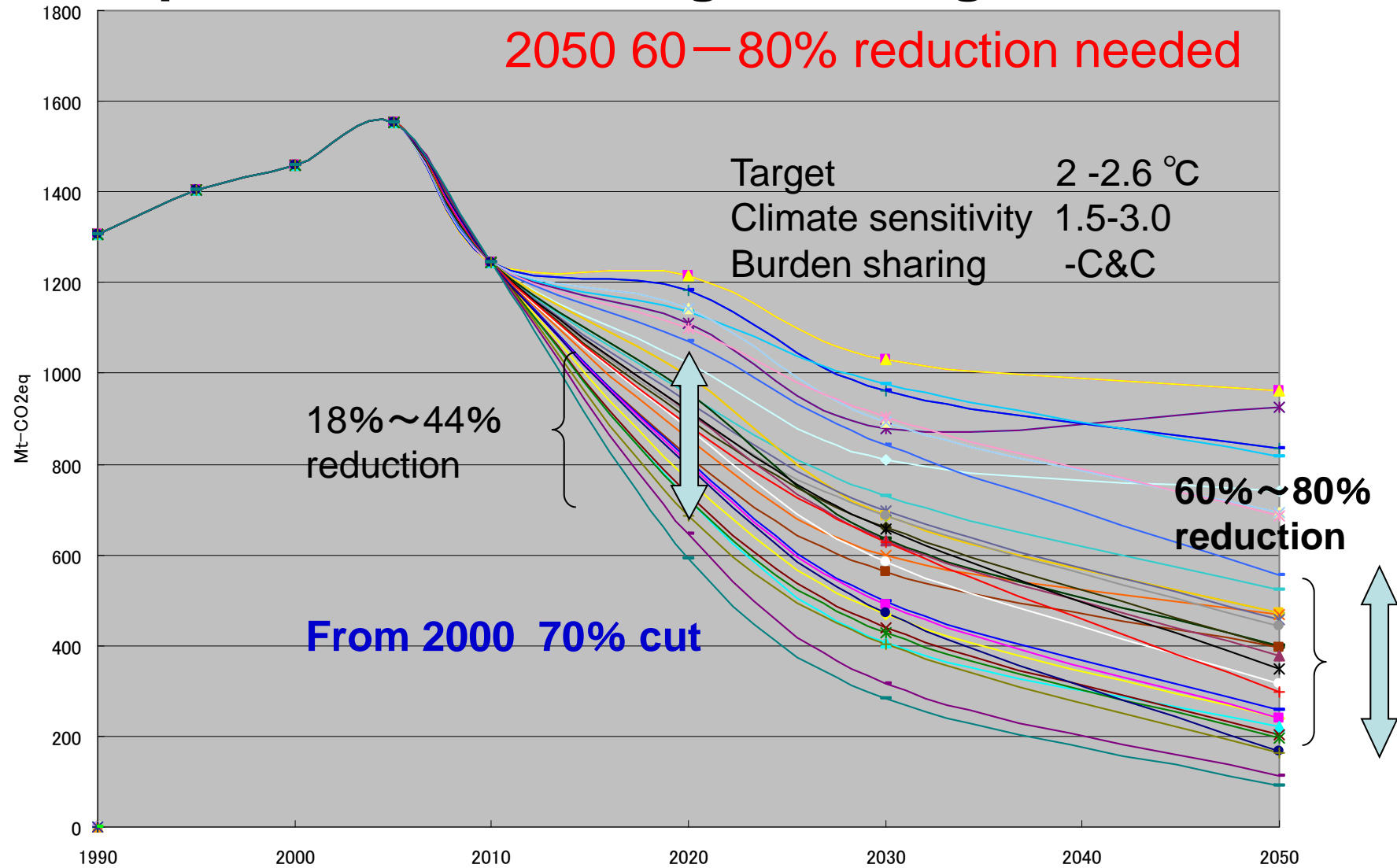
Q3:How to set world reduction target ?

- to avoid temperature rise of 2°C from pre-industrial era,
50% GHG reductions in 2050 is required

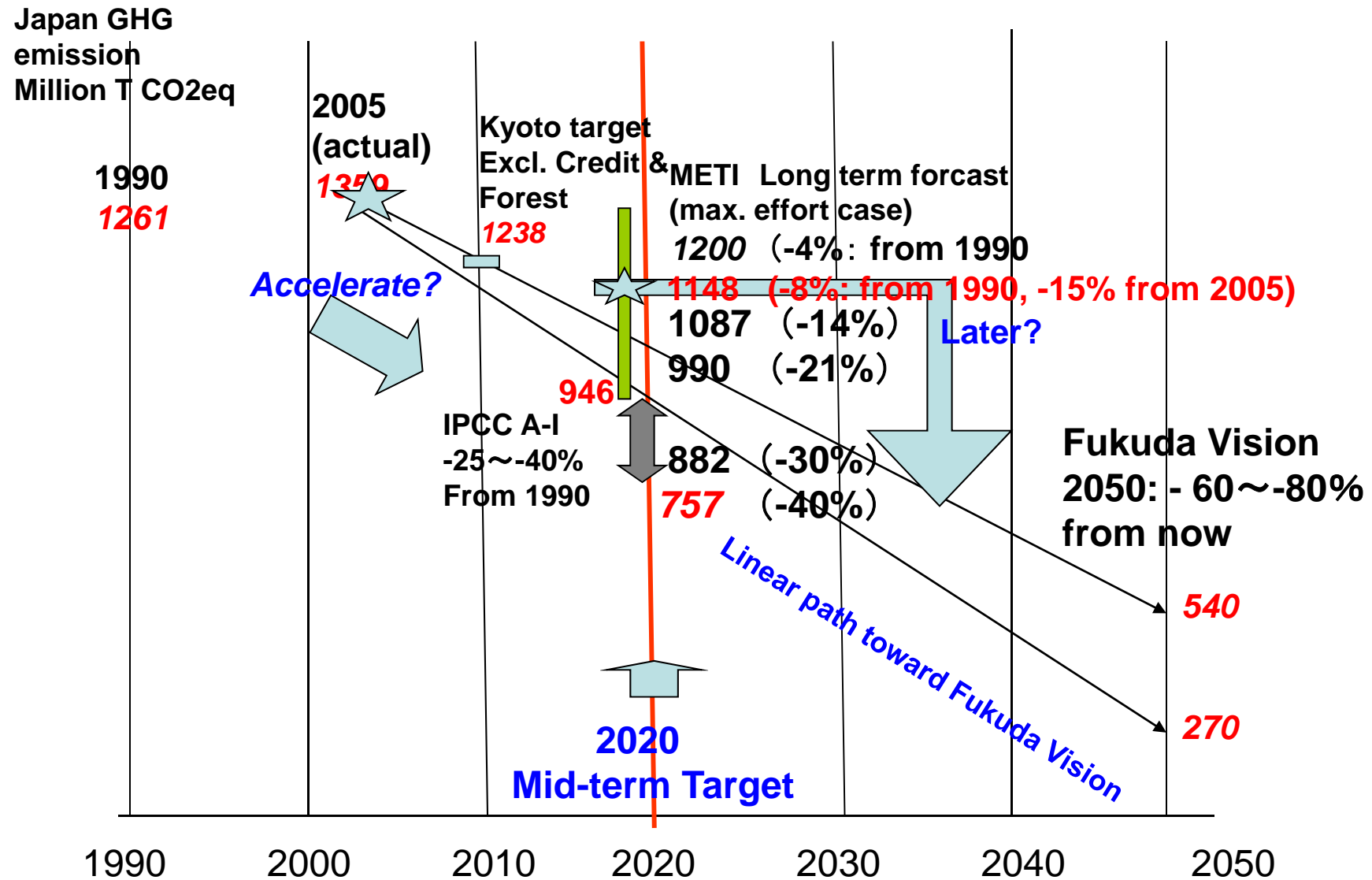
Calculated by AIM/Impact [policy] Model: NIES

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

Q4: Japan's reduction target?: long-term



Q4: Japan's reduction target?: mid-term



Q4: Japan's reduction target?: mid-term

Evaluation of Options (2009 reported to Laquila G8)

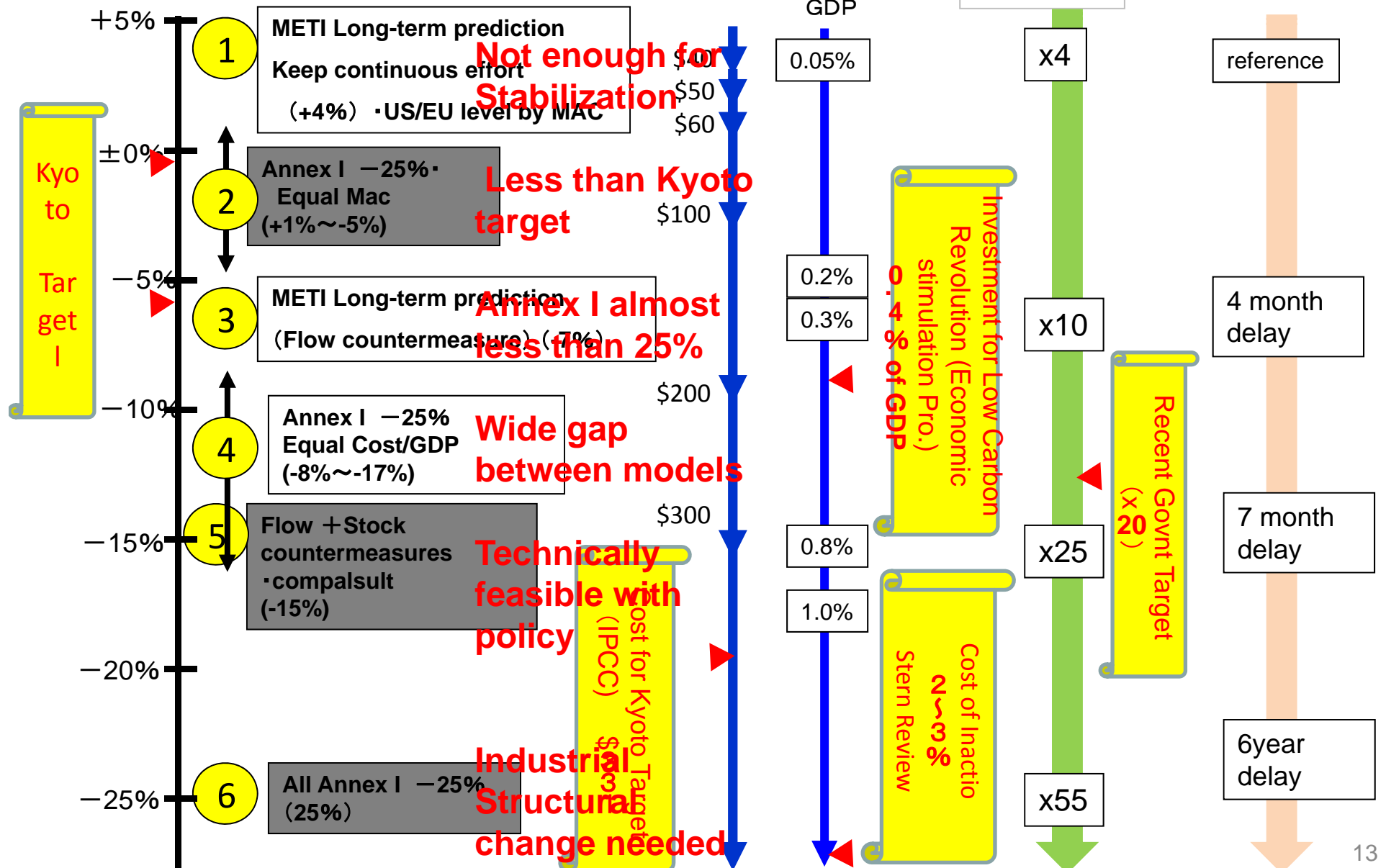
Base :1990

①Mac

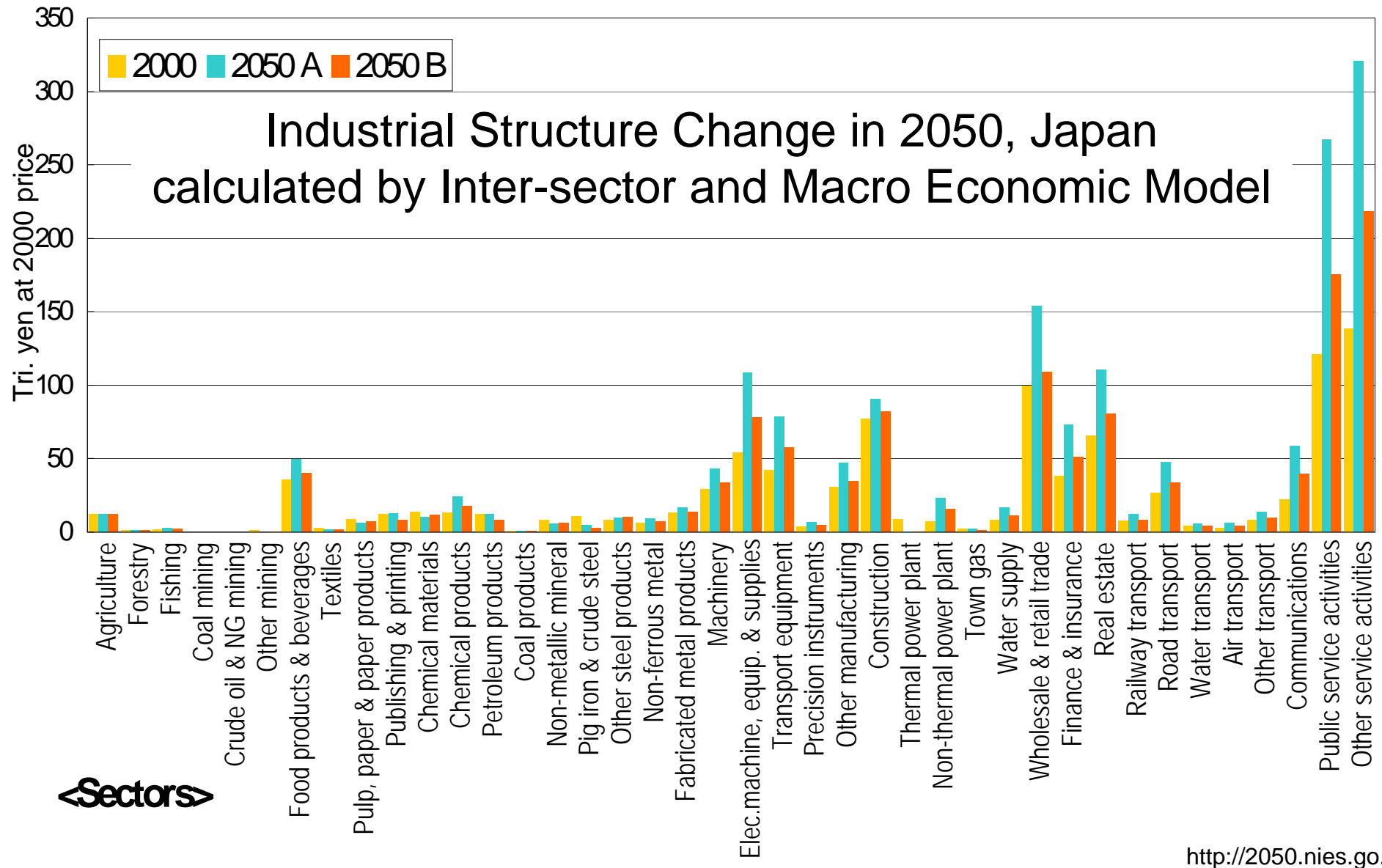
② per GDP

Photo Voltaic generation (base:2005)

Economic impact (NIES) NetGDP



Q5: Should industrial structure change ?



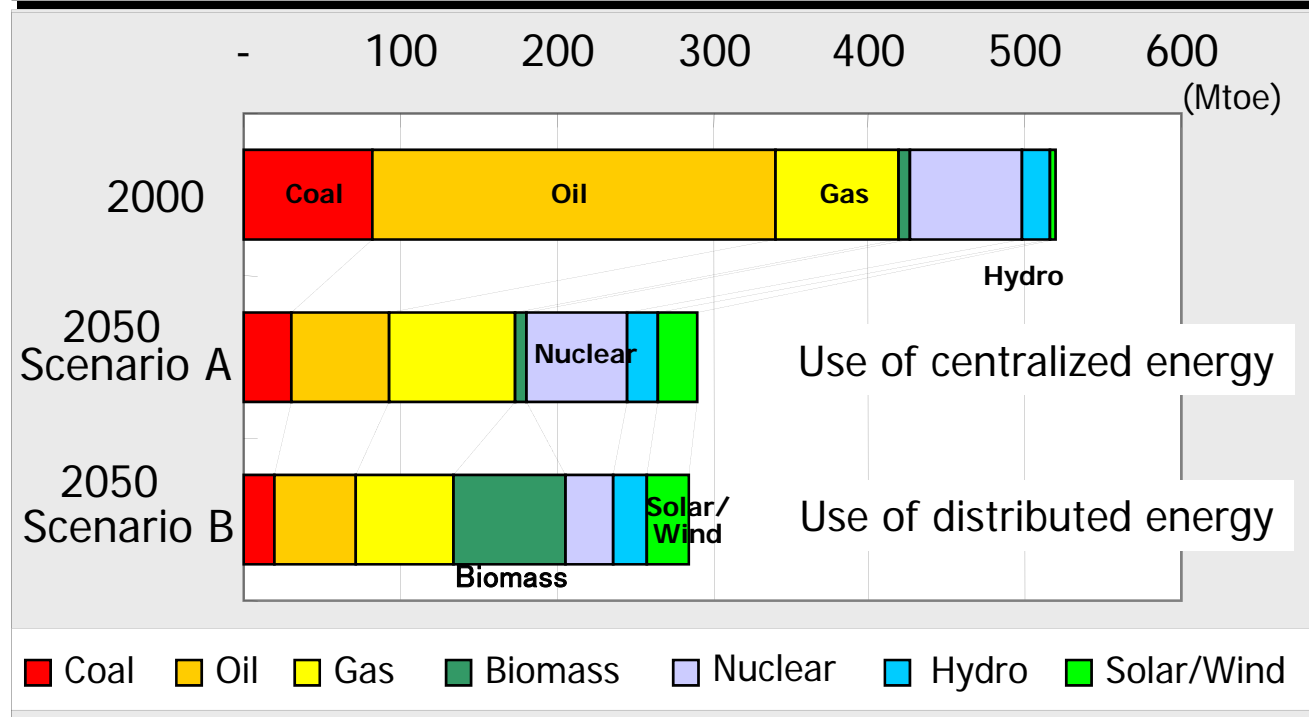
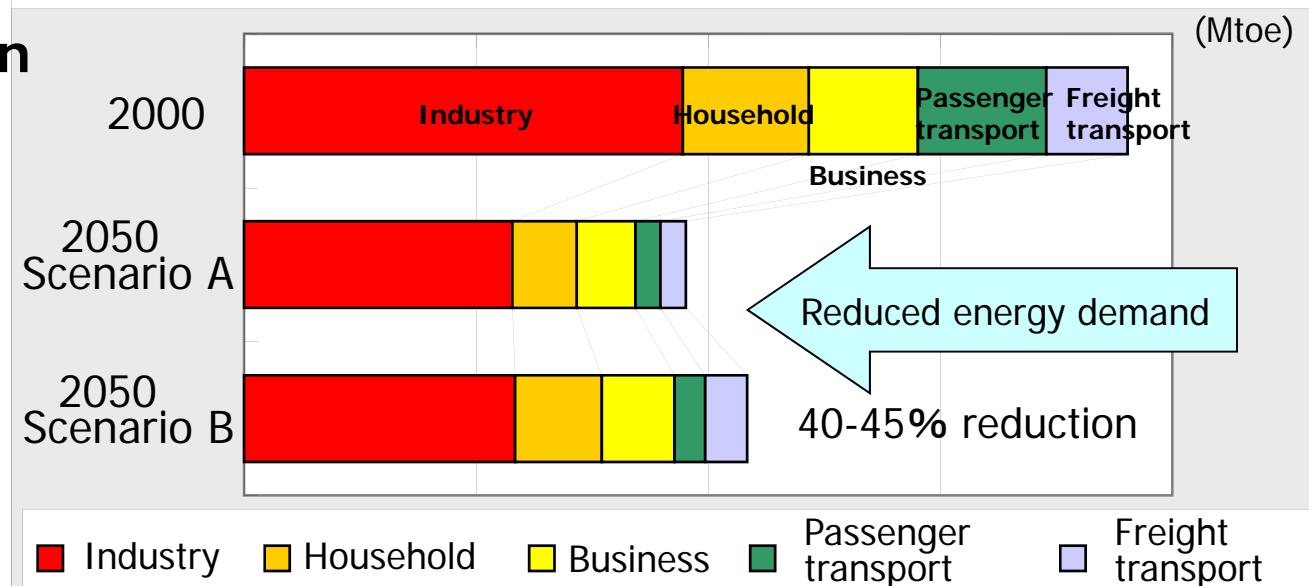
Q6: How much reduction potential each sector has ?

70% CO₂ reduction feasible

Smart consumer choices can reduce energy consumption by as much as 40-45%!

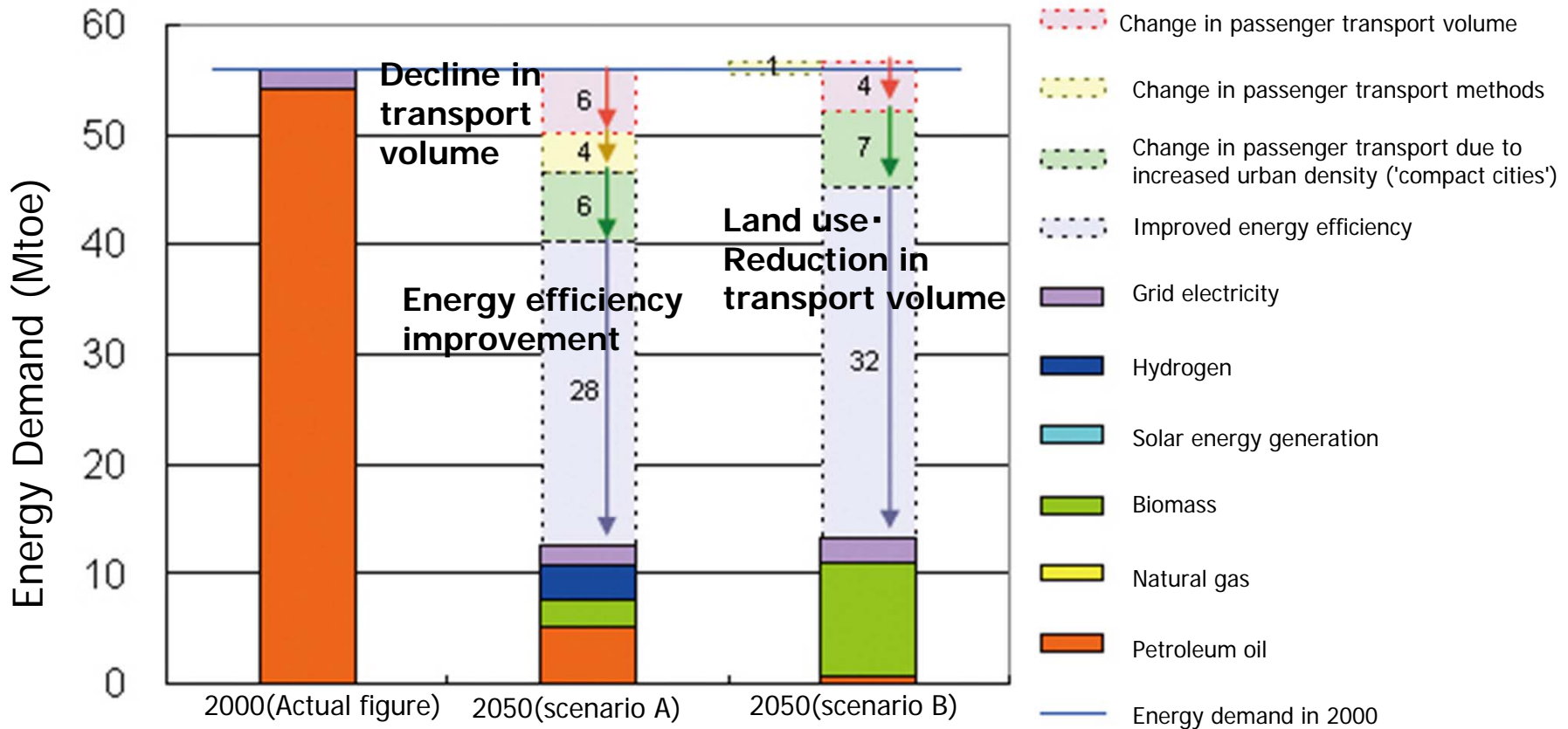
Equal effort by demand & supply side

Low carbon shift in primary energy sources via introduction of renewable energies



Q7: How to change land use ?

Passenger transport sector can achieve 80% reduction in energy demand via improved energy efficiency & suitable land use



Change in passenger transport volume: reduction in total movements due to population decline

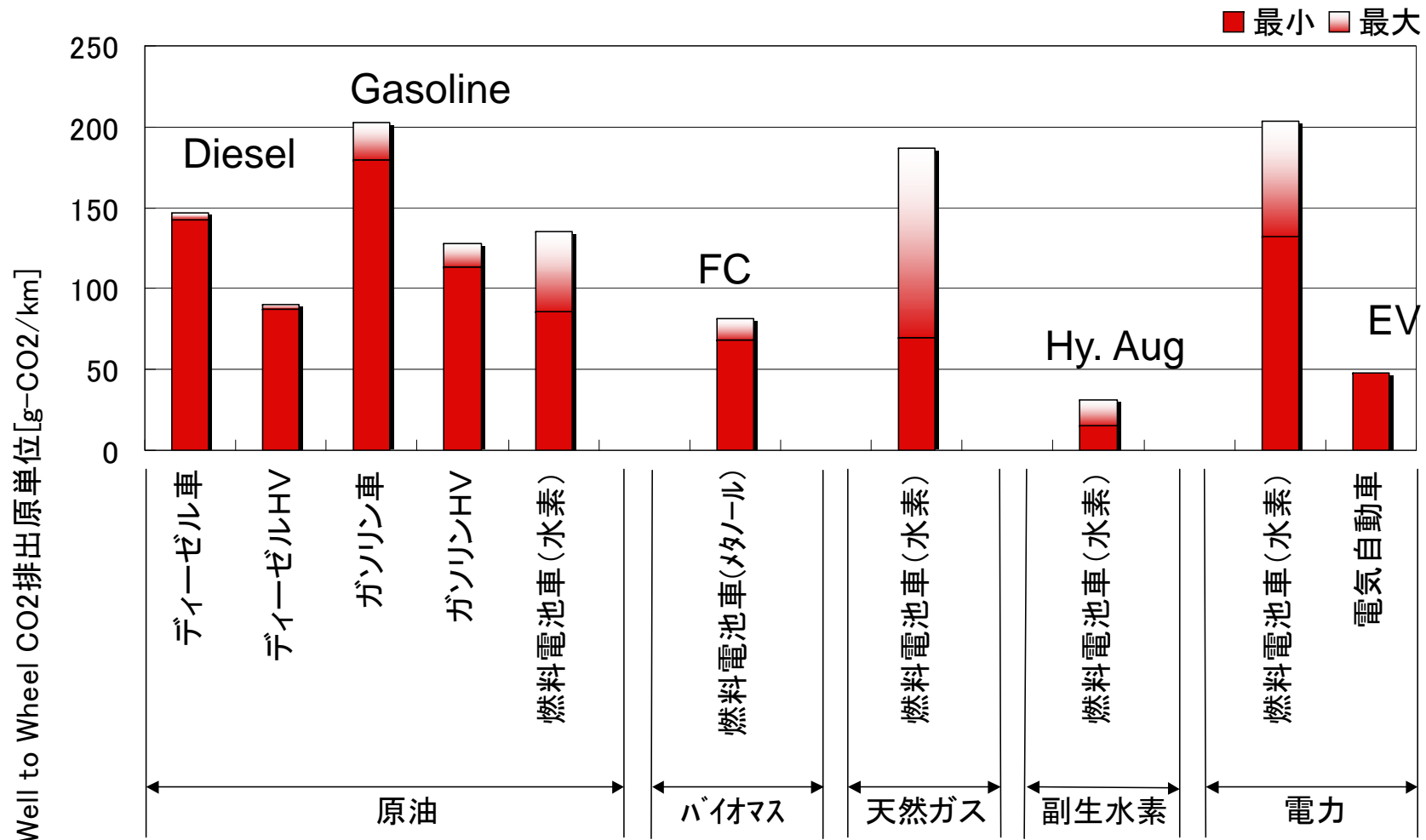
Change in passenger transport methods: modal shift using public transport system (LRT etc.)

Change in passenger transport due to increased urban density ('compact cities'): reduced travel distance due to proximity of destination

Improved energy efficiency: improvements in automobiles & other passenger transport devices (hybrids, lightweight designs etc.)

Technical solution

Car CO₂ Emission/km: EV: Gasoline= 1:4



※HV: ハイブリッド車の省略形

※電力: 日本の平均電源構成

※燃料電池車: 回生エネルギーを二次電池で回収

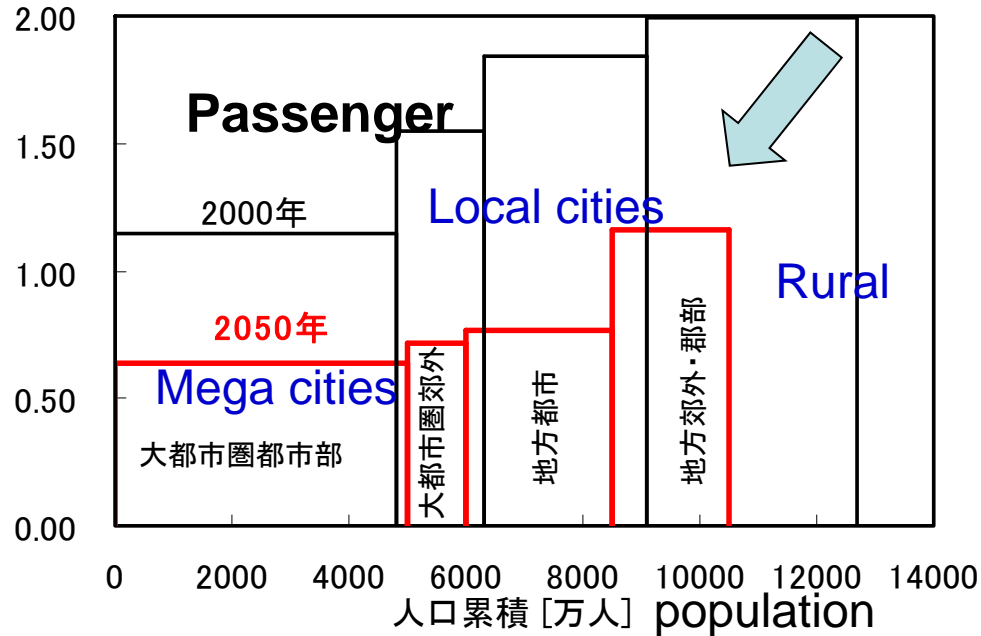
※水素: 圧縮水素を仮定

脱温暖化2050研究
交通チーム 工藤

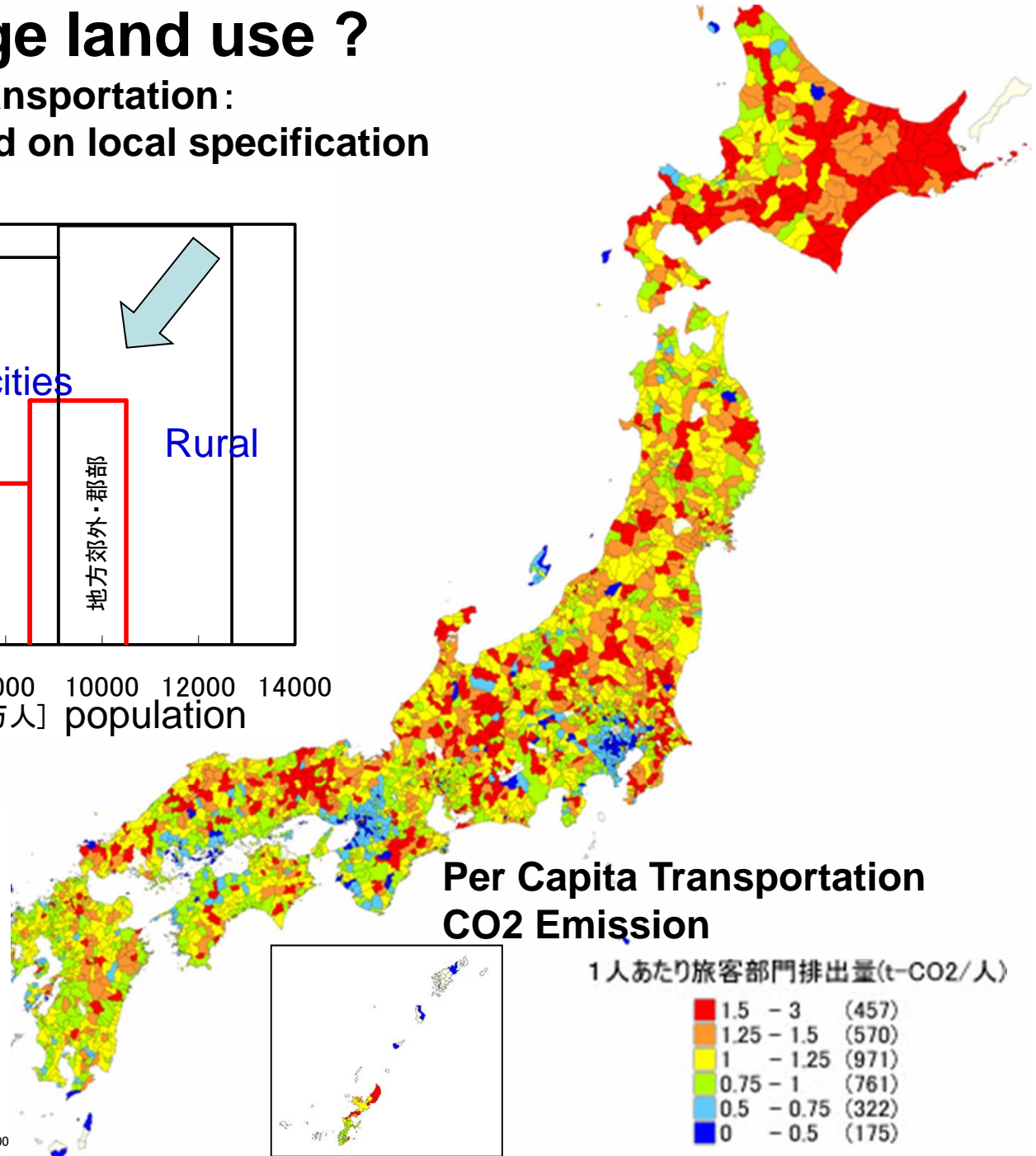
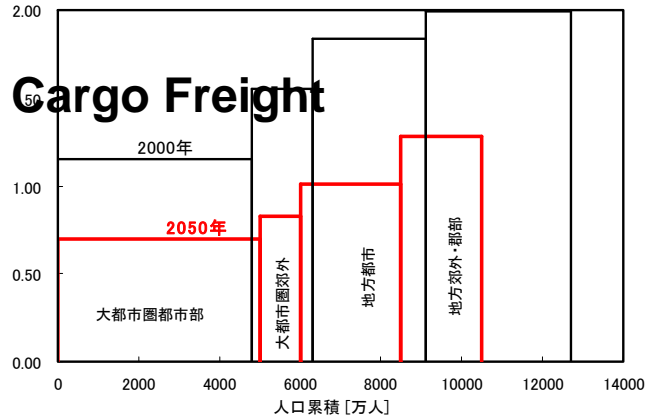
Q7:How to change land use ?

Land-use planning and transportation:
Reduction strategy depend on local specification

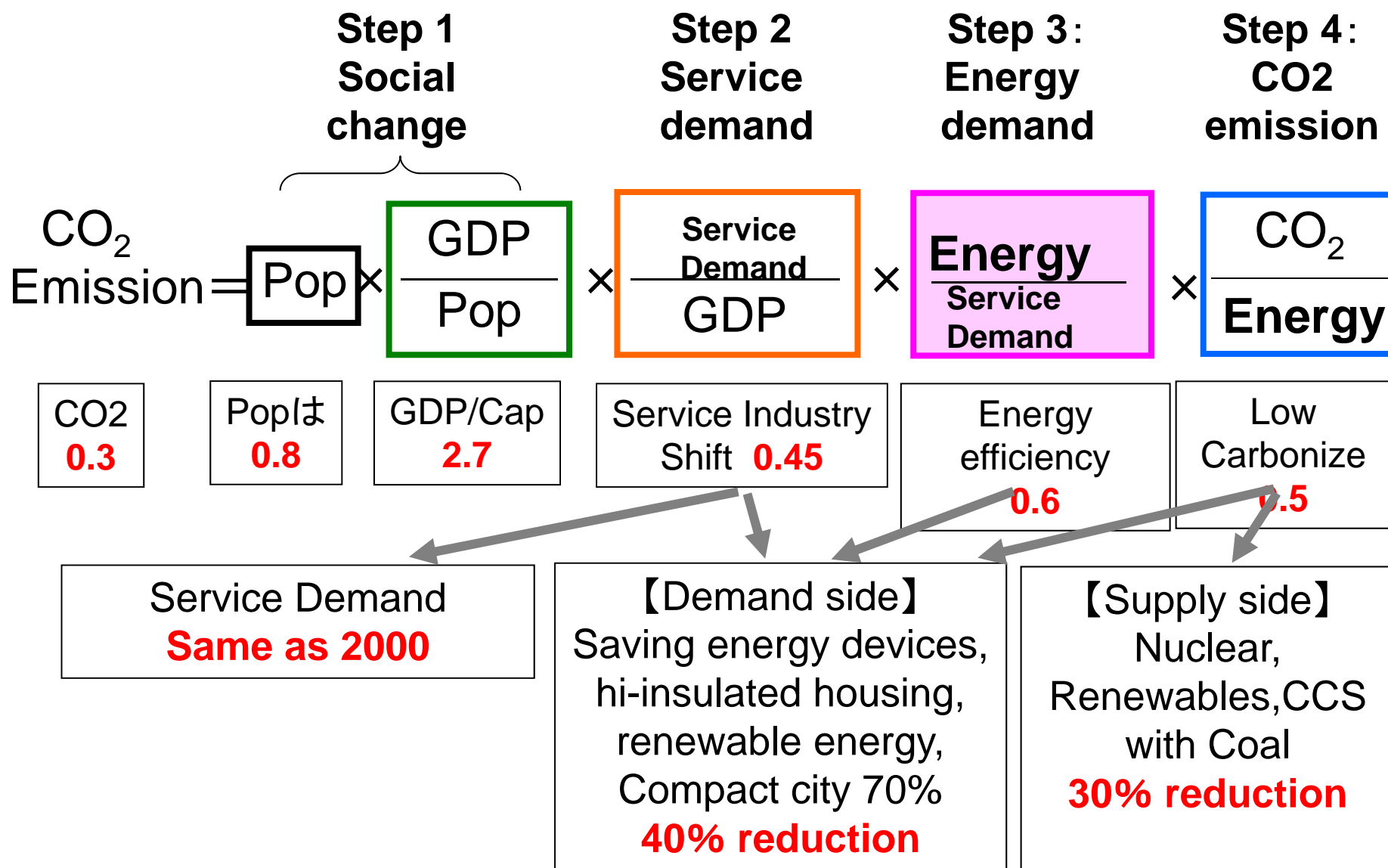
1人あたりCO2 [t/年]



1人あたりCO2 [t/年]



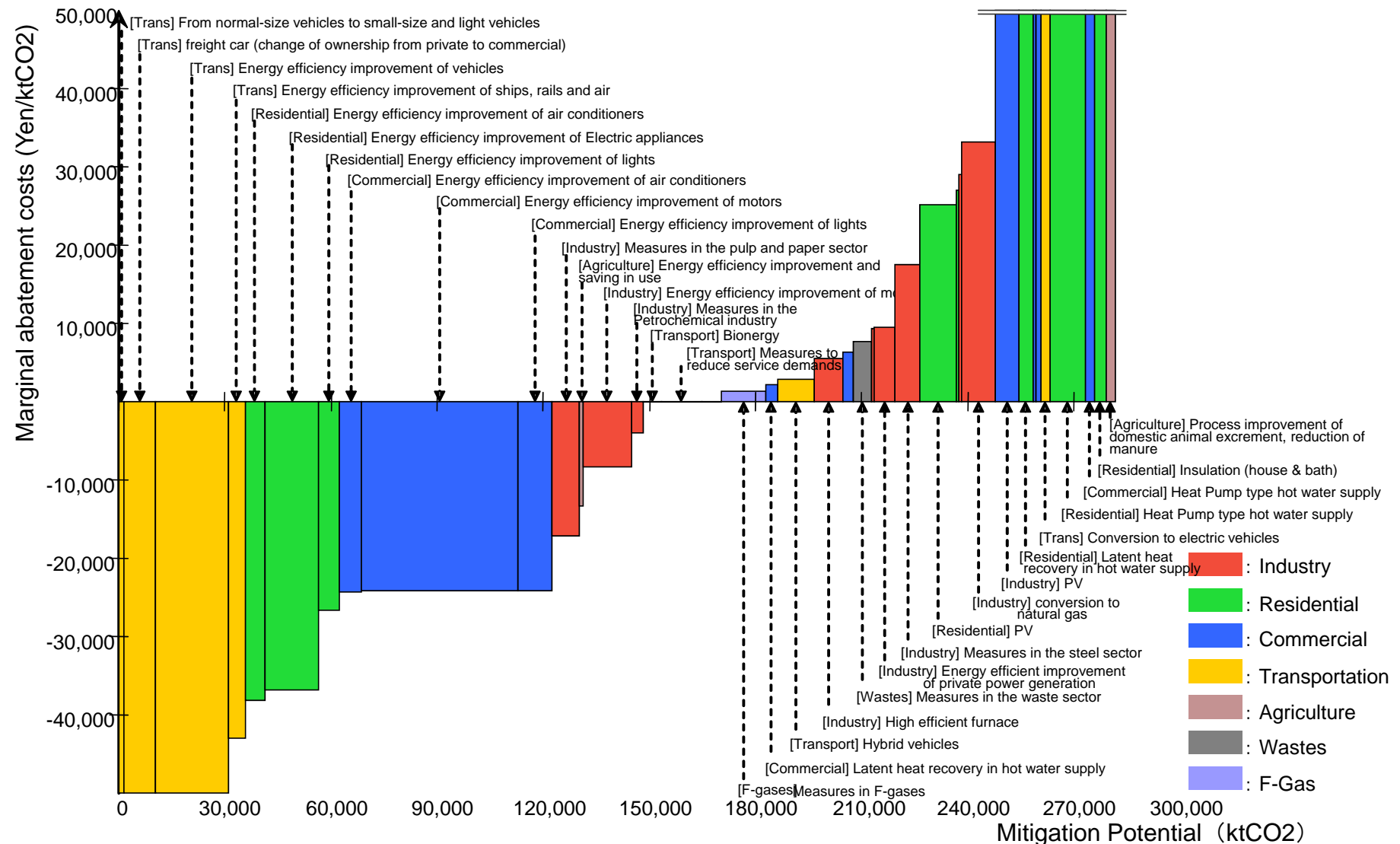
Energy Efficiency is the key, but not enough



2050 Japan LCS Scenario

Q8: How much is the cost of reduction ?

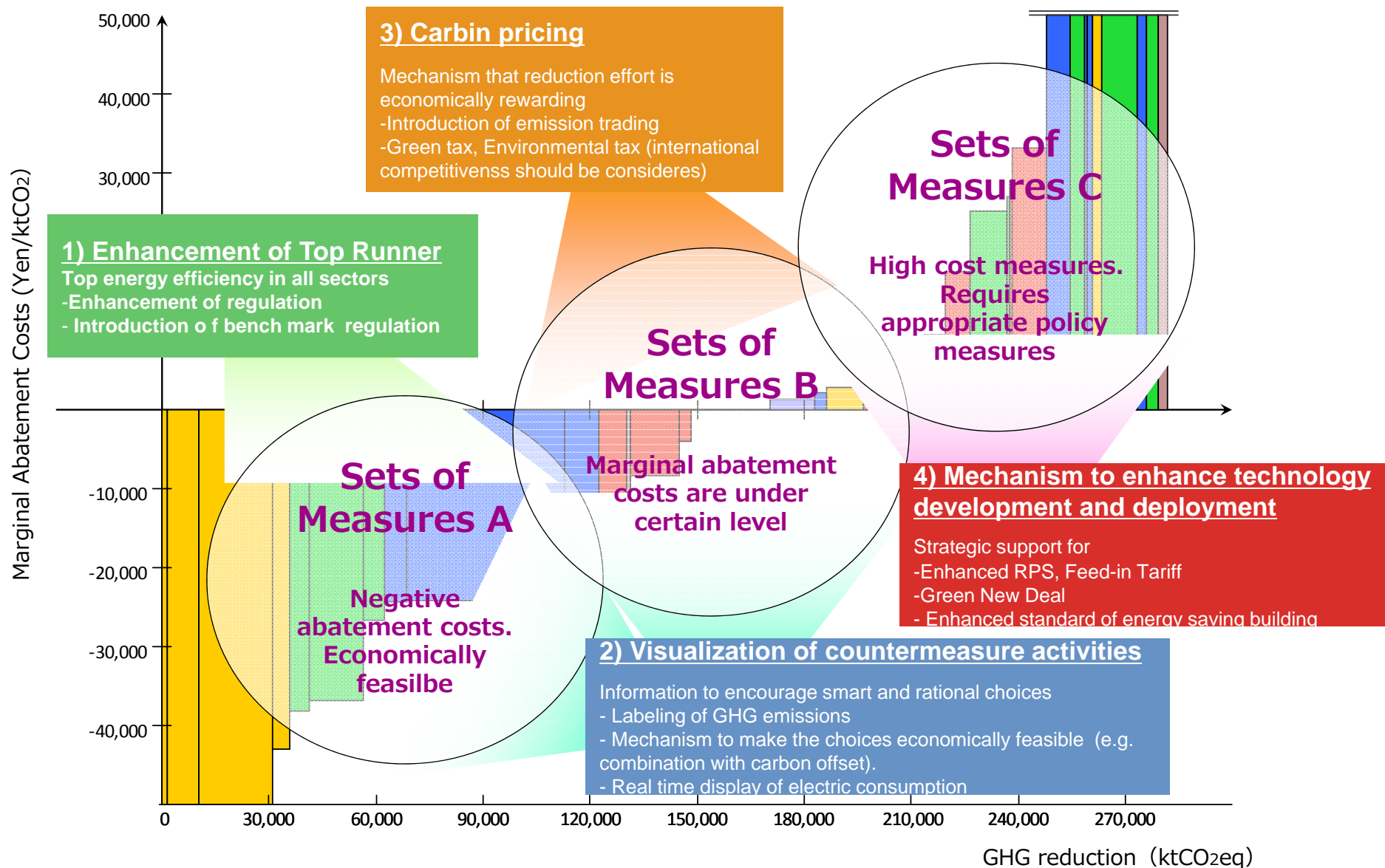
Marginal Abatement Cost to Reduce GHG emissions in 2020



Note: MCII, Payback time is 3 years except 10 years in Insulation and PV. Mitigation potential is compared to the emissions in Frozen Case

Q9: How much is the cost of reduction ?

Feasible with Four sets of countermeasures to achieve the target of 2020

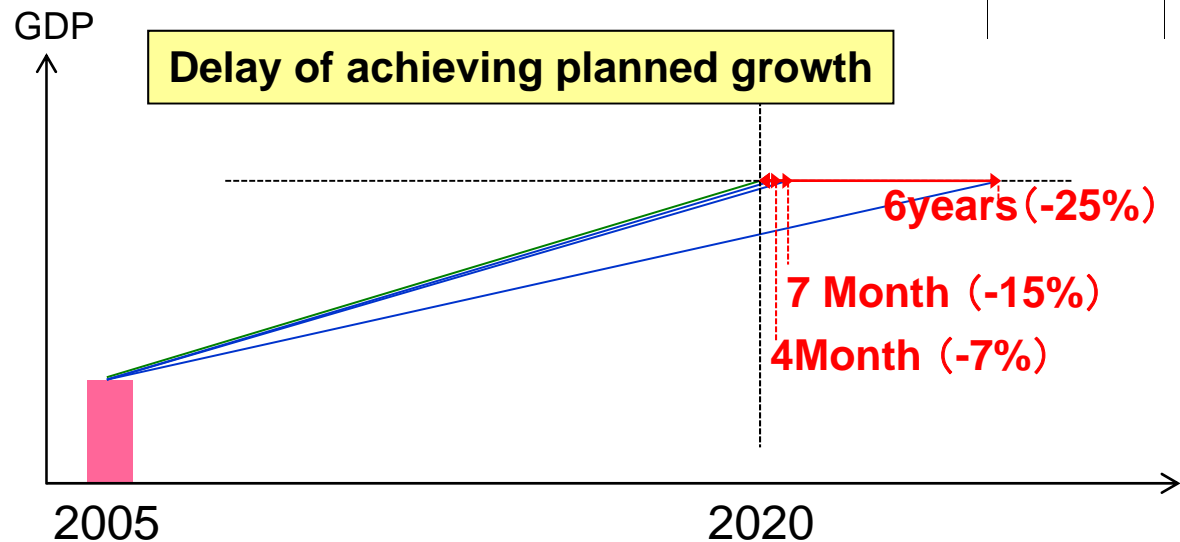
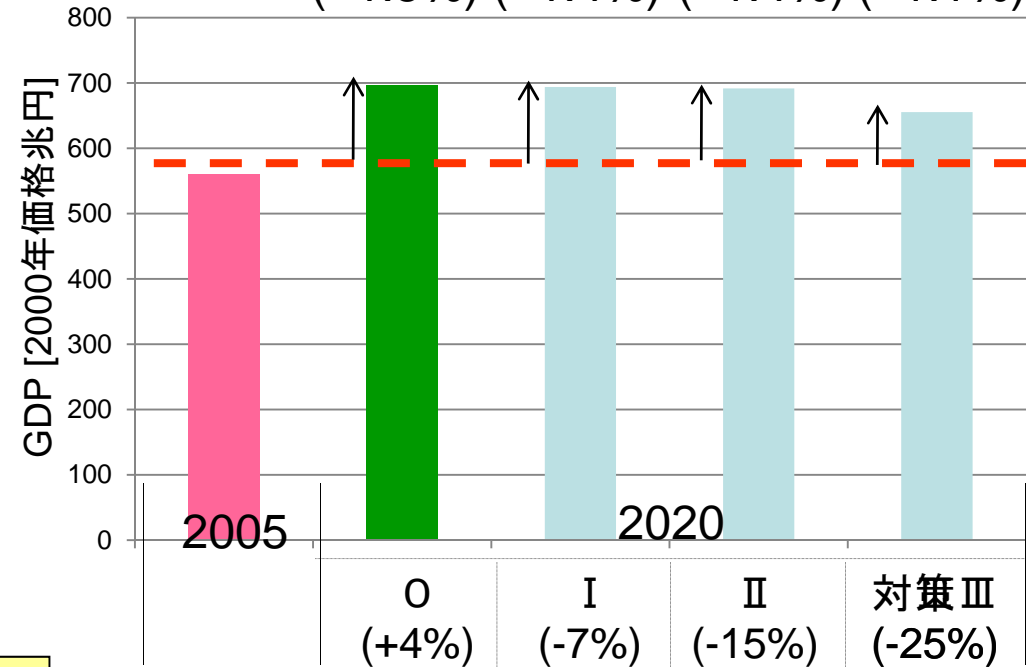


Q10: How much is the impact to country's economy ?

Endurable loss in GDP growth:?

- 7%~15% reduction from 1990 effect little to GDP
- 25% reduction from 1990 can secure 1.1%/y growth

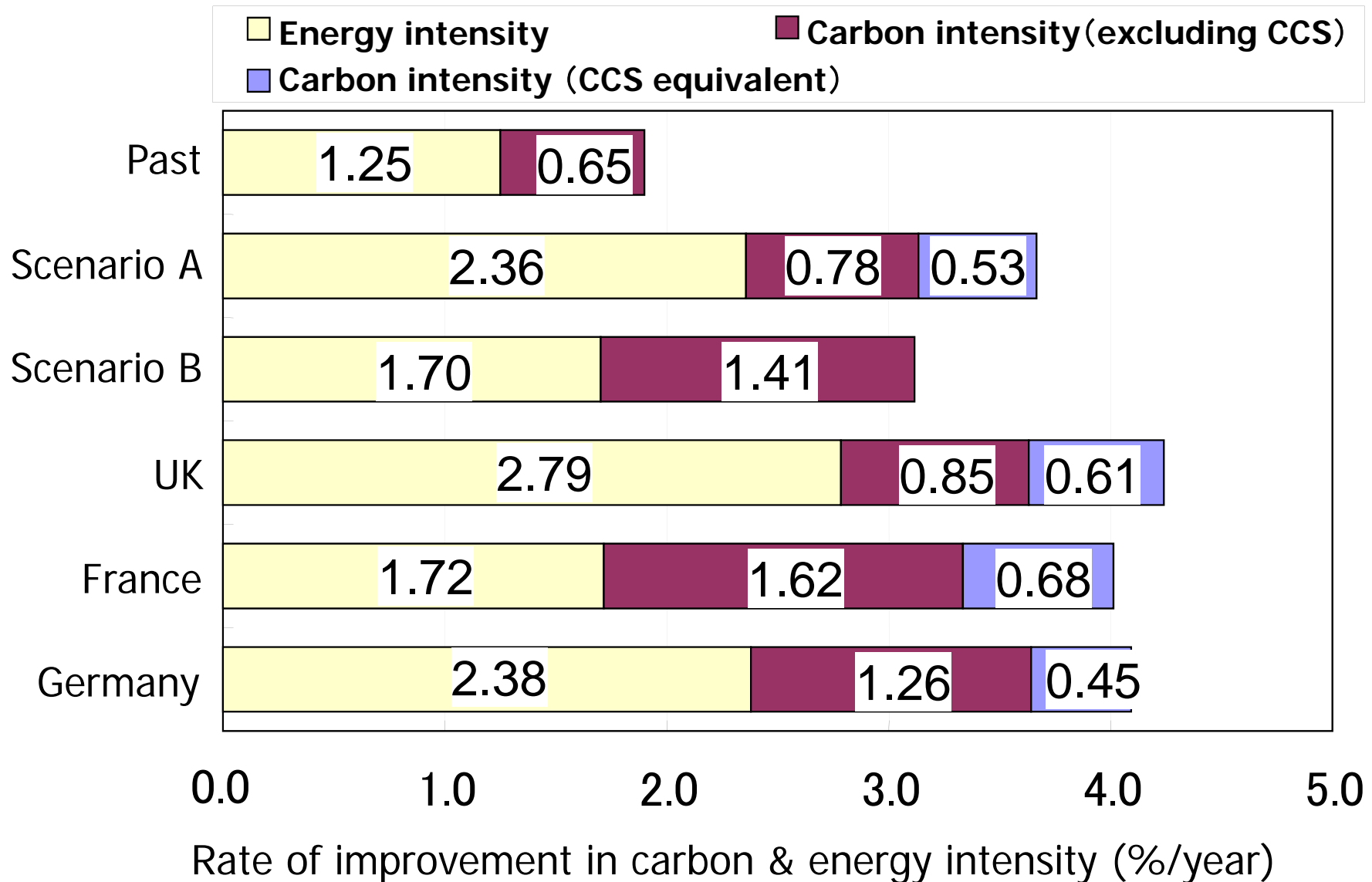
GDP Growth from 2005 25% +24% +24% +17%
(%/y) (+1.5%) (+1.4%) (+1.4%) (+1.1%)



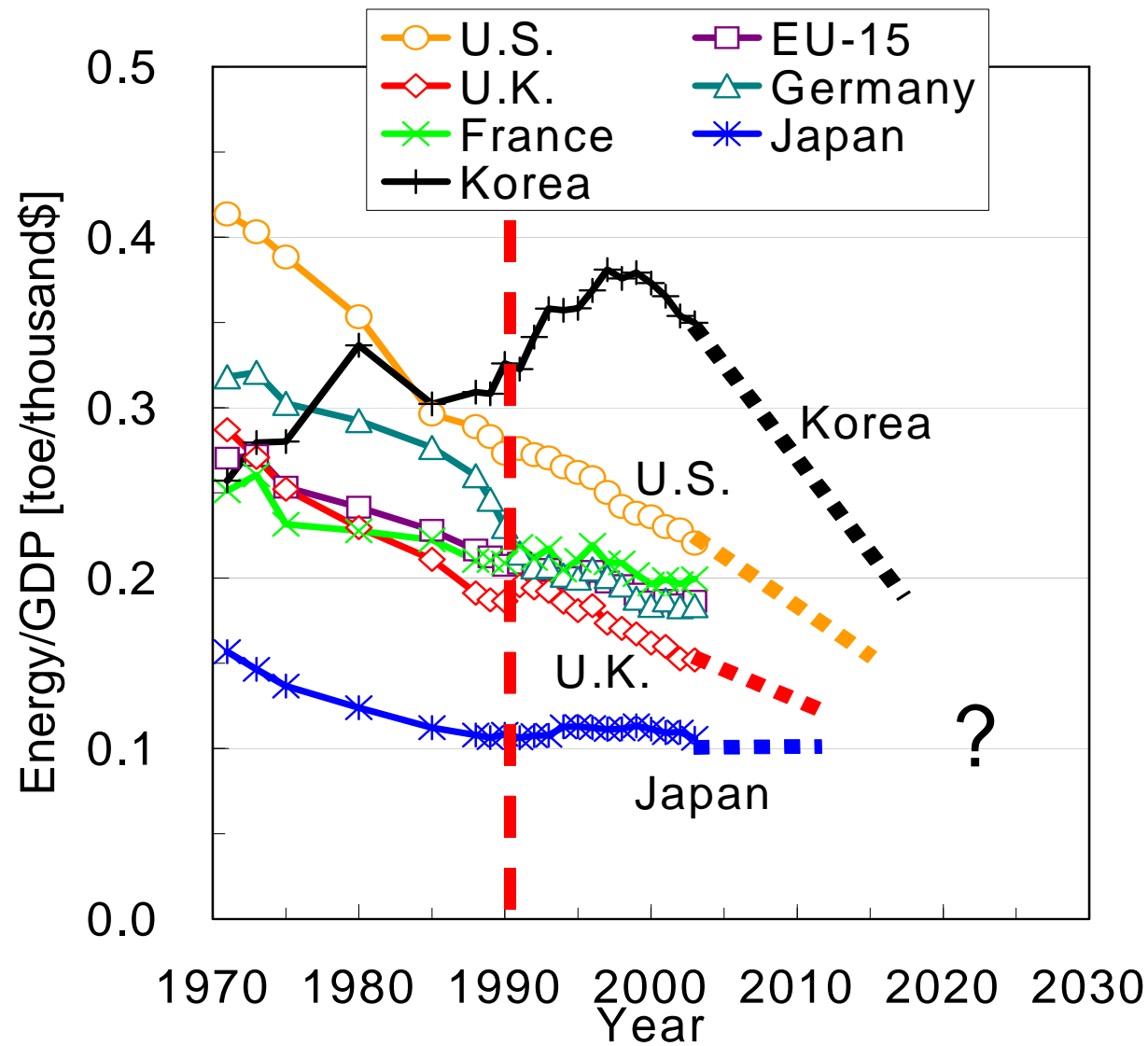
NIES

Q11: Can we survive in international technology competition ?

Acceleration of Technology Essential to Realize a Low Carbon Society



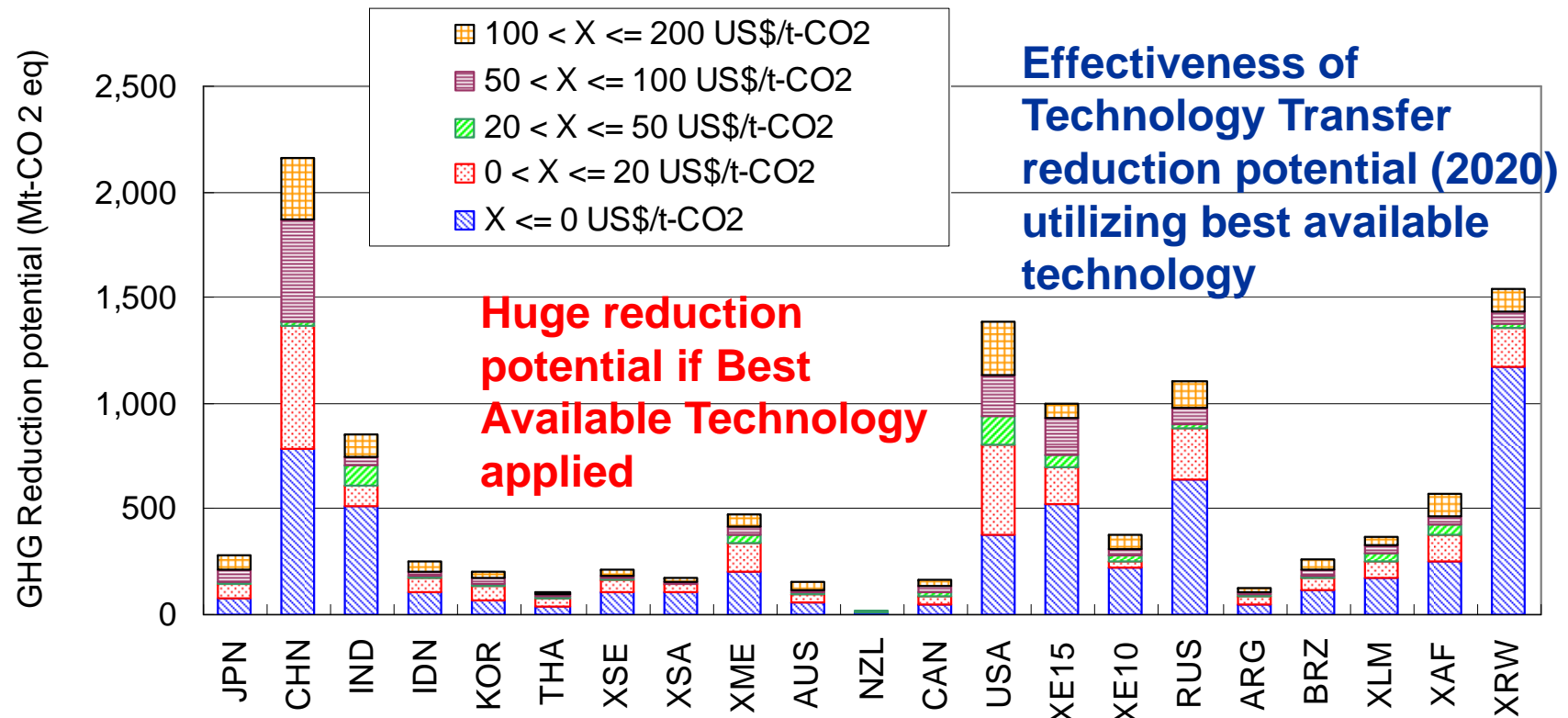
International Energy Intensity Competition




**Japan almost
caught up by
European countries**

IEA Energy
statistics

Q12: How Japan can contribute internationally?



- **China, US, India, Western Europe and Russia are major 5 regions where there are large reduction potentials, and it accounts for 63 % of total reduction potentials in the world. Top 10 regions account for about 80 % of total reduction potentials.**

A photograph showing several farmers working in a flooded rice paddy field. The farmers are bent over, planting seedlings in the water. They are wearing various clothing, including hats and long-sleeved shirts. The water reflects the farmers and the sky. In the background, there are snow-capped mountains under a clear blue sky. A white car is visible on a road in the distance.

Thank you for your attention!

Can you feel the blessings of climate?