http://2050.nies.go.jp/interimreport/20070215_report_e.pdf

Japan Low-Carbon Society (LCS) Study

1. If we cannot go to LCS,…
2. LCS offers higher QOL with less energy demand and lower-carbon energy supply
3. LCS needs good design, early action, and innovations

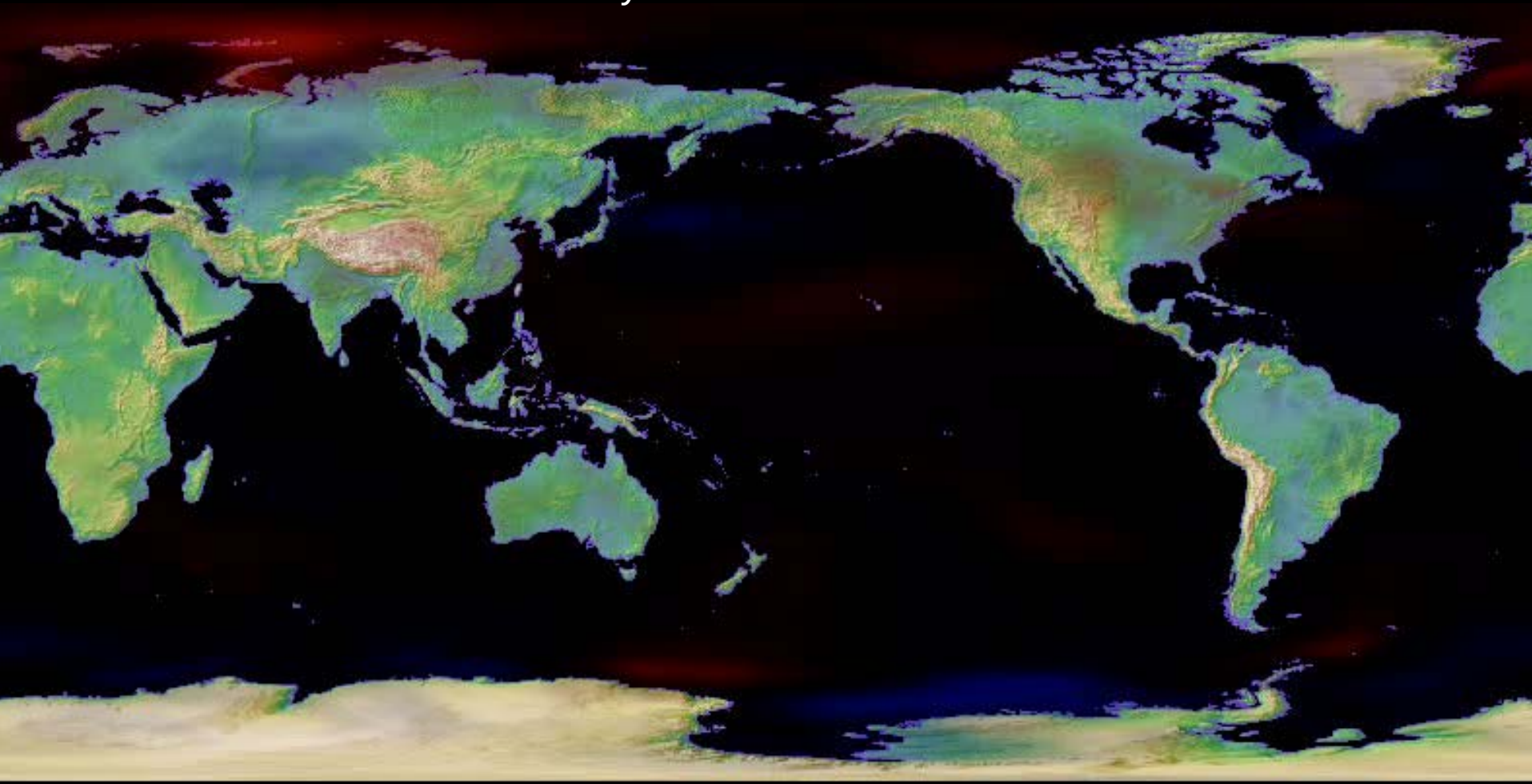
Designed by Hajime Sakai

Junichi Fujino (NIES), 17th Feb, 2008
The 13th AIM International Workshop, Ohyama Memorial Hall, Tsukuba

CCSR/NIES/FRSGC

Surface Air Temperature Change (1900=0 °C)

By Earth Simulation



UN Climate Change Conference 2007
COP13 and COP/MOP3
Bali Indonesia
3-14 December, 2007

Invitation to "Cool Earth 50"

~ 3 Proposals, 3 Principles ~

【Year 2050】

【National Campaign】

<For achieving Japan's Kyoto Protocol target>

With the motto of "1 person, 1 day, 1 kg", calling upon the people for efforts and creative ideas.

【Mid-Term Strategy】

<"3 principles" in designing a concrete framework beyond 2013>

(1) **All major emitters must participate, thus moving beyond the Kyoto Protocol, leading to global reduction** of emissions.

(2) The framework must be **flexible and diverse**, taking into consideration the circumstances of each country.

(3) The framework must **achieve compatibility between environmental protection and economic growth** by utilizing energy conservation and other technologies.

【Long-Term Strategy】

<For halving emissions by 2050>

「**Innovative Technology Development**」

- Eliminating emissions from coal-fired power generation
- Expanding safe and peaceful use of nuclear power
- Efficient solar power generation
- Promoting the use of next-generation automobiles such as fuel cell vehicles
- Technological innovation in industries such as iron production

「**Building a Low Carbon Society**」

- Lifestyles in harmony with nature
- Efficient public transportation system
- Compact urban development
- Demonstrating the sentiment of "mottainai" and the "Japan model" in the world

【Current Emissions】

1. U.S.A. 22%
2. China 18%
3. Russia 6%
4. Japan 5%
5. India 4%

Developing Countries: about 60% (estimate)

【Target which we propose setting as a common goal for the world】

Cutting global emissions by half from the current level

Curbing to **the same level** as the capacity of **natural sinks**

Stabilizing the level of greenhouse gas concentrations in the atmosphere

To make "Cool Earth" a reality

<Japan's Role>

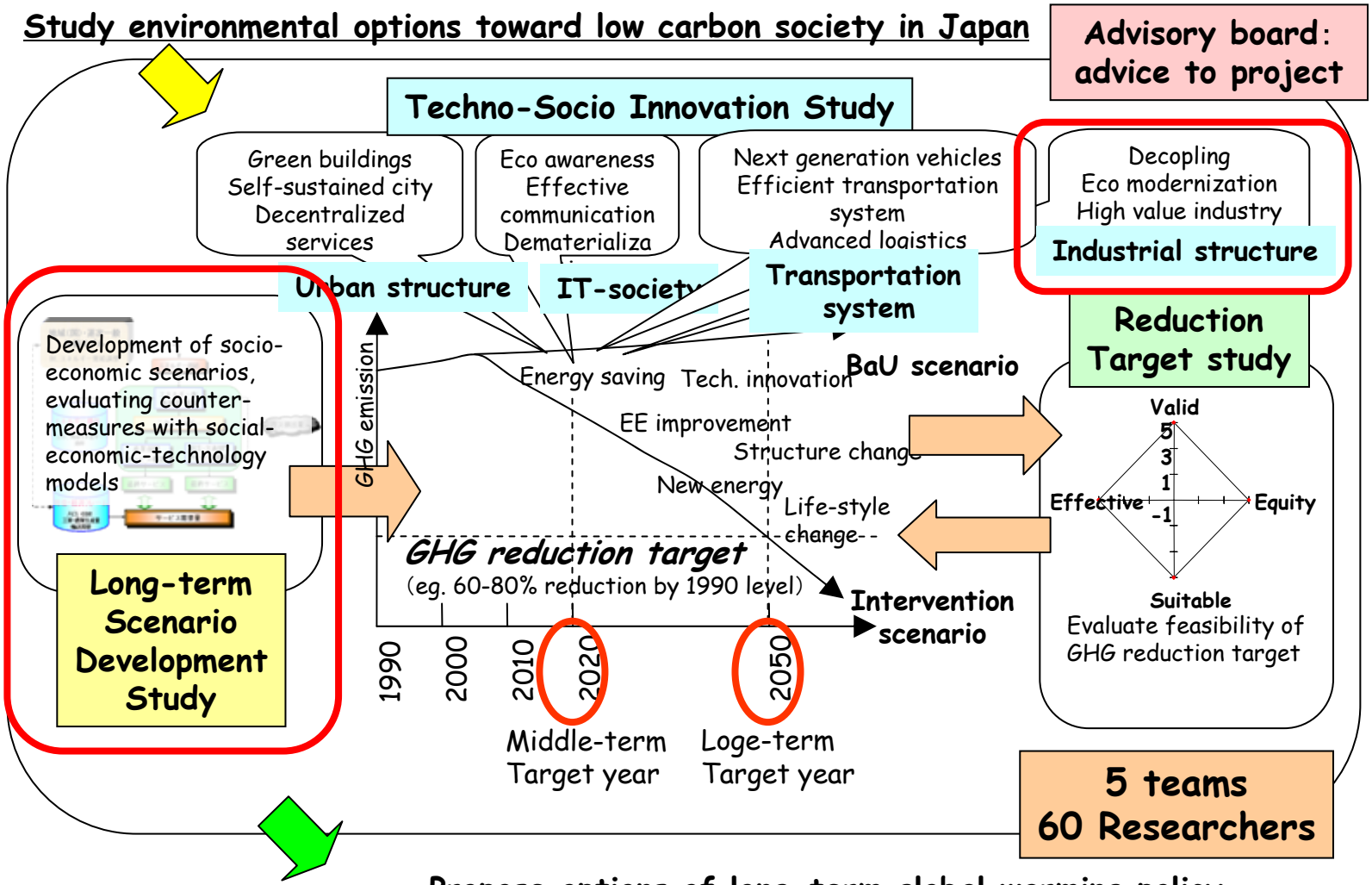
- Oil consumption has been reduced by 8% even though the GDP has doubled over the past 30 years.
- CO2 emission per GDP is the least in the major countries.
- Japan will create a new financial mechanism for assistance to the developing countries which respond to its proposals.
- Japan will expand the endeavor in East Asia for improving energy efficiency to the entire world.

2007. Apr.	Jun.	Sep.	Nov.	Dec.	2008. Jul.
Japan-China, Japan-U.S. Summit	Heiligendamm Summit (G8)	APEC Leaders' Meeting	East Asia Summit	COP13	Hokkaido Toyako Summit (G8)

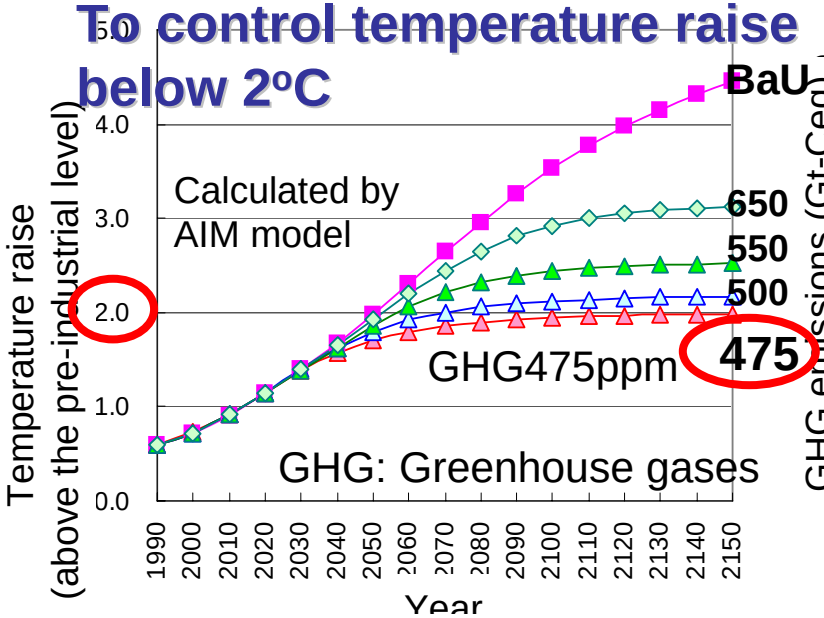
http://www.kantei.go.jp/foreign/abespeech/2007/05/24speech_e.html

Japan Low Carbon Society Scenarios toward 2050

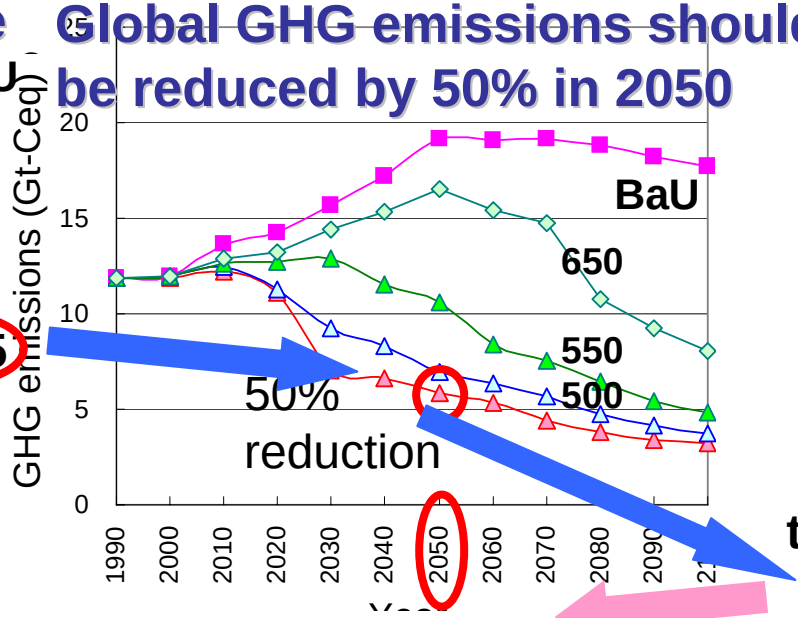
FY2004-2006 (PhaseI),2007-2008 (Phase II)
Global Environmental Research Program, MOEJ



To control temperature raise below 2°C



Global GHG emissions should be reduced by 50% in 2050



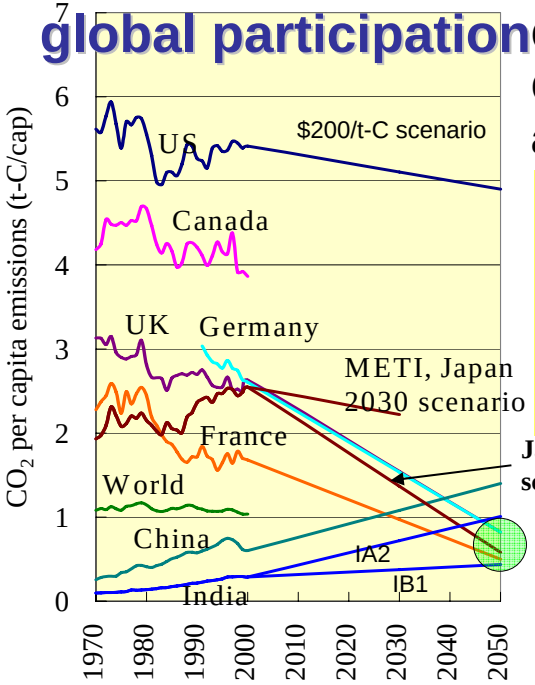
Japan Low-Carbon Society Project

Japanese reduction target in 2050

60-80%

Possible trend-breaking options to achieve 70% reductions toward 2050 in Japan

How to structure global participation



Current per capita CO_2 emissions and Target

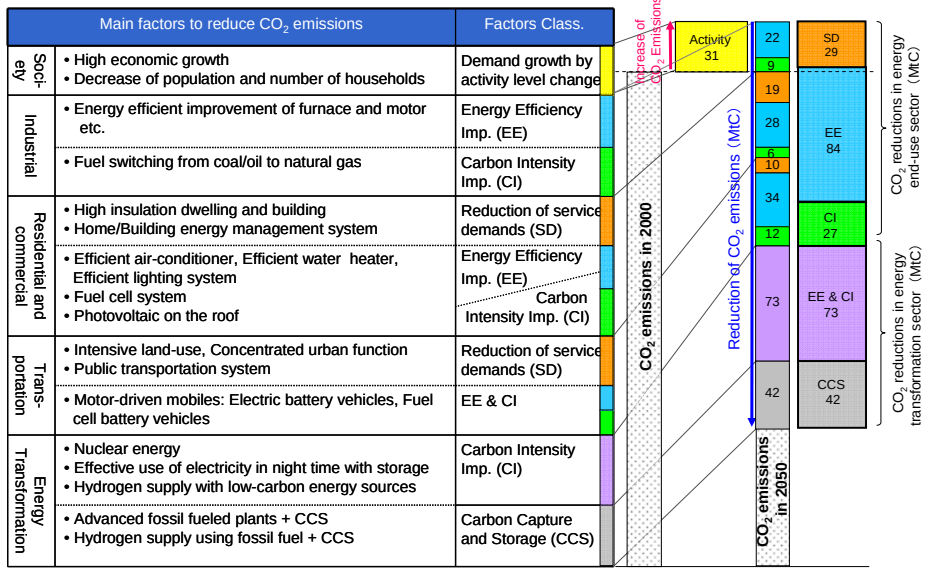
US: delay for tech development, global warming business

EU: Initiatives toward LCS
Japan: Need long-term vision

Developing countries: earlier guidance toward LCS is key

Target for Low Carbon Society

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



EE: Energy Efficiency Improvement, CI: Carbon Intensity Improvement, SD: Reduction of Service Demand

Large GHG cut is possible in Japan

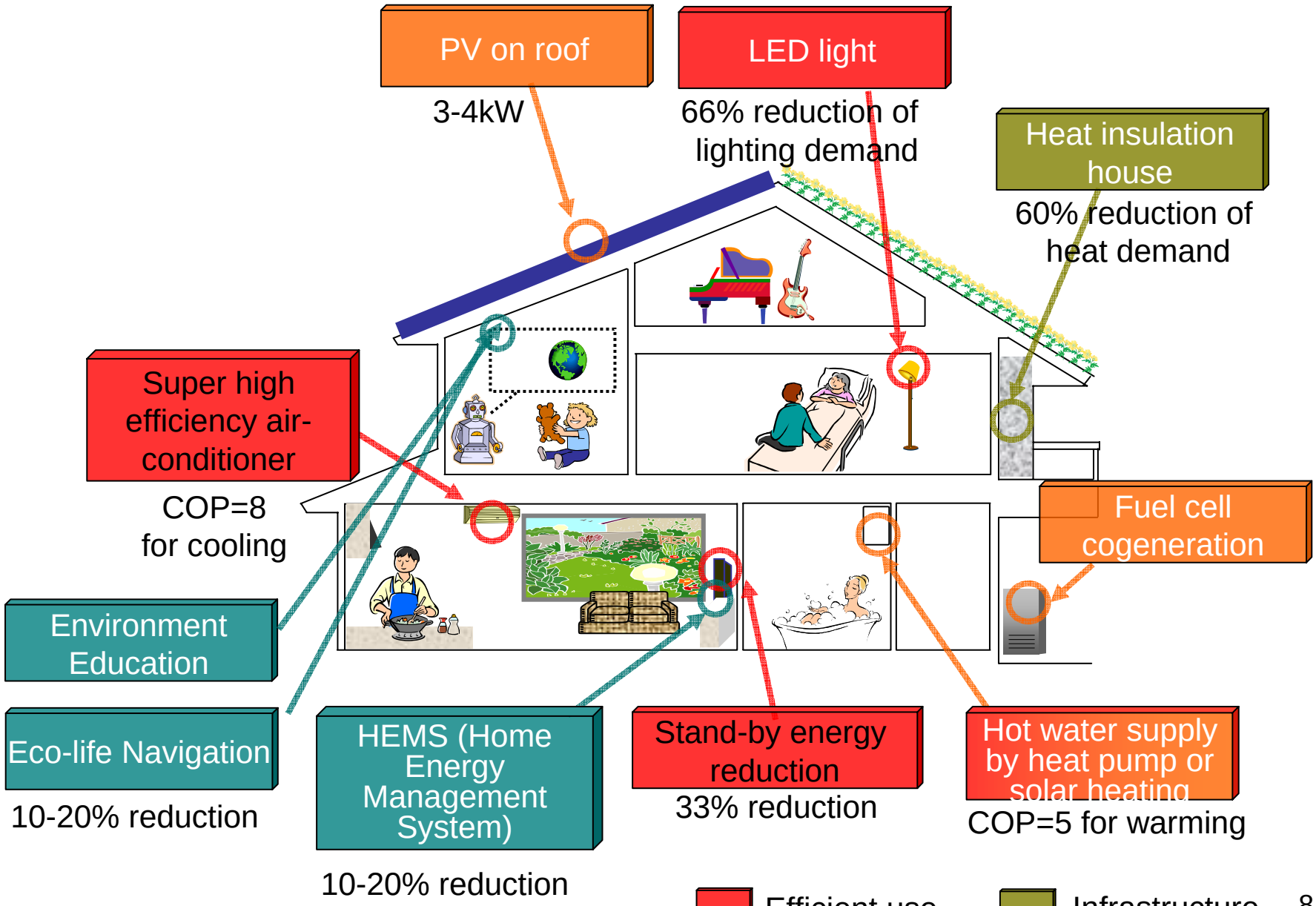
As for LCS visions, we prepared two different but likely future societies

Vision A "Doraemon"	Vision B "Satsuki and Mei"
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%/yr GDP per capita growth	1%/yr GDP per capita growth
	

Doraemon is a Japanese comic series created by Fujiko F. Fujio. The series is about a robotic cat named Doraemon, who travels back in time from the 22nd century. He has a pocket, which connects to the fourth dimension and acts like a wormhole.

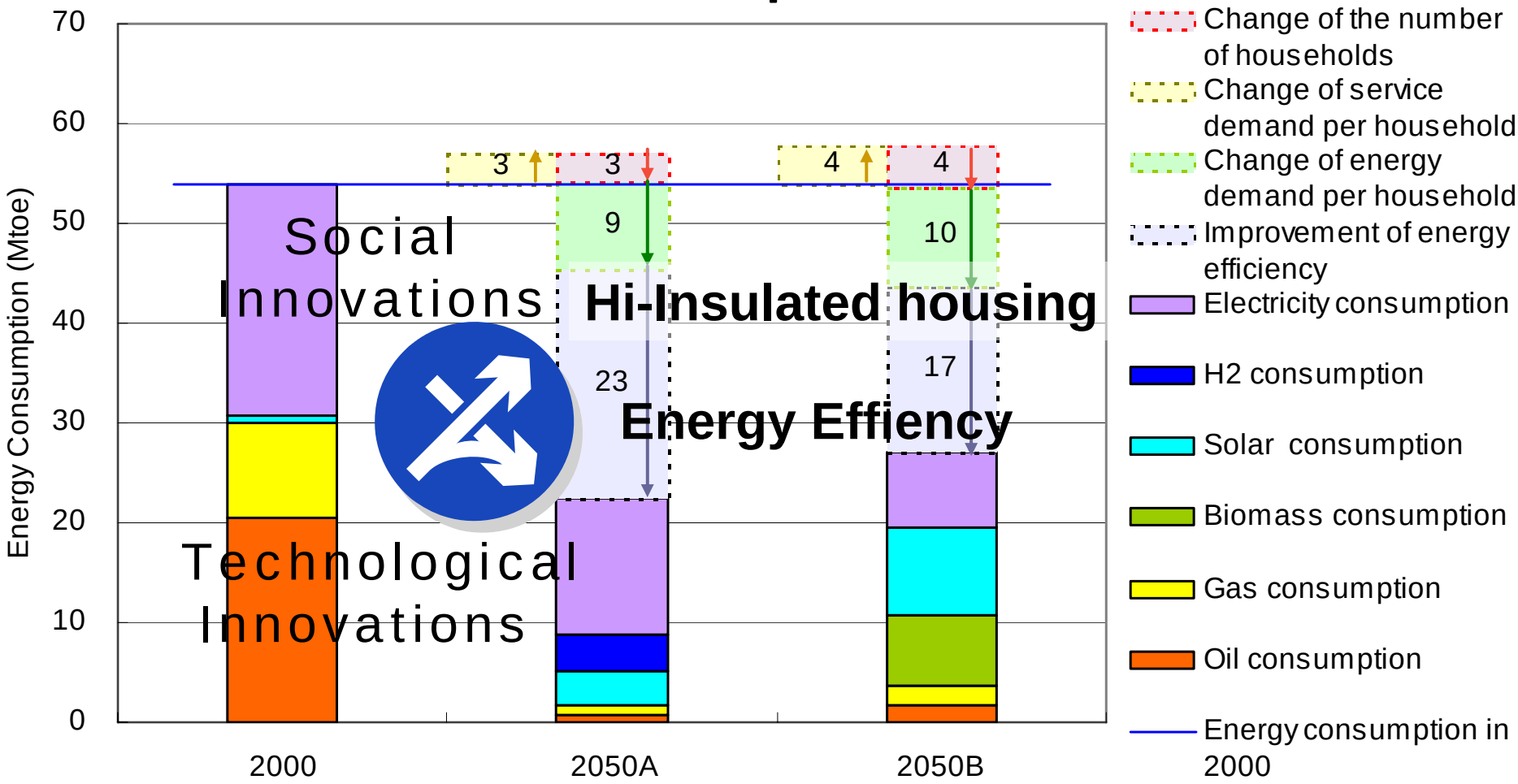
Satsuki and Mei's House reproduced in the 2005 World Expo. Satsuki and Mei are daughters in the film "My Neighbor Totoro". They lived an old house in rural Japan, near which many curious and magical creatures inhabited.

Depict Future Image: Residential sector in 2050



Maho Miyashita

Residential sector
CO2 reduction potential: 50%

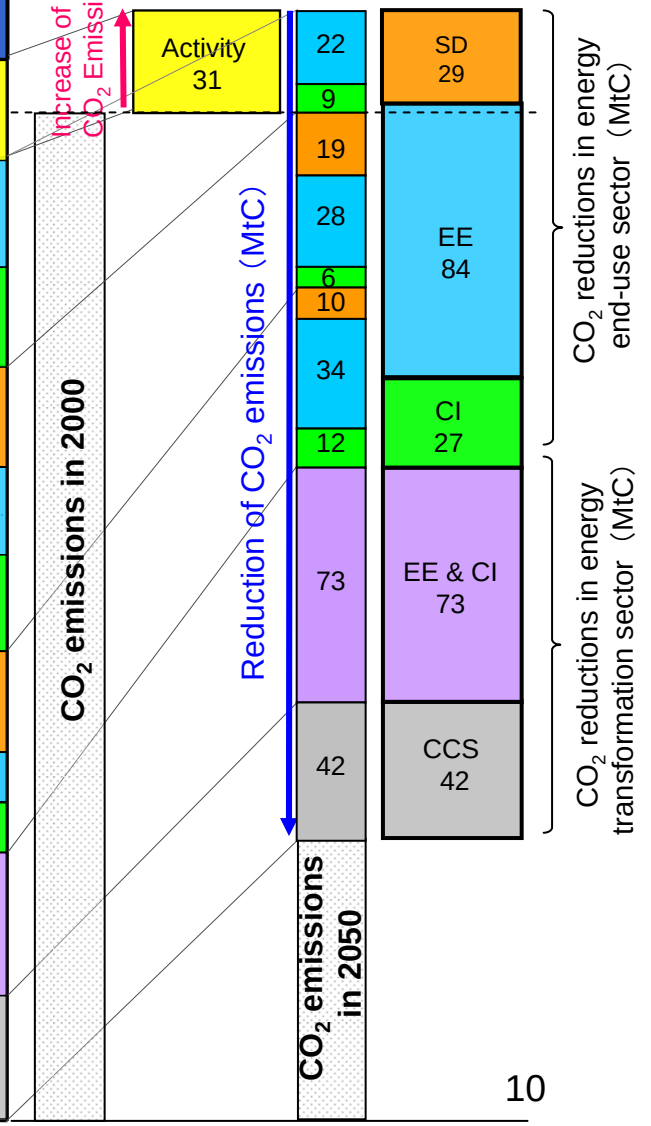


Change of the number of households: the number of households decrease both in scenario A and B
Change of service demand per household: convenient lifestyle increases service demand per household
Change of energy demand per household: high insulated dwellings, Home Energy Management System (HEMS)
Improvement of energy efficiency: air conditioner, water heater, cooking stove, lighting and standby power

GHG 70% reduction in 2050 Scenario A: Vivid Techno-driven Society

Demand side energy -40% ＋ Low carbonization of primary energy＋CCS
with moderate cost of technological options as 0.3% of GDP in the year of 2050

	Main factors to reduce CO_2 emissions	Factors Class.
Society	• High economic growth • Decrease of population and number of households	Demand growth by activity level change
Industrial	• Energy efficient improvement of furnace and motor etc.	Energy Efficiency Imp. (EE)
	• Fuel switching from coal/oil to natural gas	Carbon Intensity Imp. (CI)
Residential and commercial	• High insulation dwelling and building • Home/Building energy management system	Reduction of service demands (SD)
	• Efficient air-conditioner, Efficient water heater, Efficient lighting system • Fuel cell system • Photovoltaic on the roof	Energy Efficiency Imp. (EE) Carbon Intensity Imp. (CI)
Transportation	• Intensive land-use, Concentrated urban function • Public transportation system	Reduction of service demands (SD)
	• Motor-driven mobiles: Electric battery vehicles, Fuel cell battery vehicles	EE & CI
Energy Transformation	• Nuclear energy • Effective use of electricity in night time with storage • Hydrogen supply with low-carbon energy sources	Carbon Intensity Imp. (CI)
	• Advanced fossil fueled plants + CCS • Hydrogen supply using fossil fuel + CCS	Carbon Capture and Storage (CCS)



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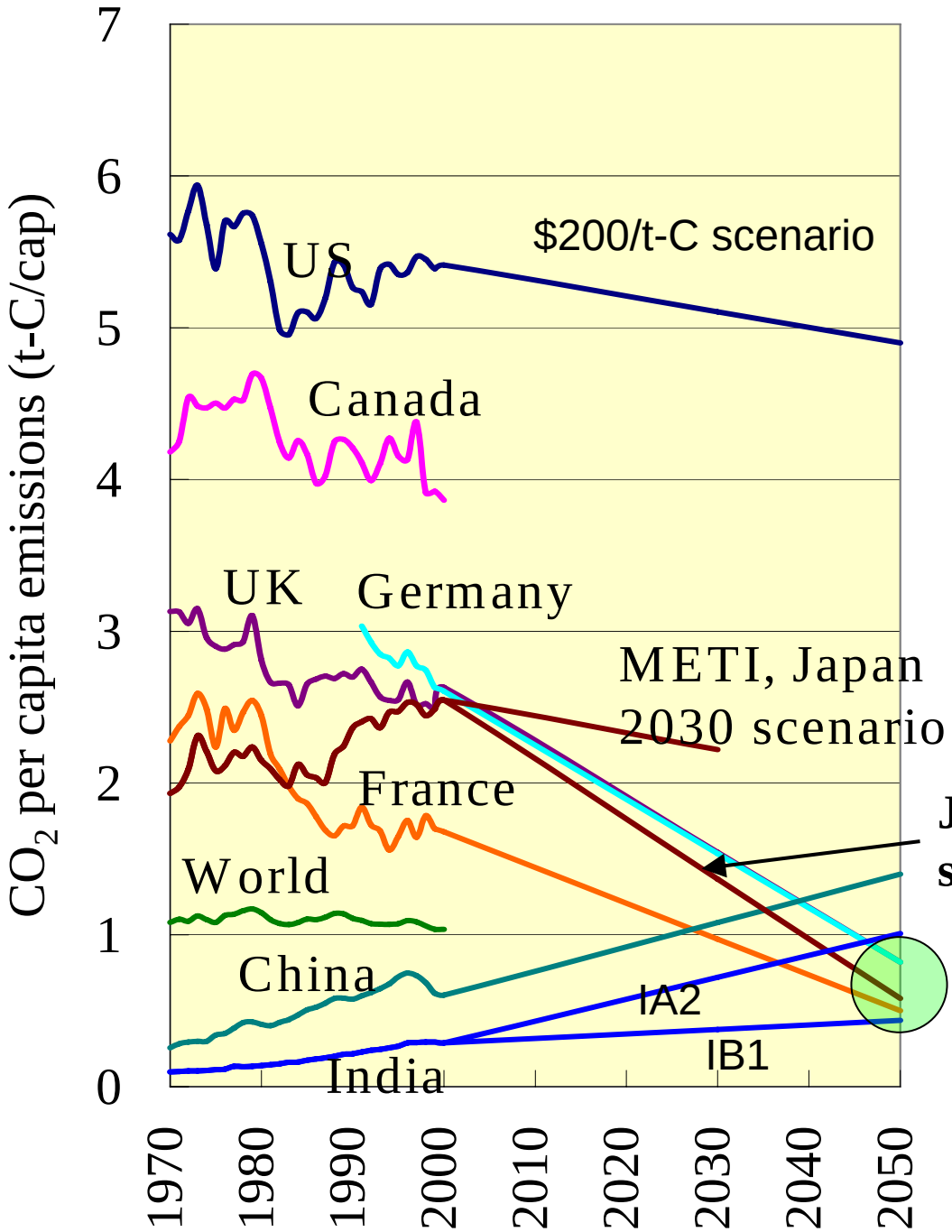

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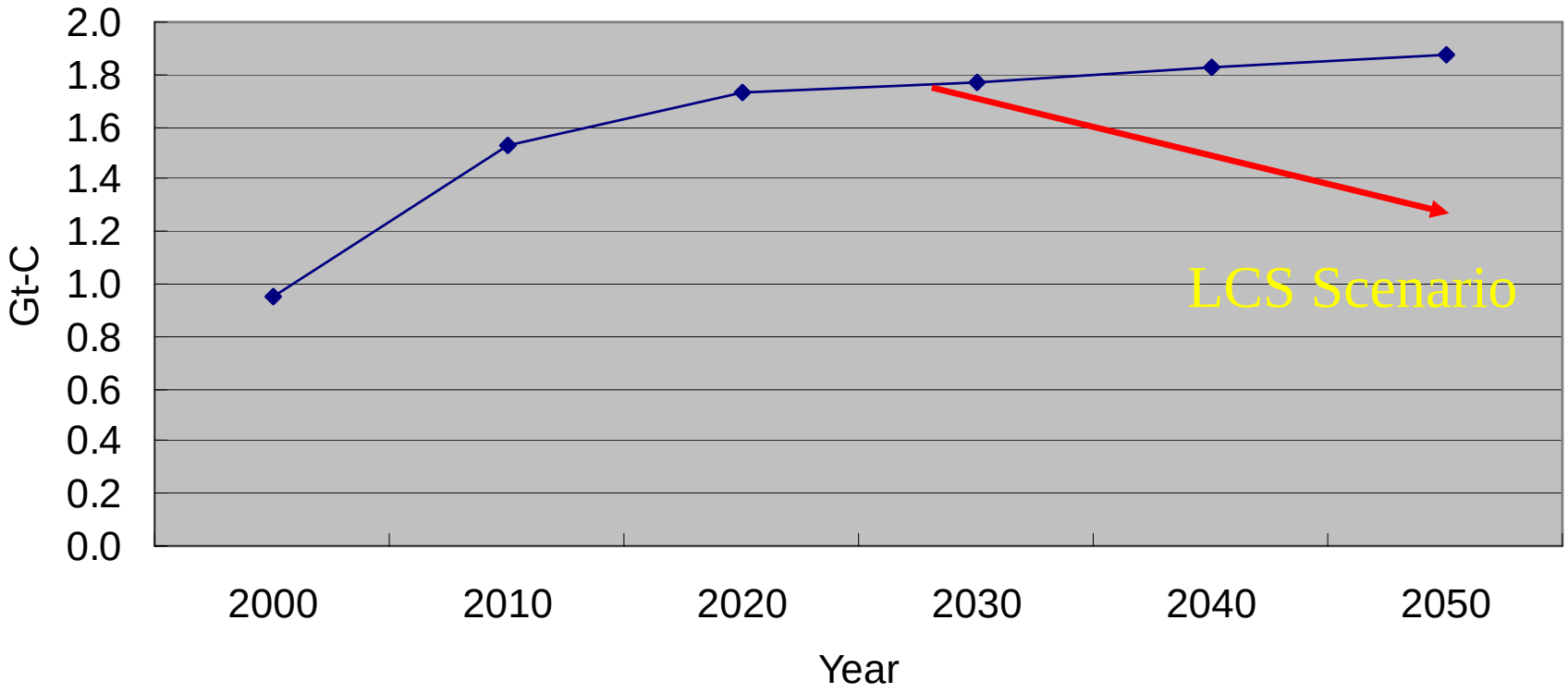
CO2 Emission from Energy Activities in China



Japan-UK Joint Research Project
LCS through Sustainable Development for Global Participation

A First workshop was held in Tokyo, June14-16, 2006.

Participants from 19 countries;
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 Second workshop was held in London, June13-15, 2007.

A Third workshop was held in Japan, Feb13-15, 2008.

Developing and Diffusing Innovations for our good life and LCS through SD

G8 Gleneagles 2005

G8 Japan July 2008


The 3rd Workshop of Japan-UK Joint Research Project
Roadmap to Low Carbon World

The 3rd Symposium of Japan-UK Joint Research Project on Low-Carbon Societies
"Roadmap to Low-Carbon World"
Date: 15th February, 2008, Venue: Hotel Metropolitan Edmont, Iidabashi, Tokyo

Panel Discussion: Interactive discussion using electronic opinion counters

13:00-15:30 Co-chairs: Dr. Shuzo Nishioka (NIES) and Dr. Jim Skea (UKERC)

Group1: Behaviour change and its impact on delivering low-carbon societies
Jeremy Watson (Arup, UK) and Yuichi Moriguchi (NIES, Japan)

Group2: Aligning Sustainable Development with low-carbon societies
Ogunlade Davidson (University of Sierra Leone) and
Taka Hiraishi (IGES, Japan)

Group3: Investment: enabling low-carbon societies
Jose Alberto Garibaldi (Energeia, Mexico) and
Takejiro Sueyoshi (Special Advisor to the UNEP Finance Initiative)

Group4: Barriers and Opportunities: approaches to sensitive low-carbon sectors
Jim Watson (SPRU, UK) and Naoya Tsukamoto (MoEJ, Japan)

Overall Discussion

All presentations and discussions will be webcast

How to use the analyzer?

Step 1 After the *ANSWER* call, **PUSH** the button of your answer.

Step 2 CHECK your answer shown in display panel.

Step 3 If you **CHANGE** your answer, push the button of correct answer again.

＊ Tallying only your latest answer!

＊最後に押した番号が集計されます

Q

Before

In 2050, our world HAS TO reduce CO_2 to ?

世界で2050年までに1990年比でCO2を何%削減する必要がある？

❶ 0% of 1990 levels or increasing from current levels
削減する必要はない、もしくは増加

2%

❷ About 30% of 1990 levels
1990年比で約30%

8%

❸ About 50% of 1990 levels
1990年比で約50%

47%

❹ About 70% of 1990 levels
1990年比で約70%

43%

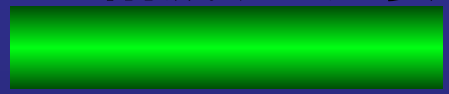
Q

Before

In 2050, our world CAN reduce CO2 to ?

世界で2050年までに1990年比でCO2は何%削減されている？

❶ 0% of 1990 levels or increasing from current levels
削減する必要はない、もしくは増加



15%

❷ About 30% of 1990 levels
1990年比で約30%

45%

❸ About 50% of 1990 levels
1990年比で約50%

32%

❹ About 70% of 1990 levels
1990年比で約70%

8%

Q

After

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世界で2050年までに1990年比でCO2を何%削減する必要がある？

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削減する必要はない、もしくは増加

0%

❷ About 30% of 1990 levels
1990年比で約30%

7%

❸ About 50% of 1990 levels
1990年比で約50%

53%

❹ About 70% of 1990 levels
1990年比で約70%

40%

Q

After

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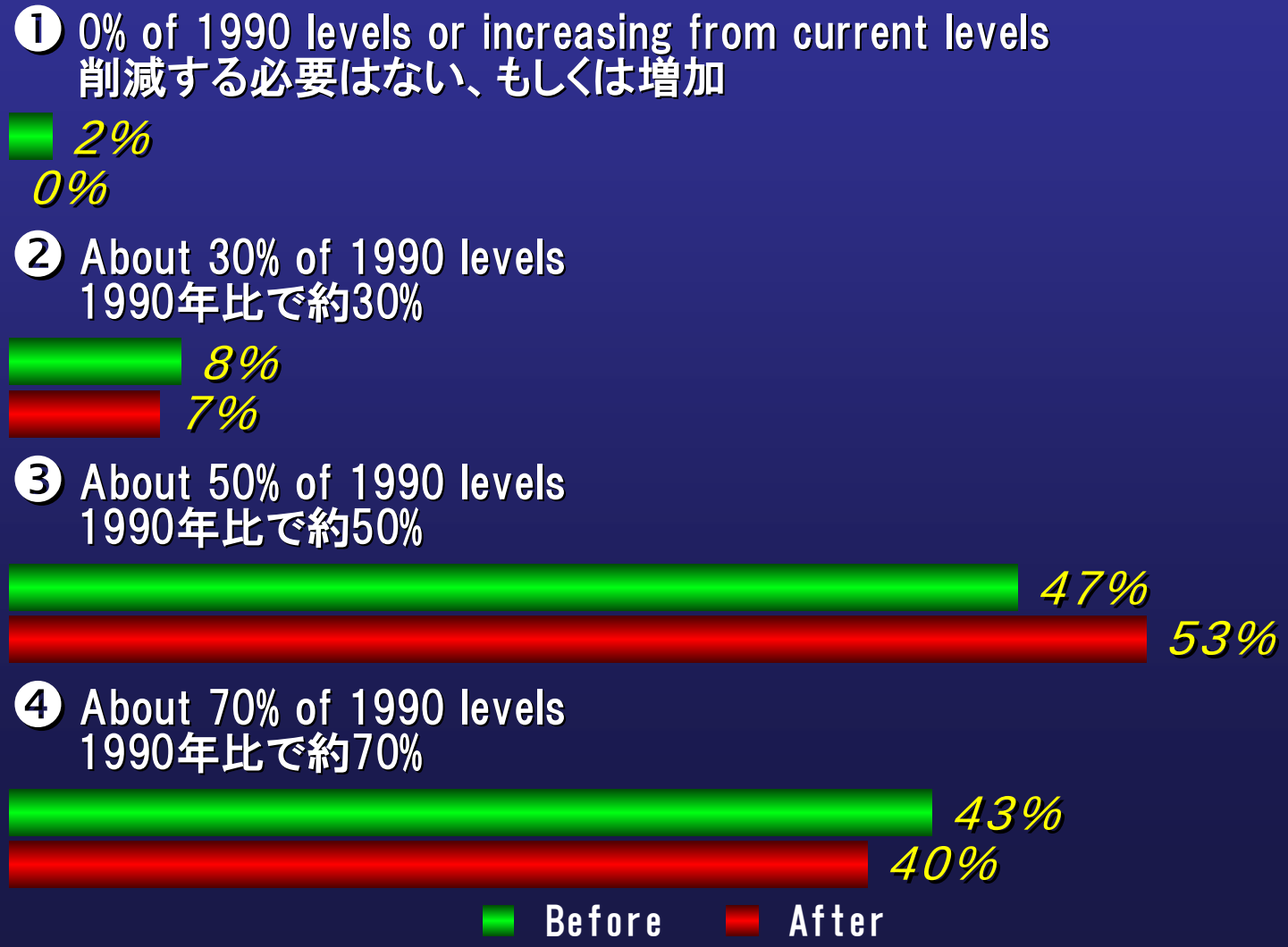
世界で2050年までに1990年比でCO2を何%削減する必要がある？



Q

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8%

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1990年比で約30%

34%

❸ About 50% of 1990 levels
1990年比で約50%

47%

❹ About 70% of 1990 levels
1990年比で約70%

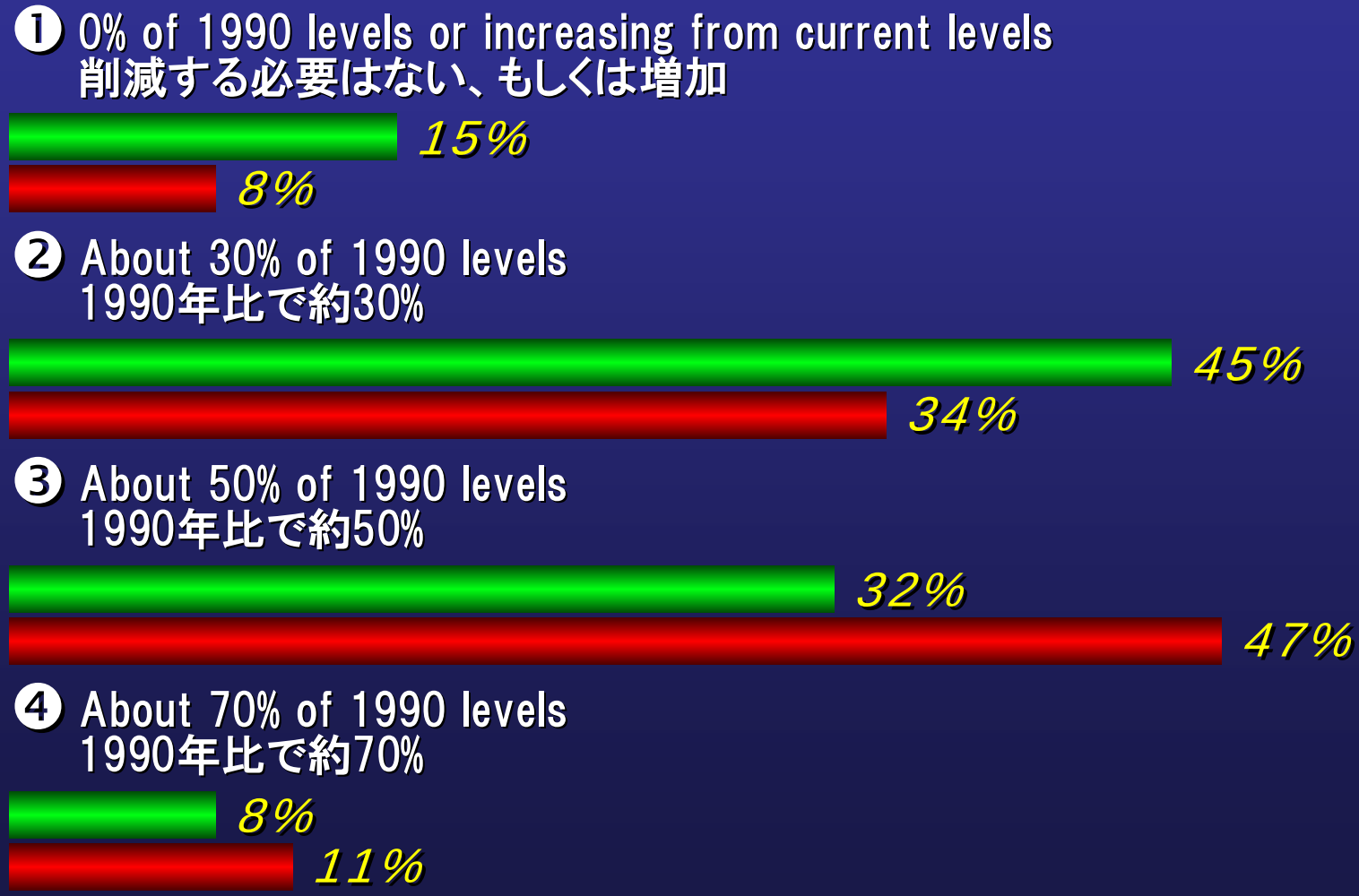
11%

Q

After

In 2050, our world CAN reduce CO2 to ?

世界で2050年までに1990年比でCO2は何%削減されている？



Q

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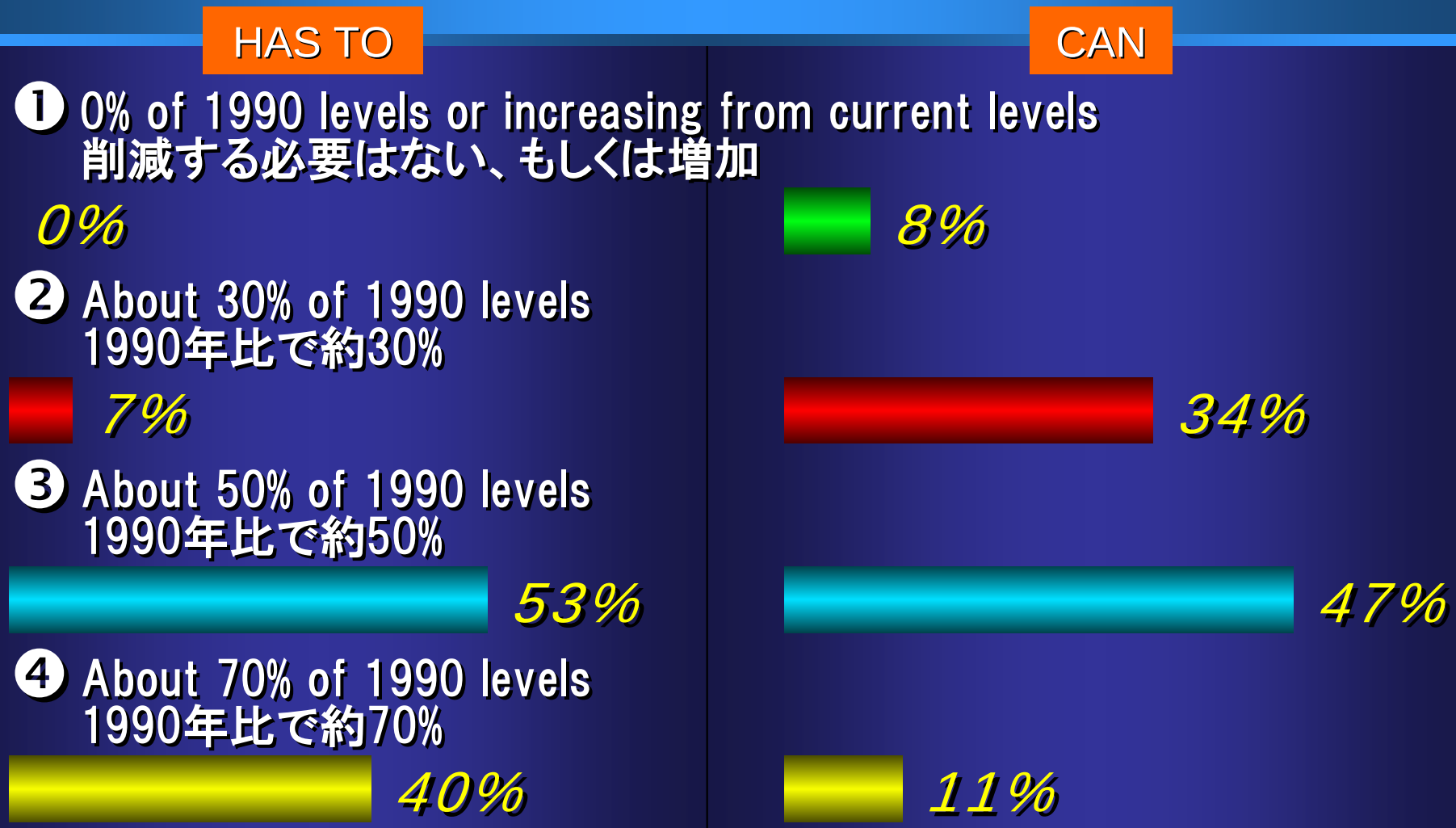
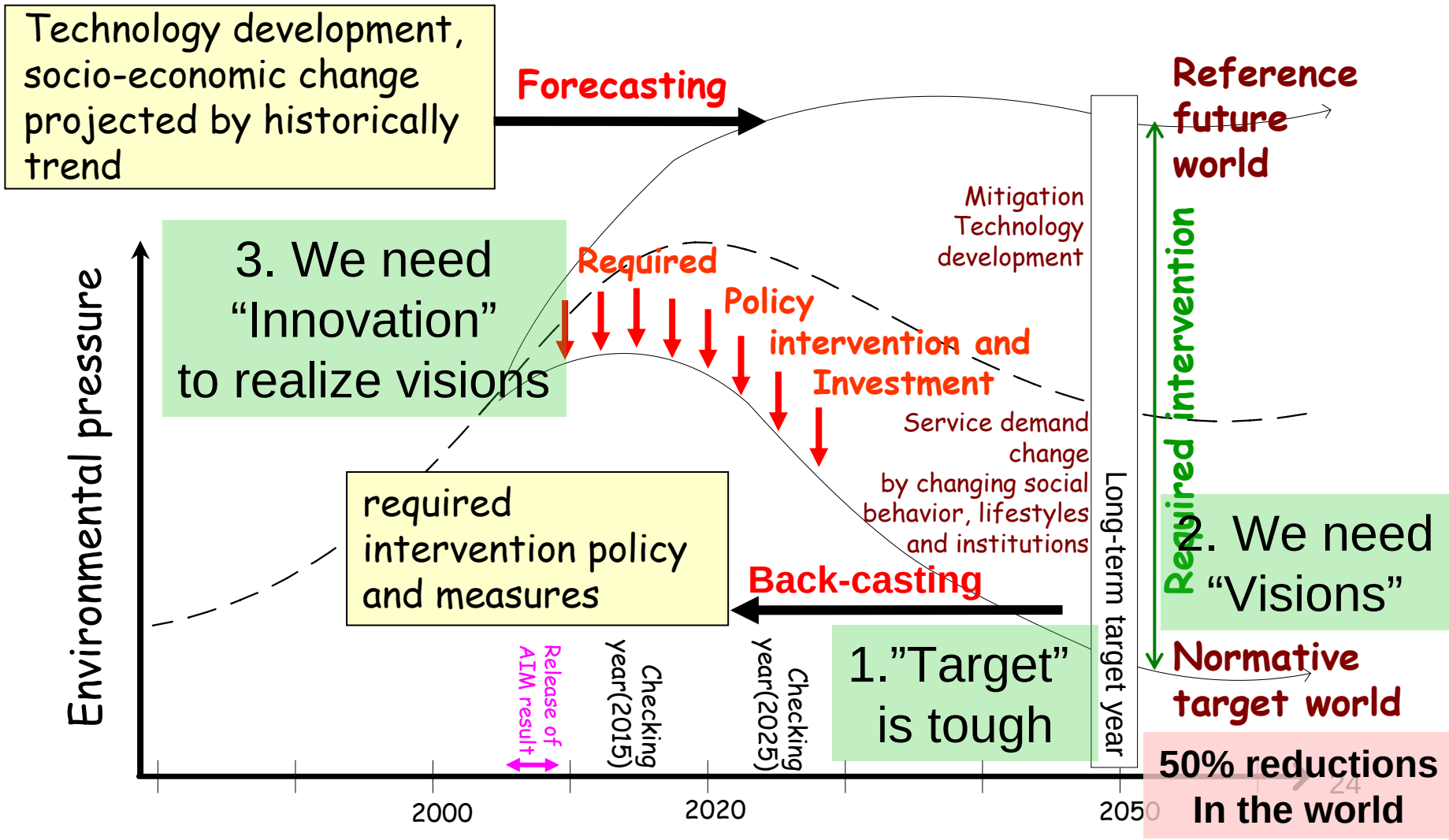


Forecasting from now and Backcasting from future prescribed/normative world



How fast we need to reduce GHG emissions

Total amount

CO_2 emissions = Pop × Activity/Pop × Energy/Activity × CO_2/Energy

Per capita activity | Energy Intensity | Carbon Intensity

60-80% reductions

Kaya identity

differential: Change rate

integral: Total

Change rate = speed

CO_2 emission Change rate = Pop Change rate + (Activity/Pop) change rate + (Energy/Activity) change rate + (CO_2/Energy) change rate

-2~3%/year | -0.5%/year | 1.5%/year | Y%/year | X%/year

1%/year

-3~4%/year

The case of Japan LCS

Hurry up!

Our time is limited towards a LCS.

Brussels Midi Station

What do you want to do now for our future?

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

What gift you can provide for our future?

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