G8 Hokkaido Toyako Summit
Tackles Climate Change

June, 2008
Ministry of Foreign Affairs of Japan

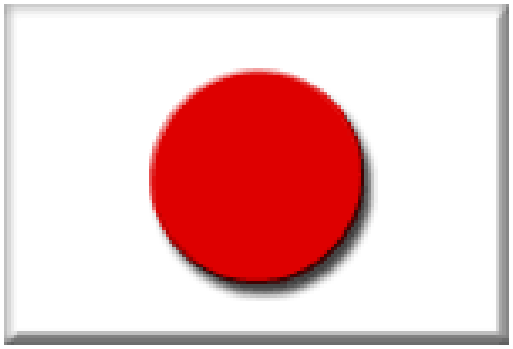
Today's Topics

Ⅰ.G8 Hokkaido Toyako Summit

Ⅱ.What Must Be Done?

Ⅲ.How Do We Get to the Solutions? (1)
~ Innovation

Ⅳ.How Do We Get to the Solutions? (2)
~ International Environment Cooperation



Ⅰ.G8 Hokkaido Toyako Summit

The Windsor Hotel Toya Resort and Spa,
the main venue for the Summit in July 2008

From the G8 Summit in Heiligendamm to the G8 Summit in Toyako. A breathtaking view of Lake Toya

Climate Change as One of the Most Important Summit Themes

G8 Hokkaido Toyako Summit（July 7~9,2008)

- The G8 will send a strong message to the world for development of post-2012 framework on climate change (after the first commitment period of Kyoto Protocol) to be advanced through the UN process
- In addition to the G8, outreach countries such as Australia, Brazil, China, India, Mexico, South Africa, Indonesia and the Republic of Korea will participate in the meetings of the third day

Japan's role as a G8 chair

- **Japan will demonstrate leadership in discussions on climate change, aiming to attain understanding and agreement of each country for Japan's proposals**

Advance Further from Heiligendamm Agreement at Toyako

Heiligendamm Summit (June 2007, Germany)

- "Seriously consider cutting global greenhouse gas emissions by at least half by 2050 from the current levels."

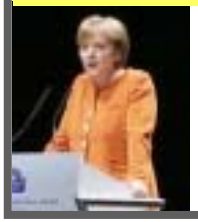
US President Bush

(Remarks on climate change on April 16, 2008)

- "The only way to achieve these goals is through continued advances in technology."
- "We're working toward a climate agreement that includes the meaningful participation of every major economy – and gives none a 'free ride.'"

German Chancellor Merkel

(Japan-Germany Summit on June 1)



- It is important to advance further the agreement reached at the Heiligendamm Summit.

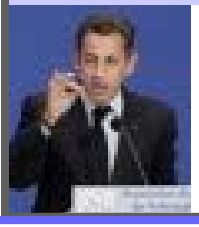
UK Prime Minister Brown

(Japan-UK Summit on June 2)

- "We have agreed on the urgency of international action, the need to reduce global emissions."

French President Sarkozy

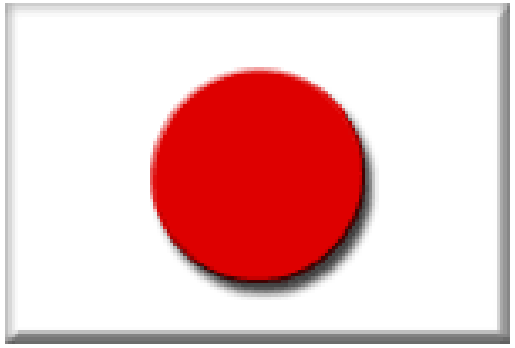
(Japan-France Summit on June 3)



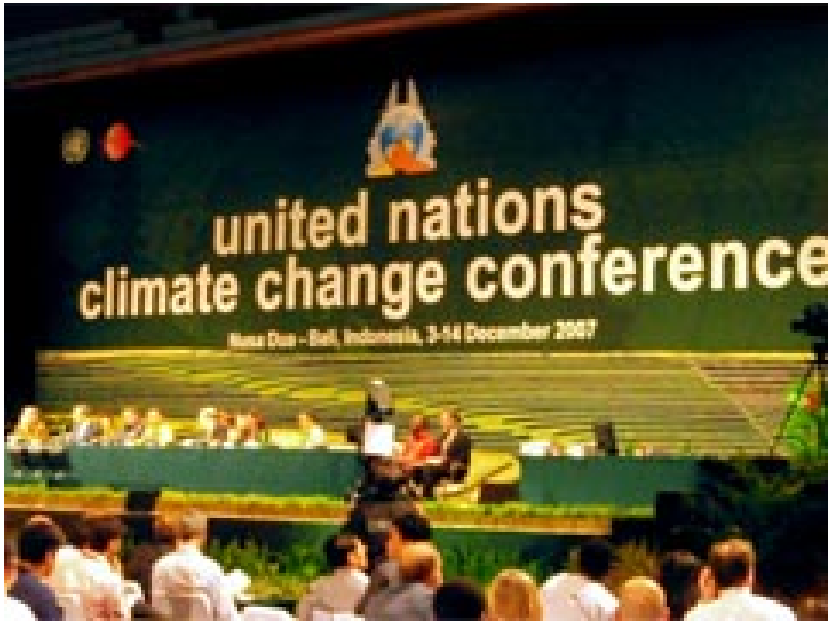
- It is necessary to create a framework in which all major emitting countries can participate.
- It is essential to agree on halving (global) emissions by 2050.

Japanese Prime Minister Fukuda

- "It is essential to have a "total participation" framework that includes all the major economies, not just the EU and Japan."
- "Japan will negotiate tenaciously in order to build international agreement on "fair and equitable rules" which are approved by all."



Ⅱ.What Must Be Done?



The 13th Session of the Conference of the Parties to the UN Framework Convention on Climate Change, held in December 2007 (Bali Conference)

Lake Toya

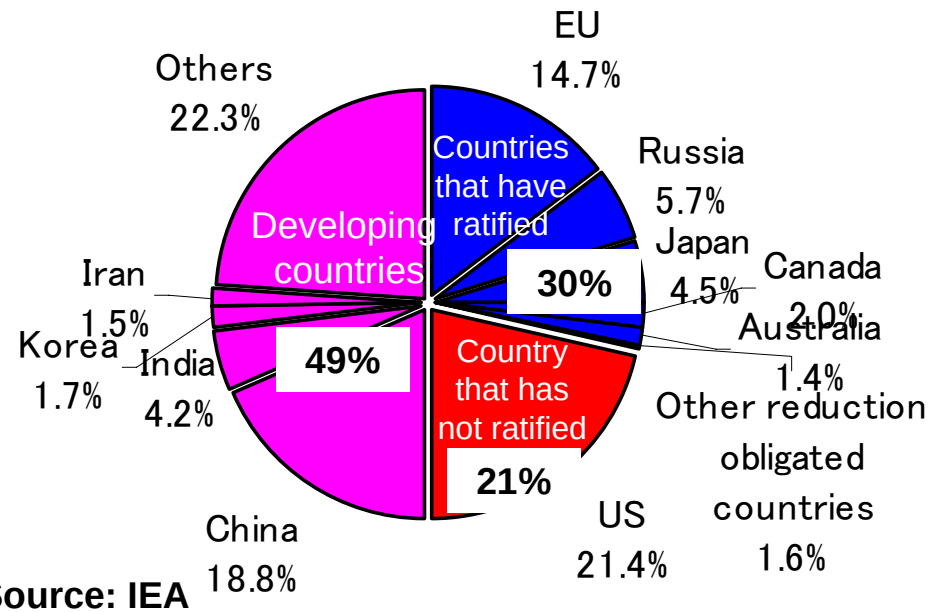
Kyoto Protocol is an Epoch-Making First Step in Reducing Emissions

Overview of Kyoto Protocol

2008-2012

- Adopted at Conference of the Parties (COP3)
- **Established obligations for developed countries to achieve numerical greenhouse gas reduction targets** during the period 2008-2012 comparing to 1990 levels (Japan and Canada: 6%, United States: 7%, EU:8%, etc.)
- Introduced the Kyoto Mechanism as a complementary measure to help them achieve the emissions reductions commitments.

Breakdown of CO_2 Emissions per Country
(2005)



Source: IEA

Issues Remaining for Kyoto Protocol

- The total amount of emissions from ratifiers that are obligated to reduce is still about 30% of the world.

Halving Global Emissions by 2050

Global CO_2 emissions

Future estimation
(Business as usual)

＜Medium-term strategy＞

Post-Kyoto Framework

- **Peak out global GHG emissions within the next 10-20 years**

International Environment Cooperation

- **Accelerate improvement of global energy efficiency**
- **Cool Earth Partnership**

＜Long-term strategy＞

Innovation

- **Develop innovative technologies**
- **Shift to low carbon society**

"Cool Earth 50"
Halving global emissions by 2050

Present　　2018～2028　　2050

Japan Proposes Sectoral Approach

2013-

◆**At the annual World Economic Forum held in Davos in January 2008, Prime Minister Fukuda outlined his new proposal aimed at ensuring equity in the target setting for the post-Kyoto framework**

Sectoral Approach

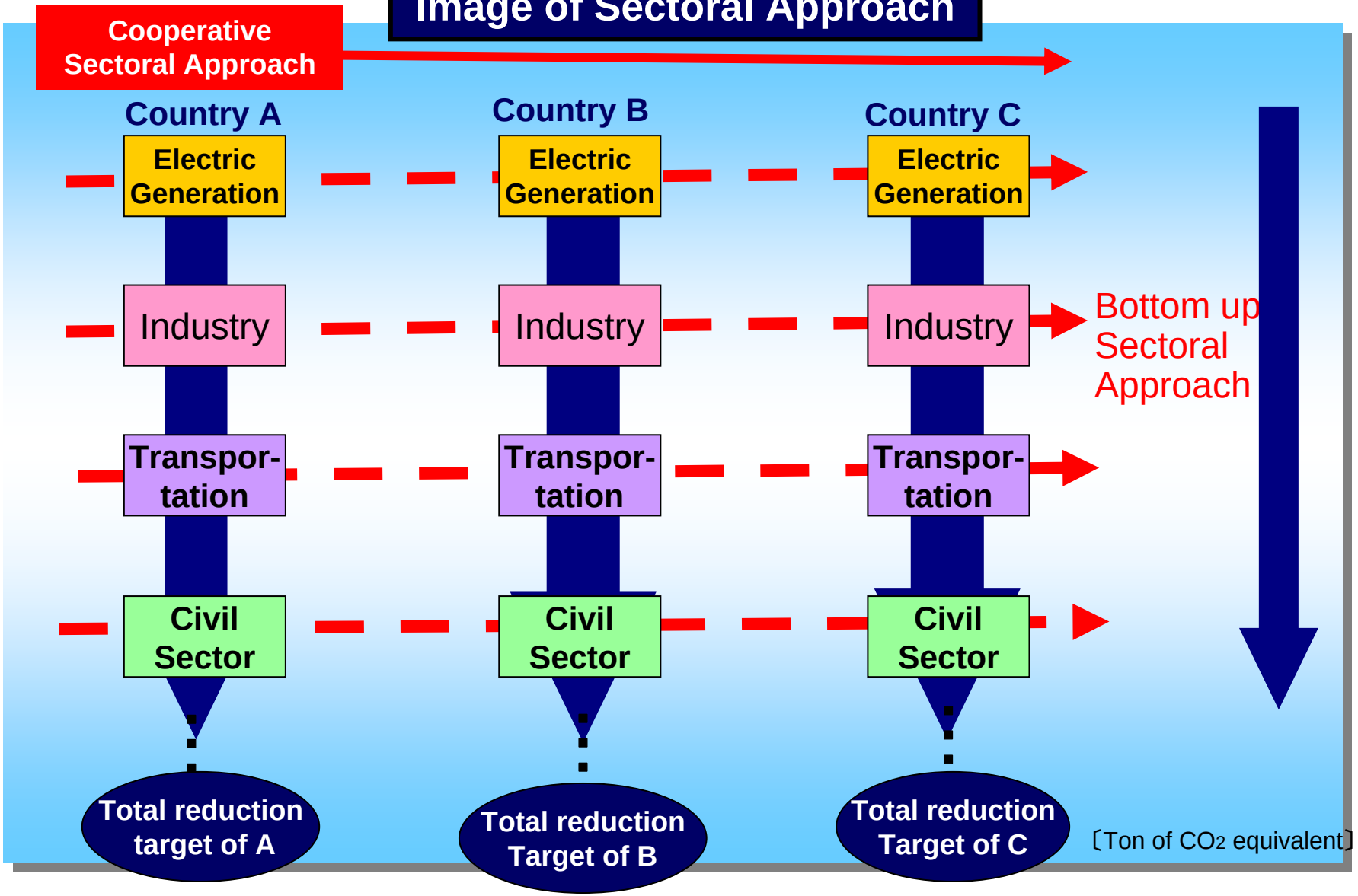
- **Japan, along with other major emitters, will establish quantified national targets for emissions reductions**
- **The target could be set based on a bottom-up approach by compiling on a sectoral basis energy efficiency and tallying up the reduction volume**

Review of Target Year

- **The base year should also be reviewed from the standpoint of equity**
- **Without equity, it will be impossible to maintain efforts and solidarity over the long term**

Tally the Reduction Potential to Help Set Fair and Effective Targets

Image of Sectoral Approach



Developing Countries with Rapidly Increasing Emissions Must Curb the Increase Rate

G8 Environment Ministers' Meeting

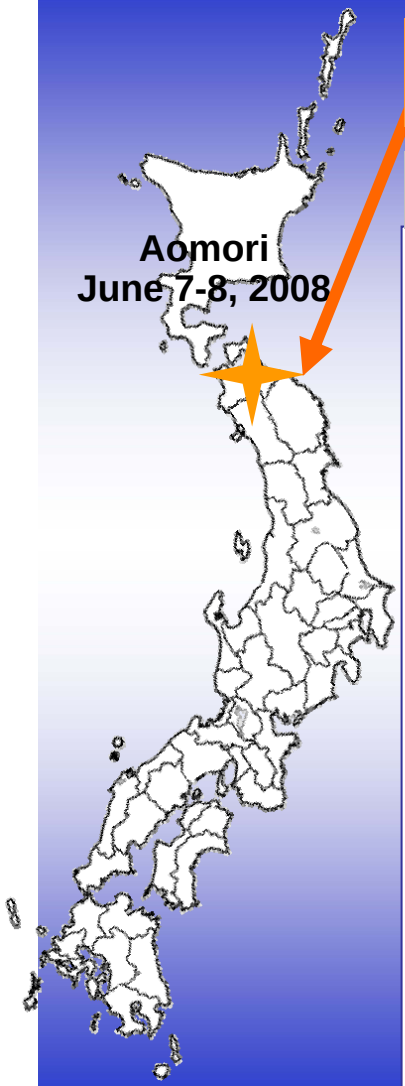
Chair's Summary

- For the total global GHG emissions to peak and then decrease within the next 10-20 years, bearing in mind the principle of common but differentiated responsibilities and respective capabilities, developed countries must commit to quantified national emission targets, actively adopting measures to reduce GHG emissions, while further mitigation actions by developing countries are also necessary.
- For countries with rapidly increasing GHG emissions, it is especially critical to strive to curb the rate of increase.
- Bottom-up analysis of GHG emissions reduction potentials can be useful tools for setting national reduction targets.

Emerging Countries

- The emerging countries such as India, China and South Africa pointed out importance of finance for technology transfer and support for the developing countries, and mentioned about needs of reduction action in the emerging countries under the principle of common but differentiated responsibilities and respective capabilities.

Improve Energy Efficiency while Ensuring Growth



Energy Ministers' Meeting of G8, the People's Republic of China, India and the Republic of Korea

Joint statement

- **We will seek to realize the potential for improving energy efficiency in our own countries to the maximum extent possible through nationally and voluntarily determined measurable energy efficiency goals/objectives and action plans, while ensuring economic growth.**
- **We decided to establish the International Partnership for Energy Efficiency Cooperation (IPEEC). The IPEEC will serve as a high-level forum for facilitating broad actions that yield high energy efficiency gains, where participating countries see an added value.**
- **We also recognize that the sectoral approaches could be useful methods for improving energy efficiency. We will work collectively for their practical development.**

Japan's New Proposal: "In Pursuit of 'Japan as a Low-carbon Society'"

On June 9, Prime Minister Fukuda announced Japan's new proposal "In pursuit of 'Japan as a Low-carbon Society.'"

① Long-term goals

- Sets 60-80% reduction in emissions of its current level by 2050 as Japan's long- term goal.

② Mid-term goals

- Japan could cut emissions by 2020 by 14% - compared to 2005 levels by 2020 (Government estimate)
- Japan will strive to gain the understanding of nations around the world on the sectoral approach, in setting quantified national emission reduction targets.
- Japan will announce its national emission reduction target at an appropriate time next year.
- It is essential to have a "total participation" framework that includes all the major economies, not just the EU and Japan.

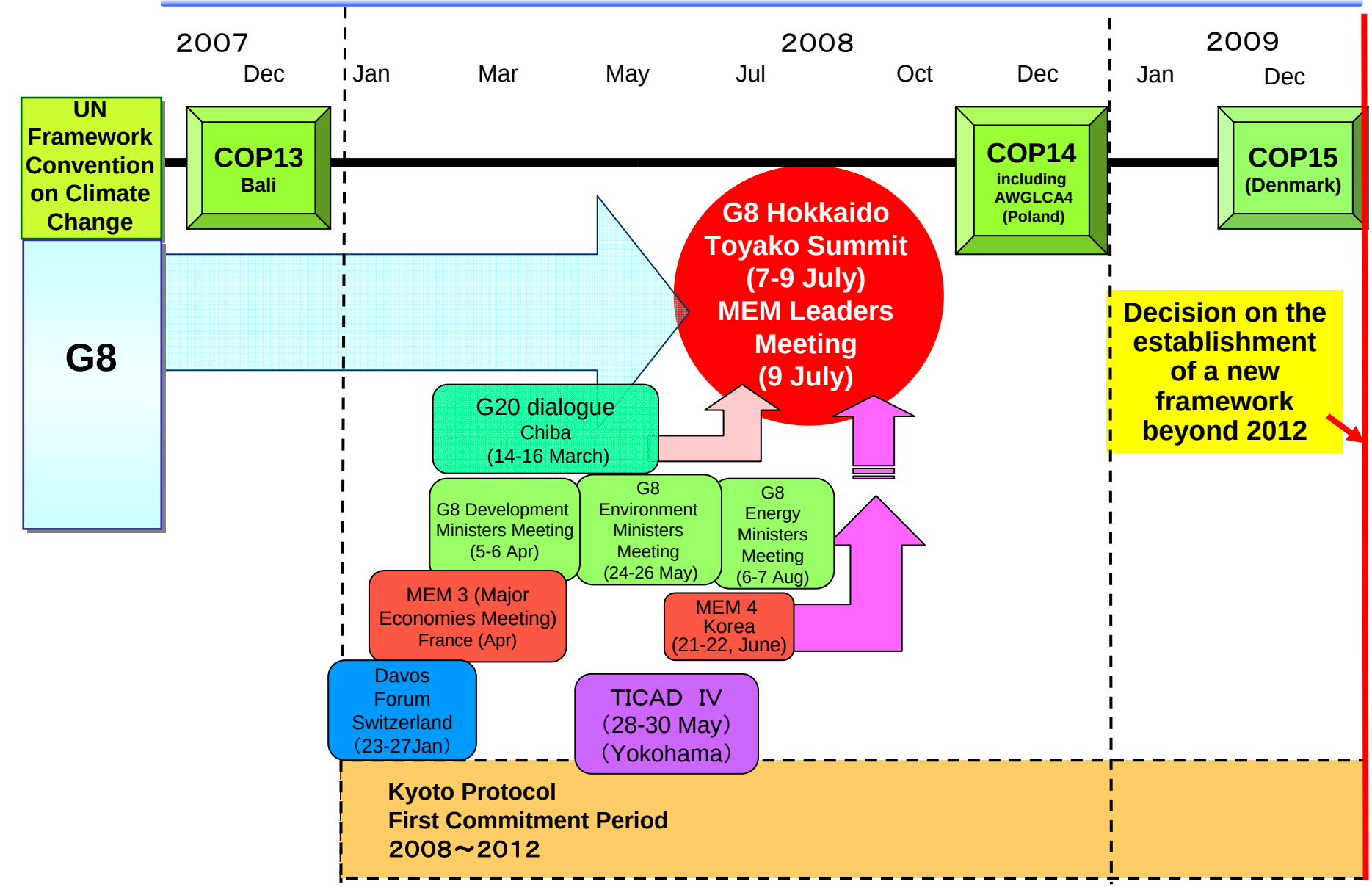
③ Technological development and assistance for developing countries

- Japan will contribute up to US$1.2 billion to a new multilateral fund which Japan is working with the US and UK to establish, aiming to assist developing countries in addressing climate change.
- At the Toyako Summit, Japan will propose an International Partnership for Environment and Energy, which aims to share a global roadmap for innovative technological development looking 30-40 years ahead by having the international community work in unison, to advance technological development. The achievement of this partnership is also to be shared with developing countries.

④ Emissions trading

- This autumn, Japan will begin an experimental introduction of an integrated domestic market of emissions trading.

Lead the Discussion at Toyako Summit



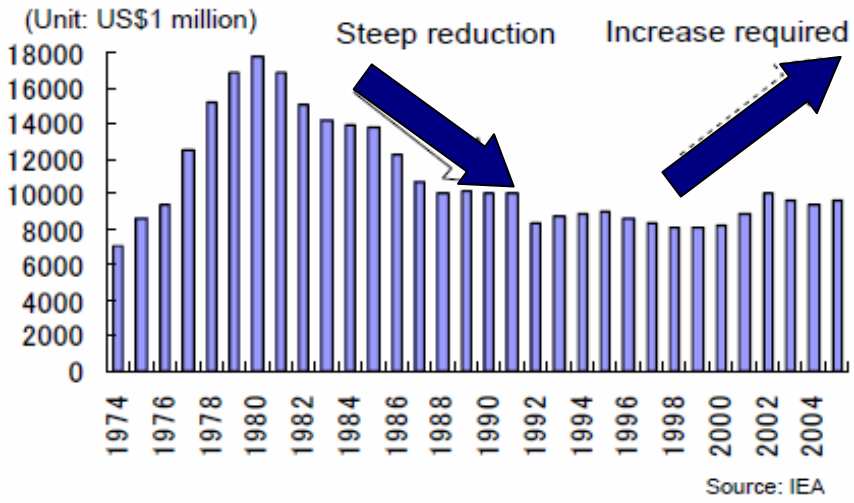
Ⅲ. How do we get to the solutions? (1)
~ Innovation

Solar panels

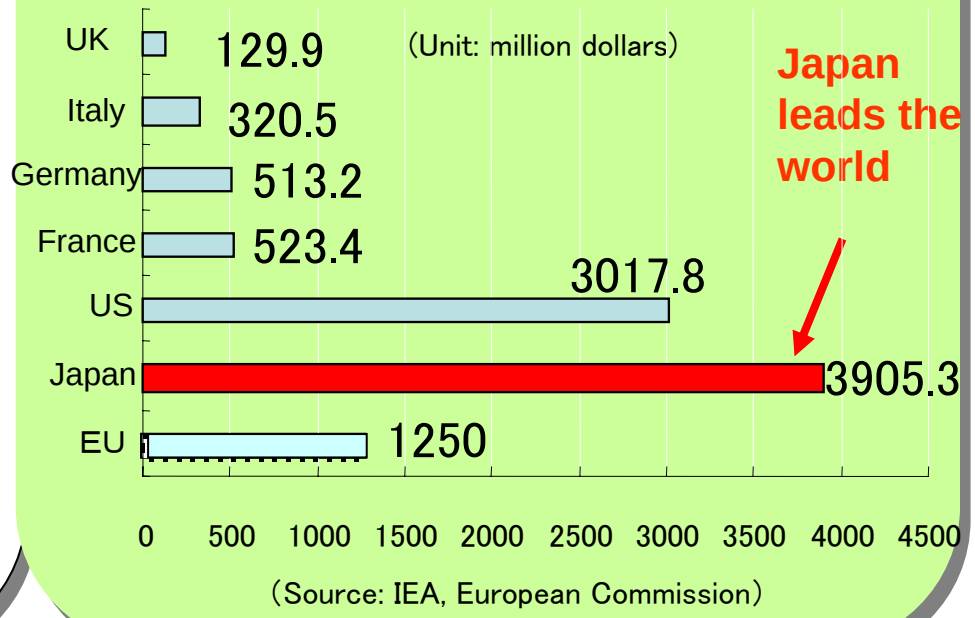
Fuel-cell vehicle

Japan Also Leads in Investment on R&D

Global Trend in Public Investment in Research and Development in the Energy Sector



Trend in Public Investment in Research and Development in the Energy Sector by Country (2005)



● Prime Minister Fukuda made a commitment at the Davos forum in January 2008: "We will invest US$30 billion over the next five years in R&D in the environment and energy sector."

Reducing CO_2 Emissions from Coal Thermal Power Plants to Zero

■Approximately 26% of total global CO_2 emissions are emissions from coal thermal power plants (2005) *According to IEA calculations

High-efficiency coal thermal power

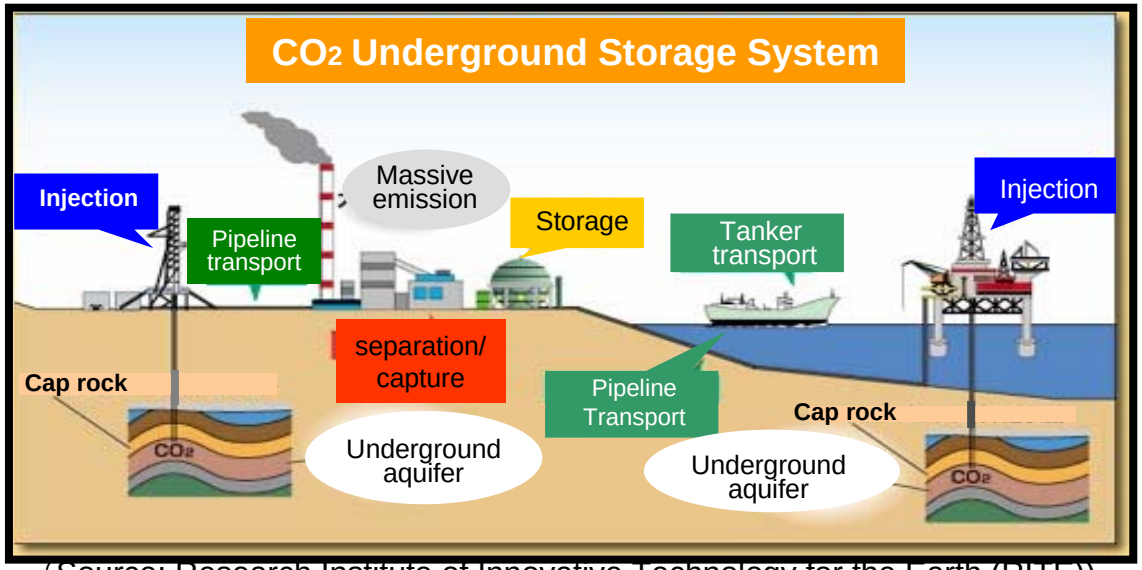
- Raise generation efficiency from current 42% to 65%
- Possible to cut CO_2 emissions approx. 40% from current levels

+

CO_2 recapture/ CO_2 sequestration

- Realize by 2020
- Realize zero emissions by combination with high-efficiency coal thermal power generation

Tachibana Bay coal thermal power plant, Japan's largest



(Source: Research Institute of Innovative Technology for the Earth (RITE))

Cutting CO_2 30% through Innovative Steel Manufacture Processes

■Approximately 6% of total global CO2 emissions are emissions from the steel sector (2005) *according to IEA calculations

- Development of innovative steel manufacturing technology using hydrogen as a reducing agent, as a partial substitute for coke
- Technology for separation/capture generated from blast furnace

- We can cut CO_2 emissions by approximately 30% through a combination of these two technologies

Major CO_2 Reductions through Next-Generation Vehicle Technologies

■**Approximately 17% of global total CO_2 emissions are emissions from vehicles (2005)**

*According to IEA calculations

●Hybrid vehicle and electric vehicle

Hybrid vehicle combining electricity and internal combustion engine (gasoline)

Electric vehicles that run only by electricity

●Fuel-cell vehicle

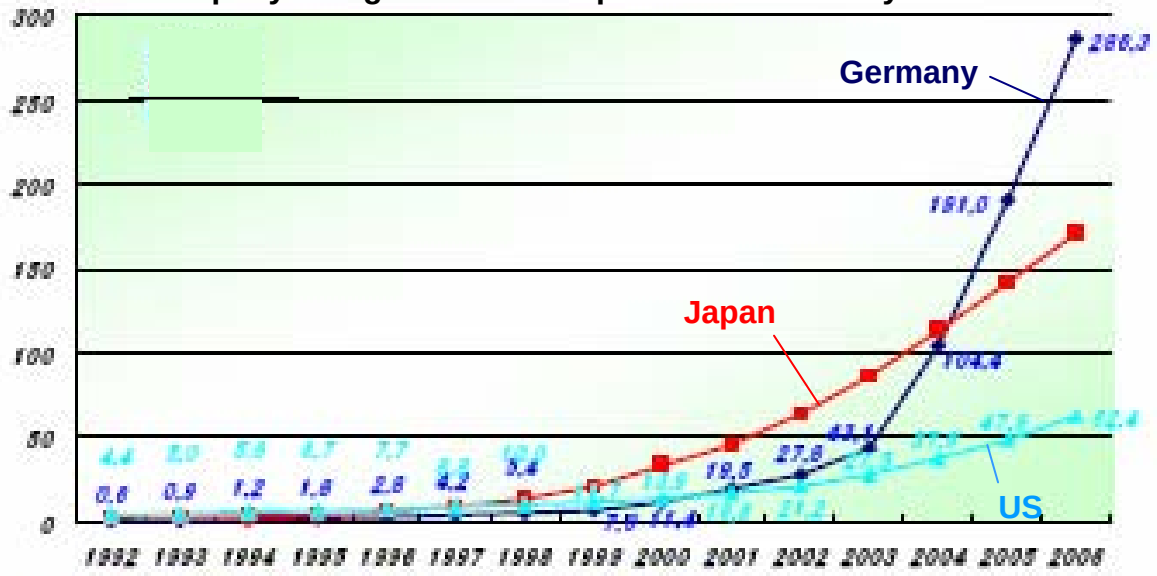
Fuel-cell vehicle using hydrogen as its fuel

- CO_2 emissions to reach 1/2-1/4 those of gasoline vehicles
- Battery volume to be increased 7-fold from current levels

- CO_2 emissions to reach 1/3 of those of gasoline vehicles

Greatly Raising the Efficiency of Solar Power Generation

The rapidly rising level of solar panels cumulatively introduced



Large-scale solar panel installation on plant roof

Note1:Source: Trends in Photovoltaic Applications / IEA/ PVPS (as of 2006)

Note2:IEA PVPS participating countries: Australia, Austria, Canada, Switzerland, Denmark, Germany, Spain, France, UK, Israel, Italy, Japan, Republic of Korea, Mexico, the Netherlands, Norway, Sweden, US, Portugal

(Source: Ministry of Economy, Trade and Industry of Japan)

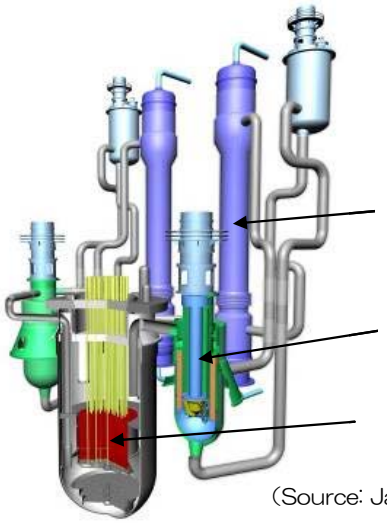
- We will dramatically raise the generation efficiency from its current 15-20% to over 40%
- We will reduce the current cost of solar power generation (46 yen/kWh) to the same level as thermal generation (7 yen/kWh)

Technology Development of the Advanced Nuclear Power Generation

- Nuclear power generation emits no CO_2 during the generation process
- It ensures the 3Ss (safety, security and safeguards)

●Fast reactor

Practical strategic research study design example

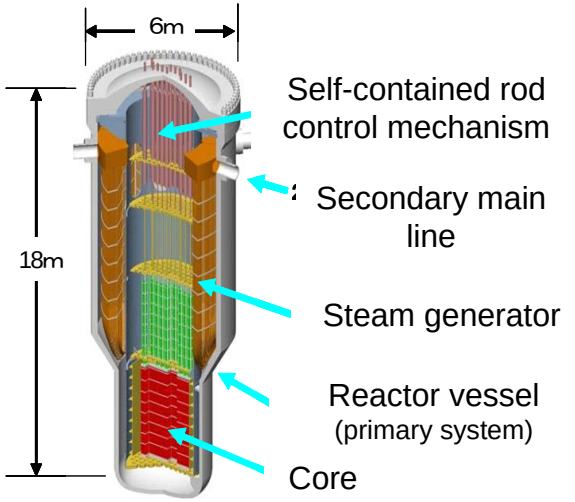


(Source: Japan Atomic Energy Agency)

● **Develop fast reactor that raises the use efficiency of uranium resources drastically and dramatically decreases radioactive waste**

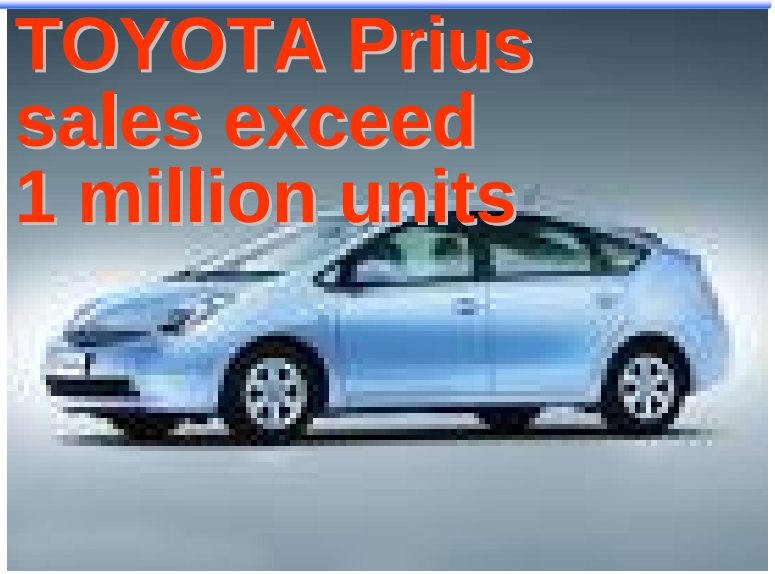
●Medium/small sized reactor

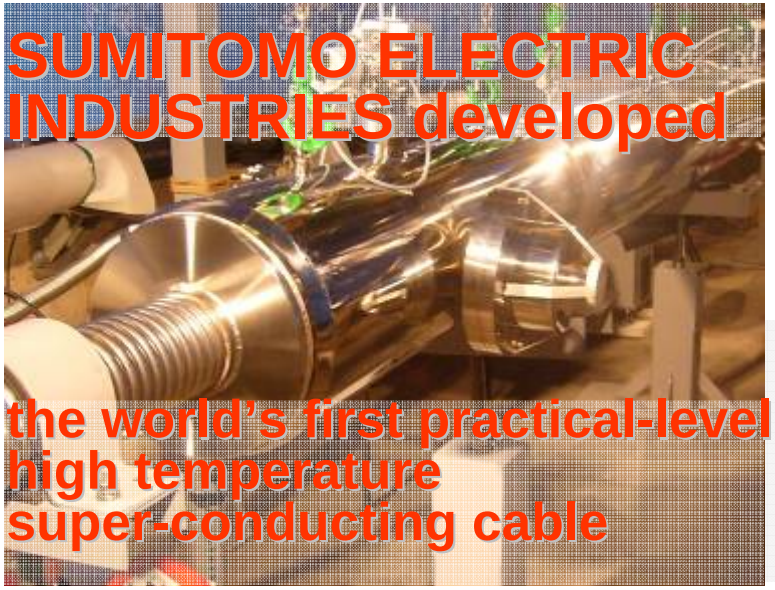
Ex.)350MWe-IMR

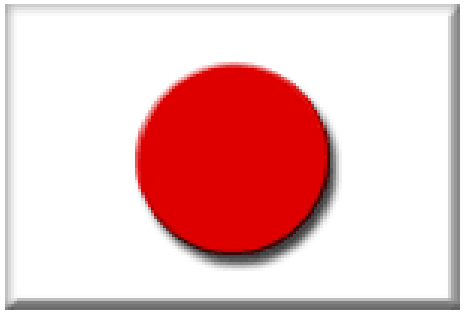


● **Develop compact medium/small sized reactor appropriate for energy demand in developing countries, island states,etc.**

Japanese Private Technologies Contributing to Emissions Reduction





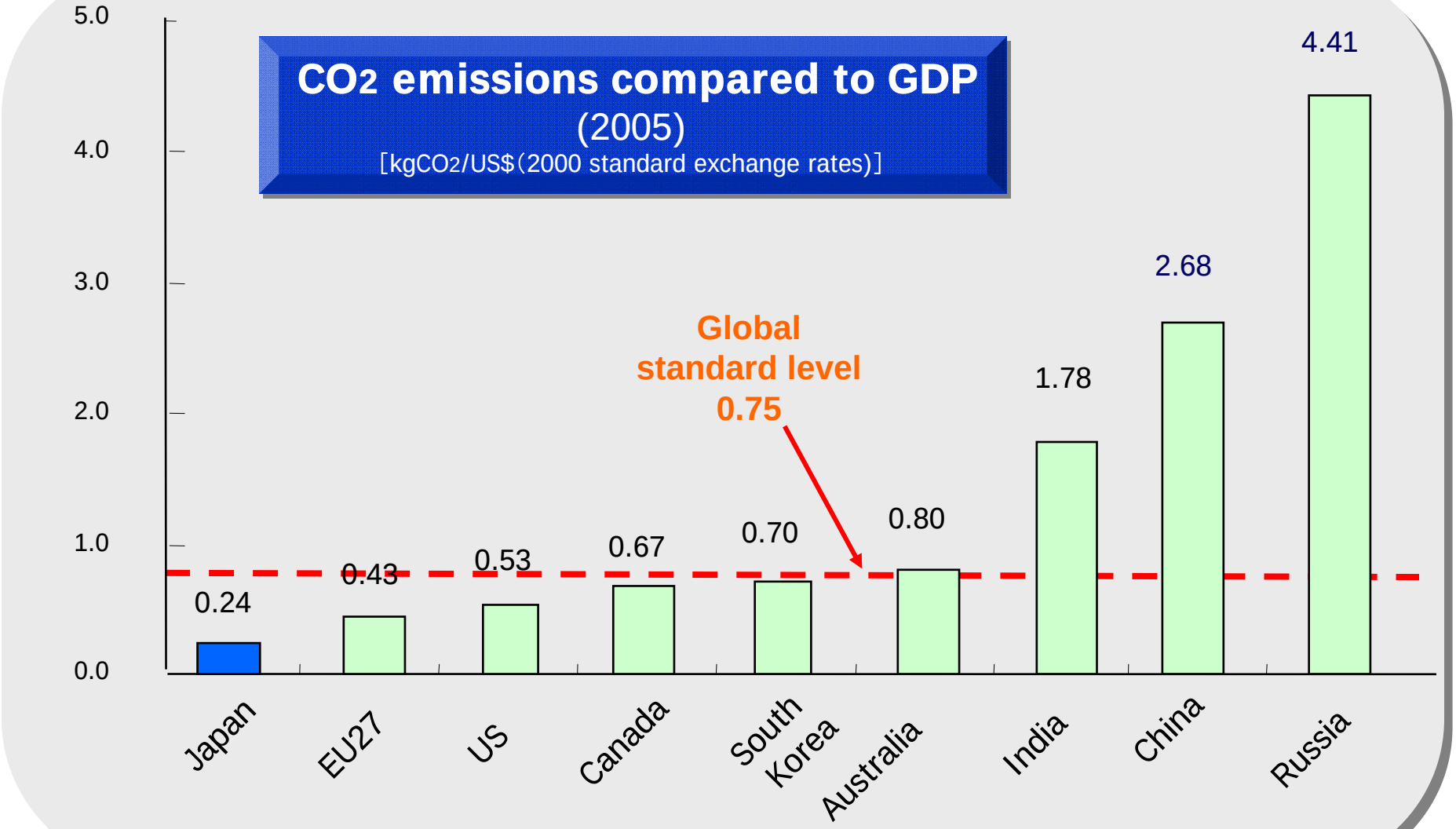


Ⅳ. How do we get to the solutions? (2)
~ International Environment Cooperation

Planting cooperation for mangroves (Brazil)

Environmental technology assistance for power plant (Mongolia)

Expanding Advanced Technologies to Reduce Global Emissions



Source: IEA (2007), "CO_2 emissions from fuel combustion 1971-2005"

Supporting Developing Countries Making Efforts to Reduce Emissions While Achieving Growth

Prime Minister Fukuda gives speech at Davos Forum (January 2008)

→ **Multilateral funds**

Aim to establish a new multilateral fund together with the US and UK, and call for participation from other donors

Cool Earth Partnership

Japan provides support on a scale of 10 billion US$

Support domains:
- **Climate change mitigation policies**
- **Adaptation policies for developing countries vulnerable to climate change**
- **Improvement of access to clean energy**

Target countries/projects:
- Senegal, Madagascar and Guyana: Non-project grant aid
- Indonesia: Climate change program loans (under consideration)
- Others

Japan's Leadership: Shifting to a Low-Carbon Society

20th century

Mass production / mass consumption / mass disposal society

Promoting the 3Rs

Reduce

Reuse

Recycle

Mottainai

Treating things with more care, and using up every last bit. A good, traditional Japanese mentality

Wangari Maathai, winner of Nobel Prize for Peace (left)

Energy-saving household electronic goods

Switching from incandescent electric lamps to energy-saving products such as compact fluorescent lamps

Lifestyle

Promotion of "Cool Biz," a style for businesspeople suited to the humid Japanese style

21st century

Low-carbon society


Now is the time
for both industrialized countries
and developing countries
to join forces to fight climate change