Japan's Environmental Policies

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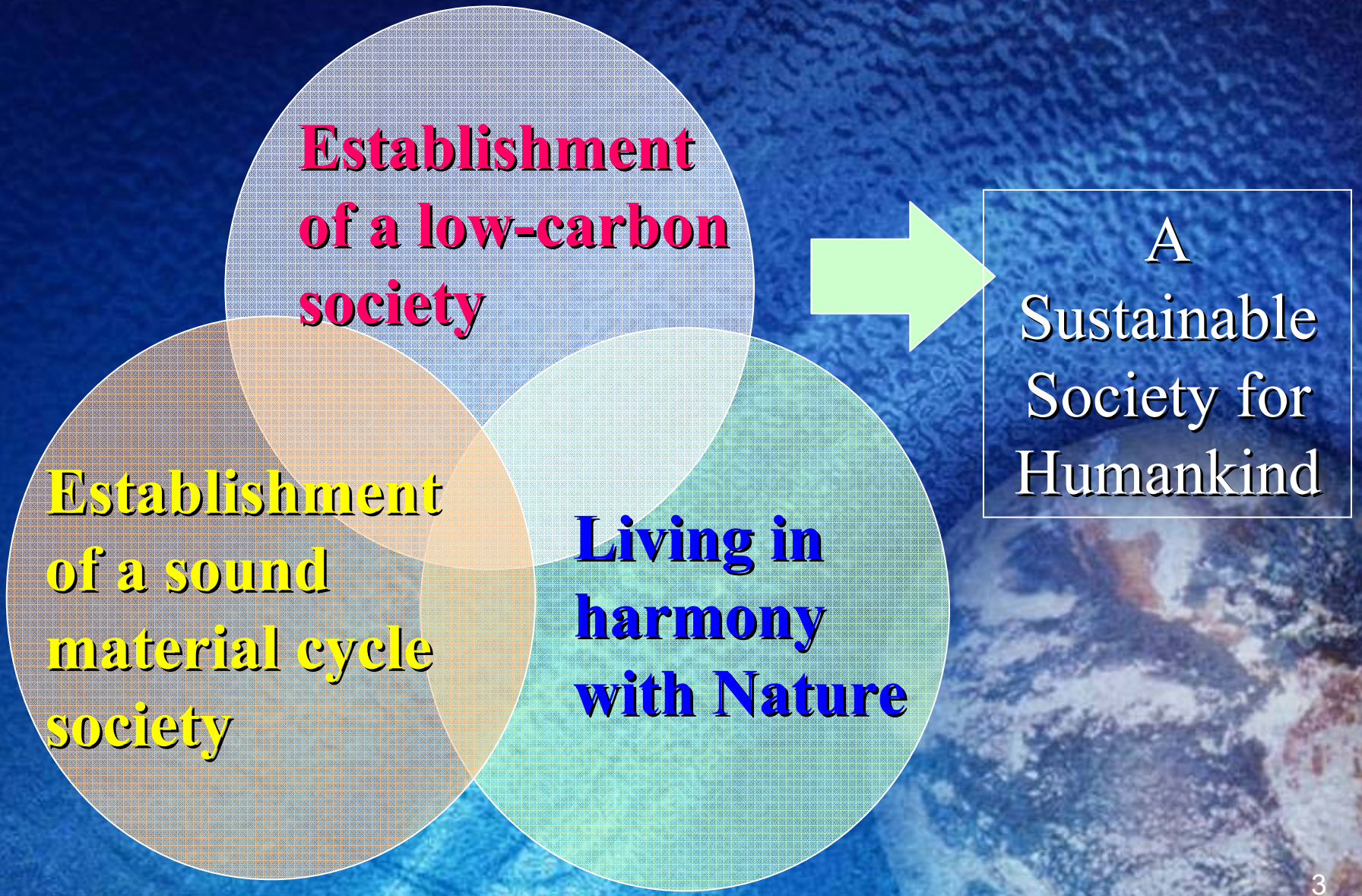
Major Tasks for Japan's Environmental Policy



1 . Establishment of a low-carbon society

The main cause of recent global warming is anthropogenic GHG emissions

Impacts of Climate Change in Japan

- Agricultural impacts (e.g. rice, oats)
- natural ecosystem change (e.g. beech forest)
- natural disasters due to stronger typhoons

Impacts of Climate Change in the world

*Hotter summers, rainstorms *Agricultural impacts

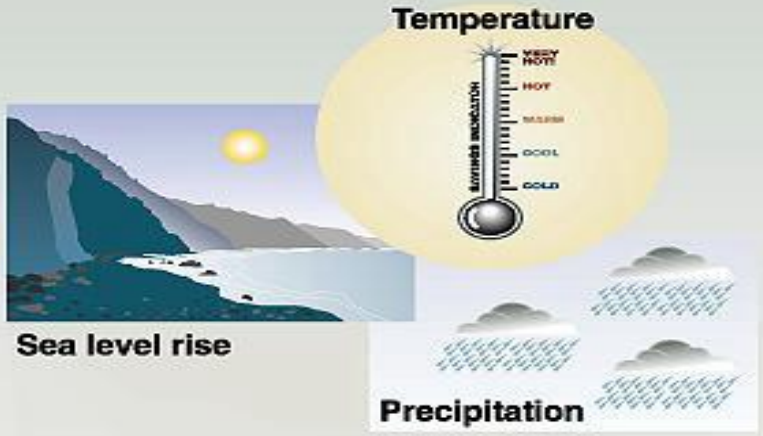
*Loss of coastlines

Unusual weather events

Preserving Japan's unique monsoon climate

= Preserving the foundation of traditional lifestyle & culture

Potential of the Climate Change Impact



Impacts on...

Health

Weather-related mortality
Infectious diseases
Air-quality respiratory illnesses

Agriculture

Crop yields
Irrigation demands

Forest

Forest composition
Geographic range of forest
Forest health and productivity

Water resources

Water supply
Water quality
Competition for water

coastal areas

Erosion of beaches
Inundation of coastal lands
additional costs to protect coastal communities

Species and natural areas

Loss of habitat and species
Cryosphere: diminishing glaciers

GRID Arendal UNEP

GRAPHIC DESIGN : PHILIPPE REKACEWICZ

Source: United States environmental protection agency (EPA).

Changes Observed in Recent Years

Indicator	Observed changes
Global mean surface temperature	Increased by 0.6 over the 20th century
Global mean sea level	Increased by 10-20centimaters over the 20th century
Hot days/heat index	Increased (likely)
Cold/frost days	Decreased for nearly all land areas
Heavy precipitation events	Increased at mid-and high northern latitudes (likely)
Drought	Increased frequency in some regions
Glaciers	Widespread retreat
Snow cover	Decreased in area by 10% (since the1960s)
Weather-related economic losses	Ten-fold increase (over the last 40years)

Source: IPCC Third Assessment Report (2001)

Various Projected Impacts

Subject	Projected Impacts
Global mean surface temperature	Increased by 1.4-5.8°C from 1990 to 2100
Global mean sea level	Increased by 9-88cm from 1990 to 2100
Impacts on weather events	Increase in flood and drought
Impacts on human health	Increase in heat stress and infectious diseases such as malaria
Impacts on ecosystem	Extinction of some animal and plant species, migration of ecosystem
Impacts on agriculture	Decrease in grain harvest at many regions, temporary increases in some regions
Impacts on water resources	Change in supply-and-demand balance, adverse effects on water quality
Impacts on market	Large economic loss especially in developing countries which rely on primary products

Source: IPCC Third Assessment Report (2001)

3R Initiative

The "3Rs" are:

Reduce waste generation

Reuse products and resources

Recycle products and resources

- Tackling illegal dumping of waste
- Establishment of a legislative system addressing proper disposal

Japan Has Faced Serious Waste Issues

- In the past, policy measures for waste management were far from adequate. A “sweep it under the carpet” attitude prevailed.
- A “cheaper at the expense of quality” approach was common in waste treatment.

Huge-scale illegal dumping of waste
Accumulation of hazardous waste such as PCB

Improper waste management via open incineration

Huge-scale illegal waste dumping

Improper storage of PCB waste

Source: Ministry of the Environment

Japan's Reform of Waste Management and Recycling

Reforms over the past decade

- Adherence to the principle established through the amendment of the Waste Management Law that the producers of waste should bear responsibility for waste disposal
- Introduction of Extended Producer Responsibility and legislation with regard to recycling
- Drastic reduction of dioxins emitted from incinerators
- Establishment of a scheme for PCB treatment
- Establishment of the Fundamental Law for Establishing a Sound Material-Cycle (SMC) Society and the Basic Plan for Establishing a SMC Society

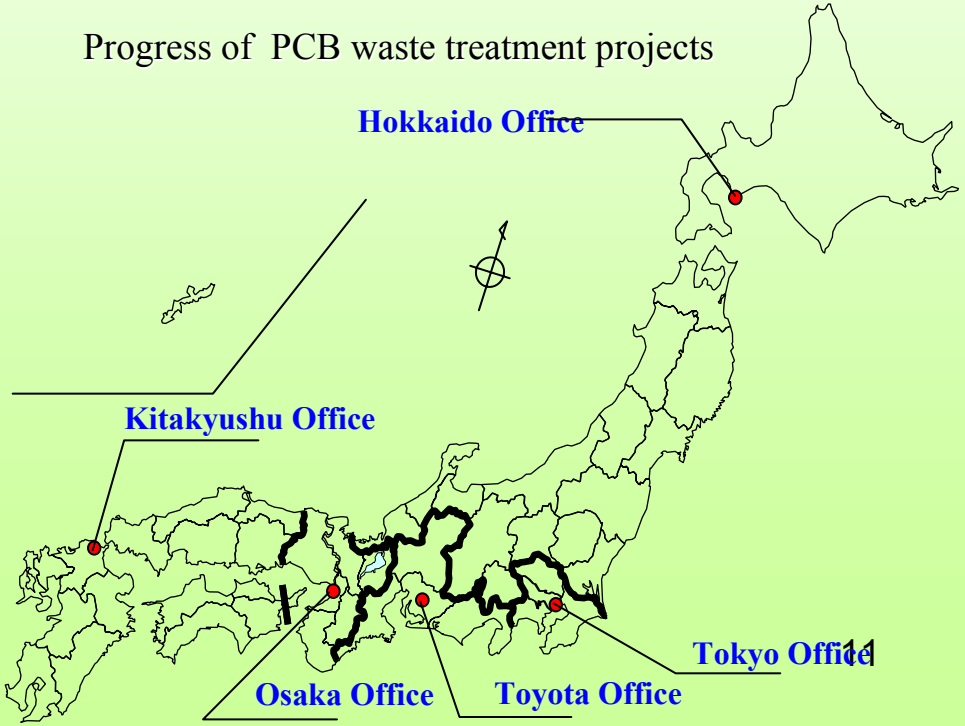
The above reforms were achieved through the actions of key bodies such as national and local governments, private companies, research institutions and NGOs/NPOs.

Japan will be disseminating its experiences to the world.

Proper disposal of Polychlorinated Biphenyl (PCB)

- Establishment of a legislative system for the purpose of proper disposal of PCB waste
- Japan Environmental Safety Corporation (JESCO) prepared facilities to treat high-pressure transformers that contain high densities of PCB in 5 big cities.

Kitakyushu Office



3．Living in harmony with Nature

Japanese have a strong affection towards nature – especially towards forests

During the rapid growth period, unmanaged development resulted in reduced forests and buried shores, destroying valuable natural resources and wildlife.

Lessons Learned…

National Park System, Wildlife Protection, Restoration of Natural Assets

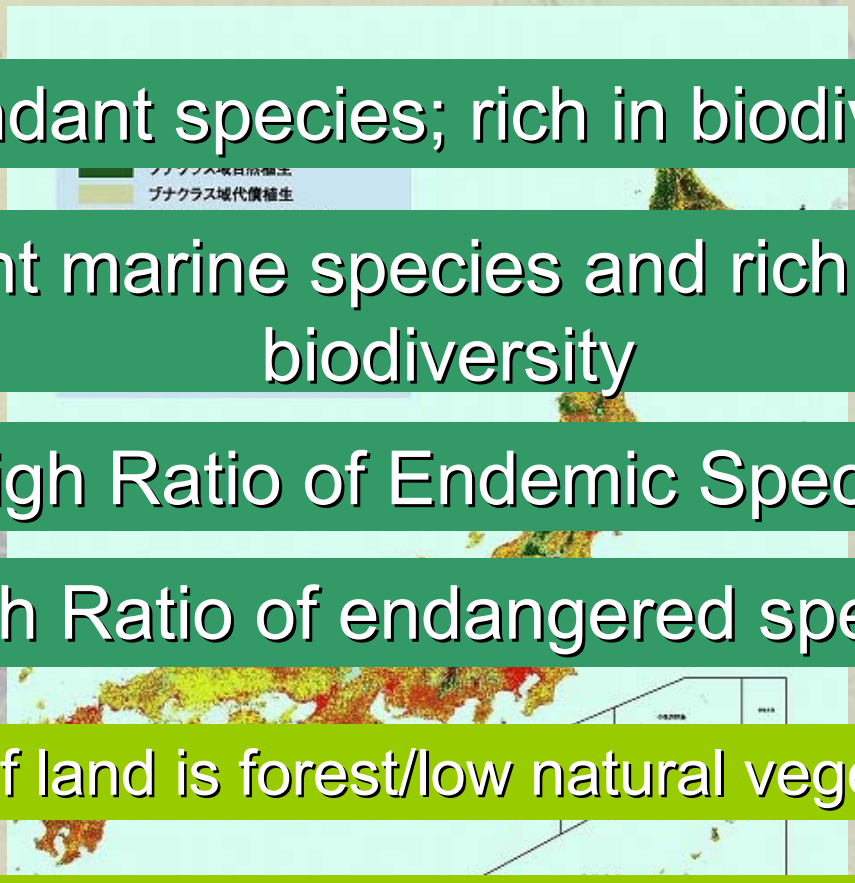
Conserving our beautiful landscape of forests and water – Preserving the sanctuary of all Japanese

Characteristics of Japan

Total Area	377,000km^2
Population	127,000,000

- **Diverse natural environment**
  - Narrow, but extends from north to south
  - Mountainous
  - Four seasons
- **Intensive land use**

Current Status of, and Issues regarding, Biodiversity in Japan



Abundant species; rich in biodiversity

Abundant marine species and rich in marine biodiversity

High Ratio of Endemic Species

High Ratio of endangered species

2/3 of land is forest/low natural vegetation

Significant biodiversity in shallow sea areas, but such areas decreasing noticeably in size/number

Three Crises regarding Biodiversity

Crisis 1: Loss/extinction of species and destruction of ecosystem by human activities

Extinction of Japanese crested ibis

Crisis 2: Impacts of decreased human activities on nature

Reduction of rice fish

Crisis 3: Impact of alien species and chemical substances introduced by human beings

Impact of largemouth bass

Photo :Water Surface Laboratory in Miyagi prefecture

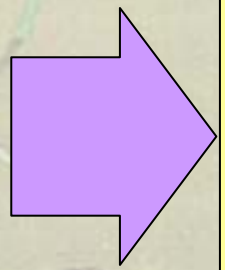
Three Goals for Conservation of Biodiversity and Sustainable Use and Related Measures

Three goals and directions

① Conservation of ecosystem & species

② Prevention of extinction; restoration

③ Sustainable use



Major directions

① Strengthen conservation

② Nature restoration

③ Sustainable use

What we should do

Seven Suggestions

Issues to be addressed as soon as possible

- Extinction prevention and ecosystem conservation
- Conservation of *satoyama*
- Nature restoration
- Measures against alien species
- Monitoring Sites 1000
- Citizens' participation and environmental education
- International cooperation

Undertaken and promoted over the next five-year planning period

Three major tasks to preserve the sustainable, eco-friendly society of Japan

A shared vision among the people of Japan

Tackling Climate Change

- How we arrived here
- Roadmap for achieving our commitment
  - Kyoto Protocol Target Achievement Plan
  - Forest Sinks
  - Kyoto Mechanisms
  - National Movement
- Where we are headed
  - The Ultimate Objective of the UNFCCC
  - Beyond 2012

How we arrived here….

1992 — UN Conference on Environment and Development (UNCED)
- UN Framework Convention on Climate Change is adopted

1997 — COP3
- Kyoto Protocol is adopted

2001 — Japan ratifies Kyoto Protocol

2002 — World Summit on Sustainable Development (WSSD)

2005 — The Kyoto Protocol enters into force (February 16)

2008 - 2012 — 1st Commitment Period of Kyoto Protocol

Outline of the Kyoto Protocol

Legally-binding numerical targets for Annex I countries
No new obligation for developing countries

Target gases	**Carbon dioxide, methane, nitrous oxide, and 3 CFC alternatives (HFC, PFC, SF6), for a total of 6 gases**
Sinks	**Carbon sequestration by forests and other sinks are counted.**
Base year	**1990 (For HFC,PFC and SF6 1995 may also be used)**
Commitment period	**Five years (2008 - 2012)**
Numerical targets	**Reductions:** **Japan ▲6%, United States ▲7%, EU ▲8%.** **Developed countries will achieve a 5% reduction as a while.**
Features	**Introduction of the methods to achieve targets cost-effectively through international collaboration (the Kyoto Mechanisms)**

- *Concerns raised regarding Kyoto Protocol*
  1. Economic impact, and uncertainties on science of climate change
  2. Developing countries have no obligation

- *Japan's Decision (under PM Koizumi)*
  1. The Kyoto Protocol is a first step towards solving climate change, and it had already been agreed that developed countries should take the lead
  2. The scientific basis had been carefully investigated by the IPCC
  3. Advantages exist in taking the lead in shifting to a low-carbon society
  4. The environment is an area in which Japan can make significant contributions to the global community, unlike areas involving the military (because of Article 9 of the Japanese Constitution)

2002: with 100% Diet Approval, Japan ratifies KP

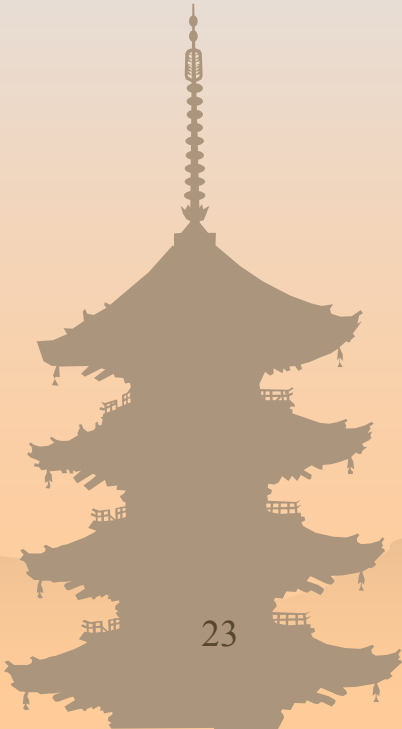
2005: KP enters into force

2008: start of commitment period…

Japan will achieve its 6% reduction target

Roadmap for achieving our commitment

- Kyoto Protocol Target Achievement Plan
- Forest Sinks
- Kyoto Mechanisms
- National Movement



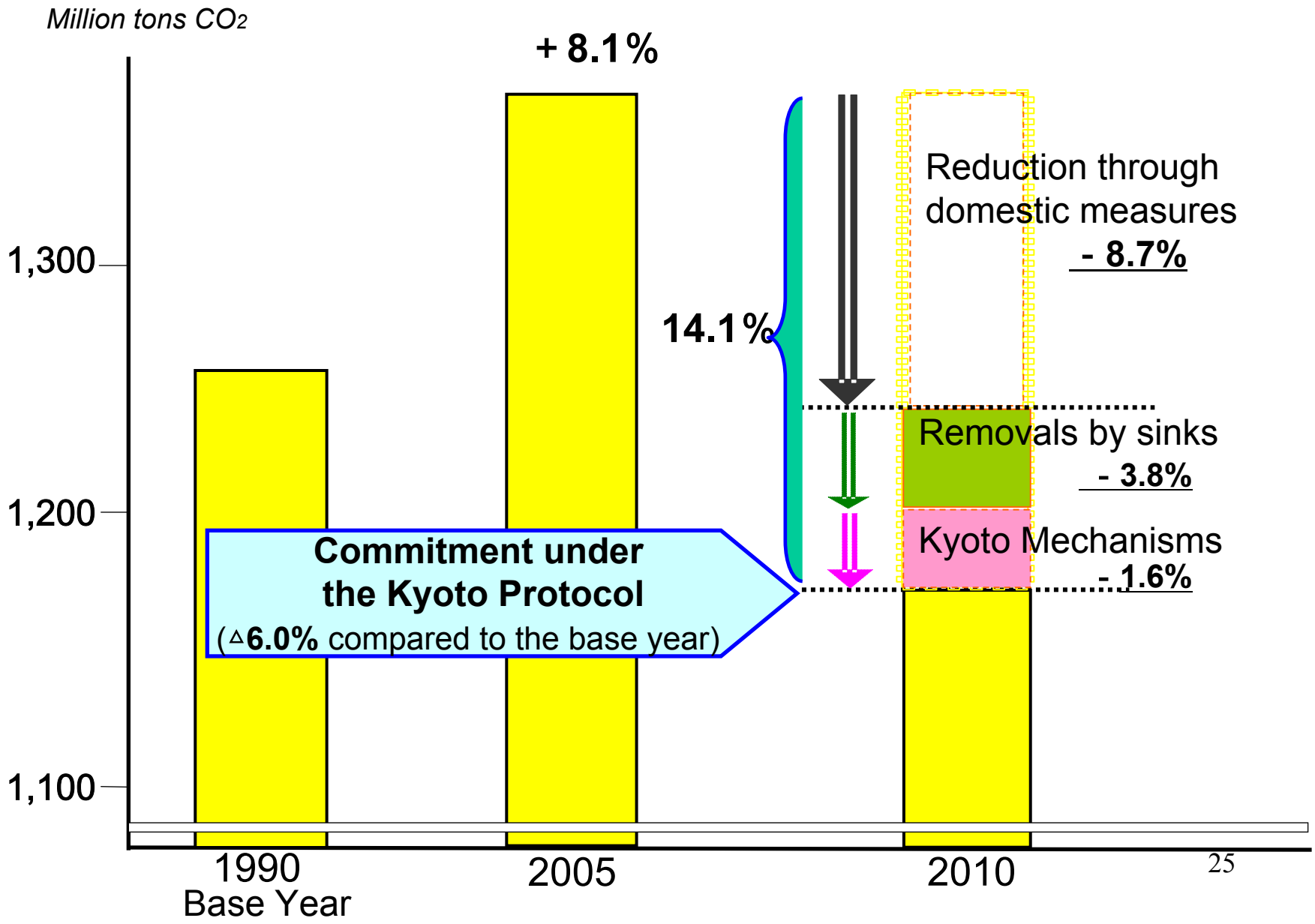
The Aims of the Kyoto Target Achievement Plan (Cabinet Decision on April 28, 2005)

1. Ensure achievement of 6% reduction commitment under the Protocol
2. Steady implementation of a continuous as well as long-term GHG emissions reduction on a global scale

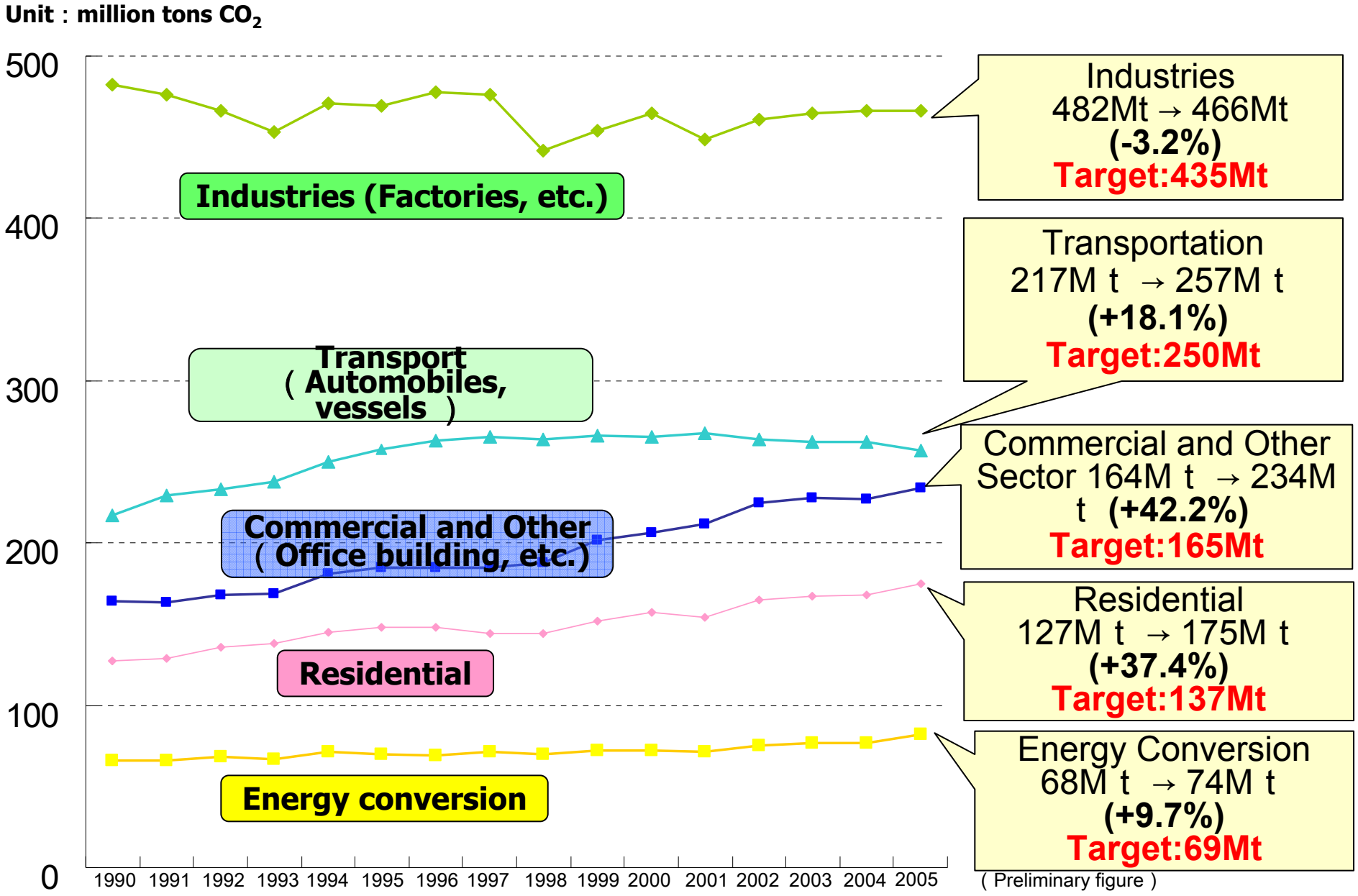
21st Century is a century of the environment. Climate change is a common issue to all human beings.

The government of Japan, as one of the most advanced countries in the world in the implementation of measures to tackle climate change, aspires to take a leading role in the international community.

Japan's GHG Emissions and Reduction Target



Energy-oriented CO2 Emissions by Sector



Practical Technology for Achieving Kyoto Protocol Target

• Photovoltaic Systems

Systems that harness solar energy to generate power without emitting CO_2. Japan has the largest production volume and accumulated installation amount in the world.

Photo Voltaic System (left: residential, right: commercial)

• Heat Pumps

Energy-saving technology in residential and commercial sectors being applied to air conditioners, refrigerators and water heaters.

"Ecocute" (Residential CO_2 refrigerant heat pump water heater)

• Hybrid Automobiles

Fuel-efficient automobiles

Prius (Toyota Motor Corporation)

• LEDs (Light-emitting diodes)

Efficient and long-life energy-saving lighting equipment

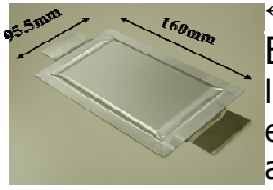
↑Traffic Signal

Desk Lamp↓

• Capacitors/Rechargeable Batteries

Equipment for saving and discharging electricity

←Capacitor (Stabilizer of power variation in wind power generation systems)



←Manganese Lithium-ion Battery (High-power, small, lightweight, low-cost capacitor, expected to be used in hybrid automobiles)

Examples of Existing Policies and Measures for CO_2 Emissions, by Energy Use

	Industrial Sector	Commercial & Residential Sectors	Transportation Sector
Energy Conservation	• Voluntary Action Plans by Keidanren • Installation of efficient equipment – furnace boilers, lasers, etc. • R&D for innovative industrial process technologies	• Reduction of unit energy consumption in large commercial buildings, etc. - obligation under Energy Efficiency Law • "Top Runner" standards for relevant equipment • Introduction of advanced technologies – heat pumps, co-generation, etc. • Introduction of IT technologies for energy management – HEMS and BEMS	• "Top Runner" standards for vehicles • R&D and dissemination of low emission vehicles including hybrid vehicles • Traffic flow management by promotion of ITS, etc • Promotion of efficient logistics systems including shifts in transport modes from trucking to shipping • Promotion of public transport
Renewable Energy and Fuel Cells	• Expansion of renewable energy sources (biomass, snow) • Involvement of electric power suppliers (RPS law) • Increased emphasis on R&D and F/S of photovoltaic power, solar thermal, wind power, waste power, biomass energy, fuel cell, etc.		
Fuel Switching	• Fuel switching from coal to natural gas for old power plants and boilers used in industrial sector • Development of safety standards on natural gas pipelines		
Nuclear Promotion	• Introduction of additional nuclear plants • Establishment of a nuclear fuel cycle		

Further strengthening of Energy Conservation Policy & Measures, etc.

(1)Industrial sector

- Extend coverage of energy saving obligation from current 70% of industry sector to 80%

(2)Transportation sector

- Encourage energy conservation program and reporting by consignees and consignors
- Promote efficiency in distribution and modal shifts to railways and ships
- Diffusion of eco-fuels in transportation

(3) Residential and commercial sectors

- Strengthen energy-saving performance standards and add standards for LCDs and plasma TVs
- Encourage retailers to provide easy-to-understand information on energy savings (yearly power consumption, fuel costs, etc.)
- Encourage power and gas companies to disseminate energy saving information to customers
- Encourage large business entities to submit energy conservation measures to administrative bodies.

The "Top Runner" Program: Efficiency Improvement

- Energy efficiency is essential in striking a balance between environment and economy.

- The "Top Runner" Program was introduced in 1998 as energy efficiency standards for home/office appliances and fuel efficiency standards for automotives.

Fig.: Example of Top Runner Program

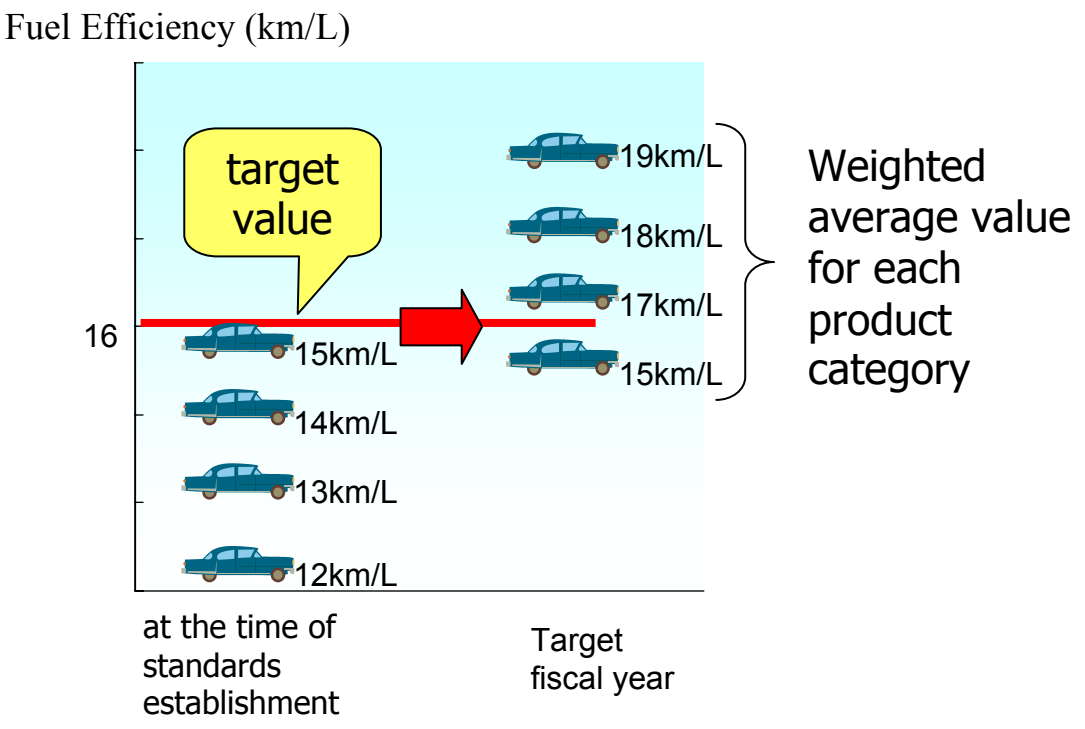


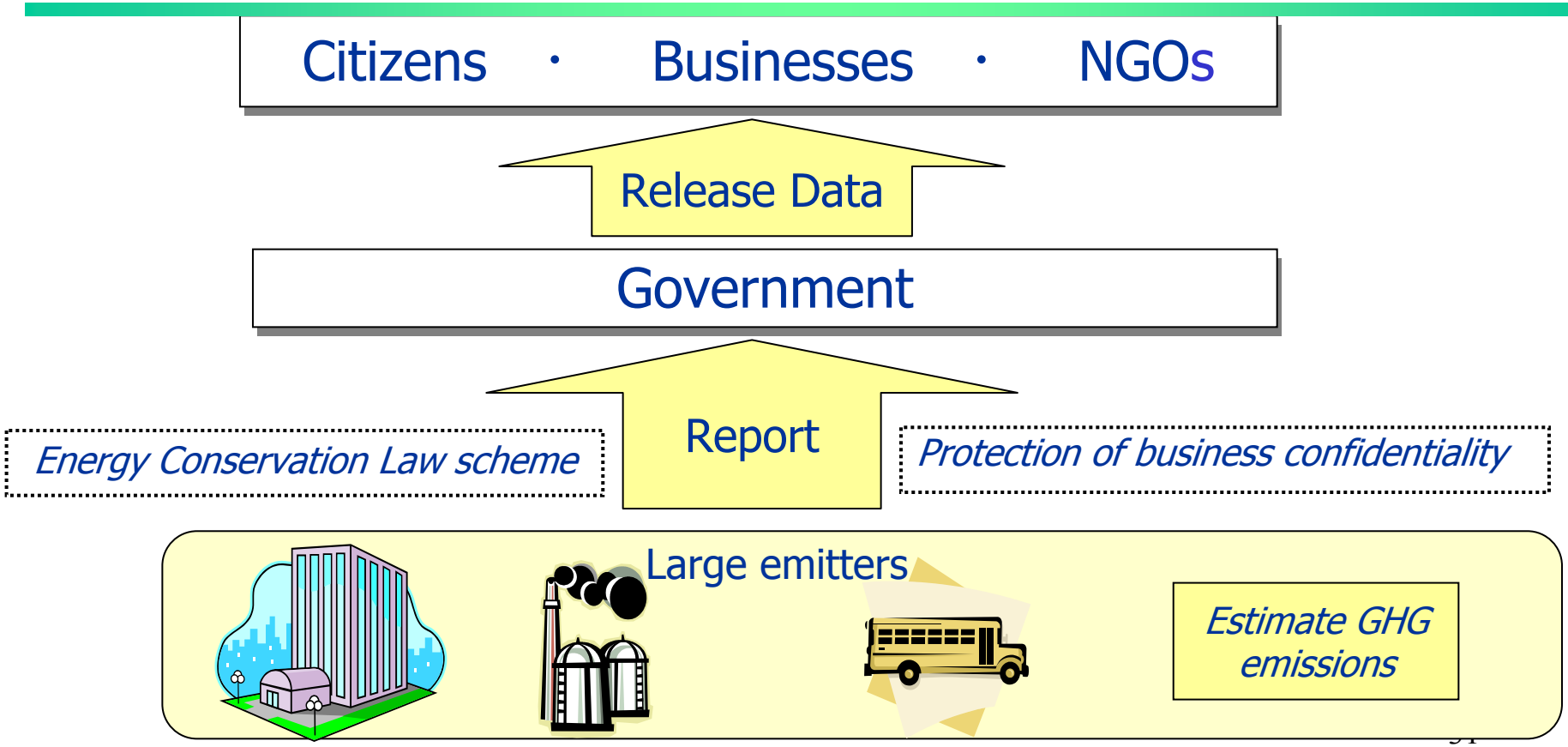
Table: List of the Specified Appliances (21 appliances)

Passenger Vehicles
Freight Vehicles
Air Conditioners
Electric Refrigerators
Electric Freezers
Electric Rice Cookers
Microwave Ovens
Fluorescent Lights
Electric Toilet Seats
TV Sets (CRT, LCD, Plasma)
Video Cassette Recorders
DVD Recorders
Computers
Magnetic Disk Units
Copying Machines
Space Heaters
Gas Cooking Appliances
Gas Water Heaters
Oil Water Heaters
Vending Machines
Transformers

Mandatory Greenhouse Gas Accounting and Reporting System

- **From April 2006**
- **Encourage businesses to voluntarily reduce GHGs by promoting awareness of their carbon footprint**

A legally-binding system under which large emitters report their GHG emissions to the government, which enables the public to access the data.



Formulation and Implementation of Voluntary Action Plans

In the Kyoto Protocol Target Achievement Plan, the voluntary action plans by businesses play "the central role in countermeasures in the industrial and energy conversion sectors."

Industrial and Energy Conversion sectors	Including the Nippon Keidanren's Voluntary Action Plan on the Environment, 34 industries have formulated voluntary action plans on the environment. These action plans now cover approximately 80% of the industrial and energy conversion sectors.
Commercial sector	Ten groups and business organizations have formulated voluntary action plans.
Transportation sector	Thirteen groups and business organizations have formulated voluntary action plans.

Characteristics of voluntary methods

- Setup quantitative targets for each industrial classification
- Swiftly and flexibly respond using the expert knowledge, originality, and ingenuity of the implementing entity
- Incentives exist for continuing technical innovation and raising environmental awareness

Japan's Voluntary Emissions Trading Scheme (launched in May 2005)

Objectives

- To learn "real" emissions trading with verification and compliance assessment
- To provide incentives for additional CO2 reductions

Procedure

- Private companies commit their CO2 emissions reduction, and apply for subsidies to prepare achieve from MOE during FY2005.
- MOE screens participants on the basis of "cost-efficiency" optimization. Allowances will be allocated to each of participants.
- Participants are required to demonstrate to have allowances covering their verified CO2 emissions in FY2006. Participant can trade allowances freely throughout FY2006.
- In the case of non-compliance, the subsidy should be returned to MOE.

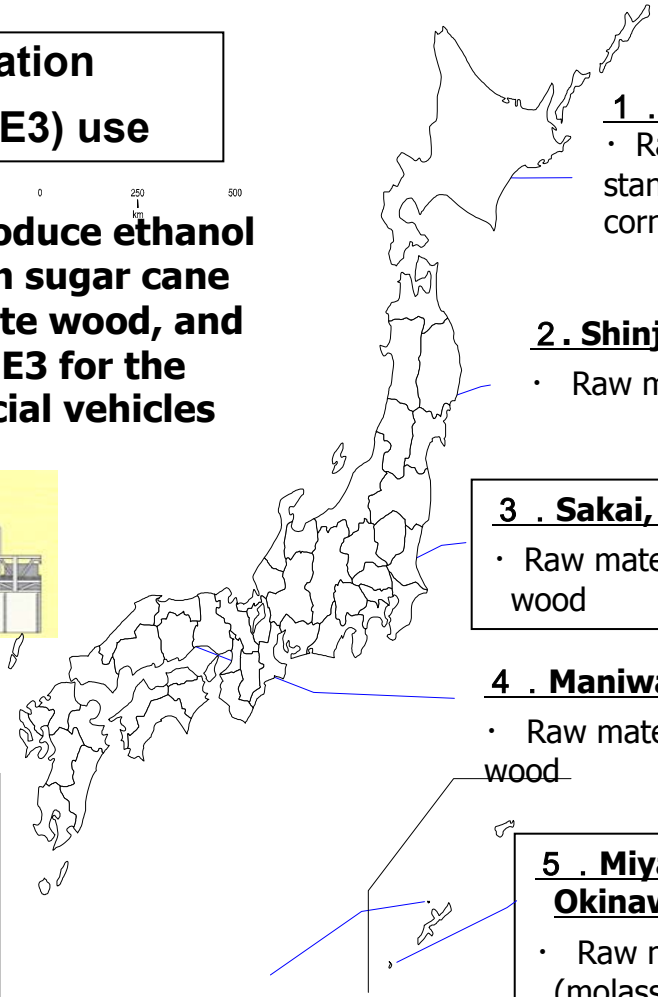
Bio-ethanol (E3) Demonstration Projects in Japan

- Technology development and demonstration
- Supporting the business of Bio-ethanol(E3) use

***Support model region of local production for local consumption in Miyako island and Osaka**

***Produce ethanol from sugar cane waste wood, and use E3 for the official vehicles**

1.3 Mt CO2 emission reduction



1．Tokachi, Hokkaido
・ Raw material: sub-standard crops (wheat, corn)

2．Shinjou, Yamagata pref.
・ Raw material：sorghum

3．Sakai, Osaka pref.
・ Raw material：building waste-wood

4．Maniwa, Okayama pref.
・ Raw material：unused waste-wood

5．Miyako-jima Is., Okinawa pref.
・ Raw material：sugar cane (molasses)

6．Ie-jima Is., Okinawa pref.
・ Raw material: sugar cane (molasses)

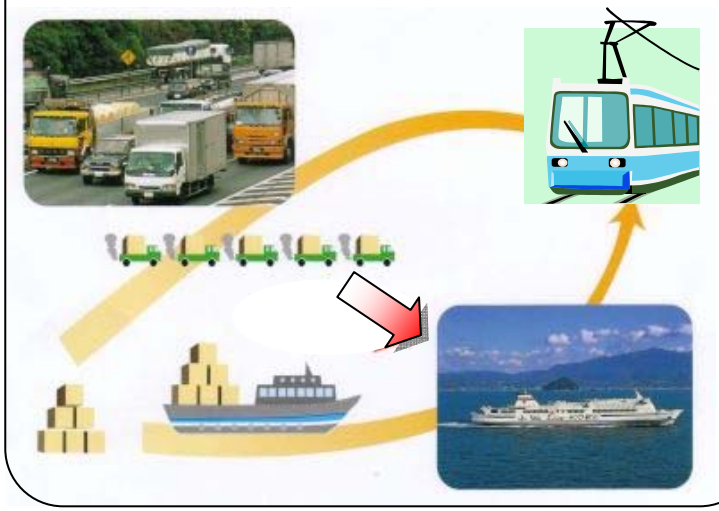
Improving Transportation Systems in Regional and Urban Structures

Design of Low-Carbon Transportation Systems

- **Promotion of Public Transportation**
  - Development of public transportation systems
  - Commuter transit management by corporations
  - Implementation of car-sharing using low-emission vehicles
- **Promotion of environmentally-friendly use of automobiles**
  - Dissemination and promotion of eco-friendly driving techniques and anti-idling in stationary vehicles
- **Creation of systems for smooth road traffic**
  - Construction of successive two-level crossings
  - Promotion of intelligent transport systems (ITS)
- **Realization of Environmentally Sustainable Transport (EST)**
  - Pioneering of regions aiming to promote EST

Building of Low-Carbon Distribution Systems

- **Promotion of low-carbon shipping and distribution through cooperative efforts of shippers and distributors**
  - Amending the Energy Saving Law
- **Promotion of Greater Efficiency in Distribution**
  - Modal shifts
  - Improving trucking efficiency



"Team minus 6%"
Nationwide Campaign

- **Japan's commitment to the global community is a 6% reduction in GHG emissions**

- **"Team minus 6%" is a project aiming to cut CO2 emissions through the collaboration of citizens, businesses, civil groups, and the government**

Collaboration among various actors

Global-scale efforts with participation by everyone in society

<Number of Team member>
(As of January 10th, 2007)
- Individuals・・・・・・ 1018,149 people
- Companies and others・・・・・ 9,667 entities

“Team minus 6%” Campaign

Stop Global Warming!

Team minus 6%

- The **“Team -6%”** campaign encourages companies and individuals to take specific actions to help achieve Japan’s goal.
- Prime Minister Shinzo Abe is the leader of the Team. Minister of the Environment Masatoshi Wakabayashi supports him as the sub-leader.

Top Down Approach

“Let Japan take the lead in environmental technology”

Posted in major national/local newspapers on May 8, 2006

Effects of COOLBIZ

- Proportion of people aware of the “Cool Biz” (light business attire in summer) campaign: 94.9%
  MOE survey in August (Sampling survey of 1200 people)

- Rate of companies promoting “Cool Biz” attire: 59.6%
  MOE survey in August (Survey of 1000 people working in companies)

- Reduction in electricity supply by adopting “Cool Biz” attire from June to August (as estimated by the Federation of Electric Power Companies): 210 million kWh
  Equivalent to 1.7 % of electricity use in business; electricity use for 1 month by 720,000 households

WarmBiz

Purpose

* Reduce heating-related energy consumption and facilitate CO_2 emissions reductions
* Following "Cool Biz" in the summer, this movement in autumn and winter will further promote setting air conditioners at an appropriate level (20°C)
* Encourage the public to practice business with the mindset of wearing more clothes if you are cold, rather than have complete reliance on the heater.

FY2005 Autumn and Winter

First year result

Percentage of people who know that the Cool Biz campaign exists	90.2%
Percentage of people who set the heater to a lower temperature than the year previous	30.5%
Estimated amount of CO_2 reductions	**1.41 million tons**

**“I will start taking actions by WARM BIZ.
How about you?”**

Posted in major national/local newspapers in the beginning of the New Year 2007.

“Uchi-Eco” Campaign

“Warm Biz at home”

- Team Minus 6% launched a new campaign called “Uchi-Eco.”
- This is a promotion to strengthen actions for CO2 reduction by the residential sector.

Ex.

- Warm Biz style at home, too
- Use energy efficient electrical appliances
- Choose eco-friendly goods

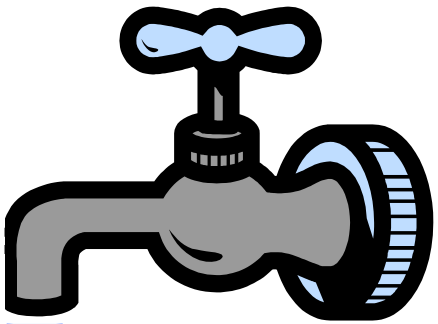
Environment Minister Wakabayashi

Drastic reduction in CO_2 emissions necessary right now

to at least **HALF**

- It is necessary to cut emissions before they reach a dangerous level.
- To stabilize them at a safe level, follow this formula

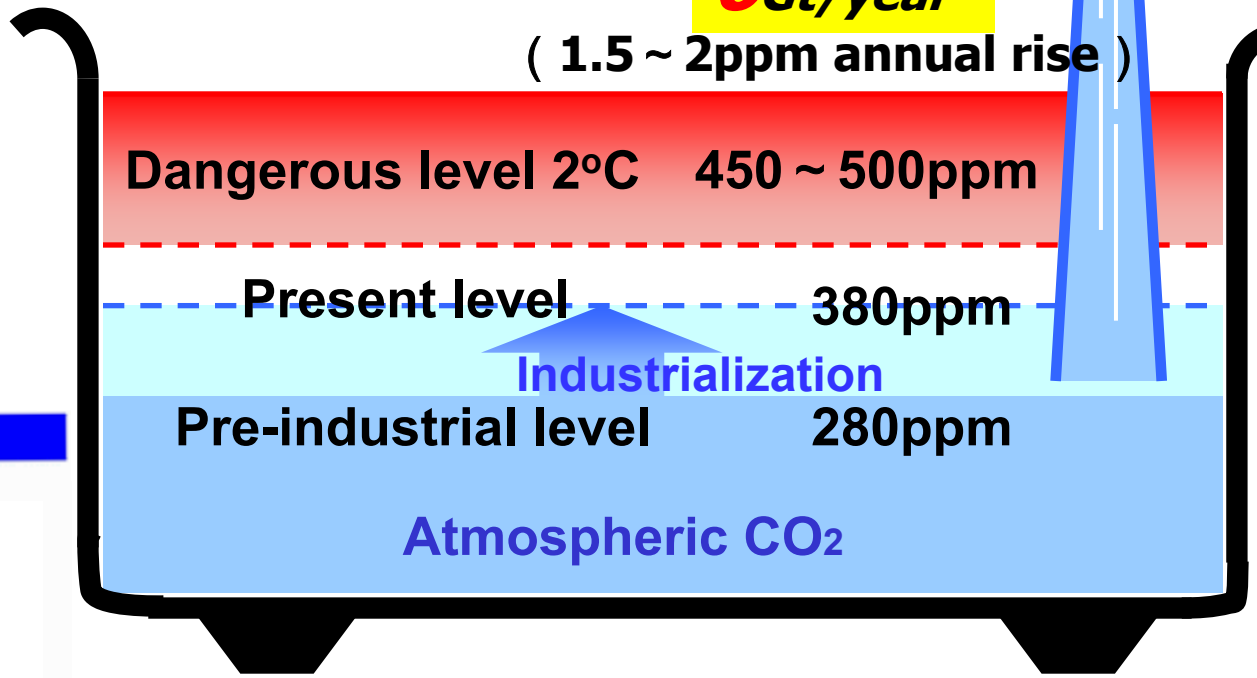
CO_2 emissions/year = CO_2 absorption/year



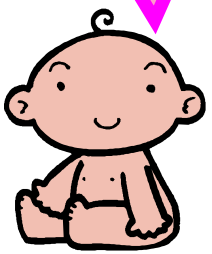
Anthropogenic emissions

6Gt/year

(1.5 ~ 2ppm annual rise)



How do we turn the tap off to avoid reaching a dangerous level?



Absorption by nature

3Gt / year

Gt=1billion tons carbon equivalent

Source: TAR

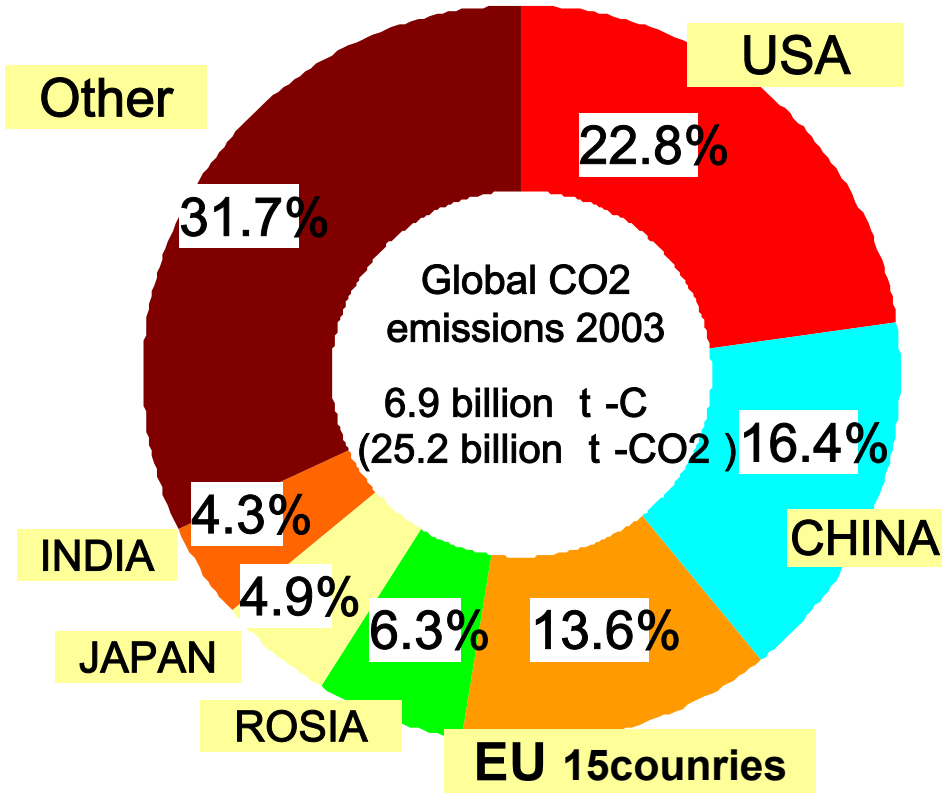
International Cooperation: Where we are headed

The Kyoto Protocol is a significant step in addressing climate change

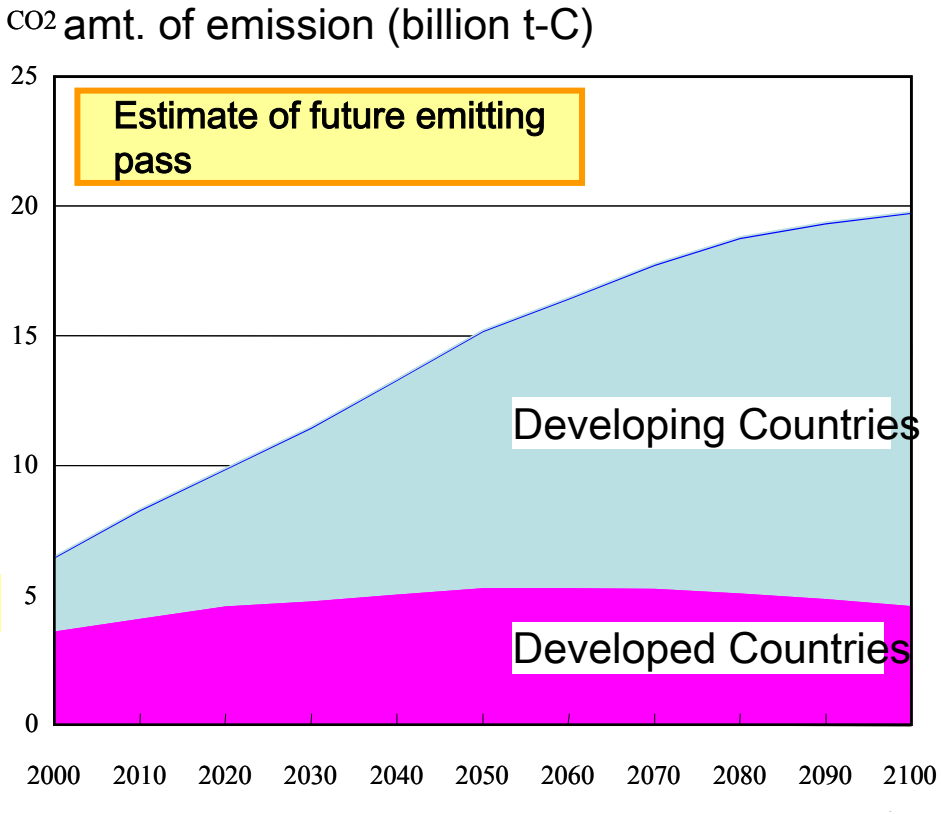
Beyond 2012, Japan will make every effort to move forward towards the achievement of the ultimate objective of the UNFCCC through:

- Contributing to the establishment of a set of common rules in which all countries participate
- Hosting informal dialogues to find common ground
- Supporting adaptation measures in developing countries

Global CO2 emissions and an Estimate of future emitting pass



MOEJ from HANDBOOK of ENERGY & ECONOMIC STATISTICS in Japan, FY2006



Kainuma et al., 2002:
Climate Policy Assessment, Springer, p.64.

We need a global response

Basic principle……

It is essential to construct an effective framework that brings about maximum reduction efforts by all major emitting countries, while enabling all countries to take effective mitigation measures in accordance with their respective capabilities.

Post-2012: Japan's views

1. *Times are changing rapidly. CO_2 from Annex I countries under the Kyoto Protocol represent 31% of total emissions and will be on the decline, whereas non-Annex I emissions grew by 55% between 1990 and 2003.*
2. *Must address the ultimate objective of the UNFCCC*
3. *Need to continue discussions to reach agreement on long-term goals and ways to achieve them, reaching common understanding on our emissions reduction potentials and capabilities*
4. *An effective framework which brings about maximum reduction efforts by all major emitting countries, while enabling all countries to take effective mitigation measures in accordance with their own capabilities*
5. *Important to fully utilize market mechanisms. Promotion of CDM and institutional reform is indispensable.*
6. *The CDM should go through necessary extensive reforms. It should be noted that the current CDM has its basis in two groups, those who have committed to quantified emission reduction targets and those who have made no such commitments.*

JAPAN'S CLIMATE CHANGE INITIATIVE at the G8 Gleneagles Summit 2005

The Government and the people of Japan are committed to achieve the Kyoto Protocol target of greenhouse gas reduction.

Japan will further strengthen its efforts through domestic measures in a number of sectors, as well as international cooperation including Kyoto Mechanisms.

Japan will contribute to reinforcing global measures against climate change, in which all countries, including developed and developing countries, will participate.

- Japan will contribute to the achievement of the Millennium Development Goals by diffusing energy-efficient and environment-friendly technologies to developing countries.
- Japan will promote earth observation, climate change monitoring and cooperation with developing countries in the Asia-Pacific region.
- Japan will promote a public awareness campaign on the Climate Change Issue.

Japan 2050 Low-Carbon Society Project

To mitigate the negative effects of climate change, a drastic reduction in GHG emissions is necessary.

- The Ministry of the Environment of Japan (MOEJ) started a science-based assessment project for its long-term climate policy from 2004.
- In Feb 2006, the MOEJ and UK Defra (Department for Environment, Food and Rural Affairs) launched a Japan-UK joint research project that investigates ways of moving towards a Low-Carbon Society (LCS) by 2050.

Japan-UK Joint Research Project: An International Workshop

- A workshop on “Developing Visions for a Low-Carbon Society (LCS) through Sustainable Development” was held in June 2006 in Tokyo with the participation of experts and policy makers from about 20 countries (both developed and developing countries).

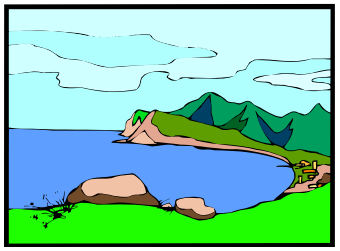
- During the workshop, experts reviewed country-level studies and discussed sharing images to investigate pathways leading to the achievement of LCSs.

Asia-Pacific Network for Global Change Research

- APN was established in 1996 as an inter-governmental network with the objectives of:
  - promoting global change research
  - enhancing interactions between the science communities and policy makers in the Asia-Pacific region
- APN has two core projects:
  - Annual Regional Call for Proposals
  - CAPaBLE (Scientific Capacity Building/ Enhancement for Sustainable Development)
- APN today plays a significant role in supporting global change research in the Asia-Pacific region.

http://www.apn-gcr.org/en/indexe.html

APN Strategic Plan (FY2005-2009)



- Goals

1. Support regional cooperation in global change research
2. Strengthen interactions among scientists and policy makers
3. Improve scientific and technical capabilities
4. Cooperate with other global change networks and organizations
5. Facilitate development of research infrastructure and transfer of know-how and technology

Asia Pacific Seminar on Climate Change

- This Seminar has been held since 1991. The 16th seminar was held in Jakarta on September 5-8, 2006.

- The objectives of this Seminar are:
  - To provide a forum for the countries of the region.
  - To exchange information, views and experiences of ongoing and future efforts which would contribute to the participants' capacity building as well as to regional cooperation to address climate change.

- The Seminar has contributed to:
  - Formulating policies and measures
  - Addressing climate change in the context of sustainable development.

http://www.ap-net.org/seminar/h01.html

Japan's ODA for Climate Change

The Kyoto Initiative

At COP3 in 1997, Japan announced "The Kyoto Initiative" to support developing countries' measures to tackle climate change, mainly through ODA.

The Kyoto Initiative's three pillars of assistance are:

1. Cooperation in capacity development.
   (In 1997, Japan pledged to train, in the five years starting with FY1998, 3,000 personnel in fields related to global warming.)
2. ODA loans at the most concessional terms.
3. Effective use and transfer of Japanese technology and know-how.

- Japan trained approximately 15,000 people from FY1998 to FY2005 in fields related to global warming, such as air pollution, waste disposal, energy-saving technologies, forest conservation and afforestation.
- ODA loans to counter global warming at the most concessional terms amounted to 1,141 billion yen (92 projects) from December 1997 to March 2006.