Japan's Policies and Measures to Achieve Kyoto Target and Beyond

Kunihiko SHIMADA

Chief Administrator
Office of International Strategy on Climate Change
Climate Change Policy Division
Ministry of the Environment, Japan
Menu for the Presentation

- Current Status of Japan’s GHG emissions
- Domestic Policies and Measures
  - Top-runner approach & Technology based examples
- National Campaigns
  - Team -6%
  - Cool Biz and Warm Biz
- Market Based Mechanisms
  - Kyoto Credits Purchasing Scheme & JVETS
- Partnerships (APN, AP Seminar, etc.)
  - Japan 2050 Low Carbon Society Project
  - ODA-related international cooperation (economic diversification, etc.)
- Conclusions
Domestic Measures
Japan’s GHG Emissions

Kyoto Protocol Target Achievement Plan

Base Year Emissions: 1,237 million
2003 Emissions: 1,339 million
2004 Emissions: 1,329 million
2010 Emissions (the Kyoto Target): 1,163 million

The Kyoto Protocol Commitment

- Base Year Emissions: 1,237 million
- 2003 Emissions: 1,339 million (6% increase)
- 2004 Emissions: 1,329 million (7.4% increase)
- 2010 Emissions (the Kyoto Target): 1,163 million (6% decrease)

Million tons CO₂
Total GHG emissions in Japan

1.35 Gt-CO₂ in FY 2004 (8.0% increase compared to the base year)

Chart showing GHG emissions in Japan from 1990 to 2004. The emissions in FY 2004 were 1.35 Gt-CO₂, which is an 8.0% increase compared to the base year.
Energy related CO2 Emissions by Sector

- **Manufacturing Industry & Construction**: 476Mt → 478Mt (+0.3%)
- **Transportation**: 217Mt → 260Mt (+19.8%)
- **Commercial and Other Sector**: 144Mt → 196Mt (+36.1%)
- **Residential**: 129Mt → 170Mt (+31.4%)
- **Energy Industries**, **Industrial Processes**, and **Waste**
Laws and Regulations

- System to **Calculate, Report and Publish GHG Emissions** (2005)

- Reinforcement of **Energy Saving** for Plants, Buildings, and Transportation (2005)

- Reinforcement of the **Recovery and Destruction of Fluorocarbons** (scheduled 2006)

- System to **Acquire Credits of Kyoto Mechanisms** (scheduled 2006)
The government of Japan, as one of the most advanced countries across the globe in implementing measures on climate change, is aspired to take a leading role in the international community.

**Kyoto Target Achievement Plan**
(approved by the Cabinet 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 across the globe in implementing measures on climate change, is aspired to take a leading role in the international community.
## Kyoto Protocol Target Achievement Plan

<table>
<thead>
<tr>
<th>Classification</th>
<th>Year 2010 projections</th>
<th>Additional measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>① CO₂ emissions from energy sources</td>
<td>+5.4%</td>
<td>−4.8%</td>
</tr>
<tr>
<td>② CO₂, methane, and N₂O emissions from non-energy sources</td>
<td>−0.8%</td>
<td>−0.4%</td>
</tr>
<tr>
<td>③ 3 gases including CFC alternatives (HFC,PFC,SF6)</td>
<td>+1.4%</td>
<td>−1.3%</td>
</tr>
<tr>
<td>④ Securing sinks via forest management</td>
<td>−</td>
<td>−3.9%</td>
</tr>
<tr>
<td>⑤ Kyoto Mechanisms</td>
<td>−</td>
<td>−1.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>+6%</td>
<td>−12%</td>
</tr>
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</table>

(Total emissions as a percentage of Base Year)
Targets of the Plan

One percent of the base year emissions is equivalent to 12.4 million ton-CO2

Past actual emissions

(2004)
+8.0%

Projected level by the current plan:
+6.0% over the base year

6.5% reduction by additional domestic measures

Removal by sinks
(3.9%)

Kyoto Mechanism
(1.6%)

12.0%

6% Target

0.5% Level
Policies and Measures

◆ National Campaign

◆ Dissemination of Technologies
  ➢ Hybrid Vehicle
  ➢ Photovoltaic Power Generation
  ➢ Light-Emitting Diode
Technology is a key for future deep reduction
- long-term, international cooperation for the development and diffusion of relevant (innovative and existing) technologies is essential
- We have many useful experiences on policy design

*i.e. Japan’s Top Runner Program*

### Energy efficiency of refrigerators

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual electricity consumption per volume (kWh/L)</th>
<th>Internal cubic volume (L)</th>
<th>Overall electricity consumption per refrigerator (kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>651.3</td>
<td>236</td>
<td>2.76</td>
</tr>
<tr>
<td>1991</td>
<td>941.6</td>
<td>413</td>
<td>22.28</td>
</tr>
<tr>
<td>2001</td>
<td>331.5</td>
<td>442</td>
<td>0.75</td>
</tr>
</tbody>
</table>
Toyota

- Hybrid Vehicle (Prius)

- Target under Kyoto Protocol Target Achievement Plan (KPTAP)
  - Dissemination of clean energy automobiles by 2010
    - Total: 2.33 million units
    - Emissions reduction estimate: 3Mt-CO2
Official Car for the Minister

Previous official car for the Minister
CNG Century
CO$_2$ Emissions: 260g/km
NO$_2$ Emissions: 0.02g/km
PM Emissions: —

Previous official car for private secretary
Prius
CO$_2$ Emissions: 66g/km
NO$_2$ Emissions: 0.013g/km
PM Emissions: —

Official car for the Minister in current use
Estima Hybrid
CO$_2$ Emissions: 127g/km
NO$_2$ Emissions: 0.02g/km
PM Emissions: —
Target under KPTAP

- Dissemination of fuel cells by 2010
  Total: 1 million units for residential use
  Emissions reduction estimate: 3Mt-CO2
  (for residential and commercial use)
Asahi Kasei Homes

**Ground Source Heat Pump (GSHP) System for Residential Use**

**Features:**

- **Energy efficiency**
- **Environmental performance**
  - Alleviates heat island problem
  - Reduces CO₂ emission
- **Enhanced comfort for residents**
- **Economical installation**

**Target under KPTAP**

- Dissemination of heat pump systems by 2010
  - Total: 5.2 million units
  - Emissions reduction estimate: 3.1Mt-CO₂
Prime Minister’s Official Residence

- Ceremony of Setting Fuel Cells
- Solar Panels
- Wind Power Generation
ひとつのチームになろう。
みんなで止めよう清掃化
チーム・マイナス6％

夏、男性がネクタイをはずせば、女性のひざ掛けがないオフィスになります。

http://www.team-6.jp
- Set air conditioning to 28°C during summer
- Wear cool and comfortable but stylish clothes without ties and jackets

### “Cool Biz” Effects

<table>
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<tr>
<th>Percentage of people who have heard of “Cool Biz”</th>
<th>95.8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of electricity supply during June through August</td>
<td>Approx. 210 million kwh</td>
</tr>
<tr>
<td>Reduction of CO₂</td>
<td>0.46Mt-CO₂</td>
</tr>
</tbody>
</table>
Set heating system to 20°C during winter

“Wear more clothes if you are cold, don’t depend on the heater”

Energy Consumption in Commercial Sector (FY2002)

- Heating: 21.1%
- Hot Water Supply: 21.7%
- Air Conditioning: 8.8%
- Cooking: 8.1%
- Power Supply/Other: 40.3%
Market-based mechanisms
Under Japan’s “Kyoto Protocol Target Achievement Plan”, Japan needs total of 100 million tons of Credits (through CDM, JI and GIS)
※1.2 billion tons (‘90) × 1.6% × 5 years = 100 million tons

Kyoto credits Acquisition Programme by the Japanese Government starts from FY2006

Budget for FY2006: US$100million.

Implementation: NEDO (New Energy and Industrial Technology Development Organisation)
Ministry of the Environment (MOE), Ministry of Economy, Trade and Industry (METI) have commissioned NEDO to carry out credit acquisition.

NEDO aims to acquire credits cost-effectively from FY2006.
Current effort of Japan on ET

- Conscious of development of carbon market (ET scheme) in the world

- But current formal position is…
  “issue (cap & trade ET) that must be comprehensively studied”, including “comparison of the domestic emissions trading system with other methods and their effects and the impact on industrial activities and the national economy” (Target Achievement Plan(2005.4))

- Intensive study and exercises
  Japan’s Voluntary Emissions Trading Scheme
Japan’s Voluntary Emissions Trading Scheme (JVETS)

Budget for FY2005: 3 Billion Yen

Operational period (FY2006)

• Setting-up period for new facilities
• Calculation and verification of base year GHG emissions

Start (April 2006 )

End (March 2007)

Calculation and verification of actual GHG emissions in FY2006

Committed amount of emissions reduction during FY2006

2002 2003 2004 2006

GHG emissions

Initial allocation of JPAs for FY2006

Remaining JPAs and CERs can be carried over to the participants in the next operational period (FY2007)

Participants shall retire JPAs and CERs in the registry

Facilities to be subsidised
• New facilities to improve energy efficiency or to promote renewable energy leading to GHG emissions reduction (Total budget: 3 Billion Yen)

Required items for application
• Facilities and their installation costs
• Expected amount of emissions reduction in FY2006
• Base year emissions (overall average for the past 3 years)
※Participation unit: Single site basis

Subsidies for new facilities and their installation leading to GHG emissions reduction

Application for subsidy/Screening

April 2005

Subsidy rate: 1/3 of installation cost

Screening on the basis of “cost-efficiency” optimisation
※Participation unit: Single site basis

<Key points>
○After the final trading period, if participants cannot retire JPAs corresponding to the actual amount of their emissions, the subsidies paid should be returned.
○CERs from CDM projects also can be used for the retirement in the registry.
Participating Entities: 32 entities + 8 traders

Size of participants’ emissions
- Base year emissions: 500 - 468,000 t-CO$_2$ p.a.
- GHG reductions: 40 - 92,000 t-CO$_2$ p.a.

Sectors: Glass Mftg, Petrochemical, Auto-Components, Ceramics, ESCO, etc.

Total emissions reduction in FY2006:
276,000 t-CO$_2$

Cost of reduction: around 7US$ / t-CO$_2$
Expectations & concerns in Japan

- **Some voice from Industry:**
  - “ET is a system for controlled economy but we should take voluntary actions to combat CC”

- **Debate on domestic ETS (Media’s View):**
  - Regarding economic tools, Japan is lagging behind
  - Industry disapproves caps
  - Nippon Keidanren sets sectoral targets under its voluntary action plan, but its compliance is in question
  - Caps may include transport and offices---sectors whose emissions are increasing---so the system covers industry as a whole
  - Linkages with EU-ETS must be looked into

*Foreign views / expectations of an ET scheme in Japan?*
International Cooperation
To stabilize climate change, reduction of drastic GHG emissions is necessary.

The ministry of the Environment, Japan started a science based assessment project for its long-term climate policy from 2004.

In Feb 2006, MOEJ and UK Defra (Department for Environment, Food and Rural Affairs) launched the Japan-UK joint research project that investigates ways of moving towards a Low-Carbon Society (LCS) by 2050.
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 the experts from about 20 countries (both from developed and developing countries).

In the workshop, experts reviewed country level studies and discuss for sharing images to investigate pathways leading to achievement of LCSs.
This Seminar has been held since 1991. The 15th seminar was held in Yokohama, on 11-15 September 2005. (Chair: Dr. Ancha)

The objectives are:
- To Provide a forum for the countries of the region.
- To Share information and to develop relationships in an informal manner.

The Seminar has contributed to formulating policies and measures to address climate change in the context of sustainable development.

http://www.ap-net.org/seminar/h01.html
The APN was established in 1996, as an intergovernmental network with 21 countries for the objectives:

- to promote global change researches,
- to enhance interactions between the science communities and policy makers in the Asia-Pacific region

The APN has two pillar projects:

- Annual Regional Call for Proposals
- CAPaBLE (Scientific Capacity Building /Enhancement for Sustainable Development)

The APN today plays a significant role in supporting global change research in the Asia-Pacific region.
Goals

1. Supporting regional cooperation in global change research
2. Strengthening interactions among Scientists and policy-makers
3. Improving scientific and technical capabilities
4. Cooperating with other global change networks and organisations
5. Facilitating development of research infrastructure and transfer of know-how and technology
Japan’s stance on Official Development Assistance (ODA) towards Gulf Countries

- Mid-term plan was created in 1999.
- **Purpose:** Economic diversification by help reducing economic dependence on petroleum
- **Focus areas:**
  - Training and capacity building of engineers and technicians
    - (ie) Japan-Saudi Arabia (1998-): Joint project on environmentally friendly car mechanics
  - Establishing and enhancing Enabling environment for attracting FDI and technological assistance from abroad.
  - Environmental management (monitoring, pollution control, etc.)
    - (i.e.) Oman (2002-) F/S on rehabilitation and management of the Mangroves.
Conclusion

- National Campaign
- Dissemination of Technologies

Virtuous Circle for Environment and Economy

- Environmental conservation
- Economic growth

Virtuous Circle

- Creates demand for environmentally-friendly products
- Further advances technology

Achievement of 6% reduction commitment