



Ministry of the Environment
Government of Japan

Japan's Climate Change Policies

April 12, 2013

Ministry of the Environment, Japan

Index

1. Japan in Global GHG emissions

P3 - P7

2. International negotiations

P8 - P22

3. Framework for achieving the Kyoto Target

P23 - P38

4. Mid- and Long-term mitigation actions

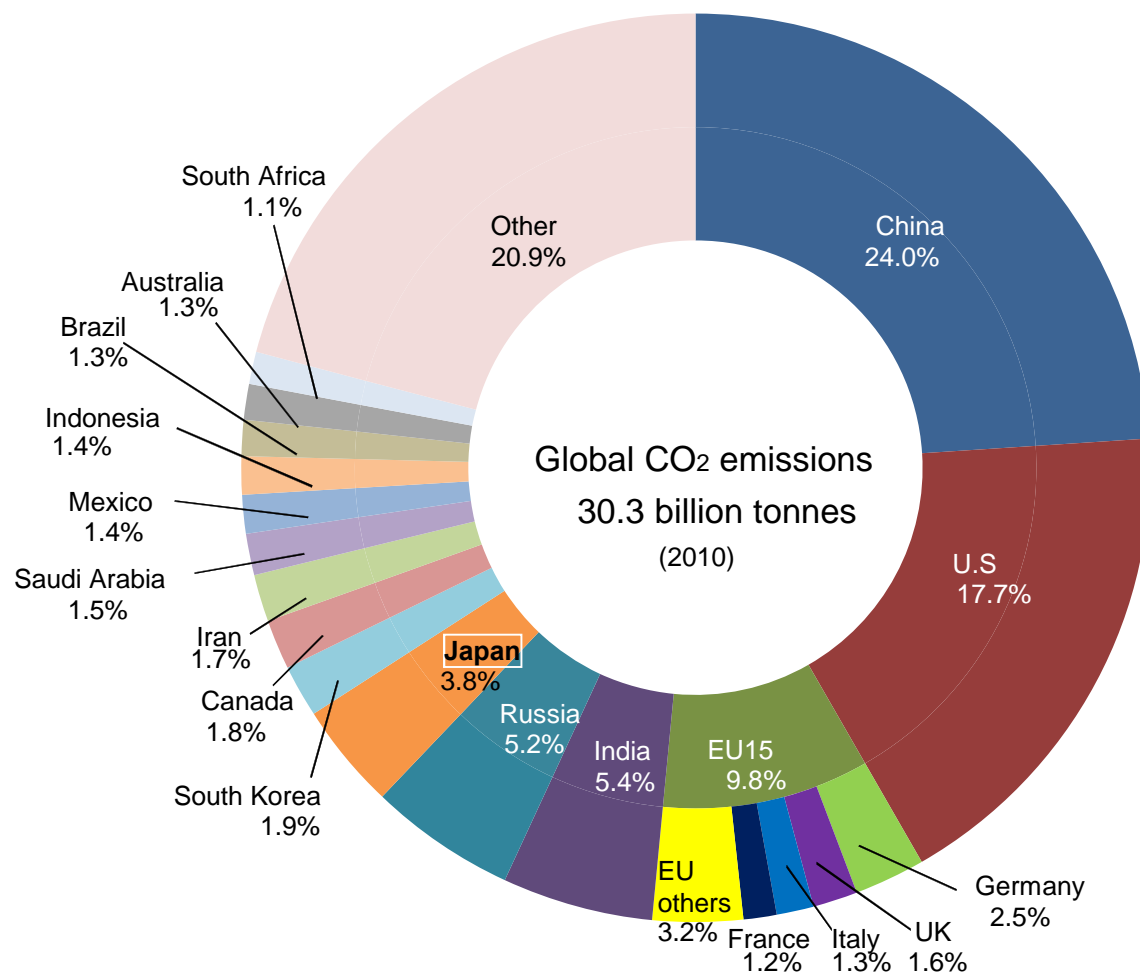
P39 - P55

1. Japan in Global GHG emissions

- 1.1 Global CO₂ emissions (2010)** **P4**
- 1.2 Global GHG emissions (2010)** **P5**
- 1.3 CO₂ emissions per capita by country (2010)** **P6**
- 1.4 Cumulative CO₂ emissions after Industrial revolutions (1850-2006)** **P7**

Global CO₂ emissions (2010)

- ✓ Global CO₂ emissions in 2010 is approximately 30.3 billion tonnes of CO₂ eq.
- ✓ China and U.S emit more than 40% of total global emissions
- ✓ Emissions from developing countries are expected to increase drastically while the increasing rate would be limited in developed countries



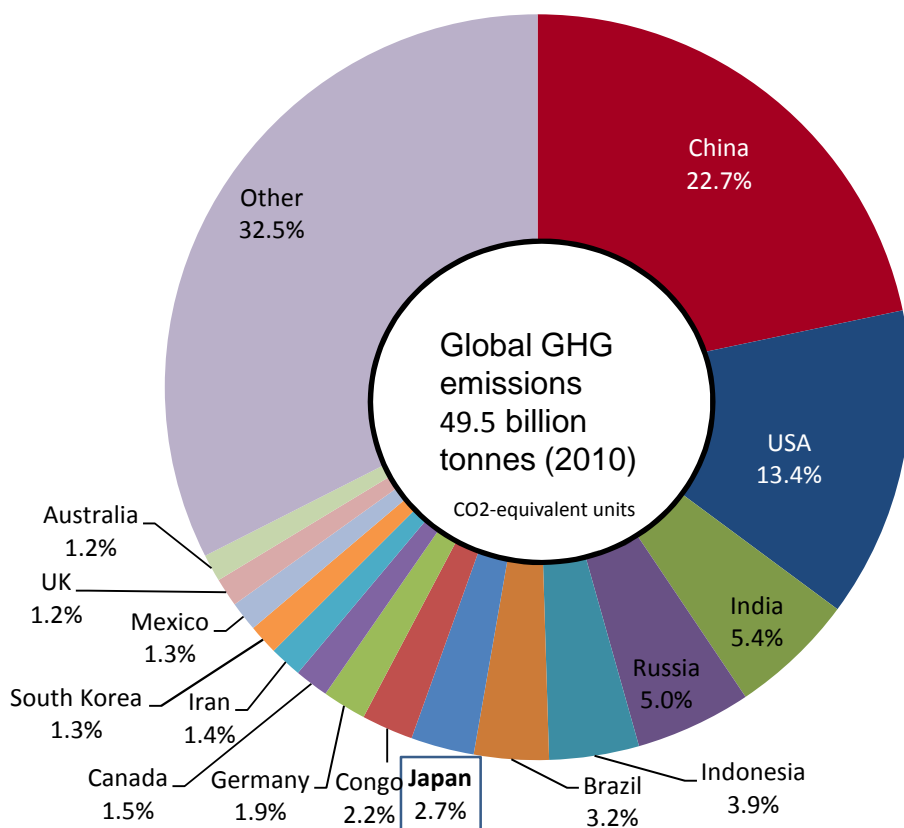
* EU15 is member countries when COP3 was held

Source : IEA "CO₂ EMISSIONS FROM FUEL COMBUSTION" 2012 EDITION

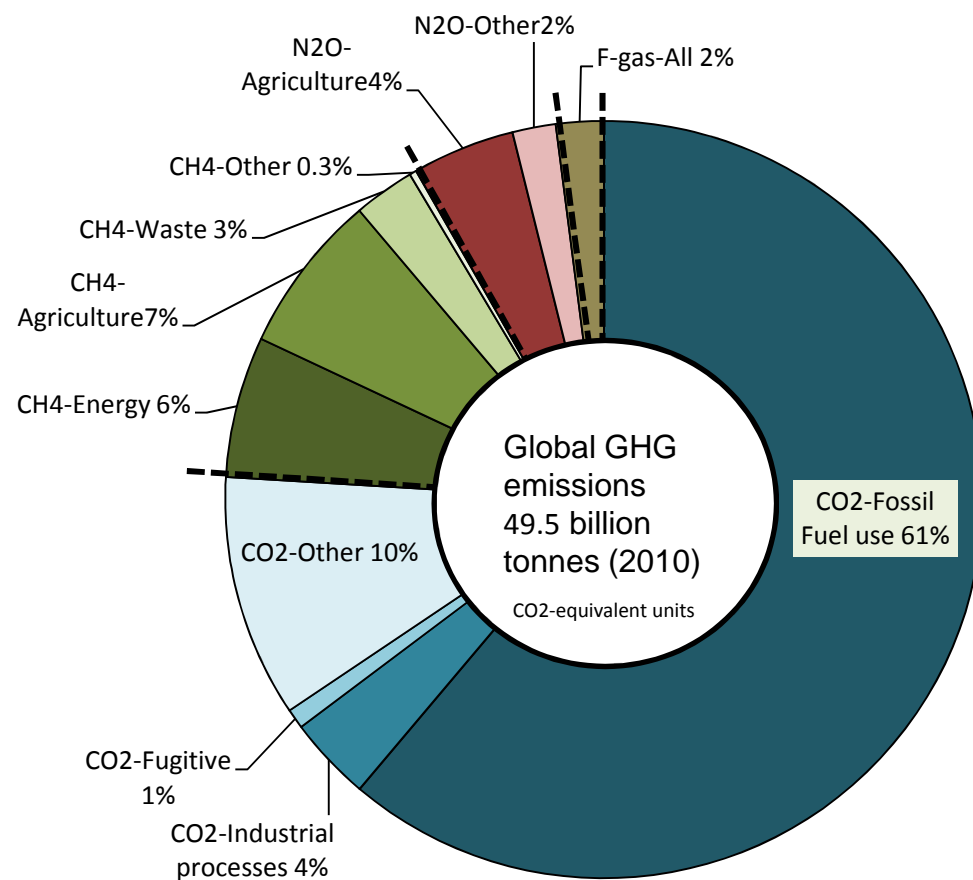
Global GHG emissions (2010)

- ✓ Global GHG emissions in 2010 is approximately 49.5 billion tonnes of CO₂ eq.
- ✓ **China and U.S emit more than one-third** of total global GHG emissions
- ✓ Share of **CO₂ from energy sources is more than 60%** in total global GHG emissions

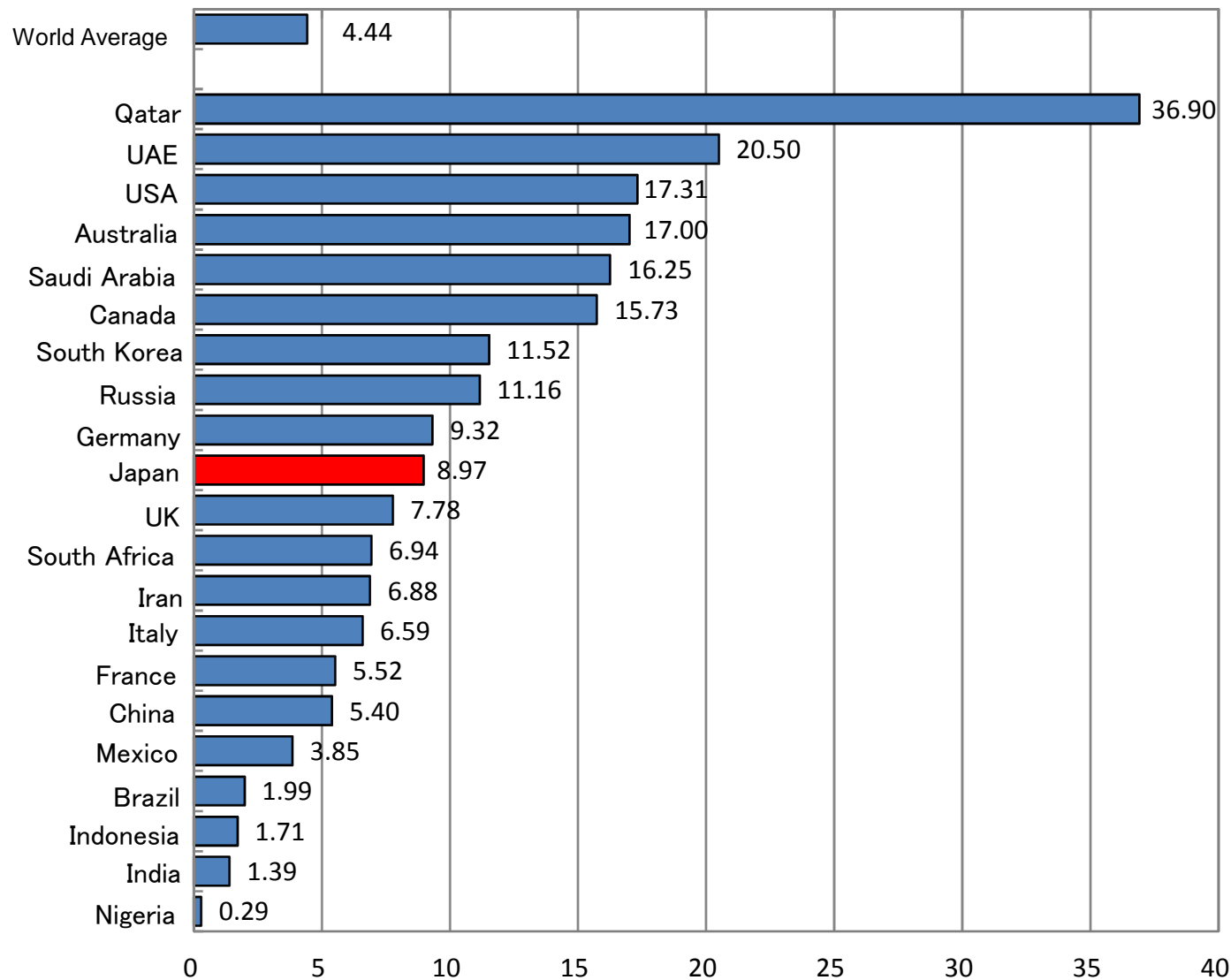
Global GHG emissions by countries in 2010



Global GHG emissions by gas/source in 2010

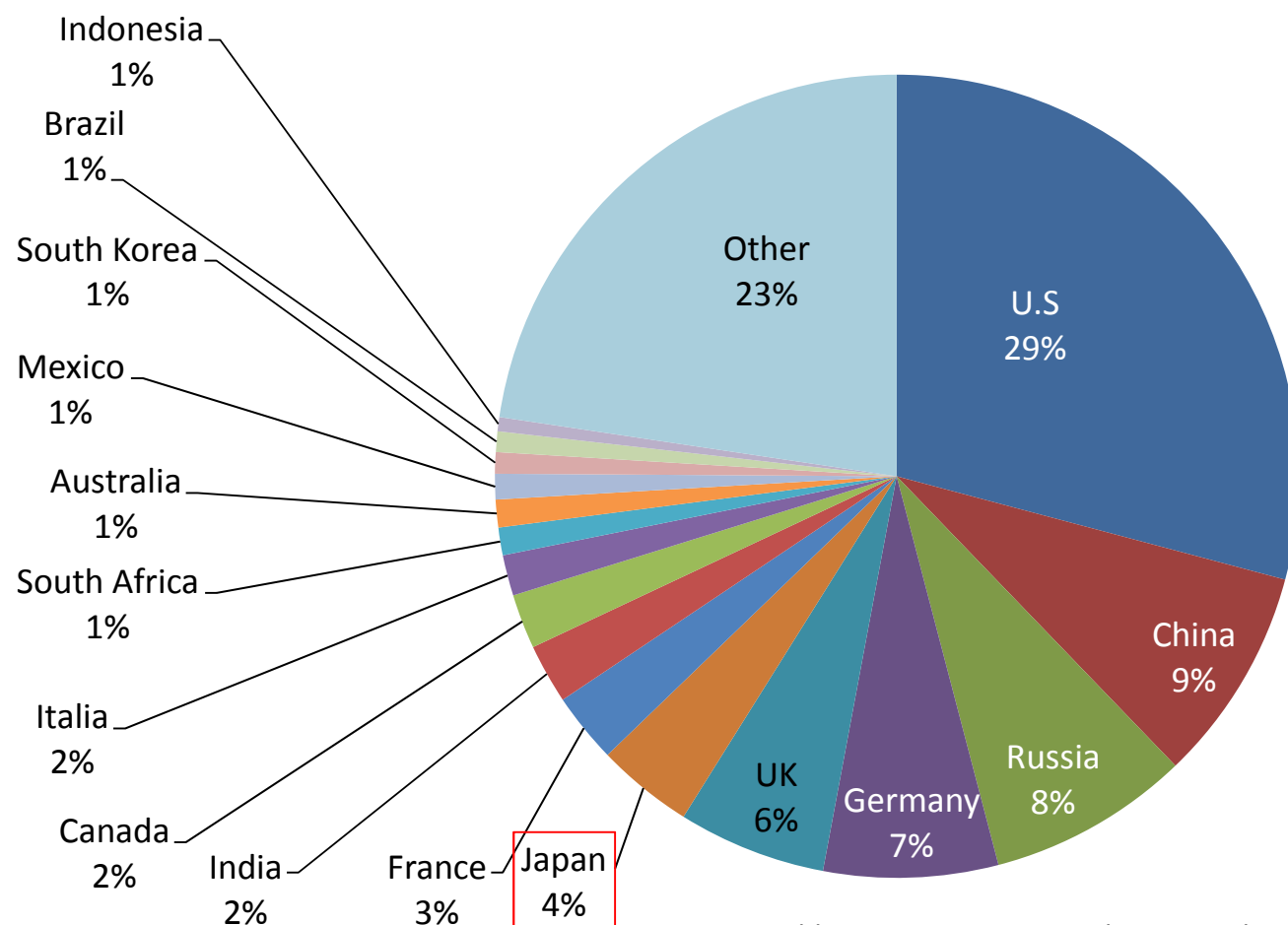


CO₂ emissions per capita by country (2010)



Cumulative CO₂ emissions after Industrial revolutions (1850-2006)

- ✓ U.S accounts approx. 30%. 75% of emissions are from developed countries (Japan: 4%)
- ✓ China, India, South Africa and Mexico account 9%,2%,1% and 1% respectively.

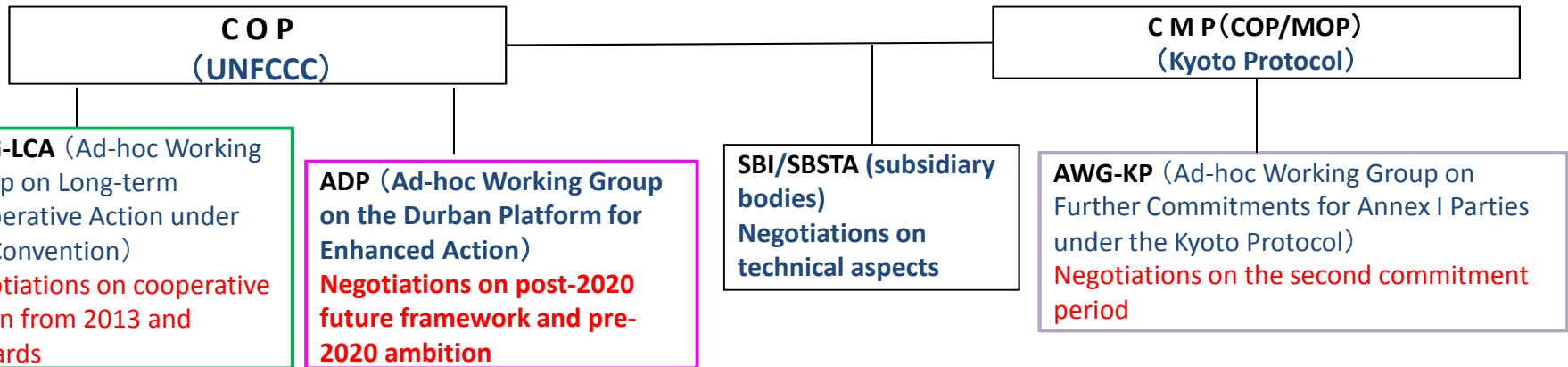


Sources: World Resources Institute, Climate Analysis Indicators Tool

2. International negotiations

2.1 Background on Climate Change Negotiations	P9
2.2.1 Japan's Aim for COP18	P10
2.2.2 Overview and Outcome of COP18	P11
2.3.1 Conclusion of Path towards Future Framework	P12
2.3.2 Negotiations toward a post-2020 future framework	P13
2.3.3 Pre-2020 Actions	P14
2.4 Finance and Loss & Damage	P15
2.5.1~2.5.3 Japan's Vision and Actions toward Low Carbon Growth and Climate Resilient World	P16- P18
2.6.1~2.6.2 Japan's Fast-Start Finance for Developing Countries up to 2012	P19- P20
2.7.1 Basic Concept of the Joint Crediting Mechanism	P21
2.7.2 MoE's initiatives to promote the JCM	P22

Background on Climate Change Negotiations



Year	COP	Venue	UNFCCC	KP
1997	COP3	Kyoto	Adoption of the Kyoto Protocol (KP)	
2005.2				KP enters into force AWG-KP
2005.12	COP11 /CMP1	Montreal	Dialogue on long-term cooperative action	Establishment of AWG-KP
2007	COP13 /CMP3	Bali	Bali Action Plan (Establishment of AWG-LCA) AWG-LCA	
2009	COP15 /CMP5	Copenhagen	Copenhagen Accord (taking note) (Developed countries commit to emission reduction targets for 2020)	
2010	COP16 /CMP6	Cancun	Cancun Agreement (taking note of emission reduction targets/actions by developed/developing countries) ADP	Cancun Agreement (continue negotiation on second commitment period(CP2))
2011	COP17 /CMP7	Durban	Durban Decision (Establishment of ADP, work of AWG-LCA to be completed in 2012)	Durban Decision (Work of AWG-KP to be concluded in 2012 including decision on CP2)
2012	COP18 /CMP8	Doha	Doha Climate Gateway	Doha Climate Gateway

Japan's Aim for COP18

Decision in COP17 (Durban decision) :

The ADP shall complete its work as early as possible but no later than 2015 in order to adopt a protocol, another legal instrument, or an agreed outcome with legal force at COP21 for it to come into effect and be implemented from 2020.



Expected Outcome of COP18:

to send a clear message to the world that “we have successfully set up basic arrangements for negotiations to agree on a new post-2020 legal framework by 2015”

(ADP)

➤ Adoption of a work plan of ADP in order to begin concrete discussions from next year.

(AWG-KP, AWG-LCA)

➤ Closure of existing two Ad-hoc Working Groups.

Overview and Outcome of COP18

- **Date: 26 Nov (Mon) – 8 Dec. (Sat)** *including one-day extension (High-level segment: 4–7 Dec.)
- **Venue:** Doha, Qatar
- **Participants:** 195 countries/regions, international institutions, observers etc.
 From Japan, Mr. Hiroyuki NAGAHAMA, Minister of the Environment plus more than 100 delegates

Adopted a package of decisions as the “Doha Climate Gateway”

Advancement in ADP

Decision on the plan of work of ADP

Closure of AWG-KP

Decision on the second commitment period including adoption of the amendment to the Kyoto Protocol

Closure of AWG-LCA

Adoption of decisions covering all issues under the Bali Action Plan in order to make operational institutional arrangements and processes established in the Cancun Agreements and Durban Decisions→ Acknowledging significant achievements of AWG-LCA and taking note that an agreed outcome is reached

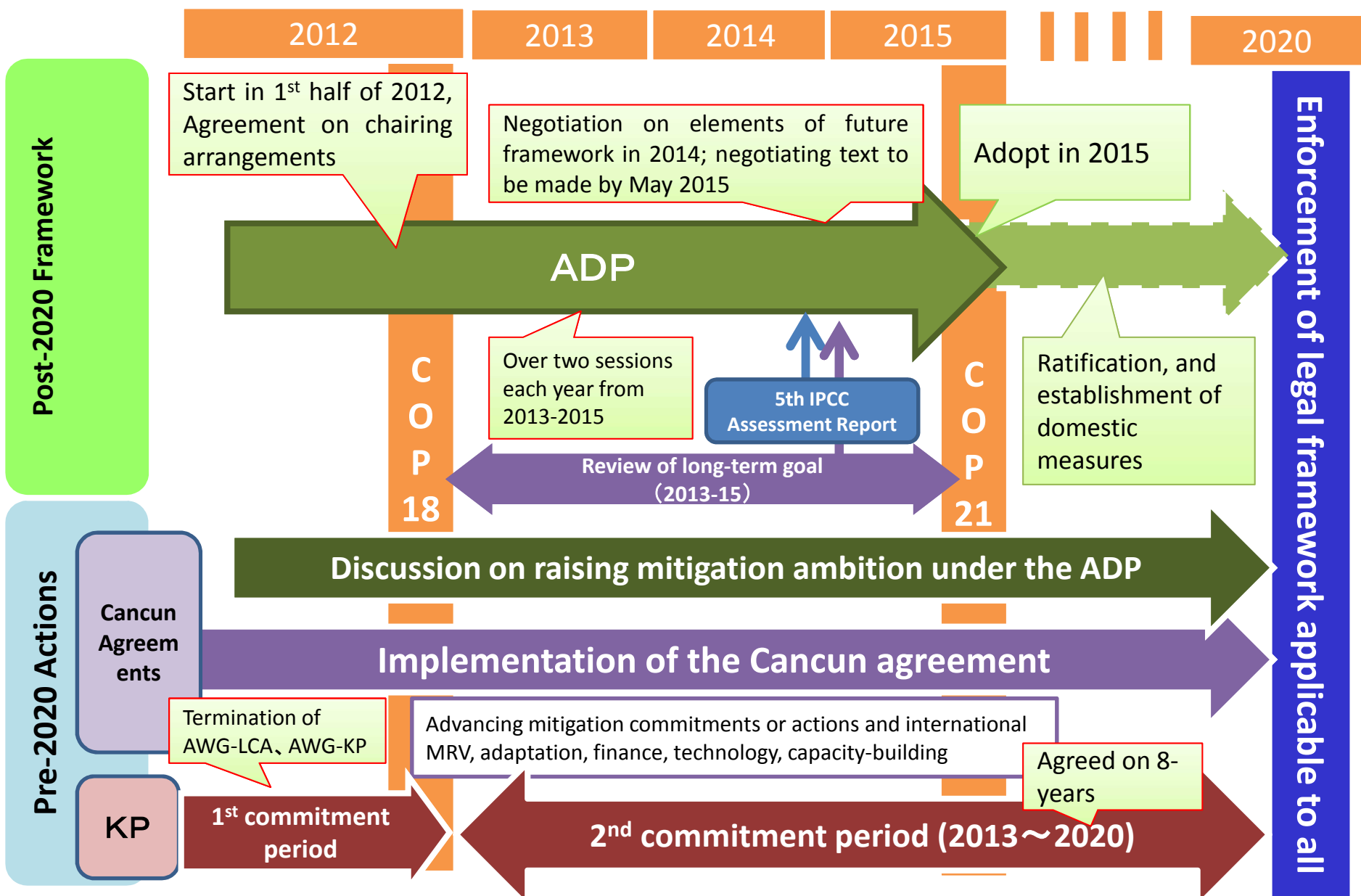
Action on Climate Finance

Extension of the work programme on long-term finance; encouragement of developed countries' efforts to provide resources for 2013-2015

Approaches to address loss and damage associated with climate change impacts

Establishment of institutional arrangements, such as an international mechanism, to address loss and damage associated with the impacts of climate change in developing countries that are particularly vulnerable

Conclusion of Path towards Future Framework



Negotiations toward a post-2020 future framework

Plan of Work for the ADP

2013	<ul style="list-style-type: none"> ▪ Hold two sessions (June, November); consider additional sessions (April, September) ▪ Parties will submit to the secretariat by 1 March 2013, information, views and proposals on matters related to the work of the ADP (including mitigation, adaptation, finance, technology, development and transfer, capacity-building, and transparency of action and support) addressing aspects such as <ul style="list-style-type: none"> (a) application of the principles of the Convention (b) building on the experiences and lessons learned from other processes under the Convention and from other multilateral processes (c) scope, structure, and design of the 2015 agreement (d) ways of defining and reflecting undertakings
2014	<ul style="list-style-type: none"> ▪ Hold at least two sessions; to determine the need for any additional sessions before the end of 2013 ▪ Hold meeting under the UN convening world leaders ▪ Consider elements for a draft negotiating text by COP20 in December
2015	<ul style="list-style-type: none"> ▪ Hold at least two sessions; to determine the need for any additional sessions before the end of 2014 ▪ Make available a negotiating text before May 2015 ▪ Adopt a new legal framework at COP21 in December

Pre-2020 Actions

Implementation of the Cancun Agreement

MRV (Measurement, Reporting and Verification)

- Decided on a common reporting format for developed countries' biennial reports
- Parties submitted information on emissions reduction targets /actions
- Discussed common elements for measuring progress made by developed countries toward achievement of targets

New Market Mechanisms

- Advanced work on elaborating a framework for various approaches including the Joint Crediting Mechanism/Bilateral Offset Crediting Mechanism (criteria and procedures to ensure environmental integrity and technical specifications to avoid double counting)

Second Commitment Period (CP2) of Kyoto Protocol

- 8 years in length from Jan. 1, 2013 - Dec. 31, 2020
- CP2 Parties: EU, Australia, Norway, Switzerland (Japan, NZ, Russia do not have a commitment for CP2)
- Parties who do not join the second commitment period will not be able to internationally transfer and acquire credits (credits for the first commitment period can still be transferred and acquired)

Raising pre-2020 ambition (under the ADP)

- By 1 March 2013, parties will submit information, views and proposals on the following aspects
 - (a) application of the principles of the Convention to the ADP
 - (b) mitigation and adaptation benefits
 - (c) barriers and ways to overcome them, and incentives for actions
 - (d) finance, technology, and capacity-building to support implementation
- During 2013, options for a range of actions that can close the pre-2020 ambition gap will be discussed; in 2014, work will be conducted on the highest possible mitigation efforts

Finance and Loss & Damage

Finance

- Acknowledged delivery of fast-start finance from 2010-2012 by developed countries to fulfill collective commitment of USD 30 billion (total amounted USD 33.6 billion of which Japan contributed USD13.3 billion)
- Encouraged developed country Parties to further increase efforts to provide resources of at least the average annual level of the fast-start finance period for 2013-2015
- Decided to extend work programme on long-term finance for one year to scale up climate finance to USD 100 billion per year by 2020 from public and private sources
- Developed countries will submit information on strategies and approaches to achieve the above by COP19
- Endorsed the work programme of the Standing Committee including the creation of a climate finance forum
- Endorsed the decision of the Board of the Green Climate Fund to select the Republic of Korea as the host of the Green Climate Fund

Loss and Damage associated with climate change impacts

- Establish institutional arrangements, such as an international mechanism, at COP19
- Carry out an expert meeting prior to COP19 to consider future needs, including capacity needs associated with addressing slow onset events
- Preparation of a technical paper on non-economic losses
- Preparation of a technical paper on gaps in existing institutional arrangements to address loss and damage

Japan's Vision and Actions toward Low Carbon Growth and Climate Resilient World

- In order to effectively address the issue of climate change, it is necessary for both developed and developing countries to achieve low-carbon growth all over the world by fully mobilizing technology, markets and finance through public-private cooperation, in addition to establishing an international framework to fight against climate change.
- Japan will take the initiative in implementing the relevant policies in the form of concrete measures through the three approaches outlined below, and will actively encourage the other parties to enhance such efforts made by the international community as a whole.

1. Cooperation among developed countries: efforts on technological innovation towards further emissions reduction

◆ In order to reduce CO₂ emissions and shift to a low-carbon society, it is indispensable to make efforts on technological innovation from a long-term prospective in addition to promoting efforts on energy conservation as well as the utilization of existing low-carbon technology.

- Development of innovative low-carbon technologies such as cost and efficiency improvements in the field of solar cells
- Promote international cooperation, fully making use of the existing international frameworks such as the technology network of the "International Energy Agency (IEA)" as well as the "International Partnership for Energy Efficiency Cooperation (IPEEC)" and the "International Renewable Energy Agency (IRENA)".
- Establish an observation system by earth environment observation satellites such as the Greenhouse gases Observing Satellite (GOSAT "Ibuki")

2.Cooperation with developing countries: dissemination and promotion of technologies

- ◆ It is essential to achieve low-carbon growth which enables both emissions reduction and economic expansion by establishing a system through public-private cooperation to spread developed countries' low-carbon technologies and products quickly among developing countries, where GHG emissions tend to increase as those countries' economies grow.
 - ◆ As part of this effort, Japan will aim at the further improvement of the Clean Development Mechanism (CDM), and promote the Joint Crediting Mechanism (JCM).
-
- Sharing Japan's technologies and experiences to establish a low-carbon growth model, and promoting policy dialogue and cooperation
 - Japan-China-ROK Trilateral Summit
 - "A Decade toward the Green Mekong" Initiative
 - "Bilateral Cooperation on Climate Change" announced recently with Indonesia
 - Global Growth Green Institute
 - "East Asia Low-Carbon Growth Partnership" under the framework of the East Asia Summit (EAS).
 - Developing its cooperation for low-carbon growth in the field of science
 - Designing and implementing of the JCM
 - implemented feasibility studies in 31 countries since 2010
 - intergovernmental consultations with several countries
 - implementation of capacity building

3.Support for developing countries: special consideration for vulnerable countries

(1) Japan's Commitment

- Steady implementation of fast-start finance up to 2012
 - Already provided assistance amounting to 12.5 billion dollars (as of 31st October, 2011) . Continue to implement steadily our commitments already announced
- Implement seamless support beyond 2012
 - Contributing to the discussion on the design of the Green Climate Fund
 - Support enhancing the systems and capacities of African countries through the World Bank (Readiness Support).

(2) Priority issues for Japan's assistance

- Sufficient consideration for adaptation
 - Support adaptation in important fields for developing countries such as disaster prevention, water and food security
 - sharing information and knowledge through Asia-Pacific Climate Change Adaptation Forum (APAN)
- Reinforcement of public-private partnerships
 - Promote collaborative finance and cooperation with the private sector by further utilizing resources such as JICA, JBIC, NEXI and NEDO
 - Support dialogue with the private sector through activities such as dispatching economic missions to developing countries
- Intensification of assistance for growth and policy dialogues with vulnerable countries
 - Formulating a strategy regarding low-carbon growth in Africa under the framework of TICAD
 - Carrying out the "three L"* projects in African countries
 - * "Lighting" (support for electrification), "Lifting" (improving the industrial infrastructure), and "Linking" (improving communications networks)
 - Policy dialogues with other vulnerable countries
- Emphasis on capacity building
 - Capacity building in the area of human resources (3,000 people in 2010)

Japan's Fast-Start Finance for Developing Countries up to 2012

Objective Assist developing countries, especially those making efforts to reduce emission and/or being particularly vulnerable to climate change

Official Development Assistance (ODA)

- Grant Aid
- Technical Assistance
- ODA Loan (Concessional loan)
- Contribution to Multilateral Funds

Other Official Flow, Private Financing etc

- Other Official Financing in collaboration with private sector
eg. Japan Bank of International Cooperation (JBIC) financing

TOTAL: 15 billion dollars pledged



ACHIEVED

Approximately 17.4 billion dollars implemented (public and private)

(as of 31 October, 2012)

- ❑ Of which public financing 13.8 billion dollars* + private financing 3.6 billion dollars.
- ❑ 986 projects have been implemented in 110 countries.
- ❑ The assistance to developing countries vulnerable to climate changes is implemented in Africa (1,550 million), LDCs (Least Developed Countries) (900 million) and SIDS (Small Island Developing States) (230 million).
- ❑ Reflecting the needs of vulnerable countries. Share of the Grant-based Assistance(**) by type: Mitigation: 24.6%, Adaptation: 31.6%, Mitigation/Adaptation: 43.8% (***) REDD+: 8.3%.

* \$13.8 billion is the resulting figure of Japan's Initiative after October 25th, 2009. In relation to Fast-Start Finance by developed countries as a whole, the resulting figure is \$13.3 billion (after January, 2010).

** Including Grant Aid, Technical Assistance and Contribution to Multilateral Funds

*** Reducing Emissions from Deforestation and forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries

Areas of Assistance

Mitigation: \$13.7 billion (Grant(*): 0.63 billion, Loan 6.84 billion, OOF etc 6.23 billion)

Assisting developing countries in their efforts to reduce emissions in such areas as climate change policy formulation and promotion of renewable energy (eg. wind, geothermal, and solar energy).

Eg) Solar Energy Projects (34 Countries, \$180 million)

Wind Energy Projects (\$340 million)

Geothermal Energy Projects (2 Countries, \$490 million)



Adaptation: \$1.29 billion (Grant(*): 800 million, Loan 490 million)

Strengthening developing countries' capability to cope with natural disasters caused by climate change. Providing necessary equipment and facilities to take precautional measures and to recover from damages caused by disasters.

Eg) Program for the Improvement of Capabilities to cope with Natural Disasters

Caused by Climate Change (25 Countries, \$160 million)

Infrastructure Rehabilitation projects for typhoon damage (\$90 million)

Flood Risk Management Project (\$70 million)



Mitigation&Adaptation: \$2.41 billion (Grant(*): 1.11billion, Loan 1.3 billion)

Contribution to Climate Investment Funds (CIF) (\$970 million) and others.

REDD+: \$720 million (Grant(*): 210 million, Loan 500 million, OOF etc 10 million)

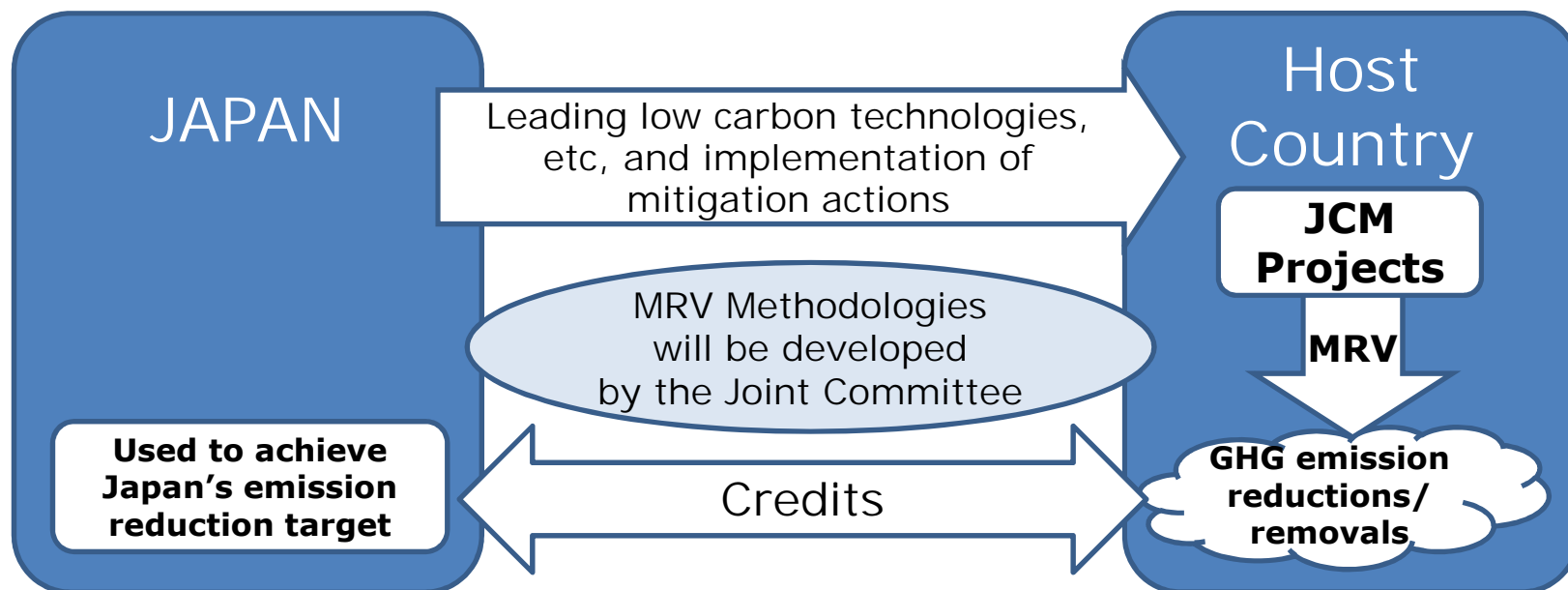
Assisting developing countries to conduct surveys of forest resources and formulate forest management plans to promote sustainable usage and preserve forests.

Eg) Forest Preservation Programs (21 Countries, \$158 million), Contribution to UN-REDD(\$3 million)



Basic Concept of the Joint Crediting Mechanism

- Facilitating diffusion of leading low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions, and contributing to sustainable development of developing countries.
- Appropriately evaluating contributions to GHG emission reductions or removals from Japan in a quantitative manner, by applying measurement, reporting and verification (MRV) methodologies, and use them to achieve Japan's emission reduction target.
- Contributing to the ultimate objective of the UNFCCC by facilitating global actions for GHG emission reductions or removals, complementing the CDM.



MoE's initiatives to promote the JCM

(1) MRV Demonstration Studies (MRV D/S) & JCM Feasibility Studies (F/S)

- Called for proposals on MRV D/S for developing and improving MRV methodologies, as well as F/S for potential JCM projects, in order to acquire knowledge and experience for designing and implementing the JCM.
- 13 projects for MRV D/S and 12 projects for F/S were selected for FY2012.

(2) Information platform

- New Mechanisms Information Platform website was established to provide the latest movements and information on the JCM.
URL<<http://www.mmechanisms.org/e/index.html>>
- Manage help desk for new market mechanisms, in order to respond inquiries.

(3) Capacity Building

- Consultations with government officials and private firms in developing countries in order to develop capacity to implement new market mechanisms through organizing technical seminars and workshops.
- Capacity building with specific focus on MRV is implemented in Asia, Latin America and Africa, including developing MRV methodologies reflecting each national circumstance.

(4) Development of new registry

- Development of new registry for recording and managing emissions reduction or removal by sink through Bilateral Offset Credit Mechanism

3. Framework for achieving the Kyoto Target

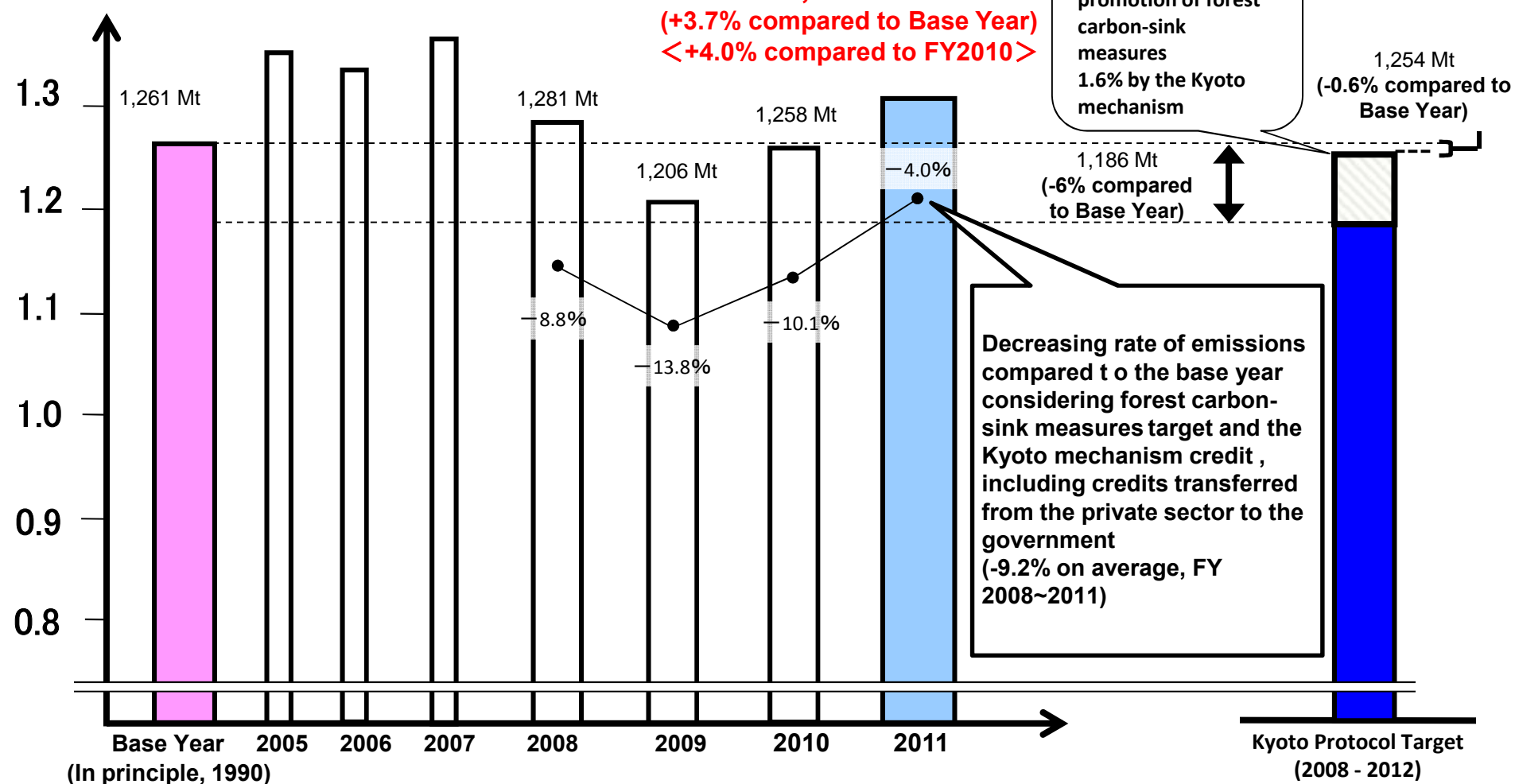
3.1 Japan's Greenhouse Gas emissions in FY 2011	P24
3.2.1 CO₂ emissions by Sectors and Actors (2011)	P25
3.2.2 CO₂ emissions Trends by Sectors	P26
3.2.3 CO₂ (from Energy Sources) Trends by Sectors	P27
3.2.4 Historical GHG emissions by Sectors in Japan	P28
3.3 Act on Promotion of Global Warming Measures	P29
3.4 Whole aspect related to climate change policies	P30
3.5.1~3.5.2 KP Target Achievement Plan	P31- P32
3.6 Local Government Action Plan	P33
3.7 GHG emissions reduction Guideline	P34
3.8.1~3.8.2 Accounting, Reporting, and Disclosure Program	P35- P36
3.9 National Inventory System	P37
3.10 Institutional Arrangement	P38

Japan's Greenhouse Gas emissions in FY 2011

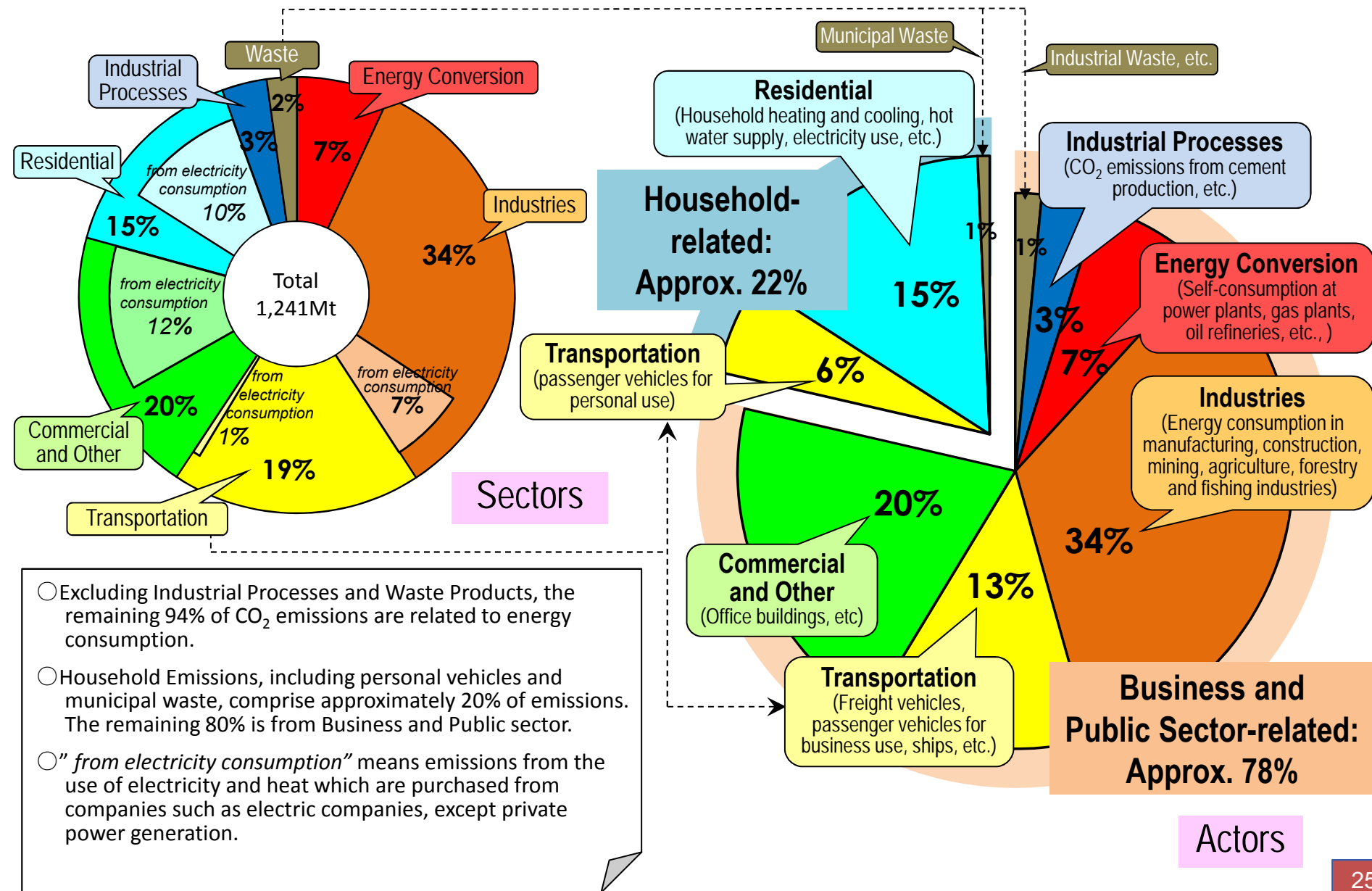
Japan's greenhouse gas emissions in FY2011 increased 3.7% compared to the base year and increased 4.0% compared to the previous year.

Emissions

(Billion t-CO₂ eq.)

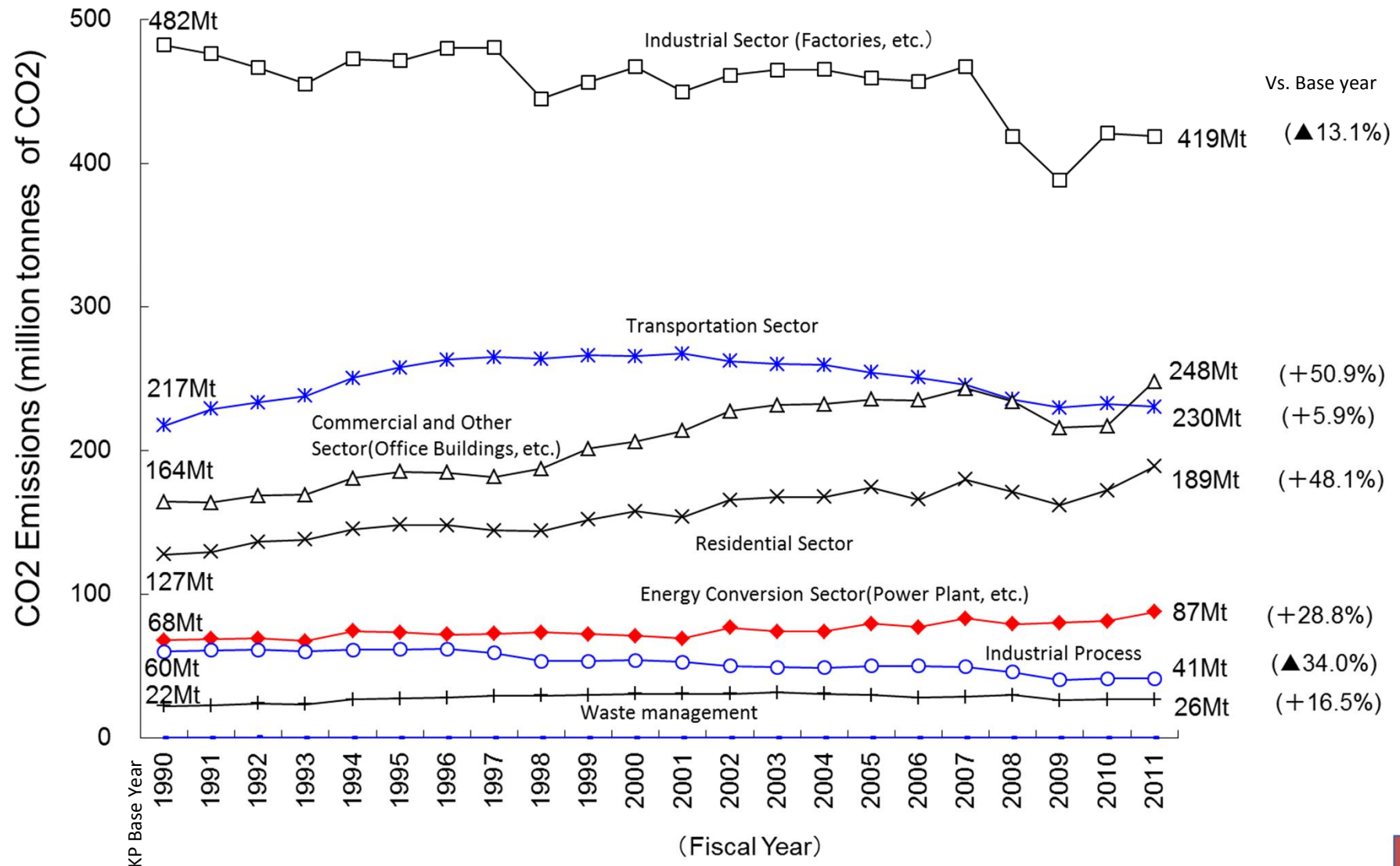


CO₂ emissions by Sectors and Actors (2011)

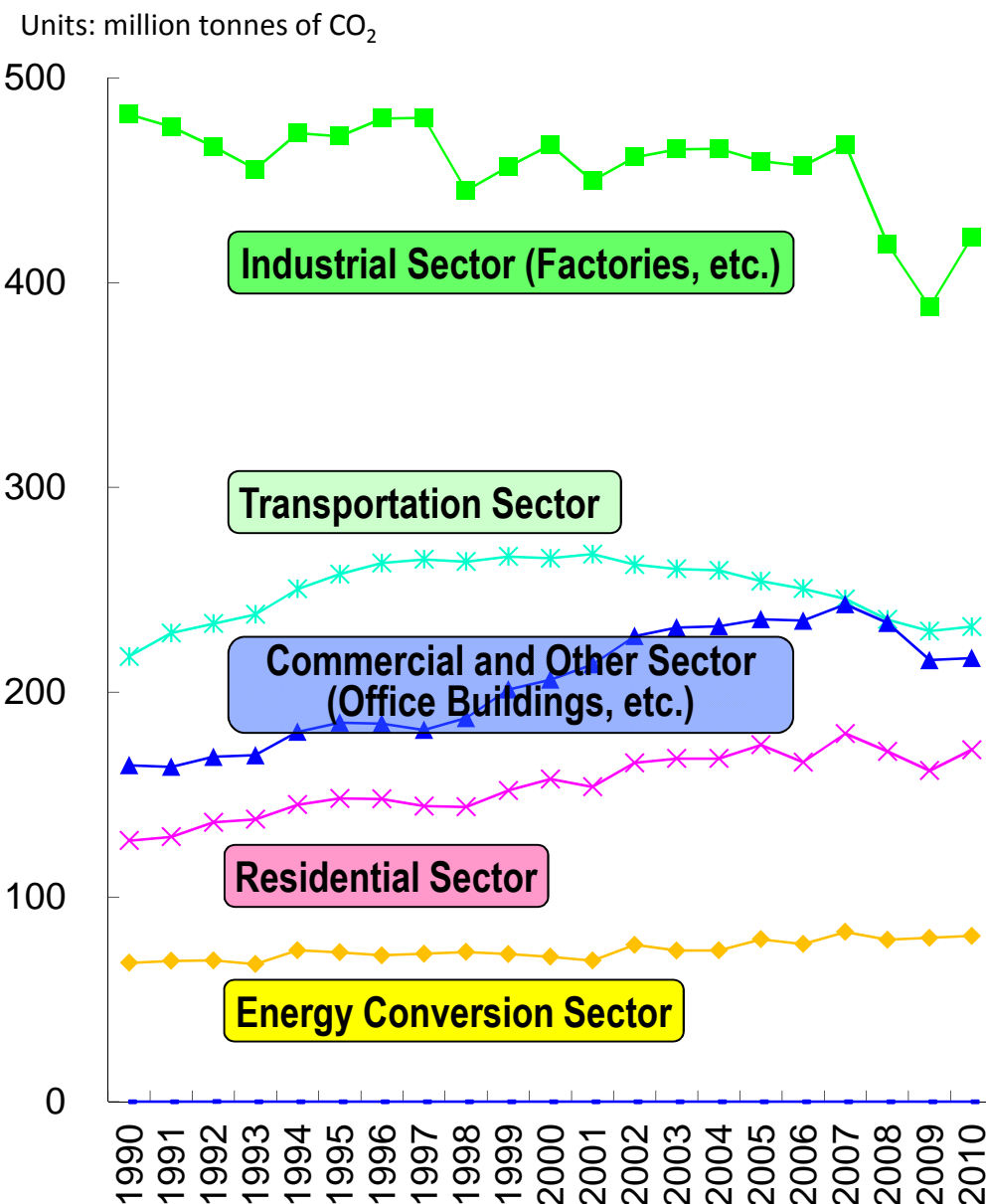


CO₂ emissions Trends by Sectors

“Commercial and Other (Office Buildings, etc.)”, “Residential”, and “Energy Conversion” sectors increased CO₂ emissions compared to the previous year.



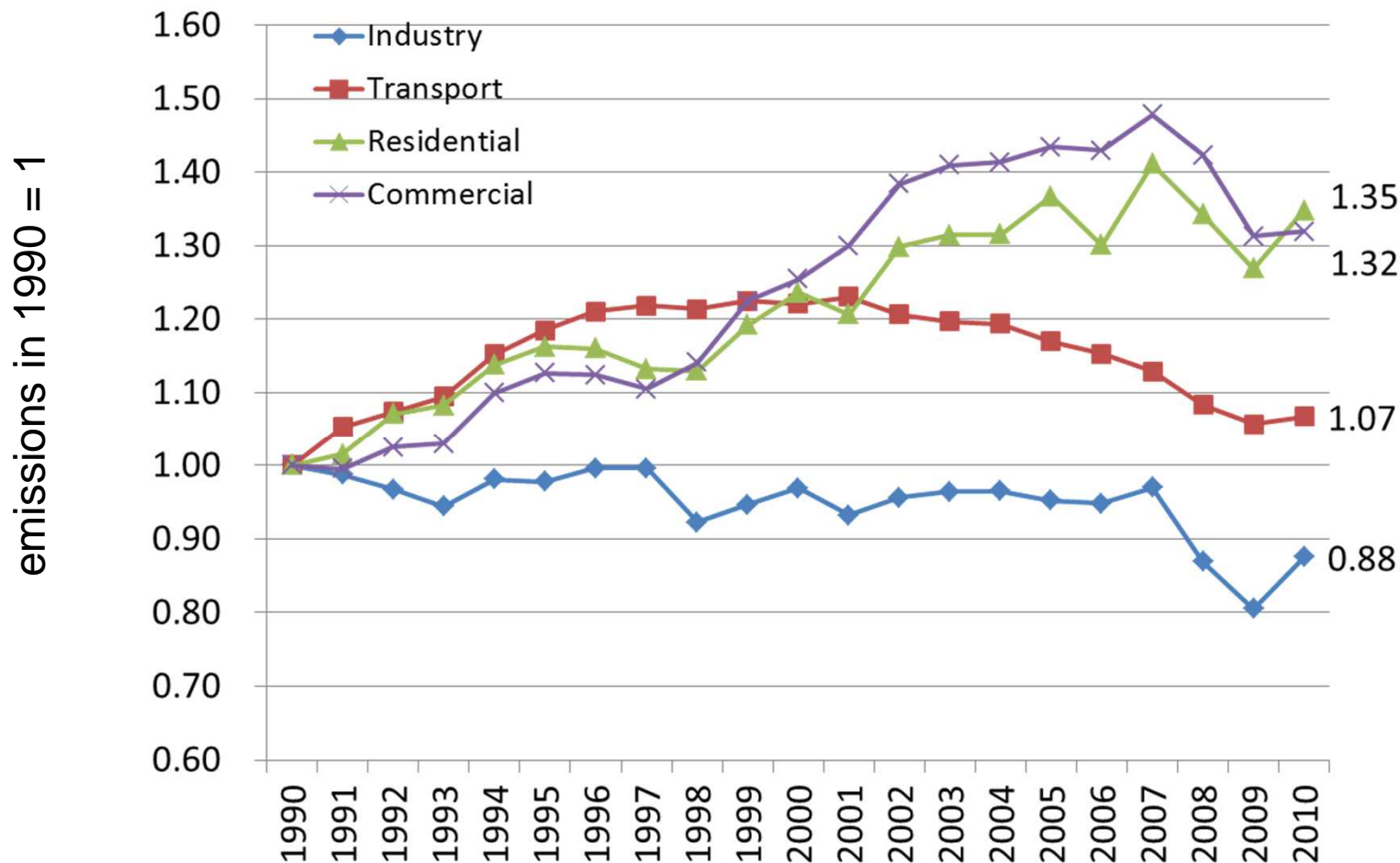
CO₂ (from Energy Sources) Trends by Sectors



Base year	Change form 1990 to 2010	2010	Targets* for 2010
482	-12.5% ↓	422	424~428
217	+6.7% ↑	232	240~243
164	+31.9% ↑	217	208~210
127	+34.8% ↑	172	138~141
68	+19.3% ↑	81	66

*Kyoto Target Achievement Plan (Revised in 2008)

Historical GHG emissions by Sectors in Japan



Act on Promotion of Global Warming Measures

(Global Warming Measures: to take measures or actions for preventing global warming)

Kyoto Protocol Target Achievement Plan (Articles 8-9)

- Establish a Kyoto Protocol Target Achievement Plan which prescribe measures of each stakeholder, targets regarding greenhouse gas emissions/sinks for each class and category of greenhouse gases, and measures necessary in order to achieve the targets.

National and Local Government Action Plan (Article 20-1 – 20-4)

- National Government and Local Governments shall take an initiative and establish a plan for mitigation
- Promoting detailed initiatives / Coordinate with other local plans

Establishment of GHG emissions reduction Guideline (Article 21)

Established Guideline (Competent Minister announcement)

- Guideline on emissions reduction associated with business activities (application of high efficient equipment, proper cooling and heating, efficient use of office appliances, etc.)
- Guideline on emissions reduction in daily life (Visualizing CO₂ emissions from products, Promotion of 3R etc.)

Mandatory Greenhouse Gas Accounting & Reporting System (Article 21-2 – Article 21-11)

- Mandates factories above a specified threshold to calculate and report their GHG emissions. Government publicizes the data
- Report is conducted by each entity and franchise chain
- Promotes usage of CDM credits

Center for Climate Change Actions (Article 24,25)

- National Center: Japan Center for Climate Change Actions (JCCCA)
- Local centers: 47 prefectures +5 cities (Aomori, Kumagaya, Kawasaki, Hamamatsu, and Nagano) (as of June 2012)

Emissions Trading in Kyoto Mechanisms (Registry) (Article 29-41)

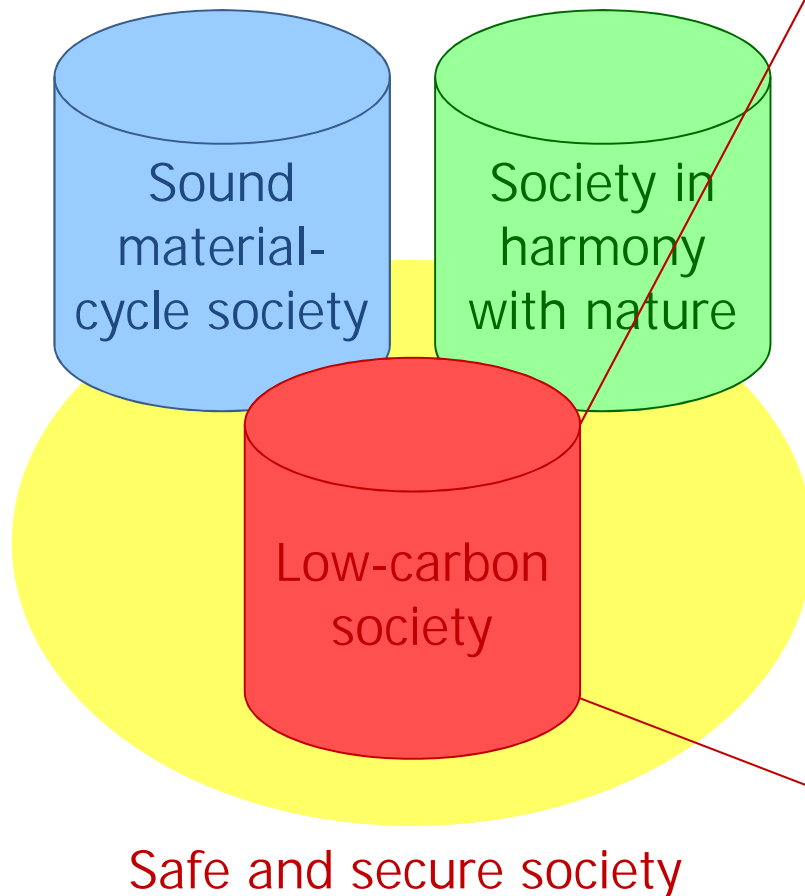
- Stipulates transaction rule of Kyoto Mechanism Credits
- Provides procedure of A/R CDM credits usage

Miscellaneous

- Promotion of appliances which emit less amount of GHG

Whole aspect related to climate change policies

Summary of the 4th Basic Environment Plan (*)



◆ Long Term Target (2050)
-80% from 1990

The Law for Promotion of Global Warming Measures
(Adopted in 1998 and 4 times in 2002, 2005, 2006 and 2008)

KP target achievement plan

National Inventory

Accounting and Reporting

Trading in Kyoto Mechanisms

Center for Climate Change
Actions, Promoters

⋮

Kyoto Protocol (KP) Target Achievement Plan(1)

- ◆ Japan's target for the first commitment period is -6% from 1990.
- ◆ Under the Law for Promotion of Global Warming Measures, KP Target Achievement Plan (*) was fully revised by the Cabinet in March 2008.

Target of Reduction and Removal of GHGs

	Targeted emissions in FY2010	
	Million tonnes of CO ₂	Compared to the Base Year
CO ₂ from energy sources **	1,076~1,089	+1.3%~+2.3%
CO ₂ , CH ₄ , N ₂ O from non-energy sources	132	-1.5%
HFCs, PFCs, SF ₆	31	-1.6%
Total GHG emissions **	1,239~1,252	-1.8%~-0.8%
CO ₂ removal by sinks		-3.8%
Kyoto Mechanisms		-1.6%

* The Law for Promotion of Global Warming Measures was adopted in 1998, revised 4 times in 2002, 2005, 2006 and 2008.

** Estimation of emissions shows emissions where measures' effect is maximum and where it is minimum.. While the maximum case should be pursued, the estimation is set to clear the Kyoto Protocol target even in the minimum case.

KP Target Achievement Plan(2)

* KP Target Achievement Plan was fully revised by the Cabinet in March 2008.

Policies & Measures to Achieve the Target

1. Policies and measures regarding the reduction and absorption of GHG

(1) Policies and measures for reducing GHG emissions

[Examples of measures]

- Promotion of voluntary action plans by industries
- Improvement of energy efficiency of houses and buildings, equipment, factories and automobiles.
- Measures regarding agriculture, forestry and fisheries, water supply and sewerage systems and traffic flows
- Measures regarding waste and CFC substitutes (HFC, PFC and SF₆)
- Measures to promote the use of new energy

(2) Measures regarding greenhouse gas absorption sources

- Forest management and national campaigns for the development of beautiful forests

2. Cross-sectional measures

- System for the calculation, reporting and publication of data on emissions
- National campaigns for environment friendly life style etc.

Issues to be reviewed promptly

- Domestic emissions trading
- Environment taxes
- Review of late-night life/work styles
- Introduction of a summer time system

Biennial review

A comprehensive review of the KP Target Achievement Plan has been scheduled every two year in order to ensure that 6% reduction commitment is met.

Review Schedule for the Kyoto Protocol Target Achievement Plan

Global Warming Prevention Headquarters(Cabinet Office)

the Central Environmental Council and the Industrial Structure Council

March 2008: Cabinet approval of revised target achievement plan

- Annual check and Cabinet approval of plan revisions as needed.
- 2009: Comprehensive evaluation and revision of the plan
(No revision actually)
- December 2011: Evaluation started.

Local Government Action Plan

Prefectures, Ordinance-designated cities, Core cities, Special ordinance cities

Local government's plan on GHG emissions reduction associated with their own activities

- Energy Efficient measures in local government offices
- Plan development coverage (as of 1/Oct/2012)

*Prefectures (100%),
Ordinance-designated cities (94.7%),
Core cities (100%),
Special ordinance cities (97.5%)*

Consultation and coordination by Council on local government implementation plan

Administrative agencies, local government, officials, local centers, business operators and residents participate in the process.

Establishment of local action plan

- Promoting renewable energy
- Promoting emissions reduction activities by local business operators and residents including energy conservation
- Development and improvement of local environment including public transportation and greens.
- Establishment of Recycling-Based Society
- Plan development coverage (as of 1/Oct/2011)

*Prefectures (100%),
Ordinance-designated cities (95%),
Core cities (93%),
Special ordinance cities (63%)*

Municipalities smaller than "Special ordinance cities"

Responsibility of GHG emissions reduction as a business operator

Obligation of implementation plan development to all the local government

- Plan development coverage (as of 1/Oct/2011) : 75.3%

Responsibility to promote comprehensive and planned local action

Voluntary action

- Plan development rate (as of 1/Oct/2011) : 13%

GHG emissions reduction Guideline

Matters concerning GHG emissions reduction related to business activity

Commercial Sector	<p>○Actions for effective implementation</p> <ul style="list-style-type: none"> • Arrangement of systems, Publicizing to workers • Having clear picture of own emissions, as well as facilities and its operation status • Collection of information • Implementation of PDCA <p>○Measures for emissions reduction</p> <ul style="list-style-type: none"> • Presenting specific measures regarding selections of devices or its usage for each heat sources or air conditioners • Upgrading heat sources to higher efficient devices, Segmentation of air-conditioning zone • Appropriate air ratio for combustion facilities/ Appropriate temperature and humidity settings
Waste Sector (From Feb/2012)	<p>○Actions for Appropriate and effective implementation</p> <ul style="list-style-type: none"> • Arrangement of systems, Publicizing to workers • Having clear picture of own emissions, as well as facilities and its operation status • Collection of information • Implementation of PDCA • Promoting voluntary action of residents, GHG mitigation by means of treated waste reduction such as separate collections <p>○Measures for emissions reduction</p> <p>Presenting measures regarding selections of devices or its usage for following facilities</p> <ul style="list-style-type: none"> • Trash collector • Facilities for waste combustion plant • Exhaust gas treatment facilities • Heat recovery facilities • Facilities for waste biomass use • Human waste treatment facilities • Sludge Dryer • Combustion facilities • Facilities in the final disposal site <p>○Indication of CO₂ emissions by applying measures in the guideline</p> <p>Being set individually by using the indicator of “CO₂ emissions per unit of treated waste of the plant” as well as the type and capacity of the combustion plant.</p> <p>Emission of the plant will be calculated by the following formula</p> $\left(\begin{array}{l} \text{CO}_2 \text{ emissions} \\ \text{from energy use} \end{array} + \begin{array}{l} \text{Non-energy CO}_2 \text{ such as} \\ \text{plastic waste combustion} \end{array} - \begin{array}{l} \text{CO}_2 \text{ reduction effect} \\ \text{by energy recovery} \end{array} \right) \div \begin{array}{l} \text{Waste combustion} \\ \text{volume} \end{array}$

Matters concerning contribution on GHG emissions reduction of daily life

- General measures which business entities should apply**
- Production of energy efficient products • Applying carbon offset/Eco-action points
 - Provision of information through “Visualization” such as carbon footprint
 - Coordination with local government etc.
- Specific measures which business entities should apply**
- Presenting measures for manufacturing products for daily life for each lighting and cooling/heating devices
- Production of low energy consumption lighting devices
 - Production of cooling/heating devices with low stand-by power loss

Accounting, Reporting, and Disclosure Program(1)

Program outline

- The program is based on Act on Promotion of Global Warming Measures revised in 2005 (Enforcement Apr. 2006)
- Specified emitters are obliged to calculate and report their GHG emissions. The government collects these data and publishes them.

Objectives

- Establishment of foundation for emitter's voluntary action by accounting their own emissions
- Promoting voluntary actions and fostering momentum on emissions reduction through information disclosure and visualization

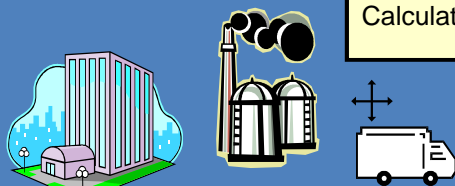
① Covered entities (specified emitters) calculate their emissions and report the emission information of the preceding fiscal year by business operator until end-July every year.

② The competent ministers compile the reported information and notify the Minister of the Environment and the Minister of Economy, Trade and Industry

③ The notified information is compiled by the Minister of the Environment and the Minister of Economy, Trade and Industry, and is publicly announced/disclosed to the general public.

Specified emitters

Business operators, etc. (including public sector) who own business establishments that emit considerably large amounts of greenhouse gases are covered.



Reporting

Competent ministers

Notification

Minister of the Environment,
Minister of Economy,
Trade and Industry

Public Announcement

The emissions information, etc., are compiled by operator, by industry, and by prefecture, and made public.

Reading

Disclosure

The emissions information on a specific operator is disclosed upon request.

Requests

General public,
business operator

※ Emitters may submit relevant information such as the reason of increases or declines in its emissions.

※ If a specified emitter considers that its competitive interests could be harmed by a public announcement of its emissions data, then the emitter may request the protection of its rights and interests.

※ Penalty is provided for reporting-obligation violation or false report.

As to the reporting for energy-derived carbon dioxide, the framework of the Energy Conservation Act is utilized (e.g., admitting the report using the periodic report of the Energy Conservation Act).

Accounting, Reporting, and Disclosure Program(2)

Reporting Entity and types of green house gas

Type of greenhouse gas	Reporting entity (specified emitter)
<p><u>Energy-derived carbon dioxide (CO₂)</u></p> <p>(Carbon dioxide emitted in connection with fuel combustion or the use of electricity or heat supplied by another party.)</p>	<p>[Specified establishment emitters]</p> <ul style="list-style-type: none"> Parties whose total annual energy consumption of all business establishments has a crude oil equivalent of at least 1,500 kiloliters. If a party has a business establishment whose annual energy consumption has a crude oil equivalent of at least 1,500 kiloliters, it has to report the emissions of the establishment as a breakdown. <p>[Specified transportation emitters]</p> <ul style="list-style-type: none"> Specified freight carriers, specified passenger carriers, specified air carriers, and specified consigners in the Energy Conservation Act.
<p><u>Greenhouse gases other than the above (5.5 gas)</u></p> <ul style="list-style-type: none"> ○ Non-energy derived CO₂ ○ Methane (CH₄) ○ Nitrous oxide (N₂O) ○ Hydrofluorocarbons (HFC) ○ Perfluorocarbons (PFC) ○ Sulfur hexafluoride (SF₆) 	<ul style="list-style-type: none"> Parties meeting both conditions below: <ul style="list-style-type: none"> [1] total emissions of all business establishments for each type of greenhouse gas have a carbon dioxide equivalent of at least 3,000 tons. [2] at least 21 full-time employees in their overall business. If a party has a business establishment whose emissions of each type of greenhouse gas have a carbon dioxide equivalent of at least 3,000 tons, it has to report the emissions of the establishment as a breakdown.

※ Whether an entity should report or not is judged using the calculation method specified in the government/ministerial ordinances.

National Inventory System

- Kyoto Protocol requires each Annex I Party to have its National System for GHG inventory preparation in place by the end of 2006 (Article 5).

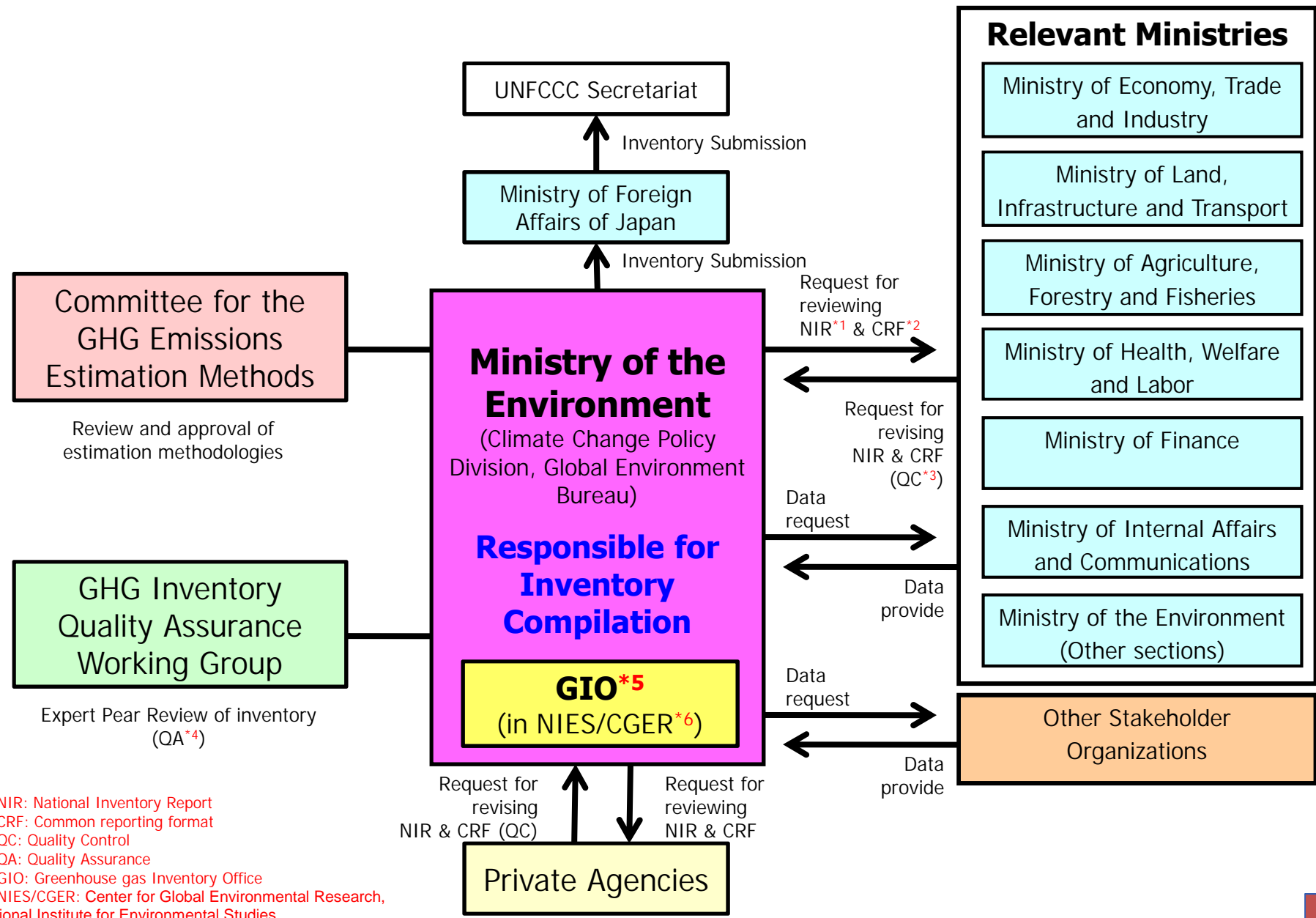
(Decision 19/CMP.1 - Guidelines for National System)

“National System” includes everything relevant to national GHG inventory preparation.

(GIO (GHG Inventory Office) is main part of the System of Japan)

- ✓ Institutional Arrangements
- ✓ Flow of Inventory Compilation Process
- ✓ Quality Assurance and Quality Control (QA/QC) of Inventory
- ✓ Inventory Improvement Plan

Institutional Arrangement



*1 NIR: National Inventory Report
*2 CRF: Common reporting format
*3 QC: Quality Control
*4 QA: Quality Assurance
*5 GIO: Greenhouse gas Inventory Office
*6 NIES/CGER: Center for Global Environmental Research, National Institute for Environmental Studies

4. Mid- and Long-term mitigation actions

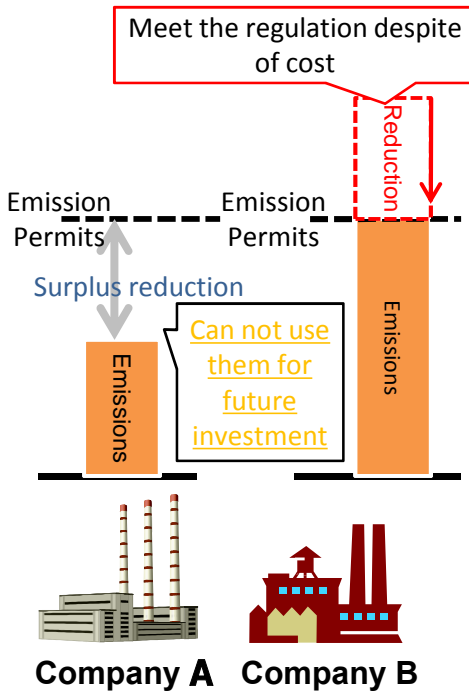
4.1 Examples of Global Warming Measures	P40
4.2 Domestic emissions trading scheme	P41
4.3 Outline of Offset Credit (J-VER) Scheme	P42
4.4.1 New Carbon Tax Scheme	P43
4.4.2 CO₂ reduction effect of the tax	P44
4.5.1~4.5.4 Feed-in Tariff for Renewable Energy	P45- P48
4.6 Low Carbon Planning: Act on Promotion of Low Carbon Cities	P49
4.7 Promoting Environmental Finance	P50
4.8.1~4.8.2 Recovery & Destruction of CFC, HCFC, & HFC	P51- P52
4.8.3 Japan's On-Going Efforts for the Future	P53
4.9.1 National campaign on solutions to global warming	P54
4.9.2 Campaign on Lighting "Akari Future Plan"	P55

Examples of Global Warming Measures

- **Carbon tax**
 - **Feed-in Tariff for renewable energy**
 - Legislations for energy efficiency for vehicles, electric appliances and factories (“Top Runner System”)
 - Grant for promotion of energy-saving product “eco-point system “
 - Environmental Assessment Law including GHGs
 - Mandatory reporting and accounting of GHG emissions from large emission sources (factories etc.)
 - Forest Management (Regeneration of neglected forests, Urban Greening)
-etc

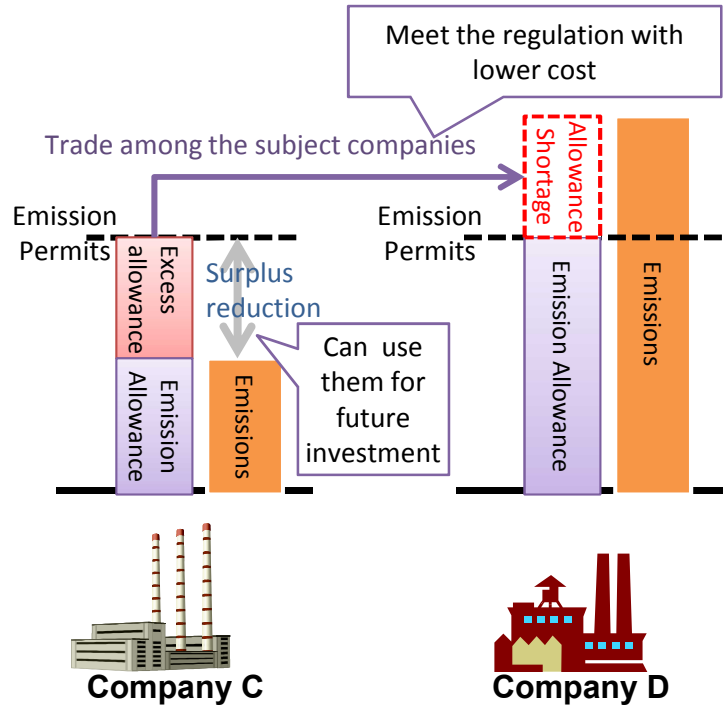
Domestic emissions trading scheme

Simple emissions regulation



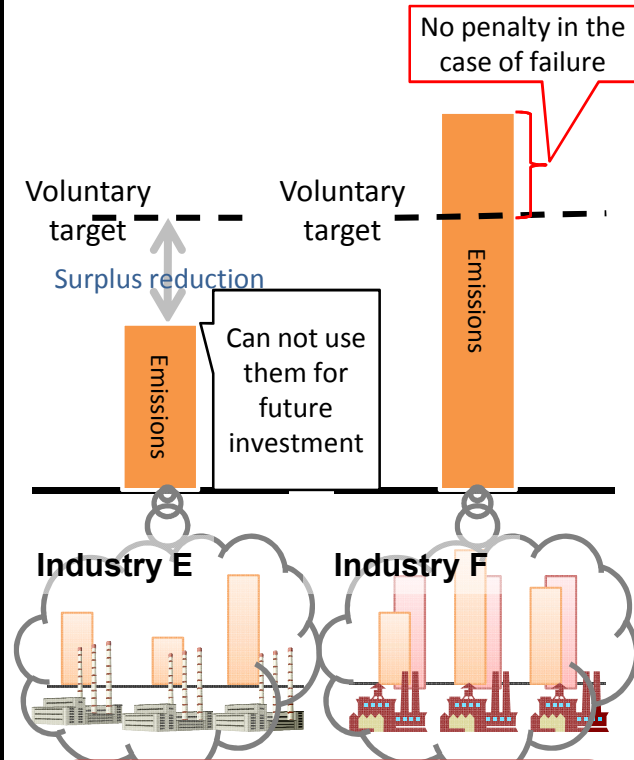
Can assure the emissions reduction effects but less flexible

Domestic emissions trading scheme



Assure the emissions reduction under the fair and transparent rules, and at the same time, maintain flexibility by permitting trade

Voluntary target for industries

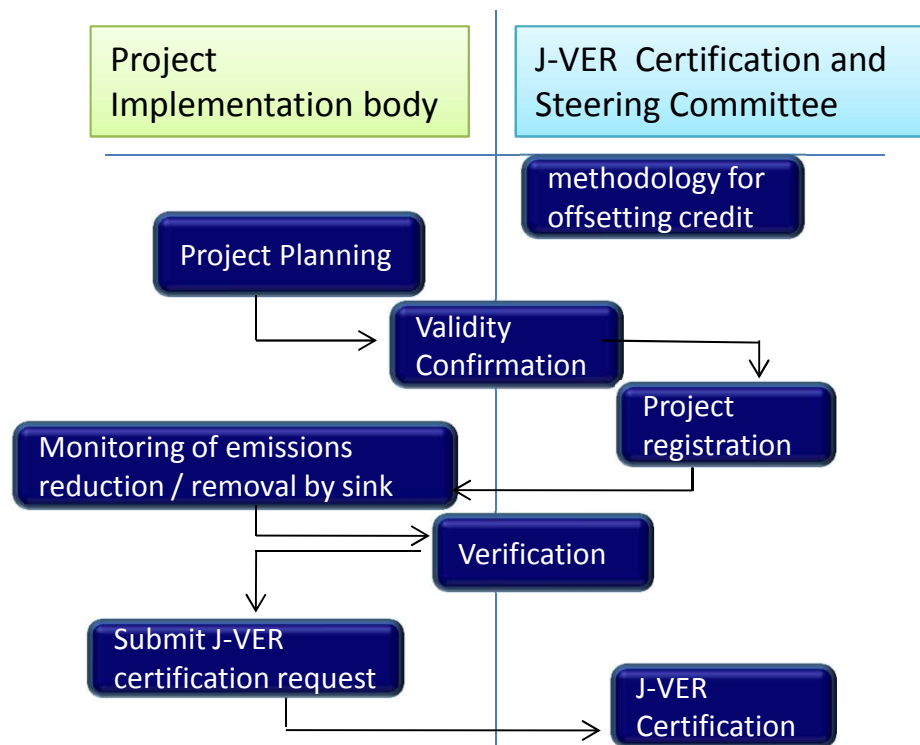


Flexible; however, emissions reduction effects are uncertain, and difficult to manage unfairness among the industries /companies

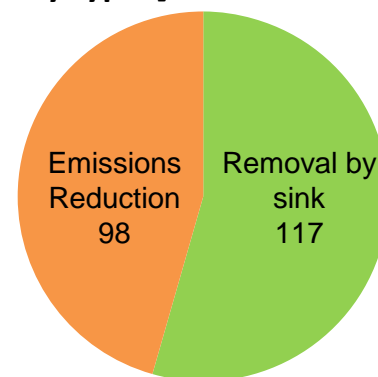
Outline of Offset Credit (J-VER) Scheme

- In order to further promote domestic emissions reduction/removal by sink by means of Carbon offset framework, Ministry of environment established verification scheme for credits generated through the reduction/removal by sink of greenhouse gases carried out via domestic projects in November 2008. "J-VER"="Japan-Verified emissions reduction"
- As of May 2012, cumulative number of projects registered in J-VER scheme reached 215. 181 of the projects have certified of J-VER. The overall certified credit is 203,425t-CO₂
- The scheme is intended to be applied as external credit of domestic emissions trading scheme and has been operated as credible certification scheme

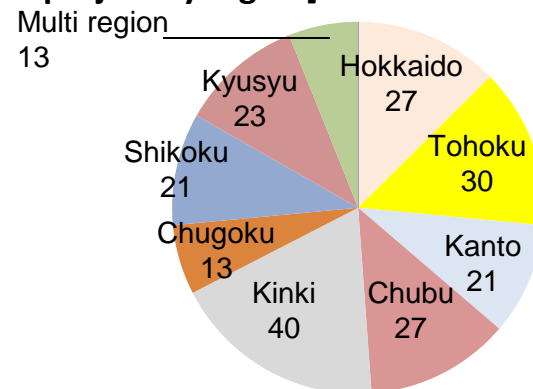
[Flow of J-VER Scheme]



[Number of projects by types]



[Number of project by region]

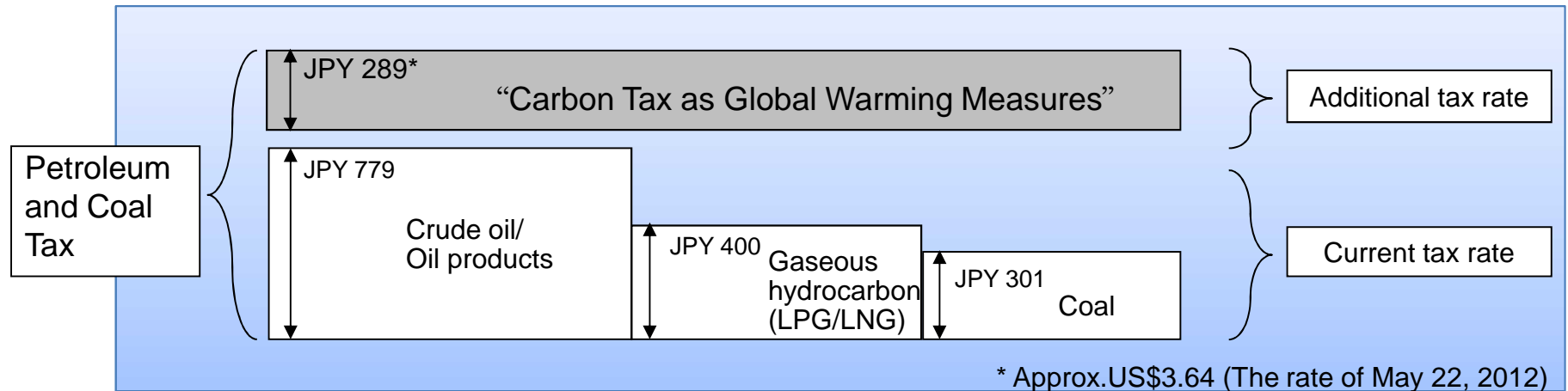


New Carbon Tax Scheme

- Tax rate corresponding to the amount of CO₂ emissions for all fossil fuels (JPY 289/t-CO₂)
- Enforced from Oct. 2012 and increases in the tax rate gradually over 3 and a half years
- All the tax revenue will be allocated for curbing energy-oriented CO₂ emissions

Tax Rate

Tax Rate per t-CO₂ of “Carbon Tax as Global Warming Measures”



Enforcement Stage

Object of Taxation	Current Tax Rate	From Oct. 1, 2012	From Apr. 1, 2014	From Apr. 1, 2016
Crude oil/Oil products [per 1 kl]	(JPY 2,040)	+ JPY 250 (JPY 2,290)	+ JPY 250 (JPY 2,540)	+ JPY 260 (JPY 2,800)
Gaseous hydrocarbon [per 1 t]	(JPY 1,080)	+ JPY 260 (JPY 1,340)	+ JPY 260 (JPY 1,600)	+ JPY 260 (JPY 1,860)
Coal [per 1 t]	(JPY 700)	+ JPY 220 (JPY 920)	+ JPY 220 (JPY 1,140)	+ JPY 230 (JPY 1,370)

Tax Revenue

[1st year] **JPY 39.1 billion** ; [Normal year] **JPY 262.3 billion** (about US\$3.31 billion)



To be used for introduction of renewable energy and enhancement of energy conservation measures, etc.

CO₂ reduction effect of the tax

○The overall CO₂ reduction effects (both price and revenue effect) from energy is estimated to be -1.5% to -2.2% (6 to 24 million CO₂) in 2020 compared with 1990 levels.

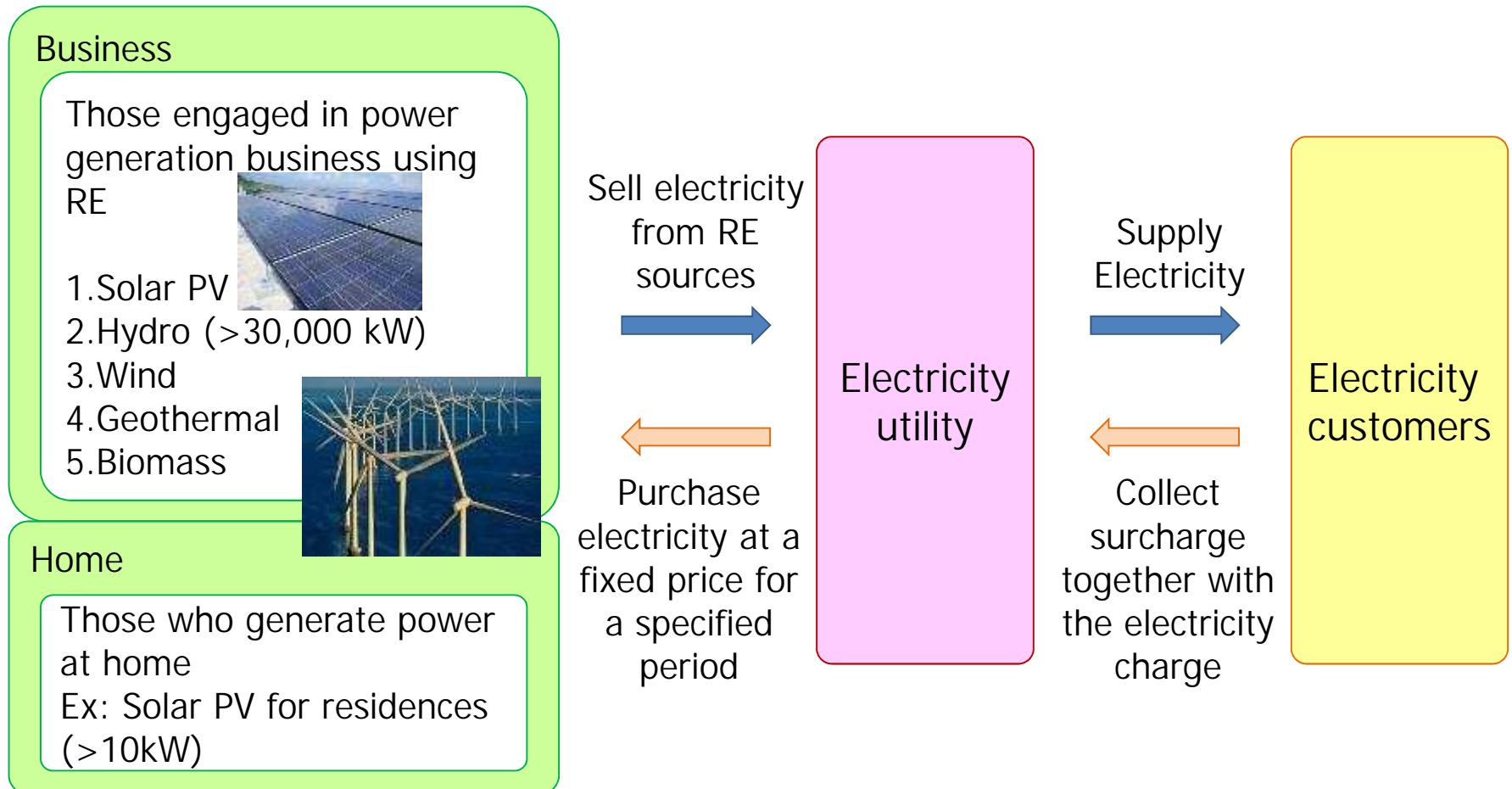
Estimated CO₂ reduction effect by tax for global warming measures

	2020
Price effect	-0.2% (Approx. 1.76 tonnes of CO ₂ reduction)
Revenue effect	-0.4% to -2.1% (Approx. 3.93 to 21.75 million tonnes of CO ₂ reduction)
Total	-0.5% to -2.2% (Approx. 5.69 to 23.5 million tonnes of CO₂ reduction)

Feed-in Tariff for Renewable Energy

All of generated renewable electricity (except electricity by residential RE equipment) shall be purchased at a fixed price.

The bill for introducing FIT adopted in July 2011 and came into force from 1 July 2012 .



Purchase price and period under FIT

Purchase rate and period shall be decided every year corresponding to the type, form of installation and scale of RE sources.

Appointment
requires consent
by the Diet

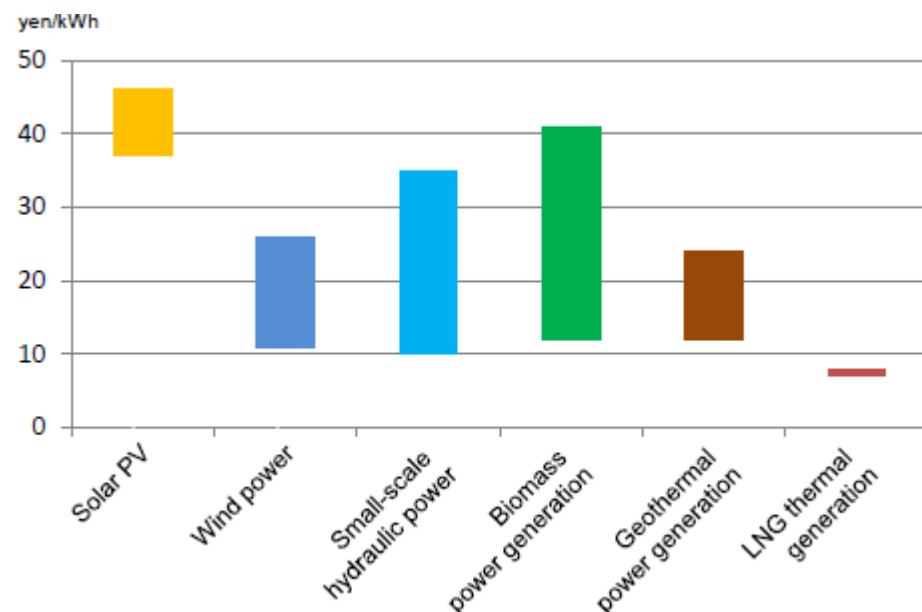


After open examination at **the third party committee**, the purchase price and the purchase period shall be decided.

While considering:

- Power generation cost
- Profit to be received by those who installed facilities
- Services life
- Premium price for three years from the launch of the scheme

[Reference]: Comparison examples of current power generation costs



Source: Geothermal Generation Workshop (June 2009)
LNG: Subcommittee to Study Costs and Other Issues, Electricity Industry Committee (January, 2004)

Category, rate, and the period of FIT

April 2013

Source	Capacity or Category	Rate, tax incl. (JPY per kWh)	Period (year)
PV	≥ 10 kW	37.80 yen ※	20
	< 10 kW	38.00 yen ※	10
Wind	≥ 20 kW	23.10 yen	20
	< 20 kW	57.75 yen	
Geothermal	≥ 15000 kW	27.30 yen	15
	< 15000 kW	42.00 yen	
Hydropower	1000 - 30000 kW	25.20 yen	20
	200 - 1000 kW	30.45 yen	
	< 200 kW	35.70 yen	
Biomass	Biogas	40.95 yen	20
	Lumber, unused	33.60 yen	
	Lumber, general	25.20 yen	
	Waste biomass	17.85 yen	
	Lumber, recycled	13.65 yen	

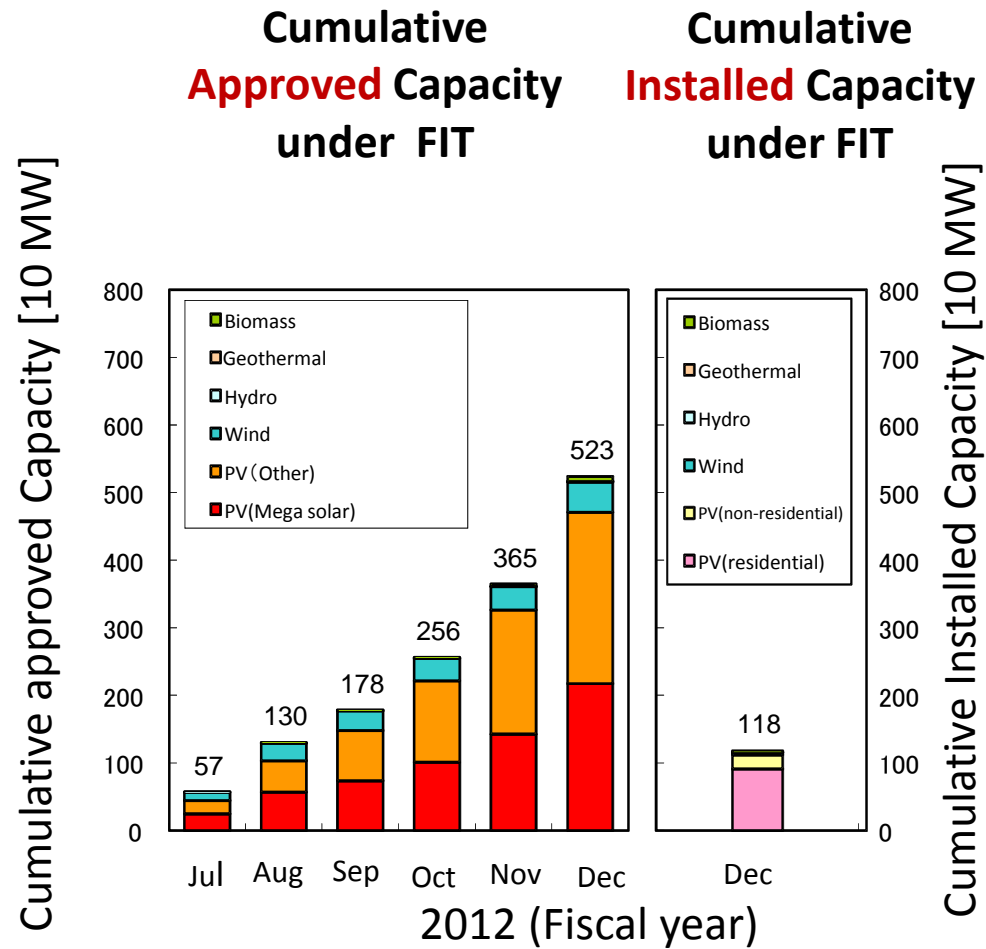
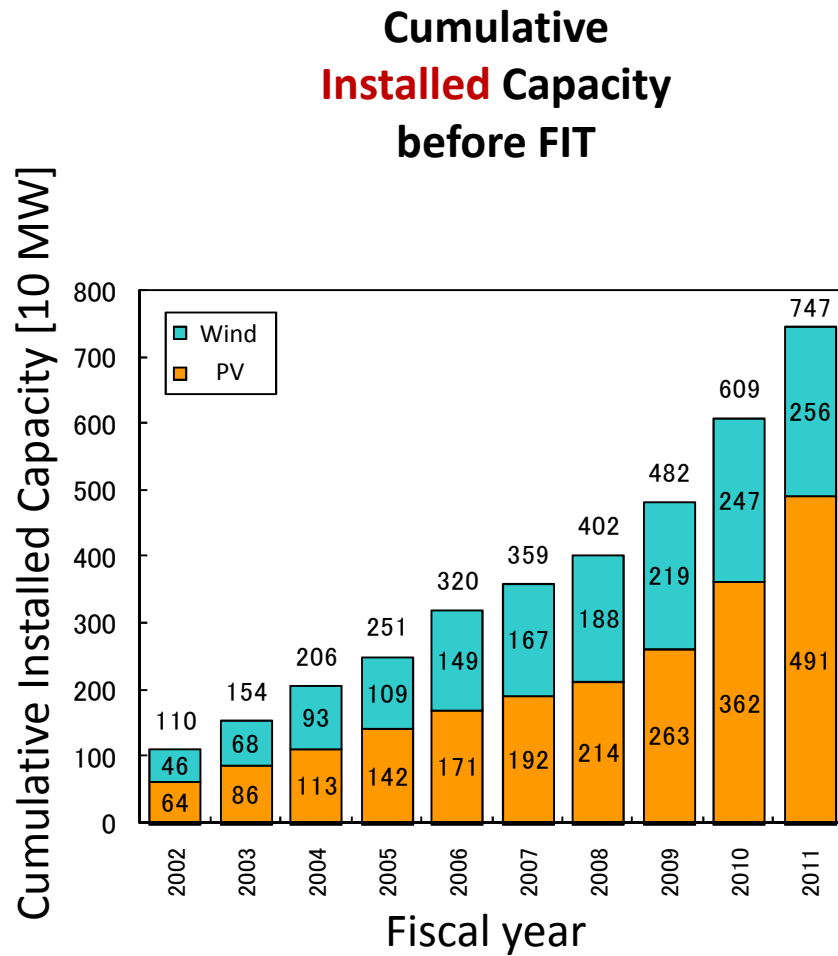
※Before April 2013, the rate was 42.00 yen.

Other rates were not changed.

(1 yen \approx 1 euro cent)

Cumulative RE Capacity under FIT

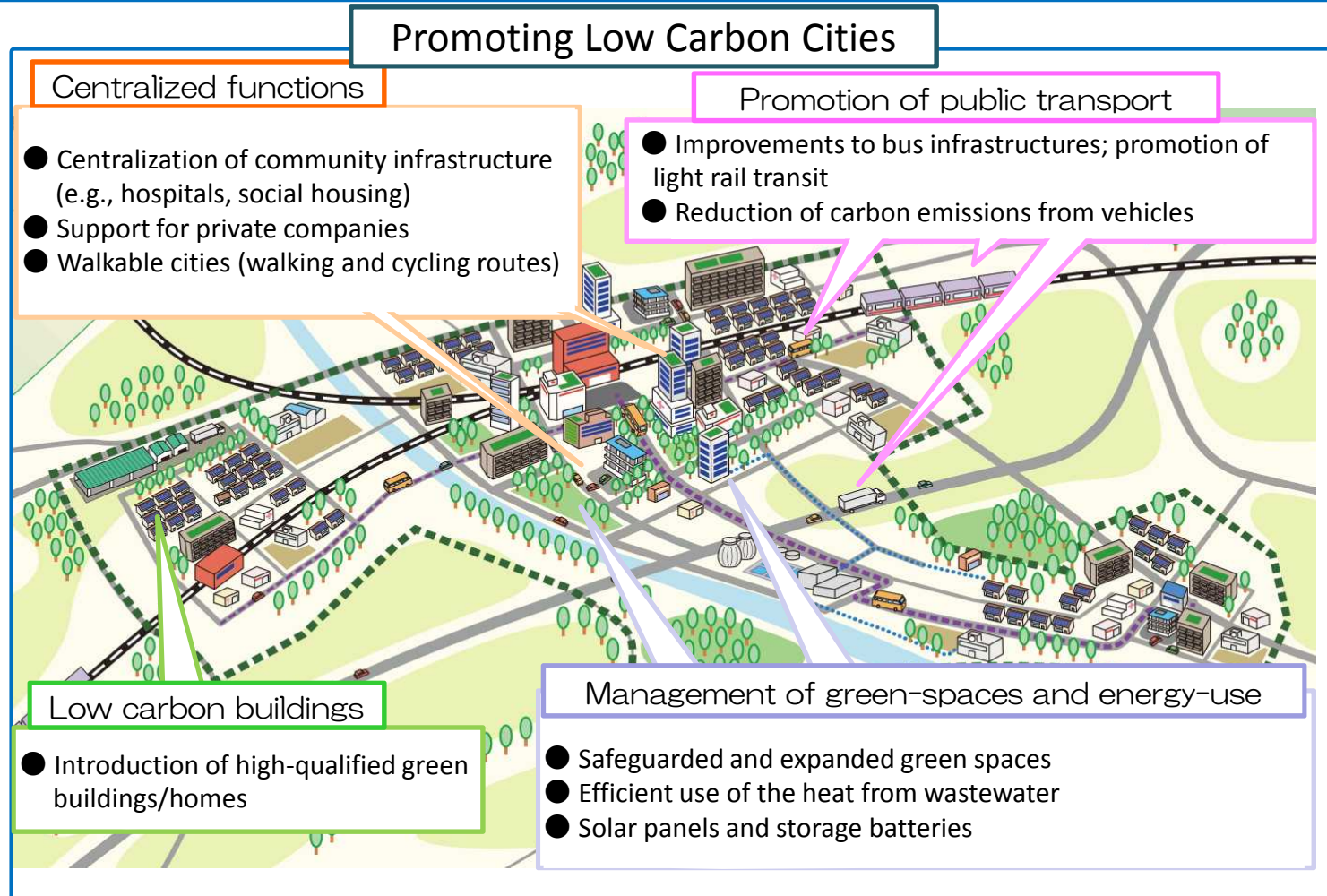
※ FIT was adopted in July 2011 and came into force from 1 July 2012.



Low Carbon Planning: Act on Promotion of Low Carbon Cities

Japan has passed legislation introducing the framework for creating low carbon cities, against a background of changes within the energy balance since the Great East Japan Earthquake and rising concerns about climate change. The act provides an approach to make schemes for:

- the introduction and promotion of good practices in low carbon city creation and improved transportation systems,
- revitalization of the housing market and of local economies through investment.



Promoting Environmental Finance

Finance = Lifeblood of economic activities

Any economic activities or environmental measures require finance

Shifting Low carbon society requires all policy measures.



Aggressive actions towards low carbon society by means of "Finance"



Accelerate measures

[Direction of actions 1]
Finance for environmental conservation activities of private company or individuals

[Direction of actions 2]
Consider and evaluate the environmental conservation activities of investment / loan destination as a criteria for the judgment (Social Responsibility Investment)

■ Major policies by Ministry of Environment for promoting Environmental Finance

1. Interest Subsidy scheme for Global Warming Measures investment

Interest subsidy will be provided to Global Warming Measures investments of private companies through a financial agency which implement environmental rating loan

- Interest subsidy for Global Warming Measures investment by supplementary budget (Finished)
- Interest subsidy for promoting environmental friendly business

2. Promoting Eco-lease for household and business

Promoting low carbon devices by means of lease

3. Promoting environmental information disclosure of private company

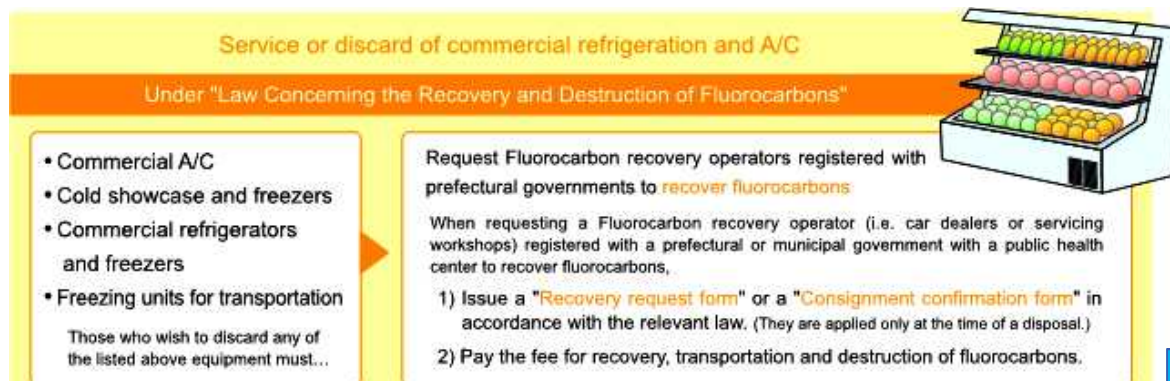
In order to promote environmental information disclosure which is useful for investors, revise Environmental Reporting Guideline and improve effectiveness and usefulness of the disclosed information

■ For further promotion of environmental finance

MoE Shall support voluntary actions in line with "Principles for Financial Action towards a Sustainable Society of financial agencies"

4.8.1 Recovery & Destruction of CFC, HCFC, & HFC(1)

In Japan, CFCs, HCFCs, and HFCs are controlled and they must be recovered from home appliances, cars, and commercial equipment when the equipment containing these gases is discarded. Recovered gas must be recycled or destroyed, instead of being released into the air.



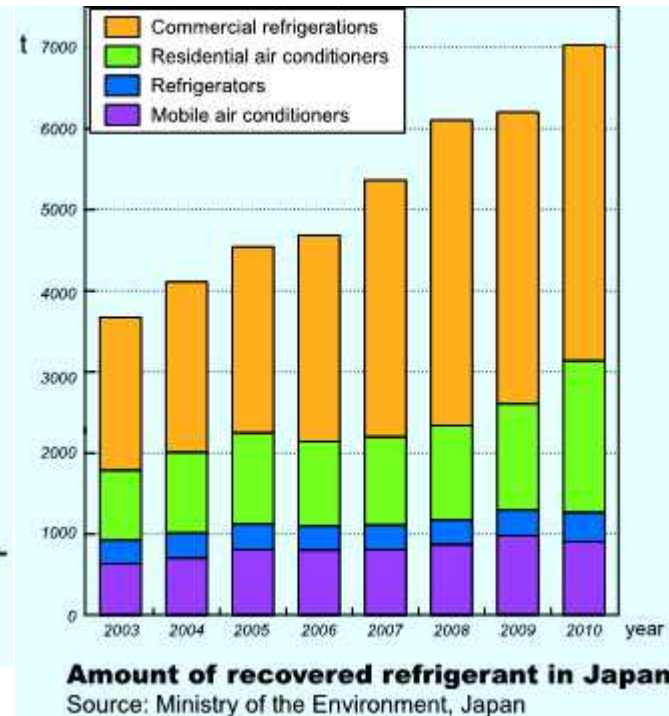
4.8.2 Recovery & Destruction of CFC, HCFC, & HFC(2)

In Japan, there are 49 home-appliance recycling plants and more than 70 F-gas destruction facilities in commercial operation using various technologies such as submerged combustion, superheated steam, municipal waste incinerators, cement kiln, rotary kiln, and plasma. More than 6,000 tons of refrigerant CFC, HCFC, and HFC was recovered from equipment in Japan in 2009 and about 4,000 tons of refrigerant was destroyed in Japan in 2010.



Recovery of refrigerant from super-market cold showcase

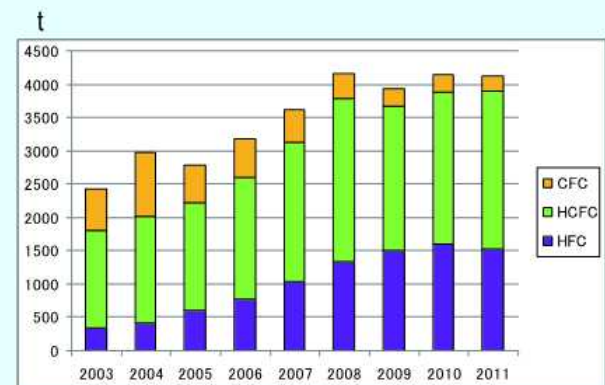
Source: Refrigerants Recycling Promotion and Technology Center, Japan



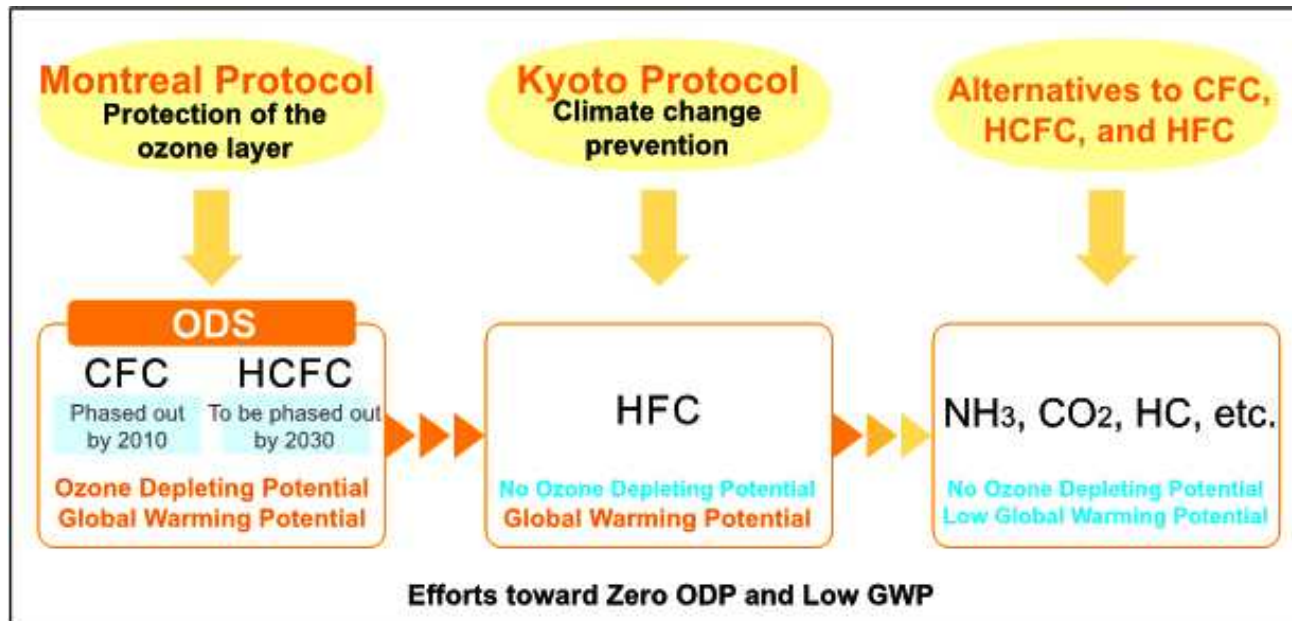
F-gas destruction technologies in use in Japan. The Ministry of the Environment of Japan has transferred the technology to Indonesia (photo).

Type	Technology	Decomposition capacity (indicative)
Devoted system	Submerged combustion	10 kg/h – 300 kg/h
	Superheated steam	25 kg/h
	Catalyst	6 kg/h
	Large-size plasma	10 kg/h – 25 kg/h
	Small-size plasma	1 kg/h – 2 kg/h
Multipurpose system	Municipal waste incineration	10 kg/h – 120 kg/h
	Cement kiln	10 kg/h – 50 kg/h
	Lime calcination furnace	20 kg/h
	Rotary kiln	20 kg/h

Major F-gas destruction technologies in use in Japan and their capacity ranges



Japan's On-Going Efforts for the Future



Air duster / spray

Alternatives to CFC, HCFC, and HFC (DME, CO₂, etc.) are available and widely in use.

Commercial / industrial refrigeration

Alternatives to CFC, HCFC, and HFC are increasing in many applications and sizes.

Foam

Insulation boards and spray technologies free from CFC, HCFC, and HFC are available (JIS Type A).



Domestic refrigerators

R600a (HC) refrigerant and cyclopentane (HC) insulation foam are used in most products in the market.

Vending machines

Energy-efficient vending machines using HFCs and their alternatives are in use.

Domestic air-conditioners

R410a (HFC) products are currently the mainstream in the market.



What refrigerant will be used in the next step is under discussion.

Mobile air-conditioning

R134a (HFC) A/C is currently the mainstream.



Cars equipped with HFO1234yf-based MAC have been placed on the market.



The latest situation in Japan (2012)






National campaign on solutions to global warming

- Runs “National campaign on solutions to global warming” in order that government and citizens can work together for preventing global warming and shifting towards low carbon society.
- Calls for practicing “6 challenges” proposed in the campaign to citizens and companies, and promote various projects namely, “Cool BIZ”, “Warm BIZ”, “Smart Move”, and “Morning Challenge” Fostering. In order to manage the power shortage by the Great East Japan Earthquake, power conservation actions are also in place
- Calls for members of “Individual Challenger”, and “Company/organization challengers” who agreed with the national campaign (As of June 2012, Individual: 920,000 members, Companies: 25,000 members)
- Information on latest CO₂ facilities or devises is provided through various measures including SNS

6 Challenges

-  Let's choose eco-friendly lifestyle
-  Let's choose energy efficient products
-  Let's choose renewable energy
-  Let's choose eco-friendly house/building
-  Let's support products & actions related to CO₂ reduction
-  Let's participate in local actions against global warming

7 points of power conservation in house

-  1 Take care to switch off
-  2 Reduce stand by power losses
-  3 Power conservation through air-conditioner
-  4 Power conservation through refrigerator
-  5 Power conservation through lighting
-  6 Power conservation through TV
-  7 Other power conservation

Super Cool Biz

Suggestion of comfortable lifestyle even in the room temperature settings of 28 degree Celsius

SUPER COOLBIZ

Super Cool Biz
Logo

Cool Share
Logo

エアコン無しで涼しいところに集まろう

COOL SHARE

Warm Biz

Suggestion of comfortable lifestyle even in the room temperature settings of 20 degree Celsius



Poster of Cool Biz

Smart Move – Eco transportation-

Suggestions of low CO₂ emissions move to reduce CO₂ emissions associated with transportation

Not only environmental friendly but also comfort, convenient and healthy lifestyle is named “smart move” and promote to company, organization and public

「移動」を「エコ」に。

smart move

Morning Challenge! (Challenge to morning lifestyle)

Suggestions of new morning lifestyle to reduce CO₂ emissions



CO₂ reduction effects

Shorten the use of lighting, Air-conditioner, TV for 1 hour/day (annual reduction per household)
 [Lighting] Approx. 85kg of CO₂ reduction
 [Air Conditioner] Approx. 58kg of CO₂ reduction
 [TV] Approx. 22kg of CO₂ reduction
 (Total) Approx. 165kg of CO₂ reduction



Morning Challenge! Website

Campaign on Lighting “Akari Future Plan”

◆Background

- CO₂ emissions from residential and commercial sectors has been increasing. Lighting accounts for 13% of the residential sector (second largest after refrigerator).
- In 2008, Ministry of Economy, Trade and Industry called for shifting from incandescent lamp to more energy efficient products by 2012
- Major home appliance manufacturers would stop producing incandescent lamp by 2012
- For that reasons, two Ministers (MOE and METI) have jointly requested again to manufacturers and retailers

◆ “Akari Future Plan” kick-off meeting

Date: 13/June/2012

◆ “Akari Future Plan” website

◆ “Akari Future Plan” Poster and Leaflet

The screenshot shows the Akari Future Plan website. The homepage features a blue header with the title 'あかり未来計画' and a main content area with a pie chart showing energy usage by appliance. The detailed page includes a section titled 'あかり未来計画とは？' and a large pie chart showing the breakdown of energy usage in households.

The poster features a central image of two hands holding a light bulb. The text on the poster reads: 'あかりをかえれば 未来がかわる。' (Change the light, and the future will change.) Below the image, it says '長持ち、省エネ、CO₂カット、いいことたくさん 高効率照明。' (Long-lasting, energy-saving, CO₂ cut, many good things, high-efficiency lighting.) The bottom of the poster has the title 'あかり未来計画' and logos for the Ministry of Environment, Ministry of Economy, Trade and Industry, and the Akari Future Plan Forum.

The leaflet provides detailed information about the Akari Future Plan. It includes sections on '照明は、家庭における電気使用量の第2位です' (Lighting is the second largest electricity consumer in the home), '照明によって、電気使用量はこんなにちがいます' (Lighting makes a big difference in electricity usage), and '高効率照明で、家計にやさしく節電、低炭素化' (High-efficiency lighting saves electricity and reduces carbon emissions). It also features a section on '省エネ家電も売って電気製品製造・販売は環境にやさしい' (Energy-saving appliances and electrical products manufacturing and sales are environmentally friendly). The leaflet includes several charts and graphs illustrating the benefits of high-efficiency lighting.