



Ministry of the Environment
Government of Japan



Global Warming-related Policies of the Japanese Government

– Kyoto Protocol Target Achievement Plan–

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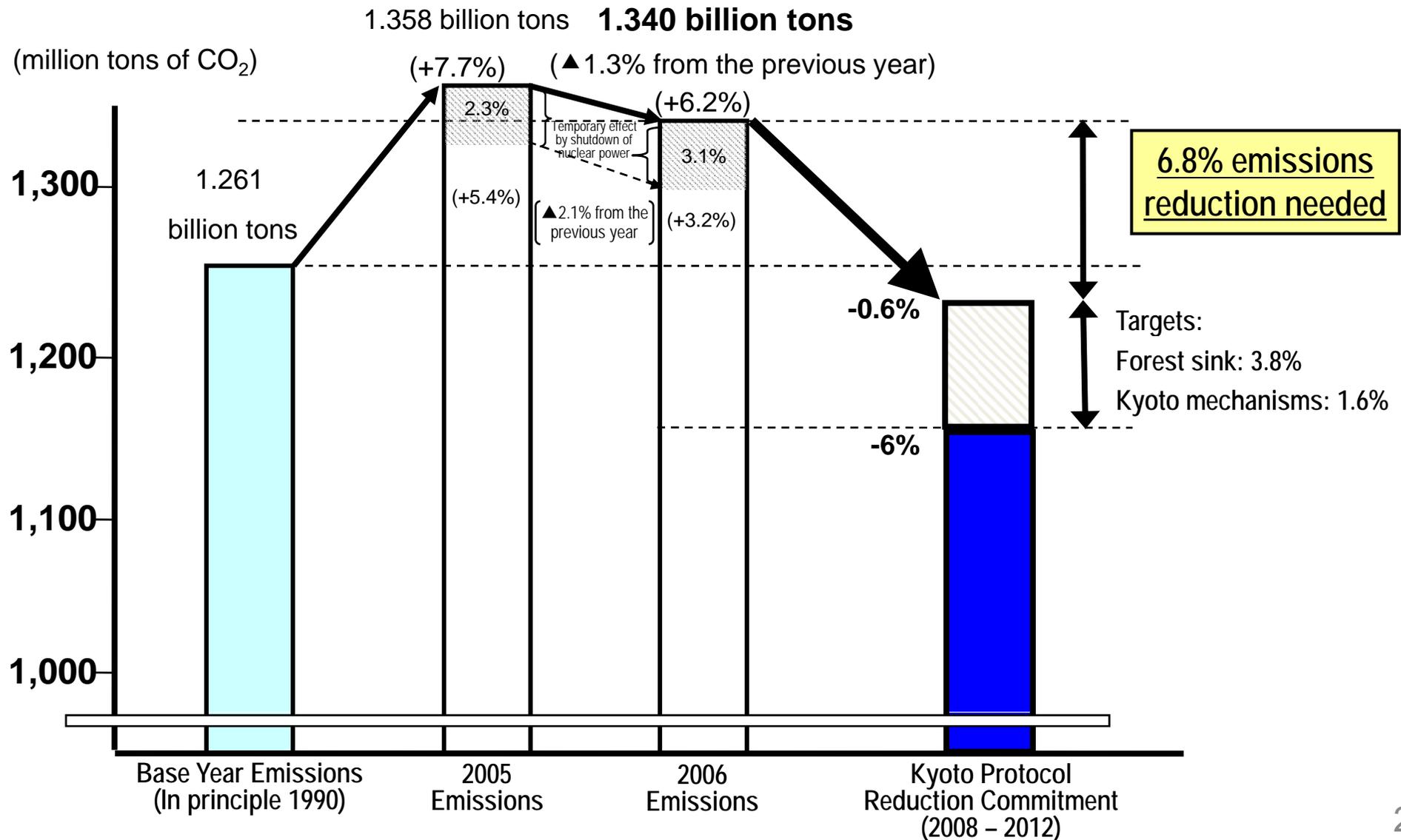


Stop Global Warming!

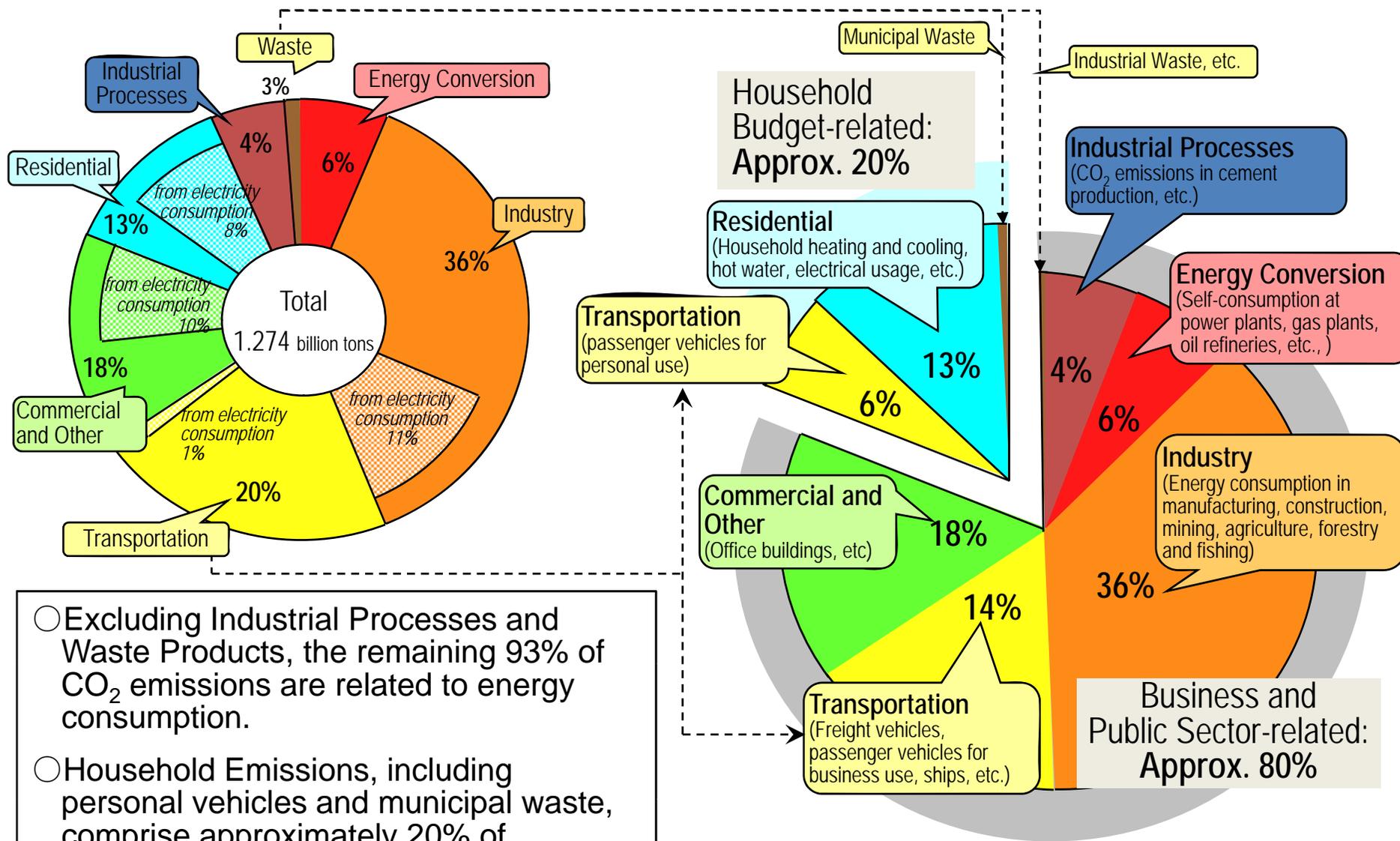
Team minus 6%

Greenhouse Gas Emissions in Japan

Japanese emissions for 2006 were 6.2% above those of the base year, meaning reductions of 6.8% are needed to meet the 6% reduction commitment under the Kyoto Protocol.

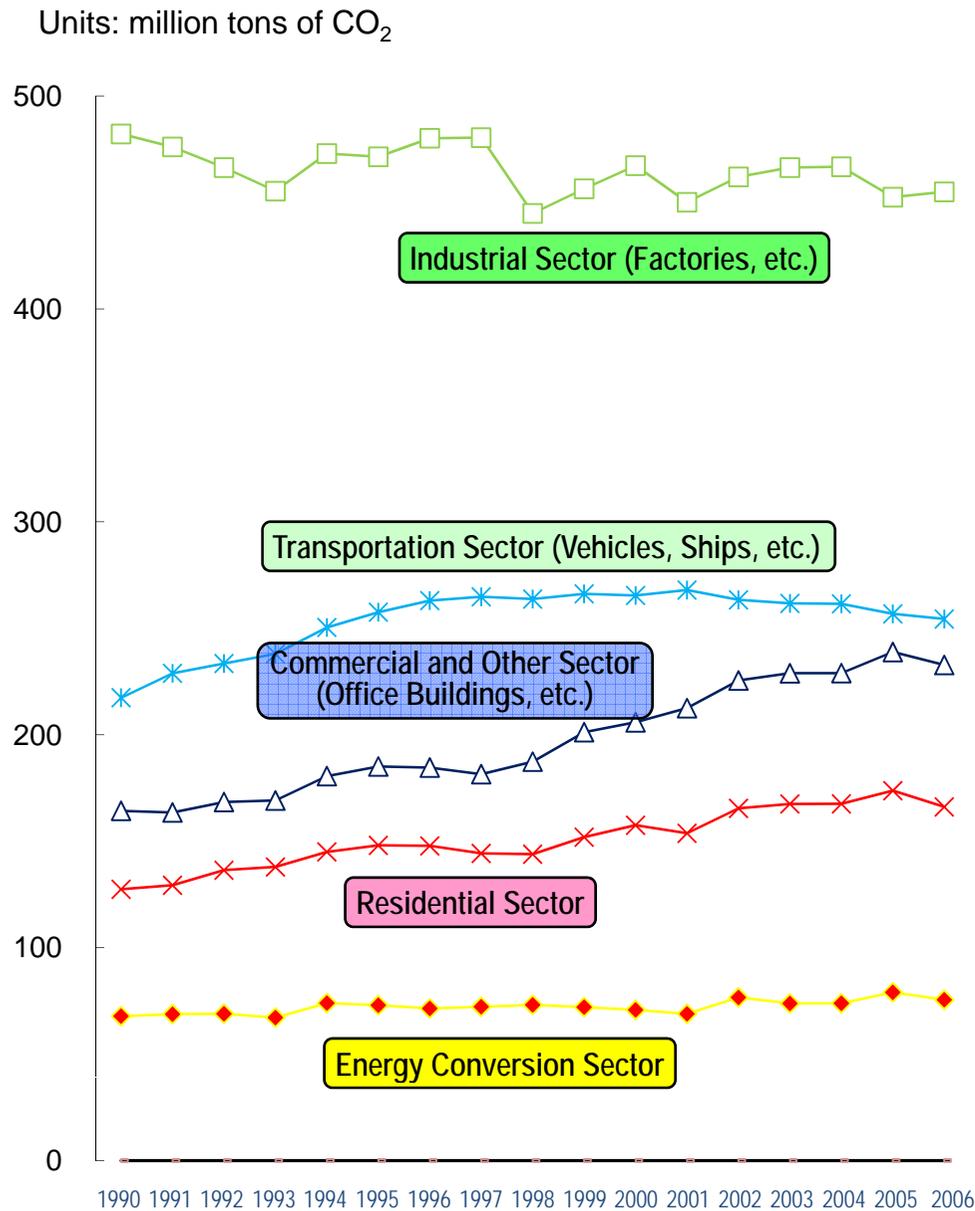


CO₂ Emissions by Sectors and Actors (2006 Preliminary Figures)



- Excluding Industrial Processes and Waste Products, the remaining 93% of CO₂ emissions are related to energy consumption.
- Household Emissions, including personal vehicles and municipal waste, comprise approximately 20% of emissions. The remaining 80% is from Business and Public sector.

Trends in CO₂ Emissions from Energy by Sectors and the Targets for 2010

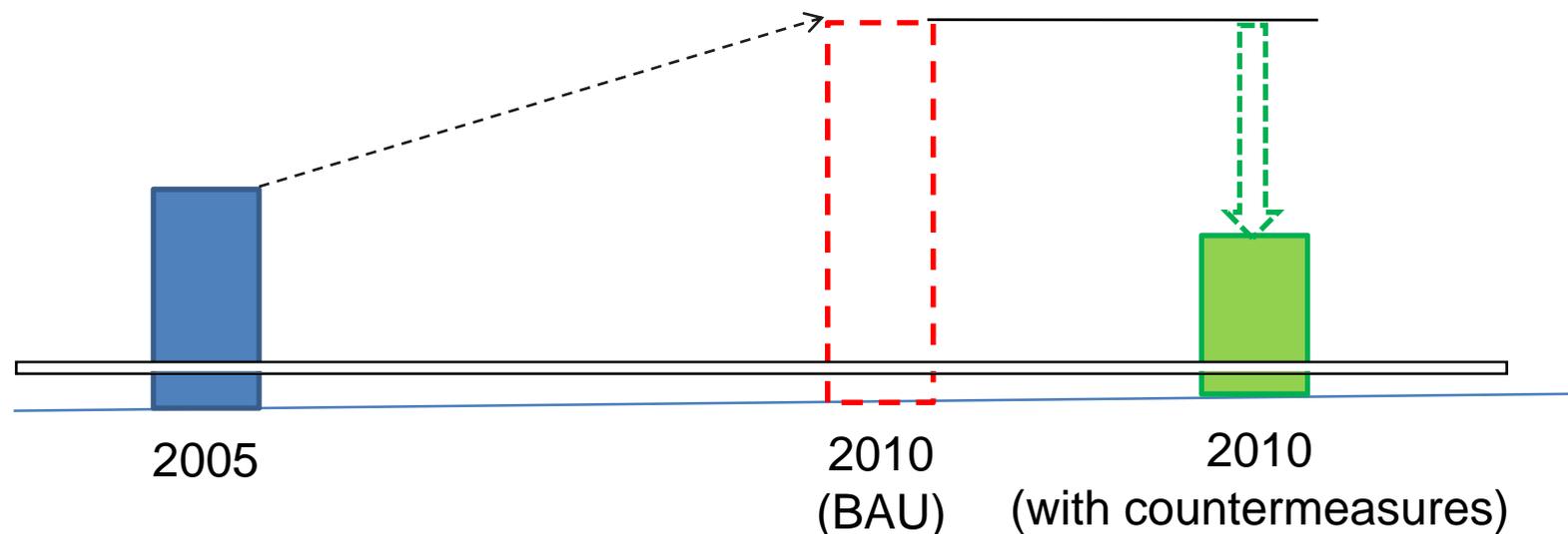


1990	Change form 1990	2006	Reduction Rate to meet Target	Targets(*) for 2010
482	-4.6%	460	-6.7%~ -7.6%	424~428
217	+16.7%	254	-4.8%~ -6.4%	240~243
164	+39.5%	229	-11.6% ~13.0%	208~210
127	+30.0%	166	-19.1% ~21.5%	138~141
68	+13.9%	77	-16.2%	66

(*) As a target guide for emissions, a maximum predicted effect and a minimum predicted effect for reduction measures have been established. Naturally, the goal is to try and achieve the maximum effect; however, even if only the minimum effect is achieved, it has been formulated so that it will at least meet Japan's targets under the Kyoto Protocol.

How to predict the future GHG

1. Forecast population, energy prices, GDP and so on in the future (ex.2010).
2. Predict business as usual (BAU) case (without any countermeasure case).
3. List the countermeasures (energy saving, renewable energy supply increasing etc.)
4. Estimate each countermeasure's mitigation impact (with no overlaps) reducing GHG emissions.
5. Predict the GHG emissions with all countermeasures.



Energy efficiency standards for electric appliances and automobiles: Top Runner Program

Equipment	Improvement in energy efficiency (Results)
TV sets	25.7% (FY 1997 > FY 2003)
Video-cassette recorders	73.6% (FY 1997 > FY 2003)
Air conditioners *	67.8% (FY 1997 > FY 2004)
Electric refrigerators	55.2% (FY 1998 > FY 2004)
Electric freezers	29.6% (FY 1998 > FY 2004)
Gasoline passenger vehicles *	22.8% (FY 1995 > FY 2005)

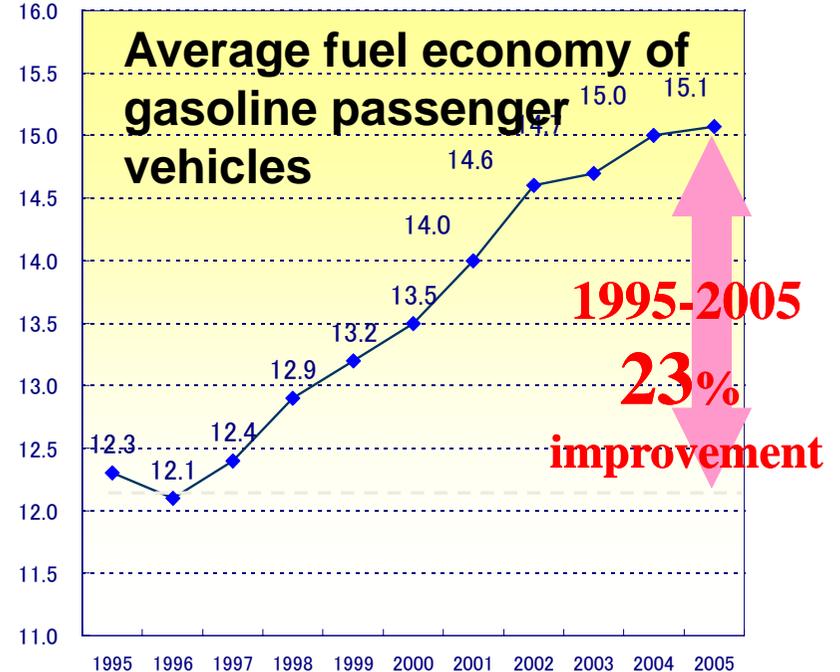
* Note that the effects of reducing energy consumption are indicated as inverse numbers because COP or fuel economy (km/L) is used as an energy consumption efficiency index.

Energy efficiency Standards

- Top Runner Program for Vehicles -

- The fuel standard in 2010 was almost achieved in 2004.
- New fuel efficiency standard
 - Target year: 2015 (base year 2004)
 - Coverage: automobiles, trucks, buses both gasoline and diesel
 - Efficiency target

Fuel economy (Km/L) Source: Vehicle Fuel Economy List



Type	Efficiency target [2004 > 2015]
Automobiles	13.6km/l > 16.8km/l 23.5% improvement
Small-size Buses	8.3km/l > 8.9km/l 7.2% improvement
Small-size Trucks	13.6km/l > 16.8km/l 12.6% improvement



Evaluation and Review Schedule for the Kyoto Protocol Target Achievement Plan

◆ A comprehensive review of the Kyoto Protocol Target Achievement Plan has been scheduled to coincide with the start of the first commitment period in 2008 in order to ensure that Japan's 6% reduction commitment is met.

Evaluation and Review Schedule for the Kyoto Protocol Target Achievement Plan

Joint deliberation by the Central Environmental Council and the Industrial Structure Council

Nov. 2006 – Dec. 2007 30 deliberations
(Sep. 2007 Interim Report)
(Feb. 2008 Final Report)

Global Warming Prevention Headquarters

Oct. 2007 Decision on basic policy for conducting review of the Kyoto Protocol Target Achievement Plan
Mar, 28, 2008 Revision of the Kyoto Protocol Target Achievement Plan

<Future Schedule>

2008:
Cabinet approval
of revised target
achievement plan

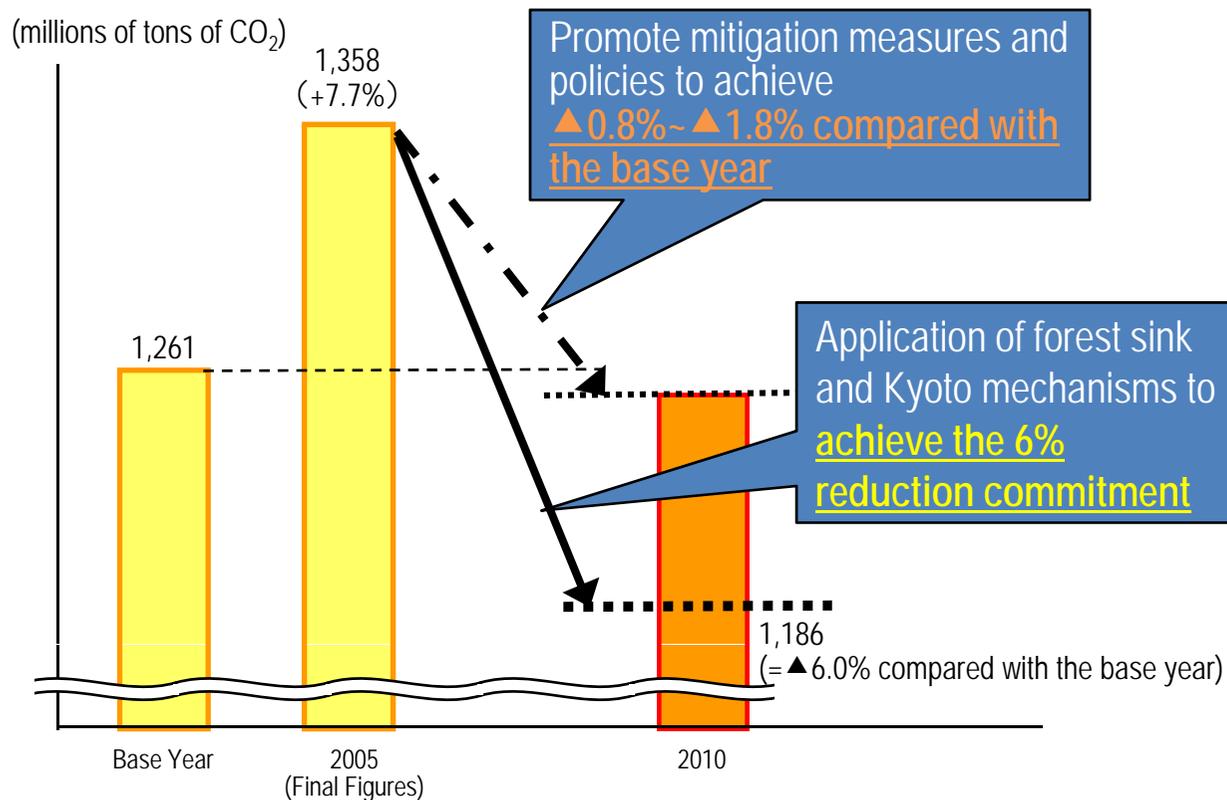
Carry out strict checks each year, in light of actual values, and get Cabinet approval of plan revisions on an as-needed basis.

April: Publicly announce final emissions figures for the year before last
June: Perform progress check for the year before last (and the previous year)
October: Publicly announce preliminary emissions figures for the previous year
Within the year: Perform progress check for the previous year (and the first half of the year)

2009:
Comprehensive
evaluation and
review

Overview of the Revision of the Kyoto Protocol Target Achievement Plan (March 28, 2008)

○Projected Greenhouse Gas Emissions for 2010



* In the final report issued jointly by the Central Environmental Council and the Industrial Structure Council in February of this year, it was determined that, despite the fact that relying solely on current reduction measures will likely leave Japan short of its commitment target by 22 – 36 million tons of CO₂, the full-scale implementation of additional measures and policies in each sector will enable Japan to reduce an extra 37 million tons or more of CO₂ and thereby meet its reduction target of 6% under the Kyoto Protocol.

Framework for the Revision of the Kyoto Protocol Target Achievement Plan

Measures and Policies for Achieving Targets

1. Measures and Policies relating to Greenhouse Gas Emissions Reduction, Removal, etc.

(1) Measures and Policies relating to Greenhouse Gas Emissions Reduction

[Examples of Primary Additional Measures]

- Promotion of voluntary action plans
- Increased energy-saving performance of houses and buildings
- Improvement of energy efficiency of equipment that meets Top-runner Standards, etc.
- Ensuring thorough energy management at factories and offices, etc.
- Improvement of automobile fuel efficiency
- Promotion of emissions reduction measures amongst small and medium-sized enterprise
- Measures for the agriculture, forestry and fisheries, water and sewage, traffic flow, etc.
- Measures for urban greening, waste, and Three Fluorinated Gases (HFCs, PFCs and SF6), etc.
- Promotion introduction of new energy sources

(2) Greenhouse Gas Sink Measures

- Forest management such as tree thinning, promotion of the "Beautiful Forest Building National Campaign"

2. Cross-sector Policies

- Systems for Calculation, Reporting and Public Disclosure of Greenhouse Gas Emissions
- Development of national campaigns

Issues needing to be addressed promptly

- Domestic Emissions Trading System
- Environment tax
- Departure from late-night work and lifestyles
- Introduction of daylight savings

Targets of Greenhouse Gas Emissions and Removals

	Emissions Targets for 2010*	
	Million tons of CO ₂	<u>Base Year Total Emissions Comparison</u>
CO ₂ from Energy	1,076~1,089	<u>+1.3%~+2.3%</u>
Industry	424~428	-4.6%~-4.3%
Commercial and Other	208~210	+3.4%~+3.6%
Residential	138~141	+0.9%~+1.1%
Transportation	240~243	+1.8%~+2.0%
Energy Conversion	66	-0.1%
CO ₂ from non-Energy, CH ₄ , N ₂ O	132	<u>-1.5%</u>
HFCs, PFCs SF ₆	31	<u>-1.6%</u>
Greenhouse Gas Emissions	1,239~1,252	<u>-1.8%~-0.8%</u>

(*) As a target guide for emissions, a maximum predicted effect and a minimum predicted effect for reduction measures have been established. Naturally, the goal is to try and achieve the maximum effect; however, even if only the minimum effect is achieved, it has been formulated so that it will at least meet Japan's targets under the Kyoto Protocol.

For definite progress towards 6% reduction commitment under the Kyoto Protocol, all measures, including sink measures and Kyoto mechanisms, will be implemented.

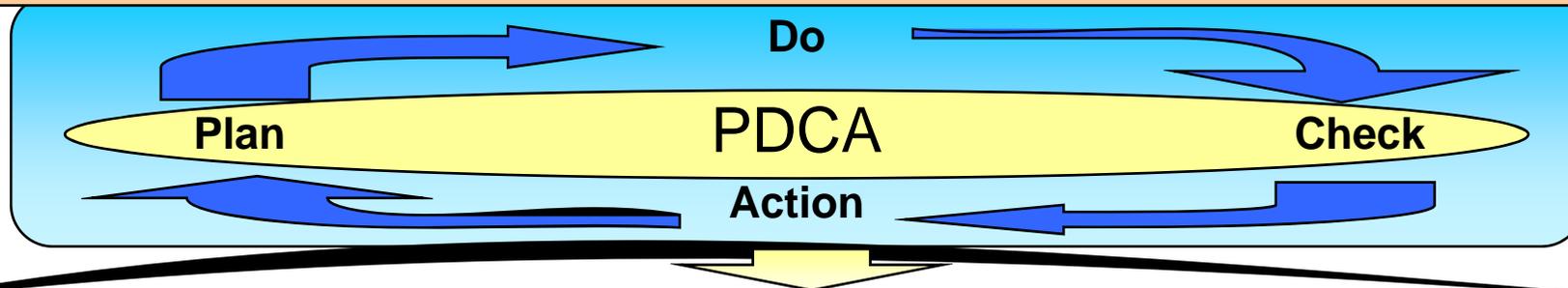
Procedure of Measures and Policies based on the Target Achievement Plan

Achieving both Economic and Environmental Progress

Bold execution of Global Warming mitigation measures accompanying the Transformation of a broad Socio-economic System



Perform strict checks on plan implementation twice a year, and ensure that revisions to the plan can be made flexibly on an as-needed basis
(In 2009, perform a comprehensive evaluation and review for the entire first commitment period)



- Definite achievement of Kyoto Protocol targets
- Further long-term, ongoing emissions reductions in greenhouse gases on a global scale
- Build a low carbon society centering on the development of innovative technologies

Measures in Industrial Sector

Promotion and strengthening of voluntary action plans in industry
66.9 million tons of CO₂

○ Steady implementation and follow-up of voluntary action plans

- ① Draw up new plans for sectors without them
- ② Quantify qualitative targets
- ③ Perform strict follow-up by the government
- ④ Raise targets when original target is exceeded

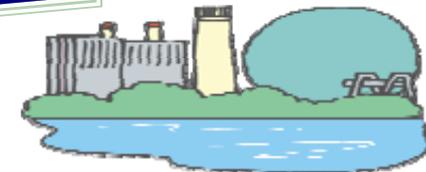
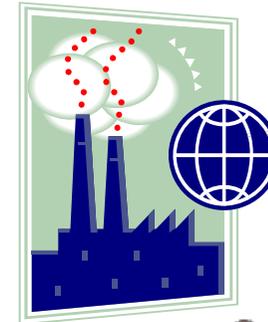
Introduction and Promotion of highly energy conserving facilities and equipment
3.6~5.1 million tons of CO₂

- Diffusion of energy-conserving equipment in the manufacturing sector (3.4~4.9 million tons of CO₂)
- Diffusion of more fuel efficient construction machinery in the construction sector (200,000 tons of CO₂)

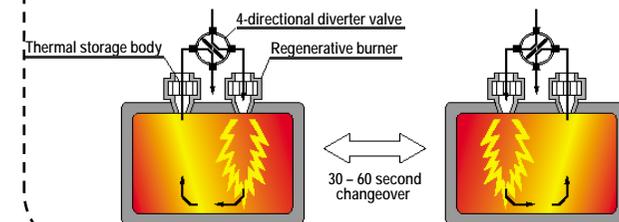
Ensuring thorough energy management, etc.
10.2~11.8 million tons of CO₂

- Ensuring thorough energy management at factories and offices, etc. (8.2~9.8 million tons of CO₂)
- Promotion of emissions reduction measures amongst small and medium-sized enterprise (1.82 million tons of CO₂)*
- Measures by the agriculture, forestry and fisheries industry (220,000 tons of CO₂)
- Measures by Industry in the Commercial and Residential, and Transportation Sectors

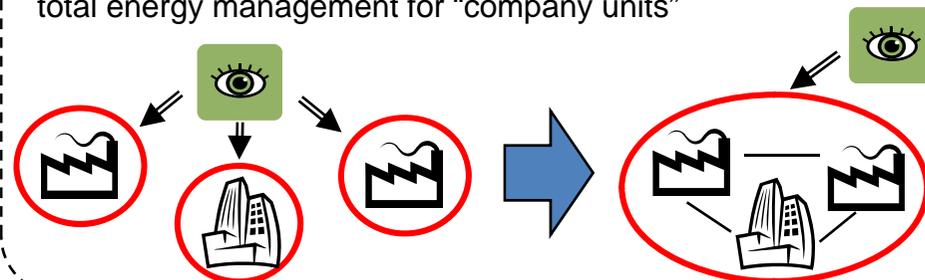
*...predicted emissions reduction for both Industry, and Commercial and Other



Support for switch to high-performance industrial furnaces to conserve energy by 30% or more



Switch from regulating according to "factory and office units" to total energy management for "company units"



Measures in Commercial and Other Sector

Promotion and strengthening of voluntary action plans in industry 3.7 million tons of CO₂

- Promotion and strengthening of voluntary action plans in industry (Commercial and Other Sector)

Initiatives by public institutions 160,000 tons of CO₂

- Initiatives by central governmental public institutions
- Initiatives by local governmental public institutions
- Promotion of initiatives by public institutions other than central and local governments

CO₂ reductions from buildings, facilities, equipment, etc. 66.6~69.8 million tons of CO₂

- Increased energy-saving performance of buildings (28.7 million tons of CO₂)
- Promotion of Low carbon city through thermal environmental improvements such as urban greening to prevent the heat island effect (5,000~20,000 tons of CO₂)
- Diffusion of energy management systems (5.2~7.3 million tons of CO₂) **
- Improvement of energy efficiency of equipment that meets Top-runner Standards (26 million tons of CO₂) **
- Support for the development and diffusion of highly-efficient energy saving equipment
 - Diffusion of highly efficient energy saving equipment (6.5~7.6 million tons of CO₂) **
 - Diffusion of energy saving commercial cooling and refrigeration equipment (160,000 tons of CO₂)

* ... predicted emissions reduction for both Industry, and Commercial and Other
** ... predicted emissions reduction for both Commercial and Other, and Residential
*** ... predicted emissions reduction for both Commercial and Other, and Energy Conversion

Ensuring thorough energy management, etc. 12 million~13.6 million tons of CO₂

- Ensuring thorough energy management at factories and offices, etc. (8.2~9.8 million tons of CO₂) *
- Promotion of emissions reduction measures amongst small and medium-sized enterprise (1.82 million tons of CO₂) *
- Initiatives in water and sewage, and waste treatment (1.97 million tons of CO₂) ***

Development of national campaigns 10.7~12.2 million tons of CO₂ **

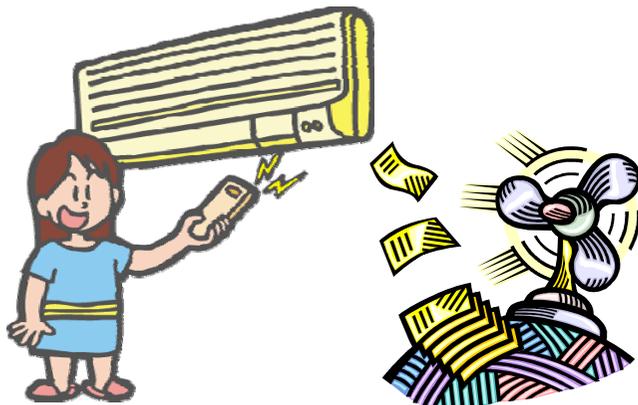
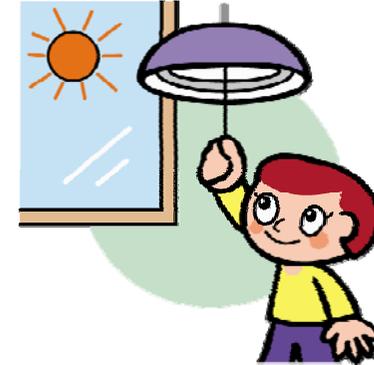
- 'Cool Biz' and 'Warm Biz' (1 million tons of CO₂)
- Information provision by energy suppliers, etc. (1.5~3 million tons of CO₂) **
- Promotion of replacement with energy saving equipment (8.16 million tons of CO₂) **



Measures in Residential Sectors

Development of national campaigns
9.7~11.2 million tons of CO₂ *

- Information provision and awareness raising
 - Information provision by energy suppliers, etc. (1.5~3 million tons of CO₂) *
 - Six actions to be taken to mitigate global warming
 - Promotion of replacement with energy saving equipment (8.16 million tons of CO₂) *
- Environmental education, etc.



CO₂ reductions from houses, facilities, equipment, etc.
47~50.2 million tons of CO₂

- Increased energy-saving performance of houses (9.3 million tons of CO₂)
 - Increase the energy-saving performance of houses
 - Model initiatives for reducing CO₂ involving a collaboration between home builders, consumers, etc.
- Diffusion of energy management systems (5.2~7.3 million tons of CO₂) *
- Improvement of energy efficiency of equipment that meets Top-runner Standards (26 million tons of CO₂) *
- Support for the development and diffusion of highly-efficient energy saving equipment (6.5~7.6 million tons of CO₂) *

*...predicted emissions reduction for both Commercial and Other, and Residential

Measures in Transportation Sectors

Automobile and road traffic measures 32~33.3 million tons of CO₂

○ Promotion of automobile measures (24.7~25.5 million tons of CO₂)

○ Promotion of traffic flow measures (4.9 million tons of CO₂)

- Diverse and flexible fare payment measures on highways (200,000 tons of CO₂)
- Coordinate automobile traffic demand (300,000 tons of CO₂)
- Promote Intelligent Transport Systems (ITS) (3.7 million tons of CO₂)
- Reduce road construction (680,000 tons of CO₂)
- Promote measures against the bottleneck crossings, etc. (180,000 tons of CO₂)
- Improve road safety facilities (410,000 tons of CO₂)



○ Promotion of environmentally friendly use of automobiles

- Promotion of environmentally friendly use of automobiles (1.39 million tons of CO₂)
- Limit the maximum speed of large trucks on highways (470,000~970,000 tons of CO₂)

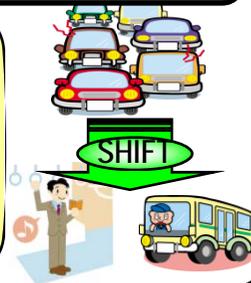
○ Development of national campaigns (related to 'eco-driving' and public transport, etc.)

Promotion of public transportation, etc. 6.1 million tons of CO₂

○ Promote use of public transportation (3.75 million tons of CO₂)

○ Promotion of the development and introduction of energy-efficient trains, ships and planes

- Improve energy consumption efficiency in railway (400,000 tons of CO₂)
- Improve energy consumption efficiency in aviation (1.9 million tons of CO₂)



Promotion and strengthening of voluntary action plans in industry (Transportation sector)

13.1 million tons of CO₂

Promote more efficient means of distribution. 18.6 million tons of CO₂

Promote traffic alternatives using information and communications such as teleworking
500,000 tons of CO₂



○ Promotion of CO₂ reductions through collaborative efforts by shippers and distributors.

○ Promotion of CO₂ reductions through collaboration between modal shifts and trucking

- Comprehensive Measures to Improve the Environmental Friendliness of Marine Transport (1.26 million tons of CO₂)
- Modal shift to railway freight (800,000 tons of CO₂)
- Diffusion of ships which contribute to energy conservation (10,000 tons of CO₂)
- Improve efficiency of trucking (13.89 million tons of CO₂)
- Reduce land transport distance of international freight (2.62 million tons of CO₂)

○ Diffusion of the Green Management Certification system

Measures in Energy Conversion Sector

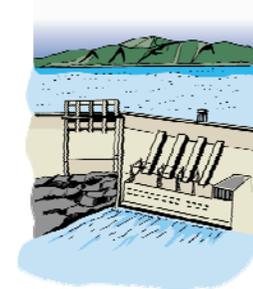
Promotion and strengthening of voluntary action plans in industry 16.3~17.3 million tons of CO₂

- Promotion and strengthening of voluntary action plans in industry (petroleum, gas, and designated electrical providers (PPS : Power Producer and Supplier)) (2.3 million tons of CO₂)
- Improvement of the CO₂ emission basic unit in electrical industry
 - Reduce the CO₂ emission basic unit by promotion of nuclear energy, etc. (14~15 million tons of CO₂)



Energy type-specific measures

- Steady promotion of nuclear power
- Introduction and expansion of natural gas
- Promotion of efficient petroleum usage
- Promotion of efficient LP gas usage
- Realization of a hydrogen society



Promote measures for new energy sources 55~64.6 million tons of CO₂

- Promotion of introduction of new energies, etc.
 - Promote measures for new energy sources (expand use of biomass heat photovoltaic power generation,, etc.) (38~47.3 million tons of CO₂)
 - Promote the introduction of co-generation and fuel cells (14~14.3 million tons of CO₂)
- Promotion of biomass utilization
 - Promote the use of biomass (construct 'biomass towns') (1 million tons of CO₂)*
- Initiatives in water and sewage, and waste treatment (1.97 million tons of CO₂)**



*... partially includes 'new energy measures'

**... predicted emissions reduction for both Commercial and Other, and Energy Conversion

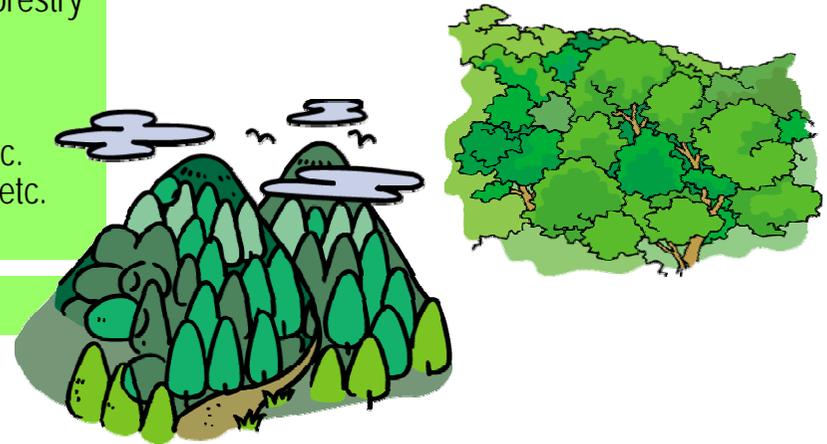
Greenhouse Gas Sink Measures

○ Promote measures for greenhouse gas sinks by promoting forest and forestry measures

<approx. 47.67 million tons of CO₂>

- Development of Sound Forests
- Appropriate management and conservation of protection forests, etc.
- Promotion of forest establishment with the participation of citizens, etc.
- Make use of timber and wood biomass

○ Promotion of urban greening, etc. <approx. 740,000 tons of CO₂>

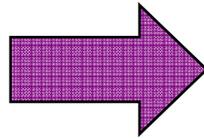


Regeneration of neglected forests



(Forestry Agency photo)
[wind-fallen trees]

Forest where
appropriate thinning
has been carried out

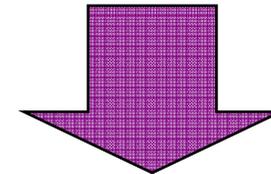


[Post-thinning forest]



(Kanagawa Prefecture)
[Topsoil erosion in forests]

Target of removals
3.8% of total GHG emissions
of base year (13 million tons
of carbon)



It is projected that if current levels of
forest management, the target amount of
removals will be short by 1.1 million tons.

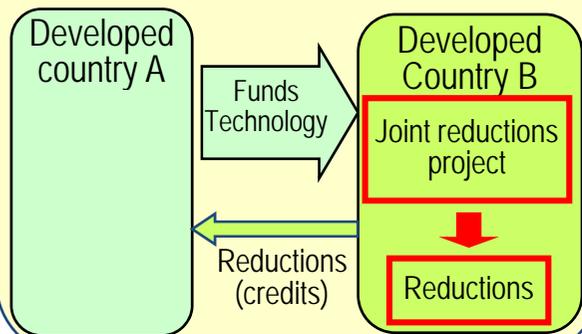
Over the six years from 2007 to 2012, 200,000ha of
additional forest management, thinning, etc., is needed
annually

Application of the Kyoto Mechanisms

- Credits counting towards the achievement of one's own country's commitment targets can be acquired for reducing the emissions of other countries by carrying out reduction projects in those countries.
- ① Contribute to the definite and cost-effective achievement of Japan's commitments while ② preventing global warming and ③ contributing to the sustainable development of developing nations.
- Application of the Kyoto mechanisms, in principle, as a supplement to domestic measures (1.6% of total base year (1990) emissions). Revisions were made to the Law Concerning the Promotion of Measures to Cope with Global Warming during the 2006 regular session of the Diet in order to put in place needed regulations for the acquisition by the government of credits.

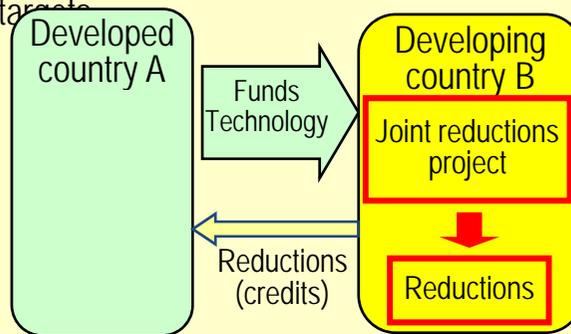
Joint Implementation (JI)

Developed countries work together on reduction projects, and the amount of reductions achieved count towards the achievement of the countries' own targets.



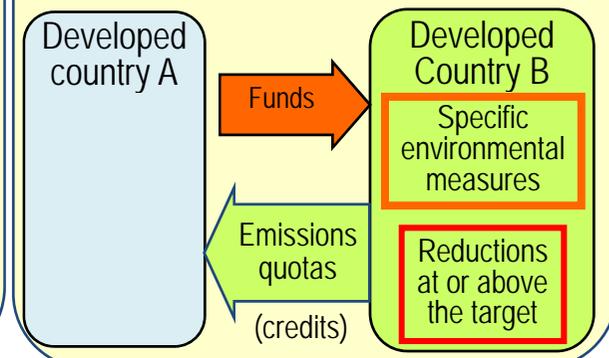
Clean Development Mechanisms (CDM)

Developed countries and developing countries work together on reduction projects and the amount of reductions achieved count towards the achievement of the participating developing countries' own targets.



Green Investment Scheme (GIS)

(Article 17 of the Kyoto Protocol dealing with international emissions trading) A system emissions trading connected to specific environmental measures



Projected Greenhouse Gas Emissions for 2010

