Institute for Global Environmental Strategies

ADB 2nd Regional Consultation Meeting on Economics of Climate Change and Low Carbon Growth Strategies in Northeast Asia

Japan Overview

1. Climate change trends & impacts
2. Adaptation practices
3. Mitigation practices
4. International activities

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Climate Change Trends & Expected Impacts in Japan

- Temperature

Temperature has been rising and expected to rise. Projected warming range is greater than the global average.

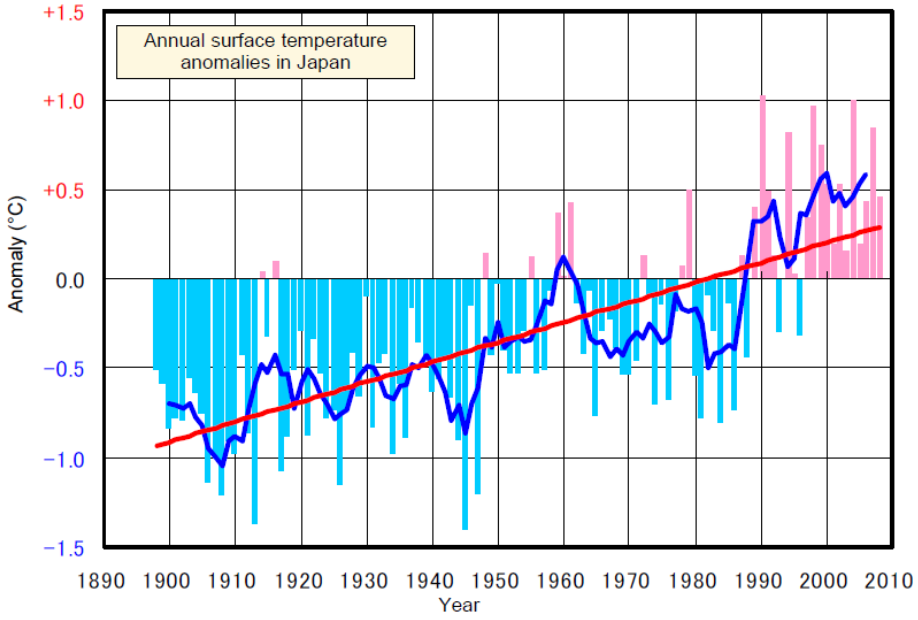


Fig. 3.1.3 Annual surface temperature anomalies from 1898 to 2008 in Japan

Source: JMA(2009)

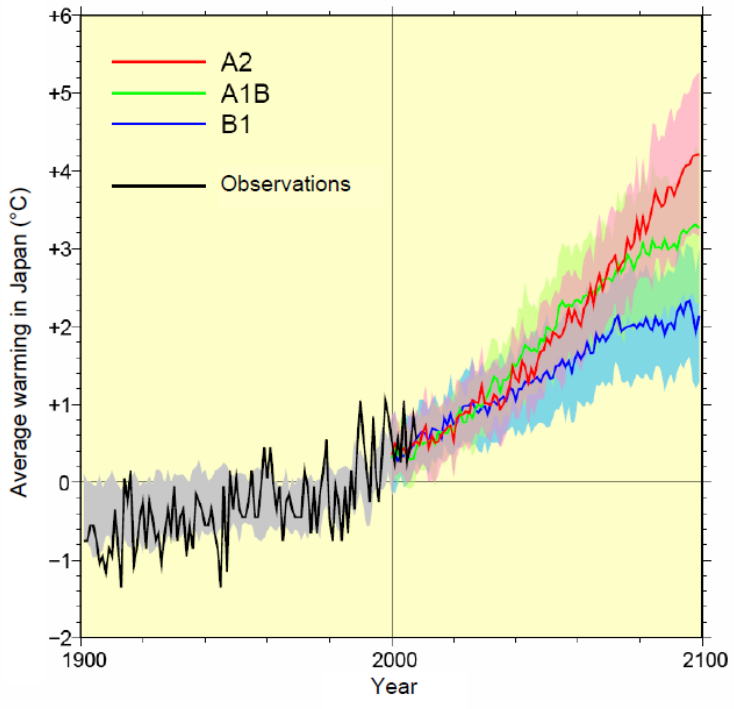


Fig. 3.2.5 Projected average temperature in Japan

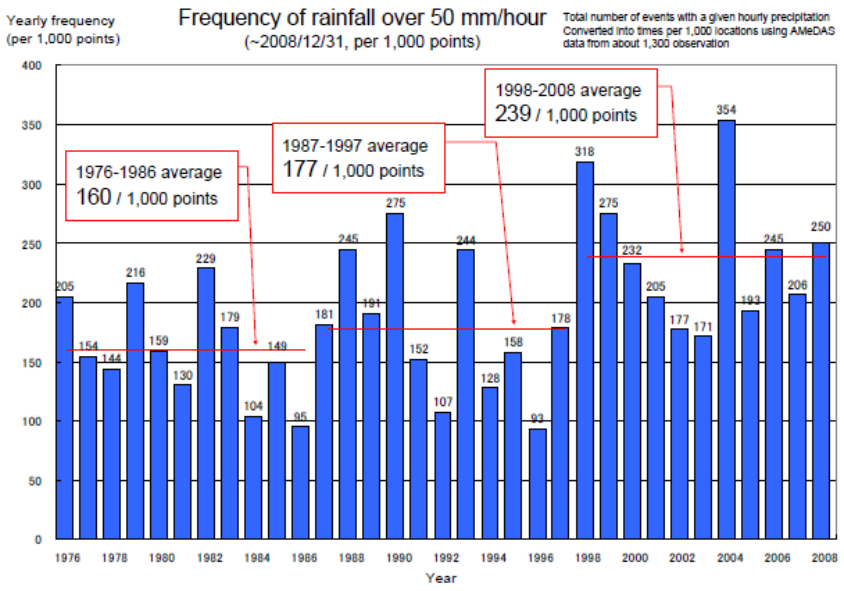
Source: JMA

(Scenarios)
A: Society that emphasizes economic growth
B: Sustainable society in harmony with the environment
1: Case in which regional disparity narrows and globalization advances
2: Case in which regional uniqueness intensifies

Climate Change Trends & Expected Impacts in Japan

- Precipitation

No clear trend has been observed in the precipitation level, but the number of heavy precipitation days has been increasing. Annual precipitation is expected to increase by 5% by 2100.



Source: JMA(2009)

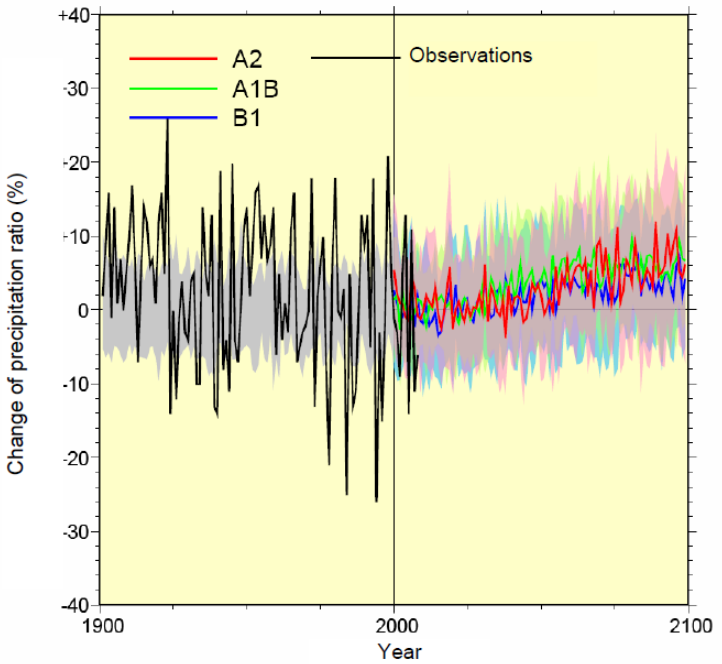


Fig. 3.2.10 Projection of annual average precipitation in Japan

Source: JMA

(Scenarios)
A: Society that emphasizes economic growth
B: Sustainable society in harmony with the environment
1: Case in which regional disparity narrows and globalization advances
2: Case in which regional uniqueness intensifies

Climate Change Trends & Expected Impacts in Japan
– Cyclones & Sea level

No clear trends have been observed in cyclone formations, approaches, and landfalls. The mean sea level around Japan has stayed at the same level in the past 100 years…

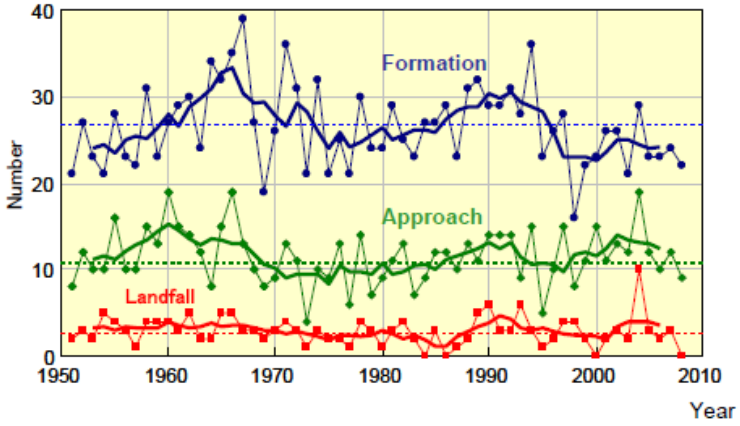


Fig. 3.1.9 The number of tropical cyclones formations, their approaches, and landfalls on Japan

Source: JMA(2009)

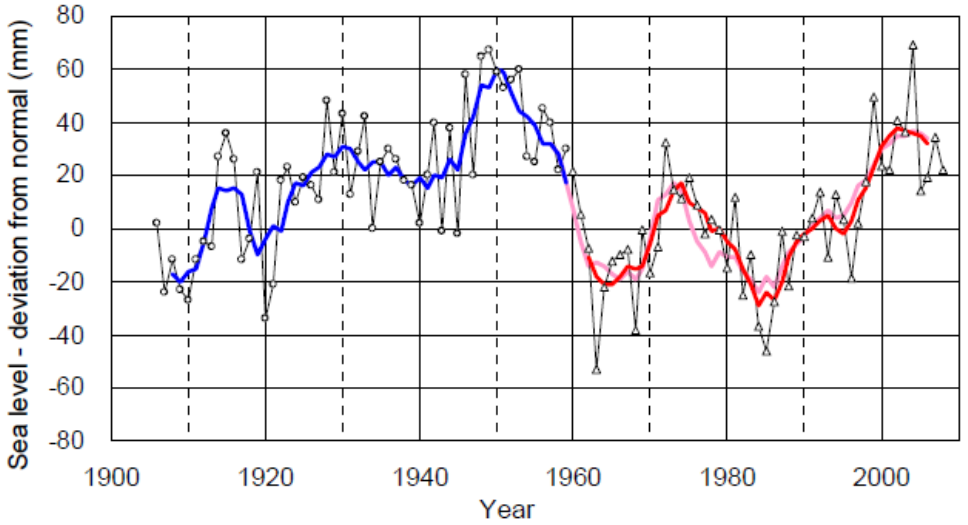


Fig. 3.1.12 Changes in annual mean sea level in Japan (1906 to 2008)

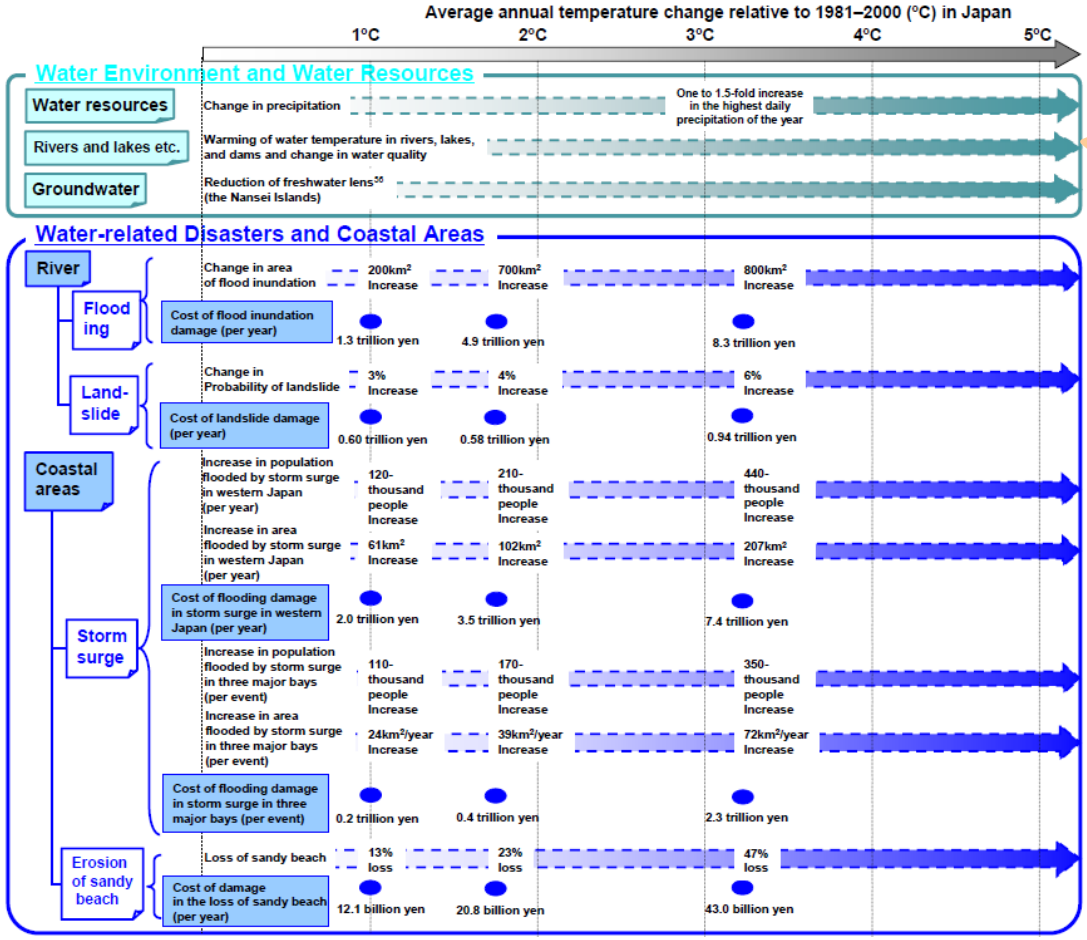
Source: JMA(2009)

... The number of extreme cyclones may increase with global warming. The sea level is also expected to rise, but uncertainties remain due to significant decadal variations.

Expected Climate Change Impacts in Japan – Cost of Inaction

- Water Environment, Water-related Disasters & Coastal Areas

Climate change impacts and damages are expected to occur in a wide variety of sectors in the future.



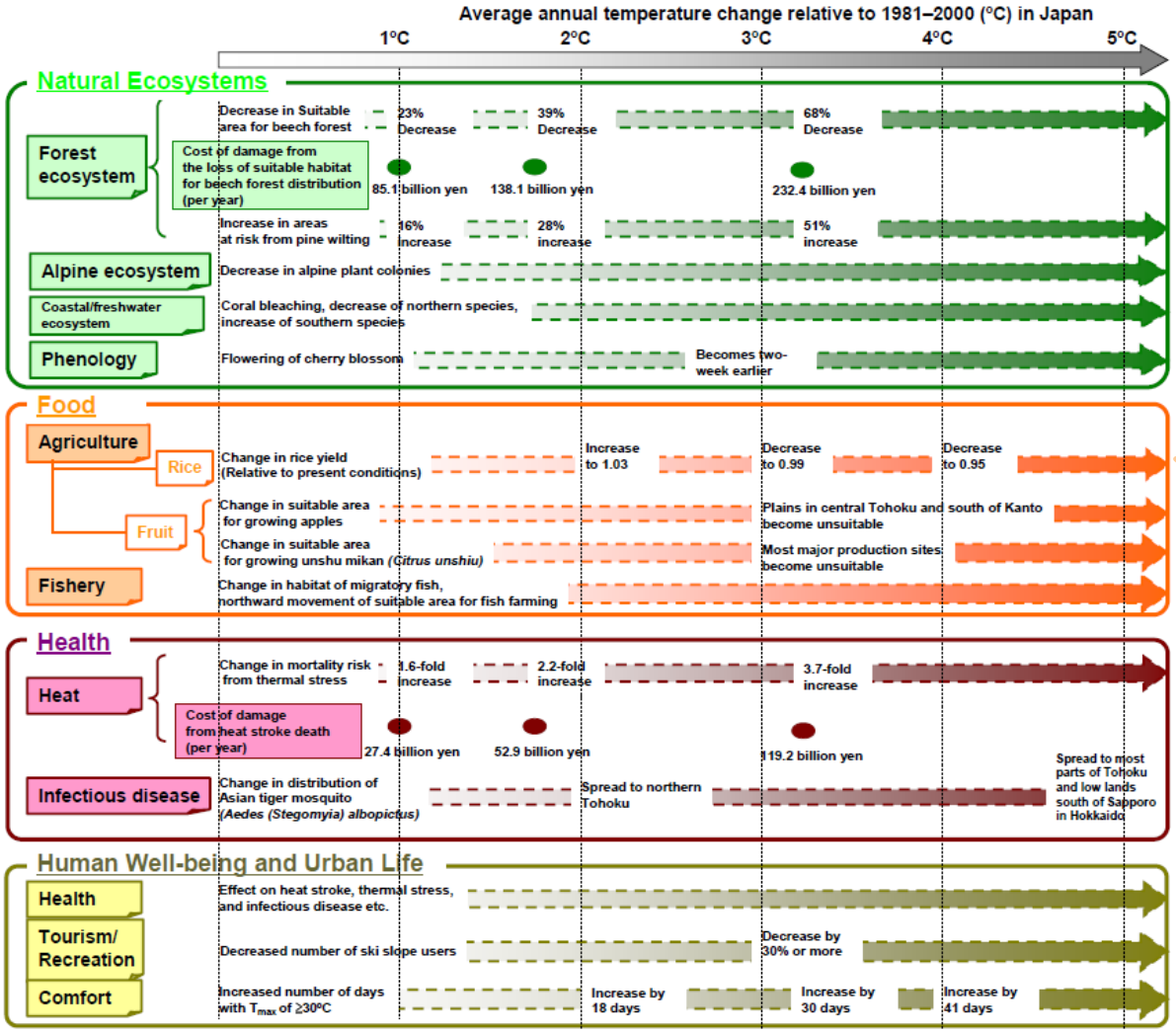
Lake water quality will decline due to increasing water temperatures and an inflow of turbid water

Flooded areas will expand and beaches will be lost, due to rising sea levels

Source: MEXT, JMA, MOE (2009)

Expected Climate change impacts in Japan – Cost of Inaction

- Natural Ecosystems, Food, Health & Human well-being



Suitable land for rice and fruits cultivation, habitat for migratory fish will change.

Cost of inaction (in trillion yen)	
Flooding	4.9
Land-slide	0.6
Stormsurge	3.9
Erosion of sandy beach	20.8
Forest ecosystem	138.1
Health (heat stroke)	52.9
	221.2

Source: MEXT, JMA, MOE (2009)

"Wise" Adaptation to Climate Change
- Proposal by MOEJ's Adaptation Research Team in 2008

MOEJ's adaptation research team released a report called "Wise Adaptation to Climate Change" in 2008 to outline key suggestions for adaptation practices in Japan.

Key Suggestions:

- ✓ Utilize the latest information on regional vulnerability assessments & monitoring
- ✓ Review and combine diverse adaptation options
- ✓ Take both long-term and short-term perspectives into account, and evaluate the temperature range that the adaptation measures can handle, and also their adaptive flexibility.
- ✓ Appropriately, incorporate adaptation into the existing policies including the disaster prevention plans, if such policies are already in place
- ✓ Make natural and socioeconomic systems more flexible and adaptive

(ref.) Overview of "Wise" Adaptation Options

- Proposal by MOEJ's Adaptation Research Team in 2008

Food Production	**Technology** •Development and introduction of high-temperature-tolerant varieties •Shift in cultivation areas •Change in cultivation methods •Controlling feedlot environments **Information & Knowledge** •Collection and organization of information from promoters of agricultural improvement	**Legal Systems** •Development of Mechanisms to Support and Advise on adaptation measures for elderly farmers •Adjustment of fishing seasons to suit fish migration routes and fishing ground formation **Human Resources** •Provision of Information and Human Resources development for promoters of agricultural improvement and farming advisors.	**Social Systems** •Reconsideration of irrigation customs due to changes in cropping seasons and delayed drainage seasons **Economic Systems** •Utilization of mutual aid system (quick provision of damage information and using the information in compensation claims)
Water Environment and Water Resources	**Technology** •Introduction of raw water transmission and discharge control system as a drought measure •Desalination of sea water •Use of treated sewage water and rainwater etc. **Information & Knowledge** •Overall evaluation of the characteristics of sources of drinking water and the selection of suitable water-purification processes	**Legal Systems** •Improvement of water supply (conversion from agricultural water to drinking water based on decrease of arable lands) •Restriction of deep groundwater pumping to control land subsidence **Human Resources** •Raising of water-saving awareness	**Social Systems** •Intensification of farmland and reallocation of water rights •Introduction of mechanisms or regional flexible transfer of water during droughts **Economic Systems** •Indirect controls using economic instruments, such as a levy system in regulations for the use of deep groundwater (to control land subsidence)
Natural Ecosystems	**Technology** •Designation of preservation of refugia •Reduction of the extreme weather risk using weather derivatives •Establishment of corridors •Conversion of artificial cedar forests to natural forests •Early detection and prevention of pine wilt **Information & Knowledge** •Development of monitoring system for each ecosystem	**Legal Systems** •Reconsideration and new designation of natural preserves, national parks etc. •Regulations of artificial transplantation and fish release •Restrictions on tourist activities **Human Resources** •Training of volunteers with knowledge and skills who are able to cooperate in monitoring •Awareness raising regarding treading pressure reduction on alpine flora and in wetlands and protection of coral reefs,	**Social Systems** •Consensus-building among relevant entities regarding the identification of and response to climate impacts

(ref.) Overview of "Wise" Adaptation Options

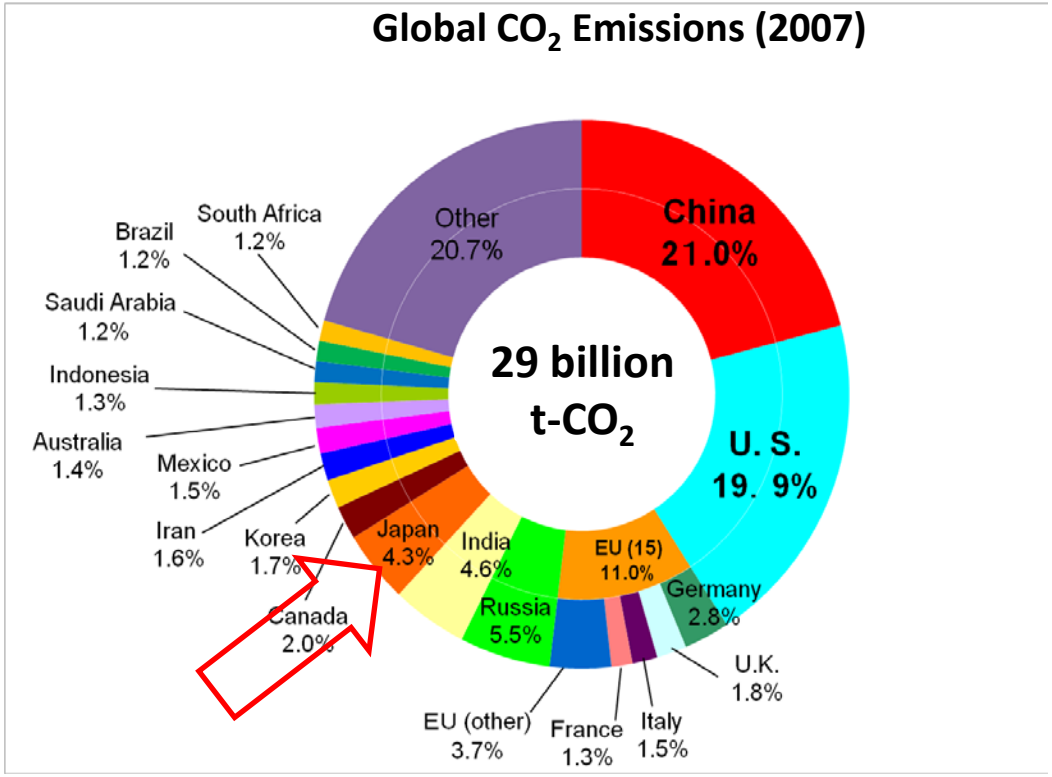
- Proposal by MOEJ's Adaptation Research Team in 2008

Disaster Prevention and Large Coastal Cities	**Technology** •Alterations in architectural styles, etc •Maintenance and improvement of coastal protection facilities •Enhancement of drainage systems •Development of super levees with multiple function **Information & Knowledge** •Production and distribution of hazard maps •Provision of information (utilizing the web etc)	**Legal Systems** •Changes and regulation of land use based on disaster prevention •Integrated coastal zone management **Human Resources** •Implementation of training and education of disaster prevention	**Social Systems** •Establishment of voluntary organizations for disaster prevention **Economic Systems** •Establishment of a system of inundation insurance for residents •Establishment of funds and subsidies for post-disaster restoration
Health	**Technology** •Development of vaccines and new medicines for infectious disease •Removal of suitable condition for emergence of vector •Mosquitoes and larval control **Information & Knowledge** •Production and distribution of health care guide manuals for heat stroke etc •Thorough surveillance of infectious disease	**Legal Systems** •Establishment of institutions and regulations for heat stroke prevention •Care for elderly households (i.e. utilization of care systems and care provided by neighbourhood associations or volunteers) **Human Resources** •Capacity development for prevention planning for the control of vector mosquitoes •Raising of public awareness on health care	**Social Systems** •Support for initiatives at workplaces and schools
Urban Life	**Technology** • Strengthening buildings to mitigate natural hazard damages •Utilization of heat-blocking and heat insulating paints and building materials **Information & Knowledge** •Provision and utilization of hazard maps •Provision and utilization of heat stroke alert information, etc	**Legal Systems** •Heat-related countermeasures or elderly •"Cool Biz" campaigns •Daylight saving time **Human Resources** •Implementation of e-training and education of disaster prevention	**Social Systems** •Establishment of voluntary organizations for disaster prevention **Economic Systems** •Reduction of the extreme weather risk using weather derivatives

Source: MOE (2008)

CO2 Emissions from Japan

Japan is the 4th largest emitter of CO2 in the world.



Source: MOEJ, based on IEA "CO2 Emissions from Fuel Combustion (2007 edition)"

Japanese Mitigation Targets

– Kyoto Protocol & P.M. Hatoyama Speech UN Summit on Climate Change

Two targets: 6% by 2012 (Kyoto Protocol) and 25% by 2020 (Hatoyama Initiative)

- Kyoto Protocol (184 Countries and Territories) Adopted in 1997

- ✓ Kyoto Protocol is a legally binding numerical targets set for countries (no commitments to reduction for developing countries)
- ✓ The Protocol was signed by Japan on June 4, 2002, and was enacted on February 16, 2005.
- ✓ Numerical targets: Japan: -6%; U.S.A. (not ratified): -7%; EU: -8%, etc.

- Former P.M. Hatoyama's Speech at UN Summit on Climate Change -

"Emission reduction by 25% by 2020 compared to the 1990 level premised on establishment of a fair and effective international framework in which all major economies participate and agreement on by all those economies on ambitious targets"

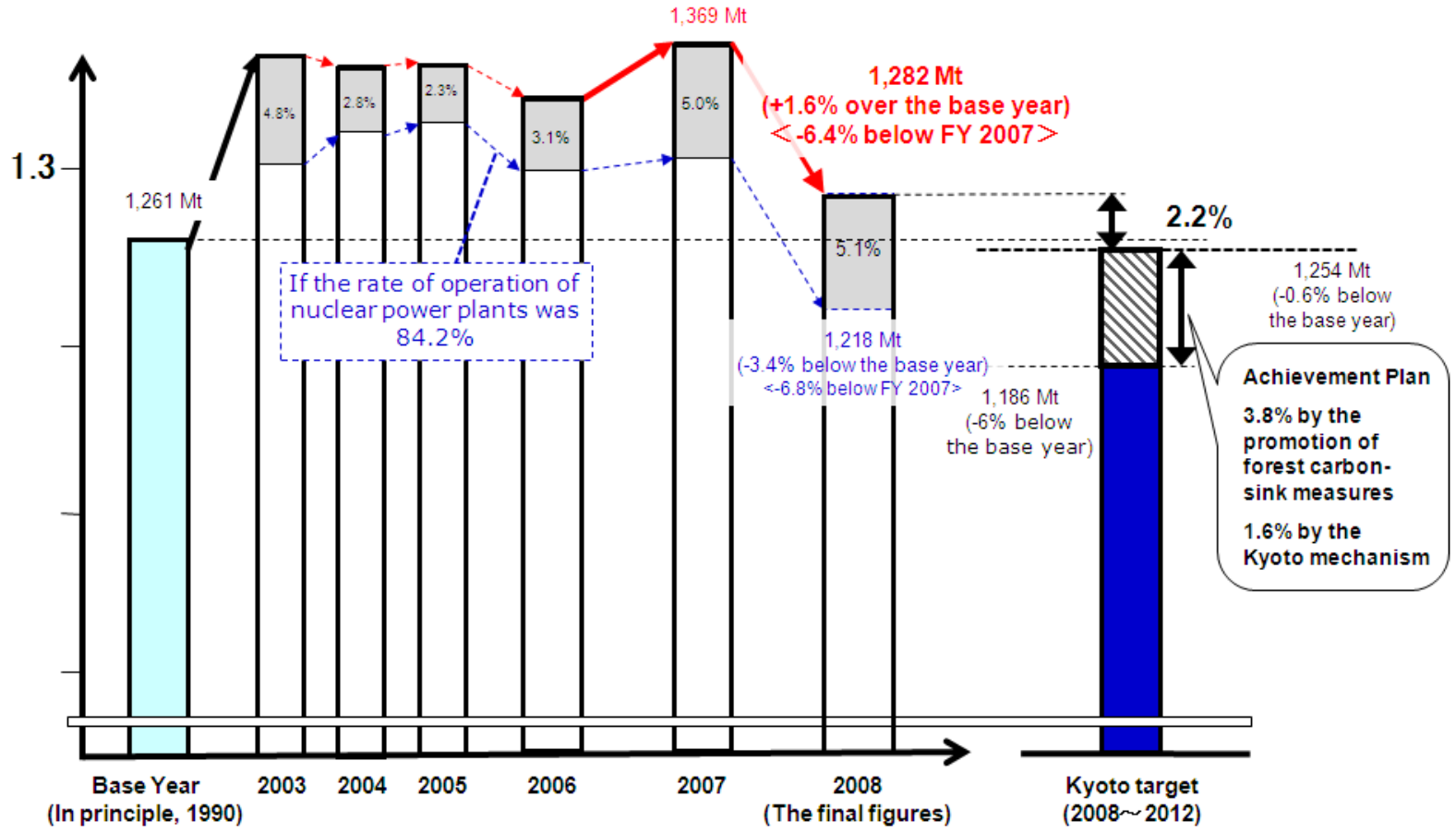
- Supporting Developing Countries-

Four Principles of the Hatoyama Initiative

1. Substantial, new and additional public and private financing
2. Development of MRV rules
3. Predictable and Innovative financial mechanisms with one-stop and matching mechanism
4. Framework to promote the transfer of low-carbon technologies which ensures the protection of intellectual property rights.

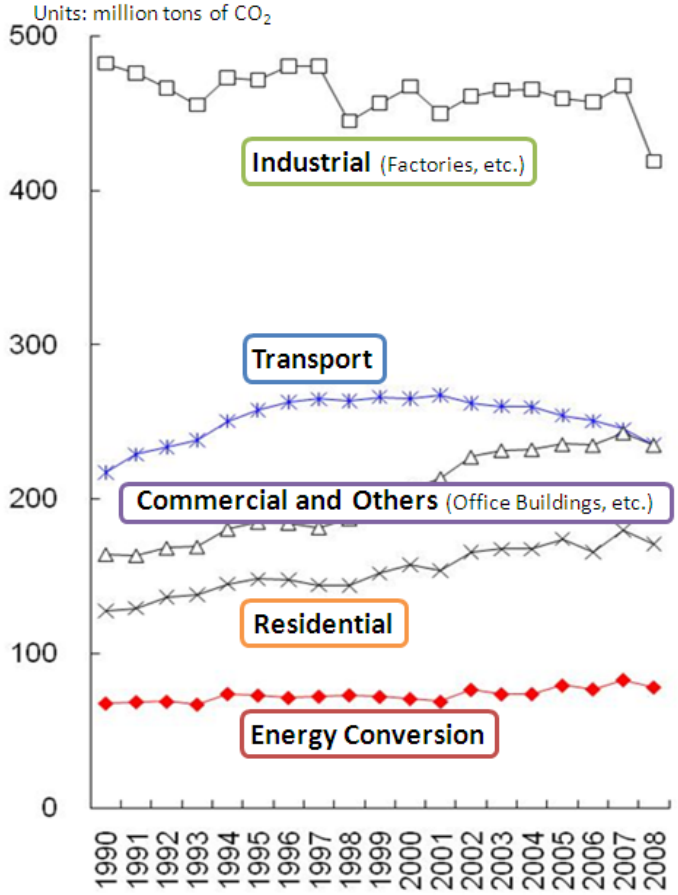
GHG Emissions Trends in Japan

GHG emissions in 2008 were reduced by 6.4% from the previous year. They are now 1.6% over the 1990 level.



CO2 Emissions Trends from Energy Use & 2010 Targets

CO2 emissions from the industrial sector has decreased by 13% since 1990, but those from other sectors have increased significantly.



Base year	Change form 1990	2008	Targets for 2010
482	-13.2%	419	424～428
217	+8.3%	235	240～243
164	+43.0%	235	208～210
127	+34.2%	171	138～141
68	+15.2%	78	66

The Act on Promotion of Global Warming Countermeasures

A variety of counteracting policies and measures have started in Japan.

KP Target Achievement Plan

- Establish the Kyoto Protocol Target Achievement Plan, providing basic direction of promotion of global warming countermeasures, countermeasures implemented by each entity, and other issues

HQ of Promotion of Global Warming Countermeasures

Action Plan by federal, prefectures, and municipalities

- Federal and local governments establish the Action Plan to make aggressive effort of emission reduction
- Promotes detailed initiatives
- Coordinates with other local plans

System for the Calculation, Reporting and Publication of Data on GHG Emissions

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

Trading in Kyoto Mechanisms (Registry)

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

(National, Prefectures) Center for Climate Change Actions, Promoters of Climate Change Actions

- The center is established in some municipalities.

Visualization of CO2 emission

Promotion of appliances which emit less amount of GHG

Information provision to investors and people, promotion of life style improvement

Establishment of Emission Reduction Guideline

In Business
- Highly efficient facilities
- Control of air condition, rationalization of OA usage

In daily life
- Visualization of CO2 among appliances
- Promotion of 3Rs

(ref.) The Revised Kyoto Protocol Target Achievement Plan

This address the polices & measures to achieve Kyoto targets

1. Policies and measures regarding the reduction and absorption of greenhouse gases

(1) Policies and measures for reducing greenhouse gas emissions

Examples of major supplementary measures

- ✓ Promotion of voluntary action plans
- ✓ Improvement in the energy-saving performance of houses and buildings
- ✓ Promotion of the use of equipment that meets the highest standards
- ✓ Taking necessary energy-saving measures for factories and offices
- ✓ Improvement in the fuel-efficiency of automobiles
- ✓ Promotion of measures to reduce emissions generated by small and mid-sized companies
- ✓ Measures regarding agriculture, forestry and fisheries, water supply and sewerage systems and traffic flows
- ✓ Urban planting and measures regarding waste and CFC substitutes (HFC, PFC and SF_6)
- ✓ Measures to promote the use of new energy

(2) Measures regarding greenhouse gas absorption sources

- ✓ Forest management (thinning, etc.) and organization of national campaigns for the development of beautiful forests

2. Cross-sectional measures

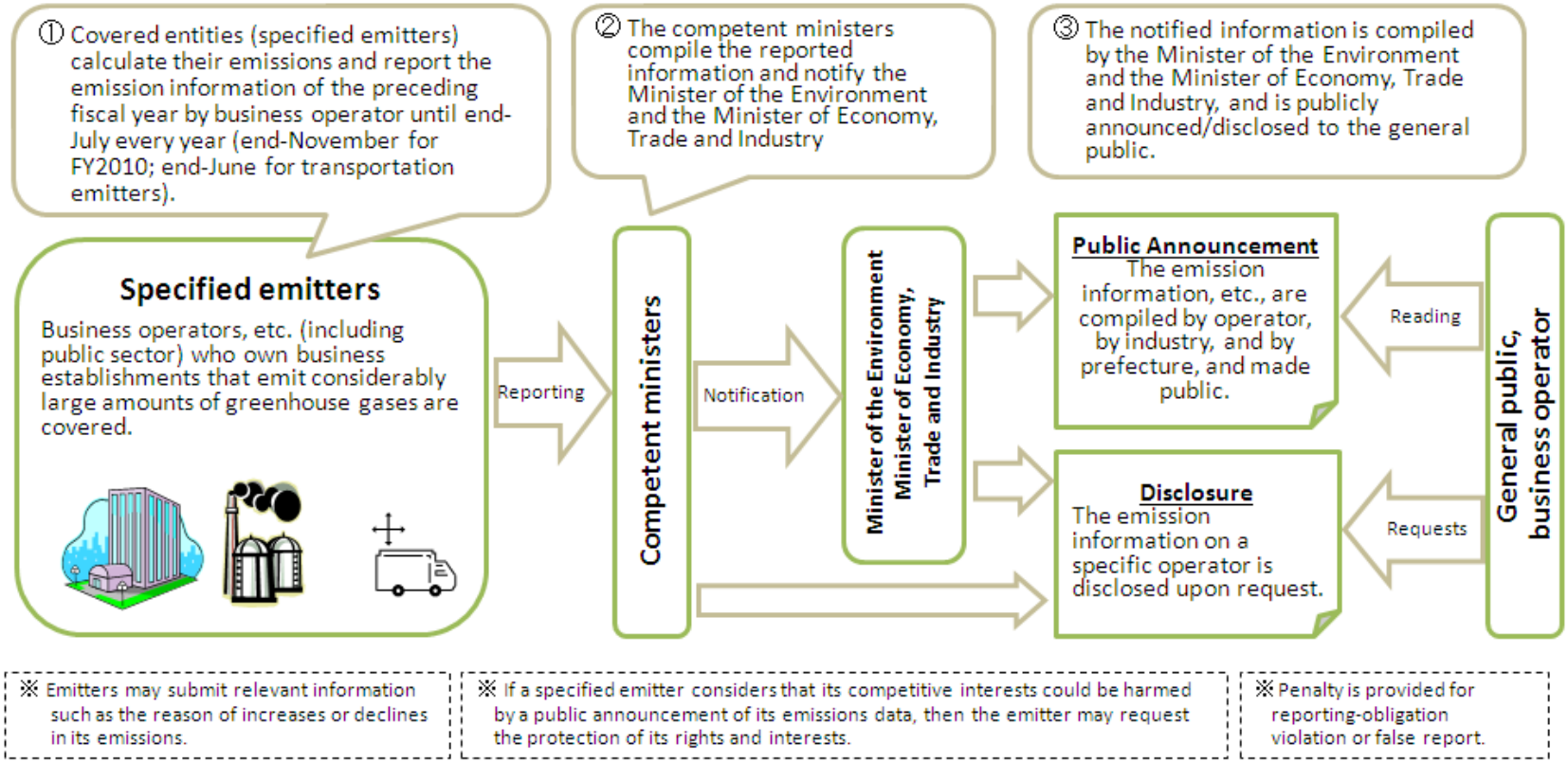
- ✓ System for the calculation, reporting and publication of data on emissions
- ✓ Organization of national campaigns

Issues that need to be reviewed promptly

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

(ref.) Mandatory GHGs Accounting and Reporting System

This program mandates large GHG emitters to calculate and report their emissions to the government, which publicizes the reported data.



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).

(ref.) Energy Efficient Technologies & Products

• Photovoltaic Systems

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

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

• Heat Pumps

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

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

• Hybrid Automobiles

Fuel-efficient automobiles

Prius
(Toyota Motor Corporation)

• LEDs (Light-emitting diodes)

Efficient and long-life energy-saving lighting equipment

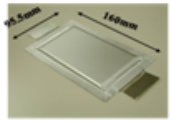
↑Traffic Signal

Desk Lamp↓

• Capacitors/Rechargeable Batteries

Equipment for saving and discharging electricity

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



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

The Bill of Basic Law on Climate Change

In order to make Hatoyama Initiatives enforceable, the Bill of Basic Law on Climate Change, decided by the Cabinet on Mar. 12, is under deliberation at the National Diet to pass during this Diet session.

Mid and Long-term Goals

✓25% GHG reduction below 1990 level by 2020 (premised on the establishment of a fair and effective international framework by all major economies and agreement on their ambitious targets)

✓80% GHG reduction below 1990 level by 2050

✓Increasing the share of renewable energy out of total primary energy supply to 10% by 2020

Key Policy Measures

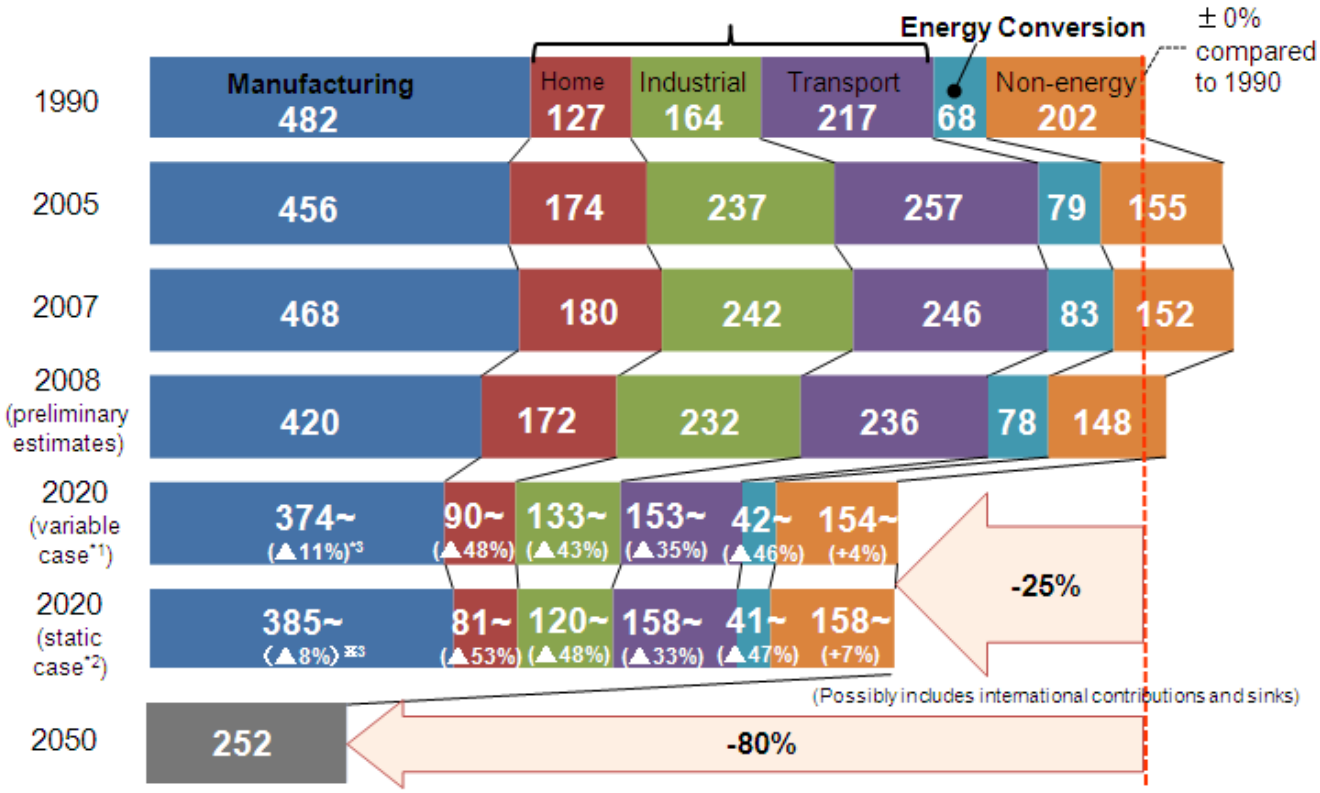
✓Introduction of domestic emission trading scheme (ETS) within around a year

✓"Greening" tax system, including the consideration of a global warming tax, to be implemented from 2011

✓Feed-in Tariff (FIT) system for whole renewable energy

Roadmap toward 2050

Roadmap for 2050 is a draft proposal by Environment Minister for public consultation. It sets milestones for policies to achieve a mid and long-term goal.



*1: An "All-sector Variable Macro-frame Case" premised that a price on carbon has been set .
*2: An "Static Industrial Macro-frame Case" where the operation levels in the industrial sector are static.
*3: Emission reduction levels compared to 2008.

Source: MOE

(ref.) Contents of the Roadmap

A set of milestones to reduce GHG emissions at all levels.

- **Daily Life**
  - ✓ Apply higher energy efficiency standards for ALL newly built homes and buildings by 2020
  - ✓ Make ALL newly built houses and building emission-free by 2030
  - ✓ Sell 2.5 million next-generation vehicles by 2020
- **Community Development**
  - ✓ Reduce per passenger automobile use by 10% by 2020
- **Manufacturing**
  - ✓ Reduce energy usage by 30 -40% by 2050
- **Energy Supply**
  - ✓ Make a 10% of primary energy supply to be renewable energy sources by 2020
- **Core Social Systems for Creating a Low-Carbon Society**
  - ✓ Introduce a cap and trade domestic emission trading scheme and global warming tax

Emissions Trading Scheme (ETS)

History of considerations on ETS

Japan's Voluntary Emissions Trading Scheme (MOE) (2005～)

Advisory Committee on the Emissions Trading Scheme (MOE) (Jan. 2008～)

- ✓ MOE established a committee to intensively consider ETS that can be introduced in Japan, its allocation method, covered sectors, monitoring, reporting, verification, enforcement, registration, cost containment measures, etc.
- ✓ The committee published "Approach to Japanese Emissions Trading Scheme [Interim Report]" on 20 May, 2008 which outlined a desirable framework for ETS in Japan.

Offset Credit (J-VER) (MOE) (Nov. 2008～)

Speech by Prime Minister on June 9, 2008, and Cabinet Decision on July 29

Experimental Introduction of an Integrated Domestic Market for Emissions Trading (GOJ) (Oct. 2008～)

Bill of the Basic Act on Global Warming Countermeasures (Mar. 2010)

- ✓ Establish domestic emission trading scheme (Setting limits of emission and allowing trading for complying with the limits) by elaborating a legislative measure within around one year after coming into force of the Basic Act

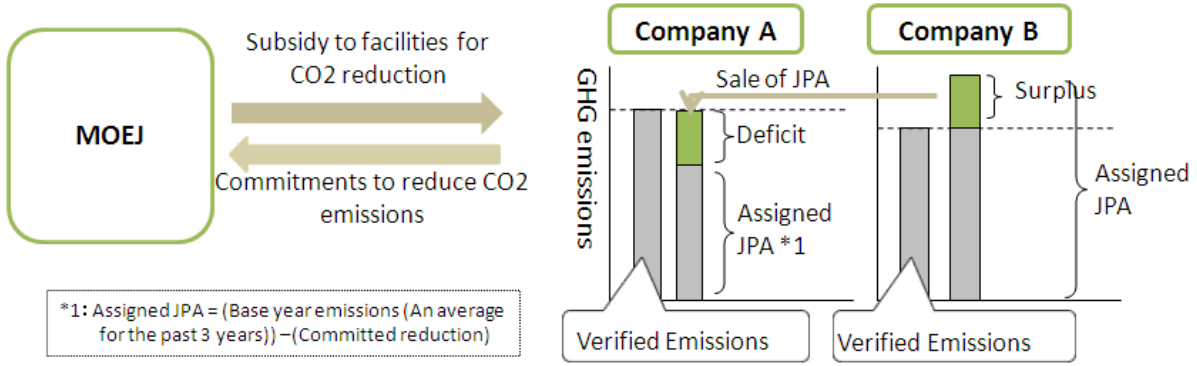
Central environment Council, Japan's governmental advisory body on environment policy, established an ETS Subcommittee for designing the scheme (Apr.2010～)

(ref.) Japan's Voluntary Emissions Trading Scheme (JVETS)

JVETS started in 2005 to support "voluntary" CO2 reductions by business operators. 288 companies participate and over 1000 k-ton of CO2 has been reduced in 3 yrs.

Scheme outline

- ✓ Launched by MOEJ in 2005
- ✓ Supports voluntary CO2 reduction activities by business operators to ensure their emission reduction targets in a cost-effective way with subsidy and emissions trading
- ✓ Participants of JVETS constitute a part of Experimental Emissions Trading Scheme.



*1: Assigned JPA = (Base year emissions (An average for the past 3 years)) −(Committed reduction)

Achievements

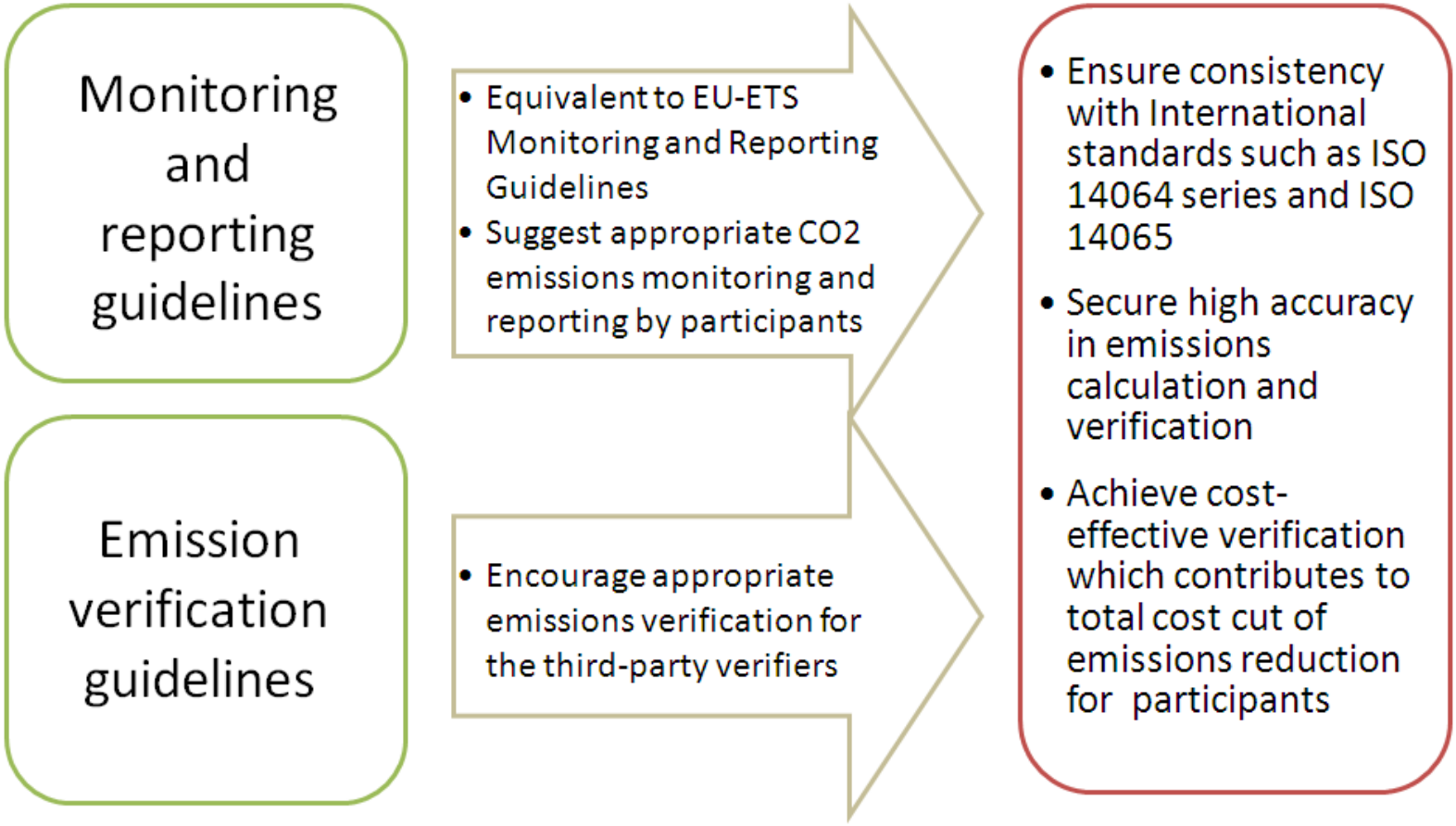
✓Total participants: 288 companies

Commitment Period	FY2006	FY2007	FY2008
Achieved Reduction(kt-CO2)	377(29%)	280(25%)	383(23%)
Committed Reduction(kt-CO2)	273(21%)	217(19%)	135(8%)
Number of transactions	24	51	23
Average JPA price (JPY/t-CO2)	¥1,200	¥1,250	¥800

✓Development of infrastructure: Monitoring, reporting and verification guidelines, third-party verification, the emissions management system and the registry for allowance

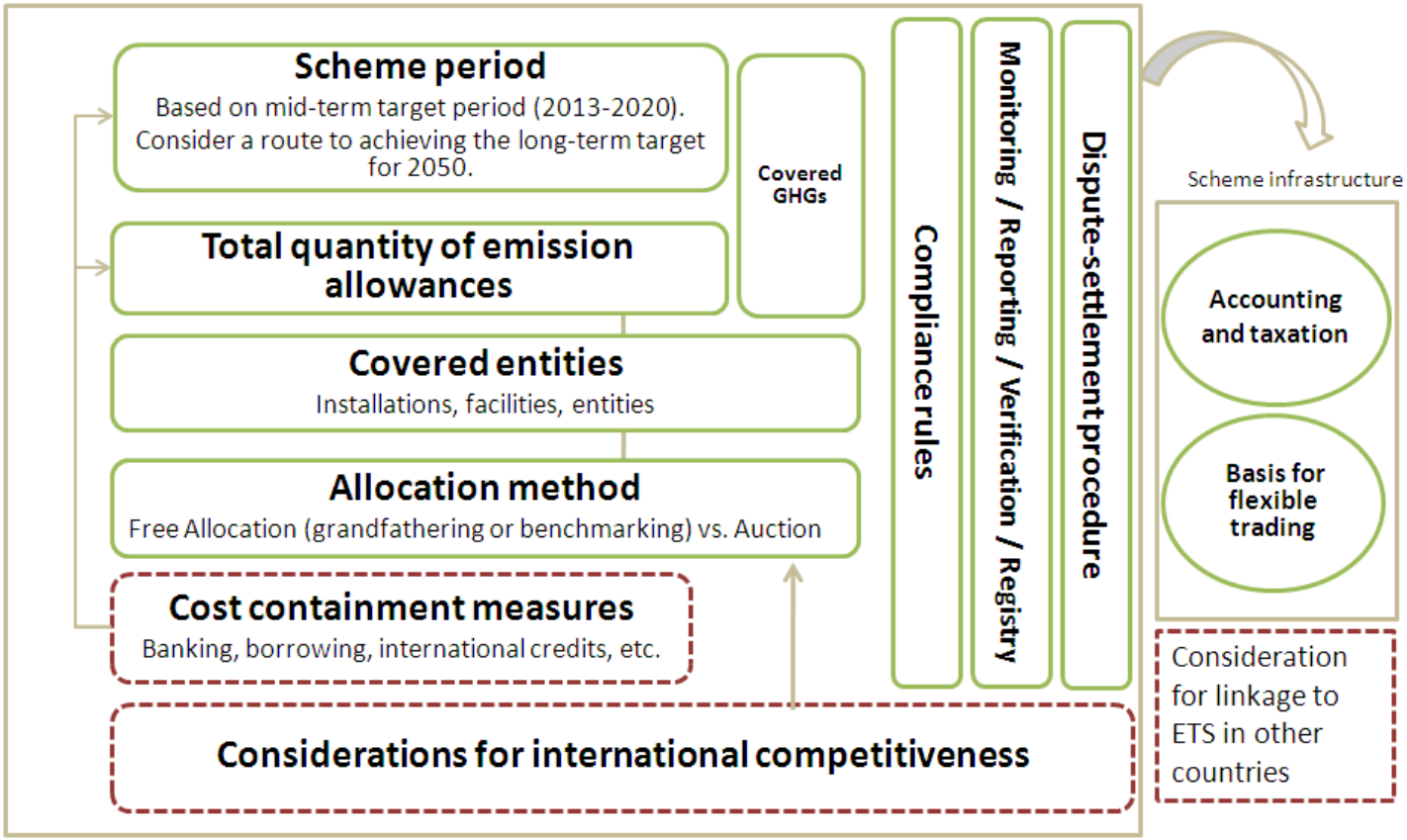
(ref.) MRV Scheme under JVETS

The scheme follows the international standards.



Key Elements of Designing the Future Emissions Trading System

MOEJ now tries to enforce a mandatory cap & trade system. Heated discussions have been taken place at ETS Sub-Committee of MOEJ's Central Environmental Council on these elements.



(ref.) Key elements on ETS

1. Scheme Period

- Initially, may cover mid-term target period (2013-2020), divided into multiple phases over the long run toward the long-term target for 2050

2. Total Amount of Emission Allowances

- May establish a total cap basically according to the state of technology, reviewing it as necessary according to the progress toward the mid-term target.
- How to cover sectors such as manufacturing, businesses (offices, etc.) transport and energy,

3. GHGs Covered

- Initially, may cover mainly energy-generated and non-energy generated CO2. Non-CO2 gases may be added later, considering accuracy of monitoring

4. Entities Covered

- Regarding energy-generated CO2, consider whether the upstream producers (fuel producers, importers and retailers) or downstream users (fuel users) should be covered.

- If downstream users are covered, consider whether to allocation regarding power generation should be done based on direct or indirect emission.
- In case of indirect allocation, consider how to assure the reduction of electricity emission factor
  * Direct allocation: allocation of allowances to power companies that directly emit CO2
  * Indirect allocation: allocation of allowances to electricity users by calculating the CO2 from electricity use

- Whether to allocate allowances to installations, facilities, or companies

(ref.) Key elements on ETS

5. Allocation Method

- How to select and combine the possible methods for allocating allowances:
  - Free allocation: Benchmarking: based on desirable emission factors (benchmarks)
    Grandfathering: based on past emissions
  - Auctioning
- What measures are needed to take account of effects on international competitiveness and carbon leakage*.

  * Reallocation of production to other countries with less carbon limitation, resulting in the increase of global emission.
- How to address new entrants and closure.
- How to deal with intensity targets.

6. Cost Containment Measures

How to prevent excessively high cost of allowances, for example by the following measures:

(1) Banking: Carry over unused allowances to future period

(2) Borrowing: Borrow allowances from future periods or from the government

(3) Use of external credits: - Foreign credits such as Kyoto Units (from CDM or JI)
- Credits from domestic reductions or sinks

(4) International link to other ETS: Mutual recognition of foreign emission allowances

7. Others

(1) Compliance rules (commitment period, measures against non-compliance, etc.)
(2) Monitoring, reporting and verification of emissions
(3) Registry system (4) Market surveillance (5) Roles of national and local governments
(6) Contribution by technology and products to emission reduction (7) Policy mix

Summary of Recent Discussions on ETS (1)

MOEJ considers elements below may obtain consensus from the business sector.

I Basic concept for the Scheme Discussion

1. The scheme's role to be played
2. Perspective for discussing each issue

II Elements about which opinion are possibly converged in the future

1. Elements about which basic directions are possibly converged in terms of basic directions

○Scheme period ○Covered gas ○Entities subject to allowances allocation
○Cost containment measures (banking, borrowing, etc.)
○Commitment period and compliance rules
○Emissions monitoring, reporting and third-party verification
○Registry system ○Appropriate market rules

2. Elements about which common understanding about discussion direction can be obtained

○Total amount of emission allowances
○Considerations regarding international competitiveness and carbon leakage
○Considerations for contribution by technology and products to emission reduction in Japan and abroad (life cycle evaluation)
○Roles of national and local governments ○Policy mix

Summary of Recent Discussions on ETS (2)

MOEJ presented three options on treatment of the power sector and allocation methods. Intense discussions are expected to be held at the ETS Sub-Committee.

III Elements about which opinions diverge substantially <Options>

○Treatment of electricity
- ・Indirect vs. direct emissions

○Allocation method
- ・Auction vs. Free allocation (Grandfathering or Benchmarking)
- ・Absolute / Intensity target

Three options are formulated from these elements from the viewpoints of environment conserving effects and consideration for economic activities

Options:

A	Electricity as direct emissions + Absolute target (Auction)
B	Electricity as indirect emissions + Absolute target (Free allocation) + Intensity target for electricity
C	Electricity as indirect emissions + Intensity target

(ref.) International linkage

Japanese ETS may be linked with other ETS internationally.

Description in the "Classification of Discussion Points for Scheme Design"

- ✓ Cautious consideration is necessary to decide whether Japan's emissions trading scheme should be linked with other schemes internationally, taking into account merits such as restraining allowance price increase and demerits such as financial resource outflow to overseas allowance market.
- ✓ From technical point of view, it is necessary to pay special attention to following points.
  - Both schemes to be linked have internationally comparable MRV system, such as ISO standards
    e.g.) ISO14064-1～3: Monitoring, Reporting and Verification of GHG
    ISO14065: Requirements for GHG verifiers
  - Harmonization of basic rules, such as a) absolute target or not, b) mandatory scheme or not, c)covered gases and sectors, d) level of cap, and e) allocation methods, could be a discussion point. For example, EU-ETS Directive and US climate bills stipulate that mandatory scheme with absolute cap can be linked.

Description in the "Scheme Design Options"

International Linkage

- ✓ Whether Japan's emissions trading scheme should be linked with other schemes internationally is an issue to be considered in the future, taking into account merits such as restraining allowance price increase and demerits such as financial resource outflow to overseas allowance market, and cautiously examining harmonization of schemes (e.g. MRV level, allocation method, level of cap).

(ref.) Indirect Linkage

Japan is considering new bilateral and multilateral mechanism to promote effective mitigation actions. Further discussions are needed on this issue.

Description in the "Scheme Design Options"

- ✓ External credits can include offset credits issued from emission reduction and sinks of non-ET sectors, international credits from Kyoto Mechanism.
- ✓ External credits can promote emission reduction and sinks of non-ET sectors, and can alleviate increase of allowance price. Thus use of external credits which ensure a certain level of confidence should be allowed. On the other hand, as infinite use of external credits might restrain emission reduction in ET sectors or domestic sectors, the use of those credits should be limited within a certain level.

Further Consideration Points

- Setting the limit of use (setting the limit to total required retirements)
- Requirements of available credits scheme (project types, additionality, accuracy of MRV, and so on)

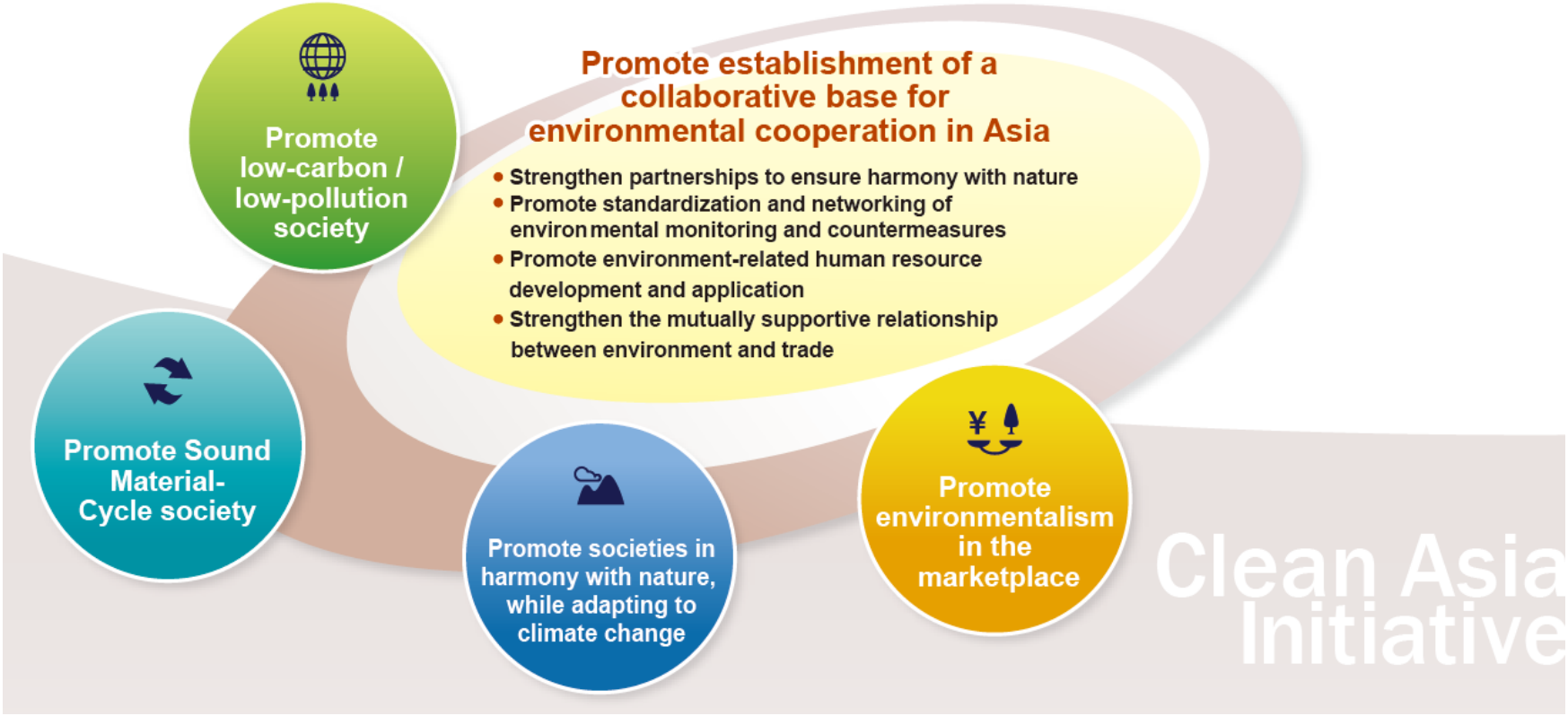
Consideration of New Bilateral and Multilateral Mechanism

- ✓ Considering mid- and long-term GHG reduction goal, and in order to contribute global GHG reduction, new mechanisms which can appropriately assess developed countries' contribution to emission reduction in developing countries are indispensable.
- ✓ However, Kyoto Mechanisms have some problems, such as long and complicated examination process, little focus on energy efficiency projects, and regional unbalance of project distribution.
- ✓ Taking into account the Copenhagen Accord, Japan is considering new "bilateral and multilateral mechanism," which shows and promotes effective mitigation solutions for each developing country.

Clean Asia Initiatives (CAI)

- International activities supported by the Japanese government

CAI is an institutional base for effective environmental cooperation in Asia.



(ref.) Clean Asia Initiatives

- Four main objectives

Promote low-carbon / low-pollution society

Reduce Volume of Carbon Emissions and Damage Caused by Pollution in Asia

- Establish common understanding on low-carbon society through regional meetings such as the East Asia Summit Environment Ministers Meeting (EAS-EMM).
- Promote a co-benefits approach that aims to achieve the highest synergy between mitigation of environmental pollution and global warming by various means, including utilizing Clean Development Mechanism (CDM).
- Promote Environmentally Sustainable Transport (EST) through such as high-level government meeting of officials from Asian countries involved with traffic environment policy.
- Based on the experience in Japan combating pollution, provide support to countries in the areas including 1) environmental countermeasures and monitoring technologies, 2) regulatory system for environmental conservation, and 3) human resource development according to the situation / needs of individual countries.

Promote Sound Material-Cycle society

Ensure Efficient Sound Material-Cycle in Asia, Addressing Problems Related to Solid Waste Management

- Promote 3R (Reduce, Reuse, and Recycle) through such as "Regional 3R Forum in Asia".
- Support development of human resources, introduction of technologies, and formulation of policies related to 3R policies in each Asian country.
- Strengthen countermeasures against improper transboundary movement of circulative resources.
- Promote data sharing and information exchange on solid waste management policies.
- Support comprehensive measures towards the creation of a low-carbon and sound material-cycle society.

Promote societies in harmony with nature, while adapting to climate change

Ensure Harmony with the Extensive Natural Environment of Asia, while Adapting to Climate Change

- Promote the sustainable use and management of resources in human-influenced natural environment on a global scale as the "Satoyama Initiative".
- Strengthen international networks for conservation of coral reefs.
- Improve long-term monitoring of climate change impacts in Asia.
- Enhance community-level capacity to adapt climate change through partnerships with international environmental cooperation NGOs and NPOs.
- Support the Asia Pacific Climate Change Adaptation Network which enhances capacity of institutions working on adaptation in Asia-Pacific region.

Promote environmentalism in the marketplace

Make Societies in which the Environment and Economy are well Balanced

- Support "Eco-products Exhibition", and Promote green purchasing and environmentally conscious supply chains in Asia region.
- Utilize private finance to disseminate environmental technologies and promote environmental considerations to project financing.
- Promote establishment of a research system concerning linkage between environment and economy.

Thank you!

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