Part 2 The Ministry of the Environment's Report on Each Sector's Measures

The White Paper on the Environment, the Sound Material-Cycle Society and the Biodiversity explain the reports related to policy measures and other initiatives in various sectors as follows.

Chapter 1 Building a Low Carbon Society
Chapter 2 Conservation of the Global Environment, the Atmospheric Environment, the Water Environment, the Soil Environment, and the Ground Environment
Chapter 3 Establishing a Sound Material-Cycle Society
Chapter 4 Assessment and Control of Risks from Chemical Substances in the Environment
Chapter 5 Conservation and Sustainable Use of Biodiversity
Chapter 6 Basis of Various Measures, and Measures Facilitating the Participation of Various Entities and International Cooperation

1 Building a Low Carbon Society

(1) Overview of problems

Along with the expansion of human activities, massive, growing amounts of anthropogenic greenhouse gas (GHG) emissions including carbon dioxide and methane are emitted into the atmosphere. In recent years, the greenhouse effect intensified by such increased emissions is threatening to cause excessive global warming. Especially, carbon dioxide (CO_2) is emitted anthropogenically in vast amounts from the combustion of fossil fuels and others. Out of the GHG emissions Japan produces, carbon dioxide emissions account for approximately 95% of the total (Table1-1).

(2) Current status of global warming and the outlook from now

According to the Working Group I contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) in 2007, the global average surface temperature increased 0.74 ℃ (0.56℃ to 0.92℃) between 1906 and 2005, and the total 20th century global average sea level rose 17 cm (12 to 22cm). The speed of the temperature rise in the most recent 50 years has also increased at double the rate of the past 100 years, and that speed of increase of sea levels is also increasing in recent years. The report states that, "Warming of the climate system is unequivocal," and "Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations."

Based on multiple emission scenarios, with certain assumptions on worldwide economic growth, population, technological innovation, economic/energy structures and some other trends, the report also makes estimates, that the projected average global surface temperature will increase by approximately 1.8 ℃ (1.1 ℃ and 2.9℃) at the end of 21st century (2090-2099) relative to 1980 to 1999 in a global society where conservation of the environment and economic development coexist, whereas the increase will be approximately 4.0℃ (2.4 to 6.4℃) in a society that focuses on fossil fuel energy in a continuous period of high economic growth.

In addition, the report states as a new knowledge that the global warming tends to reduce land and ocean uptake of atmospheric CO_2, increasing the proportion of anthropogenic emissions that remains in the atmosphere, along with a projection the climate carbon cycle feedback will induce more global average warming. Projections based on the report predict a reduction in the average global surface ocean pH between 0.14 to 0.35 units over the 21st century, adding to the present decrease of 0.1 units.

In Japan, the average temperature has risen by approximately 1℃ during the 20th century. Climate change is expected to have significant impacts on ecosystems, agriculture, social infrastructure, and human health.

Table1-1 Impacts of Global Warming Observed in Recent Years

Indicator	Observed changes
Global average surface temperature	・100 year linear trend of 0.74 (0.56~0.92)℃ until 2005 ・The linear warming trend over the last 50 years is nearly twice that for the last 100 years. ・Eleven of the last twelve years (1995-2006) rank among the 12 warmest years in the record of global surface temperature (since 1850). ・Average arctic temperatures increased at almost twice the global average rate in the past 100 years.
Global mean sea level	・The total 20th-century rise is estimated to be 0.17cm ・The increase rate is 3.1mm/year over 1993 to 2003.
Hot days/heat waves	More frequent
Cold days and nights/ days that frost falls	Less frequent
Heavy precipitation events	More frequent
Drought	More intense and longer droughts have been observed over wider areas since the 1970s, particularly in the tropics and subtropics.
Glaciers and snow cover	・Mountain glaciers and snow cover have declined on average in both hemispheres.

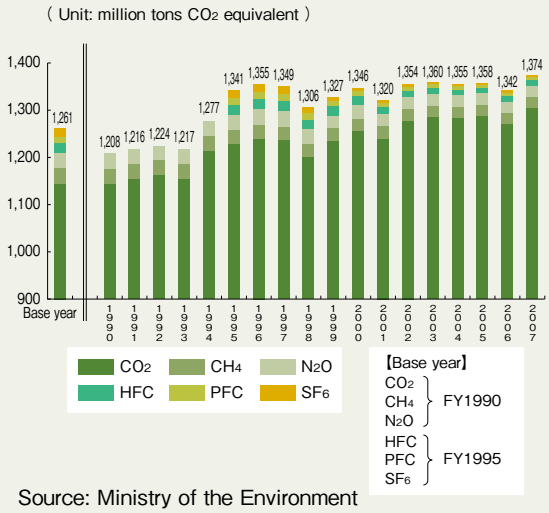
Source: Compiled by the Ministry of the Environment based on the IPCC Forth Assessment Report

(3) Status of GHG emissions in Japan

Japan emitted 1,374 million tons* of greenhouse gases (hereinafter, figures marked with * represent data for CO_2 equivalents) in FY2007, which was 9.0% higher than the total emissions (1,261 million tons*) of the base year (FY1990, however, the base year for HFCs, PFCs, and SF_6 is FY1995) as stipulated in the Kyoto Protocol, an increase of 2.4% compared to the previous year (Figure1-1).

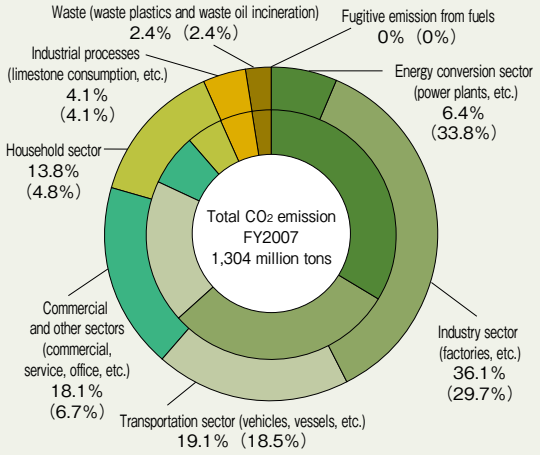
Of the greenhouse gases, the total carbon dioxide emissions in FY2007 were 1,340 million tons (an

Figure1-1 Greenhouse Gas Emissions in Japan



Source: Ministry of the Environment

Figure1-2 Breakdown of CO_2 Emissions by Sector



Note 1: The inner circle represents the percentage of direct emissions from each sector (figures in lower parentheses), and the outer circle represents the percentage after allotment of emissions resulting from power generation by electric utility companies and emissions resulting from heat generation by heat service utilities to final demand sectors, according to their electric and heat consumption (upper figures).
2: Due to statistical errors and rounding, the sum of percentages of emissions may not necessarily add up to 100%.

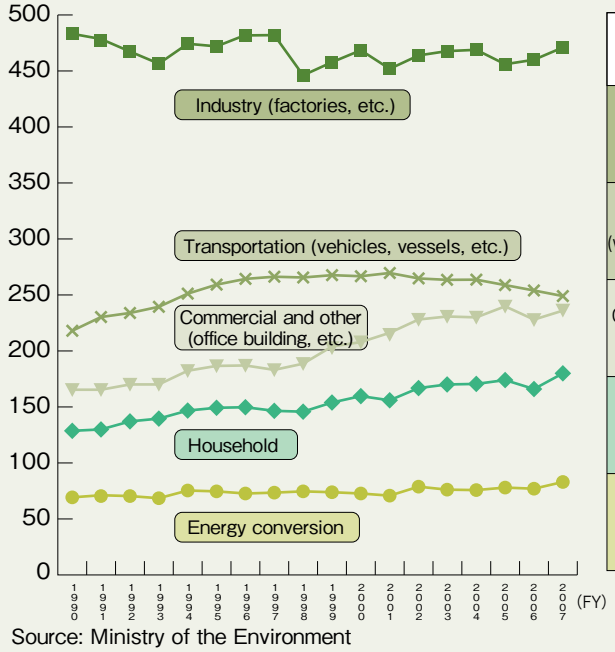
Source: Ministry of the Environment

increase of 14% from the base year) (Figure1-2, Figure1-3). A breakdown by sectors shows that the emissions for the industrial sector were 471 million tons (a decrease of 2.3% from the base year), while that of the transportation sector were 249 million tons (an increase of 14.6% from the base year), the commercial and other sectors were 236 million tons (an increase of 43.8% from the base year), and the emissions for the residential sector were 180 million tons (an increase of 41.2% from the base year).

Regarding the greenhouse gas emissions other than carbon dioxide in FY2007, methane emissions were 22.6 million tons* (a decrease of 32.3% from the base year), and nitrous oxide emissions were 23.8 million tons* (a decrease of 27.1% from the base year). HFCs emissions were 13.2 million tons* (a decrease of 34.6% from the base year), while that of PFCs were 6.5 million tons* (a decrease of 53.8% from the base year), and SF_6 were 4.4 million tons* (a decrease of 74.1% from the base year) (Figure1-4). Regarding HFCs emissions, according to research done with help from relevant industries, the calculating method was changed by new emissions factors due to more accurate emissions factors coming to light for refrigerant emissions in practical operation therefore emissions up to the previous year were revised upward.

Figure1-3 Changes in CO_2 Emissions Resulting from Energy Uses by Sector and the 2010 Targets

CO_2 Emissions (Unit: Million Tons CO_2)

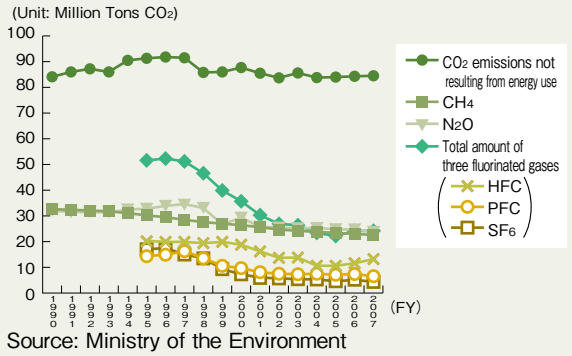


Source: Ministry of the Environment

Unit: Million Tons CO_2

Sector	Base year of the Kyoto Protocol	The increase/ decrease rates	FY2007 (final value)	Required reduction rate from FY2007	Standard aim in FY2010
Industry (factories, etc.)	482	-2.3% ↘	471	-9.2%～ -10.0% ↘	424～ 428
Transportation (vehicles, vessels, etc.)	217	+14.6% ↗	249	-2.4%～ -3.8% ↘	240～ 243
Commercial and other (office building, etc.)	164	+43.8% ↗	236	-11.1%～ -12.0% ↘	208～ 210
Household	127	+41.2% ↗	180	-21.5%～ -23.1% ↘	138～ 141
Energy conversion	68	+22.2% ↗	83	-20.1% ↘	66

Figure1-4 Greenhouse Gas Emissions (Other than CO_2 Emissions Resulting from Energy Use)



Source: Ministry of the Environment

2 Conservation of the Global Environment, the Atmospheric Environment, the Water Environment, the Soil Environment, and the Ground Environment

(1) Current status of the earth's environment

A Depletion of the ozone layer

CFCs, HCFCs, halons, methyl bromide and some other substances have been found to be depleting the ozone layer. There is concern that the depletion of the ozone layer may increase the amount of harmful ultraviolet radiation (UV-B) reaching the earth, leading to increased damage to human health such as skin cancer and cataracts, as well as hindering the growth of plants and plankton. Many of these ozone-depleting substances are also powerful greenhouse gases and promote global warming.

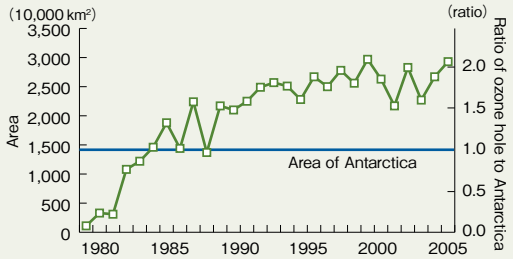
Ozone-depleting substances have been regulated by the Montreal Protocol on Substances that Deplete the Ozone Layer (hereinafter referred to as the "Montreal Protocol") since 1989. As a result, the atmospheric (troposphere) concentrations of CFC-12 which is a main ozone-depleting substance, has nearly leveled off in the mid-latitude Northern Hemisphere since the second half of 1990s, and the total concentrations of ozone-depleting substances within the stratosphere have tended to decline.

However, ozone in the atmosphere has massively decreased from 1980s to the first half of 1990s, and it is still showing a decreasing trend.

The area of the ozone hole over Antarctica in 2007 was found to be the third smallest scale after 2002 and 2004 over the past decade (since 1998) (Figure2-1). At present, no downward trend in the size of the ozone hole area can be observed. The ozone layer over Antarctica is still in critical condition. According to the Scientific Assessment Panel of the Montreal Protocol on Substances that Deplete the Ozone Layer (2006), ozone hole is considered to be regenerated for the next several decades, and the ozone layer over Antarctica is expected to return to the level of before 1980 by around the mid-21st century.

In addition, the atmospheric concentrations of HCFCs, that are replacing CFCs internationally, and HFCs, which gases have a high greenhouse effect although not depleting the ozone layer, have tended to increase.

Figure2-1 Changes in the Size of Ozone Hole over Antarctica



Source: Japan Meteorological Agency, Report of Ozone Layer Observation in 2007

B Acid deposition and dust and sandstorms

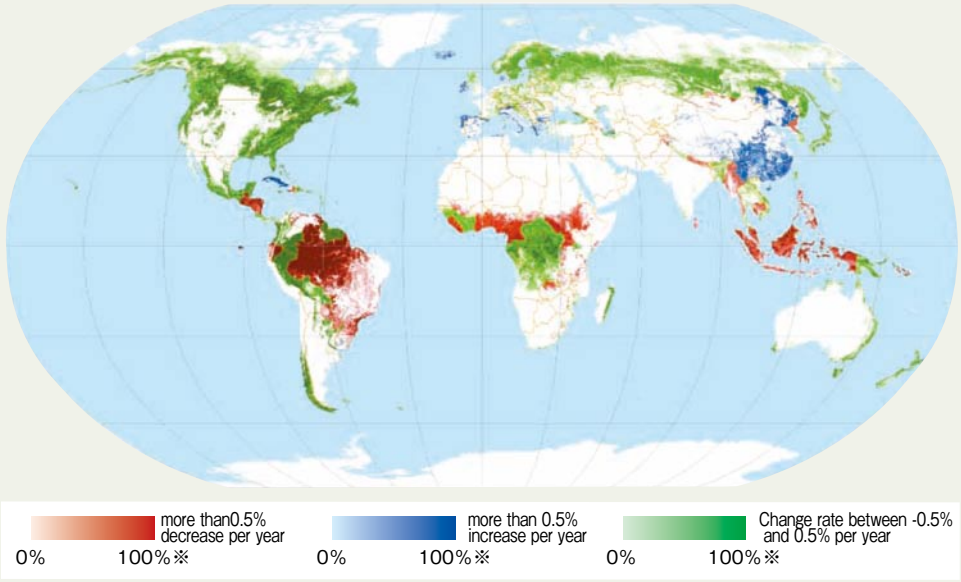
(a) Acid deposition

Impacts on fish and others due to acidification of lakes, reservoirs and rivers brought about by acid deposition, and impacts on forests, buildings and cultural assets due to acidification of soils are of concern. A characteristic of acid deposition is that it can affect areas located several thousand km from the source of the causing substances, and is a transboundary wide range phenomena.

In Japan, long-term acid deposition monitoring and research on its effects has been carried out since FY1983. A brief summary of the most recent monitoring results of the recent five years (FY2003 to FY2007) compiled in 2009, is as follows:

1. Acid deposition has still been observed nationwide (Mean value of pH4.68).
2. Inflow of air pollutants from continents to the area facing the Japan Sea and western Japan were indicated and nationwide impacts by transboundary ozone pollution and dust and sandstorms (DSS) were indicated.
3. Regarding the impacts on the ecosystem, ecological damage such as declining trees, due to acid deposition and acidification of lakes and reservoirs were not confirmed.
4. In soil surrounding areas of lake Ijira in Gifu Prefecture where acidification has been recognized, acidification of soil and mountain streams were

Figure2-2 Changing Rate in the Size of World Forests per Year (2000 – 2005)



＊Note: The shading in the legends represents the tree coverage rates (0-100%) per 1km square.
Source: Geographical Survey Institute, Chiba University

considered to have continued due to the massive amount of nitrogen deposition, while there was an outflow of sulfur, considered to have accumulated in soil in the past from the atmosphere, to mountain streams. However, the situation at the moment will not directly affect human health and ecosystems.

Thus, the damages caused by acid deposition in Japan is still unclear at the moment. Impacts of acid deposition may become apparent in the future if the current level of acid deposition continues, since its impacts are considered to appear after a long time in general.

(b) Dust and sandstorms (DSS)

In recent years, the dust and sandstorms (DSS) that blow over from China and Mongolia have increased their scale, and China, South Korea, Japan and other nations share a common interest in dealing with such enlarged DSS. Although DSS had been considered as a natural phenomenon, there are indications that recent occurrences are influenced by anthropogenic factors, including overgrazing and the expansion of farmlands, and beginning to gain attention as a transboundary environmental issue.

C Marine environment

In order to assess and monitor the conditions of the chronological change of the marine environment around Japan, Japan conducts marine environment monitoring programs, systematically collecting comprehensive data on water quality and bottom sediments and aquatic organisms. In FY2007 Japan conducted supplementary research in the western part of the Japan Sea that was researched in FY2004. The result showed higher concentrations of organotin and brominated flame retardant (specific indicator substance for organotin pollution source) were detected in the sediment compared to research results of the general offshore sea area. However, as a result of a simple risk assessment, a judgment was made that it will not affect human health. Japan will continue to conduct regular monitoring to see if any significant changes in the pollution condition should emerge.

In recent years, further deterioration of the environment and scenery including degradation of coastal functions and the ecosystem and the intensification of securing safe vessel navigation and damage to fisheries caused by marine litter including those originating from overseas has been pointed out.

D Forest

The world's forests now occupy approximately 30% of the earth's surface, approximately 4 billion hectares. There has been a decrease of about 7.32 million hectares per year on average from 2000 to 2005, after taking out adjusting for the increased areas (about one fifth of Japan's national land area). Particularly, African, South American and Southeast Asian from Asian region forests, where the tropical forests are located, have suffered a significant reduction in their size (Figure2-2). This deforestation and deterioration has serious impacts on global warming and loss of biodiversity.

Conversion to agricultural land, such as plantation development, an increase in non-traditional slash-and-burn agriculture, overharvesting of timber for fuel and forest fire are stated as causes of deforestation. In addition to these factors, inappropriate timber harvesting including illegal logging has caused deterioration of forests and all these factors have combined to make deforestation into a major issue.

E Desertification

Desertification is defined by the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa as "the degradation of land in arid areas." Arid areas occupy approximately 41% of the

earth's surface, of which 10% to 20% has already degraded (desertified), and about 1% to 6% of people who live in the arid areas (approximately 20 million to over 120 million people) are estimated to be living in the areas affected by desertification. In addition to climate factors including drought and aridification, deforestation caused by overgrazing, excessive cultivation and excessive harvest of fuel wood, and salt accumulation on farmlands by inappropriate irrigation are also stated as causes of desertification. The backgrounds of this issue are related to social and economic factors such as population growth, poverty and the progress of market economy in the developing countries.

F The environment in Antarctica

Antarctica is the part of the earth least destroyed by human activities or pollution, which has irreplaceable value as a place for global environment research. In recent years, increasing environmental impacts due to an increase in activities at research stations and tourism has become a concern.

(2) Current status of the atmospheric environment

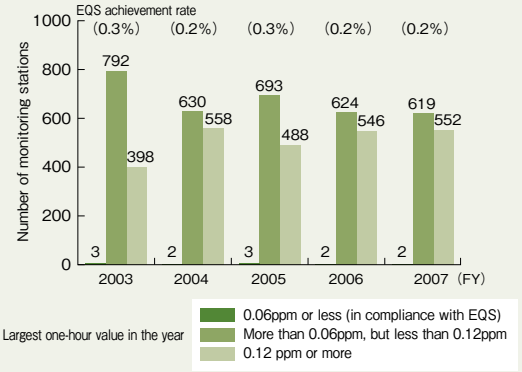
A Photochemical oxidant

Prefectures and municipalities issue photochemical oxidant warnings and alarms based on the Air Pollution Control Law, in case the concentrations of photochemical oxidant increase and may cause damage.

B Nitrogen oxide

The annual mean nitrogen dioxide level from all valid monitoring stations (monitoring stations with annual monitoring of at least 6,000 hours, the same hereinafter) in FY2007 was 0.013ppm at ambient air pollution monitoring stations (AAPMSs) and was 0.025ppm at roadside air pollution monitoring stations (RAPMSs). AAPMSs have nearly leveled off, and RAPMSs have showed a gradual improving trend (Figure2-4).

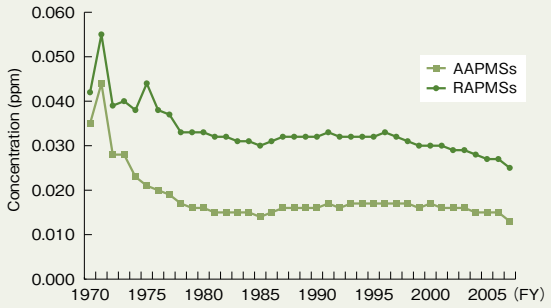
Figure2-3 Changes in the Number of Monitoring Stations by Photochemical Oxidant Concentration Level (AAPMSs and RAPMSs) (FY2003-FY2007)



Changes in the Number of Monitoring Stations by Photochemical Oxidant Concentration Level (AAPMSs and RAPMSs) (FY2003-2007)

Source: Ministry of the Environment, FY2007 Report on the State of Air Pollution

Figure2-4 Changes in Annual Average Nitrogen Dioxide Concentration (FY1970-FY2007)



Source: Ministry of the Environment, FY2007 Report on the State of Air Pollution

C Suspended Particulate Matter (SPM)

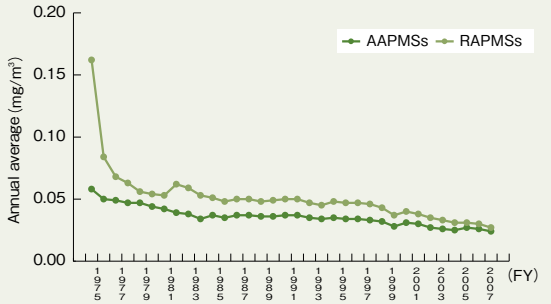
The annual mean level for SPM in FY2007 from all valid monitoring stations was 0.024mg/m^3 at ambient air pollution monitoring stations (AAPMSs) and was 0.027mg/m^3 at roadside air pollution monitoring stations (RAPMSs), showing gradual improvements in recent years (Figure2-5).

The ministry consulted the Central Environment Council in December 2008, regarding the setting of the environmental quality standards (EQSs) for fine particulate matter (PM 2.5), and the "expert committee on environmental standards for Fine Particulate Matter" and the "expert committee on monitoring methods for Fine Particulate Matter" have been established and discussions have been progressed under the Council's Atmospheric Environment Committee.

D Hazardous air pollutants

According to the results of hazardous air pollutants monitoring research in FY2007, in terms of the four substances that have environmental quality standards in place, levels of benzene exceeded the environmental standards at 0.7% of monitoring points, however, the other three substances met the standards at all monitoring points. Out of the seven substances that have the guideline values set, nickel compounds

Figure2-5 Changes in Annual Average SPM Concentration (FY1974-FY2007)



Source: Ministry of the Environment, FY2007 Report on the State of Air Pollution

exceeded the guideline value at 0.6% of monitoring points and 1,2-dichloroethane exceeded the guideline value at 0.5% of monitoring points, but all other five substances stayed below the guideline values at all monitoring stations.

E Measures against asbestos

The Air Pollution Control Law provides a work standard for demolition of buildings and other structures containing insulating or lagging materials, such as spray-applied asbestos or asbestos and those using refractory materials, and is approaching measures to prevent the dispersion of asbestos into the atmosphere. It also provides emission and other controls on asbestos manufacturing facilities, and the termination of all facilities was notified by the end of FY2007.

F Noise, vibration, and offensive odors

The numbers of complaints about noise and vibration have been increasing over several years to 16,434 and 3,384 in FY2007, respectively. There were 17,533 complaints about offensive odors in FY2007, a decrease for the fourth consecutive year (Figure2-6).

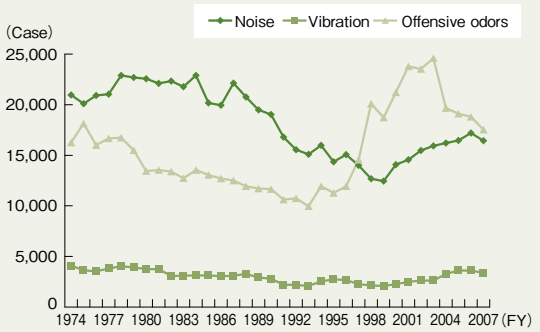
Regarding the attainment of the Environmental Quality Standards (EQS) on noise pollution in the road-facing areas in FY2007, testing 3,861 thousand households in residential areas nationwide result showed that 464 thousand households (12%) exceeded the EQS either during the day or at night (Figure2-7). Of the 1,610 thousand households in areas facing trunk roads which carry heavy traffic loads, 311 thousand households (19%) exceeded the EQS either during the day or at night.

With regard to aircraft noise, approximately 74% of the observation points were within the EQSs satisfactory level in FY2007.

G Heat island phenomenon

The heat island phenomenon, occurring mainly in large cities where the air temperature in urban areas is

Figure2-6 Changes in the Number of Complaints against Noise, Vibration, and Offensive Odors (FY1974 - FY2007)



Source: Ministry of the Environment, Survey on the Enforcement Status of the Noise Regulation Law, Survey on the Enforcement Status of the Vibration Regulation Law, Survey on the Enforcement Status of the Offensive Odor Control Law

Figure2-7 Attainment of the EQS for Road -Facing Areas in FY2007

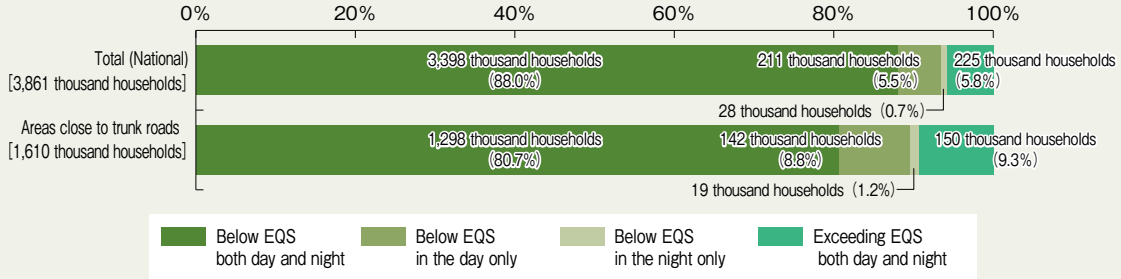
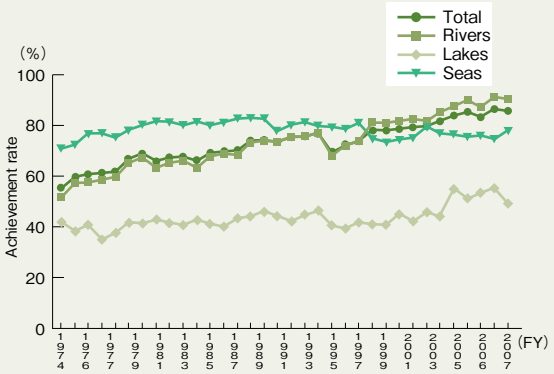


Figure2-8 Trends in EQS Achievement Rate (BOD or COD)

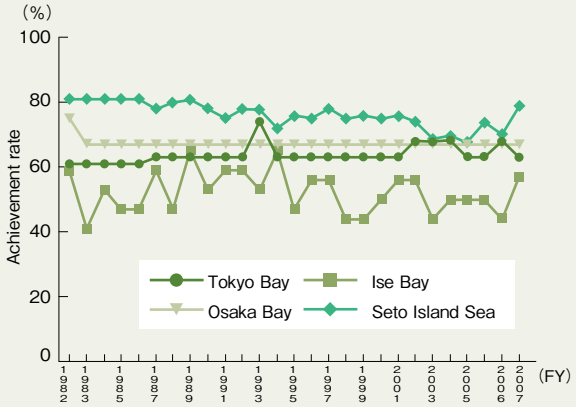


Note 1: Rivers: BOD, Lakes and Seas: COD

2: Achievement rate= $\left(\frac{\text{Number of water areas achieving EQS}}{\text{Number of water areas applicable}}\right)\times 100$

Source: Measurement results of the quality of public water areas in FY2007, Ministry of the Environment

Figure2-9 Trends in EQS Achievement Rate (COD) in Three Coastal Regions



Note: Ise Bay includes Mikawa Bay, and Seto Inland Sea excludes Osaka Bay

Source: Ministry of the Environment, FY2007 Measurement Results of Water Quality in Public Waters

higher than that of the suburbs, and the number of hours exceeding 30℃ increases during the summer. Waste heat from air conditioning and other systems brings about a temperature rise, and has various environmental impacts such as the creation of a vicious circle, causing further waste heat from air conditioning.

According to the "Outline of the Policy Framework to Reduce Urban Heat Island Effects." the ministry has promoted four major pillars of countermeasures against the heat island phenomenon; reduction of anthropogenic heat emissions, improvement of the urban surface, improvement of urban structures, and improvement of lifestyles. The Inter-Ministry Coordination Committee to Mitigate Urban Heat Island Effects has also been launched to revise the "Outline of the Policy Framework to Reduce Urban Heat Island Effects."

The ministry has continuously implemented research and observations on heat island phenomenon and impacts on the environment, and has provided information and monitoring for preventing heat stroke, as related to the research.

(3) Current status of the Water Environment

Regarding the EQS for the protection of human health from substances in the EQS for Water (Health Items), the achievement level for public water areas in FY2007 was 99.1%. Among the conservation of the living environment (Living Environment Items), the achievement level of the EQS for Biochemical Oxygen Demand (BOD) or Chemical Oxygen Demand (COD), a typical water quality indicator for organic contamination, was 85.8% in FY2007. By water areas, the achievement levels were 90.0% for rivers, 50.3% for lakes and 78.7% for seas, and the achievement level of lakes and reservoirs still remained low (Figure2-8, Figure2-9).

The achievement rates of EQS in enclosed water areas, in terms of COD were 63.2% for Tokyo Bay, 56.3% for Ise Bay, 66.7% for Osaka Bay and 78.0% for the Seto Inland Sea excluding Osaka Bay.

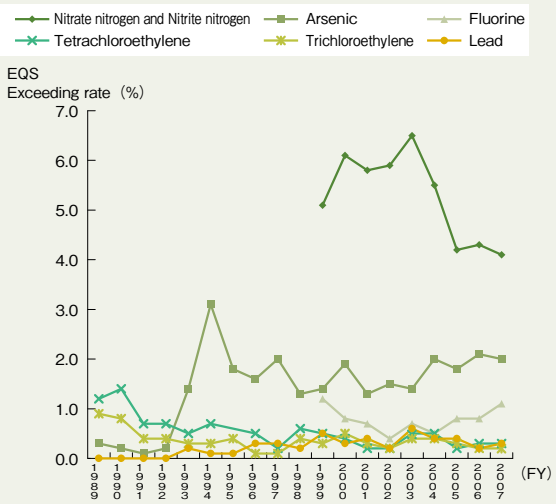
Results of the general monitoring survey of groundwater quality in FY2007 saw 7.0% (325 wells) out of the 4,631 wells tested exceed EQS limits (Figure2-10). EQS limits were most exceeded by nitrate-nitrogen or nitrite-nitrogen, an excess of 4.1%, caused by farmland fertilization, livestock excreta and domestic wastewater, and countermeasures against them have become an urgent issue.

(4) Current status of the soil environment

Regarding soil contamination in urban areas, research and measures based on the Soil Contamination Countermeasures Act (Act No.53 of 2002) have been progressing. In recent years, more soil contamination cases have been identified, resulting from an increase in the number of companies that conduct independent pollution surveys, continuous monitoring system development for groundwater in local governments and the development of ordinances on soil contamination measures (Figure2-11).

Under these circumstances, the ministry adopted the "Bill Partially Amending the Soil Contamination Countermeasures Act" at a Cabinet meeting in March 2009 and submitted to the Diet (promulgated in April 2009) after debates in the Central Environment Council's subcommittee on the future system for soil environmental protection measures in December 2008.

Figure2-10 Changes in the Percentages of the Groundwater Exceeded the EQS (General Monitoring Survey)



Note 1: Different sets of wells are monitored every year. (i.e.Not necessarily the same wells are monitored for the data every year.)
2: Until the EQSs for groundwater were established in 1997, the Assessment Standards had been used to evaluate groundwater quality. (The Assessment Standard for Arsenic was revised from 0.05mg/L or less" to "0.01mg/L or less" and that for Lead was revised from "0.1mg/L or less" to "0.01mg/L or less" in 1993.)
The EQS for nitrate/nitrite nitrogen, fluorine and boron were added to the EQS in 1999.
The data contained in the chart is limited to those of the substances with relatively high rate of the data that exceeded the EQS.
Source: Ministry of the Environment, FY2007 Results of Monitoring Survey of Groundwater

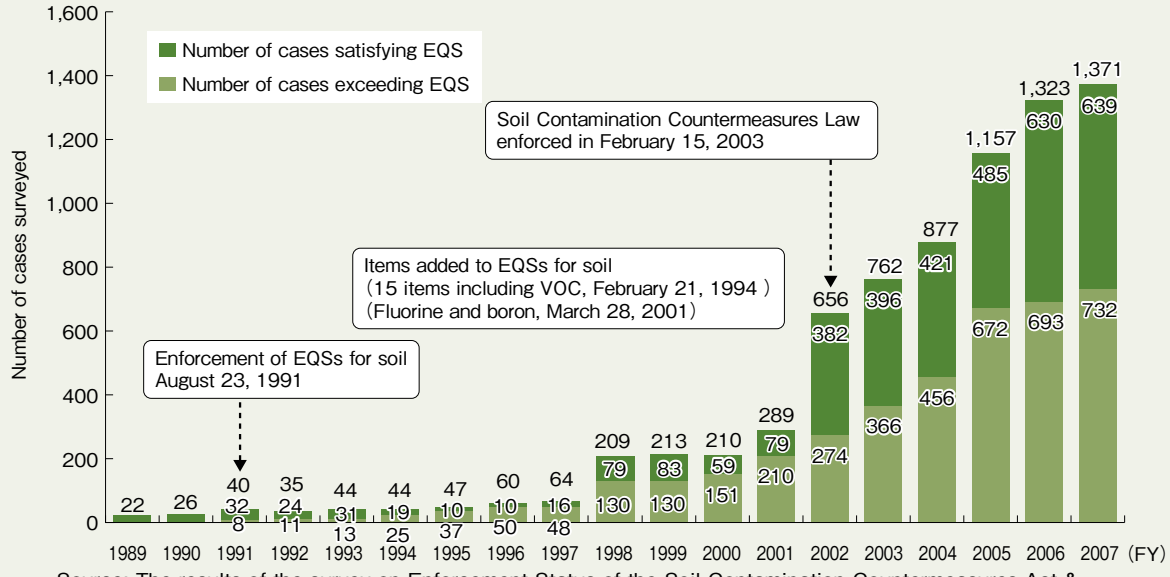
(5) Current status of the ground subsidence

Excessive pumping of groundwater for industrial, residential and agricultural uses lowers the level of groundwater followed by a shrinking of the clay layer due to water content reduction, causing ground subsidence. As of FY2007, 60 areas in 37 prefectures suffered ground subsidence.

Measures such as restrictions on the pumping of groundwater have slowed down or almost stopped the ground subsidence in Tokyo's 23 wards, Osaka City and Nagoya City, where remarkable ground subsidence have occurred in the past. However some parts of Japan still show ground subsidence, including snow-covered areas that use groundwater for snow melting and areas pumping brine water from natural gas wells.

In addition to this, there are many areas faced with potential risks from natural disasters due to flood, high tide and tsunami within ground subsidence areas that are at or below sea level.

Figure2-11 Number of Soil Contamination Cases Identified by Fiscal Year



Source: The results of the survey on Enforcement Status of the Soil Contamination Countermeasures Act & Numbers and trends of soil contamination investigations and countermeasures in the FY2007.

3 Establishing a Sound Material-Cycle Society
～Creating economic development through the establishment of a sound material-cycle society～

(1) The material flow of our country

As a first step to the establishment of a Sound Material-Cycle Society, it is essential to know the amount of resources we are collecting, consuming and dumping.

When we examine the material flow of our country in FY2006, there were 18.2 billion tons of total material input, and 750 million, about a half, were used in the construction of buildings and infrastructures. Moreover, 170 million tons were exported as products, 490 million tons were used in the energy consumption and manufacturing process and 580 million tons of wastes were generated. Out of these items, 230 million tons were subjected to cyclical use, equivalent to 12.5 % of the total material input amount (Figure3-1).

In order that a Sound Material-Cycle Society can be established, the Second "Fundamental Plan for Establishing a Sound Material-Cycle Society (A Cabinet decision in March 2008, hereafter called the "Fundamental Plan for a Sound Material-Cycle Society"), has set new goals for the indexes concerning the "Entrance," "Exit" and "Circulation" of materials, this refers to the three different sections of the material flow (meaning the flow of materials and goods), where appropriate and balanced measures for reduction, reuse, recycling and disposal of resources should be developed.

The target year of each index is assumed to be FY2015

Indexes	Resource productivity	Cyclical use rate	The amount of final disposal
goals	about 420 thousand yen per ton	about 14-15%	about 23 million tons

1) Resource productivity (equals to GDP/divided by the input of natural resources and others) In FY 2006 it was about 348 thousand yen per ton. (a 33% increase on FY2000; 260 thousand yen per ton.)

2) Cyclical use rate (equals the amount of recycling utili-zation/divided by the amount of circulative utilization + input amount of natural resources and others) FY2006 was about 12.5% . (a 2.6% increase on FY2000; about 10 % for that year.)

3) The amount of final disposal (equals the amount of land filling of waste) FY2006 was about 29 million tons. (a 49% decrease from FY2000; about 56 million tons for that year.)

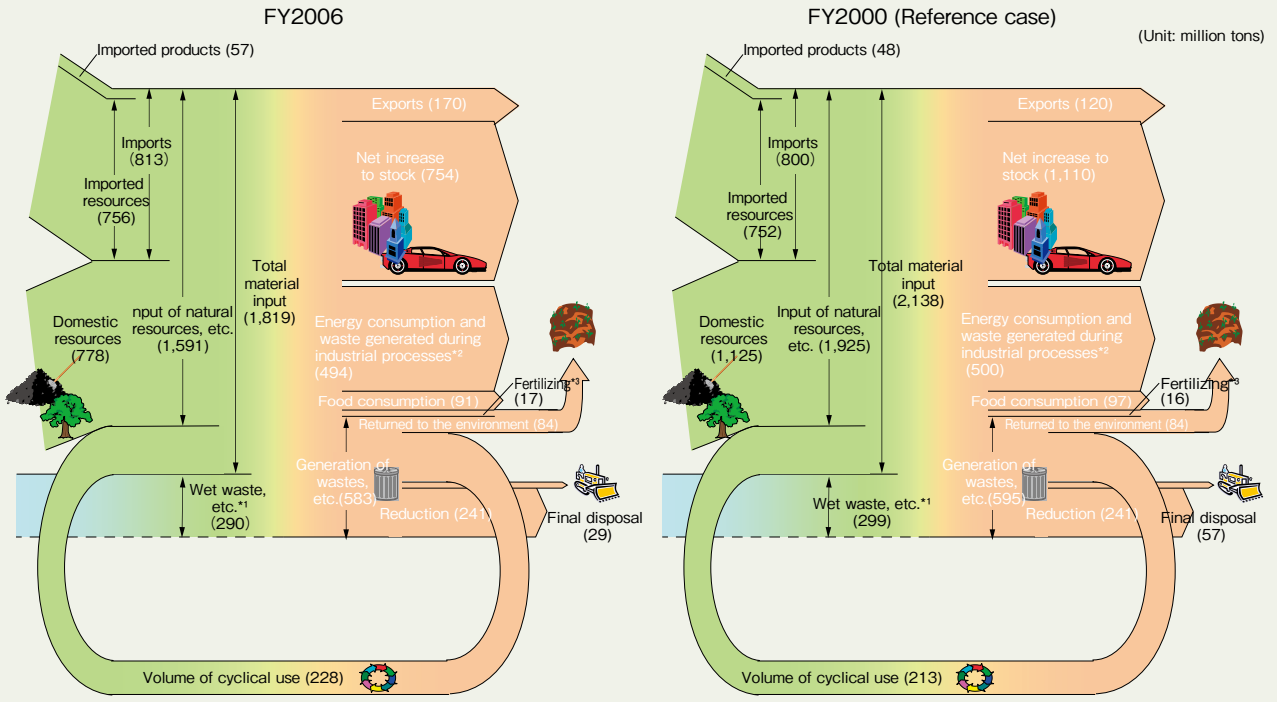
The characteristics of how the circulative resources generated in our country are cyclically used are shown as follows The biomass type circulative resources account for 54% of the entire amount of waste generation. Their contents are livestock excrement, organic sludge derived from water processing in the sewage works or manufacturing, wood wastes derived from construction sites and the manufacturing process of wood products, and household kitchen waste (garbage).

The major usageof cyclical use is for compost and feed in agriculture. Besides this, polluted mud is used for brick, and woodwaste for reproduction wood board.

Nonmetal mineral (soil and rocks) type circulative resources account for 37% of the entire amount of generation of wastes. Their contents are, debris from construction sites, slag from the iron and steel manufacturing/non-ferrous metal/cast metal industries, non-organic sludge from construction sites and water purification plants, and glass bottles from households and restaurants.

The major cyclical use is in civil engineering and

Figure3-1 The Material Flow of Our Country



Note 1: Wet waste, etc.: Water taken in socioeconomic activities and water content included in waste (e.g. sludge, animal waste,raw sewage, waste acid, or waste alkali); and input of earth and sand as a result of economic activities (e.g. sludge generated by the mining, construction and waterworks industries and slag from the mining industry).

Note 2: Energy consumption and waste generated during industrial processes: An estimation of water, etc., included in raw materials and released during the manufacturing processes of industrial products.

Note 3: Fertilizing: Sprayed fertilizer is not actually accumulated and will be decomposed in the soil; therefore, particularly it has been taken out from the net increase to stock.

Source: Ministry of the Environment

construction such as materials for road base and cement.

Metal type circulative resources account for 6% of the entire amount of generation of wastes. Their contents are, scrap material from construction sites, scrap metal from iron and steel manufacturing/non-ferrous metal industries, metal processing scrap from machinery and appliances manufacturing industries, and such used household products as metal cans and home electric appliances.

Typical usages are electrical furnace iron manufacturing, and metal resources input for non-ferrous metal refining.

Fossil type circulative resources account for 3% of the entire amount of generation of wastes. They consist of waste oil from various manufacturing industries, plastics processing waste from plastic article manufacturing industries and machinery and appliance manufacturing industries, and used plastic articles from households and various industries.

Typical use of these circulative resources is as building materials for construction and as a reducing agent of iron ore and an alternative to coke in the shaft furnaces of the iron and steel industry.

(2) Amount of waste generated

A Status of municipal wastes (garbage)

The amount of total emission of wastes*1 in FY 2006 was 52.04 million tons, or 1,116 grams daily per person; an overall decrease of 1.3% from the previous year (Figure3-2).

*1 "Amount of total emission of wastes"="Amount of collected wastes + amount of carried in wastes + amount of collected wastes by groups"

B Status of industrial wastes disposal

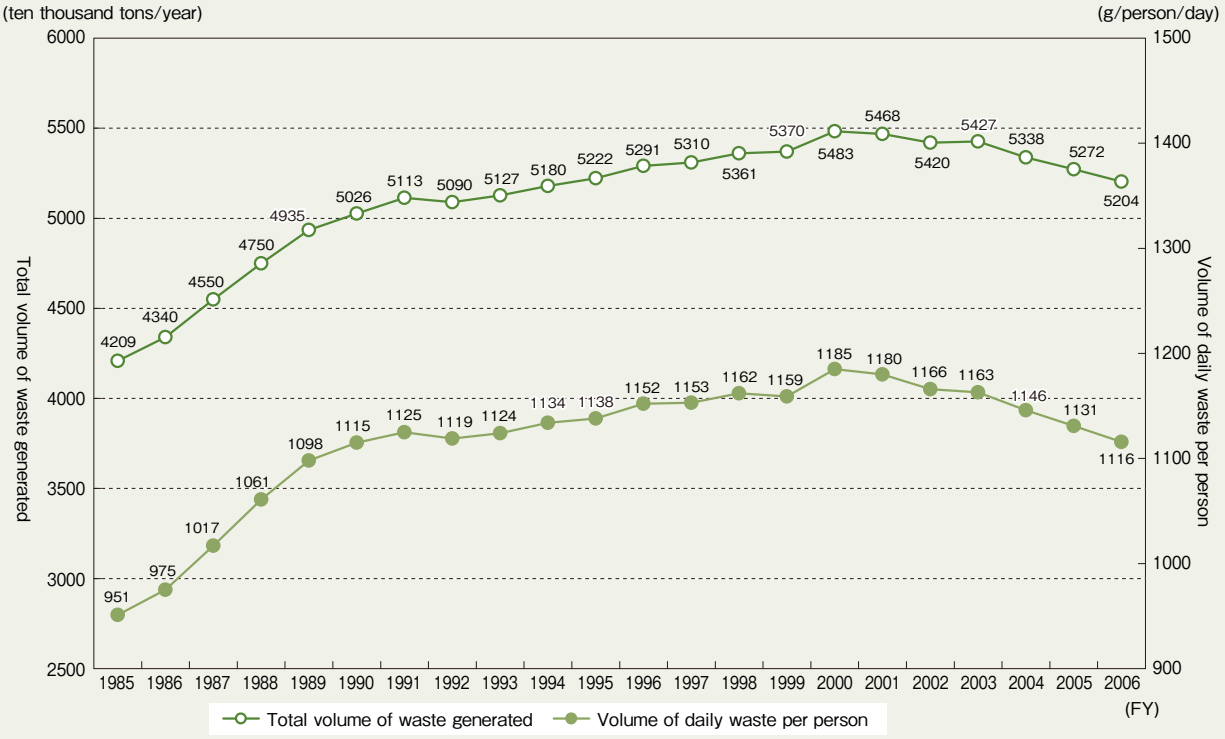
The amount of total emission of industrial wastes across the-country in FY2006 was 418.5 million tons.

About 214.77 million tons (51% of the total amount) were reclaimed, about 181.93 million tons (43% of the total amount) were reduced by intermediate processing, and 21.8 million tons (5% of the total amount) were subject to final disposal. The amount of reclaiming refers to the total amount of directly reclaimed wastes plus recycled wastes generated from processed wastes produced by intermediate processing. The amount of final disposal refers to the total amount of wastes directly sent for final disposal plus wastes sent to final disposal after intermediate processing (Figure3-3).

C The reduction of Greenhouse Gas from waste sector

The "Kyoto Protocol Target Achievement Plan" has set objectives concerning waste-related measures to reduce the emissions of Greenhouse Gas, and it aims to reduce about 7.8 million tons (carbon dioxide equivalent) in Year 2010. The Greenhouse Gas emission derived from wastes mounted to 44.8 billion tons (carbon dioxide equivalent) in FY2006, which is about 3.3 % of the total amount of Greenhouse Gas emissions (1.34 billion tons carbon

Figure3-2 Changes to Total Waste Generation and Daily Waste per Person



Note: Total volume of waste generated = Designed collection volume + Volume of waste directly brought in + Volume of group collection of recyclable waste

dioxide equivalent) of Japan.

The reduction amount of Greenhouse Gas emission by recycling of waste to reused fuel and by electric power generation using waste was about 15 million tons (carbon dioxide equivalent) in FY2005, therefore it is reasonable to assume that the amount of emissions derived from wastes is starting to decrease when those Greenhouse Gas emissions mentioned above are deducted.

(3) Number of Illegally Dumping Activities and Amount of Illegally Dumped Wastes

The number of cases of illegally dumping industrial wastes reported in FY2007 is 382 (554 in the previous year) and the amount of illegally dumped wastes is 102 thousand tons (131 thousand tons in the previous year). The number and the amount decreased from the previous year (Figure3-4).

(4) National Countermeasures for Establishment of a Sound Material-Cycle Society

In order to steadily implement the Sound Material-Cycle Society Fundamental Plan, the Central Environment Council is required to check how the policies based on the Sound Material-Cycle Society Fundamental Plan have been implemented every year and as necessary report the direction of future policies to the national government. In FY2008, for the first time, the council checked how the second Sound Material-Cycle Society Fundamental Plan had been implemented.

In July 2008, the Ministry of the Environment set up the "Study Committee for the Further Transparency in the Container and Package Recycling Flow" in order to discuss issues and measures for the improvement of transparency in the flow of recycling containers and packages including plastic ones and to draw a certain conclusion. Furthermore,"Container and Package 3Rs Promotion National Convention – Efforts for the Reduction of Plastic Grocery Bags across the Country –" was held in Tokyo in January 2009 and the convention transmitted information on various activities with regional characteristics for reduction used throughout the country.

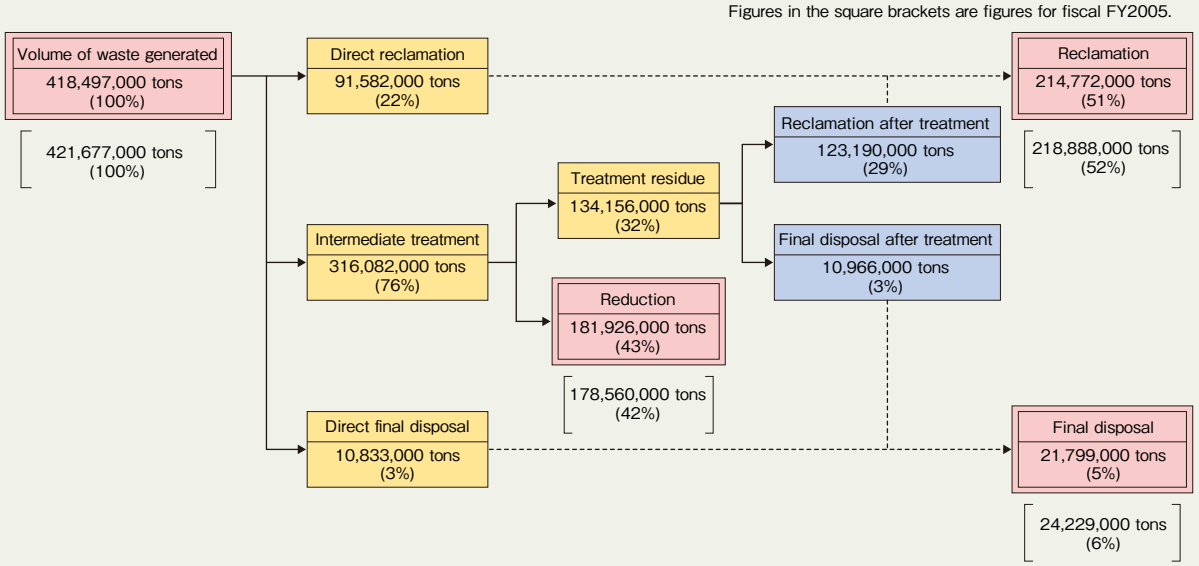
About Home Appliance Recycling, "Report on the Evaluation and Examination of the Implementation Status of the Home Appliance Recycling System" was compiled.

In order to prescribe the addition of home appliances subject to the law (liquid crystal and plasma televisions and laundry driers) and the raising of the recycling ratio of the existing home appliances subject to the law, the enforcement ordinance of the Home Appliance Recycling Law was revised in December 2008 of the same year (enforced in April 1, 2009).

In November 1, 2008, the recycling charges of air-conditioners, CRT-based televisions (15-inch or smaller types), and refrigerators and freezers (170-liter or less types) were lowered for waste home appliances to be collected appropriately and for burdens borne by consumers to be eased before TV analog broadcasting is stopped in 2011.

Because distribution by retailers for reuse of specified home appliances is expected to improve convenience for consumers who dispose of waste

Figure3-3 Industrial Waste Treatment Flow (FY2006)



Note 1: Figures in each item are rounded off; therefore, the total may not equal the breakdowns.
2: Figures in the round brackets are figures for FY2004.
Source: Ministry of the Environment

home appliances, "Guidelines on the creation of standards for sorting for reuse and recycling" were laid down.

(5) International efforts

The G8 Environment Ministers Meeting was held in Kobe in May 2008, and 3Rs were featured as one of the main topics. Since "3R Initiative" was proposed through Ministerial Discussions of each participating countries at the G8 summit in 2004, the progress of international efforts towards the 3R Initiative were acknowledged. Thus the "Kobe 3R Action Plan," that lists specific future action plans of each G8 countries for further progression of 3Rs was agreed. The plan was also supported by each G8 leaders at the G8 Hokkaido Toyako Summit, held in the Lake Toya area in Hokkaido, in July 2008.

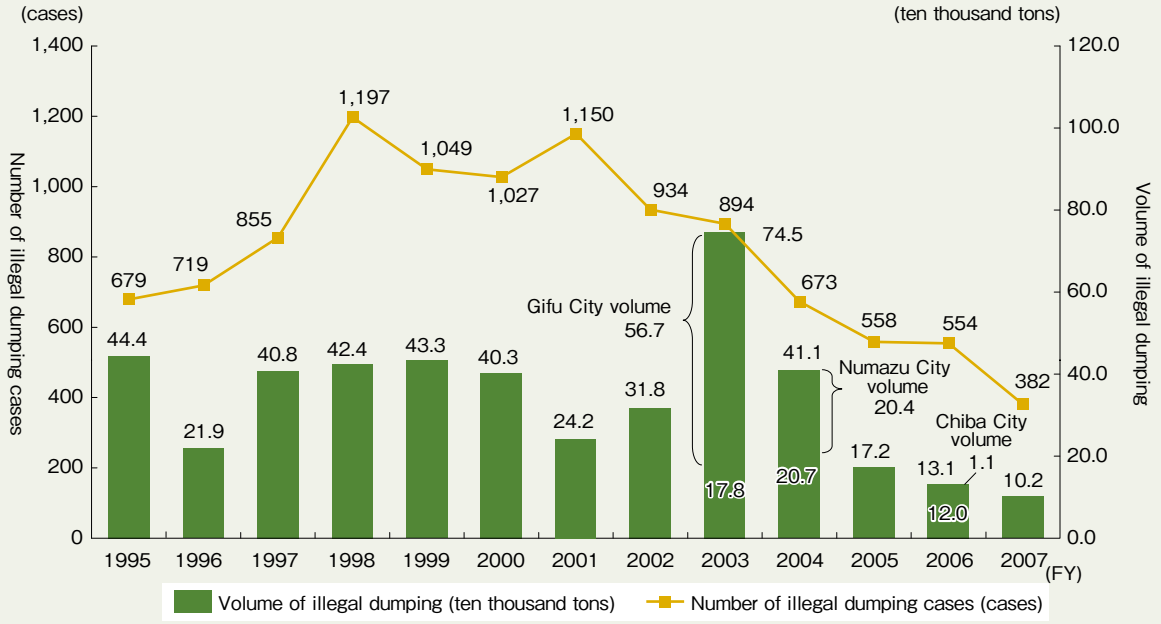
On the basis of this action plan, each G8 country endeavored to reduce disposable products including shopping bags, to set up targets considering resource productivity, to accept hazardous wastes from developing countries and to support capacity building of developing countries. In particular, for reduction of disposable shopping bags, Japan, China and South Korea will be calling for efforts to other countries in Asia and areas all over the world, as a tripartite collaboration.

Japan also announced "Japan's New Action Plan towards a Global Zero Waste Society" that lists its international efforts towards building a Sound Material-Cycle Society in Asia and other countries, on the occasion of G8 Environmental Minister Meeting.

On the basis of the plan, Japan is supporting the creation of a Sound Material-Cycle Society and regional efforts in each Asian country to develop 3R Initiative in the whole Asia. Japan held the Asia 3R Conference twice, prior to the G8 Environment Ministers Meeting, while utilizing Japan's knowledge and experience to support the creation of a strategy for each country to promote 3R in Asia (Thailand, Bangladesh, Cambodia, the Philippines, Vietnam and Indonesia), maintaining information and technology hubs including 3R Knowledge Hub and establishing a research network, reviewing and holding policy dialogs of the analysis of present state and policy recommendation on medical waste management through the Regional Forum on Environment and Health in Southeast and East Asian Countries, etc. Japan is also supporting the formation of the Asian Network for Prevention of Illegal Transboundary Movement of Hazardous Wastes, and the Project on the Environmentally Sound Management of E-Waste for Asia Pacific Region according to the Basel Convention. Through these efforts, Japan is aiming to progress 3R promotion and proper disposal of waste to build a Sound Material-Cycle Society in the whole Asia.

Currently, Japan has been calling for each Asian country to hold the Regional 3R Forum in Asia as a platform for the international promotion of 3Rs in Asia, and establishment of the Regional 3R Forum in Asia was approved at the ministerial statement in the first East Asia Summit Environment Ministers Meeting held in October 2008. The Forum is expected to be launched around mid-2009.

Figure3-4 Changes to the Number of Illegal Dumping Cases of Industrial Waste and Volume Dumped



Note 1: Regarding the number of cases and volume of illegal dumping shown above, from among illegal dumping of industrial waste identified by prefectures and ordinance-designated cities, cases where the volume of dump-ing per case was 10 tons or more were totalized (however, cases including specially controlled industrial waste were all counted individually).
2: As shown in the above graph, the cases of Gifu City and Numazu City were only discovered in 2003 and 2004 respectively; however, illegal dumping had already been carried out for several years previously and as a result, these cases were reported as a large-scale case in the relevant fiscal years. Concerning the Chiba City case in FY2006, the case was actually revealed in 1998, but the report was not made to the Ministry of the Environment at the that time, and it was made in FY2006.
3: Sulfate pitch cases and ferrosilt cases were excluded from the survey. Ferrosilt was used as refill materials, and its sales and use started in August 2001. Approx. 720,000 tons were sold and used, but later this was identified as illegal dumping cases. The illegal dumping was confirmed at 45 sites in four prefectures, and removal of ferrosilt had been completed at 39 sites (as of the end of November 2008).
Source: Ministry of the Environment

4 Assessment and Control of Risks from Chemical Substances in the Environment

In current society, a great variety of chemical substances are used in various industrial activities and in daily life that make our life convenient. Some chemical substances are generated unintentionally from combustion of materials. Some other chemical substances cause environmental pollution if they are not managed appropriately during each stage of their life cycle, including manufacture, distribution, use and disposal, and have hazardous impacts on human health and ecosystems.

The seventh report for the initial environmental risk assessment of chemicals was compiled in FY2008, collecting knowledge in order to assess the potential hazardous impacts of chemical substances on human health and ecosystems (environmental risk assessment). As a result of the report, four substances have been identified of having a relative high risk possibility, and have been designated as "candidates for detailed assessment."

In accordance with the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (the Chemical Substances Control Law), a total of 676 notifications of the manufacture or import of new chemical substances were made in FY2008 (of which 298 were for low quantities), and pre-market evaluations were conducted for those notifications (Figure4-1). As a review on the Chemical Substances Control Law was considered and was compiled at a joint meeting of the Health Science Council, the Industrial Structure Council and the Central Environment Council in December 2008, the Bill to amend the Chemical Substances Control Law was promulgated in February 2009 and was submitted to the ordinary session of the Diet.

Regarding the Pollutant Release and Transfer Register (PRTR) system based on the law for PRTR, the seventh notification process was conducted. The amount of released and transferred chemical substances from individual company, its aggregate data and the estimated releases outside notification was announced in February 2009 (Figure4-2).

Regarding the measures against dioxins, the national reduction plan was amended in 2005, with a new target value to reduce approximately by 15% by 2010 from the 2003 level (Figure4-3). According to the list of dioxin emissions (emission inventory), that was announced in December 2008, the total estimated emissions in 2007 was approximately a 23% reduction from that of 2003, and reduction is progressing steadily.

Figure4-1 Outline of the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

□Aim to prevent environmental pollutions by hazardous chemical substances
□Two pillars of evaluation and regulation of chemical substances

1. Evaluation

New chemical substances being manufactured or imported, pre-marketing evaluations are conducted for:

①Biodegradability,
②Bio-accumulation,
③Toxicity for human, and living organisms.

The evaluation is to be conducted rationally, depending on the volume of manufacturing or import and the possibility of release into the environment.

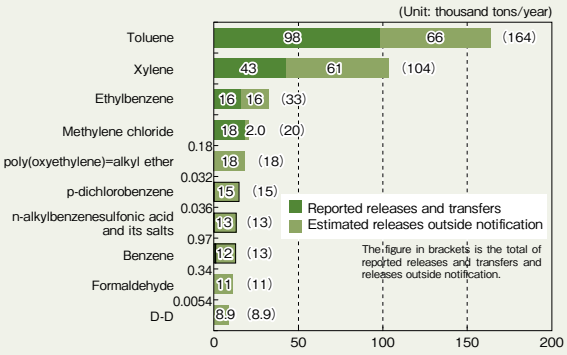
2. Regulations

Regulations on the manufacturing, import or use are to be implemented according to characteristics of the chemical substance concerned based on the results of pre-marketing evaluation for new chemicals and the assessment for existing chemicals that had been in the market before the enactment of the Law.

Category	Regulatory measures
Class 1 Specified Chemical Substances (16 substances including PCB)	・Virtually ban on manufacturing, import or use
Class 2 Specified Chemical Substances (23 substances including trichloroethylene)	・Mandatory reporting of planned and actual manufactured or imported ・Restriction on the manufactured or imported amounts, as necessary ・Compliance with technical guidelines as to treatment
Monitoring chemical substances Class 1: 36 substances Class 2: 921 substances Class 3: 124 substances	・Mandatory reporting on actual manufactured and imported amounts ・Move to the category "specified chemical substance" according to the results of hazard assessment, risk evaluation, etc.

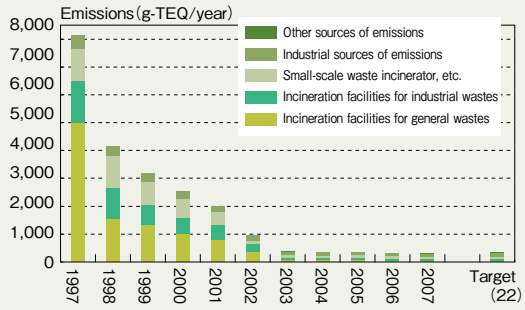
Note: The number of substances mentioned above is as of the end of March 2009.
Source: Ministry of Health, Labour and Welfare, Ministry of Economy, Trade and Industry, and Ministry of the Environment

Figure4-2 Top 10 Chemicals of Reported Releases and Transfers and Estimated Releases Outside Notification (FY2007)



Source: Ministry of the Environment

Figure4-3 Changes in Total Dioxin Emissions



Decrease rate from the year 1997 (%)

Base year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	49.0~ 51.9	60.6~ 62.6	68.8~ 68.9	75.2~ 75.3	87.7~ 88.1	95.1~ 95.2	95.5	95.6	96.1~ 96.2	96.2~ 96.3

Source: Ministry of the Environment

In recent years, there is concern that the environmental risk for children is increasing, and children's environmental health is being paid attention internationally. In order to assess the impacts of environmental risks (including chemical substances and living environment) on children's growth, it is also important to monitor groups of people with an epidemiological approach. The government has set up the "Japan Environment & Children's Study" in order to implement a fresh birth cohort (follow-up) research to follow up children's development from the fetal stage through childhood, and the preparations are in progress.

With regard to measures on poison gas munitions in Japan, the ministry, in line with Cabinet approval in June 2003 and the Cabinet decision in December 2003, is implementing environmental research from the point of view to prevent damages from occurring from these munitions. The Ministry of the Environment is collecting data at the Poison Gas Information Center, established in the ministry, and spreading information via the Internet and leaflets, etc. to prevent damage from occurring.

5 Conservation and Sustainable Use of Biodiversity
～Biodiversity that supports our existence and our daily lives～

In June 2008, the Basic Act on Biodiversity was enforced, and a variety of efforts towards conservation and sustainable use of biodiversity have been made.

(1) Status of biodiversity around the world

A variety of ecosystems exist on earth, and various living species exist being supported by these ecosystems. Although the total number of known living species in the world is approximately 1.75 million species, the total number of species on earth including those unknown is estimated to be between 5 and 30 million species.

According to the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened species (Red List), about 40% of the species assessed are threatened with extinction.

At the 8th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP8) in 2006, the Secretariat of the Convention on Biological Diversity announced the second Global Biodiversity Outlook (GBO2), assessing the status of biodiversity using 15 indicators. The results showed that biodiversity is still being lost, with 12 indicators showing negative trends although some indicators, including Coverage of Protected Areas, had made progress (Table5-1).

According to the interim report of The Economics of Ecosystems and Biodiversity (TEEB) made at COP9 high-level ministerial segment in 2008, 60% of coral reefs could be lost as early as 2030 through fishing damage, pollution, climate change and other factors (Figure5-1). The report also stated that 11% of the natural areas remaining in 2000 could be lost by 2050, as a result of conversion to agriculture, climate change and other factors. Moreover, the possible economic loss caused by the deterioration of the forest ecosystem is suggested to range from 1.35 trillion euros (approximately 220 trillion yen) to 3.1 trillion euros (approximately 500 trillion yen) by 2050.

Table5-1 The Assessment Results of the Status of Biodiversity by the Global Biodiversity Outlook 2

〈Category: Focal Area〉 Indicators in assessments for GBO2	Results
〈Status and trends of the components of biological diversity〉	
Trends in extent of selected biomes, ecosystems, and habitats	↘
Trends in abundance and distribution of selected species	↘
Change in status of threatened species	↘
Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socio-economic importance	↘
Coverage of protected areas	↗
〈Ecosystem integrity and ecosystem goods and services〉	
Marine Trophic Index	↘
Connectivity – fragmentation of ecosystems	↘
Water quality of aquatic ecosystems	↘／↗
〈Threats to biodiversity〉	
Nitrogen deposition	↘
Trends in invasive alien species	↘
〈Sustainable use〉	
Area of forest, agricultural and aquaculture ecosystems under sustainable management	↘
Ecological footprint and related concepts	↘
〈Status of traditional knowledge, innovations and practices〉	
Status and trends of linguistic diversity and numbers of speakers of indigenous languages	↘
〈Status of access and benefit sharing〉	
〈Indicator of access and benefit-sharing to be developed〉	No data available
〈Status of resources transfers〉	
Official development assistance (ODA) provided in support of the Convention	↘

Note: Arrows indicate the direction of trends. Arrows pointing downward indicate deterioration, and arrows pointing upward indicate improvement.

Source: Compiled by the Ministry of the Environment from "Global Biodiversity Outlook 2"

(2) Status of Japan's biodiversity

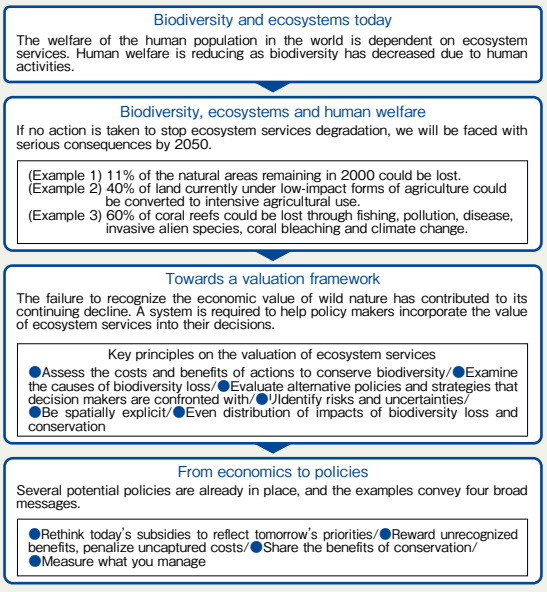
According to the Red List of the Ministry of the Environment, there are 3,155 species threatened with extinction in Japan; more than 30% of reptiles, amphibians, brackish and freshwater fish, more than 20% of mammals and vascular plants, and more than 10% of birds are classified as species threatened with extinction.

(3) Japan's efforts towards the 10th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP10)

Regarding the 10th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP10) and the 5th meeting of the Conference of the Parties serving as the Meeting of the Parties to the Cartagena Protocol on Biosafety (MOP5), it was decided at COP9, held in May 2008, that these meetings will be held in Nagoya City, Aichi Prefecture in October 2010.

In response to this, the government in September 2008 established the Inter-Ministerial/Agency Co-ordination

Figure5-1 An Overview of the Interim Report of The Economics of Ecosystems & Biodiversity (TEEB)



Source: Compiled by the Ministry of the Environment from "The Economics of Ecosystems and Biodiversity Interim Report"

Committee for holding the COP10 and MOP5 in Japan, and started preparations under cooperation with the relevant parties in Nagoya City. The government also set up round-table meetings, so that a variety of entities could participate in the planning stage and to share information.

(4) Efforts for an awareness of biodiversity to penetrate society

For promoting dissemination and public awareness of biodiversity to the broader nation, the government set up the "Biodiversity promotion committee on communication and public involvement," consisting of eminent persons. Based on discussions at the committee, the ministry came up with a Communication slogan for Biodiversity "For All the Life on Earth," which expresses biodiversity in an easy to understand way, while launching a promotion organization, consisting of celebrities called "Life on the Earth" supporters club and the "Biodiversity action list for citizens" was announced a set of key points for each citizen, for promoting biodiversity.

In order to support efforts for the conservation and restoration of biodiversity in the region, the ministry has launched "The Projects for the Promotion and Support of Biodiversity Conservation," and has adopted 19 projects nationwide as grant candidates, including wildlife conservation management and countermeasures against alien species.

The Act on Promotion of Ecotourism was enforced in April 2008 and the "basic policy on Promotion of Ecotourism" was approved by the Cabinet in June 2008.

Regarding the system related to the "Hot Springs Law," the enforcement ordinance concerning the Hot Springs Law was promulgated in May 2008, and the revised Hot Spring Law, promulgated in November 2007, aiming to prevent disasters from combustible natural gas during the extraction of hot spring water, has been implemented since October 1, 2008.

(5) Efforts to rebuild the relationship between human beings and nature in regions

To secure the human resources dedicated to management, the "Wildlife Management Personnel Training Program" and "the specialist registration system" has been implemented. In response to the outbreak of a highly pathogenic avian influenza in Lake Towada and other areas in spring of 2008, the "Technical Manual on Wild Bird Highly Pathogenic Avian Influenza Surveillance for local government officials" was developed and the nationwide surveillance system for a highly pathogenic avian influenza was established.

Regarding the domestic endangered species of wild fauna and flora according to the Law for the Conservation of Endangered Species of Wild Fauna and Flora, 9 species were added and 1 species taken out from the list, which total totaled 81 species including 4 species of mammals, 38 species of birds, 1 species of reptile, 1 species of amphibian, 4 species of brackish water and freshwater fish, 10 species of insects, and 23 species of plants. The government stipulated new Programs for the Rehabilitation of Natural Habitats and Maintenance of Viable Populations for 9 species of domestic endangered species of wild fauna and flora, and is conducting such programs for 47 species in total, including breeding and habitat maintenance. In September 2008, 10 Japanese Crested Ibis were experimentally released on Sado Island.

To prevent damage to pet animal health from pet food and ensure the safety of pet animals, the "bill on Ensuring the Safety of Pet Food" was submitted to the 169th ordinary Diet session and the law was enacted in June 2008.

(6) Efforts to secure a connection between forest, rural area, river and sea

The government consulted the Central Environmental Council on "Regarding the Draft Report of the Central Environment Council on the State of the Implementation of the Natural Parks Law and its Required Measures" in October 2008. After a series of reviews, a list of measures to fulfill biodiversity conservation policy in the national parks, quasi-national parks, and nature conservation areas, was compiled and then reported to the Environment Minister in February 2009. In response to this, a partially amended bill on Natural Parks Law was submitted to the 171st ordinary session of the Diet.

The government designated Japan's first Regulated Utilization Areas in Nishiodai, a part of Odaigahara in Yoshino-Kumano National Park, and is undertaking sustainable use of the excellent natural environment under these regulations.

(7) Efforts with a global perspective

The Ministry of the Environment was supposed to; collect and investigate the world's wisdoms and traditions of living in harmony with nature; to utilize these in the realization of a society, where the entire world can coexist with nature, by combining Japan's efforts with them and to propose the efforts as the "SATOYAMA Initiative" to the world. At the COP9 to the Convention on Biological Diversity, the Environment Minister announced the promotion of efforts to international society. Furthermore, international promotion was agreed at the G8 Environment Ministers Meeting held in May 2008, further promoting efforts towards the "SATOYAMA Initiative."

Regarding the regional biodiversity and natural phenomena (such as insect distribution and plant blooming), which are susceptible to global warming and others factors, the government launched a citizen participation research project (popularly known as "Biodiversity Observation by One Million People") in July 2008.

Regarding the Ramsar Convention, Japan cooperated with South East Asian countries to designate wetlands of international importance, provided support toward the opening of the Asian Wetland Symposium in Vietnam, and submitted a joint resolution with the Republic of Korea, related to rice paddy fields, to the Ramsar COP10.

In November 2008, the "International Coral Reef Marine Protected Area Network Meeting/ 4th ICRI East Asia Regional Workshop" was held in Tokyo, drafting a provisional plan to formulate the Coral Reef Marine Protected Area Network Strategy, mainly in East Asia marine areas, by about FY2010.

Regarding Shiretoko, which was designated as a World Natural Heritage Site in 2005, a reactive monitoring mission was conducted at the 32nd World Heritage Committee meeting in July 2008. The management of Shiretoko, utilizing participation from the local community and scientific knowledge from the Shiretoko World National Heritage Scientific Committee, was highly received at the meeting.

6 Basis of Various Measures, and Measures Facilitating the Participation of Various Entities and International Cooperation

(1) Expenditure for environmental conservation

The total amount of expenditure for FY2009 for environmental conservation was 2,116.8 billion yen.

(2) Policy measures of the central government

The second review of the Third Basic Environment Plan was implemented, focusing on 5 out of 10 areas including "Efforts for global warming issues" as important areas to be reviewed.

(3) Environmental Impact Assessment

For the purpose of promoting Strategic Environmental Assessment (SEA) at the stage of considering its location, size or other factors are under consideration, the Japanese government informed the public about "The Guidelines for the Introduction of Strategic Environmental Assessment" and carried out projects according to these guidelines.

A comprehensive research survey was also conducted on the implementation of Environmental Impact Assessment (EIA) under the Environmental Impact Assessment Law. In addition, the Japanese government considered the improvement and advancement of assessment and ensured the proper implementation of the ministerial ordinances formulated by project features, which were revised in FY2006.

The government has also started preparing an information support system that stores case studies, and basic knowledge on the regulations and methods of the EIA. The collected information was supplied via the Internet or other mediums to citizens and local governments, aiming to secure the quality and reliability of EIA.

(4) Relief programs for victims of Minamata disease and asbestos-caused health damages

A Minamata disease

The certification of Minamata disease is currently conducted in accordance with the Law concerning Compensation and Prevention of Pollution-Related Health Damage. The total number of certified patients is 2,962 (1,778 in Kumamoto Prefecture, 491 in Kagoshima Prefecture, and 693 in Niigata Prefecture) as of the end of March 2009. Of these, 820 patients still survive (426 in Kumamoto Prefecture, 169 in Kagoshima Prefecture, 225 in Niigata Prefecture).

Since 1992, the Program concerning Comprehensive Measures of Minamata Disease including medical care programs that compensate medical care expenses has been implemented. In response to the political settlement of this issue, the government resumed acceptance of applications for benefits under the medical program in 1995.

As a result of the implementation of such measures by the government and the relevant prefectures, lawsuits for state redress-except the Kansai lawsuit-were withdrawn in February and May 1996. In October 2004, the Supreme Court upheld the Osaka High Court verdict on the Kansai lawsuit, ruling that the government and Kumamoto prefectural government were responsible for failure to use the two laws concerning water quality and control and Fisheries Coordination Regulation and for failure to prevent the spread of Minamata disease since January 1960.

In April 2005, prior to the 50th anniversary in 2006 of the official acknowledgement of Minamata disease, the government announced "Future Minamata Disease Countermeasures," which consist of measures to expand medical care programs, taking into consideration the aging of patients, the measures to assist victims, including congenital patients, in participating in social activities, and the measures for regional revitalization. The government has been implementing those measures.

The ruling parties submitted a bill to provide relief to Minamata disease patients at an early stage in March 2009, based on the increasing number of patients claiming for relief, and the examination by the project team for the Minamata disease issue that was organized within the ruling parties. The government is promoting efforts in cooperation with the ruling parties project team and the relevant local governments.

B Asbestos-caused health damage

Since the Act on Asbestos Health Damage Relief was enforced three years ago, the enforcement has been smoothly conducted in general. However, some challenges have arisen which had not been envisioned at the time of establishment of the relief program. Some application cases are made after a long period of time or after the death of the victims, due to the difficulty of diagnosis of mesothelioma. Dealing with these challenges has been considered to be necessary from the point of view of victim relief, as the deadline for requests for special survivor condolence money was pressing. After submission of the ruling parties draft – compiled by the ruling parties asbestos project team – and the draft compiled by the Democratic Party of Japan, both parties agreed to modify the bill and the revised bill was approved and enacted at a House of Councilors plenary session on June 5, 2008, promulgated on June 18, and came into force on December 1.

By the end of FY2008, the government had received a total of 7,424 applications for relief benefits under the Act on Asbestos Health Damage Relief, of which 4,522 were officially certified and 987 were not certified.

(5) Making progress on environmental education and environmental learning

In accordance with the Law concerning the Enhancement of Willingness for Environmental Conservation and Promotion of Environmental Education and the basic policy based on the law, Registration of Human Resource

Accreditation etc. Enterprises has been conducted and information on those registered projects will be released to the public via the Internet. Along with this program, it is important for relevant ministries and agencies to collaborate, in order to provide opportunities for high quality environmental education at home, school, region, and at company. Therefore, a variety of policies related to environmental education and environmental learning have been implemented under the "21st-Century Environmental Education Initiative" —to provide environmental education for anyone, anywhere, and at anytime—called the AAA Plan.

Japan also participated in the 9th Korea-China-Japan Tripartite Environmental Education Network (TEEN) workshop/symposium, hosted in Seoul, Korea, and exchanged opinions on the subjects of "Ways to Promote the Tripartite Environmental Education Network" and the "Young Environmental Education Leaders in Higher Education."

(6) Measures towards promotion of greening socioeconomy

Regarding measures imposing economic loads, in order to reduce environmental loads, Japan made progress in survey and research to assess its specific measures, regarding their impacts on environmental conservation and national economy and collected data of case examples in other countries, to match each application sector including the control of CO_2 emissions to prevent global warming and to control waste generation.

In accordance with the Green Purchasing Law, each government agency set up policies for purchasing Eco-friendly goods and services in FY2008 and implemented the purchasing of green products. To further promote green purchasing, explanatory meetings for changes in the basic policy were held at 10 cities nationwide, targeted local offices of government agencies, local governments and companies.

Table6-1 The Current Status of Size of the Market and the Employment of Environmental Businesses (including Environment-Induced Business)

The market size (trillion yen)		The size of employment (10,000 people)	
Year 2000	Year 2007	Year 2000	Year 2007
41	69	106	130

Source: Ministry of the Environment

With the aim of promoting greening of finance, reflecting trends in social responsibility towards the environment and company social responsibility policies, the government conducted a survey to ascertain the current status of environmental consideration investment, and held an eminent persons review conference to assess dissemination of eco-friendly investment and loan programs for the future.

Regarding the market size and its workforce of domestic environmental business, a survey and estimation was carried out according to OECD environmental categories. The market size of environmental business including environmental-induced business, where demand is created by consumer activities considering environmental conservation, such as energy-saving home appliances and eco-funds, was approximately 69 trillion yen and employed approximately 1.3 million people in 2007 (Table6-1).

(7) International policy measures

In an effort to address global environmental issues, the government has been promoting the followings: (1) supporting programs for the activities of international organizations, (2) positive involvement in multilateral negotiations for international treaties or protocols, (3) cooperation with other countries, and (4) assistance of developing countries and regions.

○Measures on Environmental Conservation to be Implemented in FY2009
Measures on Formation of a Sound Material-Cycle Society to be Implemented in FY2009
Measures on Conservation and Sustainable Use of Biodiversity to be Implemented in FY2009

The Quality of the Environment in Japan 2009 (White Paper) reports measures on environmental conservation, formation of a Sound Material-Cycle Society and conservation and sustainable use of biodiversity to be implemented in FY2009.

Chapter 1: Building a Low Carbon Society
Chapter 2: Conservation of the Global Environment, the Atmospheric Environment, the Water Environment, the Soil Environment, and the Ground Environment
Chapter 3: Establishing a Sound Material-Cycle Society
Chapter 4: Assessment and Control of Risks from Chemical Substances in the Environment
Chapter 5: Conservation and Sustainable Use of Biodiversity
Chapter 6: Basis of Various Measures, and Measures Facilitating the Participation of Various Entities and International Cooperation