Part Two Current Environmental Issues and Government Environmental Conservation Measures

Part Two *of the Quality of the Environment in Japan 2006* (White Paper) includes the following chapters to introduce in current environmental issues and environmental conservation measures implemented by the government in FY2005.

Part Two of this booklet will report on the issues and current state of environmental problems in the following major fields:

Chapter 1. Prevention of Global Warming and Preservation of the Ozone Layer
Chapter 2. Conservation of the Atmospheric Environment
Chapter 3. Conservation of the Water, Soil, and Ground Environments
Chapter 4. Measures and Policies related to the Material Cycle, including Waste and Recycling Measures
Chapter 5. Measures for Chemical Substances
Chapter 6. Conservation of the Natural Environment and Promoting Contact with Nature
Chapter 7. Basis of Various Measures, and Measures Facilitating the Participation of Various Actors and International Cooperation

1. Prevention of Global Warming and Preservation of the Ozone Layer

(1) Global Warming

Expanding human activities have resulted in the emission of massive amounts of greenhouse gases (such as carbon dioxide and methane) into the atmosphere, exacerbating the greenhouse effect, and possibly leading to higher temperatures on the earth's surface.

According to the *Third Assessment Report: Climate Change 2001* published by the Intergovernmental Panel on Climate Change (IPCC), the global mean surface temperature increased by approximately 0.6℃ over the 20th century, and consequently the mean global sea level rose by approximately 10-20cm.

Based on multiple scenarios, with certain assumptions on worldwide economic growth, population, technological innovation, economic/energy structures, and some other trends, the report also makes forecasts, predicting that the globally averaged surface temperature will increase by 1.4-5.8℃ in the period from 1990 to 2100.

According to analysts, the Earth has not seen such a rapid rise in temperature in the last 10,000 years.

Further global warming would have large-scale and serious impacts on the living environment of humans as well as on wildlife habitats.

Impacts of Global Warming Observed in Recent Years

Indicator	Changes Observed
Global mean surface temperature	Increased by approximately 0.6℃ over the 20th century
Global mean sea level	Increased by 10-20cm over the 20th century
Hot days/heat index	Increased (likely)
Cold/frost days	Decreased for nearly all land areas
Heavy precipitation events	Increased at mid- and high latitudes in the northern hemisphere
Drought	Increased frequency in some areas
Glacier	Receded in wide areas
Snow cover	Decreased in area by 10% since the 1960s

Source: Compiled by the Ministry of the Environment based on the IPCC, *Third Assessment Report*.

Projected Impacts of Global Warming

Index	Projected Impacts
Global mean surface temperature	Increase of 1.4-5.8℃ from 1990 to 2100
Global mean sea level	Rise of 9-88cm from 1990 to 2100
Impacts on meteorological phenomenon	Increase in floods and droughts, and stronger typhoons
Impacts on human health	Greater heat stress, spread of infectious diseases
Impacts on ecosystem	Extinction of some animals and plants, shift in ecosystem ranges
Impacts on agriculture	Grain production will decrease in many areas. Some areas may experience increase for a while.
Impacts on water resources	Changes in water demand/supply balances, and negative impacts on water quality
Impacts on markets	Developing nations dependent upon the production of primary products will suffer immense economic losses.

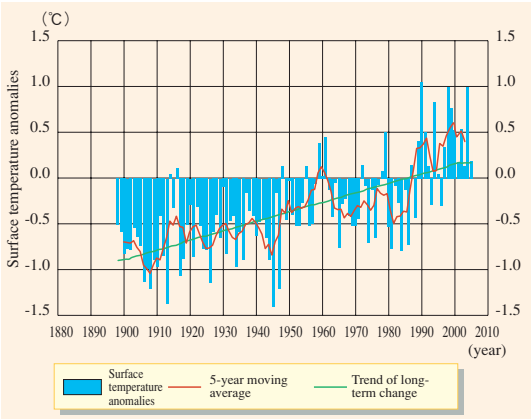
Source: Compiled by the Ministry of the Environment based on the IPCC, *Third Assessment Report*.

In Japan, the average temperature has risen by approximately 1℃ during the 20th Century. Climate change will have significant impacts on ecosystems, agriculture, social infrastructure, and human health, possibly leading to drastic lifestyle changes.

To address this problem, the 3rd Conference of the Parties (COP3) to the UN Framework Convention on Climate Change (UNFCCC) (held in Kyoto in 1997) adopted the Kyoto Protocol, which sets out the legally binding numerical targets for reduction of greenhouse gases emissions in developed nations. The Kyoto Protocol became effective in February 2005.

In addition, at the 11th Conference of the Parties (COP11) to the UN FCCC, and the 1st Conference of Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP1) that were held in Montreal in November-December 2005, state parties began discussing possible international policy actions after 2013, which is immediately after the end of the first commitment period of the Kyoto Protocol.

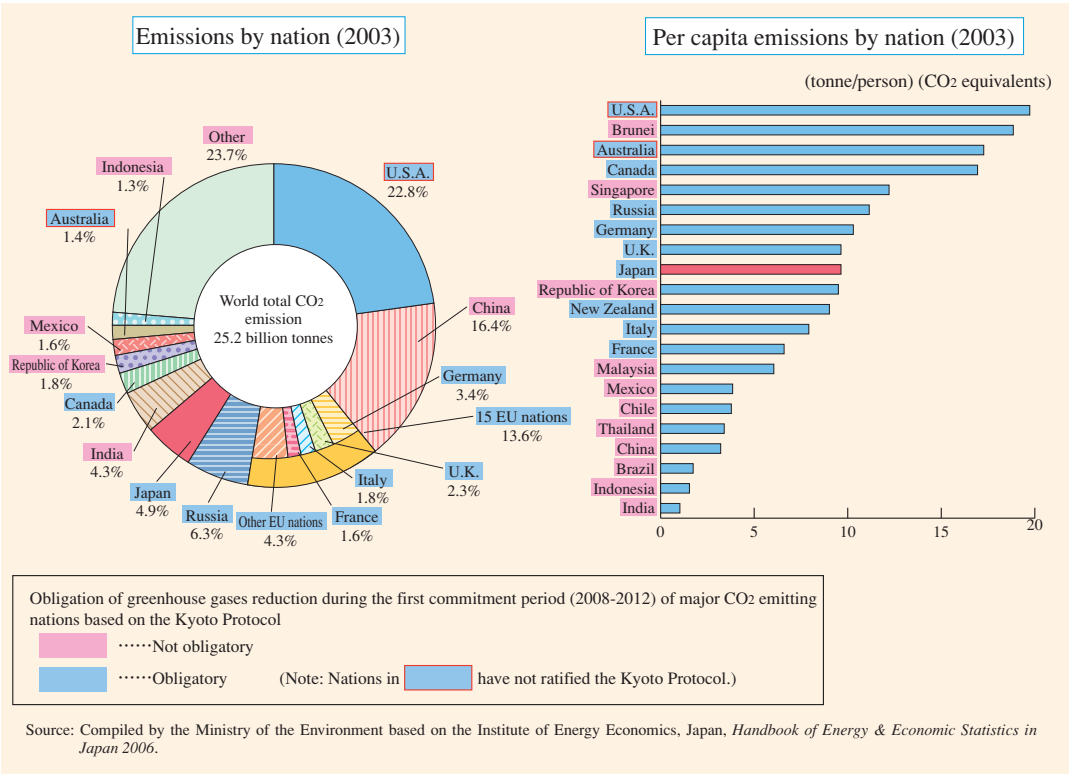
Chronological Change in Japan's Annual Average Surface Temperature Anomalies (1898-2005)



Note: Bar chart data represent the temperature for each year. A red line shows the 5-year moving average for each year. A green line represents a long-term trend.
Source: Japan Meteorological Agency

Japan produces approximately 5% of the total world CO_2 emissions, which is the 4th largest in the world after the U.S.A. (about 23%), China (about 16%) and Russia (about 6%). Developed nations produce larger CO_2 emissions per capita than developing nations.

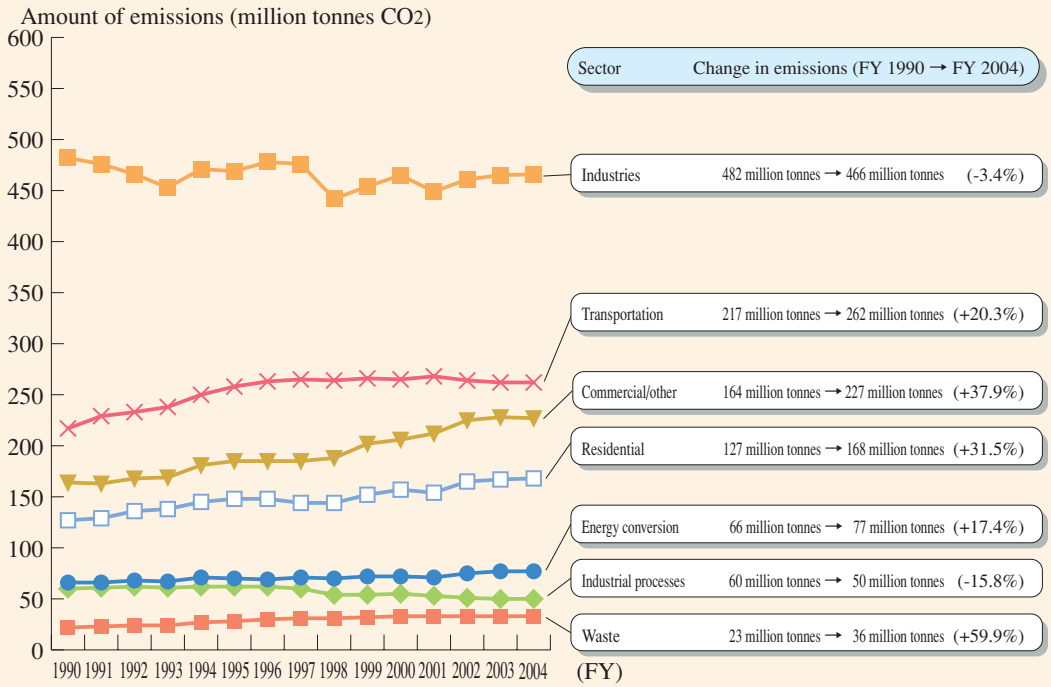
CO_2 Emissions and Per Capita CO_2 Emissions by Nation



Source: Compiled by the Ministry of the Environment based on the Institute of Energy Economics, Japan, *Handbook of Energy & Economic Statistics in Japan 2006*.

Japan emitted 1,355 million tonnes* of greenhouse gases (hereinafter, figures marked with * represent data for CO_2 equivalents) in FY2004, which was 8.0% higher than the total emissions of the base year (1,255 million tonnes*) as stipulated in the Kyoto Protocol. Japan's greenhouse gas emissions were 0.2% lower than the preceding year. Compared to the base year level (1990 in principle), a breakdown by sectors shows that the emissions of greenhouse gases for the industrial sector had decreased by 3.4%, while that of the transport sector had increased by 20.3%, the commercial and other sectors had increased by 37.9%, and the residential sector had increased by 31.5%.

CO_2 Emissions in Japan



Note: The data shown in this chart differ from those published last year because the government is reviewing the calculation method for greenhouse gas emissions.
Source: Ministry of the Environment

For this reason, the government approved the "Kyoto Protocol Target Achievement Plan" at a cabinet meeting in April 2005 in order to proceed with various policy actions, such as introducing low-emission vehicles, energy-saving equipment, and solar power generation systems. Because carbon dioxide arises from every aspect of human activities, achievement of a 6% reduction commitment, in accordance with the Kyoto Protocol, will require a collective effort by all levels of society from the national and local governments, to business owners, and each individual citizen to implement energy-saving measures.

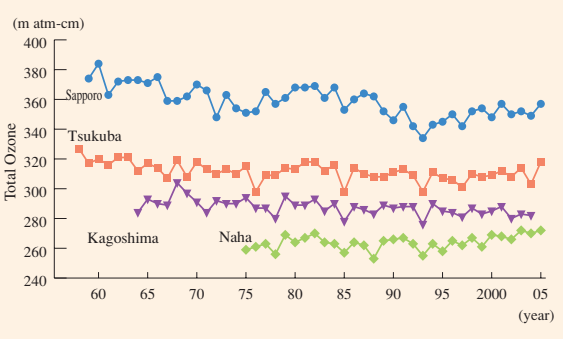
(2) Depletion of the Ozone Layer

CFCs and some other substances are found to have been depleting the ozone layer. There is concern that depletion of ozone layer may increase the amount of harmful ultraviolet radiation reaching the earth, leading to increased damage to human health such as skin cancer and cataracts, as well as hindered growth of plants and plankton.

The ozone layer has been depleted, in particular in the 1980s, over the whole globe, except for the tropical areas. The total ozone over Japan also decreased, especially in the 1980s, but it has remained constant or slightly increased since the 1990s.

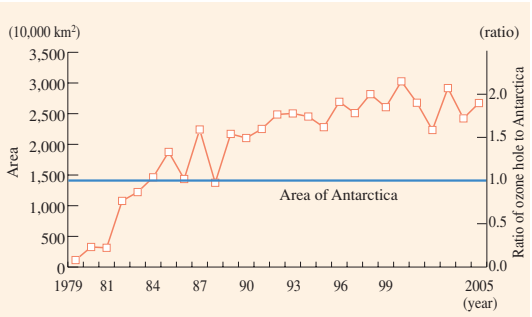
As of 2005, the ozone hole over the Antarctica had an average size of the previous 10 years.

Changes in the Annual Average of Total Ozone over Japan



Source: Japan Meteorological Agency, *Report of Ozone Layer Observation in 2005*

Changes in the Size of Ozone Hole over Antarctica



Source: Japan Meteorological Agency, *Report of Ozone Layer Observation in 2005*

In Japan, in order to prevent further depletion of the ozone layer, the production of ozone-depleting substances is regulated pursuant to the Ozone Layer Protection Law. In addition, the recovery and destruction of fluorocarbons at the disposal stage of products are mandated by the Home Appliance Recycling Law, the Fluorocarbons Recovery and Destruction Law, and the End-of-Life Vehicle Recycling Law.

2. Conservation of the Atmospheric Environment

(1) Acid Deposition and Dust and Sandstroms (DSS)

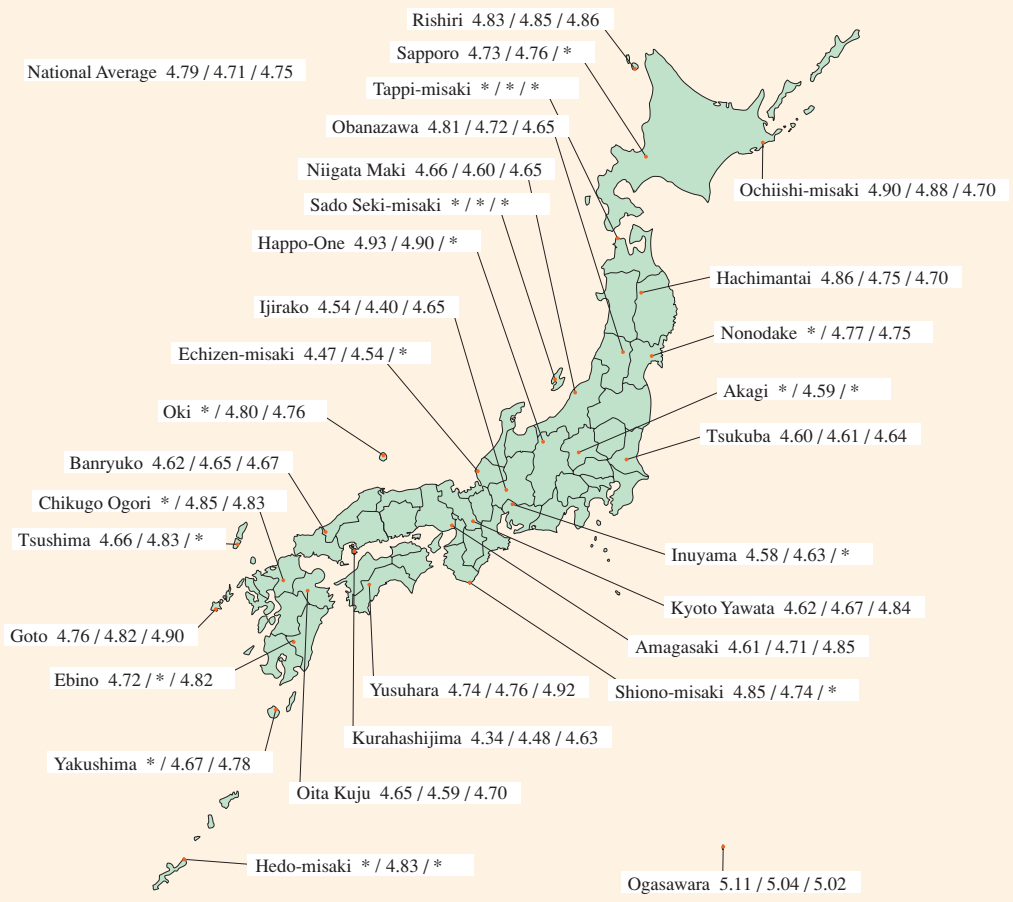
Acid deposition can produce a range of effects on the environment and living creatures such as trees or fish by increasing acidity in soil, lake water, etc. Buildings, artificial constructions, and cultural assets can be affected by acid deposition. In the U.S. and Europe, acidification of lakes/reservoirs and the decline of forests caused by acid deposition have been reported.

Japan has also had almost the same level of acid deposition as the Western nations that have suffered some damage. However, it is still unclear how acid deposition will impact on ecosystems in Japan. As it will take longer for the affects of acid deposition to become apparent, negative impacts will only surface in the future if Japan's acid deposition remains at the current level.

The Acid Deposition Monitoring Network in East Asia (EANET) became fully operational in FY2001. It is aiming to identify the state of acid deposition and its impacts on East Asia and to establish the framework for a regional cooperative approach to acid deposition problems.

Levels of pH in Precipitation

FY2002 average / FY2003 average /FY2004 average



Asterisk (*) represents invalid annual average data.
Notes:
1. Annual average data stands for weighted average precipitation.
2. For the Akagi area, annual averages cannot be calculated in years when heavy snowfall prevents data collection.
Source: Data from the Ministry of the Environment

In Japan, long-term monitoring of acid deposition is carried out to detect its effects as early as possible and to forecast its effects in the future.

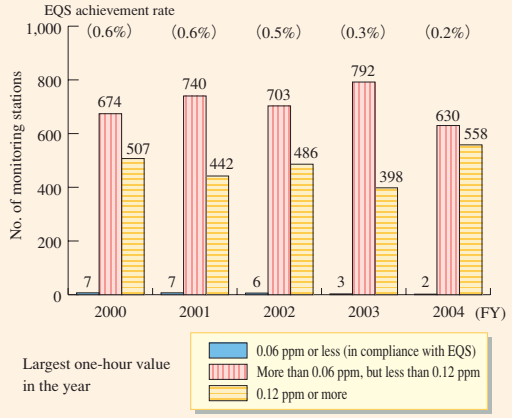
Dust and Sandstorms (DSS), which blows over from China and Mongolia, has been seen more frequently in Japan than in the past. China, Republic of Korea, Japan, and some other nations share a common interest in dealing with DSS. In Japan, the government has established DSS monitoring systems. In addition, China, Mongolia, Korea, Japan, the United Nations Environment Programme (UNEP), and some other international organizations are working together to explore effective measures to deal with DSS in the future.

(2) Photochemical Oxidants

Photochemical oxidants is a collective term that includes ozone and some other secondary substances generated in the presence of sunlight (photochemical reaction) from nitrogen oxides (NOx), volatile organic compounds (VOCs), or other primary pollutants emitted from factories, businesses, or automobiles. Photochemical oxidants are the cause of photochemical smog, which causes eye and throat irritation and respiratory distress. In almost all regions throughout Japan, photochemical oxidants still exceed the environmental quality standard (EQS) (a one-hour value of 0.06 ppm or less).

As one of the measures to combat photochemical oxidants, the Air Pollution Control Law was revised in May 2004 to control VOC emissions from factories. By combining VOC emission regulations and voluntary measures by business operators, the revised law provides an effective solution for curbing VOC emissions. Since April 1, 2006, VOC-emitting firms have been required to submit notification of their VOC-emitting plants and comply with the emission criteria. As a result, these firms are expected to take voluntary action. In accordance with the Air Pollution Control Law, Japan's regulatory authority has put in place tighter restrictions on VOCs emitted from automobiles.

Changes in the Number of Monitoring Stations by Photochemical Oxidant Concentration Level (AAPMSs and RAPMSs) (FY 2000 – 2004)



Source: Compiled from the Ministry of the Environment, *FY 2004 Report on the State of Air Pollution*.

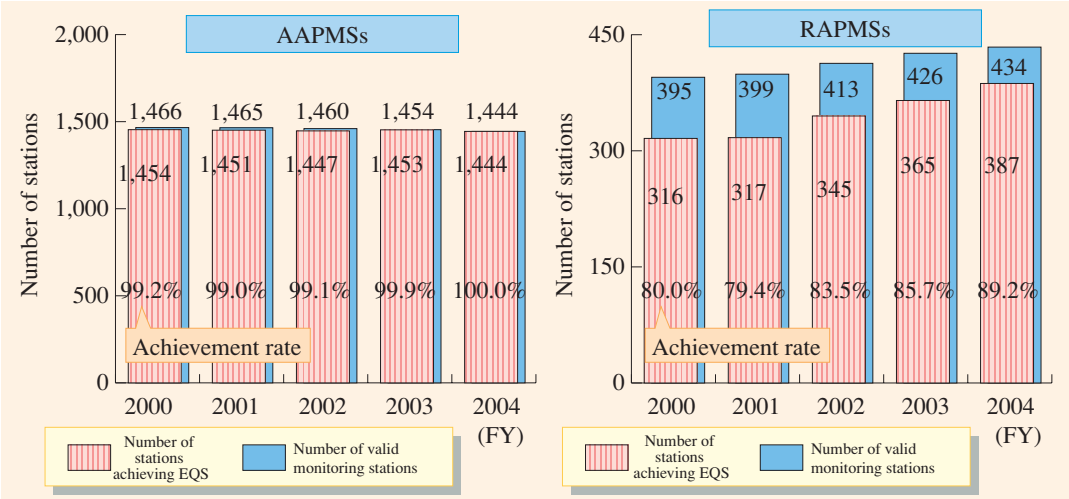
Through the Atmospheric Environmental Regional Observation System (nickname: *Soramame-kun*), the government collects on a real-time basis the nationwide atmospheric environment data measured at a prefectural level as well as the photochemical oxidant warning data , and makes these data available on the Internet.

(3) Nitrogen Oxides

Nitrogen oxide (NOx) is a by-product of combustion, generated mainly from stationary sources (such as factories) and mobile sources (such as motor vehicles). NOx contributes to photochemical oxidants, suspended particulate matter, and acid deposition. High concentrations of Nitrogen dioxide (NO_2) may have a negative impact on health by causing irritation to the respiratory organs.

Compared to the previous year, the achievement rates for the NO_2-related EQSs were slightly improved in FY2004. The achievement rate of the ambient air pollution monitoring stations (AAPMSs) was 100%, and that of the roadside air pollution monitoring stations (RAPMSs) was 89.2%.

Changes in Achievement of NO_2-related EQS (FY 2000-2004)



Source: Compiled from the Ministry of the Environment, *FY 2004 Report on the State of Air Pollution*

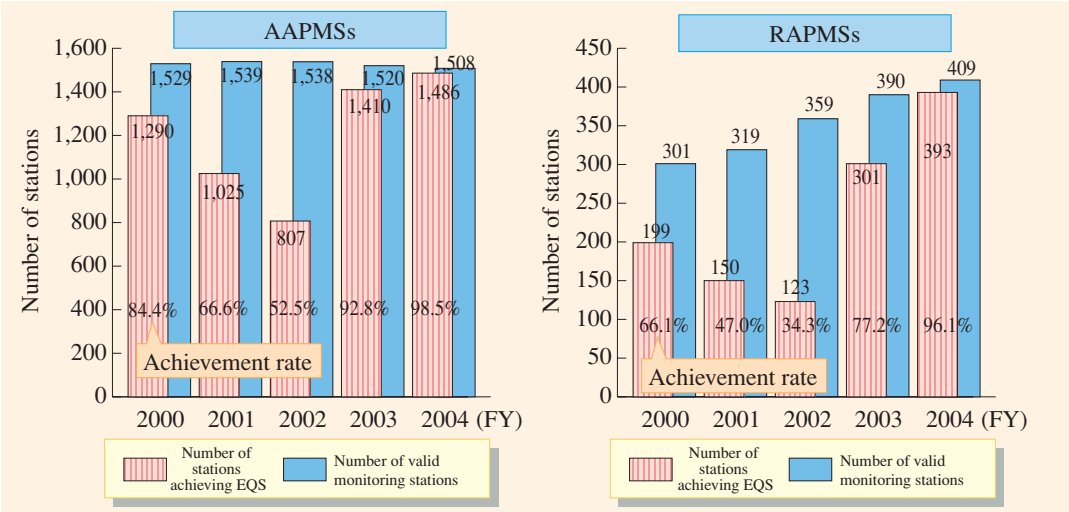
(4) Suspended Particulate Matter (SPM)

Suspended particulate matter (SPM), which floats in the air and has a diameter of 10 μm or less, is classified into primary particles and secondary particles. Primary particles include soot and dust from factories, diesel exhaust particles (DEP) generated from diesel vehicles, and soil particles dispersed in the air. Secondary particles are formed in the atmosphere from gaseous substances such as nitrogen oxides (NOx). Because SPM is of a minute size, it stays in the air for a long time. An accumulation of SPM in high concentrations in the lungs or the trachea can have damaging effects on the respiratory system.

The SPM-related EQS achievement rate improved in FY 2004 compared to the previous year.

In addition, experts are carrying out research on fine particulate matter with a diameter of 2.5 μm or less and diesel exhaust particles because analysts recently pointed out that these substances can have an adverse affect on human health.

Changes in Achievement of SPM-related EQS (FY 2000-2004)



Source: Compiled from the Ministry of the Environment, *FY 2004 Report on the State of Air Pollution*

(5) Hazardous Air Pollutants

Various chemical substances, though low in concentration, have been detected in the atmosphere, raising concerns about the health effects of long-term exposure to these hazardous substances. In terms of the four substances that have EQSs in place, benzene's observed value improved in FY 2004, with 5.5% of monitoring stations recording data exceeding the EQS. As for the other three substances, all monitoring stations recorded data better than the applicable EQSs.

In an attempt to reduce hazardous air pollutants, the government set up maximum permissible levels for benzene and other

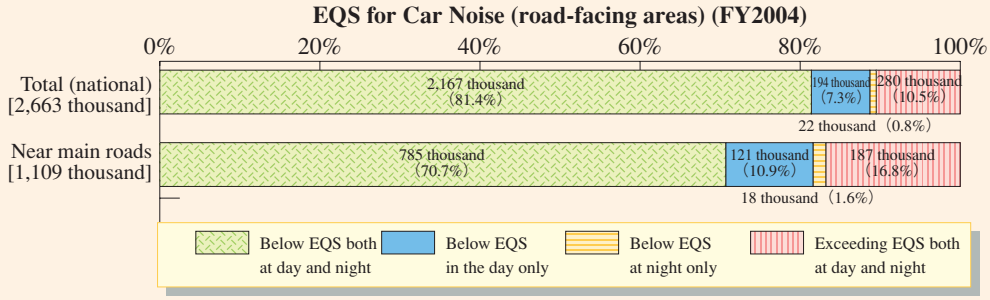
designated substances in accordance with the Air Pollution Control Law, intending to control emissions of these substances. The government also encourages the private sector to take voluntary actions to curb emissions. Due to voluntary management plans at the industry association level, as well as various projects in accordance with regional voluntary management plans on benzene, total emissions of hazardous air pollutants have been significantly reduced from FY2001 to FY2003.

(6) Noise, Vibration, and Offensive Odors

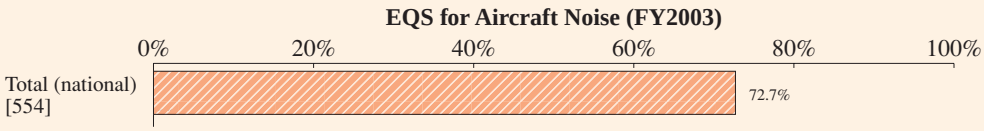
The number of complaints about noise has been gradually increasing over several years to 16,215 in FY2004. Complaints about offensive odors had been increasing for the service and other sectors for a couple of years. There were only 19,657 complaints about offensive odors in FY2004, a decrease for the first time in five years.

Out of the 2,663 thousand noise observation points (households) in residential areas nationwide, 496 thousand households (19%) exceeded the EQS either at day or night in FY2004. Out of the 1,109 thousand observation points (households) facing a main road, 325 thousand households (29%) exceeded the EQS either at day or night. With regard to aircraft noise, 73% of the observation points were within the EQSs satisfactory level in FY 2003.

Attainment of the EQS for Transportation Noise



Note: The figures in parenthesis represent the number of households surveyed.
Source: Ministry of the Environment

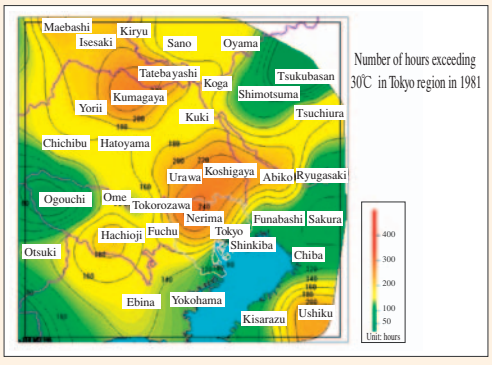


Note: The figures in parenthesis represent the number of monitoring points.
Source: Ministry of the Environment

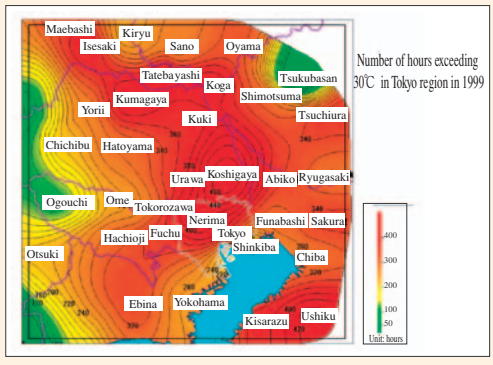
(7) Heat Island Phenomenon

"The heat island phenomenon" means that urban areas have a higher temperature than surrounding suburban areas. This phenomenon results in an increase in the number of sultry nights in the summer. As waste heat from air conditioners also raises the

Distribution of High Temperature Areas in the Tokyo Region (1981 and 1999)



Distribution of High Temperature Areas in the Tokyo Region in 1981



Distribution of High Temperature Areas in the Tokyo Region in 1999

Source: Ministry of the Environment, *Report on the Heat Island Phenomenon-Analysis of the Current State and Countermeasures*

temperature, even more energy is required for air conditioning, which leads to a vicious cycle.

In line with the "Outline of the Policy Framework to Reduce Urban Heat Island Effects", the government is now taking policy action to reduce heat islands consisting of four major pillars: reducing anthropogenic exhaust heat, improving urban land surface cover, improving urban structure, and improving lifestyles.

(8) Countermeasures against Asbestos

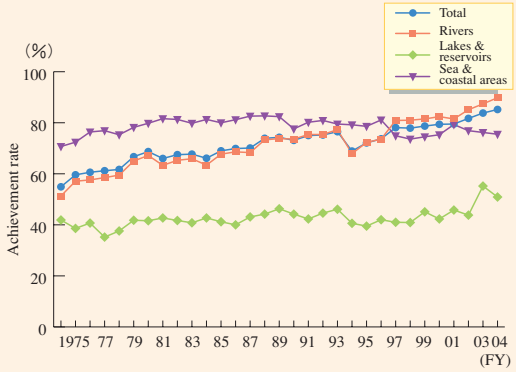
Asbestos was used in many products because of its heat resistance. However, as asbestos is carcinogenic and has other negative effects on human health, manufacture or use of asbestos is prohibited in Japan in principle. The Air Pollution Control Law imposes emission controls and some other restrictions on plants that manufacture asbestos. In the past, the regulatory authority put work standards in place for demolition work on buildings of a certain size made fire-resistant with spray-type asbestos. However, in order to effectively prevent asbestos from being spread in the atmospheric environment, the government amended the enforcement ordinance and enforcement regulations of the Air Pollution Control Law in December 2005. This amendment has expanded the scope of the restricted building materials, and also abolished the size limitations on buildings. In February 2006, lawmakers amended the Air Pollution Control Law, intending to place restrictions on demolition works not only for buildings but also for facilities in general.

3. Conservation of the Water, Soil, and Ground Environments

(1) Water Environment

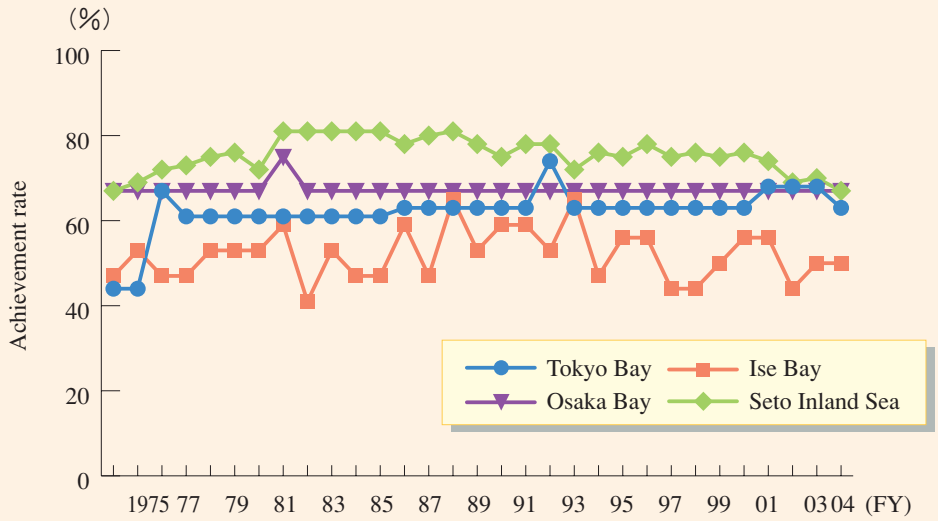
According to the Results of FY 2004 Measurement of Water Quality in Public Waters, the achievement level of the EQS for the protection of human health from substances, such as cadmium, was 99.3%. Standards set for protecting the living environment were achieved at slightly lower rates. The BOD (or COD) level is an EQS for the conservation of the living environment and is a typical water-quality indicator for organic contamination. Its EQS achievement level remained at 85.2%. By water area, the achievement levels were 89.8% for rivers, 50.9% for lakes and reservoirs, and 75.5% for sea areas. In particular, achievement rates for enclosed water areas, such as lakes, reservoirs, inner bays, and inland seas were still low. In terms of COD, the achievement rates were 63.2% for Tokyo Bay, 50.0% for Ise Bay, and 67.3% for the Seto Inland Sea.

Trends in EQS Achievement Rate (BOD or COD)



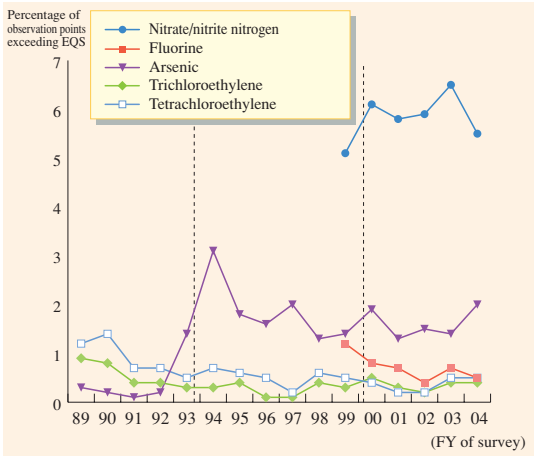
Notes: 1. BOD used for rivers, while COD used for lakes/reservoirs, and sea/coastal areas.
2. Achievement rate (%) = (no. of water areas achieving EQS/no. of designated water areas) × 100
Source: Ministry of the Environment, *Results of FY 2004 Measurement of Water Quality in Public Waters*

Trends in EQS Achievement Rate (COD) in Three Coastal Regions



Note: Ise Bay includes Mikawa Bay, and Seto Inland Sea includes Osaka Bay
Source: Ministry of the Environment, *Results of FY 2004 Measurement of Water Quality in Public Waters*

Percentage of Observation Points Exceeding the EQS for Groundwater Contamination (Categories with a High Percentage of Contamination)



Notes: 1. The survey teams monitor different wells every year in most cases. (They do not necessarily collect data on the same wells every year.)
2. Before the EQSs for groundwater were established in 1997, assessment standards had been used to evaluate groundwater quality. (The assessment standard for arsenic was revised from "0.05 mg/L or less" to "0.01 mg/L or less" in 1993.)
3. Nitrate/nitrite nitrogen, fluorine, and boron were added to the list of EQS items in 1999.

Source: Ministry of the Environment, *Results of FY 2004 Water Quality Survey of Groundwater*

Consequently, lawmakers amended the Law concerning Special Measures for the Preservation of Lake Water Quality in order to launch two new schemes: The Effluent Water Control District Program, which promotes measures to reduce pollution loading from farmland or urban areas to further conserve the water quality of lakes and reservoirs; and the Lakeshore Environmental Protection District Program, which protect plants capable of improving water quality.

According to the Results of the FY 2004 Water Quality Survey of Groundwater, 7.8% of the total wells surveyed exceeded the EQS. Specifically, 5.5% of the wells did not meet the EQS for nitrate-nitrogen or nitrite-nitrogen. These wells were probably polluted by farmland fertilization, livestock excreta, or domestic wastewater. Urgent measures are needed to prevent groundwater being polluted by nitrate/nitrite nitrogen.

The "Inter-Ministry/Agency Coordination Committee for Building Sound Water Cycle" is pushing ahead with policy actions to provide a healthy water cycle by holding information/opinion exchange sessions, encouraging research activities, and serving as a coordinator of policy actions.

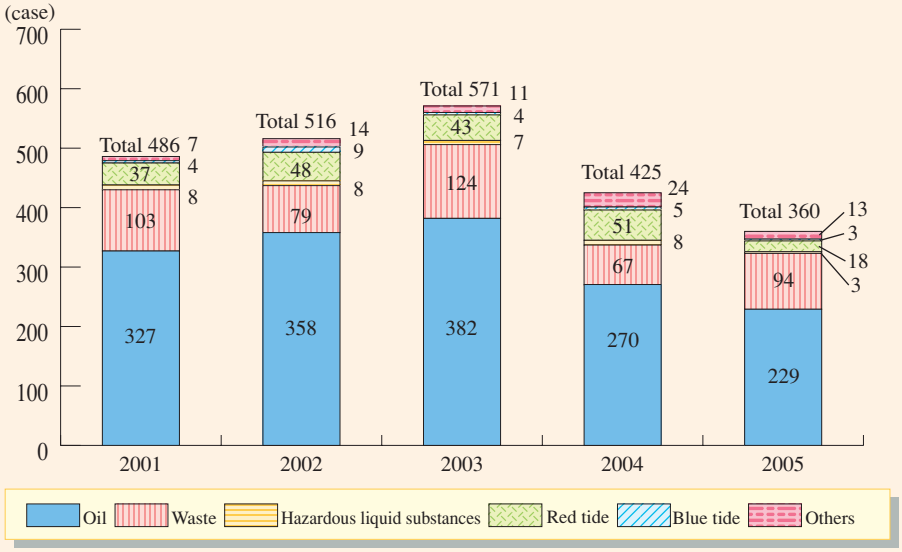
(2) Marine Pollution

For conservation of the marine environment, Japan is a state party to the London Convention, which regulates ocean dumping from vessels, and to the MARPOL 73/78 Convention, which prevents marine pollution caused by ships. In response to these conventions, Japan has taken domestic measures to prevent marine pollution.

In order to assess and monitor the conditions of the marine environment, Japan conducts marine environment monitoring programs, to systematically collect comprehensive data on water quality, bottom sediments, and aquatic organisms.

In terms of marine pollution caused by oil, waste, and red tides, 360 cases were identified in 2005, a decrease of 65 cases from the 2004 level.

Changes in the Number of Marine Pollution Cases Identified



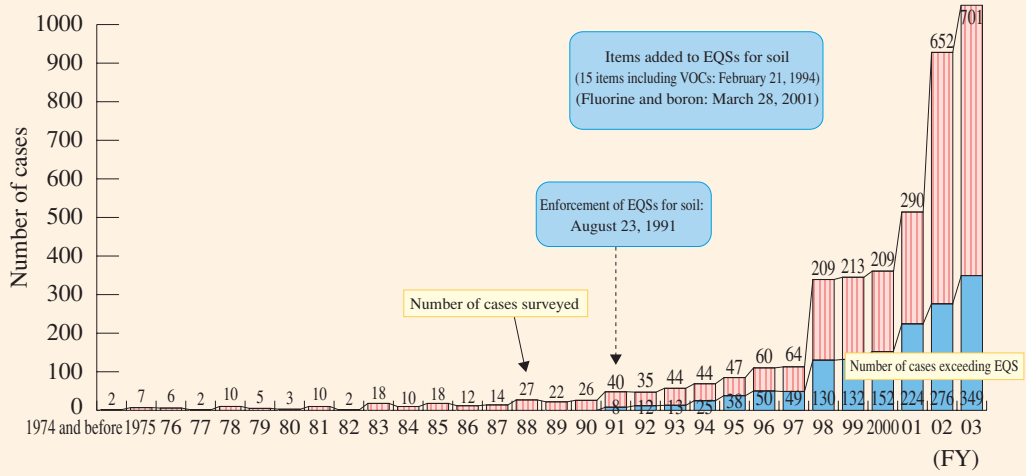
Note: "Others" include factory effluent.
Source: Japan Coast Guard

(3) Soil Contamination

Once soil is contaminated, it accumulates hazardous substances, perpetuating the state of pollution.

In order to address such soil contamination, the Ministry of the Environment is pushing ahead with appropriate countermeasures on soil contamination in accordance with the Soil Contamination Countermeasures Law, and conducted a survey, with the intention of establishing more comprehensive EQS that would regulate extensively of pollutants and exposure paths. A larger number of soil contamination cases have been identified in urban areas as a result of redevelopment projects at former factory sites. In FY2003, the regulatory authority acknowledged 349 cases that exceed the EQS for Soil Contamination or Soil Contamination Countermeasures Law.

Number of Soil Contamination Cases Identified by Fiscal Year



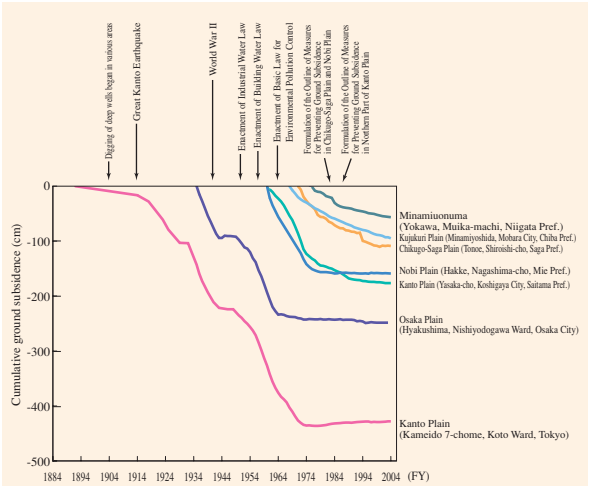
Source: Ministry of the Environment, *Overview of the Survey Result concerning Survey and Measures and State of Responses for Soil Contamination in FY 2004*

(4) Ground Subsidence

Ground subsidence is caused by excessive pumping of groundwater, which lowers the level of the groundwater and shrinks the clay layer. As of FY 2004, 61 areas in 37 prefectures suffered ground subsidence. Restrictions on the pumping of groundwater and other measures have mitigated ground subsidence in Tokyo's 23 wards, Osaka City, and Nagoya City, where remarkable ground subsidence had occurred in the past.

However, ground subsidence still occurred in certain areas such as the Kujukuri plain in Chiba Prefecture. Some areas that are lower than sea level due to ground subsidence may face the danger of huge damages caused by high tides or floods. For this reason, besides imposing restrictions on the pumping of groundwater, measures are being taken to deal with high tides and to build facilities to protect the coastline.

Changes in Ground Subsidence in Selected Areas



Source: Ministry of the Environment, *Overview of Ground Subsidence in Japan in FY 2004*

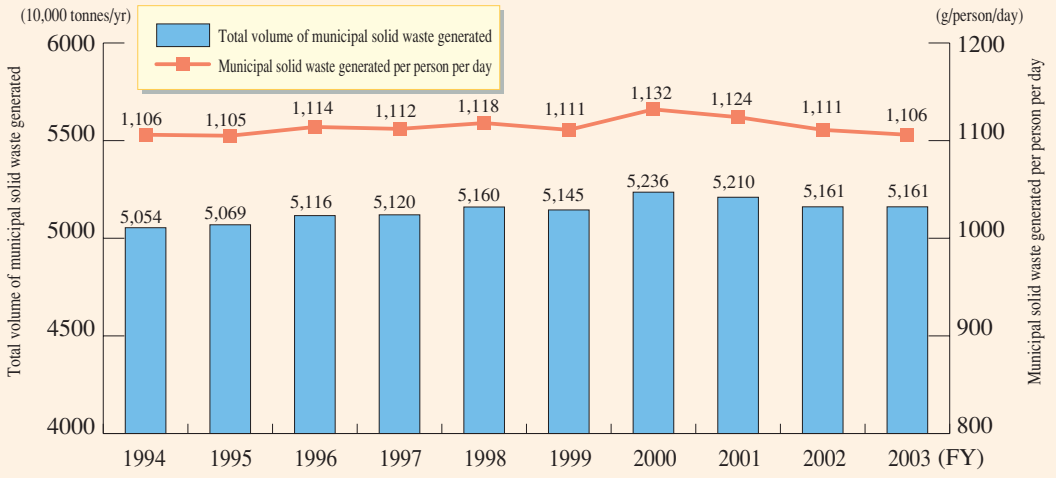
4. Measures and Policies related to the Material Cycle, including Waste and Recycling Measures

Since FY1989, Japan has been generating municipal solid waste at an annual volume of approximately 50 million tonnes or more. These annual volumes of municipal solid waste have remained steady over the last several years. In FY 2003, of all

municipal solid waste, direct incineration accounted for 78.1%, while recycling accounted for 18.3%. The final volume disposed of at landfill sites was 8.45 million tonnes, a decrease of 580,000 tonnes from the previous year.

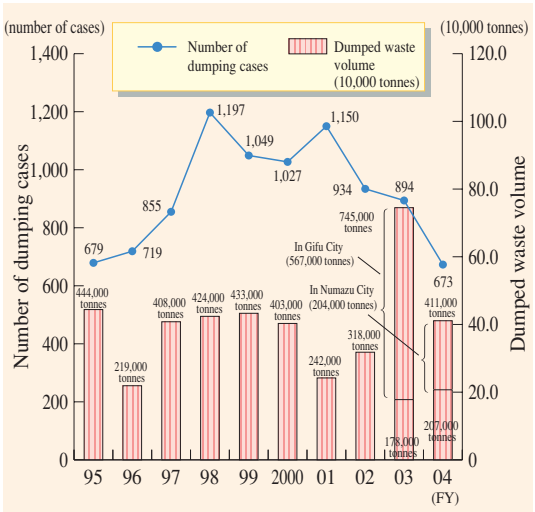
The total volume of industrial waste generated in Japan has also remained steady over the last few years. The volume was approximately 412 million tonnes in FY2003, up 4.7% from the previous fiscal year. Approximately 30 million tonnes was registered as final disposal volume in FY2003, a significant decrease of about 10 million tonnes from the previous fiscal year. Nationally there is a lack of disposal capacity, with final disposal sites having an average capacity of only another 6.1 years.

Changes in Total Volume of Municipal Solid Wastes and Waste Volume Generated per Person per Day



Notes: "Total volume of municipal solid waste generated" = "volume of wastes collected" + "volume of wastes directly brought in" + "self disposal volume"
In accordance with the Waste Management and Public Cleansing Law, the government setup "Basic Guidelines for the Comprehensive and Systematic Promotion of Waste Reduction Measures and Other Appropriate Treatments." According to these Basic Guidelines, total volume of municipal solid waste is defined as "total volume of municipal solid waste generated" less "self disposal volume" plus "recyclable waste volume collectible by groups." The amount of municipal solid wastes (as defined above) stands at 54,270,000 tonnes in FY2003.
Source: Ministry of the Environment, *Waste Treatment in Japan*

Trend of Illegal Dumping Cases and Illegally Dumped Waste Volume

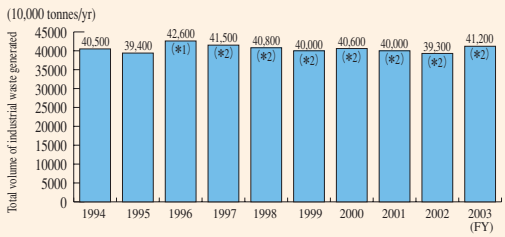


Notes:
1. The chart above illustrates illegal dumping of industrial wastes (at least 10 tonnes per case) identified by prefectures or cities with public health offices. (However, cases that involve specially controlled industrial waste are all included in the chart)
2. As shown in the chart above, the illegal dumping case in Gifu City was discovered in FY2003, while that in Numazu City was detected in FY2004. Because waste disposers illegally dumped industrial wastes for several years before that, these two cases were identified as large-scale dumping cases in said years.

Source: Ministry of the Environment, *State of the Illegal Dumping of Industrial Waste*

To solve these problems, it is necessary to implement waste and recycling measures, taking into account the following priorities stipulated in the Fundamental Law for Establishing a Sound Material-Cycle Society: (i) reducing wastes; (ii) reusing end-of-life products and parts; (iii) recycling wastes as raw materials; (iv) recovering heat; and (v) appropriate disposal as final waste. In line with these basic principles, the government will implement the Waste Management and Public Cleansing Law as well as other recycling-related legislation.

Changes in the Volume of Industrial Waste Generated



Notes: (*1) The 1996 data indicate the waste volume in FY 1996, as defined in the "Target of Waste Reduction" (government decision, September 28, 1999). In the "Target for Waste Reduction," the government aims to achieve its targets at the latest in FY2010 based on the "Basic Policy for Dioxin Measures," which was decided by the Ministerial Meeting on Anti-Dioxin Measures.
(*2) The amount of waste from FY 1997 onward was calculated using the same calculation approach as *1 above.
Source: Compiled from the Ministry of the Environment, *State of the Generation and Treatment of Industrial Waste.*

Lawmakers partially amended the Waste Management and Public Cleansing Law in February 2006 with the intention of encouraging smoother but safer disposal of asbestos waste. The amended legislation aims to introduce a new scheme (detoxification process accreditation scheme). Under this new scheme, waste disposers do not have to obtain a license from the prefectural governor if the Minister of the Environment recognizes that these disposers employ an advanced technique such as meltdown for making asbestos harmless.

In FY2004 there were 673 cases of illegal dumping of industrial waste in Japan, continuing the downward trend of the consecutive two years. However, including the 204,000-tonne illegal dumping in Numazu City, Shizuoka Prefecture, this amounted to approximately 411,000 tonnes of illegally dumped industrial waste, (Waste disposers probably started illegally dumping industrial wastes in Numazu City much earlier than FY2003.)

If illegal dumping is to be detected and prevented from increasing, the monitoring system needs to be improved. To achieve this, the Ministry of the Environment increased the number of staff responsible for waste and recycling when the ministry restructured the organization at the Regional Environment Office level in October 2005. The ministry hopes to enhance cooperative relations with prefectures by sending these staff to assist with on-site inspections.

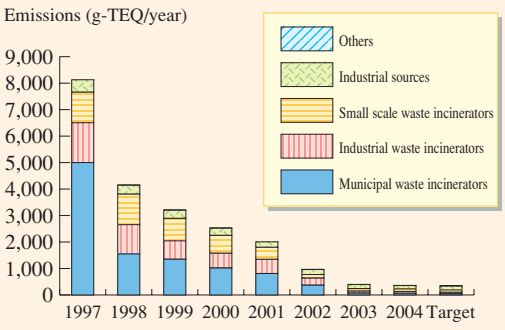
5. Measures for Chemical Substances

To prevent adverse environmental effects from the production, distribution, use, or disposal of the several tens of thousands of chemical substances that are traded in Japan, it is necessary to evaluate and properly address their environmental risks (i.e., possible negative impacts from an environmental conservation perspective). For this reason, the Ministry of the Environment conducted a survey to identify the existence of chemical substances in the environment (Environmental Survey and Monitoring of Chemicals). The ministry has evaluated the possible impacts on human health or ecosystems of 93 chemical substances in circulation in Japan in 2005.

In accordance with the Chemical Substances Control Law, the government controls new chemical substances that are manufactured or imported based on an examination of their biodegradability, bioaccumulation, and toxicity to human, plants and animals. As of the end of FY2005, the manufacture, import or use of 15 kinds of chemical substances, including PCBs, is virtually prohibited. In addition, manufacturers must report scheduled production volumes of 23 kinds of chemical substances such as trichloroethylene. For another approximately 800 kinds of chemical substances, it is necessary to report production or import volumes.

In 2004, Japan successfully achieved its reduction target for emission of dioxins. The ministry also amended the reduction plan in 2005, with the aim of achieving a 15% reduction from the 2003 level in 2010 at the latest. It is estimated that the total emission of dioxins in 2004 was 10% less than that in 2003. Daily dioxin intake per person has been decreasing every year. It is now below the tolerable daily intake level (4pg-TEQ/kg/day), which is low enough that even if this amount was taken throughout one's lifetime it would not cause adverse health effects.

Changes in Total Emission of Dioxins

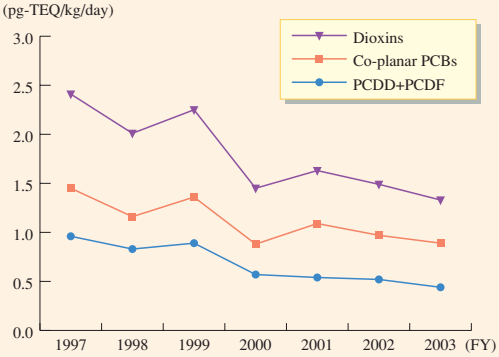


Reduction rate to 1997 level (%)

	1998	1999	2000	2001	2002	2003	2004
Base year	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

Source: Ministry of the Environment

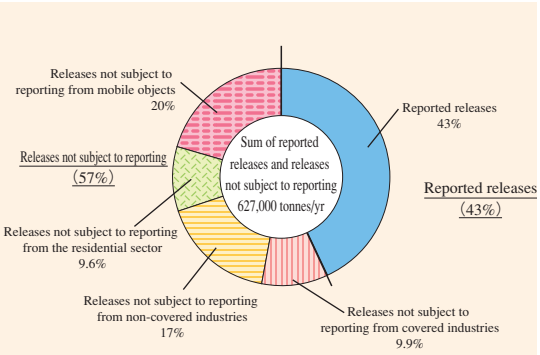
Chronological Changes in Daily Intake of Dioxins from Food



Source: Ministry of Health, Labour and Welfare, *Total Diet Study for Dioxins*

Japan has also implemented the PRTR (Pollutant Release and Transfer Register) system for chemical substances possibly harmful to human health or ecosystems. Under the PRTR system, businesses identify and report to the government the amount of chemical substances that are released to the environment or transferred as waste materials. The government then aggregates the data from businesses and publishes them together with the estimation of releases that are not reported to the government (e.g. household, transport, small businesses, etc). The fourth aggregate result was published in February 2006. It is important to further promote risk communication to enable all parties, including citizens, industries, and the administrative agencies, to share accurate information on chemical substances and to improve communication with each other.

Reported Releases vs. Releases not subject to reporting (FY2004)



Sources: Ministry of Economy, Trade and Industry; Ministry of the Environment

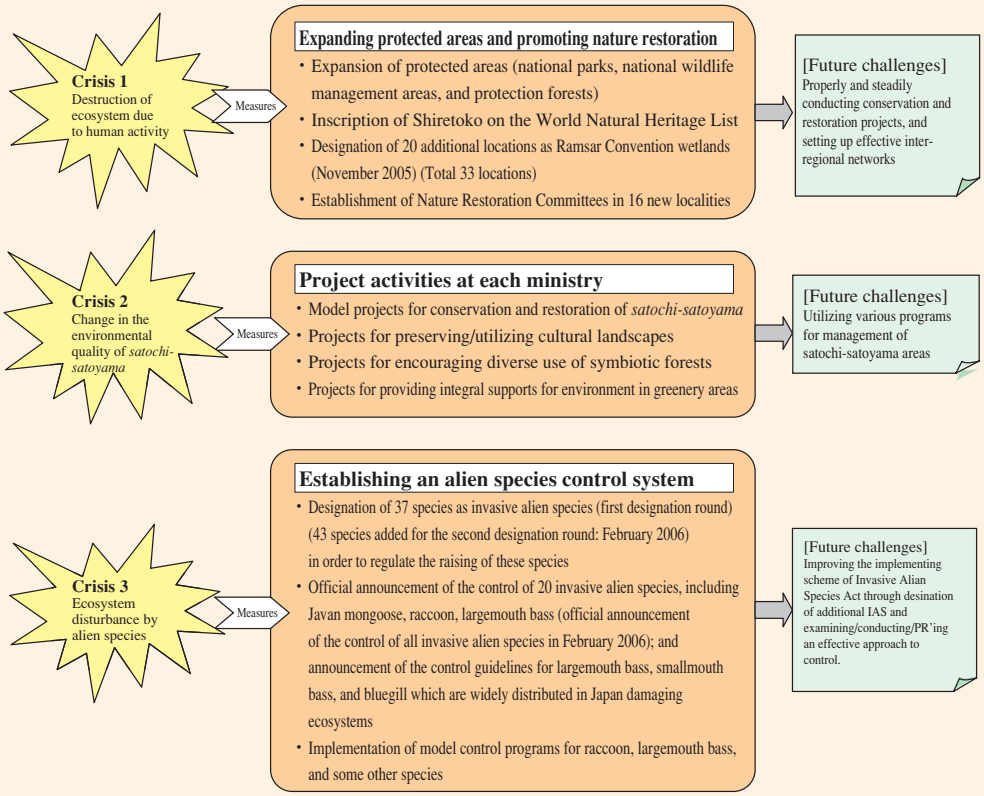
With regard to policy actions on poison gas bombs in Japan, the government ministries, in line with Cabinet approval on June 6, 2003 and the Cabinet decision on December 16, 2003, are working together to conduct an environment survey with the intention of preventing possible damage from former Japanese Army/Navy gas bombs. In addition, the Poison Gas Information Center, established in the Ministry of the Environment, collects relevant information on an ongoing basis and distributes such information and general guidance to citizens.

6. Conservation of the Natural Environment and Promoting Contact with Nature

(1) Conservation of the Natural Environment and Promoting Contact with Nature

Pursuant to the new National Biodiversity Strategy in which all ministries work together to realize "a society in harmony with its natural environment," the third review on its implementations was carried out in FY 2005. After being reported the results of the review, the Central Environment Council pointed out that the biodiversity crisis still remains to be resolved although policy actions on biodiversity have been moving forward. The Council also called for further policy actions: Collecting basic data on the natural

Newly Implemented Policy Actions for Addressing Biodiversity Crisis (Third review on implementation of the strategy: Approved in September 2005)



Source: Ministry of the Environment

Threatened Wildlife of Japan
(Species Listed in the Red List)

(as of August 2006)

	Taxonomical group	Species assessed	Extinct	Extinct in the wild	Threatened species			Near threatened	Data deficient	Threatened local population	Total number of species listed
					Critically endangered + Endangered		Vulnerable				
					Category IA	Category IB					
Animals	Mammals	approx. 200	4	0	48			16	9	12	89
					32		16				
					12	20					
	Birds	approx. 700	13	1	89			16	15	2	136
					42		47				
					17	25					
	Reptiles	97	0	0	18			9	1	2	30
					7		11				
					2	5					
	Amphibians	64	0	0	14			5	0	4	23
					5		9				
					1	4					
	Brackish water and freshwater fish	approx. 300	3	0	76			12	5	12	108
					58		18				
					29	29					
	Insects	approx. 30,000	2	0	139			161	88	3	393
					63		76				
	Land/freshwater mollusks	approx. 1,000	25	0	251			206	69	5	556
					86		165				
	Spiders/crustaceans	approx. 4,200	0	1	33			31	36	0	101
					10		23				
	Subtotal for animals		47	2	668			456	223	40	1436
					303		365				
Plants	Vascular plants	approx. 7,000	20	5	1,665			145	52	0	1,887
					1,044		621				
					564	480					
	Bryophytes	approx. 1,800	0	0	180			4	54	0	238
					110		70				
	Algae	approx. 5,500	5	1	41			24	0	0	71
					35		6				
	Lichen	approx. 1,000	3	0	45			17	17	0	82
					22		23				
	Fungi	approx. 16,500	27	1	63			0	0	0	91
					53		10				
	Subtotal for plants		55	7	1,994			190	123	0	2,369
					1,264		730				
	Total		102	9	2,662			646	346	40	3,805
					1,567		1,096				

Notes:
1. Data on the assessed animal species (including subspecies) were derived from the Environment Agency, *Checklist of Japanese Species of Wildlife* 1993, 1995, and 1998.
2. Data on the vascular plants (including subspecies) were gathered by the Japanese Society for Plants Systematics.
3. Data on the species of bryophytes, algae, lichen, and fungi (including subspecies) were derived from Ministry of the Environment surveys.
4. Data on the current state of threatened species (including subspecies) were derived from *Ministry of the Environment Red List*.
   The categories are considered as follows:
   Extinct: Species that are extinct in Japan
   Extinct in the wild: Species that are known only to survive in captivity or in cultivation
   Critically endangered + Endangered: Species in danger of extinction
   Vulnerable: Species facing increasing danger of extinction
   Near threatened: Species with weak foundation for survival
   Threatened local population: Population of a species that is isolated in an area and has high possibility of extinction.

Source: Ministry of the Environment

environment; giving greater importance to biodiversity education; and providing better supports to NPOs.

The Red List provides the status of threatened wildlife species. Facing extinction, it reports, are a little more than 20% of mammals, amphibians, brackish water and freshwater fishes, and vascular plants (tracheophyte), a little less than 20% of reptiles, and a little more than 10% of bird species inhabiting Japan. Furthermore, 73 species have been designated as national endangered species of wild fauna and flora pursuant to the Law for the Conservation of Endangered Species of Wild Fauna and Flora, including four species of mammals and 39 species of birds.

A variety of measures are being taken to help conserve biological diversity in Japan.

To protect and increase the use of natural parks properly, the gorvernment is conducting an overall review of park areas and park plans to meet changes in social and other conditions surrounding parks.

To more effectively preserve internationally important wetlands, the government designated an additional 20 locations in Japan (including various wetland topographies such as marshes, tidal flats, coral reefs and karst topographies) as Ramsar Convention-registered wetlands.

Under the Law for the Promotion of Nature Restoration, 18 new Nature Restoration Committees had been established as of March 2006, initiating efforts toward nature restoration.

In accordance with the Invasive Alien Species Act (effective in June 2005), the government designated 37 species as invasive alien species in the first round, and 43 species in the second round.

List of Invasive Alien Species under the Invasive Alien Species Act

(as of February 1, 2006)

Class	Name of Species
Mammals	Brushtail possum, all species of the genus *Erinaceus*, Taiwan macaque, crab-eating macaque, rhesus macaque, nutria, Pallas's squirrel, Russian flying squirrel (excluding Japanese subspecies *Pteromys volans orii*), gray squirrel, Eurasian red squirrel (excluding Japanese subspecies *Sciurus vulgaris orientis*), muskrat, crab-eating raccoon, raccoon, American mink, Javan mongoose, all species of the genus *Axis*, all species of the genus *Cervus* (excluding the native subspecies of Sika Deer), all species of the genus *Dama*, Pere David's deer, and Reeves's muntjac
Birds	Laughing thrushes, masked laughingthrush, white-browed laughingthrush, and red-billed mesia
Reptiles	Snapping turtle, green anole, brown anole, brown tree snake, Taiwan beauty snake, and Taiwan pit vipers
Amphibians	Cane toad, Cuban treefrog, Puerto Rican coqui, bullfrog, and Asian tree frog
Fish	Channel catfish, northern pike, muskellunge, western mosquito fish, bluegill, smallmouth bass, largemouth bass, white bass, striped bass, Eurasian perch, pikeperch, Mandarin fish (*Siniperca chuatsi*), Mandarin fish (*Siniperca scherzeri*)
Insects	All species of the genus *Cheirotonus* (excluding Yanbaru long-armed scarab), Argentine ant or tropical fire ant, fire ant, red imported fire ant, and little fire ant
Invertebrates	All species of the family Buthidae, all species of the genera *Atrax* and *Hadronyche* (family *Hexathelidae*), 3 species of the genus *Loxosceles*, 4 species of widow spiders, all species of the genus *Astacus*, signal crayfish, rusty crayfish, all species of the genus *Cherax*, all species of the genus *Eriocheir* (excluding *E. Japonica*), all species of the genus *Limnoperna*, quagga mussel, zebra mussel, cannibal snail, and predatory flatworm
Plants	Alligatorweed, floating marshpennywort or pennywort, water lettuce, water fern, lanceleaf tickseed, Senegal tea plant, cutleaf coneflower, Madagascar ragwort, bur cucumber, parrotfeather, common cord grass, water speedwell

Source: Ministry of the Environment

Some regions have recently had an increase in deer, wild boar, and some other birds and animals as the number of hunters, who played an important role in controlling their numbers, has decreased. This contains a risk of serious damage to agriculture, forestry, and natural vegetation, as well as reducing the quality of habitats for wildlife and the number of migratory birds in some locations. To further encourage wildlife management by active hunting, the government submitted the bill on Wildlife Protection and Proper Hunting Law to the Diet.

The lawmakers amended the Law for Welfare and Proper Management of Animals (amended legislation came into force in June 2006), with the intention of enhancing animal welfare and management practices for animals. The main revised points are that the registration system for animal dealers and the nationwide permission scheme for specified animals (dangerous animals).

In addition, an emphasis is also being placed on people's contact with nature. It is considered that nature helps develop a healthy mind, revitalize humanity, and learn more about coexistence with nature.

As a part of continued efforts to promote ecotourism since FY2004, the government has launched 5 new policy initiatives: i) The Ecotourism Charter; ii) The Ecotourism Promotion Manual; iii) The Ecotour Travel Guide; iv) The Ecotourism Awards; and v) model projects. At "the First Ecotourism Awards" to honor ecotourism best practices, the Minister of the Environment granted Grand Prix (1 award winner), Prize for Excellence (4 award winners), and Special Prize (6 award winners) at the commendation ceremony held at the 2005 World Exposition, Aichi, Japan venue. In addition, the Ministry of the Environment held a symposium to provide information on various best practices. In the "model projects," the government has provided support for the rulemaking process or travel attendant training programs in 13 districts, paying careful attention to their local needs, as well as holding

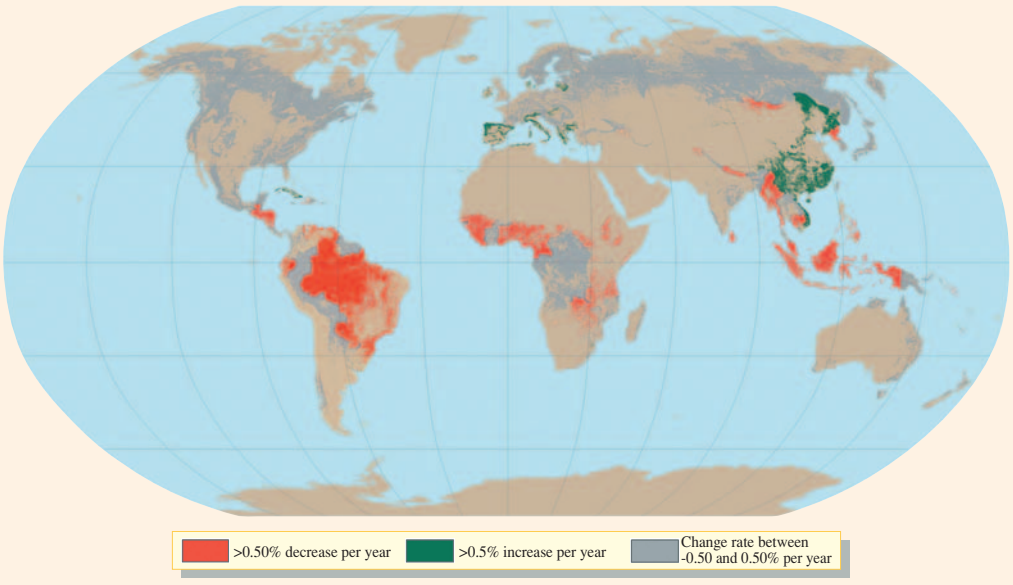
orientation sessions for presentations or sharing information about work in model districts. As well as holding "National Ecotourism Seminars" for ecotourism travel agents, the Ministry of the Environment conducted surveys in two locations to promote ecotourism in national parks.

To address the problems of hot spring business operators (e.g., how to put up a notice with data on hot springs for visitors), the government revised the enforcement regulation for the Hot Spring Law (effective on May 24, 2005). According to the amended regulation, hot spring operators are required to provide information on the hot water supply, water heating, and circulation systems (e.g., cyclical filtration equipment), as well as bathwater additives, and disinfection methods.

(2) Conservation of Natural Environment Outside Japan

Forests in the world decreased at a rate of about 7.32 million hectares per year on average from 2000 to 2005. African, South American, and Southeast Asian from Asian region forests, where the tropical forests are located, have suffered a significant reduction in their size. This is mainly attributable to forest fires, and illegal logging as well as conversion of forest to other land uses such as agriculture. In this relation, at the 6th session of United Nations Forest Forum in February 2006, policymakers discussed how they could strengthen the international framework to solve world forest problems.

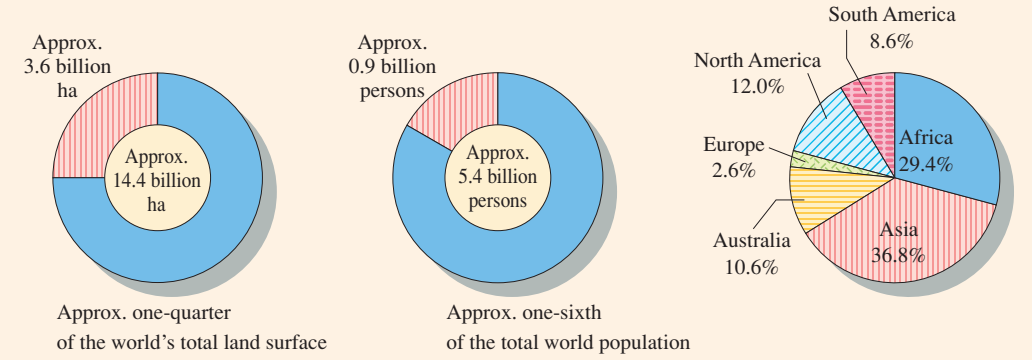
How Fast are the Forests in the World Getting Larger or Smaller? (2000-2005)



Note: The percentage represents the data on a net basis (offsetting forest shrinkage by forest growth)
Source: Compiled by the Ministry of the Environment based on the FAO, *Global Forest Resources Assessment 2005*.

About one-quarter of all land areas in the world and 900 million people, accounting for one-sixth of the world's population, are affected by desertification, which is defined as land degradation in arid and semi-arid areas etc. As background of this problem, there are factors such as poverty and population growth in developing nations. Therefore, international efforts are being made under the UN Convention to Combat Desertification (UNCCD).

Current State of Desertification



Source: Compiled by the Ministry of the Environment based on UNEP, *Desertification Control Bulletin* (1991).

7. Basis of Various Measures, and Measures Facilitating the Participation of Various Actors and International Cooperation

(1) Making Progress with Environmental Education and Environmental Learning

Since it is important to encourage environmental education, the Japanese Diet passed the "Law for Enhancing the Motivation on Environmental Conservation and Promotion of Environmental Education" in July 2003. After the Cabinet decided on its fundamental policies in accordance with the legislation, the Ministry of the Environment established the Ministerial Ordinance on the Registration of Human Resource Accreditation etc. Enterprises. The law became fully effective on October 1, 2004.

In relation to this, the Ministry of the Environment has launched the Junior Eco-Club program, which is a program for supporting elementary/middle school pupil's environmental conservation activities, as well as the Environmental Counselor Project to provide advisors and instructors for environmental conservation activities. In FY2005, the ministry also launched "My Family's Minister of the Environment" program (a program supporting family ecoliving), and the "School Eco-Renovation and Environmental Education Project," to carry out environmental education through renovation and effective utilization of environmentally friendly school facilities.

(2) Efforts for Achieving a More Environmentally Friendly Socioeconomic Structure

Government-related organizations provide subsidies for environmental conservation projects.

Another idea is to impose economic costs in an attempt to reduce environmental burdens. Possible policy approaches would include suppressing waste generation as well as controlling carbon dioxide emissions to prevent global warming. To identify appropriate policy approaches, the government conducted a research project to survey and collect data on foreign best practices and examine possible positive effects that these policies would have on environmental conservation or the national economy.

The "Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities" aims at encouraging a demand shift to eco-friendly goods (goods and services with low environmental load) by promoting procurement of eco-friendly goods in the public sector (the national government, independent administrative institutes, and public organizations) and actively providing environmental information. In line with these basic policies, the national government and other public-sector organizations established their FY2006 eco-friendly goods procurement plan and attempted to promote procurement eco-friendly goods based on their own plan.

In addition, following the enforcement of the "Law Concerning the Promoting of Business Activities with Environmental Consideration by Specified Corporations, etc., by Facilitating Access to Environmental Information and Other Measures" came into force in April 2005 the government drew up the "Guide for Environmental Reporting for 'Specified Corporations'" (e.g.; public institutions, etc.). This guide has drawn up for the convenience of business activities who are inexperienced in preparing and

releasing their environmental report, including those who make their first attempt at these issues. And another thing, the government prepared "Guide for Self Evaluation of an Environmental Report" which helps them evaluate their own report mainly based on "Environmental Reporting Guidelines (Fiscal Year 2003 Version)" and enhance the reliability by themselves.

The Development Bank of Japan (DBJ) started its Loans for Promoting Environmentally Conscious Management in 2004 , the low-interest loans through screening of environmental perspectives to provide supports for environmentally conscious companies.

(3) Environmental Impact Assessment

In accordance with the Environmental Impact Assessment Law, environmental impact assessments had been conducted on 161 projects up until the end of March 2006. Of these projects, the environmental impact assessment procedures were completed for 14 projects during FY2005. Through these procedures, environmental considerations were included in the process of establishing social infrastructure.

Status of Environmental Impact Assessment Procedures in Accordance with the Environmental Impact Assessment Law

(As of the end of March 2006)

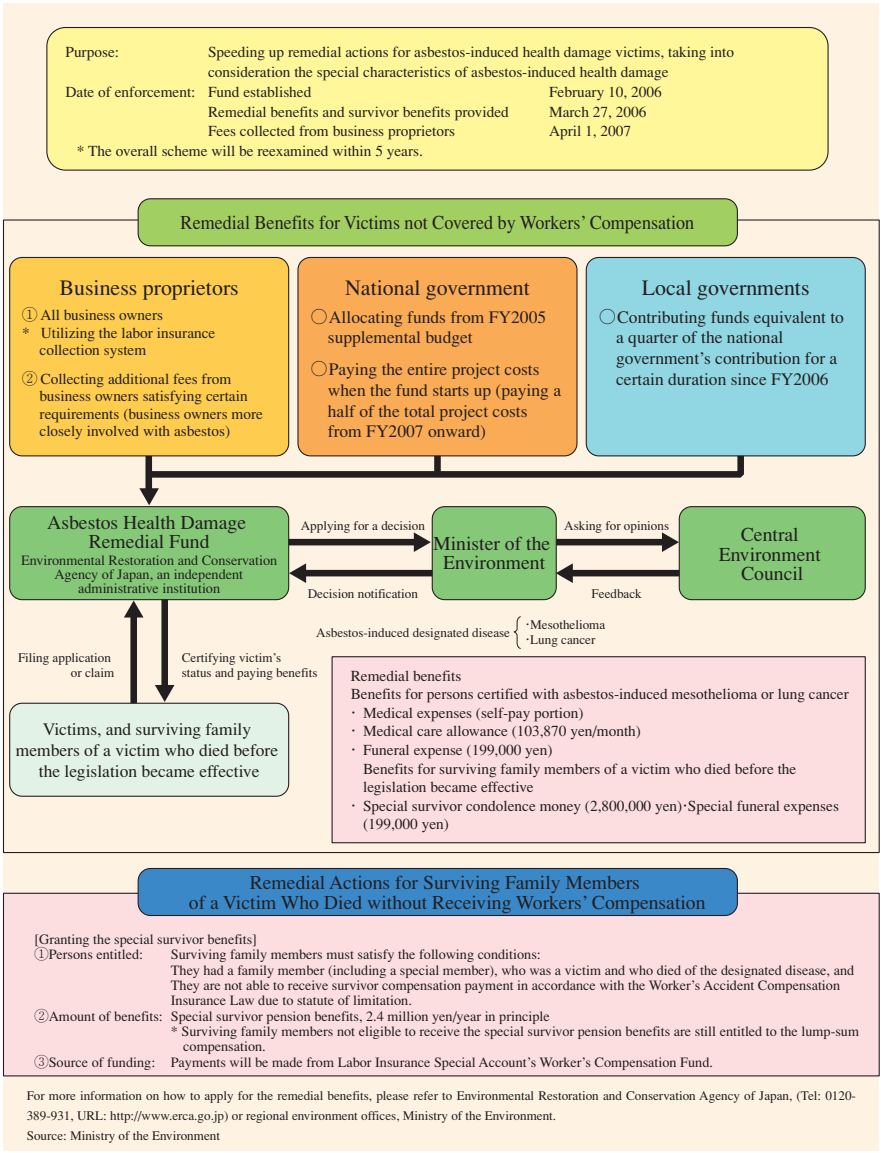
	Road	Dam etc.	Railway	Airport	Power station	Disposal site	Reclamation	Area development	Total*2
Procedures started	67 (45)	6 (6)	13 (9)	8 (8)	39 (26)	3 (2)	10 (7)	20 (11)	161 (111)
Opinion of the Minister of the Environment	37 (16)	3 (3)	10 (7)	6 (6)	25 (13)	—*3	—*3	12 (4) *3	93 (49)
Procedures completed	35 (14)	3 (3)	10 (7)	6 (6)	23 (11)	3 (2)	5 (3)	12 (5)	94 (49)
Procedures discontinued	7 (6)	—	—	—	2 (2)	—	—	2 (1)	11 (9)

*1. Figures in ( ) show the number of cases conducted under the Law from the start of procedure. Figures outside ( ) include these numbers.
*2. When two projects are implemented together, it is counted as one.
*3. The Prefectural governor is the authority giving permissions for all or a part of the projects. In this case, the Minister of the Environment has no authority to get involved in the procedure under the Environmental Impact Assessment Law.

(4) Remedial Actions for Asbestos-induced Health Damage

Because of the special characteristics of asbestos health damage, the government submitted "the Bill on Asbestos Health Damage Relief" to the 164th Diet session on February 3, 2006, which envisioned to give relief to those who are suffering from health damage induced by asbestos as well as family members of those who died from the health damage. The Diet passed the bill.

Outline of an Act on Asbestos Health Damage Relief



For more information on how to apply for the remedial benefits, please refer to Environmental Restoration and Conservation Agency of Japan, (Tel: 0120-389-931, URL: http://www.erca.go.jp) or regional environment offices, Ministry of the Environment.

Source: Ministry of the Environment

(5) International Policy Measures

In July 2005, the Central Environment Council submitted its opinion paper on future international environmental cooperation. The opinion paper describes new dimensions in international environmental cooperation that would address the ever-changing trends at home and abroad in global environmental conservation over recent years.

○ Environmental Conservation Measures to be Implemented in FY 2006

The Quality of the Environment in Japan 2006(White Paper) reports the environmental conservation policies and measures to be implemented in FY2006.

Chapter 1: Prevention of Global Warming and Preservation of the Ozone Layer

Chapter 2: Conservation of the Atmospheric Environment

Chapter 3: Conservation of the Water, Soil, and Ground Environments

Chapter 4: Measures and Policies related to the Material Cycle, including Waste and Recycling Measures

Chapter 5: Measures for Chemical Substances

Chapter 6: Conservation of the Natural Environment and Promoting Contact with Nature

Chapter 7: Basis of Various Measures, and Measures Facilitating the Participation of Various Actors and International Cooperation