

Part Two

Current Environmental Issues and Environmental Conservation Measures by the Government

Part Two of the *Quality of the Environment in Japan 2004* (White Paper) introduces the environmental conservation policies and measures implemented in FY 2003, based on the state of environmental problems and in line with the Basic Environment Plan. Part Two of this booklet will report on the issues and current state of environmental problems in the major fields. Chapters in Part Two of the *Quality of the Environment in Japan 2004* are as follows:

- Chapter One: Conservation of the Global Atmospheric Environment
- Chapter Two: Conservation of the Atmospheric Environment (not including the global atmospheric environment)
- Chapter Three: Conservation of the Water, Soil, and Ground Environments
- Chapter Four: Measures and Policies related to the Material Cycle, including Waste and Recycling Measures
- Chapter Five: Measures for Chemical Substances
- Chapter Six: Conservation of the Natural Environment and Promoting Contact with Nature
- Chapter Seven: Basis of Various Measures, and Measures Facilitating the Participation of Various Actors and International Cooperation

1. Conservation of the Global Atmospheric Environment

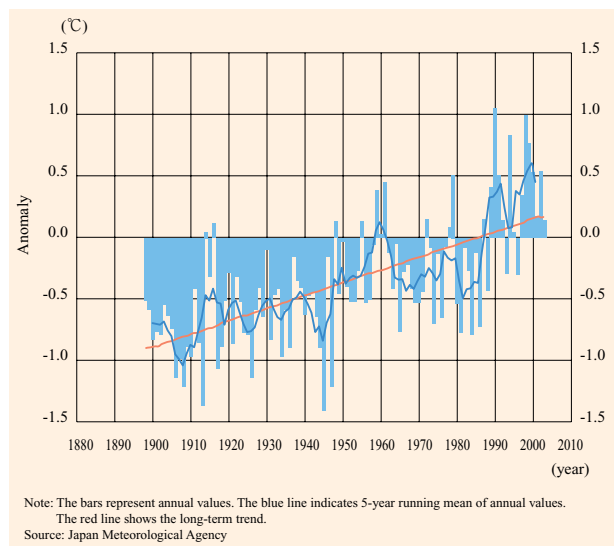
(1) Global Warming

In recent years, expanding human activities have discharged vast quantities of carbon dioxide, methane, and other greenhouse gases into the atmosphere. These gases have enhanced the greenhouse effect and given rise to the threat of global warming.

According to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)—Climate Change 2001, the globally averaged surface temperature has risen approximately 0.6°C in the 20th century and consequently, the average sea level has risen by 10–20 cm. The progress of global warming may have far-reaching and serious effects on the living environment of humans and the natural habitats of other living organisms. The sea level is projected to rise by 88 cm at the maximum between 1990 and 2100. According to observations conducted by the Japan Meteorological Agency, Japan has also experienced an increase of about 1.0°C in its annual averaged temperature over the last one hundred years. The effects of global warming on the natural environment have already become apparent, as shown by the decrease in the sea-ice area in the Sea of Okhotsk and the range shifts of plants and animals.

Of the amounts of greenhouse gases emitted in Japan in FY 2002, carbon dioxide emission were 1,248 million tons, with a per capita emission of 9.79 tons. Compared to the FY 1990 figures, the total emission has increased by 11.2% and the per capita emission by 7.8%. A breakdown by sector shows that emission from the industrial sector has decreased by 1.7%, while that of the commercial and other

Annual Average Surface Temperature Anomalies in Japan from 1898 to 2003



Kyoto Protocol

Developed countries set up their legally binding numerical targets.

History	Adopted in December 1997 Ratified by Japan in June 2002
Targeted gases	CO ₂ , CH ₄ , N ₂ O, HFC, PFC, SF ₆
Base year	1990 (1995 for HFC, PFC, SF ₆)
Commitment period	2008 – 2012
Targets	An aggregated reduction of at least 5% by developed countries: Japan–6%, United States–7%, and EU–8%

Source: Ministry of the Environment

sector has increased by 36.7%, the residential sector by 28.8% and the transport sector by 20.4%.

In May 2002, Japan revised the “Climate Change Policy Law,” and in June of the same year ratified the Kyoto Protocol, which sets legally binding numerical targets for greenhouse gas emissions in developed nations. As of September 23, 2004, 124 countries and the EU have ratified the Kyoto Protocol. The Kyoto Protocol will enter into force after the total carbon dioxide emissions of the developed countries that have ratified the Protocol exceeds 55% of the total carbon dioxide emitted by all developed countries in 1990. Unfortunately, the condition for the Kyoto Protocol to enter into force has not been fulfilled. Currently, Japan is making appeals to unratified countries, such as Russia, to ratify the Protocol.

Drastic initiatives will be needed to devise a solution to the problem of global warming. These initiatives include strengthening policies in all areas of our socio-economic system, integrating various policies, and reengineering our current socio-economic system of mass production, mass consumption, and mass disposal in the future.

(2) Depletion of the Ozone Layer

It has become known that the ozone layer is being destroyed by ozone-depleting substances such as chlorofluorocarbons (CFCs). There is concern that depletion of the ozone layer may increase the quantity of harmful ultraviolet rays reaching the earth, causing health damages such as skin cancer and cataracts in humans.

The ozone layer is being depleted over almost the entire globe except for the tropics. In Japan, a long-term depletion of the ozone layer has been observed above Sapporo, Tsukuba, and Kagoshima. The decrease is especially notable above Sapporo. Over the Antarctica, the largest scale of ozone depletion ever appeared was recorded in 2003.

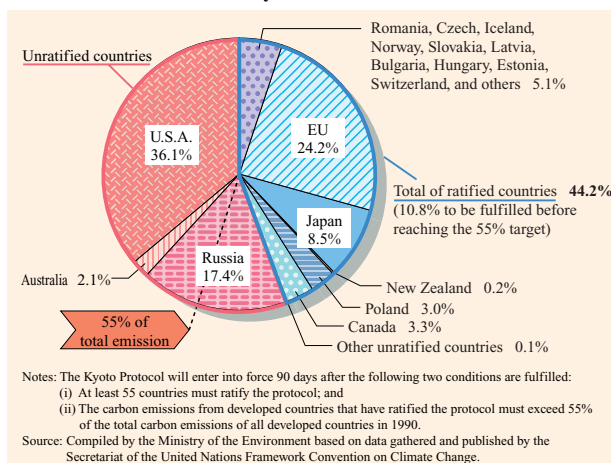
In Japan, the production of CFCs, etc. is regulated pursuant to the Ozone Layer Protection Law. In addition, the recovery and destruction of fluorocarbons at the disposal stage of products are mandated by the Law for the Recycling of Specified Kinds of Home Appliances and the Law for Ensuring the Implementation of Recovery and Destruction of Fluorocarbons concerning Specified Products.

2. Conservation of the Atmospheric Environment (not including the global atmospheric environment)

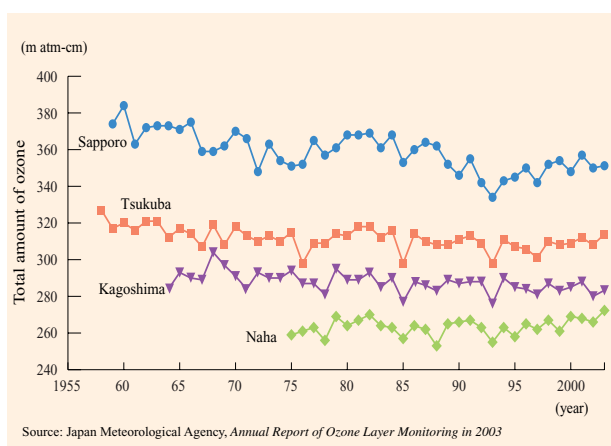
(1) Acid Deposition and Dust and Sandstorms

Acid deposition can produce the various 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 the acid deposition. In the US and Europe, acidification of lakes and reservoirs and the decline of forests caused by acid deposition have been reported.

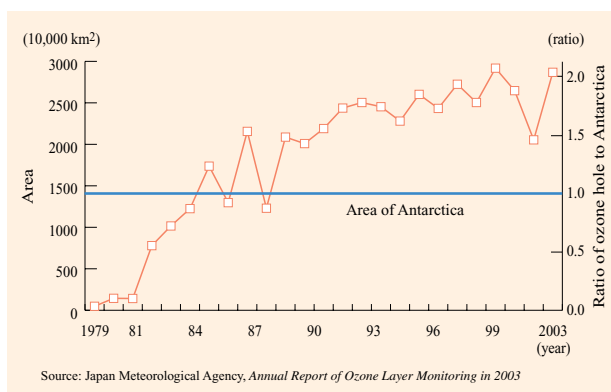
Percentages of Carbon Dioxide Emitted in 1990 by Annex I Countries



Changes in the Annual Average of Total Ozone Amount over Japan



Changes in the Size of Ozone Hole over Antarctica



Roughly the same levels of acid deposition are observed in Japan as in the US and Europe where damages have already been reported. Its impact on the ecosystem of Japan, however, is still not clear at this time. As it is generally believed that the impact of acid deposition may take a long time to become apparent, it may surface in the future if the current level of acid deposition continues.

The Acid Deposition Monitoring Network in East Asia (EANET) started its activities on a regular basis since January 2001 to share a common understanding of the state of the acid deposition problems in East Asia and to contribute to the cooperation on various issues related to acid deposition.

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

In recent years, the frequency and intensity of dust and sandstorm (DSS) has been increasing, so it has become a serious environmental problem in Northeast Asia. Japan has been conducting various monitoring of DSS inside Japan. In addition, an international project on the prevention and control of DSS is carried out by the cooperation of four countries (China, Mongolia, Korea and Japan) and four international organizations, e.g. the United Nations Environment Programme, co-financed by the Asian Development Bank and the Global Environment Facility.

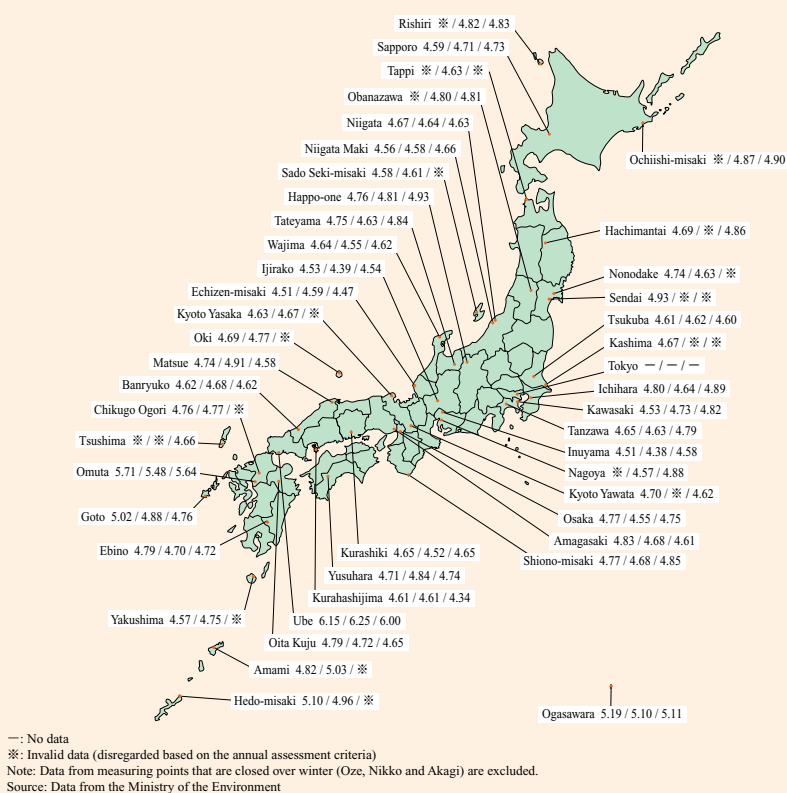
(2) Photochemical Oxidants

Nitrogen oxides (NOx) and volatile organic compounds (VOCs) emitted from factories, business establishments, and automobiles form primary pollutants, which react in the presence of sunlight (photochemical reaction) to form secondary substances such as ozone and other substances, known collectively as photochemical oxidants. 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) (an one-hour value of 0.06 ppm or less).

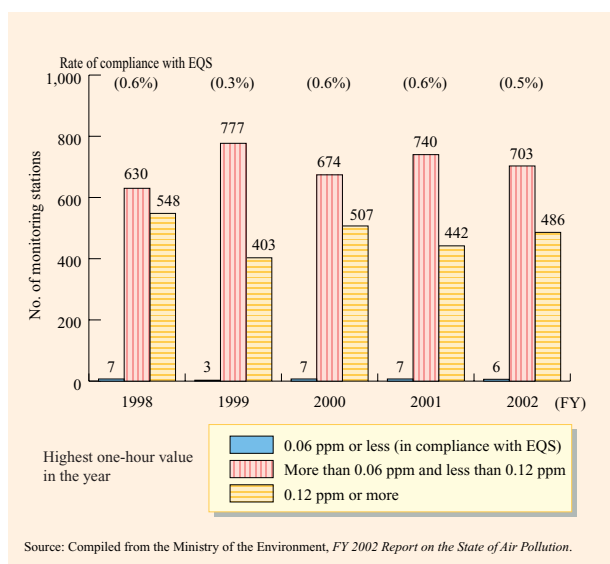
The emission reduction of some of the VOCs, such as benzene, is being promoted through voluntary control efforts. Regulations to control the emissions of exhaust gas from automobiles have also been strengthened pursuant to the Air Pollution Control Law. Through the Atmospheric Environmental Regional Observation System (nickname

Levels of pH in Precipitation

FY 2000 average / FY 2001 average / FY 2002 average



Changes in the Number of Monitoring Stations by Photochemical Oxidant Concentration Level (AAPMSs and RAPMSs) (FY 1998–2002)



Soramame-kun), real-time data on the atmospheric environment is measured, and information concerning the issuance of photochemical oxidants alarms or warnings by local governments nationwide is collected and announced on the Internet.

(3) Nitrogen Oxides

Nitrogen oxides (NO_x) that can damage the respiratory system in high concentrations are mainly generated from both stationary sources, such as factories, and mobile sources, such as motor vehicles.

The annual average nitrogen dioxide concentrations have remained steady over a long time. Concentrations achieved a 99.1% compliance with the EQS for nitrogen dioxide at ambient air pollution monitoring stations (AAPMSs) in FY 2002. Compliance with the EQS in areas designated for measures under the Law concerning Special Measures for Total Emission Reduction of Nitrogen Oxides and Particulate Matter from Automobiles in Specified Areas (Automobile NO_x/PM Law) remained at low levels, ranging from 43.1% to 69.3% at roadside air pollution monitoring stations (RAPMSs) between FY 1998 to FY 2002.

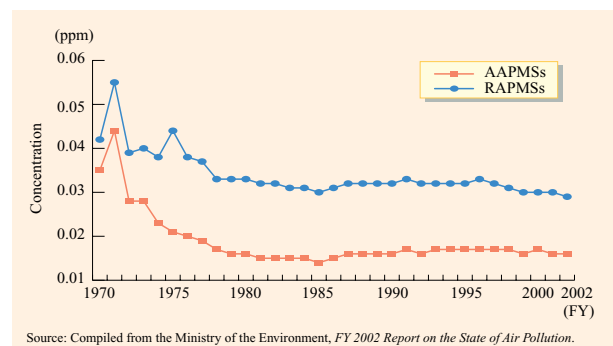
(4) Suspended Particulate Matter

Suspended particulate matter (SPM) in the air with a diameter of 10µm or less is classified into primary particles or 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 those formed by chemical reaction within the atmosphere from gaseous substances, such as nitrogen oxides (NO_x). Because SPM is of a minute size, it remains in the air for extended periods of time. An accumulation of SPM in high concentrations in the lungs or the trachea can have damaging effects on the respiratory system.

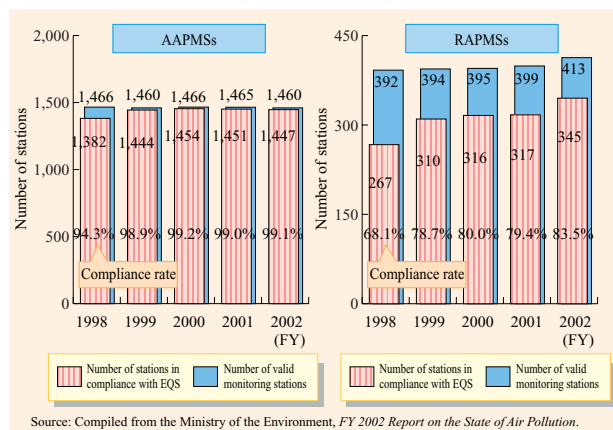
The annual average SPM concentrations in recent years have shown signs of a shift from a steady state to a steady decline. However, the compliance rates with the EQS have been in decline since FY 2000.

In FY 2001, under the Automobile NO_x/PM Law, particulate matter was added to the list of substances to be regulated. Furthermore, studies have been conducted on fine particulate matter with a diameter of 2.5 µm or less and diesel exhaust particles, because their impacts on human health have raised concerns in recent years.

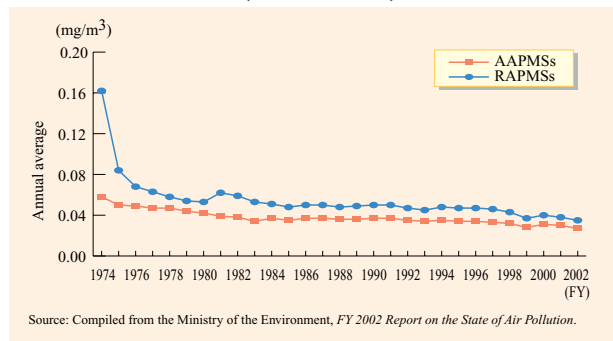
Changes in the Annual Averages of Nitrogen Dioxide Concentrations (FY 1970 – 2002)



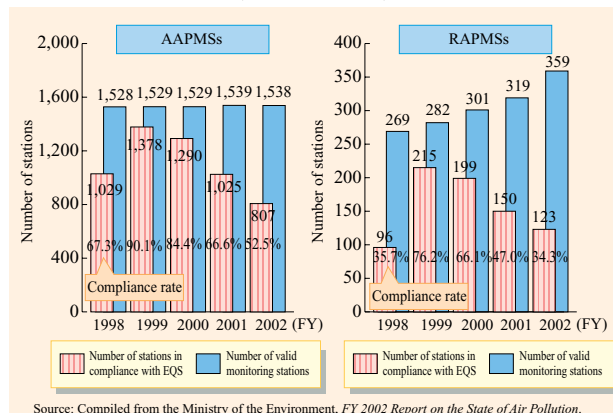
Changes in the State of Compliance with EQS for Nitrogen Dioxide (FY 1998 – 2002)



Changes in the Annual Averages of the Concentration of Suspended Particulate Matter (FY 1974 – 2002)



Changes in the State of Compliance with EQS for Suspended Particulate Matter (FY 1998 – 2002)

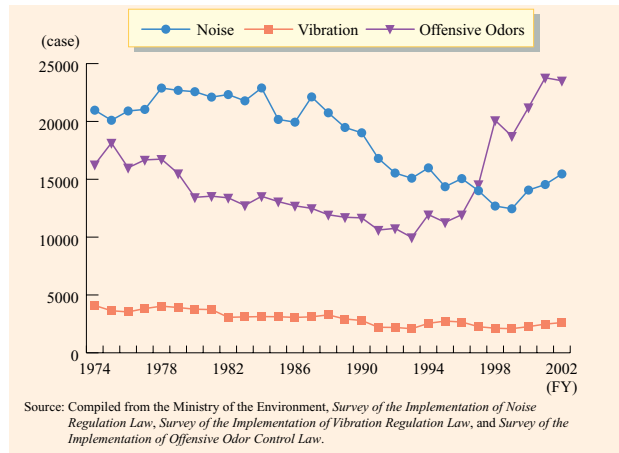


(5) Hazardous Air Pollutants

Various chemical substances, though low in concentrations, have been detected in the atmosphere, raising concern about the health effects of long-term exposure to these substances. In FY 2002, the level of benzene exceeded the EQS at 8.3% of the 409 monitoring points.

Pursuant to the Air Pollution Control Law, standards were set up to control the emissions of specified substances, such as benzene, and voluntary measures by businesses to control emissions were encouraged. Simple calculation of the total emissions of twelve substances that are targeted by the voluntary management plans in FY 2003 shows a substantial reduction rate of 49%, decreasing from approximately 38,000 tons in FY 1999 to 19,000 tons in FY 2002.

Changes in the Number of Complaints against Noise, Vibration, and Offensive Odors (FY1974 – 2002)

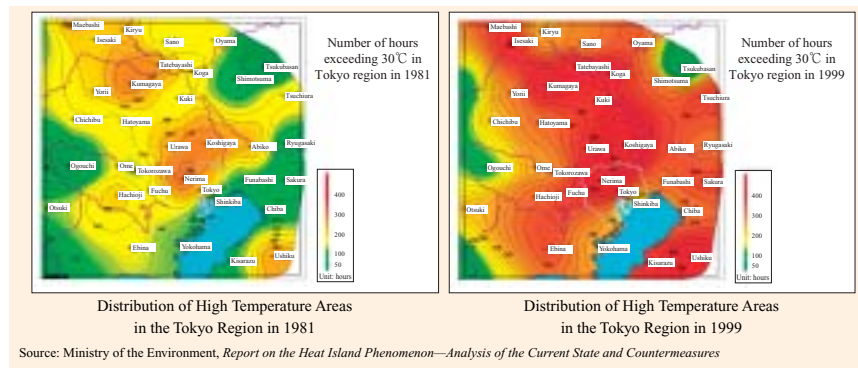


(6) Noise, Vibration, and Offensive Odors

Noise and offensive odors are environmental issues closely related to our daily life. The sources of these issues are complex and diverse. Each year, complaints about noise and offensive odors account for the largest percentage of pollution-related complaints. Complaints about noise had been in decline over the last ten years but began to increase in FY 2000. Complaints about offensive odors, particularly odors from open incineration, have increased drastically since FY 1997. Complaints about the service industry and residences are also on the rise.

For noise and vibration coming from factories, business establishments, automobiles, and airplanes, permissible limits and EQSs were set up pursuant to the Noise Regulation Law and the Vibration Regulation Law in order to impose restrictions.

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



(7) Heat Island Phenomenon

The heat island phenomenon occurs when the temperature rises more in urban areas than in surrounding suburban areas. This phenomenon results in an increase in the number of sultry nights in the summer. As waste heat from air conditioners raises the temperature, more energy is consumed as air conditioning works harder still, creating a vicious cycle.

In March 2004, concerned ministries and agencies put together the “Outline of the Policy Framework to Reduce Urban Heat Island Effects.” It consists of four pillars of measures, including the reduction of anthropogenic exhaust heat, improvement of urban surface, improvement of urban structure, and improvement of lifestyle.

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

(1) Water Environment

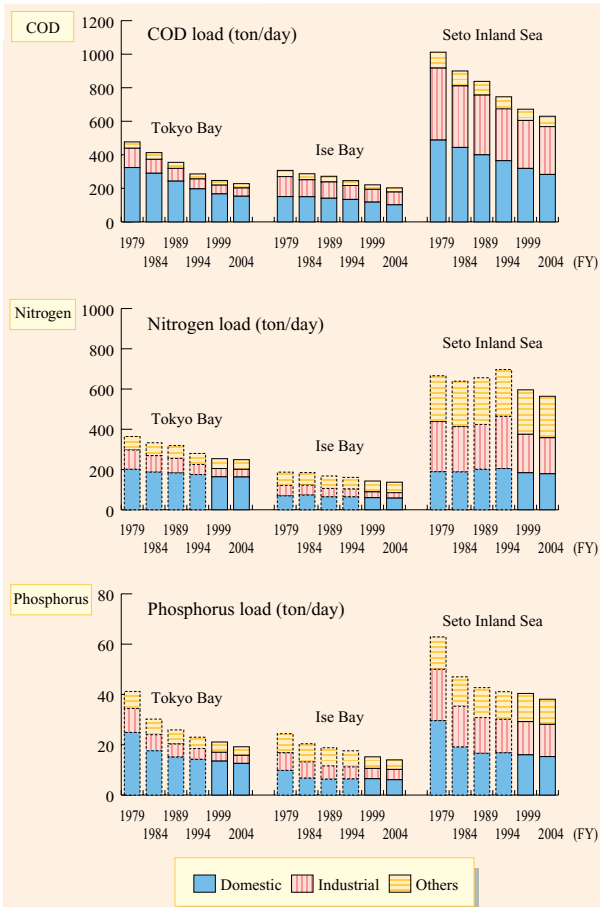
According to the Results of FY 2002 Measurement of Water Quality of Public Waters, the compliance rate to EQS for protecting human health from substances such as cadmium was 99.3%. The compliance rate of BOD (or COD), a typical water-quality indicator for organic contamination, to the EQS in regard to the conservation of the living environment was 81.7%. By water area, the compliance rates were 85.1% for rivers, 43.8% for lakes and reservoirs, and 76.9% for sea areas. In particular, the compliance rates for enclosed water areas, such as lakes, reservoirs, inner bays, and inland seas, were still low. In terms of COD, the compliance rates were 68% for Tokyo Bay, 44% for Ise Bay, and 69% for the Seto Inland Sea.

In response to these conditions, measures for lakes and reservoirs were taken pursuant to the Law concerning Special Measures for the Preservation of Lake Water Quality (Clean Lakes Law) and other laws. In Tokyo Bay, Ise Bay and the Seto Inland Sea, the Fifth Total Pollutant Load Control has been enforced in order to reduce COD further with the target year set at FY 2004. In addition to COD, Nitrogen and Phosphorus, which cause eutrophication of the sea, were newly designated as target substances of reduction.

According to the Results of FY 2002 Water Quality Survey of Groundwater, the exceeding rate to EQSs was 6.7% of the total wells surveyed. Especially, the exceeding rate of nitrate/nitrite nitrogen to the EQS was 5.9%. The pollution was caused by fertilizing to farmland, excreta of livestock, domestic drainage, etc., and immediate measures are needed to deal with the groundwater pollution by nitrate/nitrite nitrogen.

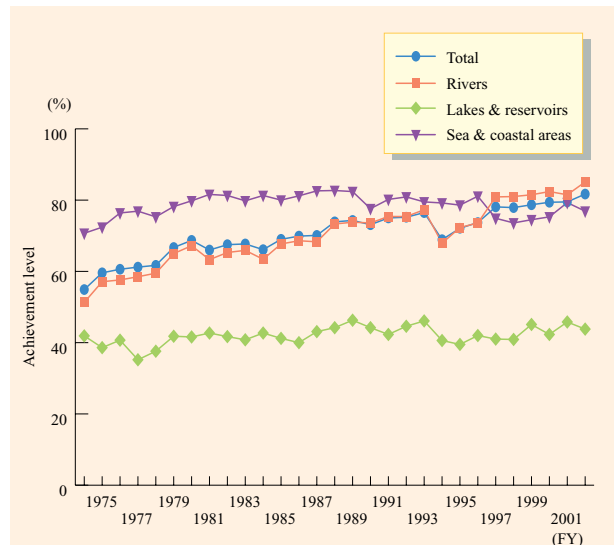
Measures are carried out systematically using an approach that treats the river basin as a unit and that seeks a comprehensive sound water cycle of surface water and groundwater.

Changes in Pollutant Loads and Reduction Targets



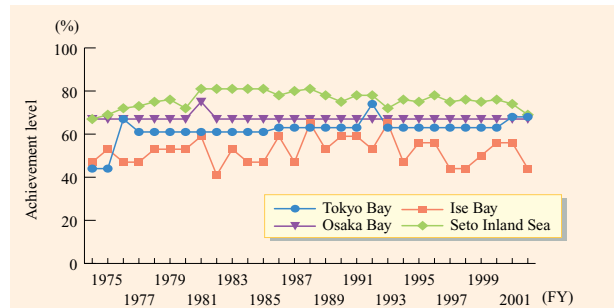
Notes:
1. Bars in dotted line are combined data of related prefectures.
2. Figures for FY 2004 are the reduction targets.
Source: Ministry of the Environment

Trends toward Achieving EQSs (BOD or COD)



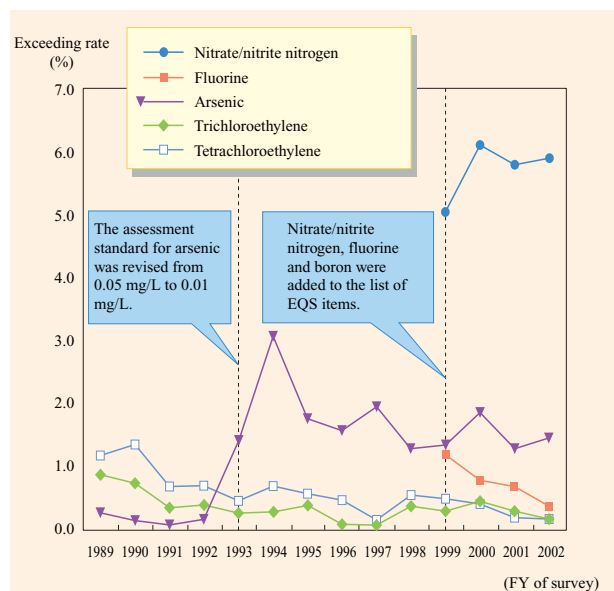
Notes:
1. BOD used for rivers, and COD used for lakes/reservoirs, and sea/coastal areas
2. Achievement level (%) = (no. of water bodies achieving/no. of designated water bodies) × 100
Source: Ministry of the Environment, Results of FY 2002 Measurement of Water Quality in Public Waters

Trends in Rate of Achievement with EQS (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 2002 Measurement of Water Quality in Public Waters

Changes in Exceeding Rates to EQSs for Groundwater (Items with high rates)



Notes:
1. Wells measured in the General Monitoring Survey differ every year.
2. Before the EQSs for groundwater were established in FY 1997, the assessment standards had been used to evaluate groundwater quality.
Source: Ministry of the Environment, Results of FY 2002 Water Quality Survey of Groundwater

(2) Marine Pollution

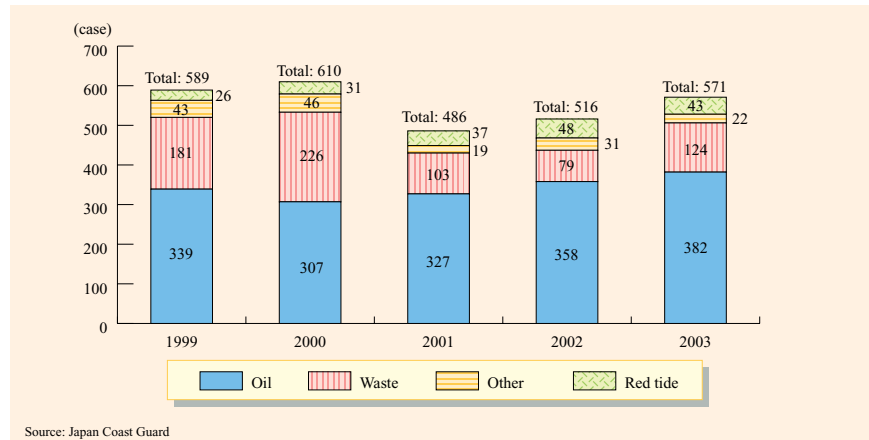
For conservation of the marine environment, Japan has concluded the London Convention, which regulates the dumping of waste from ships at sea, and the MARPOL73/78 Convention, which prevents marine pollution caused by ships. In response to these conventions, Japan has taken domestic measures to prevent marine pollution.

To assess and monitor the state of the marine environment, water quality, bottom sediment, and aquatic organisms are being monitored comprehensively and systematically. The monitoring is scheduled so that the survey of the ocean areas surrounding Japan will be completed in three to five years.

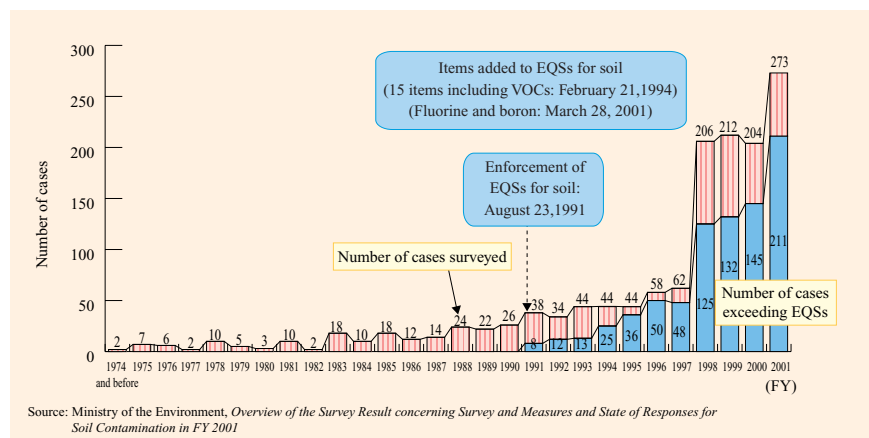
In terms of pollution caused by oil, waste, and red tide, 571 cases were identified in 2003, an increase of 55 cases from the 2002 total. Monitoring of drifting marine debris

by sight indicated that over 60% were petrochemical products such as foamed polystyrene and plastics. They were found in large quantities along the western coast of Kyushu and the southern coast of Honshu.

Changes in the Number of Identified Marine Pollution Cases



Number of Identified Soil Contamination Cases by Fiscal Year



(3) Soil Contamination

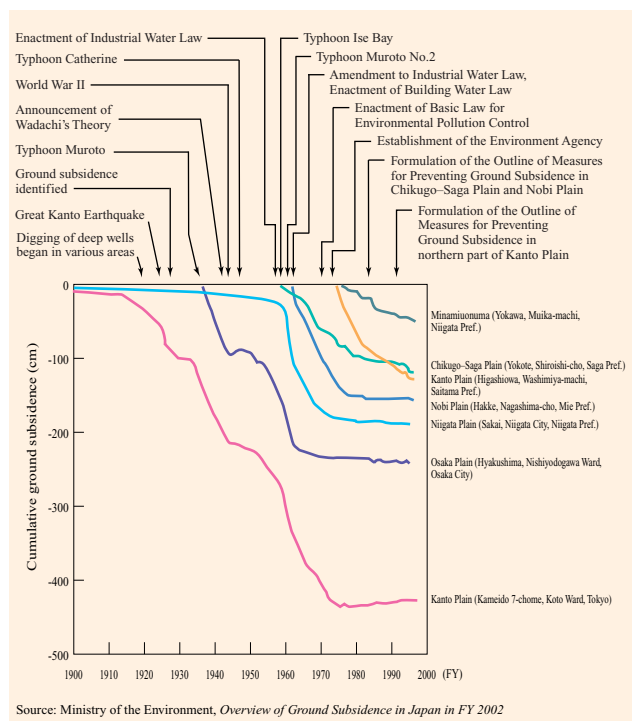
Once soil was contaminated, it accumulates hazardous substances, perpetuating the state of pollution. In recent years, an increasing number of urban soil contamination cases have been found during redevelopment of former factory sites. There were as many as 211 such cases in FY 2001.

The Soil Contamination Countermeasures Law was put into effect in February 2003 to tackle soil contamination. The Law was enacted to shed light on the state of soil contamination and to implement measures to prevent health damage caused by soil contamination.

(4) Ground Subsidence

Ground subsidence is caused by excessive pumping of groundwater which lowers the level of the groundwater and shrinks the clay layer. There were 61 areas in 37 prefectures that reported ground subsidence as of FY 2002. The restrictions on the pumping of groundwater have mitigated ground subsidence in the wards of Tokyo, Osaka City, and

Changes in Ground Subsidence in Selected Areas



Nagoya City, where remarkable ground subsidence had occurred.

However, ground subsidence has still occurred in certain areas such as the Kujukuri plains 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.

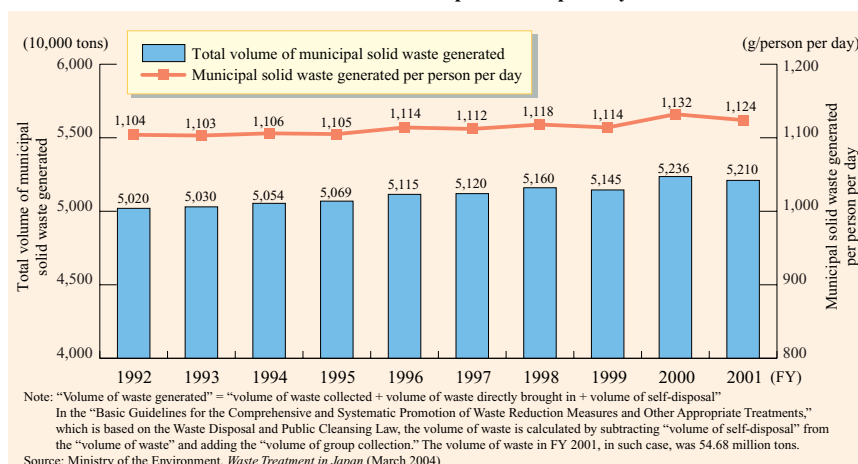
4. Measures for Waste and Recycling

Since FY 1989, Japan has been generating municipal solid waste at an annual volume of approximately 50 million tons or more. These annual volumes have remained steady over the last several years. In FY 2001, of all municipal solid waste, direct incineration accounted for 78.2% and recycling accounted for 16.5%. The final volume disposed of at landfill sites was 9.95 million tons, a decrease of 560,000 tons from the previous year.

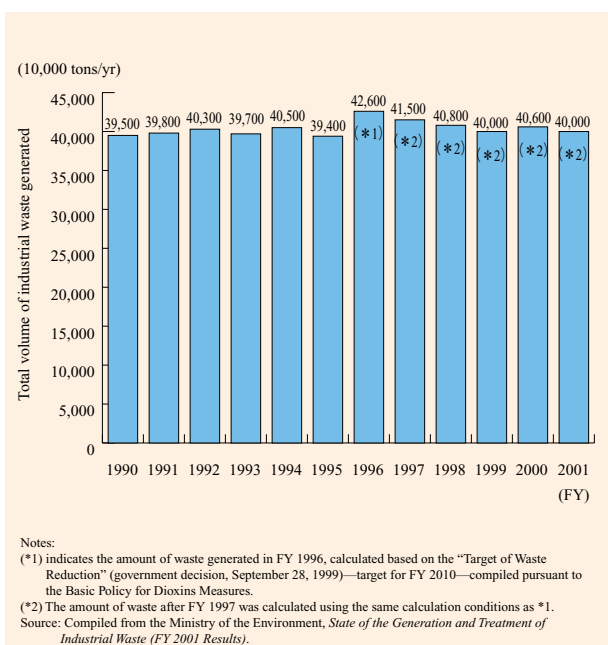
The total volume of industrial waste generated in Japan has also remained steady over the last several years. The volume in FY 2001 was approximately 400 million tons, a slight decrease from the previous fiscal year. Approximately 42 million tons were discarded at final disposal sites, a decrease from the previous fiscal year. Nationally, an average of 4.3 years of capacity in final disposal sites for industrial waste remained as of April 2002, presenting a serious situation.

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) reduce waste, (ii) reuse end-of-life products and parts, (iii) recycle as raw materials, (iv) recover heat as energy, and (v) appropriately dispose as final waste. The Law stipulated that the government should formulate the Fundamental Plan for Establishing a Sound Material-Cycle Society to ensure that waste and recycling measures are implemented in a comprehensive and systematic manner. The Plan, formulated in March 2003, defined a specific image of a

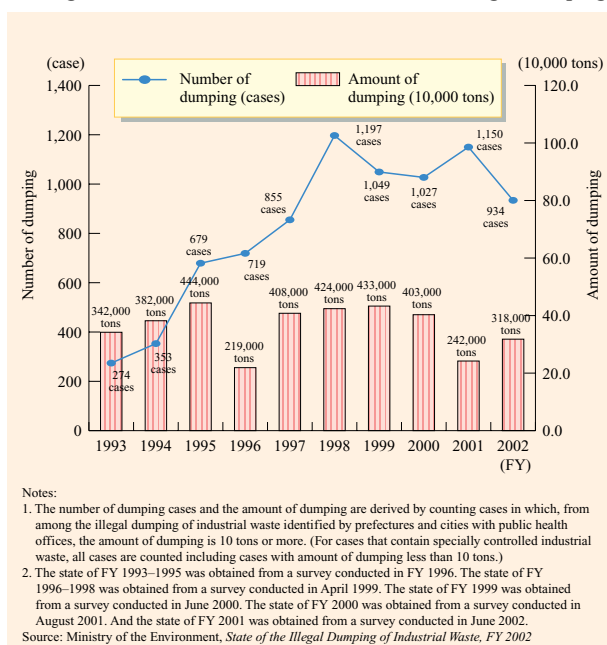
Changes in the Total Volume of Municipal Solid Waste and Volume Generated per Person per Day



Changes in the Volume of Industrial Waste Generated



Changes in the Number of Cases and Amount of Illegal Dumping



sound material-cycle society that Japan is aiming at, target values, and the respective roles of citizens, NPOs, NGOs, businesses, local governments, and the national government.

Illegal dumping of industrial waste has remained steady at around 400,000 tons for the past several years. Although the volume decreased drastically to about 240,000 tons in FY 2001, it rose to approximately 320,000 tons in FY 2002.

To tackle these issues, the government revised the Waste Management and Public Cleansing Law, which took effect in December 2003. The revised Law authorizes parties that have been certified by the Minister of the Environment to handle area-wide waste treatment to treat waste without the need to further obtain permits related to waste treatment businesses. The Law also stipulates the establishment of systems to enforce compliance with waste treatment standards, record keeping and record storage duties. In addition, the Law Making a Partial Amendment to the Waste Management and Public Cleansing Law was enacted in April 2004. It prescribes a strong role for the government in order to resolve cases of improper waste treatment and issues related to waste treatment facilities. It also prescribes penalties for improperly treating sulfate pitch and penalties for contractors collecting or transporting waste, who are found guilty of illegal dumping.

5. Measures for Tackling Environmental Risk from Chemical Substances

Among the more than 50,000 chemical substances in circulation in Japan today, some may be harmful to human health and to ecosystems if they are not properly managed and pollute the environment during the various stages of production, distribution, consumption, and disposal.

In order to prevent these harmful effects, the environmental risk (possible interference with environmental conservation) of these chemical substances must be assessed and appropriate measures must be taken.

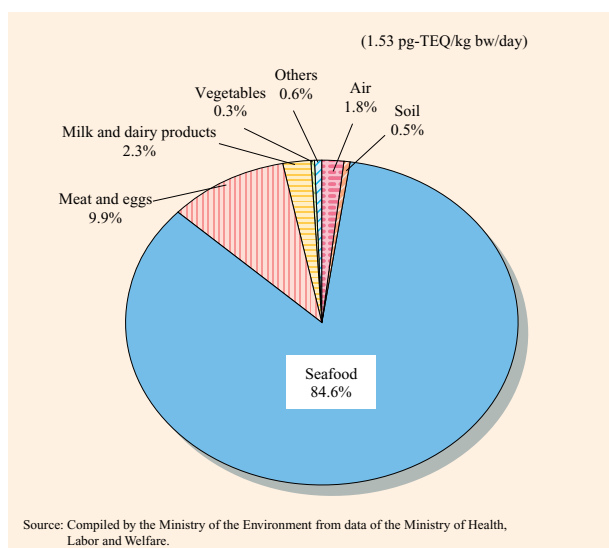
Pursuant to the Partial Amendment of the Chemical Substances Control Law that took effect in April 2004, from the view of evaluating the effect of chemical substances not only on human health but also on ecosystems, the toxicity of chemical substances to living organisms in the environment was added to the list of items to be evaluated. Where necessary, the manufacturing and import of these substances would be regulated. Furthermore, the amendment also prescribed (i) regulation of persistent and highly bioaccumulative existing chemical substances, (ii) an evaluation system that focuses on the possibility of release into the environment, and (iii) mandatory reporting of hazard information of substances acquired by manufacturer or importer.

The average daily intake of dioxin for humans has been decreasing annually and is now less than the tolerable daily intake level (4pg-TEQ/kg bw/day), which is low enough that even if this amount were to be absorbed throughout one's lifetime, it would not cause adverse health effects.

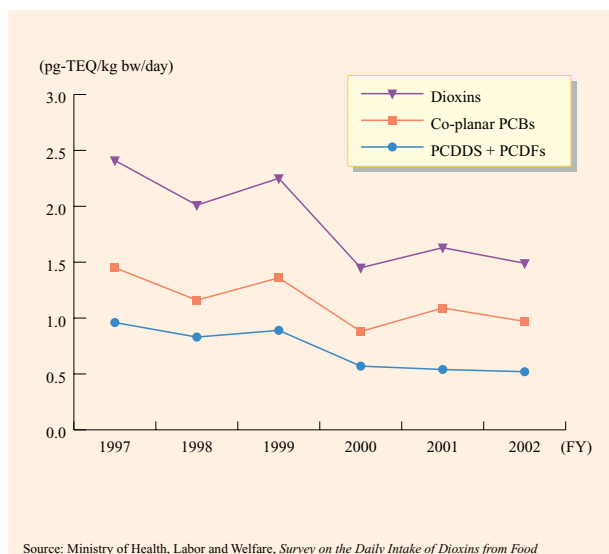
In addition, because the toxicity of endocrine disrupting chemicals, which might cause damage to or have harmful effects on the body through their impacts on the endocrine system (hormones), is mostly unknown, studies are being undertaken to gather scientific knowledge.

Japan has also adopted the PRTR (Pollutant Release and

Daily Intake of Dioxins in Japan (FY 2002)



Chronological Changes in Daily Intake of Dioxins from Food



Transfer Register) system for chemical substances that are suspected of being harmful to human health and to ecosystems. Under the PRTR system, businesses voluntarily identify and report to the government the amount of chemical substances that are released to the environment or transferred as waste materials; and the government aggregates the data from businesses and publishes them with estimated results of release quantities outside notification. Continued from the previous year, the second aggregate result was published in March 2004, and requests for the disclosure of individual data are being accepted. It is important to further promote risk communication to enable all parties, including citizens, industries, and the administrations, to share accurate information on chemical substances and to improve communication with each other.

6. Ensuring the Coexistence of Man and the Nature

(1) Ensuring the Coexistence of Man and the Nature in Japan

When we look at the current state of the natural environment in Japan, we see that natural forest is in decline while vegetation in planted forest, arable land, and other areas are increasing.

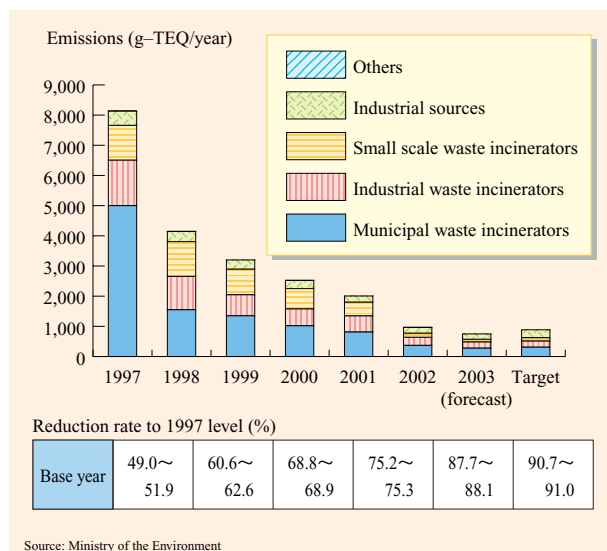
The areas of seaweed beds and tidal flats as well as natural coastlines are also in decline.

The Red List, which contains threatened wildlife species, listed 2,663 species that are facing extinction. They represent a little more than 20% of mammals, amphibians, brackish water and freshwater fish, and vascular plants (tracheophyte), a little less than 20% of reptiles, and a little more than 10% of bird species inhabiting Japan.

Furthermore, 62 species have been designated national endangered species of wild fauna and flora pursuant to the Law for the Conservation of Endangered Species of Wild Fauna and Flora, including two species of mammals and 39 species of birds.

In view of this situation, the new National Biodiversity Strategy has been approved in March 2002. The new National Strategy presented the following three main pillars as the basic principle for implementing practical and specific measures: (i) “strengthening conservation” to deal with the problems of species extinction, decline in wetlands, and alien species; (ii) “nature restoration” to actively rehabilitate and restore vanished nature in addition to conservation; and (iii) “sustainable use” of all national land, including community-based woods and rural landscapes and urban areas, or in other words, to advance the conservation of bio-

Changes in Total Emissions of Dioxins

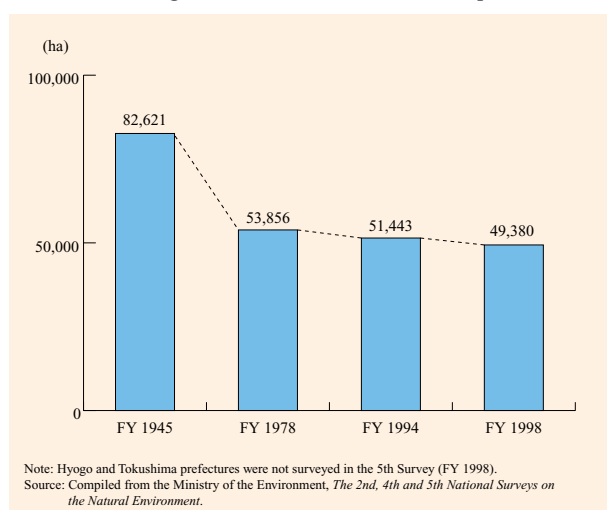


Changes in Vegetation Naturalness over Time

Vegetation Naturalness Survey	1st National Survey (implemented in FY 1973)	5th National Survey (implemented in FY 1994—1998)	Increase/decrease (%)
Natural vegetation of grassland and moorland	1.1	1.1	0.0
Natural vegetation of forest	21.7	17.9	-3.8
Substitutional vegetation close to natural vegetation of forest	4.5	5.3	0.8
Substitutional vegetation of secondary forest	21.0	18.6	-2.4
Planted forest	20.8	24.8	4.0
Substitutional vegetation of high profile grassland	1.9	1.5	-0.4
Substitutional vegetation of low profile grassland	1.6	2.1	0.5
Fruit orchards, mulberry plantations, tea gardens, and other horticultural areas	1.5	1.8	0.3
Paddies, fields, and other arable land, residential area with abundant trees	22.7	21.1	-1.6
Urban land, developed tracts, and other zones where plant life is virtually nonexistent	3.1	4.3	1.2
Natural bare land	—	0.4	
Open water	—	1.1	
Other (areas bare of vegetation, category unknown)	—	0.0	
All Japan	100.0	100.0	

Note: Natural bare land, Open water, and Other were not included in the 1st Survey
Source: Compiled from the Ministry of the Environment, *The 1st and 5th National Surveys on the Natural Environment*.

Changes in the Area of Tidal Flats in Japan



diversity in communities.

For conservation of biodiversity in natural parks, which represent the outstanding natural landscape of Japan, the Natural Parks Law has been revised and entered into force in April 2003, following the revision of the National Strategy on Biological Diversity. To promote the conservation of internationally important wetlands and in response to the resolution adopted at the Conference of the Parties to the Ramsar Convention, Japan is making preparations aimed at increasing Japan's Ramsar sites from the current number of 13 to over 22.

With the participation of experts, local governments, civil organizations, and local residents, the concerned ministries and agencies are collaborating to undertake restoration projects of natural environments that have been damaged in the past. In April 2003, the Cabinet approved the Basic Policy for Nature Restoration pursuant to the Law for the Promotion of Nature Restoration. In October, the Nature Restoration Promotion Council and the Nature Restoration Expert Committee were established. Nature restoration measures were launched at the Kushiro Shitsugen and Arakawa in accordance with the Law.

For living modified organisms, the Cartagena Protocol was adopted in 2000 and entered into force in September 2003. It establishes an international framework for the import and export of living modified organisms. In preparation for the ratification of the Protocol, Japan promulgated the "Law Concerning the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organisms" in June 2003 to establish the necessary domestic system. The Law became effective on February 2004.

To review concrete measures for dealing with alien species, the Central Environment Council deliberated "Measures for Alien Species" and a report was issued in December 2003. In line with this report, the import and keeping of invasive alien species are going to be banned and the mitigation of invasive alien species will be conducted by the "Invasive Alien Species Act," which was submitted to the 159th Diet to prevent the damages to ecosystems.

Threatened Wildlife of Japan (species listed in the Red List and the Red Data Book)

(as of March 2004)

	Taxonomical group	Species assessed (a)	Extinct	Extinct in the wild	Threatened species		Near threatened	Data deficient	Threatened local population	Number of threatened species (b)	b/a (approx.)	
					Critically endangered + Endangered	Vulnerable						
					Category IA ; Category IB							
Animals	Mammals	Approx. 200	4	0	12	20	16	16	9	12	48	24%
	Birds	Approx. 700	13	1	17	25	48	16	15	2	90	12%
	Reptiles	97	0	0	2	5	11	9	1	2	18	19%
	Amphibians	64	0	0	1	4	9	5	0	4	14	22%
	Brackish water and freshwater fish	Approx. 300	3	0	29	29	18	12	5	12	76	25%
	Insects	Approx. 30,000	2	0		63	76	161	88	3	139	0.5%
	Land/freshwater molluscs	Approx. 1,000	25	0		86	165	206	69	5	251	25%
	Spiders/crustaceans	Approx. 4,200	0	1		10	23	31	36	0	33	0.8%
Subtotal for animals			47	2	303		366	456	223	42	669	
Plants	Vascular plants	Approx. 7,000	20	5	564	480	621	145	52	0	1,665	24%
	Bryophytes	Approx. 1,800	0	0		110	70	4	54	0	180	10%
	Algae	Approx. 5,500	5	1		35	6	24	0	0	41	0.7%
	Lichen	Approx. 1,000	3	0		22	23	17	17	0	45	5%
	Fungi	Approx. 16,500	27	1		53	10	0	0	0	63	0.4%
Subtotal for plants			55	7	1,264		730	190	123	0	1,994	
Total			102	9	1,567		1,096	646	346	42	2,663	

(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, etc.) 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 the Environment Agency, *Revised Red Data Book—Threatened Wildlife of Japan: Amphibians, Reptiles, Plants I, and Plants II* (2000); and the Environment Agency, *Red Lists on Mammals and Birds, Brackish Water and Freshwater Fish, and Invertebrates* (1998, 1999, and 2000).

The categories are considered as follows:

Extinct: Species that are extinct in Japan

Extinct in the wild: Species that can only survive by being raised or by 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

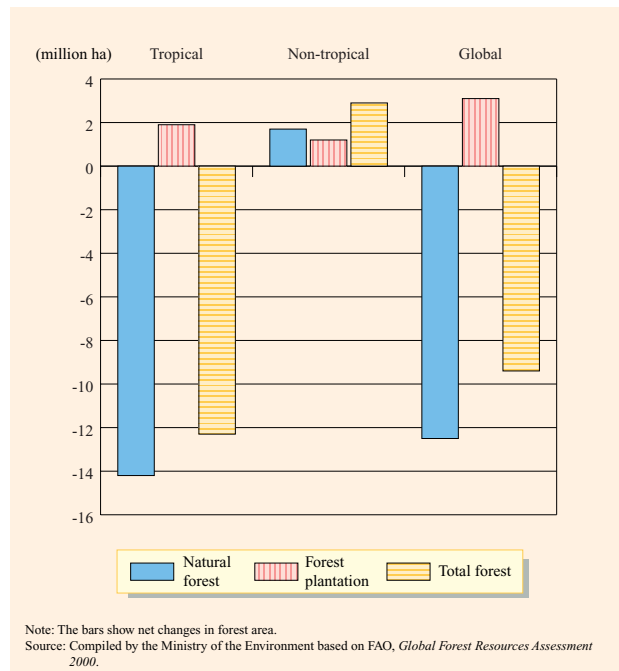
(2) Deforestation

Forests in the world were decreasing at a rate of about 9.4 million hectares per year averagely from 1990 to 2000. It was mainly attributed to the conversion of forests to farmland, forest fire, and illegal logging. Efforts for the sustainable forest management are being promoted worldwide under the United Nations Forum on Forests (UNFF), which was set up in 2001, and other initiatives.

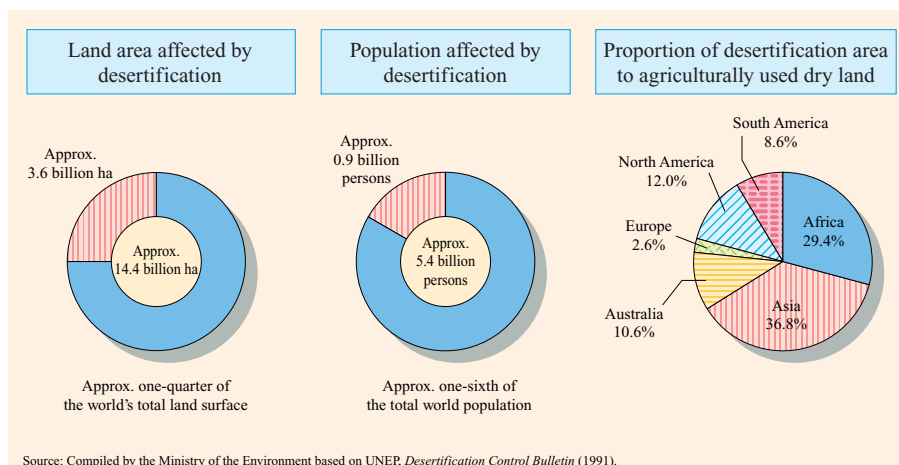
(3) Desertification

Desertification is defined as land degradation in arid and semi-arid areas. 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. As the background of this problem, there are factors such as poverty and population growth in developing countries. Therefore, international efforts are being made under the UN Convention to Combat Desertification (UNCCD).

Annual Forest Area Changes in the World (1990 — 2000)



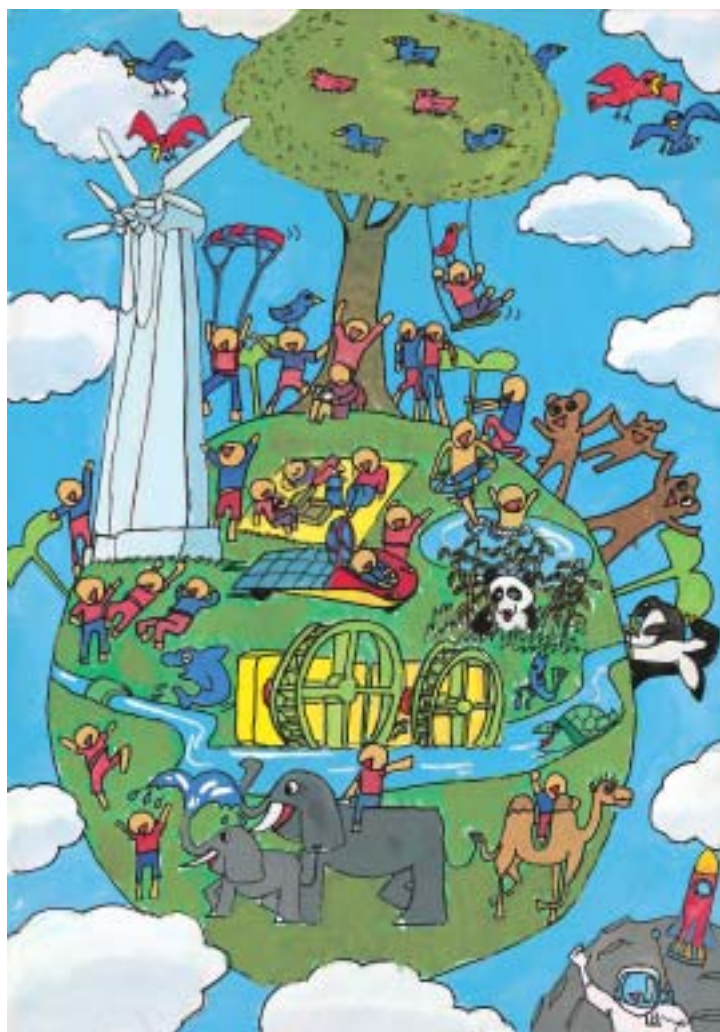
Current State of Desertification



○ Environmental Conservation Measures to be Implemented in FY 2004

In line with the Basic Environment Plan, environmental conservation measures to be implemented in FY 2004 are reported in chapters as follows:

- Chapter One: Conservation of the Global Atmospheric Environment
- Chapter Two: Conservation of the Atmospheric Environment (not including the global atmospheric environment)
- Chapter Three: Conservation of the Water, Soil, and Ground Environments
- Chapter Four: Measures and Policies related to the Material Cycle including Waste and Recycling Measures
- Chapter Five: Measures for Chemical Substances
- Chapter Six: Conservation of the Natural Environment and Promoting Contact with Nature
- Chapter Seven: Basis of Various Measures, and Measures Facilitating the Participation of Various Actors and International Cooperation



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 ● If you have any opinions and comments regarding this booklet, please contact the following:

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