

## Japan's Response to the OECD Environmental Performance Review of Japan

### 1. Overview of Japan's Environmental Policies

This report consists of a self-evaluation of the progress made by Japan in its environmental policies since the previous OECD Environmental Performance Review (EPR) in 2002 and the extent to which Japan's domestic objectives and international commitments are being met. It reviews the OECD recommendations with a view to further advancing environmental policies based on the recommendations.

The OECD carried out environmental performance review of Japan in 1994 and again in 2002. In the second review, it was pointed out that Japan needed to i) increase the efficiency of its environmental policies; ii) integrate environmental concerns into economic and social decisions; and iii) reinforce its international environmental co-operation in order to help strengthen the country's environmental performance in a context of sustainable development. While the OECD gave high mark to Japan for the progress it made in environmental policies in the 1990s, it also put forward 60 recommendations. They covered cross-sectoral issues such as the insufficient use of economic instruments and cost-effective analysis, and also policies and measures for the various individual areas of air, water, waste, nature, chemical substances, and global warming.

Based on these recommendations, Japan is making efforts to advance environmental conservation. Japan's greenhouse gas (GHG) emissions in FY 2003 was 8.3% above the base year level, meaning that the gap from Japan's 6% reduction commitment of the first commitment period is 14.3%. Under such circumstances and with the entry-into-force of the Kyoto Protocol, the Japanese government responded by formulating the Kyoto Protocol Target Achievement Plan in April 2005. The Plan was made to set forth necessary measures for ensuring the fulfillment of the 6% reduction commitment stipulated by the Kyoto Protocol. It was also the outcome of the evaluation and revision of the Climate Change Policy Programme carried out in 2004.

With respect to the establishment of a sound material-cycle society; in the backdrop of a consistently high level of waste generation, the imminent shortage of final landfill sites and other problems continue to exist. In light of these issues, the Cabinet approved the Fundamental Plan for Establishing a Sound Material-Cycle Society in 2003. Based on the Plan, Japan set up quantitative targets for resource productivity, cyclical use rate, and final disposal volume, in order to promote

the formation of a sound material-cycle society.

In addition to the above, problems of the negative impact of chemical substances on human and the ecosystems continue to exist, as well as the threat of extinction facing many wildlife species and the heat island phenomenon, indicating that environmental problems are deteriorating at a pace faster than their countermeasures can ameliorate.

## **2. OECD Recommendations and Japan's Response**

The following are the OECD's recommendations and Japan's current response.

### **2.1 Environmental Management**

#### **2.1.1 Implementing more efficient environmental policies**

The following are recommendations made for implementing more efficient environmental policies:

- Strengthen and extend the use of economic instruments (e.g. taxes and charges) to implement environmental policy in more environmentally effective and economically efficient ways and to progress towards sustainable production and consumption;
- Continue to assure appropriate enforcement of regulatory measures;
- Ensure that voluntary agreements become more transparent, effective and efficient;
- Extend environmental legislation and policy attention to cover all types of contaminated sites;
- Review financial assistance programmes used to implement environmental policy, assessing their environmental and economic effectiveness and their compatibility with the polluter pays principle (as proposed in the 1994 EPR);
- Increase economic analysis of environmental policy measures, with the aim of achieving environmental objectives more cost-effectively.

**2.1.1.1 Strengthen and extend the use of economic instruments (e.g. taxes and charges) to implement environmental policy in more environmentally effective and economically efficient ways and to progress towards sustainable production and consumption.**

In response to the entry-into-force of the Kyoto Protocol in February 2005, the Cabinet approved the Kyoto Protocol Target Achievement Plan in April 2005, with a view to ensuring the fulfilment of Japan's 6% reduction commitment of the Kyoto Protocol and to further reducing GHG emissions globally on a long-term and continuous basis.

In the Kyoto Protocol Target Achievement Plan, economic instruments are defined as "instruments that are premised on market mechanism and, which with the addition of economic incentives are expected to induce emission reduction actions in line with the economic rationality of each actor. Such instruments are also expected to be effective as an economic means to support measures for mitigating global warming. When employing these instruments, it is important to use a policy-mix approach to optimize benefits, minimize burden on citizens, and control the administrative and financial costs. In the appropriation of funds, cost-effectiveness should be considered and efforts should be made to utilize budget efficiently."

Environmental tax is one of these economic instruments. In regard to this tax, the Kyoto Protocol Target Achievement Plan states that "Environmental tax is an issue whose comprehensive examination must be seriously advanced, taking into account the review of various political approaches related to measures against global warming in related councils and various fields, being based on the actual positioning of this tax within the entire range of measures against global warming, its effects, its impacts on the national economy and the international competitiveness of industry, and the current situation in foreign countries, endeavoring to obtain the understanding and cooperation of the public and businesses, since the tax will be broadly imposed on the population."

The Central Environment Council is carrying out analyses on the effectiveness of environmental taxes and had discussions with industries, the public, local governments, etc.

At the end of August 2005, the Ministry of the Environment submitted a request for the establishment of environmental tax, and announced its Environment Tax Plan in October.

A report delivered by the Government Tax Commission concerning the FY2006 Tax Reform pointed out that "so-called environmental tax has wide-ranging issues on which examination must be advanced, such as concrete position of this tax within the entire range of national and local measures against global warming, its effects, its impacts on the national economy and the international competitiveness of the industry, the current practices in other countries, and the relationship to the existing energy taxes. The tax needs to be examined comprehensively, taking

into consideration the current discussion carried on among the related government ministries and agencies.”

Local governments use an economic instrument of environmental tax. The Local Tax Law was amended in 2000, and a local discretionary tax for specific purposes was established to give and encourage more autonomy to local governments on taxation. Let's look at the tax for the disposal of industrial waste and forest tax. According to a study by the Ministry of the Environment, 23 prefectures (among them, 2 prefectures have yet to implement the tax) and one ordinance-designated city have introduced tax for the disposal of industrial waste (hereinafter referred to as “industrial waste tax”) as of April 2005. The tax levied is mainly used for waste generation control, recycling, reduction, and other appropriate treatment measures.

Although it cannot be said with certainty, the reduction in final disposal amount made by these municipalities that took a lead in introducing the tax may be in part attributable to the effect of the tax. Also, there has not been any increase in industrial waste being transported out of the prefectures or prefectures imposing restriction on transporting industrial waste into them.

Regarding methods for municipalities to treat municipal solid waste, the Central Environment Council issued its opinion in February 2005 with a view to building a sound material-cycle society. Based on the opinion, the government revised the Basic Policy for Waste Management and Public Cleansing Law in June 2005 to promote fee-based waste treatment.

The Ministry of the Environment plans to formulate guidelines regarding the introduction of fee-based waste treatment, to support municipalities' efforts in that area.

A forest tax is currently levied in eight prefectures, including Kochi and Okayama (as of August 1, 2005). In Kochi Prefecture, for example, a capitation fee of 500 yen is added to the prefectural inhabitants tax. In order to use the tax revenue for forest maintenance, a municipal ordinance was enacted to create a forest environment conservation fund. In essence, the capitation fee takes on the nature of a special-purpose tax.

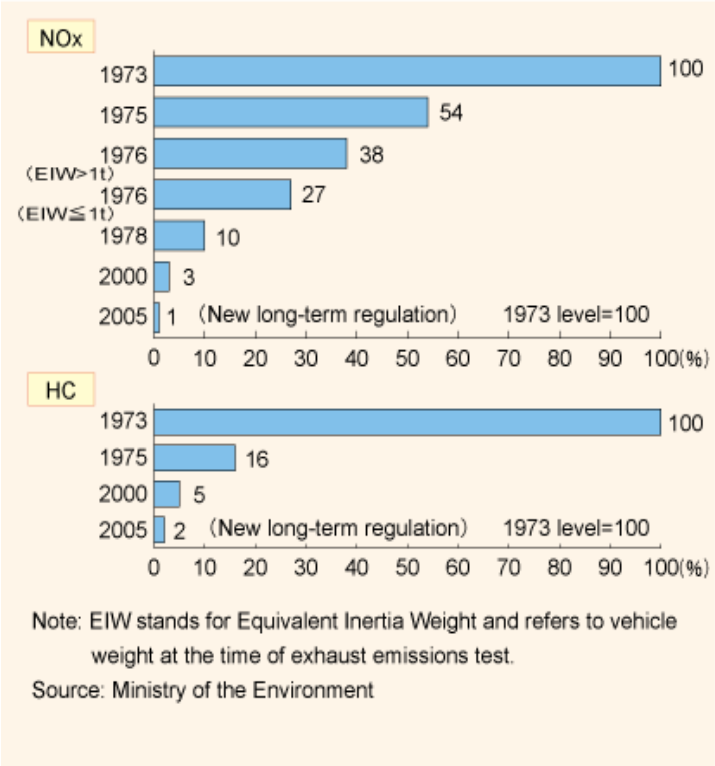
#### **2.1.1.2 Continue to assure appropriate enforcement of regulatory measures.**

Efforts have been made to appropriately implement the environmental taxes. In order to ensure expeditious and carefully-crafted implementation, Regional Environment Offices were established, and part of the authority of the Environment Minister provided for in the law is entrusted to these offices. Let's use air pollution control measures as an example to illustrate appropriate enforcement

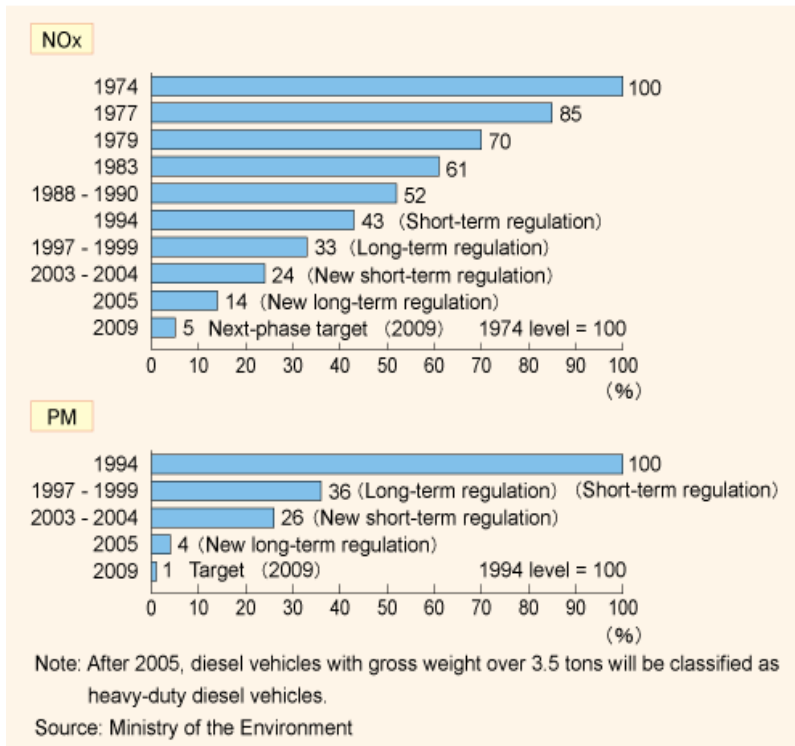
of regulatory instruments used in this area.

Regulations based on the Air Pollution Control Law and the Road Transport and Motor Vehicle Law have been stepped up gradually since 1973, substantially reducing the emissions of air pollutants from motor vehicles (see Figures 1 and 2). In addition to regulating individual motor vehicles, ensuring the quality of fuel is also a measure vital to the prevention of air pollution caused by automobile exhaust gas. In accordance with the Air Pollution Control Law, the sulfur content of fuel has been reduced substantially. The sulfur content of diesel has also been tightened gradually, with regulations setting limit at 500 ppm in 1997, 50 ppm at the end of 2004, and 10 ppm in 2007 (see Figure 3). Along with strengthening of regulations, reduction targets for emissions from diesel-fueled vehicles and gasoline-fueled vehicles were set up, as shown in the figure below (Table 1).

**Fig. 1 Changes in Emission Control  
Regulation of Gasoline/LPG Vehicles**



**Fig. 2 Changes in Emission Control Regulation of Heavy-duty Diesel Vehicles (with Gross Weight over 2.5 Tons)**



**Fig. 3 Changes in Permissible Level of Sulfur Content in Light Oil**

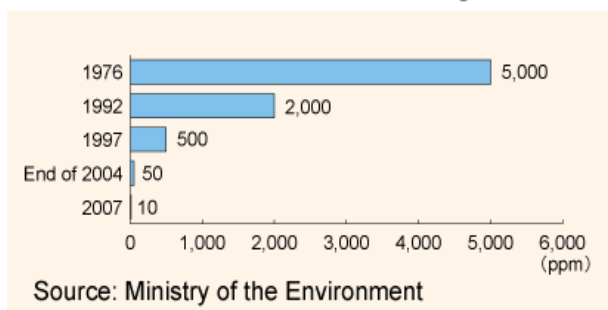


Table 1 New Automobile Exhaust Reduction Targets

(Diesel vehicles)

Vehicle classification		PM	NOx	NMHC	CO	Timetable (reference)
Passenger car		0.005 -62%	0.08 -43%	0.024 0%	0.63 0%	2009
Truck and bus	Light-duty vehicle (GVW ≤ 1.7t)	0.005 -62%	0.08 -43%	0.024 0%	0.63 0%	2009
	Medium-duty vehicle (1.7t < GVW ≤ 3.5t)	0.007 -53%	0.15 -40%	0.024 0%	0.63 0%	2010 (for vehicles 1.7t < GVW ≤ 2.5t) 2009 (for vehicles 2.5t < GVW ≤ 3.5t)
	Heavy-duty vehicle (3.5t < GVW)	0.01 -63%	(Next phase target) 0.7 (-65%)  (Challenging target) Around one-third of 0.7 (-88%)	0.17 0%	2.22 0%	2010 (for vehicles 3.5t < GVW ≤ 12t) 2009 (for vehicles 12t < GVW)

(Gasoline vehicles)

Vehicle classification		PM	NOx	NMHC	CO	Timetable (reference)
Passenger car		0.005 (New)	0.05 0%	0.05 0%	1.15 0%	2009
Truck and bus	Light-duty vehicle (GVW ≤ 1.7t)	0.005 (New)	0.05 0%	0.05 0%	1.15 0%	2009
	Medium-duty vehicle (1.7t < GVW ≤ 3.5t)	0.007 (New)	0.07 0%	0.05 0%	2.55 0%	2009
	Heavy-duty vehicle (3.5t < GVW)	0.01 (New)	0.7 (0%)	0.23 0%	16.0 0%	2009

Notes:

1. Target units: g/kWh (for heavy-duty vehicles) and g/km (for vehicles other than heavy-duty vehicles)
2. GVW: gross vehicle weight, NMHC: non-methane hydrocarbons
3. With regard to "challenging targets", technological review shall be carried out in around 2008, and target values and timetables shall be finalized as necessary.
4. Targets concerning PM for gasoline vehicles are applied only to lean-burn direct injection vehicles fitted with NOx adsorber catalysts.

Source: Ministry of the Environment

To tackle the severe air pollution around urban areas with high traffic volume and chronic traffic congestion, more stringent regulations for in-use vehicles (Regulations for Vehicle Categories in Specified Areas) were put into effect beginning in October 2002 based on the Law concerning Special Measures for Total Emission Reduction of Nitrogen Oxides and Particulate Matter from Automobiles in Specified Areas (hereinafter referred to as "Automobile NOx/PM Law") amended

in June 2001.

Up till now, there has been no emissions control for special motor vehicles not operating on public roads. To control the emission of exhaust gas from these vehicles, the Non-road Special Motor Vehicles Exhausts Regulation Law (hereinafter referred to as “Off-road Law”) was promulgated in May 2005. It will be introduced from October 2006.

### **2.1.1.3 Ensure that voluntary agreements become more transparent, effective and efficient.**

To encourage small and medium enterprises to adopt environmental management systems, funds were made available through a lending mechanism that assists businesses to acquire ISO14001 certification and to make the necessary environmental investment. As a result, the number of applications for ISO14001 in Japan reached 18,683 in July 2005, the highest number in the world. To make it easier for small and medium enterprises to carry out environmentally conscious activities, the government formulated “Eco Action 21,” which integrated the environmental management systems, environmental performance evaluation, and environmental reporting into one environmental activity evaluation program to facilitate wider application. Currently, a third party is carrying out the certification/registration system, and as of the end of June 2005 there were 430 cases registered.

The voluntary action plans adopted by the industrial sector to combat global warming is a good example of voluntary efforts in Japan. In June 1997, the Japan Business Federation (hereinafter referred to as “Keidanren”) formulated the Keidanren Voluntary Action Plan on the Environment as its voluntary effort to tackle global warming. The Plan aims at keeping the CO2 emission in 2010 below  $\pm 0\%$  of the 1990 level. It also includes voluntary action plans of various industries, in which quantitative targets are set up for each industry. These business-led voluntary action plans have so far achieved good results. Keidanren has established a third party evaluation committee to assess these voluntary measures in an effort to further improve their transparency.

The government also reviews their progress through various related councils to improve the transparency and credibility of these measures and to increase the chance of meeting the targets. In FY 2004, 30 industries were reviewed. It was estimated that 19 of the industries could successfully achieve the targets; and in the case of the rest of industries, if the measures that had been put in place were followed through, they could also reach their targets. The results of the review of these plans and their progress were published to ensure transparency.

By requiring emitters to calculate their own emission volumes, the Climate Change Policy Law



establishes a base for various sectors of the Japanese society to take voluntary measures to tackle global warming. The government also requires emitters that have emitted more than a specified amount of greenhouse gases to report the emission volumes. The information is then gathered and published. Announcement and disclosure of emission information give incentive and motivation to citizens and businesses to take voluntary measures. To facilitate understanding of the published data on emission volumes, the government allows emitters to furnish information related to the published emission volumes. The reported information is also published.

#### **2.1.1.4 Extend environmental legislation and policy attention to cover all types of contaminated sites.**

The Soil Contamination Countermeasures Law was put into effect in February 2003. Based on this law, measures designed to tackle soil contamination are being implemented to identify the state of soil contamination and to prevent its harmful effect on human health. In accordance with the Law, when a specified facility of hazardous substances is scheduled for demolition or when it is recognized that the facility's soil contamination may pose harmful effect on human health, a survey will be conducted to find out the state of soil contamination. As of February 2005, 221 cases were investigated; among them, 56 cases were found to have soil contamination exceeding the specified standards, and were identified as specified areas (This is an aggregate number of the cases. Remedial measures have been taken for 20 of the cases and these facilities are no longer identified as specified areas.).

While implementing applicable measures to tackle soil contamination in accordance with the Soil Contamination Countermeasures Law, the government also conducted various studies, including a study on measures to remove contamination and also a study on methods to prevent damage on human health caused by soil contamination caused by specified hazardous substances. Also in accordance with the Law, the government began providing financial assistance to funds created by specified corporations since FY 2002. These funds are used to aid studies, such as a study on the state of soil contamination, a study on methods to remove contamination from specified areas, or a study on the alterations of the landscape.

#### **2.1.1.5 Review financial assistance programmes used to implement environmental policy, assessing their environmental and economic effectiveness and their compatibility with the polluter pays principle (as proposed in the 1994 EPR).**

Let's look at the automobile tax reform as an example of financial assistance measures used to implement environmental policies.

In the FY 2004 Tax Reform, the greening of the automobile tax and preferential measures for acquisition tax of fuel-efficient vehicles placed priority of tax reduction on vehicles with low exhaust emissions and high fuel efficiency. The effective period of the tax reduction has also been extended.

#### **2.1.1.6 Increase economic analysis of environmental policy measures, with the aim of achieving environmental objectives more cost-effectively.**

In regard to economic analysis of environmental policy measures, let's look at waste treatment measures and expenditure for environmental conservation.

Every year, the Ministry of the Environment coordinates estimation policies of various ministries and agencies to budget their expenses for environmental protection measures so that the government as a whole can have an efficient and effective environmental protection policy. The expenses are then grouped together as the expenditure for environmental conservation.

It is important to analyze and evaluate the cost of waste treatment to obtain basic data for reviewing the implementation of the 3Rs and determining the optimal waste treatment system. As it is desirable to use a standardized method of analysis to have municipalities calculate and disclose the cost of their waste treatment operations, the government reviews various issues related to cost analysis and make recommendations on standard methods of analysis by defining the expenses for cost analysis, the method of allocating common expenses, the method of depreciation, etc.

#### **2.1.2 Air**

The following are recommendations for the atmospheric environment:

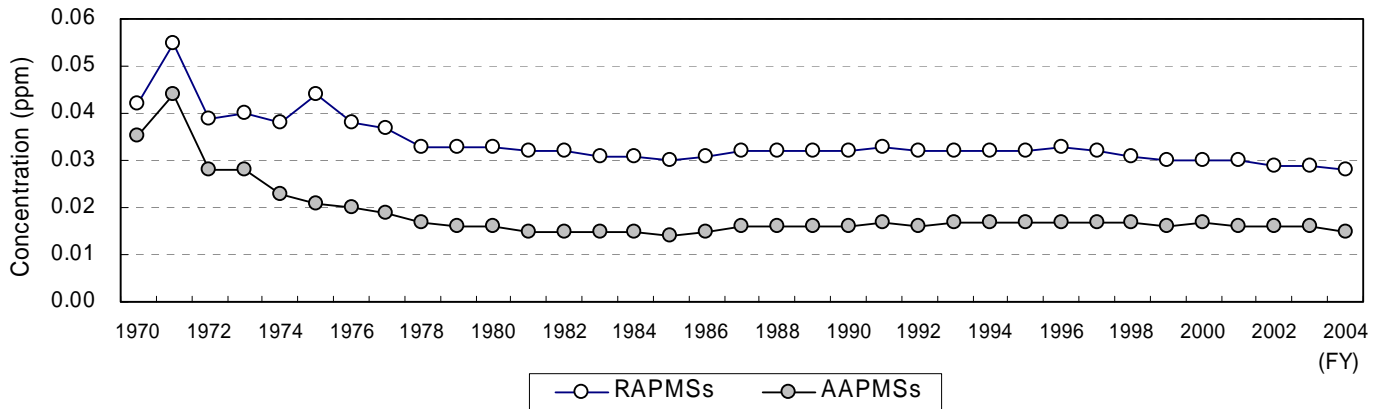
- Continue efforts to reduce NO<sub>x</sub> and NMVOC emissions, in light of the persistent NO<sub>2</sub> and photochemical oxidant issue in metropolitan areas;
- Further develop and implement comprehensive policies to control fine particulate emissions from both mobile and stationary sources and to meet environmental quality standards;
- Continue efforts to reduce emissions of toxic chemicals, ensuring in particular that voluntary agreements are efficient and effective;

- Use cost-benefit analysis more systematically in integrating major air management and transport decisions, including those for road investment;
- Strengthen the management of motor vehicle traffic through a comprehensive package of policies including traffic demand management measures (e.g. land use planning, economic instruments, information technology) and measures promoting the use of more fuel-efficient vehicles and of less polluting transport modes.

#### **2.1.2.1 Continue efforts to reduce NO<sub>x</sub> and NMVOC emissions, in light of the persistent NO<sub>2</sub> and photochemical oxidant issue in metropolitan areas.**

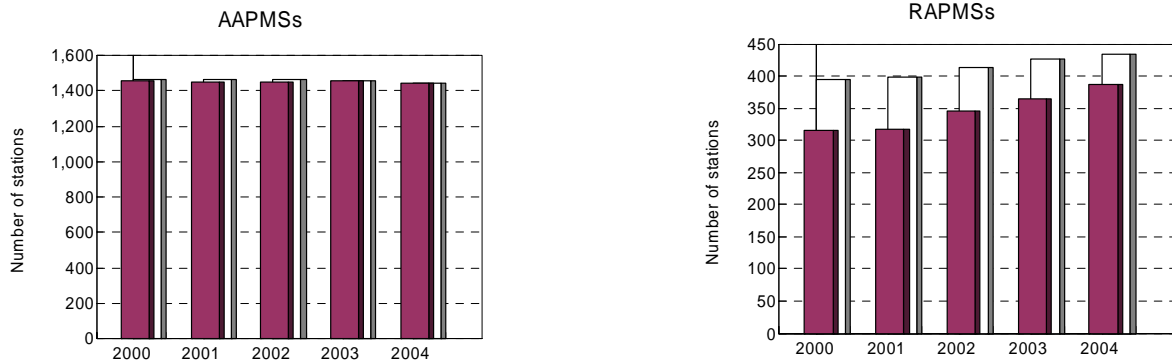
In FY 2004, the average annual value of NO<sub>2</sub> was 0.015 ppm at ambient air pollution monitoring stations (hereinafter referred to as “AAPMSs”) and 0.028 ppm at roadside air pollution monitoring stations (hereinafter referred to as “RAPMSs”). In recent years, these values have remained at almost the same level, but are showing a slightly improving trend (see Figure 4). Achievement rate of the environmental quality standard in FY 2004 were 100% at AAPMSs and 89.2% at RAPMSs. Compared to the previous fiscal year, both the AAPMSs and RAPMSs have made definite improvement (see Figure 5). Achievement rate of the environmental quality standard at areas specified under the Automobile NO<sub>x</sub>/PM Law was 76.4% (RAPMSs) in FY 2003, showing an improving but still unsatisfactory trend in recent years (see Figure 6). The concerned eight prefectures are systematically implementing measures to curb emissions of NO<sub>x</sub> from automobiles based on the “Total Emission Reduction Plan” they formulated in FY 2003. Until now, special motor vehicles not operating on public roads were not regulated for the NO<sub>x</sub> they emitted, but with the promulgation of the Off-road Law in May 2005, regulation will be introduced from October 2006.

Fig. 4 Changes in Annual Average of Nitrogen Dioxide Concentrations (FY1970 - 2004)



Source: Press Release of the Ministry of the Environment, "FY 2004 Status of Air Pollution"

Fig. 5 Changes in Attainment of EQS for Nitrogen Dioxide (FY2000 – 2004)

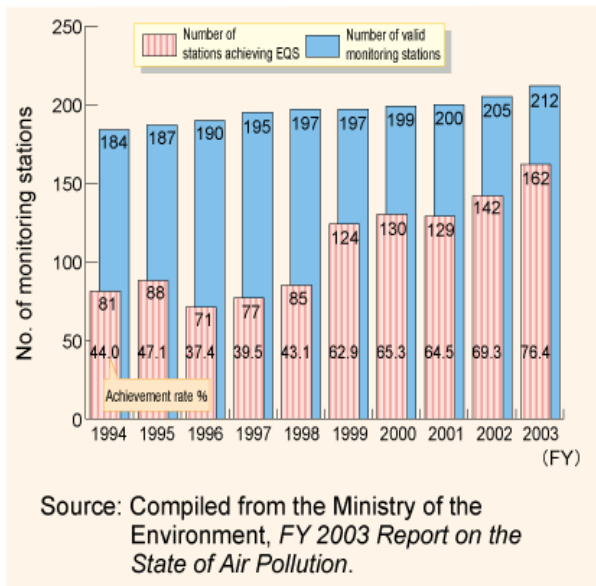


	2000	2001	2002	2003	2004
■ Number of stations achieving EQS	1,454	1,451	1,447	1,453	1,444
□ Number of valid monitoring stations	1,466	1,465	1,460	1,454	1,444
Achievement rate (%)	99.2%	99.0%	99.1%	99.9%	100.0%

	2000	2001	2002	2003	2004
■ Number of stations achieving EQS	316	317	345	365	387
□ Number of valid monitoring stations	395	399	413	426	434
Achievement rate (%)	80.0%	79.4%	83.5%	85.7%	89.2%

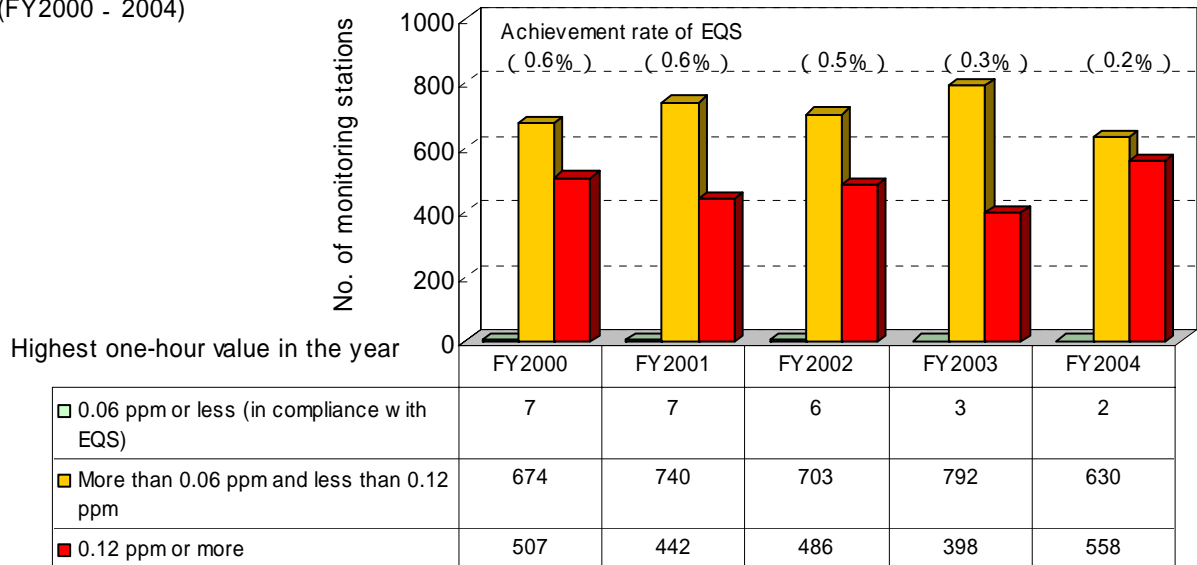
Source: Press Release of the Ministry of the Environment, "FY 2004 Status of Air Pollution"

Fig. 6 Changes in Attainment of EQS for Nitrogen Dioxide in Specified Areas (RAPMSs) (FY1994 - 2003)



Achievement rate of the environmental quality standard for photochemical oxidants (0.06 ppm or less for an one-hour value) is very low (see Figure 7). As one of the measures to tackle the problem, the Air Pollution Control Law was amended in May 2004, making it possible to effectively control the emissions of volatile organic compounds (VOC) from factories by combining emission concentration control regulations and the voluntary measures of businesses. (In conjunction with this, the Cabinet and ministerial ordinances were amended in May and June of 2005.) Beginning April 1, 2006, VOC emitting businesses are required to report the VOC emitting facilities and to comply with the emission standard. Business operators are also encouraged to further promote voluntary measures. With regard to VOC emitted from automobile, the Air Pollution Control Law regulates emission, and emission control standard has gradually been tightened (see Table 1).

Fig. 7 Changes in the Number of Monitoring Stations by Photochemical Oxidant Concentration Level (AAPMSs + RAPMSs) (FY2000 - 2004)



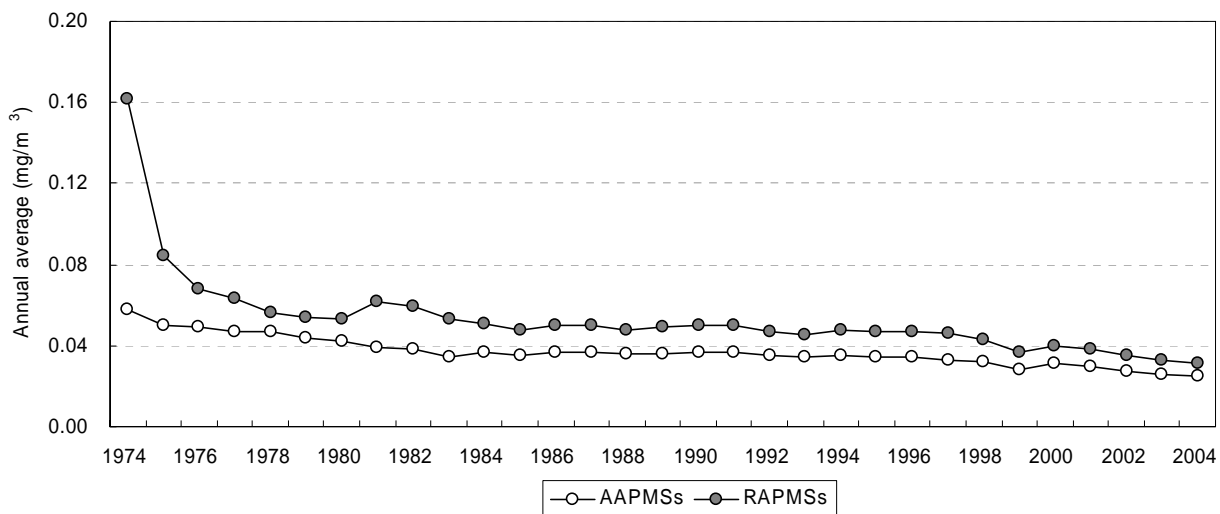
Source: Press Release of the Ministry of the Environment, "FY2004 Status of Air Pollution"

FY 2005 is the interim target year of the Total Emission Reduction Plan of the Automobile NO<sub>x</sub>/PM Law. An interim report will be put together to report the reduction of NO<sub>x</sub> from automobiles and review the progress of various measures. If necessary, new measures will also be considered for adoption.

**2.1.2.2 Further develop and implement comprehensive policies to control fine particulate emissions from both mobile and stationary sources and to meet environmental quality standards.**

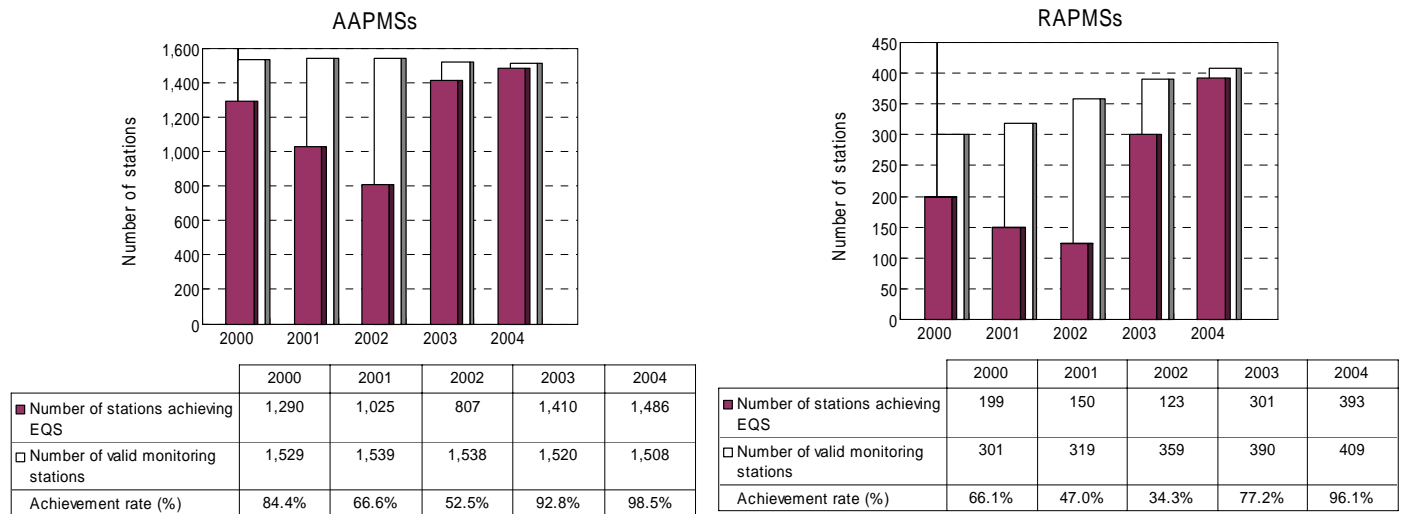
The annual average values of suspended particulate matter in FY 2004 were 0.025 mg/m<sup>3</sup> at AAPMSs and 0.031 mg/m<sup>3</sup> at RAPMSs, showing improvement over the previous fiscal year and a gradually declining trend (see Figure 8). Achievement rate of the environmental quality standard for suspended particulate matter based on long-term evaluation was 98.5% at AAPMSs and 96.1% at RAPMSs, both showing improvement over the previous fiscal year (see Figure 9).

Fig. 8 Changes in Annual Average of Suspended Particulate Matter Concentrations (FY 1974 - 2004)



Source: Press Release of the Ministry of the Environment, "FY2004 Status of Air Pollution"

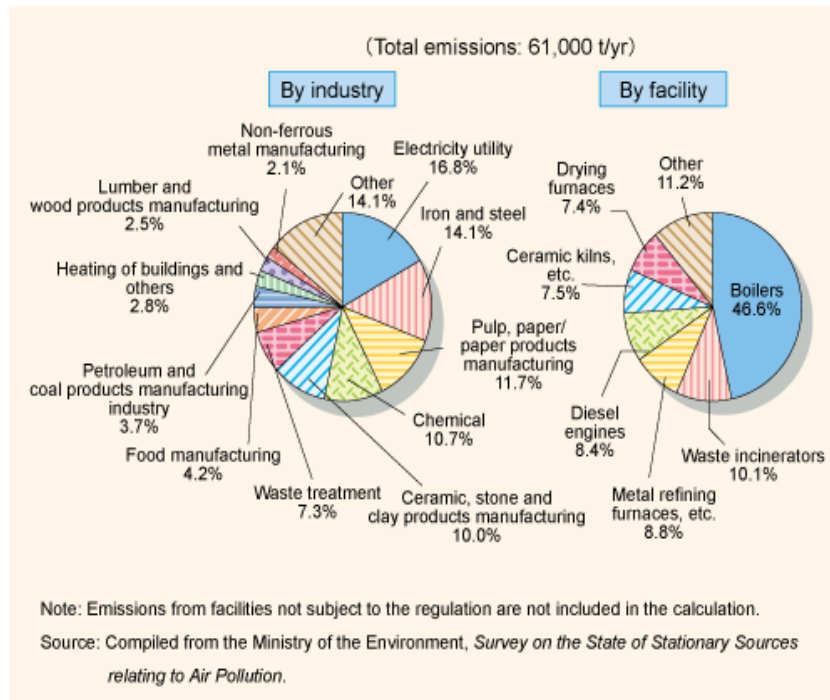
Fig. 9 Changes in Attainment of EQS for Suspended Particulate Matter ( FY2000 - 2004 )



Source: Press Release of the Ministry of the Environment, "FY2004 Status of Air Pollution"

Emission standards for soot and dust have been put in place by type and scale of soot and smoke emitting facilities. In areas with high concentration of such facilities and where air pollution is severe, newly constructed facilities are subject to special emission standards that are more stringent. The annual emissions of soot and dust from stationary sources in FY 2002 totaled 61,000 tons (see Figure 10). Appropriate combustion control and installation of dust collectors were some of the measures taken.

Fig. 10 Breakdown of Soot and Dust Emissions from Stationary Sources in FY 2002





Besides the suspended particulate matter originated from the soot and dust from factories and particulate matter from automobile, the photochemical reaction of some gaseous substances such as nitrogen oxides from automobile and volatile organic compounds in the air also form particulate. Comprehensive measures for achieving the environmental quality standard are reviewed by studying the actual state of the emissions of causal substances and the air pollution forecast model that have incorporated the mechanism of secondary particulate generation.

Conformity to the environmental quality standard at areas specified under the Automobile NO<sub>x</sub>/PM Law was 61% (RAPMSs) in FY 2003, showing an improving but still unsatisfactory trend in recent years. The concerned eight prefectures are systematically implementing measures to curb emissions of PM from automobiles based on the “Total Emission Reduction Plan” they formulated in FY 2003. Until now, special motor vehicles not operating on public roads were not regulated for the particulate matter they emitted, but with the promulgation of the Off-road Law in May 2005, regulation will be introduced from October 2006. In the effort to ameliorate the atmospheric environment, it is also important to reduce exhaust gas from in-use vehicles. The government gave grants to businesses and local governments for the installation of diesel particulate filters (DPF) to promote its use, and as a result 52842 units were installed between FY 2001 and FY 2004.

FY 2005 is the interim target year of the Total Emission Reduction Plan of the Automobile NO<sub>x</sub>/PM Law. An interim report will be put together to report the reduction of particulate matter emitted from automobiles and review the progress of various countermeasures. If necessary, new measures will be considered for adoption.

### **2.1.2.3 Continue efforts to reduce emissions of toxic chemicals, ensuring in particular that voluntary agreements are efficient and effective.**

Measures to tackle hazardous air pollutants have been implemented in accordance with the Air Pollution Control Law. Benzene, trichloroethylene, and tetrachloroethylene, in particular, are designated as specified substances, and facilities emitting these substances are designated as specified substance emission facilities. Specified substance control standards are established for these facilities to regulate their emissions. Businesses are also encouraged to take voluntary measures to control the emissions of hazardous air pollutants. In FY 2001–2003, measures were carried out based on the voluntary management plans of individual industrial organizations and regional voluntary management plans for benzene. The emissions of 12 substances reported by 74 organizations (36 voluntary management plans) totaled about 16,000 tons by simple calculation in FY 2003. Compared with the approximate figure of 38,000 tons of the base year (FY 1999), the total emission was reduced by 22,000 tons, realizing a substantial reduction of about 57%.

Furthermore, in regard to regional voluntary management plans for benzene, the emission amount reported by the five target regions totaled about 144 tons by simple calculation in FY 2003. Compared with about 1,047 tons in the base year (FY 1999), the total emission was reduced by 903 tons, realizing a drastic reduction of the approximate figure of 86%. Guideline values for acrylic nitrile, vinyl chloride monomer, mercury, and nickel compound were set up in FY 2003 to reduce the health risk of hazardous air pollutants in the environment.

The government will continue to utilize the established framework of voluntary management plans to encourage individual businesses to take responsibility through voluntary emission control and local authorities and businesses to cooperate in voluntary regional undertakings. Among the hazardous air pollutants for which the environmental quality standards have not been established, efforts will be made to gather scientific knowledge concerning those substances requiring priority action. As the data are organized, guideline values will be set up for those substances, and emission control measures will be carried out based on such values.

#### **2.1.2.4 Use cost-benefit analysis more systematically in integrating major air management and transport decisions, including those for road investment.**

When the decision was made to introduce a new law in FY 2005 to regulate emissions from specialized vehicles, a study on the impact of regulations was carried out. Based on this study, the burden on businesses and the effect of the regulations were compared, and a system to ensure effectiveness and to prevent overregulation was established.

#### **2.1.2.5 Strengthen the management of motor vehicle traffic through a comprehensive package of policies including traffic demand management measures (e.g. land use planning, economic instruments, information technology) and measures promoting the use of more fuel efficient vehicles and of less polluting transport modes.**

The following measures for preventing road traffic pollution were implemented:

1. As part of the Universal Traffic Management System (UTMS), the traffic control system has been integrated to reduce the number of stops and starts at intersections and traffic information about congestion and travel time has been provided speedily and accurately via infrared beacons etc. Prefectures of Kanagawa, Shizuoka, and Hyogo have adopted the Environment Protection Management System (EPMS). The government has actively introduced and promoted the use of on-board VICS units compatible with three kinds of

media.

2. Efforts were made to improve the environment, especially in urban areas, by effectively enforcing various traffic regulations. Specifically, the government has designated some middle lanes for large-size vehicles, and has actively promoted the public transportation priority system (PTPS) and the designation of bus priority/only traffic lanes, to promote the use of public transport modes and to control the volume of motor vehicle traffic.
3. To mitigate traffic congestion and to tackle the heat island phenomenon by reducing the heat generated by motor vehicles, the government employed traffic flow measures such as promoting the use of the Vehicle Information and Communications System (VICS), installing traffic safety facilities and promoting the use of public transportation via PTPS.
4. To reduce CO2 emission from running vehicles, use of electronic toll collection system (ETC) is vigorously promoted so that congestion leading from toll area is mitigated and average running speed is improved by non stop tolls.

Furthermore, in accordance with Comprehensive Program of Logistics Policies in 2001, consolidated collection and delivery was promoted and distribution bases were established. The government encouraged the use of public transport by improving public transport systems and services in urban areas, by making them more convenient, and by upgrading about 180 transport nodes.

The following measures were undertaken to promote the use of low-emission vehicles:

In compliance with the Action Plan for the Development and Diffusion of Low-emission Vehicles formulated in July 2001, the government aims at introducing as early as possible and no later than FY 2010 over 10 million units of low-emission vehicles that are already in practical use. As of the end of March 2005, the number of low-emission vehicles in use in Japan was about 9.68 million units.

To spread the use of low-emission vehicles, various measures, such as the greening of automobile tax, reduction in low-emission automobile acquisition tax, and special depreciation and tax deduction in income and corporate taxes, are used. Subsidies are also being offered to encourage local governments and businesses to acquire low-emission vehicles.

To establish an infrastructure to facilitate the use of low-emission vehicles, the government subsidized some of the necessary cost and reduced fixed-asset tax for fuel-supplying facilities (Eco Stations). As of the end of March 2005, 328 Eco Stations had been set up.

With regard to Fuel Cell Vehicle (FCV), which is deemed the most important among the next-generation vehicles, the “Fuel Cell Project Team of Senior Vice Ministers” was set up comprised of senior vice-ministers of the Ministry of Economy, Trade and Industry, Ministry of Land, Infrastructure and Transport, and Ministry of the Environment. In 2002, the Team made recommendations on the strategic technology development for expediting commercialization and spread of the use of FCV, as well as on strengthening and expanding measures including the review of regulations. The government introduced five units of FCV for official use, which were the first batch of these vehicles available for commercial use, in December 2002. And a total of eight units was in use as of the end of March 2005. By the end of FY 2004, the review of regulations was completed with an eye to the initial stage of spreading FCV. In FY 2005, a system for subsidizing local governments to lease these vehicles was put in place.

### **2.1.3 Water**

The following are recommendations for the water environment:

- Consolidate the body of water-related laws into coherent legislation integrating quantity and quality management and taking a whole river basin approach;
- Take additional measures to expedite implementation of sewerage construction programmes (e.g. expanding advanced treatment infrastructure, improving combined sewer overflows). Further increase the application of the polluter pays and user pays principles; consider a possible role for public-private partnerships towards this end;
- Strengthen implementation of nutrient reduction measures for lakes, bays and inland seas, in particular regarding diffuse sources such as agriculture;
- Strengthen the control of substances hazardous to human health and ecosystems, through cleaner production, effluent control, pesticide regulation and groundwater protection;
- Streamline the water quality classification system and include ecological water quality criteria;
- Continue to actively pursue the restoration of river habitats to near-natural state and extend stakeholder participation in river management to more river basins.

**2.1.3.1 Consolidate the body of water-related laws into coherent legislation integrating quantity and quality management and taking a whole river basin approach.**

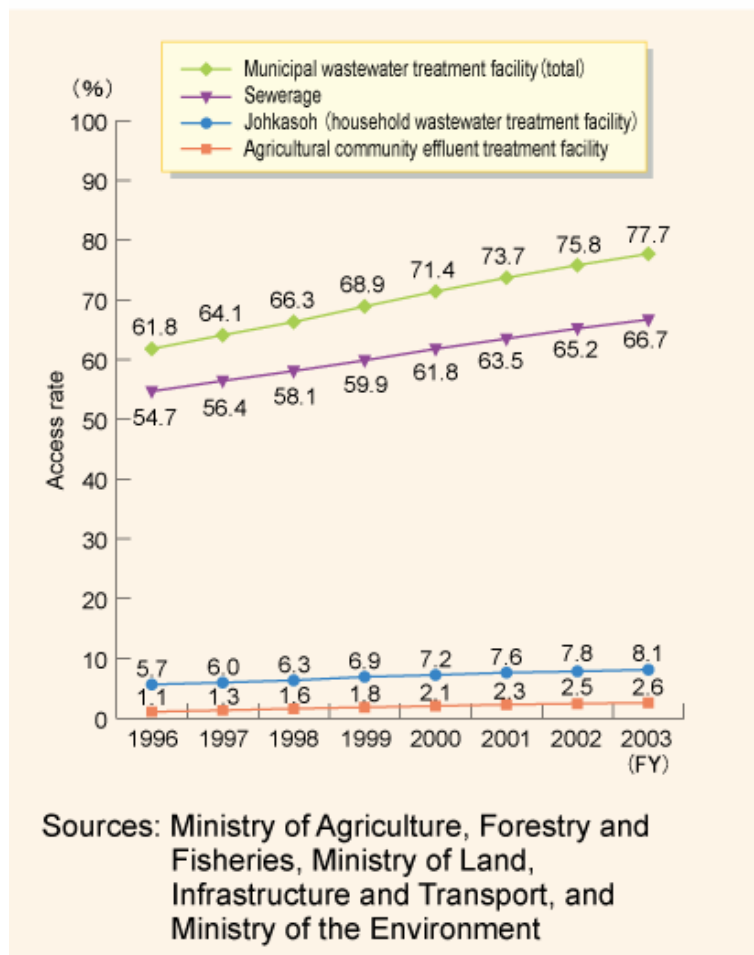
The Inter-Ministry/Agency Coordination Committee for Building a Sound Water Cycle, formed by five ministries (Ministry of Health, Labor and Welfare; Ministry of Agriculture, Forestry and Fisheries; Ministry of Economy, Trade and Industry; Ministry of Land, Infrastructure and Transport; and Ministry of the Environment) in charge of water-related issues, put together the report “The Inter-ministerial Liaison for Building Sound Water Cycle” in October 2003. The report outlines the basic principles for building a sound water cycle and measures for meeting the challenges. To support local initiatives, the Committee reviewed the “National Water Resource Assessment” and the “Catchment Water Information” to share and provide information on the state of water cycle, examined the “groundwater management methods” to support regional efforts in managing and conserving groundwater, and promoted studies on ways to rehabilitate water environment in communities that have seen a decline in water flow.

As an effort to promote a river basin-based approach, the government draws a master plan from the perspective of river basin to recover its water cycle. One such example is the Tsurumi River Basin Master Plan. The government joined forces with local governments and citizen groups in preparing this plan. This is a river basin-based policy mix that integrates water management at the time of flooding, water management for normal times, natural environment management, water management at the time of disaster and fire, and riverside leisure management.

**2.1.3.2 Take additional measures to expedite implementation of sewerage construction programmes (e.g. expanding advanced treatment infrastructure, improving combined sewer overflows). Further increase the application of the polluter pays and user pays principles; consider a possible role for public-private partnerships towards this end.**

The rate of access to sewerage increased from 63.5% in FY 2001 to 68.1% in FY 2004. The overall access rate to municipal wastewater treatment facilities also increased from 73.7% in FY 2001 to 79.4% in FY 2004 (see Figure 11). Domestic drainage accounts for an increasingly large percentage of the discharge load, especially at river basins with a high concentration of population and/or industries and at lakes and reservoirs with urbanized catchments areas. To combat this situation, various kinds of domestic effluent treatment facilities, including sewerage, johkaso (household wastewater treatment facility), agricultural community effluent treatment facilities, community plants (local night soil treatment facilities), and fishing community effluent treatment facilities, were developed according to local needs (1,111 community plants and 1,953,000 johkaso as of end of FY 2002). There were 4,440 agricultural community effluent treatment facilities (as of the end of FY 2004) and 304 fishing community effluent treatment facilities (as of the end of FY 2003).

**Fig. 11 Changes in Rate of Access to Municipal Wastewater Treatment Facilities**



In line with The Priority Plan for Social Infrastructure Development, sewerage construction was mainly implemented in small and medium municipalities where the rate of access to sewerage has fallen behind, and in municipalities without such services. Also for water quality conservation, advanced treatment was actively introduced.

In regard to the combined sewage system, the enforcement ordinance of the Sewerage Law was revised in September 2003, mandating improvement of systems within 10 years. In response to the new requirement, the government took swift and comprehensive measures to improve combined sewage systems through the “Combined Sewage System Urgent Improvement Project,” etc.

Efforts were made to spread the use of johkaso and also to disseminate information on its use. Local governments give subsidies to individuals who install johkaso while the national government also gives subsidies to local governments that install johkaso. In FY 2004, more than 2,200 municipalities installed johkaso.

The Collaborative Project on Development of Municipal Wastewater Treatment, supported mainly by ministries related to the development projects of sewerage, johkaso, and agricultural community effluent treatment facilities, authorized four new municipal projects in FY 2004. Including the on-going projects from FY 2000, 25 municipalities have carried out such projects.

In terms of the sewage works and the agricultural community effluent treatment projects, use of Private Finance Initiative (PFI) is promoted.

Sewer user charge is determined by local governments through ordinance. Local governments are expected to set appropriate charge for the sewerage use and assure the collection of charges.

### **2.1.3.3 Strengthen implementation of nutrient reduction measures for lakes, bays and inland seas, in particular regarding diffuse sources such as agriculture.**

The so-called non-point source pollution that flows with rainwater is one of the main causes of water pollution. To take effective measures to tackle non-point pollution sources such as urban areas and farmland, the government formulated and reviewed plans for model river basins.

In order to reduce the pollutant discharge load that flows into public waters when raining from urban areas such as residential areas and roads, 45 Water Environment Creation Projects under the New Generation Sewage Support System were approved as of FY 2004, with a view to effectively improving the water quality. For lakes and reservoirs that have experienced notable deterioration of their water environment in particular, local governments, river management agencies, sewerage management agencies, and concerned parties all joined forces to formulate the Emergency Action Plan for Improvement of Water Environment (Clear Water Renaissance ) so as to take comprehensive, urgent, and priority measures to improve the water environment.

In FY 2004, 25 water quality conservation projects were carried out in order to purify irrigation and drainage water by building purification canals using gravel.

Although conformity with the environmental quality standard for chemical oxygen demand (COD) in lakes and reservoirs reached 55.2% in FY 2003, showing an improvement over the previous year,

the water quality is still far from satisfactory. In view of this, the government amended the Law concerning Special Measures for the Preservation of Lake Water Quality (Clean Lake Law) in June 2005 to establish a new Scheme of the Special Area for Non-point Source Pollution that designates urban areas and farmland in specified areas as requiring pollutant load control measures from non-point sources and formulates plans to implement measures, and to establish a new Lake Environment Protection Area System to properly protect the environment of lakes and reservoirs for better water quality. Based on the amended Law, new plans for preserving lake water quality will be formulated and measures be implemented in the near future.

Besides the nutrient reduction measures shown above; from the viewpoint of reducing environmental burden and promoting a sound material cycle for highly sustainable agricultural production, the government has promoted designation of so-called “eco-farmers” who use compost for soil conditioning while reducing the use of chemical fertilizers and agricultural chemicals based on the Law for Promoting the introduction of Sustainable Agricultural Practices. As of the end of March 2005, 75,699 farmers have been approved.

The government also gave assistance to help promote appropriate application of fertilizer that corresponds to local situation such as climate conditions and soil type, and to set up guidelines to promote proper fertilizer application.

#### **2.1.3.4 Strengthen the control of substances hazardous to human health and ecosystems through cleaner production, effluent control, pesticide regulation, and groundwater protection.**

Japan has studied the methods of life cycle assessment approach to be used for the analysis and assessment of products and services. These methods include inventory analysis, which gathers and quantifies data on produced goods, emissions, resource inputs, and energy volume, and impact assessment method, which classifies the result of inventory analysis into different environmental impact categories and uses the categories to analyze the extent and seriousness of impact. With these methods, the environmental load resulting from the products and services was quantified from a life cycle point of view, and the findings were made available to consumers in an easy-to-understand “Product Environmental Information System.”

Among the environmental quality standards that regulate water pollution, the environmental quality standard for the protection of human health (“health related items”) currently regulates 26 items, including heavy metals such as cadmium and lead, organochlorine compound such as trichloroethylene, and agricultural chemicals such as simazine, etc. Conformity to the



environmental quality standard relating to the water pollution load of public waters (health items) was 99.3% in FY 2003, the same level as the previous fiscal year. Most of the monitoring points were in conformity with the environmental quality standard (see Table 2). Currently 27 items have been designated as specified monitoring items. Assessment of water quality and gathering of information for these items are carried out.

**Table 2 State of Achievement of Environmental Quality Standards for Health Items (FY 2003)**

Substance	Number of monitoring points	Number of points exceeding EQSs
Cadmium	4,588	0 ( 0)
Total cyanide	4,155	0 ( 0)
Lead	4,661	6 ( 6)
Chromium (VI)	4,295	0 ( 0)
Arsenic	4,631	22 (18)
Total mercury	4,519	0 ( 0)
Alkyl mercury	1,491	0 ( 0)
PCBs	2,371	0 ( 0)
Dichloromethane	3,663	1 ( 1)
Carbon tetrachloride	3,686	0 ( 0)
1, 2-dichloroethane	3,659	1 ( 1)
1, 1-dichloroethylene	3,655	0 ( 0)
cis-1, 2-dichloroethylene	3,655	0 ( 0)
1, 1, 1-trichloroethane	3,703	0 ( 0)
1, 1, 2-trichloroethane	3,654	0 ( 0)
Trichloroethylene	3,816	0 ( 0)
Tetrachloroethylene	3,815	0 ( 0)
1, 3-dichloropropene	3,687	0 ( 0)
Thiuram	3,610	0 ( 0)
Simazine	3,628	0 ( 0)
Thiobencarb	3,625	0 ( 0)
Benzene	3,592	0 ( 0)
Selenium	3,634	0 ( 0)
Nitrate nitrogen/nitrite nitrogen	4,274	4 ( 4)
Fluorine	2,977	9 (12)
Boron	2,833	0 ( 2)
Total	5,708 (5,695)	41 (42)
Achievement rate of EQSs	99.3% (99.3%)	

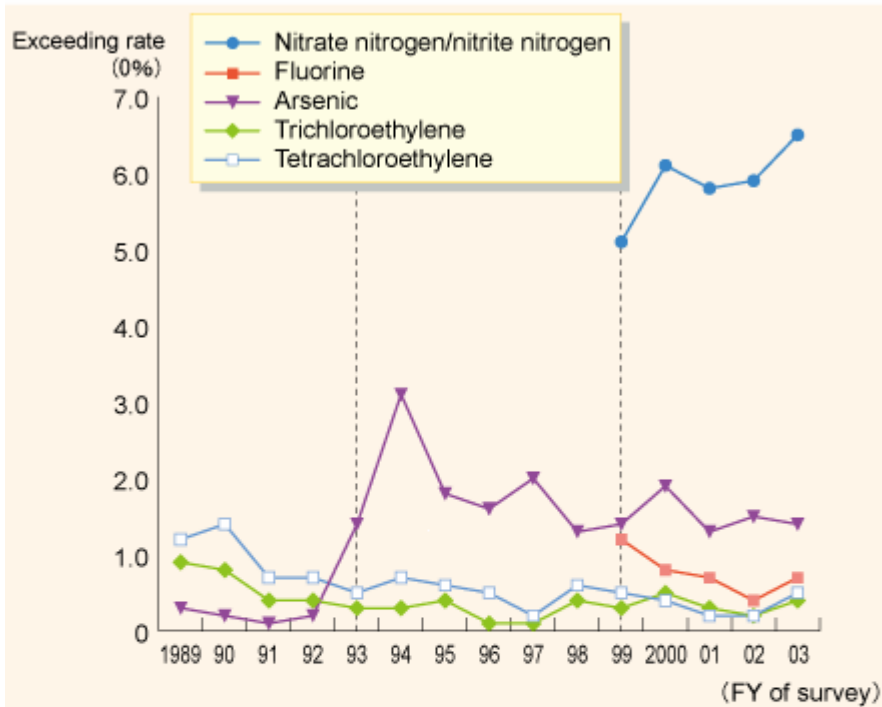
**Notes:**

1. Figures in parenthesis indicate the FY 2002 results.
2. For fluorine and boron, monitoring points in sea and at rivers, lakes and reservoirs that have exceeded the EQSs due to the influence of sea water are not included in the number of monitoring points.
3. The number of monitoring points exceeding the EQSs in the "Total" section is a real number. The monitoring point is counted as one even when multiple substances at that point have exceeded the EQSs. In FY 2003, two monitoring points had two substances that have exceeded the EQSs.

Source: Ministry of the Environment, *Results of FY 2003 Measurement of Water Quality in Public Waters*

In the water quality survey of groundwater conducted in FY 2003, among the wells surveyed (5,128 wells), 8.2% (421 wells) had items exceeding the environmental quality standard (see Figure 12). Nitrate nitrogen and nitrite nitrogen exceeded the standards by 6.5%, a much higher level than the other items. Fertilization, domestic effluent, and livestock manure are the main cause of this pollution.

Fig. 12 Changes in Exceeding Rate to EQSs for Groundwater (Items with high exceeding rate)



Notes:

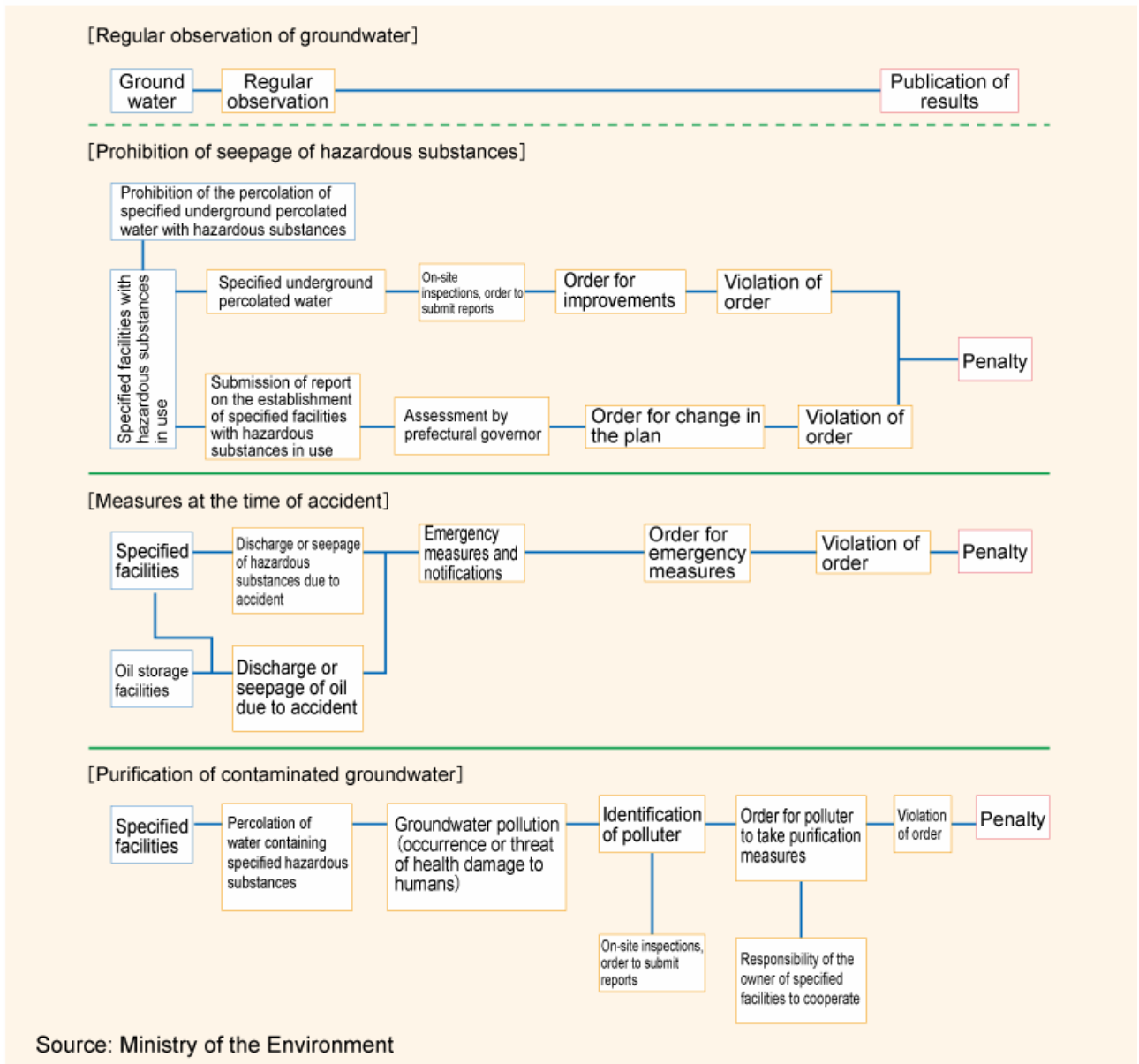
1. Different wells are measured each year. (Wells to be studied change every year.)
2. Before the EQSs for groundwater were established in 1997, the assessment standards had been used to evaluate groundwater quality. (Assessment standard for arsenic was revised from "0.05 mg/L or less" to "0.01 mg/L 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 2003 Water Quality Survey of Groundwater*

Precautionary measures to prevent groundwater pollution were taken in accordance with the Water Pollution Control Law. These measures include a ban on the infiltration of hazardous substances, such as trichloroethylene, underground, and continual monitoring of groundwater quality by prefectural governors. In order to purify the contaminated groundwater, prefectural governors can order polluters to clean up contaminated groundwater (see Figure 13). To tackle groundwater

pollution by nitrate nitrogen and nitrite nitrogen, which have exceeded the environmental quality standards at the most serious levels, the government follows the Manual of Measures to Tackle Water Pollution related to Nitrate Nitrogen and Nitrite Nitrogen to implement measures that fit the local conditions. Verification studies of purification technology were carried out in areas where the groundwater had been contaminated by nitrate nitrogen, with the objective to develop effective purification methods. Furthermore, with the full enforcement of the Act on the Appropriate Treatment and Promotion of Utilization of Livestock Manure in November 2004, a provision regulating the management of livestock manure was applied to about 62,000 livestock farmers in an effort to eradicate improper practices, such as open stockpiling and landfill, which lead to groundwater pollution.

Fig. 13 Overview of Groundwater Control under the Water Pollution Control Law



From the viewpoint of taking precautionary measures to prevent water pollution by agricultural chemicals, the government established the standard to withhold registration of agricultural chemicals pursuant to the Agricultural Chemicals Regulation Law. In FY 2004, the standard values that the excess of the values, concentration of the agricultural chemicals in water, cause to withhold the registration of six agricultural chemicals (a total of 133 agricultural chemicals, including revising the standard value of one agricultural chemical) were set up. In addition, the revised regulation to withhold registration of agricultural chemicals regarding the toxicity to aquatic plants

and animals was put into effect in April 2005, to strengthen measures to prevent their negative impact on ecosystems.

#### **2.1.3.5 Streamline the water quality classification system and include ecological water quality criteria.**

Standards have been established for items relating to the protection of living environment (living environment items), such as biochemical oxygen demand (BOD), chemical oxygen demand (COD), dissolved oxygen (DO), total nitrogen, and total phosphorus. For water utilization purpose, environmental quality standards have been assigned to each specified water areas. Where necessary, the standards are revised according to local conditions. In FY 2003, the environmental quality standard for zinc was established. From the viewpoint of protecting aquatic organisms, environmental quality standard for zinc was set up to maintain the desirable level of water quality. Furthermore, three monitoring items have been specified. Although no environmental quality standards will be established for these items any time soon, efforts will be made to continue gathering information on these items.

#### **2.1.3.6 Continue to actively pursue the restoration of river habitats to near-natural state and extend stakeholder participation in river management to more river basins.**

The Census of Rivers and Riparian Areas was conducted to study the living and breeding of organisms in rivers and dam reservoirs. The results are stored in the River Environment Database and are made available to the public. The Aqua Restoration Research Center, which has the world's largest experimental canal, is conducting studies on the conservation/restoration of the natural environment of rivers, lakes, and reservoirs. It also conducts a river ecology scholarly research to seek an understanding of rivers from an ecological perspective and to identify ideal conditions for rivers.

Natural rivers with a good living and breeding environment for living organisms and wetlands and tidelands that are facing aridification are being restored through collaborative efforts of local residents, NPOs, and concerned organizations. The multiple nature-type river creation projects, which take into consideration the natural environment, are carried out to preserve the diverse environment inherent to rivers. Based on knowledge gained from 19 model rivers of the Model Project for Creating Rivers That Fish Can Easily Ascend, designed to enable fish to swim upstream by way of the fish ladders, "A Guide for Creating Rivers That Fish Can Easily Ascend" was prepared and published in March 2005. Disaster rehabilitation with consideration to the river environment was also implemented in compliance with the Basic Policy for Disaster Rehabilitation

to Protect Beautiful Mountains and Rivers.

#### **2.1.4 Waste**

The following are recommendations for waste management:

- Implement the Basic Law for Establishing a Recycling-Based Society and related recycling regulations, develop quantitative targets, monitor the effectiveness and efficiency of their implementation, and broaden the application of extended producer responsibility (e.g. to automobile producers);
- Expand the use of economic instruments for waste management, especially user charges for cost recovery in municipal waste services;
- Develop more efficient municipal waste management services and companies, increasing the setting up of inter-municipal treatment and disposal facilities;
- Improve the accountability of industry concerning voluntary initiatives on waste reduction and recovery;
- Increase capacity for treatment and disposal of industrial waste, with appropriate public access to information and participation.

**2.1.4.1 Implement the Basic Law for Establishing a Recycling-Based Society and related recycling regulations, develop quantitative targets, monitor the effectiveness and efficiency of their implementation, and broaden the application of extended producer responsibility (e.g. to automobile producers).**

Based on the Fundamental Law for Establishing a Sound Material-Cycle Society, the Cabinet approved the Fundamental Plan for Establishing a Sound Material-Cycle Society in March 2003. It set up quantitative targets for building a sound material-cycle society.

Specifically, the Plan set up target values for (1) resource productivity (=GDP/input of natural resources, etc.), (2) cyclical use rate (=cyclical use amount/(cyclical use amount + input of natural resources, etc.)), and (3) final disposal amount. The target values are to be achieved in ten years starting from FY 2000. Various measures have been carried out accordingly.

The Central Environment Council reviews progress of these measures annually to ensure its steady implementation. The result of the first review was reported to the Cabinet in February 2005.

Besides promoting the reuse and recycling of containers and packaging, home electrical appliances, construction materials, and food, etc., the government put the Law for the Recycling of End-of-Life Vehicles into full effect in January 2005.

#### **2.1.4.2 Expand the use of economic instruments for waste management, especially user charges for cost recovery in municipal waste services.**

In February 2005, the Central Environment Council offered opinion on how municipalities should handle municipal solid waste in order to build a sound material-cycle society. Based on the opinion, the basic policy for the Waste Management and Public Cleansing Law was revised in June 2005 to promote the fee-based waste treatment.

A guideline for introducing the fee-based waste treatment will be prepared to support municipalities in adopting the initiative.

#### **2.1.4.3 Develop more efficient municipal waste management services and companies, increasing the setting up of inter-municipal treatment and disposal facilities.**

Waste treatment facilities were set up in prefectures in accordance with the Cross-jurisdictional Waste Treatment Plan, formulated with a view to tackling dioxins, effectively utilizing residual heat, and reducing the cost of public works.

As it has become increasingly difficult to secure adequate final landfill sites nationwide, the Osaka Bay Phoenix Plan is being implemented in the Kinki Region in accordance with the Law for the Regional Offshore Environmental Improvement Center. Disposal sites including the one off the coast of Kobe are processing waste from the 174 towns and cities in six prefectures in the Kinki Region.

#### **2.1.4.4 Improve the accountability of industry concerning voluntary initiatives on waste reduction and recovery.**

As for voluntary efforts by businesses on waste treatment and 3Rs (reduce, reuse, and recycle), the Industrial Structure Council formulated guidelines for waste treatment and recycling by items and by industrial sectors in 1990. They stipulate items that business operators must conform to,

including target setting and development of collection routes concerning 3R initiatives. Follow up of these initiatives has been carried out every year since then.

Also, since 2001, when setting up an establishment that will generate large amount of industrial waste from its business activities, the business operator is required to submit to the governor of the prefecture a waste treatment plan concerning the ways to reduce and treat industrial waste. The operator is also required to report the state of implementation of the waste treatment plan. This measure is expected to encourage waste discharging enterprises to take voluntary initiatives to reduce and recycle waste. The prefectural governor is to make available the waste treatment plans and implementation reports submitted by waste discharging enterprises. This will increase their accountability. In FY 2001, about 9,000 business entities submitted the implementation reports for industrial waste and specially controlled industrial waste. In FY 2002, 12,000 businesses submitted the implementation reports. Although the number of reports submitted by high-volume waste generating enterprises has increased, the waste volume has declined in general, showing that the system has taken root.

#### **2.1.4.5 Increase capacity for treatment and disposal of industrial waste, with appropriate public access to information and participation.**

Before giving permission to establish a waste incinerator or final disposal site, the governor of a prefecture is required to examine the living environment impact assessment report and consult the opinion of stakeholders. It is also mandatory to make available operation and maintenance records of these facilities for inspection when stakeholders ask to see these records. As of January 2004, about 30 prefectures have in place ordinances and guidelines that stipulate provision of information on the construction of industrial waste treatment facilities including the briefing sessions to residents. Thanks to progress in spreading the practice of recycling, the amount of waste for final disposal has declined, expanding the remaining functional years of industrial final disposal sites from 3.2 years as of the end of FY 1997 to 4.5 years as of the end of FY 2002.

#### **2.1.5 Nature and biodiversity**

The following are recommendations for the nature and biodiversity:

- Strengthen measures to prevent the decrease, fragmentation and degradation of habitats in protected areas and extend such areas and their interconnection within a national nature network;



- Intensify efforts to integrate nature and biodiversity concerns in agriculture, forestry, fishery and spatial planning policies (e.g. by gradually phasing out environmentally harmful subsidies, making support conditional on compliance with environmental and nature conservation standards, or rewarding efforts to improve biodiversity and amenities;
- Review and revise the national biodiversity strategy;
- Further strengthen the financial means, human resources and institutional capacities for management of protected areas; explore options for establishing financial mechanisms (e.g. a compensation fund for nature, financed by charges on land conversion and habitat interference);
- Continue to promote re-naturalisation projects to rehabilitate degraded ecosystems and to return to nature unused agricultural or industrial land and reclaimed wetlands;
- Accelerate progress in preserving and creating urban or peri-urban open green space and in revitalizing river banks, with appropriate public participation.

**2.1.5.1 Strengthen measures to prevent the decrease, fragmentation and degradation of habitats in protected areas and extend such areas and their interconnection within a national nature network.**

The New National Biodiversity Strategy approved in March 2002 underscored the necessity of protecting ecologically important areas and establishing ecological networks.

The conservation and preservation of protected areas have been stepped up, such as the expansion of natural parks and wildlife protection areas, and registration of Shiretoko as World Natural Heritage.

For forest conservation, the formation of a green corridor, which is expected to interconnect Protected Forests in national forests, to secure wildlife migration routes, expand living and breeding grounds, protect wildlife population, facilitate exchanges between fragmented populations, and ensure genetic diversity among populations in forests is underway. As of April 1, 2005, 19 sites, with an approximate area of 391,000 ha, have been established.

Project coordinating measures for improving the habitat of fish and other aquatic lives in community waterways such as rivers and irrigation channels have also been examined and promoted, and manuals have been compiled for improving effectiveness of such project

coordination.

**2.1.5.2 Intensify efforts to integrate nature and biodiversity concerns in agriculture, forestry, fishery and spatial planning policies (e.g. by gradually phasing out environmentally harmful subsidies, making support conditional on compliance with environmental and nature conservation standards, or rewarding efforts to improve biodiversity and amenities).**

In the agricultural village development program, heed is paid, in principle, from the early stage of survey and planning, to maintain harmony with the surrounding environment: Projects, such as ones for protecting biotopes around ponds or for comprehensively creating a living environment for local people with consideration for ecosystems, are subsidized, in order that multiple functions of agriculture should be fully utilized and attractive rural space be materialized. The government also promotes efforts to research and gather information on living organisms in agricultural areas to compile a database; to create an ecological network of living and breeding grounds such as agricultural land, water channels, and forests; and to develop environment assessment methods for living organisms in water channels.

Local organizations that had vigorously carried out activities to protect and restore the natural environment in agricultural villages were commended for their excellent achievement. Symposia were held to present their achievements and to introduce their endeavors to the public, so that the creation of agricultural villages in harmony with nature is promoted nationwide.

To create beautiful villages that seek harmony between the protection and restoration of a sound and rich natural environment and proactive agricultural management, local residents and civil groups work on the development of ecosystem conservation-type agricultural land and land improvement facilities, in conjunction with conservation activities.

In urban areas, allotment gardens are developed to preserve greenery and to provide a venue for exchanges among citizens. As of the end of FY 2003, 536 ha have been developed and utilized.

Fishery resources are managed and protected based on several different regulations: Capture restriction is imposed pursuant to the Fisheries Law and Fisheries Resources Protection Law. The catch of marine biological resources is controlled pursuant to the Law concerning the Preservation and Management of Marine Biological Resources. A method of managing fishery resources based on the amount of fishing effort has also been newly introduced. Other measures implemented include (1) managing and studying protected water areas; (2) promoting promotion of fisheries oriented for proper resources management; (3) implementing the Resource Recovery Plan, which in

FY 2005 covered 34 fish species in 19 projects; (4) developing local water environment to facilitate the upstream migration of fish, establishing propagation management methods, eradicating fish of foreign origin, etc.; (5) investigating the ecology, stock, and migration of *Balaenoptera Musculus*; (6) banning the capture of sea turtles (2 species), whales (*Balaenoptera Musculus*, Greenland right whale; and Indian porpoise), and dugongs; and (7) developing bycatch prevention technology, etc.

### **2.1.5.3 Review and revise the National Biodiversity Strategy.**

In March 2002, National Biodiversity Strategy was completely reviewed and the New National Biodiversity Strategy was approved. It is a comprehensive plan for the whole government to work to realize a society coexisting with nature.

The New National Biodiversity Strategy classifies the current status of Japan's natural environment into the following three crises by causes and effects:

- (1) The decline or extinction of species directly caused by human activities or development and the shrinkage or disappearance of living and breeding grounds due to the destruction, disruption, or deterioration of the ecosystems. [Crisis 1]
- (2) Changes in the quality of the environment, reduction in the number of species, and changes in the living and breeding conditions in *satochi-satoyama* (areas between urban areas and remote mountain areas), due to decreasing human activities in nature as a result of changes in social economy, such as changes in lifestyle and production methods and population decline. [Crisis 2]
- (3) The emerging problem of disturbance of the original ecosystems by alien species. [Crisis 3]

To tackle these crises, the government put forth the following basic directions: (1) strengthening of conservation; (2) nature restoration; and (3) sustainable use. A wide range of measures has been implemented accordingly.

### **2.1.5.4 Further strengthen the financial means, human resources and institutional capacities for management of protected areas; explore options for establishing financial mechanisms (e.g. a compensation fund for nature, financed by charges on land conversion and habitat interference).**

Natural parks are areas specified by the Natural Parks Law as excellent scenic areas. Protection of natural environment and proper and enjoyable use are promoted in these areas. In 2002, the Natural Parks Law was amended, adding the mandatory requirement for national and local governments to "take measures for conservating the scenic beauty of the natural parks with the aim to ensure the diversity in the ecosystem." As the number of visitors to virgin nature, which used to have few

visitors, has increased, the government set up a system of Regulated Utilization Area. Also in some special zones, protection of their landscape is hindered due to the accumulation of discarded vehicles and waste tires. To cope with this problem, a new regulation was set up to restrict the accumulation and storage of items specified by the Minister of the Environment. There are also problems posed by visitors catching alpine butterflies and other insects in special zones. A new regulation was set up to restrict the catch of animals specified by the Minister of the Environment.

The national park management system was drastically improved. From FY 2005, sixty Active Rangers (Deputy Nature Protection Officers) have been dispatched to different parts of the country to manage on-site activities, such as patrolling nature protection areas, giving guidance to visitors, providing nature interpretation, etc., as well as to coordinate with volunteers. In FY 2004, the Green Worker Program was launched in 165 sites nationwide. The Program hires local residents who are familiar with local nature and social conditions to help manage national parks.

For important areas that require special protection, the government purchases private land in such areas. In FY 2005, the government conducted a survey for purchasing private land in the national wildlife protection area of Nagura Anparu Special Protection Zone (Ishigaki City, Okinawa Prefecture) and registered it as a Ramsar site.

#### **2.1.5.5 Continue to promote re-naturalization projects to rehabilitate degraded ecosystems and to return to nature unused agricultural or industrial land and reclaimed wetlands.**

Nature restoration surveys/projects have been carried out at 155 locations (as of March 2005) including rivers, wetlands, tidal flats, seaweed beds, *satochi-satoyama* (community-based woods and rural landscape), forests, etc.

Nature restoration have been promoted further, based on the enforcement of the Law for the Promotion of Nature Restoration from January 2003 and the Cabinet's approval of the Basic Policy for Nature Restoration in April of the same year.

Based on the procedure stipulated in the Law for the Promotion of Nature Restoration, fifteen Nature Restoration Committees have been established (as of July 2005).

#### **2.1.5.6 Accelerate progress in preserving and creating urban or peri-urban open green space and in revitalizing river banks, with appropriate public participation.**

To protect green zones in cities, promote greening, and further develop urban parks to create a good

city environment rich in greenery, the government specified special green space conservation areas in accordance with the City Green Zone Law. As of March 31, 2005, urban parks account for an area of 106,370 ha. In 2004, the City Parks Law and the City Green Zone Conservation Law were amended, and the City Green Zone Conservation Law was amended and renamed the City Green Zone Law, which serves as a legal framework for implementing comprehensive measures for city green zones. In the amendment; the Green Zone Conservation Scheme was established to impose lenient behavioral control to protect relatively large-scale green zones near cities such as *satoyama*, the Greenery Area Scheme imposing greening requirement on large scale building construction was established to promote creation of green space in urban areas where greenery is especially scarce, and the Horizontal City Parks Scheme was also set up to promote effective utilization of green space on artificial grounds and rooftops.

Nature restoration of rivers is carried out in collaboration with local citizens, NPOs, and concerned organizations to restore natural rivers that offer a good living and breeding environment for wildlife as well as wetlands and tidelands that manifest a tendency of aridification.

Nature-oriented river works are pursued at rivers nationwide with a view to protecting the diverse river environment. Utilizing the knowledge obtained from 19 model rivers that built fish ladders as the “Model Project for Creating Rivers That Fish Can Easily Ascend,” the government compiled A Guide for Creating Rivers That Fish Can Easily Ascend in March 2005 and made it available to the public.

## **2.2 Towards Sustainable Development**

### **2.2.1 Integrating environmental concerns in economic decisions**

The following are recommendations for integrating environmental concerns in economic decisions:

- Better integrate environmental concerns in physical planning, transport, agriculture, energy and urban policies;
- Ensure that coordinated and integrated sectoral plans, associated with the Second Basic Environment Plan, are developed through close co-operation among the ministries concerned, and assure accountability for implementation of the plans;
- Take the necessary steps to systematically carry out strategic environmental assessment during the development of environmentally relevant policies, plans, and programs;

- Strengthen efforts to buy and use “greener goods” (e.g. via green procurement policies and the green consumer movement) so as to promote more sustainable production and consumption patterns;
- Continue to restructure environment-related taxes in a more environmentally friendly way;
- Review and further develop the system of road fuel and motor vehicle taxes, with a view to promoting more sustainable modes of transport, to internalizing environmental costs, while paying attention to the demand for transport infrastructure and to introducing more flexibility in the allocation of revenue;
- Continue to reduce sectoral subsidies that have negative environmental implications.

#### **2.2.1.1 Better integrate environmental concerns in physical planning, transport, agriculture, energy and urban policies.**

The Second Basic Environment Plan emphasizes the importance of “integrating environmental concerns in all aspects of life.” In order to build a sustainable society, all actors, including citizens and businesses, must take initiative to integrate environmental concerns into all aspects of their lives.

To adjust national land use to changes in socio-economic conditions, the government amended the Comprehensive National Land Development Law in 2005. The Comprehensive National Land Development Plan was renamed the National Land Sustainable Plan to be formulated in conjunction with the National Land Use Plan. The Plan is so designed as to integrate environmental concerns by incorporating environmental protection as one of the items to be pursued with the Plan and by mandating harmonization with the Basic Environment Plan.

In the areas of agriculture, forestry and fisheries, the Basic Guideline for Agriculture, Forestry, and Fisheries Policies was formulated in 2003, with the basic understanding that measures should be implemented in the areas of maintenance and enhancement of clean water and air, and material cycle, and protection and creation of rich natural environment. The steady implementation of environment-oriented agriculture is indispensable for shifting all agricultural production in Japan to sustainable one. To meet this end, in 2005 the government formulated “The Codes of Good Agricultural Practice for Environment” that prompts farmers to carry out minimum practices. The government is planning to link the codes with various subsidiary measures based on the concept of

cross-compliance.

In terms of environmental protection measures in the transport area, regulations on emission and noise from each car are steadily being tightened. Guidance on the rational use of automobile is provided based on the Automobile NO<sub>x</sub>/PM Law. To tackle the high-level of air pollution in the winter, the government regulates the number of freight transport vehicles by enforcing seasonal air pollution control measures.

In 2005, the Energy Saving Law was amended to further rationalize the use of energy in various sectors. To tackle a notable increase in energy consumption of the transport sector, the Law requires freight owners to draw up energy saving plans and to report the amount of energy used. Measures to regulate factories, business sites, residential housing, and buildings have also been toughened.

The fifteen ministries and agencies concerned with the Basic Environment Plan had formulated policy methods incorporating environmental considerations as of July 2005.

**2.2.1.2 Ensure that coordinated and integrated sectoral plans, associated with the Second Basic Environment Plan, are developed through close co-operation among the ministries concerned, and assure accountability for implementation of the plans.**

For measures to cope with global warming, the Cabinet approved the Kyoto Protocol Target Achievement Plan in April 2005, with a view to ensuring the fulfilment of Japan's 6% reduction commitment of the Kyoto Protocol and to further reducing GHG emissions globally on a long-term and continuous basis.

For measures to form the Recycling-based Society, the Cabinet approved in March 2003 the Basic Plan for Establishing the Recycling-based Society in accordance with the Basic Law for Establishing the Recycling-based Society. The Central Environment Council reviews progress of each of the Plan's measures annually, and results of the first review were reported to the Cabinet in February 2005.

For the conservation of biodiversity, the National Biodiversity Strategy was completely revised in 1995, and the New National Biodiversity Strategy was approved in March 2002 in a meeting of Cabinet members concerned with the conservation of global environment. It is a comprehensive plan for the whole Government to work in unison to realize a society coexistence with nature.

**2.2.1.3 Take the necessary steps to systematically carry out strategic environmental assessment during the development of environmentally relevant policies, plans, and programs.**

In regard to the integration of environmental concerns into superordinate plans and policies, the Second Basic Environment Plan stipulates the following: After identifying current issues, specific contents and methods of integration shall be studied. At the same time, specific efforts implemented by the national and local governments shall be collected and their efficiency and effectiveness be reviewed. Based on these studies and reviews, guidelines on the integration of environmental concerns into plans and policies shall be drawn up; and where necessary, institutionalization shall be considered. In line with this Plan, the government is currently studying specific contents and methods of incorporating environmental concerns into plans (superordinate plans) which will serve as the framework for the planning and implementation of individual projects, and policies.

**2.2.1.4 Strengthen efforts to buy and use “greener goods” (e.g. via green procurement policies and the green consumer movement) so as to promote more sustainable production and consumption patterns.**

The various national organizations have set up and announced their procurement policy covering eco-friendly goods for FY 2005 (designated procurement items for FY 2004 were 201 products in 17 categories); based on which eco-friendly goods are procured. The results of procurement based on the FY 2004 procurement policy have been summarized and made available to the public.

According to the procurement results compiled by various organizations, over 95% of the paper, stationery, equipment and machinery procured in FY 2003 were designated procurement products. The switch of government vehicles to low-emission vehicles was scheduled to complete within three years from FY 2002. This switch was completed at the end of FY 2004.

For every fiscal year, local governments are required to draw up a procurement guideline for eco-friendly products and procure accordingly. In FY 2004, most of the prefectures and ordinance-designated cities have drawn up procurement guidelines and practiced green purchasing.

To encourage the formation of green purchasing regional networks, the government offered local governments, consumers, and businesses seminars that provide information and enhance understanding of green purchasing. To provide information on eco-friendly products to consumers, the government utilizes the Information Provision System of Designated Procurement Products Stipulated in the Law on Promoting Green Purchasing as a means for communicating information provided by manufacturers on these designated procurement products (products that have met the



standards of the basic guidelines) and updates information on a continuous basis. The Green Purchasing Database was also launched in June 2004 to provide information on the green purchasing of various organizations to assist various actors to further pursue green purchasing.

The environmental impacts originating from products and services are quantified from a life cycle point of view and the results are made available to consumers in an easy-to-understand manner via the Product Environmental Information System launched in June 2005.

#### **2.2.1.5 Continue to restructure environment-related taxes in a more environmentally friendly way.**

In the FY 2004 Tax Reform, the greening of automobile tax and preferential measures for acquisition tax of fuel-efficient vehicles placed priority of tax reduction on vehicles with low exhaust emissions and high fuel efficiency. The effective period of the tax reduction has also been extended. In the FY 2005 Tax Reform, the government also extended the application periods of preferential measures made in the taxation basis of waste treatment facilities, the special depreciation system for industrial waste treatment facilities (high-temperature incinerators, etc.) to promote proper industrial waste treatment, and Specified Disaster Prevention and Preparatory Fund System.

In order to evaluate specific measures of imposing economic burden to reduce environmental load, the government carried out researches to study the effectiveness of these measures on environmental protection and their potential impact on the national economy if such measures are implemented, and reviewed case studies in various other countries, pertaining to applicable fields such as CO<sub>2</sub> emission control to prevent global warming and waste generation control.

Environmental tax, which are discussed in related councils as taxes imposed according to the level of emissions of carbon dioxide or the consumption of fossil fuels, are among the economic approaches. Environmental taxes are being considered in related councils and other meetings from various points of view, considering their effect of encouraging a broad range of entities to take measures through price incentives and a source of finance they can provide for the implementation of measures such as emissions reduction measures for carbon dioxide and measures to increase absorption source of forests.

In regard to environmental tax, the Kyoto Protocol Target Achievement Plan states that “Environmental tax is an issue whose comprehensive examination must be seriously advanced, taking into account the review of various political approaches related to measures against global

warming in related councils and various fields, being based on the actual positioning of this tax within the entire range of measures against global warming, its effects, its impacts on the national economy and the international competitiveness of industry, and the current situation in foreign countries, endeavoring to obtain the understanding and cooperation of the public and businesses, since the tax will be broadly imposed on the population.”

The Central Environment Council is carrying out analyses on the effectiveness of environmental taxes and had discussions with industries, the public, local governments, etc.

At the end of August 2005, the Ministry of the Environment submitted a request for the establishment of environmental tax, and announced its Environment Tax Plan in October.

A report delivered by the Government Tax Commission concerning the FY2006 Tax Reform pointed out that “so-called environmental tax has wide-ranging issues on which examination must be advanced, such as concrete position of this tax within the entire range of national and local measures against global warming, its effects, its impacts on the national economy and the international competitiveness of the industry, the current practices in other countries, and the relationship to the existing energy taxes. The tax needs to be examined comprehensively, taking into consideration the current discussion carried on among the related government ministries and agencies. ”

To ensure steady and smooth enforcement of the ratified Kyoto Protocol and the Climate Change Policy Programme, the government drastically revised Special Accounts for Petroleum and the More Sophisticated Structure of Demand and Supply of Energy Policies in FY 2003, with the recognition that immediate actions to substantiate and strengthen energy measures for combating global warming were needed, and that in view of the volatile Middle East situation, stepping up of energy security measures were necessary.

In the revision, the energy-based CO<sub>2</sub> emission reduction measures were added as an expense item. Measures for energy conservation and new energies, and shift to natural gas were enhanced and strengthened. In terms of revenue, a burden-sharing structure was adopted to ensure fair share, and coal became subject to taxation. Petroleum tax was then renamed petroleum and coal tax. Its tax rate will be raised in phases until FY 2007.

**2.2.1.6 Review and further develop the system of road fuel and motor vehicle taxes, with a view to promoting more sustainable modes of transport, to internalizing environmental costs, while paying attention to the demand for transport infrastructure and to introducing more**

### **flexibility in the allocation of revenue.**

Up until now, funds earmarked for road works were used for public transportation related projects to reduce traffic congestion. These projects include road improvement projects such as development of bypasses, widening of roads, construction of continuous grade separations for railroad crossing, and development of infrastructure such as light-rail transit (LRT) and subway. Then in 2003, in the ordinary Diet session, provisions in the law on the use of fund earmarked exclusively for road works were revised so that the fund can also be used for various other projects closely related to road improvement, provided that the users of motor vehicles who are the tax payers of road fuel and motor vehicle taxes give approval. Until now, it has been used for projects such as support of the introduction of diesel particulate filter (DPF). Furthermore, in the FY 2004 Tax Reform, the greening of automobile tax and preferential measures for acquisition tax of fuel-efficient vehicles placed priority of tax reduction on vehicles with low exhaust emissions and high fuel efficiency. The effective period of the tax reduction has also been extended.

Environmental tax, which are discussed in related councils as taxes imposed according to the level of emissions of carbon dioxide or the consumption of fossil fuels, are among the economic approaches. Environmental taxes are being considered in related councils and other meetings from various points of view, considering their effect of encouraging a broad range of entities to take measures through price incentives and a source of finance they can provide for the implementation of measures such as emissions reduction measures for carbon dioxide and measures to increase absorption source of forests.

In regard to environmental tax, the Kyoto Protocol Target Achievement Plan states that “Environmental tax is an issue whose comprehensive examination must be seriously advanced, taking into account the review of various political approaches related to measures against global warming in related councils and various fields, being based on the actual positioning of this tax within the entire range of measures against global warming, its effects, its impacts on the national economy and the international competitiveness of industry, and the current situation in foreign countries, endeavoring to obtain the understanding and cooperation of the public and businesses, since the tax will be broadly imposed on the population.”

The Central Environment Council is carrying out analyses on the effectiveness of environmental taxes and had discussions with industries, the public, local governments, etc.

At the end of August 2005, the Ministry of the Environment submitted a request for the establishment of environmental tax, and announced its Environment Tax Plan in October.

A report delivered by the Government Tax Commission concerning the FY2006 Tax Reform pointed out that “so-called environmental tax has wide-ranging issues on which examination must be advanced, such as concrete position of this tax within the entire range of national and local measures against global warming, its effects, its impacts on the national economy and the international competitiveness of the industry, the current practices in other countries, and the relationship to the existing energy taxes. The tax needs to be examined comprehensively, taking into consideration the current discussion carried on among the related government ministries and agencies.”

#### **2.2.1.7 Continue to reduce sectoral subsidies that have negative environmental implications.**

Although coal has been considered a core energy source in Japan, the share of coal produced domestically has declined, making it difficult to maintain domestically produced coal’s status as the core energy in Japan from a quantitative perspective. Against this backdrop, subsidies for the structural adjustment of domestic coal mining industry, for coal mining area development, etc. were abolished by the end of FY 2001. These subsidies have had no negative impact on the environmental conservation.

#### **2.2.2 Integrating environmental and social concerns**

The following are recommendations for integrating environmental and social concerns:

- Further develop environmental data, indicators and information as tools facilitating decision-making and communication, and review the potential for grouping related institutional capacities together;
- Improve public access to environmental information held by the environmental administration, sectoral ministries and the private sector;
- Review distributional implications of proposed market-based instruments for environmental management and sustainable development;
- Promote the development of environmental NGOs and assure their representation on advisory councils and committees dealing with issues relevant to sustainable development at national and prefectural levels;

- Promote environmental education at all levels and forms of education, including training for teachers;
- Assess the impact of changes in technology and lifestyle (e.g. the impact of information/communications technology, increased recreation time, retirement) on environment and nature, taking into account related changes in patterns of settlement, transport, production and consumption.

**2.2.2.1 Further develop environmental data, indicators and information as tools facilitating decision making and communication, and review the potential for grouping related institutional capacities together.**

Environmental Statistics have been compiled by collecting and organizing basic data on environmental impact, state of the environment, and measures against environmental problems, and are offered via the website.

In response to rising public needs for the natural environment of rivers and watersides, a set of new indicators was put together for evaluation of river water quality that was not possible using the conventional method of biochemical oxygen demand (BOD) alone. The new easy-to-understand indicators enable comprehensive evaluation of river water quality in cooperation with local residents and are based on the following four viewpoints: (1) securing rich interaction between people and rivers, (2) securing rich ecosystems, (3) securing readily usable water quality, and (4) securing water quality with little impact on lower reaches of rivers and retention water areas. Starting in FY 2004, pretest surveys were conducted at nine Class A rivers. Based on the results, indicators were reviewed, and surveys are being conducted at 109 river systems throughout the country starting in FY 2005.

Furthermore, to incorporate these indicators in the Third Basic Environment Plan, which is scheduled for completion before the end of FY 2005, indicators for monitoring the state of target achievement and progress of initiatives are being examined.

**2.2.2.2 Improve public access to environmental information held by the environmental administration, sectoral ministries and the private sector.**

In addition to launching operation of a comprehensive environmental information database on the website, information on environmental administration and various guidelines have been made available to the public. "Environment GIS" which provides information on the state of the

environment employing the Geographic Information System (GIS) has also been offered on the Internet since September 2002.

As for information on biodiversity, results of the National Survey on the Natural Environment (Green Census) and information on species listed on the Red Data Book have been organized and offered on the Internet using the Japan Integrated Biodiversity Information System (J-IBIS). Also, as a system for cross-sectoral search of information sources, including location of information, Japan Clearing-House Mechanism (CHM) went into full operation in July 2004.

As for river environment database, results of the Census of Rivers and Riparian Areas conducted for investigating the state of living and breeding of living organisms in rivers and dam reservoirs have been made public on the website.

Information necessary for coral reef conservation is collected and offered by the Coral Reef Research and Monitoring Center.

#### **2.2.2.3 Review distributional implications of proposed market-based instruments for environmental management and sustainable development.**

In order to evaluate specific measures of imposing economic burden to reduce environmental load, the government carried out researches to study the effectiveness of these measures on environmental protection and their potential impact on the national economy if such measures are implemented, and reviewed case studies in various other countries, pertaining to applicable fields such as CO<sub>2</sub> emission control to prevent global warming and waste generation control.

#### **2.2.2.4 Promote the development of environmental NGOs and assure their representation on advisory councils and committees dealing with issues relevant to sustainable development at national and prefectural levels.**

As a base for providing opportunities for exchange and support of initiatives through partnership of various actors, such as businesses, citizens, and civil groups, the “Global Environment Information Centre” has been opened through a joint initiative with the United Nations University. With the aim of deepening understanding and awareness toward partnership, a forum was held for exchanging opinions to reflect the voices of citizens and civil groups on policies. Also, as a base for promoting environmental partnership in local areas, three regional Environmental Partnership Offices have been established in the Chugoku, Kinki, and Chubu regions, and seven more offices are planned to be opened throughout the country.

To coordinate with these offices in environmental education and conservation activities in local areas, Regional Environment Offices have also been established in October 2005.

In addition, with the aim of reflecting outstanding policy proposals from NPO/NGOs and corporations on environmental policies, environmental policy proposals were solicited and presented at the Forum on Environmental Policy Proposal by NPO/NGOs and Corporations, and outstanding proposals were adopted as model projects to promote policy planning through partnership.

Through the “Japan Fund for Global Environment” established in 1993 with national and private contribution, activity funds are being granted to civil groups to support their environmental conservation activities (FY 2004: 203 activities, 730 million yen in total).

#### **2.2.2.5 Promote environmental education at all levels and forms of education, including training for teachers.**

It is important to promote comprehensive environmental education and learning in various situations, such as schools, communities, workplaces, and other outdoor activities, for all ages from infants to the elderly, in cooperation with government, businesses, civil groups, and individuals. The Basic Training Course for Leaders on Environmental Education targeted at teachers and activity leaders in communities focuses on gaining basic knowledge of environmental education and hands-on activities. In FY 2004, training was provided to about 300 participants in five districts, and is planned in five districts in FY 2005 as well.

#### **2.2.2.6 Assess the impact of changes in technology and lifestyle (e.g. the impact of information/communications technology, increased recreation time, retirement) on environment and nature, taking into account related changes in patterns of settlement, transport, production and consumption.**

Presently, the Second Basic Environment Plan is being reviewed by the Central Environment Council. In the process, the council is examining lifestyle changes, such as the advent of a depopulation society, increasing interdependency with Asian economy, increase in ratio of single-person households, and tendency towards round-the-clock society, and socio-economic changes, such as advancement in environmental technology. Taking these changes into account, the Concept for Formulation of the Third Basic Environment Plan announced in July 2005 lists “shift to

a lifestyle in which environmental, economic, and social aspects improve in a unified manner,” as one of the pillars of environmental policies in the future.

### **2.2.3 Chemicals**

In the field of chemicals, the following recommendation was made.

- Further improve the effectiveness and efficiency of chemical management and further extend the scope of regulation to include ecosystem protection.
- Strengthen voluntary initiatives in the chemical industry and grant a more active role to chemical producers in safety investigations (e.g. of existing chemicals);
- Introduce measures to encourage manufactures to reduce the environmental and health risks posed by chemicals used in consumer products, at all stages of the products’ life cycle;
- Continue to instruct farmers about and monitor their compliance with regulations and guidelines concerning the application of pesticides;
- Continue to develop publicly accessible databases on chemicals (e.g. on toxicity, risk assessment, emissions at all stages of the life cycle) and strengthen risk communication concerning hazardous chemicals;
- Continue to co-operate with other OECD countries (e.g. on harmonisation of test procedures for new and existing chemicals) and continue to promote environmentally sound chemical management in East Asia.

#### **2.2.3.1 Further improve the effectiveness and efficiency of chemical management and further extend the scope of regulation to include ecosystem protection.**

The Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., which prescribes prior examination of toxicity of new industrial chemical substances and regulations for manufacturing and import of these substances according to the extent of toxicity, was revised in May 2003 and enforced in April 2004. With this revision, prevention of damage to plants and animals in the environment was added to the objectives of the law. Thus, prior examination and regulation from the viewpoint of eco-toxicity was introduced, in addition to evaluation of biodegradability, bioaccumulation, and long-term toxicity to human health.



In addition, more effective and efficient evaluation and regulation systems have been introduced: (1) regulations concerning existing chemical substances with low biodegradability and high bioaccumulation (Class Monitoring Chemical Substances); (2) special provision for evaluation procedure focusing on the possibility of release into the environment (e.g. low-production new chemicals that are persistent but not bioaccumulative, and manufactured or imported in amounts not over 10 tons per year in Japan) and special provision for intermediary substances (chemicals that change entirely into other substances), and (3) obligatory reporting system for hazard information obtained by businesses.

As for agricultural chemicals, the standards to withhold registration of agricultural chemicals concerning toxicity to aquatic organisms were revised in March 2003 to strengthen initiatives with ecosystem conservation. Testing methods and other issues required to manage the revised system were set up and the standard was put into effect on April 2005. In addition, the standards regarding water pollution and persistency in soil were revised on August 2005 to conduct adequate risk management taking persistency and bioaccumulation in the environment into account.

#### **2.2.3.2 Strengthen voluntary initiatives in the chemical industry and grant a more active role to chemical producers in safety investigations (e.g. of existing chemicals).**

Japan's chemical industry is actively involved in the initiatives of the International Council of Chemical Association (ICCA) to contribute to the acceleration of OECD High Production Volume Chemicals Inspection Programme (HPV Programme). As of September 2005, 112 Japanese companies have participated in the programme as sponsors and cooperated in preparing a report for safety investigation of 232 high production volume chemicals. As for chemicals that have undergone safety examination through the ICCA initiative, looking at the nationality of companies that have taken the initiative, Japan comes in fourth following the U.S.A., Germany, and the U.K.

To further accelerate collection of safety information on existing chemicals, in cooperation with the industrial sector, Program for Gathering and Disseminating Safety Information on Existing Chemical Substances (Japan Challenge Program) started in June 2005. In this program, manufacturers and importers of chemical substances voluntarily participate as sponsors, who are expected to collect safety information on the target chemicals (produced or imported in Japan in amounts over 1,000 tons per year).

#### **2.2.3.3 Introduce measures to encourage manufactures to reduce the environmental and health risks posed by chemicals used in consumer products, at all stages of the products' life cycle.**

The EU has the RoHS Directive for regulating the use of six toxic substances, including lead, mercury, and cadmium, in waste electrical and electronic equipments (WEEE). In Japan, WEEE is regulated by the Home Appliances Recycling Law and Waste Management and Public Cleaning Law, and there are no tangible signs of environmental pollution caused by toxic substances. From the viewpoint of prevention of environmental pollution and promotion of more appropriate and refined 3R, a measure has been implemented to promote management of chemical substances contained in electrical and electronic equipments.

Firstly, substances that need to be controlled (lead, mercury, etc.) in the designing and production processes are identified. Then, manufacturers and importers of products are obliged to disclose information on the content of applicable substances. Specifically, it should be indicated by marks on the product itself or its packaging, and information on the content of the target substance must be provided in catalogs, operation manuals, and on websites.

#### **2.2.3.4 Continue to instruct farmers about and monitor their compliance with regulations and guidelines concerning the application of pesticides.**

To ensure safe and proper use of agricultural chemicals, Ministerial Ordinance for Prescribing Standards Observed by Agricultural Chemical Users (Agricultural Chemical Utilization Criteria) were established in March 2003. It obliges agricultural chemical users to obey the methods of the use prescribed at registration of agricultural chemicals and imposes penalties in case of violation.

The Ministerial Ordinance on the Ban on Sale of Agricultural Chemicals based on the Agricultural Chemicals Regulation Law was also established in March 2003, prohibiting the sale and use of 21 agricultural chemicals with safety risks to human and animals.

To contribute to promotion of environmental risk management of agricultural chemicals, state of observance of agricultural chemicals utilization standards was reviewed, and surveys on persistency of agricultural chemicals and ecological risk assessment of agricultural chemicals were carried out.

#### **2.2.3.5 Continue to develop publicly accessible databases on chemicals (e.g. on toxicity, risk assessment, emissions at all stages of the life cycle) and strengthen risk communication concerning hazardous chemicals.**

A database developed by systematically and comprehensively collecting and organizing reliable information on the toxicity of chemical substances was made publicly accessible on website, along

with a risk assessment support tool.

“Guide for the Citizen's Interpretation of PRTR Data” has been prepared and distributed every year since 2003. The Guide is also shown on websites of chemical substances information. In October 2004 and August 2005, difficult technical information was rearranged and announced in an easy-to-understand style for non-experts as Chemical Substance Fact Sheets. In August 2005, a brochure “Easy Guide to Chemical Substances: Our life and Chemical Substances” was prepared for elementary and junior high school students and the general public with the hope that this will trigger their interest in chemical substances surrounding them. A website “Risk Communication Homepage” containing related information and links to international organizations, concerned ministries, prefectures and municipalities was also created. Furthermore, to encourage businesses to initiate risk communication, a pamphlet “For Proper Understanding of Chemical Substances” was prepared and distributed, and information required for implementation, such as procedure, checkpoints, and ways of obtaining toxicity information on chemicals, has been made available on the website.

Moreover, to promote utilization of educational materials on chemical substances and the environment, the “Database of Educational Materials on Chemical Substances and the Environment” has been introduced on the website, and educational materials for fun on-line learning have been provided. In August 2005, a new database on materials that elementary and junior high school students can use when studying about chemical substances and the environment was also put up on the website.

To train and utilize chemical substance advisors who provide explanations on chemical substances from a professional and neutral position, a program for training, registration, and dispatch was started in FY 2002. Advisors were dispatched 42 times as lecturers on the PRTR system in FY 2004. In addition, the Roundtable Conference on Chemical Substances and the Environment established in FY 2001 was held four times in FY 2004 for information sharing and mutual understanding among citizens, industry, and administrators. In FY 2005, the Roundtable was held in various areas of Japan in order to encourage risk communication in local areas.

#### **2.2.3.6 Continue to co-operate with other OECD countries (e.g. on harmonisation of test procedures for new and existing chemicals) and continue to promote environmentally sound chemical management in East Asia.**

As part of work related to the Environmental Health Safety Program in OECD, to ensure reliability of test data on new chemical substances and mutual acceptance of data between different countries,

Japan has conducted maintenance and renewal of national framework for Good Laboratory Practice (GLP), evaluation work on ecological hazard assessment methods, examination of methods for comprehensive assessment of safety of chemical substances, and collection and analysis of information concerning safety of chemical substances both in and out of Japan.

The POPs Monitoring Workshop in East Asia was held three times in FY 2002, 2003, and 2005. The POPs Monitoring Expert Working Group in East Asia was also held twice in FY 2004 and FY 2005, for the smooth implementation of trial initiatives in POPs monitoring in the East Asian region.

## **2.3 International Environmental Co-operation**

### **2.3.1 Climate Change**

In the field of climate change, the following recommendations were made.

- Seek the entry into force of the Kyoto Protocol in 2002, with timely ratification processes, and with the widest possible participation;
- Further develop the national policy framework to combat climate change, with a balanced mix of policy instruments (including an expanded use of economic instruments such as taxes and charges), to reach domestic and international commitments; review and further develop environment-related taxes where appropriate, from the viewpoint of GHG reduction and other objectives;
- Develop and implement co-ordinated demand management measures (e.g. road pricing, parking charges, energy service company) and energy efficiency improvement measures (energy efficiency standards and other measures) in the transport and residential/commercial sectors;
- Review and revise voluntary initiatives in industry to improve energy efficiency and reduce GHG emissions (e.g. more explicit targets, expanded public access to relevant information);
- Take further measures to encourage the development and use of renewable forms of energy and to promote fuel switching where appropriate;
- Continue to implement policy measures to reduce emissions of HFCs, PFCs, and SF<sub>6</sub> with a balanced mix of policy instruments.

Japan's total GHG emissions has increased approximately 8.3% over the period from the base year

(in principle, the year 1990) to 2003, widening the difference between the base year and its commitment to reduce the average total GHG emissions between 2008 and 2012 by 6% to 14.3%. This is attributed to the fact that, while reduction of CO<sub>2</sub> from non-energy sources, methane, nitrous oxide, and three CFC alternatives has made progress, CO<sub>2</sub> from energy sources, which account for approximately 90% of GHG emissions in Japan, has significantly increased. This increase was partly caused by some special factors, such as suspension of nuclear power generation. There are also other factors: against a backdrop of increase in energy consumption in offices and homes due to increased ownership of personal computers and home electrical appliances, business expansion in China, changes in industrial structure, increase in total floor area of office buildings, and increase in passenger transport demand; while there were no significant changes in the levels of CO<sub>2</sub> emissions from the industrial sector, which accounts for approximately 40% of CO<sub>2</sub> emission and from the transport sector (trucks and public transportation), which accounts for approximately 10%, drastic increases took place in emissions from the commercial and other sector, which accounts for approximately 20%, the residential sector, which accounts for approximately 10%, and the transport sector (private vehicles), which accounts for approximately 10%.

If the various measures based on the Climate Change Policy Programme continue to be implemented as they are, the forecast of total GHG emissions in 2010 is approximately 1.311 billion tons (CO<sub>2</sub> equivalent), an approximate 6% increase from the base year.

Therefore, to reach our nation's 6% reduction commitment of the Kyoto Protocol, in addition to the measures and policies already implemented, it is necessary to implement measures based on the Kyoto Protocol Target Achievement Plan and policies to promote them in order to achieve additional reduction equivalent to approximately 12%.

#### **2.3.1.1 Seek the entry into force of the Kyoto Protocol in 2002, with timely ratification processes, and with the widest possible participation.**

After Diet approval of the Kyoto Protocol and revision of the Climate Change Policy Law as a security law, Japan ratified the Kyoto Protocol on June 4, 2002. It had worked upon unratified countries such as Russia; and with ratification of Russia to the Kyoto Protocol in November 2004, the Kyoto Protocol came into global effect on February 16, 2005.

#### **2.3.1.2 Further develop the national policy framework to combat climate change, with a balanced mix of policy instruments (including an expanded use of economic instruments such as taxes and charges), to reach domestic and international commitments; review and further develop environment-related taxes where appropriate, from the viewpoint of GHG reduction**

**and other objectives.**

With the entry into force of the Kyoto Protocol in February 2005, the Kyoto Protocol Target Achievement Plan was formulated to establish the necessary measures to ensure achievement of the 6% reduction commitment.

In this plan, while promoting effective and efficient reduction of GHG emissions, as well as keeping overall cost burden as low as possible with consideration for fairness, the concept of policy mix was adopted in order to achieve multiple policy targets of environmental conservation and economic development at the same time. Policy mix is based on the idea of organically combining all kinds of policy instruments, such as voluntary, regulatory, economic, and information instruments, by taking advantage of each of their features. The optimum approach of policy mix is to be examined comprehensively, while looking at the progress of the plan's measures and policies. Economic instruments are premised on market mechanism and, with the addition of economic incentives, are expected to induce emission reduction actions in line with the economic rationality of each actor. They are also expected to serve as effective economic support measures for combating global warming. In accordance with the concept of policy mix, it is important to keep the financial burden of citizens and government to the minimum while securing maximum effect. Thus, cost-effectiveness is to be considered and efforts are to be made for effective utilization of the budget when providing financial assistance.

Environmental tax, which are discussed in related councils as taxes imposed according to the level of emissions of carbon dioxide or the consumption of fossil fuels, are among the economic approaches. Environmental taxes are being considered in related councils and other meetings from various points of view, considering their effect of encouraging a broad range of entities to take measures through price incentives and a source of finance they can provide for the implementation of measures such as emissions reduction measures for carbon dioxide and measures to increase absorption source of forests.

Environmental tax is one of these economic instruments. In regard to this tax, the Kyoto Protocol Target Achievement Plan states that "Environmental tax is an issue whose comprehensive examination must be seriously advanced, taking into account the review of various political approaches related to measures against global warming in related councils and various fields, being based on the actual positioning of this tax within the entire range of measures against global warming, its effects, its impacts on the national economy and the international competitiveness of industry, and the current situation in foreign countries, endeavoring to obtain the understanding and cooperation of the public and businesses, since the tax will be broadly imposed on the population."

The Central Environment Council is carrying out analyses on the effectiveness of environmental taxes and had discussions with industries, the public, local governments, etc.

At the end of August 2005, the Ministry of the Environment submitted a request for the establishment of environmental tax, and announced its Environment Tax Plan in October.

A report delivered by the Government Tax Commission concerning the FY2006 Tax Reform pointed out that “so-called environmental tax has wide-ranging issues on which examination must be advanced, such as concrete position of this tax within the entire range of national and local measures against global warming, its effects, its impacts on the national economy and the international competitiveness of the industry, the current practices in other countries, and the relationship to the existing energy taxes. The tax needs to be examined comprehensively, taking into consideration the current discussion carried on among the related government ministries and agencies.”

The domestic emissions trading scheme is also an issue requiring comprehensive examination on wide-ranging points, including comparison with other instruments and their effects, and its impact on industrial activities and national economy. Firstly, to promote cost-efficient reduction and accumulation of knowledge and experience in trading, for businesses striving to achieve their self-established reduction targets, economic incentives will be given and voluntary domestic emissions trade using tradable permit will be implemented.

### **2.3.1.3 Develop and implement co-ordinated demand management measures (e.g. road pricing, parking charges, energy service company) and energy efficiency improvement measures (energy efficiency standards and other measures) in the transport and residential/commercial sectors.**

In the Kyoto Protocol Target Achievement Plan adopted by the Cabinet in 2005, initiatives in the transport, commercial, and household sectors are stipulated as follows:

#### **(1) Initiatives for Reducing CO<sub>2</sub> in the Transport Sector**

While CO<sub>2</sub> emissions from trucks and public transportation have shown a decreasing trend in recent years, CO<sub>2</sub> emissions in the overall transport sector have increased approximately 20% compared with FY 1990. For this reason, in order to facilitate traffic flow and reduce CO<sub>2</sub> emissions from vehicles, the government promoted the development of network of trunk roads such as loop roads,

raising of intersections, and improvement of railroad crossing with a series of raised intersections, and at the same time carried out traffic flow measures, such as the adjustment of motor transportation demand, promotion of the intelligent transport system (ITS), less construction works on the road, development of traffic safety facilities (e.g. sophisticated traffic control systems), facilitation of road traffic information projects, and measures for on-road parking.

Other initiatives taken are as follows:

- Promotion of use of public transportation systems
- Promotion of use of environment-friendly vehicles
- Creation of systems for realizing smooth road traffic
- Actualization of Environmentally Sustainable Traffic (EST)
- Promotion of reduced CO<sub>2</sub> emission through joint efforts by freight owners and distribution businesses
- Promotion of increased efficiency of distribution through modal shift and efficient truck transport
- Spread of fuel-efficient vehicles
- Promotion of clean energy vehicles
- Improvement of energy consumption efficiency of railroad
- Improvement of energy consumption efficiency of air transport

#### (2)Initiatives for Reducing CO<sub>2</sub> in Business Sites (Offices and Shops)

CO<sub>2</sub> emissions in the commercial sector, such as offices and shops, have increased approximately 40% compared with FY 1990, coupled with an increase in total floor area. CO<sub>2</sub> emissions are to be reduced through the following initiatives:

- Steady implementation of voluntary action plans
- Thorough energy management by Law Concerning the Rational Use of Energy (promotion of comprehensive energy-saving measures combining heat and electricity based on the revision of the Law Concerning the Rational Use of Energy)
- Improvement of energy-saving performance of buildings (promotion of energy-saving remodeling, introduction of energy efficient equipment and facilities using ESCO)
- Promotion of Building Energy Management System (BEMS) (energy demand management system for optimum operation of lighting and air conditioners according to room conditions)

#### (3)Initiatives for Reducing CO<sub>2</sub> in Households

Despite the fact that the increase in the number of households is gradually slackening, CO<sub>2</sub> emissions in the household sector have increased by approximately 30% compared with FY 1990.



This is attributed to increased energy consumption caused by the increasing number of home electrical appliances owned. For this reason, in addition to urging citizens to deal with global warming issues as their own problems, constantly review their lifestyles, and promote energy-saving measures, the following initiatives are to be implemented:

- Improvement of energy-saving performance of housing (promotion of energy-saving remodeling, mandatory reporting of energy-saving measures for newly constructed housing and extension work greater than a specified scale, promotion of the use of energy-efficient equipment, facilities, and construction materials in collective housing using rental services or ESCO, etc.)
- Promotion of Home Energy Management System (HEMS) (promotion of energy demand management system for optimum operation of lighting and air conditioners according to room conditions)

#### (4) Top Runner Standards

In FY 1998, based on the Law Concerning the Rational Use of Energy, the top runner standards were introduced. These standards are used for setting the energy saving standards of energy intensive appliances designated by the Law Concerning the Rational Use of Energy to a level higher than the product with the highest energy-saving performance among all the products in the same group marketed at the time of standards setting. While 18 items have been designated so far, to further improve the efficiency of individual appliances, the number of items to be designated will be expanded. The scope of existing target appliances is to be expanded and their standards are to be strengthened as well.

(Reference: 18 items)

Air conditioners, fluorescent lights, VCRs, TVs, copying machines, computers, magnetic disk units, electric refrigerators, electric freezers, space heaters, gas cooking appliances, gas water heaters, oil water heaters, electric toilet seats, vending machines, transformers, passenger vehicles, freight vehicles (Ministry of Economy, Trade and Industry)

#### **2.3.1.4 Review and revise voluntary initiatives in industry to improve energy efficiency and reduce GHG emissions (e.g. more explicit targets, expanded public access to relevant information.)**

In the industry and energy conversion sector, the Keidanren Voluntary Action Plan on the Environment was formulated in 1997 under the initiative of Nippon Keidanren, with the target of reducing CO<sub>2</sub> emissions in FY 2010 below  $\pm 0\%$  of the FY 1990 level. So far, 34 industries have established an Environment Voluntary Action Plan with quantitatively set targets for each industry,

covering approximately 80% of the industry and energy conversion sector.

These voluntary action plans by businesses have produced results, playing a central role in the measures for the industry and energy conversion sector.

Voluntary instruments have the following benefits: they enable selection of better measures with the ingenuity of each actor; they may have incentives to work toward higher targets; and there are no procedural costs for both the government and implementing actors. It is hoped that voluntary action plans by businesses will take further advantage of these benefits.

For Japan to achieve its reduction commitment under the Kyoto Protocol, it is extremely important that the industry and energy conversion sector continue efforts to reduce emissions by improving energy consumption intensity and CO<sub>2</sub> emission intensity to achieve the targets of their voluntary action plans. Therefore, with the understanding that the targets and contents of voluntary action plans are to be entrusted to their independency, in response to social demands, it should be encouraged that the targets of the Nippon Keidanren Voluntary Action Plan are fully achieved and that individual businesses make positive efforts toward achievement of their own voluntary targets. For enhancement of their transparency, reliability and probability of their efforts, concerned councils will continue to follow up regularly.

It is also expected that businesses that have not yet established voluntary action plans will do so and implement effective energy-saving measures according to their business characteristics.

Furthermore, by requiring emitters to calculate their own emission volumes, the Climate Change Policy Law establishes a base for various sectors of the Japanese society to take voluntary measures to tackle global warming. The government also requires emitters that have emitted more than a specified amount of greenhouse gases to report the emission volumes. The information is then gathered and published. Announcement and disclosure of emission information give incentive and motivation to citizens and businesses to take voluntary measures. To facilitate understanding of the published data on emission volumes, the government allows emitters to furnish information related to the published emission volumes. The reported information is also published.

#### **2.3.1.5 Take further measures to encourage the development and use of renewable forms of energy and to promote fuel switching where appropriate.**

According to the Kyoto Protocol Target Achievement Plan, “in the energy supply sector, while a certain amount of time is required for construction of infrastructure and reforms, efforts will be

made to increase efficiency of energy supply by initiating measures at an early stage, making use of energy sources with low CO2 emission intensity, and by promoting use of fossil fuels in harmony with the environment considering the stable supply of energy.”

(1) Promotion of introduction of new energy

As new energies making use of solar, wind and biomass contribute greatly to measures to tackle global warming, as well as to enhancement of energy self-sufficiency rate, their introduction will be promoted.

(2) Promotion of shift to natural gas

Compared with other fossil fuels, natural gas is a clean energy with relatively little environmental impact. As it is widely dispersed and found in areas other than the Middle East, taking into account the balance with other energy sources such as nuclear energy, the shift to natural gas will be accelerated.

(3) Promotion of efficient utilization of LP gas

Utilization of LP gas, which is also a clean energy with relatively little environmental impact like natural gas, will be promoted. Thus, high-efficiency use of LP gas systems, such as LP gas cogeneration systems and gas engine water heaters, will be promoted.

Toward achievement of the new energy introduction target of 19.1 million kilowatts for FY 2010 set by the Demand and Supply Subcommittee of the Advisory Committee for Natural Resources and Energy, introduction of new energy is being promoted by technology development aimed at realizing low cost and high efficiency, creation of initial demand for assisting introduction, and implementation of the Law on Special Measures Concerning New Energy Use by Electric Utilities (RPS law).

In the future, in view of further promoting the introduction of new energy, it is necessary to create an environment for overcoming such issues as breakthrough technology and economical efficiency improvement, and to promote independent dispersion of new energy. In addition to present efforts, additional measures are to be adopted centering on the field of heat utilization, such as measures for utilizing biomass heat.

As for biomass, the cabinet adopted the National Strategy of Biomass Utilization in 2002. A system utilizing more than 90% of waste biomass (carbon equivalent), or more than 40% of unused biomass (carbon equivalent) is to be constructed in approximately 500 municipalities by FY 2010. Combined, the nation as a whole will be utilizing more than 80% of waste biomass (carbon

equivalent), or more than 25% of unused biomass (carbon equivalent). For promoting the use of biomass, in addition to providing support in both facilities and systems, a website (Biomass Energy Headquarters) has been opened.

#### **2.3.1.6 Continue to implement policy measures to reduce emissions of HFCs, PFCs, and SF6 with a balanced mix of policy instruments.**

The three fluorinated greenhouse gases such as CFC alternatives account for approximately 2.1% of overall emissions of GHGs (CO<sub>2</sub> equivalent in FY 2002), and the production and consumption of ozone-depleting substances (though CFCs and HCFCs are not targeted in the Kyoto Protocol, they are gases with strong greenhouse effects) are being phased out under the Montreal Protocol. With increasing use of alternatives and some other factors, emissions of HFCs are expected to increase, thus measures are to be implemented to mitigate such increase. Specifically, the Kyoto Protocol Target Achievement Plan states to implement the following measures, and they are being carried out accordingly:

##### (1) Promotion of systematic implementation of initiatives by the industrial sector

In response to the “Guidelines for the Industrial Sector to Take Measures to Curb the Emissions of HFCs and Other Greenhouse Gases” (February 1998), 22 organizations in 8 sectors have established action plans as of now. The Industrial Structure Council will continue to follow up on the progress of implementation of action plans in the industrial sector and work toward enhanced transparency and reliability of action plans and achievement of targets. As a result of voluntary efforts by businesses, emissions have been reduced to almost half the level of 1995.

Also, while implementing measures to support the initiatives by businesses to reduce emissions, businesses without an action plan will be urged to put together and publicize a plan.

##### (2) Promotion of development of alternatives and utilization of alternative products

Use of new alternatives to the three fluorinated gases, technology not employing the three fluorinated gases and recovery/destruction technology/products are to be promoted. Research and development of new alternatives and alternative technology will also be carried out. While taking into consideration safety, economical efficiency, and energy efficiency, information on technology and products using alternatives and products using the three fluorinated gases with lower global warming potential (GWP) will be provided and promoted to raise awareness.

In particular, as the use of insulating materials is expected to increase as a consequence of measures to improve energy-saving performance of buildings and housing, and as production and import of

major HCFCs (HCFC141b), which has been conventionally used as foaming agent, have been restricted since early 2004, it is expected that many will be converted to HFCs, resulting in increased use of HFCs as foaming agent of insulating materials and increased emissions into the atmosphere. To prevent this, measures will be implemented to promote greater use of non-fluorocarbon foaming agent and insulating materials.

In addition, as SF<sub>6</sub> released during magnesium dissolution and HFCs released by the use of aerosol products are expected to increase, development of alternatives and alternative technology in these fields are to be promoted, along with information dissemination on those products/technology. Up until now, fluorocarbon-free refrigeration and air conditioning equipment, new synthesis technology of alternatives, and recovery/destruction technology have been developed. Also, products with low global warming potential (GWP) are designated as procurement items in the Green Purchasing Promotion Law.

### (3) Recovery of HFC Installed in Equipment as Refrigerant, Based on the Laws

Thorough recovery and destruction of HFCs used as refrigerants will be promoted through appropriate application of the Law for the Recycling of Specified Kinds of Home Appliances, the Law for Ensuring the Implementation of Recovery and Destruction of Fluorocarbons Concerning Specified Products and the Law for the Recycling of End-of-Life Vehicles,.

In particular, as refrigerants in commercial refrigeration and air-conditioning equipment have shifted from HCFCs to HFCs, and as fluorocarbon recovery rate remains at a low level, HFC emissions are expected to increase rapidly. Thus, measures for improving recovery rate, including drastic reform of systems related to fluorocarbon recovery from commercial refrigeration and air-conditioning equipment, will be implemented.

Specifically, in order to ensure achievement of an average of 60% recovery rate over five years from beginning in FY 2008, problems in current recovery systems are being identified, and ways to solve such problems are being explored.

### **2.3.2 Other international commitments and co-operation**

In the international commitment and co-operation sector, the following recommendations were made.

- Continue to develop institutions for regional responses to oil emergencies, including surveillance, analysis, communication and response (e.g. in the framework of the North-West Pacific Action Plan);
- Continue to develop and implement international technical guidelines regarding ballast waters and ship scrapping;
- Seek to strengthen regional collaboration to improve the management of shared fish stocks in the North Pacific;
- Strengthen bilateral and regional efforts to address shared environmental concerns, particularly regarding transboundary air and marine pollution, and migratory birds;
- Implement the new laws on recovery of fluorocarbons from household appliances, automobiles and commercial air conditioning systems;
- Co-operate internationally to develop means of ensuring that timber and wood products used in Japan originate from sustainably managed tropical and boreal forests;
- Further increase official development assistance (ODA) for environmental purposes, particularly that aimed at facilitating solutions to global environmental problems, as well as total ODA, taking into account the UN target (0.7% of GNP).

**2.3.2.1 Continue to develop institutions for regional responses to oil emergencies, including surveillance, analysis, communication and response (e.g. in the framework of the North-West Pacific Action Plan).**

In 1994, the four countries of Japan, South Korea, China, and Russia adopted the Northwest Pacific Action Plan (NOWPAP) whose target areas are the Sea of Japan and the Yellow Sea. Since November 2004, the NOWPAP Regional Oil Spill Contingency Plan has been fully implemented, establishing the framework for cooperation of the NOWPAP member States in the case of a large-scale oil spill accident within the region which exceeds the capacity of one member State.

**2.3.2.2. Continue to develop and implement international technical guidelines regarding ballast waters and ship scrapping.**

International regulations for implementing the Ballast Water Management Convention, which aims

at resolving ballast water problems, are under preparation. At the International Maritime Organization (IMO) meeting, Japan has actively proposed testing methods for approval of treatment equipment necessary for meeting the convention standards on the number of organisms contained in ballast water released in the sea. At the same time, the procedure for certification of ballast water treatment equipment has also been examined. In addition, basic surveys on the impact of organisms contained in ballast waters on the marine environment were conducted.

In recent years, pollution of the marine environment caused by ship recycling is attracting attention. To solve such problems, Japan has actively participated in discussions at IMO, and discussions about forming new rules have begun in FY 2004.

#### **2.3.2.3 Seek to strengthen regional collaboration to improve the management of shared fish stocks in the North Pacific.**

Japan has contributed to the proper maintenance and control of marine resources through multiple and bilateral frameworks in the region, such as taking part in the International Scientific Committee for Tuna and Tuna-like Species (ISC). In August 2005, Japan joined the Western and Central Pacific Fisheries Convention (WCPFC) and strengthened its cooperation in marine resource control in the applicable area. For the WCPFC to adopt measures pertaining to marine resource management in the northern Pacific region based on the scientific advice from the ISC, Japan's further contribution is expected in these bodies.

#### **2.3.2.4 Strengthen bilateral and regional efforts to address shared environmental concerns, particularly regarding transboundary air and marine pollution, and migratory birds.**

##### (1) Transboundary air pollution

With the aim of elucidating the present conditions and effects of acid deposition in East Asian and in pursuit of establishing a regional framework of cooperation in dealing with problems caused by acid deposition, the Acid Deposition Monitoring Network in East Asia (EANET) came into full operation in January 2001. The number of participating countries is currently 13, including Lao PDR and Myanmar which were accepted after the time of review. At the fifth intergovernmental meeting (in 2003) on EANET, consensus was reached on targets of burden sharing aimed at voluntary contributions by all participating nations starting in 2005. Also, at the sixth intergovernmental meeting (in 2004), in view of future development of EANET, commencement of work on a feasibility study for EANET regional convention, preparation of primary report on findings of acid deposition in the East Asian region aimed at completion in fall of 2006, and preparation of a report targeted to policy makers was approved.

The reports on the feasibility of EANET regional convention and for policy makers are to be discussed at the seventh intergovernmental meeting held in November 2005. It was decided that the participating countries of EANET should begin a process to discuss an appropriate instrument and its legal status to provide a sound basis for financial contribution to EANET and will report the results of the discussion to the Tenth Session of the Intergovernmental Meeting for its consideration (Niigata Decision). Japan will continue to contribute to regional cooperation based on the EANET activities in issues concerning acid deposition.

Dust and sandstorms, which are recognized as transboundary air pollution, are also affecting Japan. In recent years, damages caused by dust and sandstorms have intensified in China, making measures to address these problems an urgent political issue in Northeast Asia. In the past, dust and sandstorms were considered a natural phenomenon arising from the Yellow River basin and existing deserts, however, the growing scale of the problem in recent years is also said to be caused by anthropogenic factors of overgrazing and expansion of cultivated fields. Thus, this issue has been under discussion at the Tripartite Environment Ministers Meeting (TEMM) among Japan, China and Korea, and at the TEMM+1 Meeting including Mongolia. After these reviews, a project on the prevention and control of dust and sandstorms has been implemented by the Asian Development Bank (ADB) and the Global Environment Facility (GEF), and a master plan has been developed for cooperation toward creating a monitoring network and early warning system in Northeast Asia. In the future, under appropriate division of work responsibilities, each country will work toward actualization of policies indicated in the master plan.

## (2) Marine pollution

One of the concrete activities based on the Northwest Pacific Action Plan (NOWPAP), which includes the Sea of Japan and the Yellow Sea as target areas, is review conducted to find out the pollution load flowing into the Sea of Japan via rivers and air. In addition, a facility for receiving and processing remote sensing data from a manmade satellite was established in Toyama Prefecture in FY 2001, and surveys have begun since FY 2002 to obtain data on conditions of the seas concerned.

## (3) Migratory birds

While promoting accession of Asian nations to the Ramsar Convention, Japan has made efforts to further strengthen cooperation among Asian region by holding workshops on wetland management for the conservation of important wetlands along the flyway of migratory birds. In addition, based on bilateral conventions and agreements on the protection of migratory birds with the U.S., Australia, Russia, China, and South Korea, joint surveys on short-tailed albatross, Saunder's gull



and other migratory birds have continued to be conducted, and meetings have been held for exchanging information and opinions. Furthermore, based on the “Asia-Pacific Migratory Waterbird Conservation Strategy 2001-2005”, Japan has been promoting expanding the Networks of important habitats for shorebirds, crane, and Anatidae, as well as activities of these Networks.

**2.3.2.5 Implement the new laws on recovery of fluorocarbons from household appliances, automobiles and commercial air conditioning systems.**

Recovery of fluorocarbons (CFCs, HCFCs, HFCs) installed as refrigerants in appliances became mandatory prior to their disposal: in April 2001 for domestic refrigerators/freezers and air conditioners based on the Home Appliance Recycling Law (see Table 3); in April 2002 for commercial refrigeration and air conditioning equipment based on the Fluorocarbon Recovery and Destruction Law; and in October 2002 for motor vehicle air conditioning equipment. In January 2005, motor vehicle air conditioning equipment became under the control of the Law for the Recycling of End-of-Life Vehicles so that more efficient recovery could be carried out with the recycling of end-of-life vehicles.

**Table 3 Amount of CFCs Recovered from Products Specified under Home Appliance Recycling Law**

(unit : ton)	FY	Air conditioner/ heater	Refrigerator
Gross weight of recovered CFCs used as refrigerant	2002	807	234
	2003	860	287

Note: All figures are rounded.

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

In accordance with the Fluorocarbons Recovery and Destruction Law, fluorocarbons recovered, excluding those for reuse, are destroyed by destruction operators authorized by the government. As of March 31, 2005, there are 81 authorized destruction operators.

In FY 2003, fluorocarbons recovered according to this Law amounted to 1,889 tons from commercial refrigeration and air conditioning equipment and 638 tons from motor vehicle air conditioning equipment, and fluorocarbons destroyed amounted to 2,431 tons (see Table 4).

**Table 4 Recovery and Destruction of Fluorocarbons  
Implemented under the Fluorocarbons Recovery  
and Destruction Law**

		FY	CFC	HCFC	HFC	Total
Commercial refrigeration/ air conditioning equipment	Recovered units (in 1000)	2002	301	487	39	827
		2003	245	559	62	866
	Recovered amount (in ton)	2002	387	1,505	66	1,958
		2003	338	1,458	94	1,889
	Reused amount	2002	84	319	18	421
		2003	66	257	12	336
Motor vehicle air conditioner	Recovered units (in 1000)	2002	711	0	245	956
		2003	1,141	0	556	1,697
	Recovered amount (in ton)	2002	283	0	107	389
		2003	415	0	223	638
	Reused amount	2002	91	0	23	113
		2003	120	0	50	170
Destroyed amount (in ton)	2002	354	1,173	126	1,653	
	2003	629	1,471	331	2,431	

Note: All figures are rounded. For motor vehicle air conditioners, FY 2002 figures are from between October 2002 and March 2003.

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

### **2.3.2.6 Co-operate internationally to develop means of ensuring that timber and wood products used in Japan originate from sustainably managed tropical and boreal forest.**

Illegal logging is an extremely serious problem for the promotion of environmental conservation on a global scale and for sustainable forest management. Japan has so far tackled this problem based upon the principle that “illegally harvested timber should not be used.”

Specifically, the following initiatives are being implemented:

- (1) As bilateral cooperation, monitoring of current conditions of forests and deforestation using satellite images as measures against illegal logging in Indonesia.
- (2) As regional cooperation, development of standards for legality and a timber tracking system through the Asia Forest Partnership (AFP).
- (3) As multilateral cooperation, support of projects for monitoring illegal timber trade through the

International Tropical Timber Organization (ITTO).

The “GLENEAGLES PLAN OF ACTION” adopted at the G8 Gleneagles Summit held in July 2005 incorporated the necessity to tackle illegal logging effectively that requires action from both timber producing and timber consuming countries. The Plan also stated to endorse the outcome of the G8 Environment and Development Ministerial conference on illegal logging. Also, at the Summit, the Japanese Government announced “JAPAN’S CLIMATE CHANGE INITIATIVE” which contains to tackle illegal logging through a government procurement policy, encouraging other countries to work out a voluntary ‘code of conduct’, assistance to timber producing countries and follow-up of the G8 Action Programme on Forests.

The government of Japan is going to proceed with these measures to combat illegal logging.

**2.3.2.7 Further increase official development assistance (ODA) for environmental purposes, particularly that aimed at facilitating solutions to global environmental problems, as well as total ODA, taking into account the UN target (0.7% of GNP).**

Japan actively provides assistance to developing nations through official development assistance (ODA). In the Official Development Assistance Charter, environmental problems are positioned as global-scale priority issues requiring strengthened measures. In Japan’s Medium Term Policy on Official Development Assistance (formulated in February 2005), in which concepts and initiatives of the Charter that needs to be more specifically presented in Japan and abroad are described more concretely, environmental problems are discussed in the “Initiatives in Global-Scale Problems” which are specified as priority issues.

As for international cooperation in support of the environment centering on ODA, Japan announced the “Environmental Conservation Initiative for Sustainable Development (EcoISD) in August 2002. In this Initiative, based on the basic policy of upgrading environmental management and response capacity and applying Japan’s experience and science and technology, Japan introduced its priority areas as (1) measures to tackle global warming, (2) pollution control measures, (3) initiatives in “water” problems, and (4) nature conservation.

In FY 2004, approximately 444.2 billion yen (accounting for approximately 39.2% of ODA in total) was spent in the area of the environmental field.