

# The Environment in Saitama

for Fiscal  
2006

Basic Facts & Figures



Clear air



Rich nature



Clean water

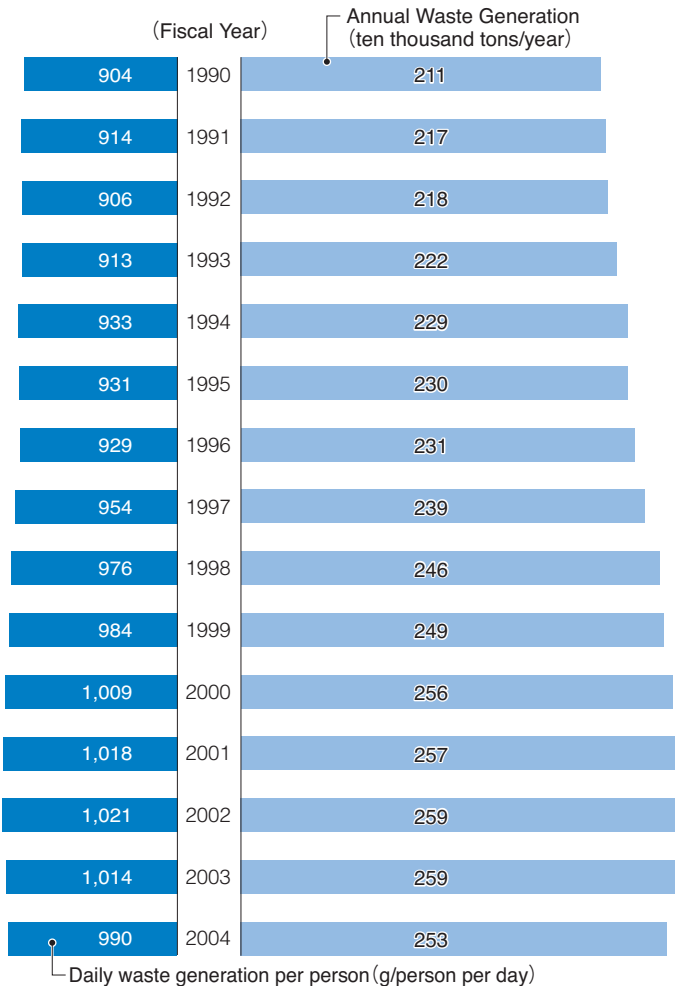
Saitama Prefecture

# Contents

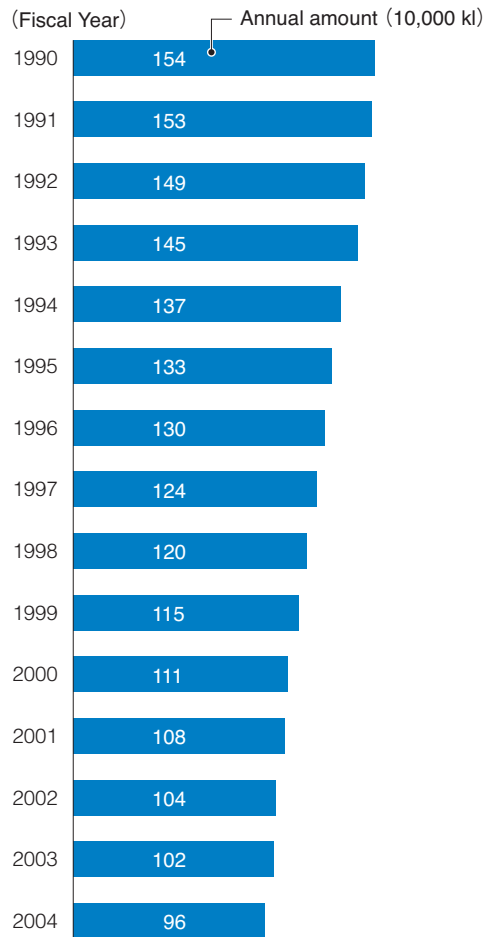
<b>1</b>	<b>Waste</b> .....	<b>1</b>
<b>2</b>	<b>Air Pollution</b> .....	<b>5</b>
<b>3</b>	<b>Water Pollution</b> .....	<b>9</b>
<b>4</b>	<b>Ground Subsidence</b> .....	<b>12</b>
<b>5</b>	<b>Soil Contamination</b> .....	<b>13</b>
<b>6</b>	<b>Offensive Odors</b> .....	<b>14</b>
<b>7</b>	<b>Noise and Vibration Pollution</b> .....	<b>14</b>
<b>8</b>	<b>Chemicals</b> .....	<b>15</b>

# 1 Waste

## 1 Change in Daily Waste Generation



## 2 Change in Total Amount of Excrement (Night Soil)



### What is Waste?

Waste includes garbage, bulky waste, cinder, sludge, and excrement, as well as unnecessary items that cannot be used or sold on, both in liquid and solid form. Waste is categorized into municipal waste and industrial waste, by generation process and characteristics. Disposing entity and disposal standards differ according to the category.

Municipalities are responsible for disposing of municipal waste, including domestic waste and excrement, while businesses are responsible for disposing of industrial waste such as cinder and sludge generated at factories.

### Current Status of Waste Disposal

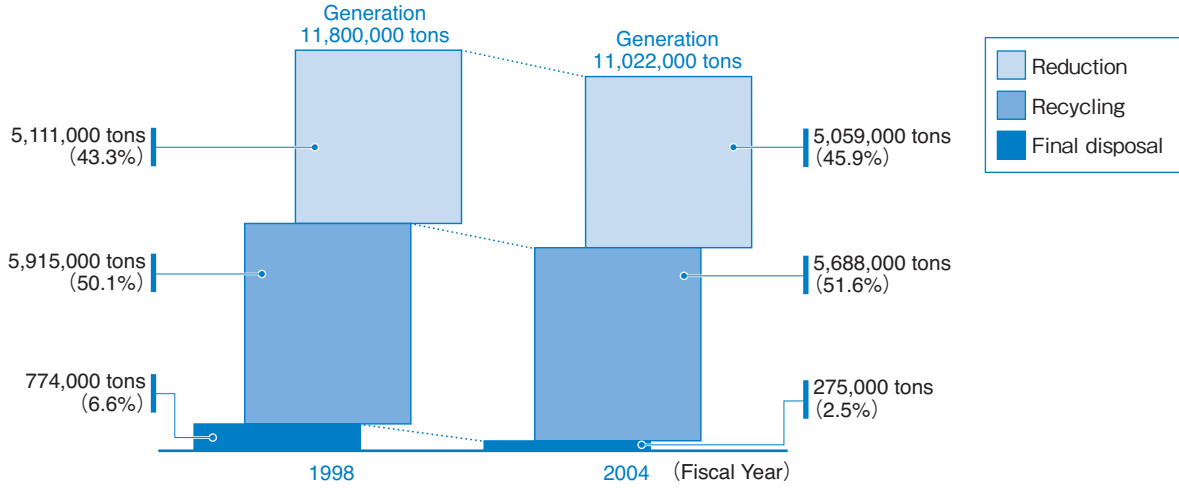
[Municipal Waste] ..... **1 2 4 5**

The total amount of waste generated within the Prefecture had increased steadily but declined for the first time in fiscal 2003 and the daily waste generation per person in fiscal 2004 stood at 990 grams, while the total amount of the waste generated (excluding the amount of group collection) in the fiscal year stood at 2,530,000 tons.

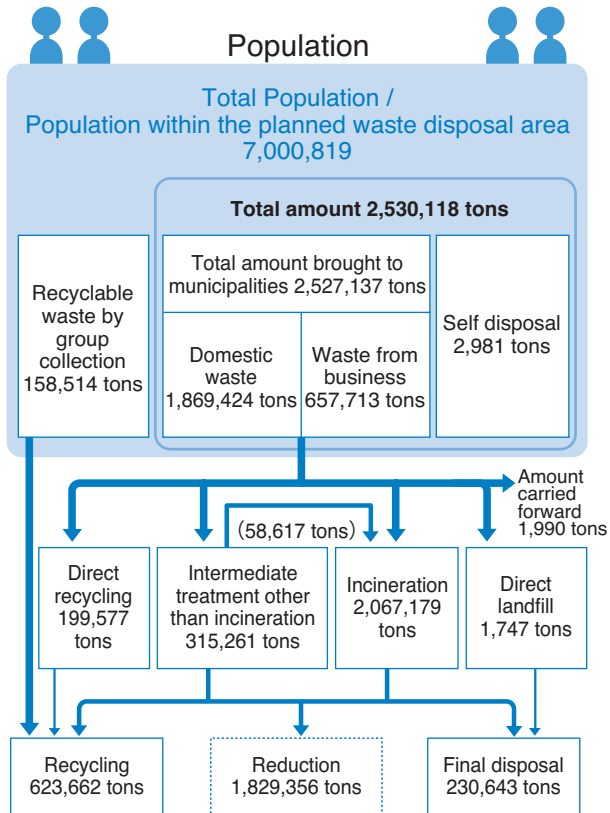
The total amount of excrement and sludge from johkasou (on-site treatment facility for flush toilet wastewater or domestic wastewater) decreased year after year thanks to the establishment of public sewerage systems and stood at 960,000 kiloliters in fiscal 2004. The number of population using flush toilet in Saitama Prefecture reached 6,730,000, among which those connected to the public sewerage system account for 4,640,000.

# Waste

## 3 Current Status of Industrial Waste Generation & Disposal

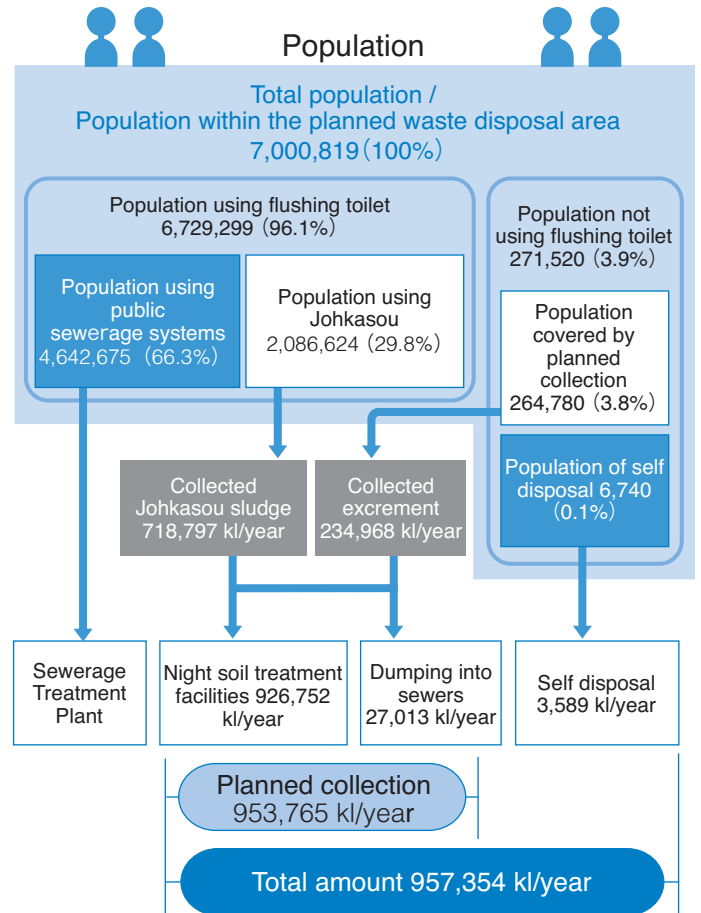


## 4 Current Status of Waste Disposal (Fiscal 2004)



Source: Municipal Waste Disposal Service Survey in Fiscal 2004

## 5 Current Status of Excrement Disposal (Fiscal 2004)



Source: Municipal Waste Disposal Service Survey in Fiscal 2004

## **[Industrial Waste]** ..... **3**

A total of 11,022,000 tons of industrial waste was generated during fiscal year 2004, and 6.6% decreased compared to the fiscal 1998 record of 11,800,000 tons. The amount of final disposal after recycling and intermediate treatment decreased to 275,000 tons from 774,000 tons, and it corresponded to the decrease of 64.5%. This decline may be due to the progress in waste generation control and reduction efforts at business offices. Securing of final disposal sites is becoming more and more difficult.

## **Measures for Waste Treatment**

### **[Municipal Waste]** ..... **1 4 5**

In fiscal 2004, the waste treatment capacity per day was 9,061 tons at incinerating facilities and 2,249 tons at other treatment facilities. However, considering that the facilities are aging and some public entities do not have sufficient treatment capacity, continued efforts toward improving treatment facilities will be necessary.

In fiscal 1998, the Prefecture laid down the Saitama Prefecture Waste Disposal Area Widening Plan aiming at reducing dioxins by the centralization of, and widening the area covered by, the waste incineration facilities.

As for excrement, thanks to the establishment of sewerage systems, the amount of treatment has been on the decline. However, considering the long time required for constructing sewerage systems, pre-planned construction and proper maintenance of night soil treatment facilities are required.

### **[Industrial Waste]**

Because industrial waste comes in a variety of forms, treatment standards have been defined in the Waste Management and Public Cleansing Law. In order to appropriately treat industrial waste and to preserve the living environment, the Prefecture conducts on-site inspections and gives guidance to the sites generating waste and to entrepreneurs of treatment. To cope with the ongoing illegal disposal and inappropriate treatment that does not meet the standards, the Prefecture is strengthening and expanding its inspection and guidance.

Saitama Prefecture constructed the Environmental Management Center in Yorii-Machi, and started operation in February 1989 for municipalities and small to mid-sized companies with difficulties in securing a final disposal site. This center was constructed under a plan to landfill waste of approx. 2.71 million tons in an area of 97.7 ha. From its start of operation to the end of fiscal 2005, the center has received municipal and industrial waste amounting to approx. 1.16 million tons.

## **Towards a Recycling-based Society**

To solve the waste problems we face today, conventional measures just to dispose of waste in an appropriate manner are not enough. Therefore, a recycling-based society in which waste generation is controlled to a minimum level and the waste is recycled to the greatest extent possible, needs to be established.

To achieve this goal, the Fundamental Law for Establishing a Sound Material-Cycle Society that stipulates the basic framework for the promotion of forming a recycling-based society was enforced in 2000. In addition, the Law for the Promotion of Sorted Collection and Recycling Containers and Packaging, the Law for the Recycling of Specified Kinds of Home Appliances, the Law for the Construction Materials Recycling Law, the Law for Promotion of Recycling and Related Activities for the Treatment of Cyclical Food Resources, and the Law for the Recycling of End-of-life Vehicle have successively been established and enforced. Under these laws, recycling systems for products that have been disposed of as waste are being promoted.

Together with these, comprehensive measures to form a recycling-based society are in progress, including the Waste Management and Public Cleansing Law for assuring the appropriate disposal of waste, expansion and strengthening of the Law for the Promotion of Effective Utilization of Resources requiring efforts by business operators to control waste generation and establishment of the Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities to promote the use of recycled products.

## 6 Implementation of Waste Reduction and Recycling Measures by Municipalities (Fiscal 2005)

Contents	Number of Municipalities
Implementing separated collection of recyclable waste	71 (100%)
Offering a subsidy for group collection of waste	61 (85.9%)
Offering a subsidy to recyclable waste collection traders	14 (19.7%)
Offering a subsidy for purchasing containers for composting	55 (77.7%)
Offering a subsidy to purchasing disposers for household use	61 (85.9%)
Offering information on repairing, selling (transferring), and exchanging bulky waste	48 (67.6%)
Setting up an organization for waste reduction and recycling that includes local people	48 (67.6%)
Delegating people to promote waste reduction	34 (47.9%)
Holding events on waste reduction and recycling	61 (85.9%)

Total number of municipalities : 71 (as of March 31, 2006)

### 【Municipal Waste】

6

All the municipalities in the Prefecture are making efforts to reduce municipal waste and to promote recycling of materials, including separate collections for recyclable wastes, encouraging group collection and subsidies for purchasing containers for composting.

Under these circumstances, Saitama Prefecture has formulated a separated waste collection promotion plan, and is popularizing and educating the public on the various recycling laws, collecting and providing information on recycling, encouraging information exchange and alliances between organizations involved in recycling, and supporting recycling activities by municipalities.

### 【Industrial Waste】

Reduction and recycling of industrial waste is carried out on the intermediate treatment processes such as incineration, crushing, and dehydration. The number of intermediate treatment facilities operated by the licensed businesses within the Prefecture where reduction and recycling of industrial waste is conducted totals 803.

### 【Resource Recycling Factories】

Within the premises of the Environmental Management Center in Yorii-machi, environment industries using state-of-the-art technologies have been invited to develop the Sai-no-Kuni Resource Recycling Factories as the core facilities for waste recycling.

The factory, established under the PFI Law and by renting land, has accumulated recycling facilities in the private sector and started its operation in fiscal 2006, with all nine companies located in the site. With Research & Development facilities for joint effort by industry, government, and academia to conduct demonstration experiments, the group of environment industries is trying to promote more effective and efficient recycling of waste and develop technologies in cooperation with each other.

The Prefecture is also pursuing a project to expand and improve the resource recycling factories by utilizing the adjoining prefectural land.

## Glossary

**PFI** | PFI stands for Private Finance Initiative. It is an attempt to achieve efficient, high-quality administrative services by using private funds and technological and managerial know-how in constructing public facilities and providing public services.

# 2 Air Pollution

## 1 Environmental Quality Standards on Air Pollution

Pollutant	Effects on Human Health	Environmental Quality Standard
Sulfur dioxide	Irritates throat and lungs, and causes bronchitis, etc.	The daily average for hourly values shall not exceed 0.04 ppm, and hourly values shall not exceed 0.1 ppm.
Nitrogen dioxide	Irritates throat and lungs, and causes bronchitis and upper respiratory inflammation, etc.	The daily average for hourly values shall be within the 0.04-0.06 ppm zone or below that zone.
Carbon monoxide	Binds to hemoglobin in the blood, and affects nerves.	The daily average for hourly values shall not exceed 10 ppm, and average of hourly values for any consecutive eight hour period shall not exceed 20ppm.
Photochemical oxidant	Causes red eyes and strong irritation of the throat, etc.	Hourly values shall not exceed 0.06 ppm.
Suspended particulate matter	Settles in the pulmonary alveolus, and causes bronchitis and upper respiratory inflammation, etc.	The daily average for hourly values shall not exceed 0.10 mg/m <sup>3</sup> , and hourly values shall not exceed 0.20 mg/m <sup>3</sup> .
Benzene	Causes anhematopoiesis, which leads to anemia, a decrease in WBC count, and decrease in blood platelet count. Also affects the central nervous system, irritates skin and mucosa and so on.	Annual average shall not exceed 0.003 mg/m <sup>3</sup> .
Trichloroethylene	Acute exposure to trichloroethylene strongly inhibits the central nervous system. If highly concentrated steam is inhaled, a person affected becomes unconscious. Affects the central nervous system, causes liver damage and so on.	Annual average shall not exceed 0.2 mg/m <sup>3</sup> .
Tetrachloroethylene	If highly concentrated steam is inhaled, it irritates eyes, nose and throat. Also causes headaches and dizziness, affects the central nervous system, causes liver and kidney damage and so on.	Annual average shall not exceed 0.2 mg/m <sup>3</sup> .
Dichloromethane	Animal tests on mice show its carcinogenicity, but the effects on humans and other animals are unclear. Its narcotic action on the central nervous system has been reported as acute toxicity.	Annual average shall not exceed 0.15 mg/m <sup>3</sup> .
Dioxins	Animal tests are reported to have effects on reproductive function, thyroid gland and immune system. The effects on human health are unclear.	Annual average shall not exceed 0.6pg-TEQ/m <sup>3</sup> .

### Level of Air Pollution 1

The latest levels of air pollution are monitored at Air Pollution Monitoring Stations (47 stations established by the Prefecture, one station established by the national government and controlled by the Prefecture, and 39 stations established by the city governments).

In recent years, the level of air pollution has steadily improved with the improvement in the Prefecture's environmental quality standard

achievement rates in suspended particulate matter and other substances. However, all monitoring stations in the Prefecture observed photochemical oxidant levels exceeding the standards. As for nitrogen dioxide and suspended particulate matter, though their environmental quality standard achievement rates have improved, there are still some monitoring stations that observed high concentrations. It is necessary to continue measures to ensure continued achievements in the environmental quality standards.

### Glossary

#### Environmental Quality Standards

Air pollutants mainly affect the human respiratory system, and have an adverse effect on human health depending on their concentration. Therefore, universal standards have been set across the country for sulfur dioxide, nitrogen dioxide, carbon monoxide, photochemical oxidant, suspended particulate matter, benzene, trichloroethylene, tetrachloroethylene, dichloromethane and dioxins. These standards are needed to protect human health.

#### Air Pollution Monitoring Station

In order to check air pollution levels within the Prefecture, some monitoring stations are located in the main areas of the Prefecture. The monitored data is gathered by the Central Air Pollution Monitoring Station located in the Saitama Institute of Public Health (Air Quality Division) to clearly show air pollution levels. Monitoring stations include general environment monitoring stations that monitor air quality in the general living environment and automobile exhaust gas monitoring stations that monitor air quality near roads.

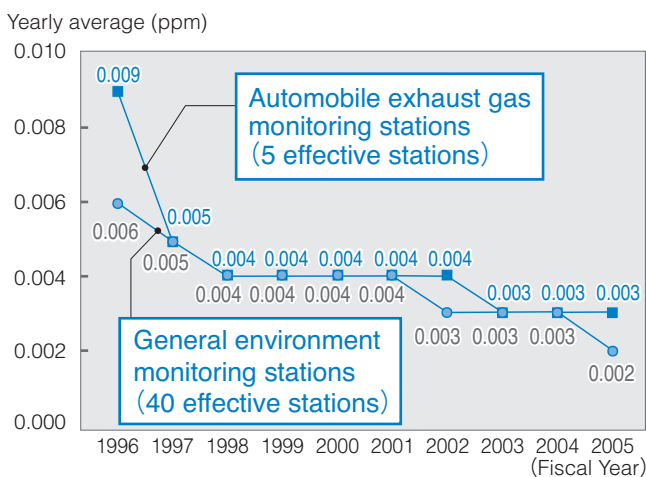
# Air Pollution

## 2 List of Compliance with Environmental Quality Standards (Fiscal 2005)

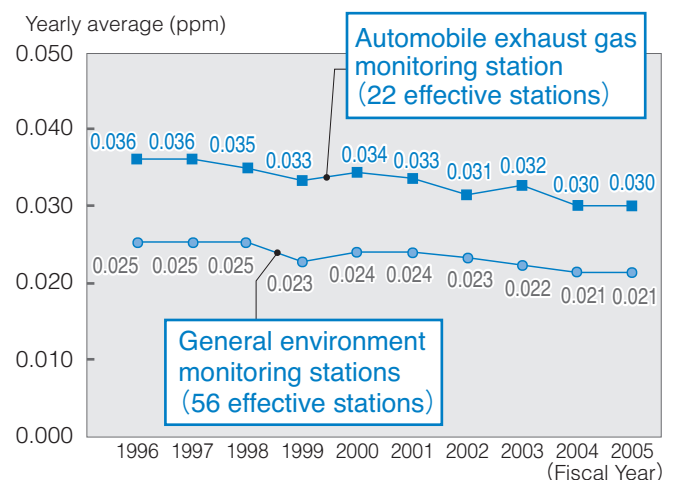
Classification		Pollutant	Sulfur dioxide	Nitrogen dioxide	Carbon monoxide	Photochemical oxidant	Suspended particulate matter
General environmental monitoring station	Effective stations		41	58	7	56	58
	Stations in compliance with the standard		41	58	7	0	58
	Stations failing to comply with the standard		0	0	0	56	0
	Attainment rate (%)		100 (100)	100 (100)	100 (100)	0 (0)	100 (100)
Automobile exhaust gas monitoring station	Effective stations		5	28	15	—	24
	Stations in compliance with the standard		5	28	15	—	23
	Stations failing to comply with the standard		0	0	0	—	1
	Attainment rate (%)		100 (100)	100 (88.5)	100 (100)	— (—)	95.8 (77.3)
Total	Effective stations		46	86	22	56	82
	Stations in compliance with the standard		46	86	22	0	81
	Stations failing to comply with the standard		0	0	0	56	1
	Attainment rate (%)		100 (100)	100 (96.4)	100 (100)	0 (0)	98.8 (93.7)

Note 1: Targeted at monitoring stations that have a monitoring record of 6,000 hours and longer per year (effective station)  
 Note 2: Figures in parentheses are for fiscal 2004.

### 3 Changes in the Concentration of Sulfur Dioxide (For stations that have been effective for 10 successive years)



### 4 Changes in the Concentration of Nitrogen Dioxide (For stations that have been effective for 10 successive years)





# Air Pollution

## 【Sulfur Dioxide】 ..... 3

Atmospheric sulfur oxides are emitted when sulfur contained mainly in oil and coal are burnt and oxidized. At both general environment monitoring stations and automobile exhaust gas monitoring stations, sulfur dioxide concentrations remain at a low level. All the general environment monitoring stations(41 effective stations in fiscal 2005)and automobile exhaust gas monitoring stations(5 stations)have achieved the required standard.

## 【Nitrogen Dioxide】 ..... 4

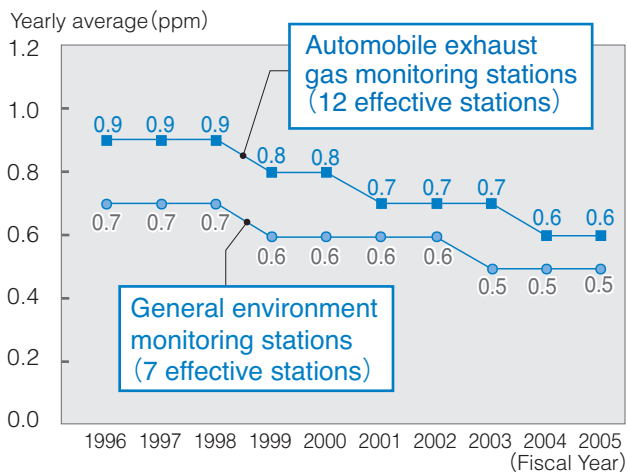
Nitrogen dioxide is emitted when nitric oxide generated by combustion is oxidized in the air. At both general environment monitoring stations and automobile exhaust gas monitoring

stations, nitrogen dioxide concentrations are either on a slight decrease or on the same level. All the general environment monitoring stations(58 effective stations in fiscal 2005)and all the automobile exhaust gas monitoring stations(28 stations) achieved the required standard.

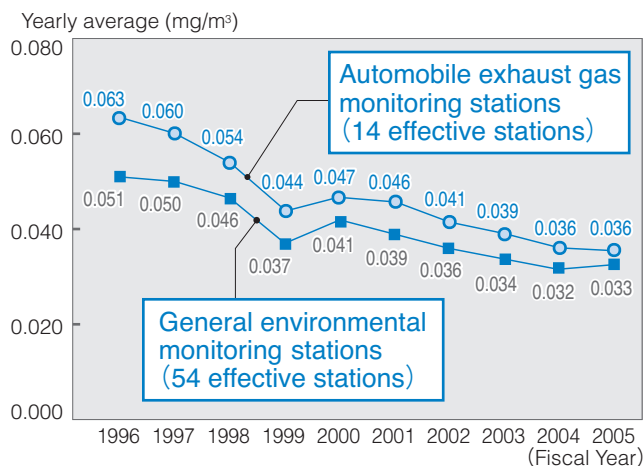
## 【Carbon Monoxide】 ..... 5

Carbon monoxide is mainly generated by incomplete combustion, most of which comes from automobile exhaust. At both general environment monitoring stations and automobile exhaust gas monitoring stations, carbon monoxide concentrations remain at a low level. All the general environment monitoring stations(7 effective stations in fiscal 2005)and automobile exhaust gas monitoring stations(15 stations)have achieved the required standard.

### 5 Changes in the Concentration of Carbon Monoxide (For stations that have been effective for 10 successive years)



### 6 Changes in the Concentration of Suspended Particulate Matter (For stations that have been effective for 10 successive years)



## 【Photochemical Oxidants】

Photochemical oxidants are a complex of secondary pollutants produced from nitrogen oxides and hydrocarbons by the action of sunlight(ultraviolet rays), and cause photochemical smog.

In fiscal 2005, photochemical smog watches(and warnings) were given on 26 days(warning on 1 day), which was the second worst on record in Japan. In addition, 883 people in 16 cases reported health hazards. None of the monitoring stations have achieved the required environmental quality standards.

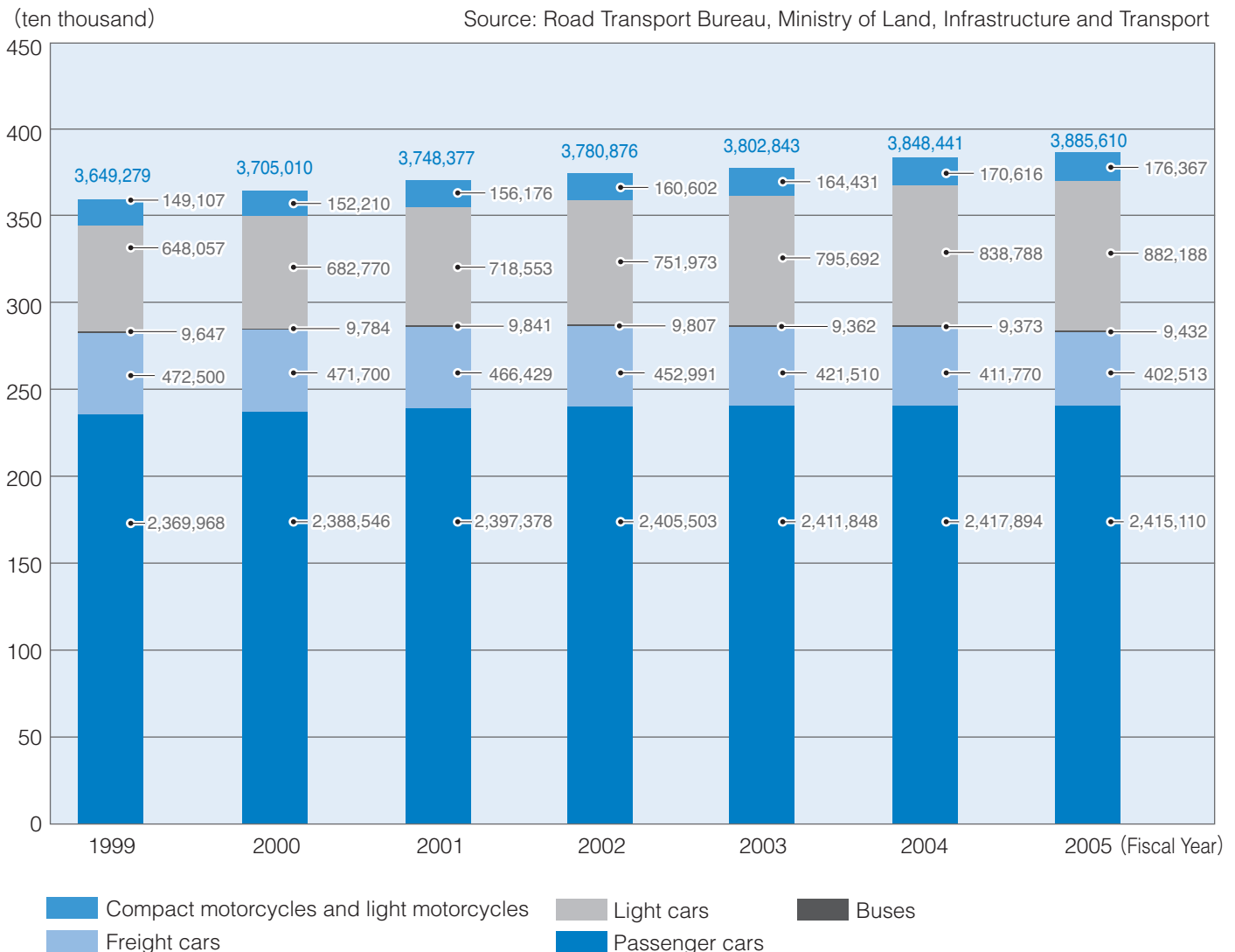
## 【Suspended Particulate Matter】 ..... 6

Suspended particulate matter is 10 μm or smaller in diameter, and includes dust released from factories and particulate emissions in automobile exhaust, especially exhaust from diesel cars. Concentration of suspended particulate matter at both general environment monitoring stations and automobile exhaust gas monitoring stations are either on a slight decrease or on the same level.

All the general environment monitoring stations(58 effective stations in fiscal 2005)have achieved the required standard, while 23 out of 24 automobile exhaust gas monitoring stations achieved the required level.

# Air Pollution

## 7 Changes in the Number of Vehicles Owned by Residents in Saitama Prefecture (Except for special-purpose compact vehicles)



### Measures to Tackle Air Pollution ··· 7

To improve the air environment, emissions of smoke and dust from fixed pollutant sources including factories and business sites are regulated by the Air Pollution Control Law and the Prefectural Ordinance for Environmental Preservation. For movable pollutant sources, emissions from diesel cars are regulated by the Law Concerning Special Measures for Total Emission Reduction of Nitrogen Oxides and Particulate Matter and the Prefectural Ordinance for Environmental Preservation. In addition, the Prefecture is promoting comprehensive preventive measures in cooperation with related organizations, including replacing conventional cars by ones that comply with the latest exhaust regulations, introduction of low-emission vehicles such as natural gas-

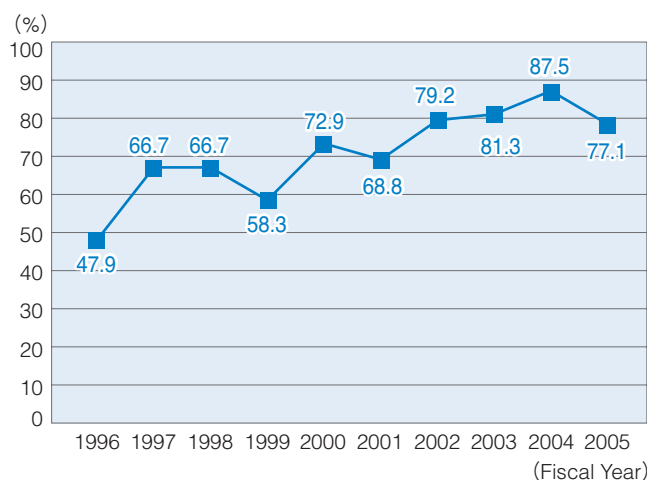
powered vehicles, automobile traffic measures, efficient operation of freight cars, and the active utilization of public transportation.

To cope with air pollution caused by photochemical smog, the Prefecture gives warning announcements while giving guidance to factories and business sites in emergencies based on the Saitama Prefecture Air Pollution Contingency Plan. Also, the Prefecture controls emissions of carbon hydrides evaporated from gasoline and coating materials based on the Prefectural Ordinance for Environmental Preservation.

At the Air Pollution Monitoring Stations located at major points in the Prefecture, air pollution data including weather conditions are gathered and widely used as the basic data to prevent air pollution.

# 3 Water Pollution

## 1 Change in Compliance with Environmental Quality Standards [Location] in BOD



**Percentage meeting environmental quality standards [location] (%)**

$$= \frac{\text{Locations that meet environmental quality standards}}{\text{Locations measured against environmental quality standards}} \times 100$$

## 2 Environmental Quality Standards for Human Health (Main Items)

Item	Cadmium	Total cyanide	Alkyl mercury	Trichloroethylene	Hexavalent chromium
Standard Value	0.01mg/l or less	Not detectable	Not detectable	0.03mg/l or less	0.05mg/l or less
Effect on Health	Damage to lungs, gastrointestinal system and kidneys, etc. (Itai-itai Disease)	Breathing difficulty, decreased pulse rate and so on	Damage to central nervous system including perception disorders, hearing disorders, and language disorders (Minamata Disease)	possible carcinogen	Damage to skin, respiratory problems, lung cancer and so on

### Monitoring of Water Quality in Public Water Areas ..... 1 2

Saitama Prefecture; the Ministry of Land, Infrastructure and Transportation; cities designated by the ordinance, etc., jointly monitored the water quality in water sources within the Prefecture at 87 points in 41 rivers and two points in two lakes. The result showed all the points monitored achieved the environmental quality standards for 26 health items. For five

items on the living environment, the rate of achievement of the environmental quality standards for biochemical oxygen demand(BOD)was running at the 40% level until fiscal 1996. In fiscal 1997, it improved substantially, to 66.7%, and reached 77.1% in fiscal 2005.

[Note] Cities designated by the ordinance, etc. are Saitama City, Kawagoe City, Kawaguchi City, Tokorozawa City, Soka City, Koshigaya City, Sayama City and Japan Water Agency.

### Glossary

#### Environmental Quality Standards

The environmental quality standards on water pollution include items for protection of human health and items regarding conservation of the living environment. The latter items are set for the designated water areas among all public water areas. As for dioxins, a environmental quality standard for water (1 pg-TEQ/l or less) and a environmental quality standard for sediment(150 pg-TEQ/g or less)have been defined.

# Water Pollution

## Monitoring of Groundwater Quality

In order to determine the level of groundwater pollution, the Prefecture; the Ministry of Land, Infrastructure and Transportation; cities designated by the ordinance; etc., jointly monitored the groundwater quality of 180 wells selected from across the Prefecture, except in mountain areas. The result was as follows. After monitoring the wells for 27 environmental quality standard items, including dioxins, lead exceeding the standard was detected in two wells, arsenic in seven wells, carbon tetrachloride in one well, trichloroethylene in three wells, nitrate-nitrogen and nitrite-nitrogen in 29 wells. In total, water pollutants were detected in 38 wells.

[Note] Cities designated by the ordinance are Saitama City, Kawagoe City, Kawaguchi City, Tokorozawa City, Soka City, Koshigaya City, Kasukabe City, Sayama City and Ageo City.

## Abnormalities in Water Quality and Countermeasures

In fiscal 2005, abnormalities in water quality in public water areas, including rivers, totaled 249 cases, an increase of 21 cases compared with fiscal 2004. Such abnormalities include fish on the surface, dead fish, and oil leakages.

When a water abnormality occurs, the Prefecture conducts investigation in cooperation with the Environmental Management Offices, the Center for Environmental Science in Saitama, and other related organizations in the Prefecture, the government (the Ministry of Land, Infrastructure and Transportation), and municipalities, and makes efforts to prevent the damage from spreading and to find out the cause of the damage.

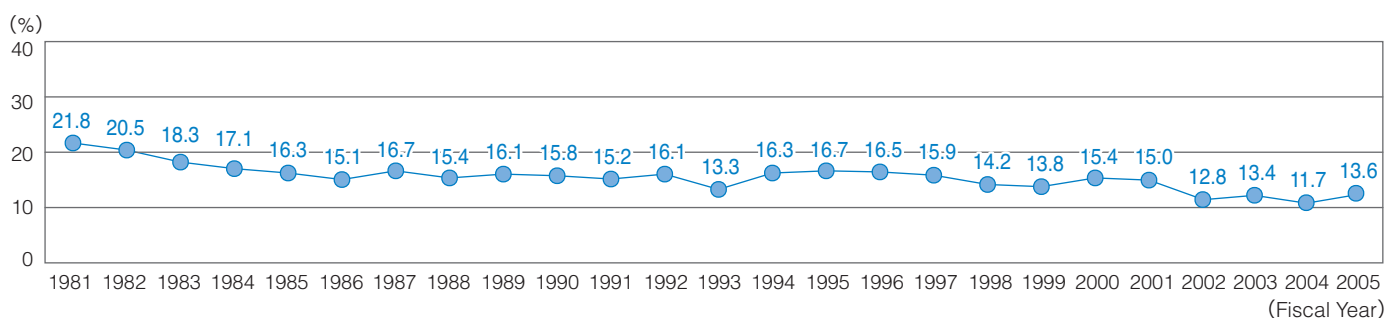
### 3 Number of Specified Business Sites and Factories Discharging Designated Wastewater (as of the end of fiscal 2005)

	Number of notification			Number of sites subject to regulation		
	Number of specified business sites	Number of factories designated discharging wastewater	Total	Number of specified business sites	Number of factories designated discharging wastewater	Total
Prefecture	6,763	146	6,909	2,398	146	2,544
Cities designated by the ordinance, etc.	3,020	66	3,086	1,139	66	1,205
Total	9,783	212	9,995	3,537	212	3,749

\*Among 3,749 sites subject to regulation, 896 handle hazardous substances.

\*A specified business site means a factory or a business establishment where one or more of 102 specified facilities prescribed by the laws are installed. A factory discharging designated wastewater means a factory or a business establishment where one or more of six designated wastewater discharging facilities prescribed by the Prefectural Ordinance for Environmental Preservation are installed.

### 4 Change in the Ratio Exceeding the Effluent Standards (including ordinance-designated cities)



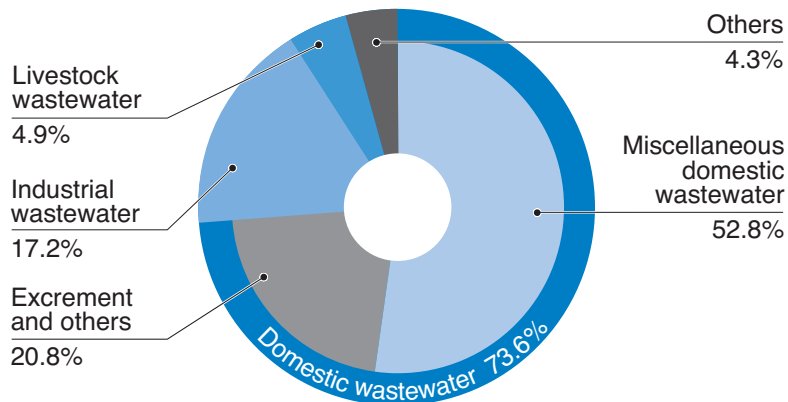
# Water Pollution

## Wastewater Control for Factories and Business Sites ..... 3 4

In order to prevent water pollution, the amount of wastewater containing pollutants discharged into rivers and lakes must be minimized. There are two kinds of pollutants: industrial pollutants contained in the wastewater discharged from factories and business sites, and domestic pollutants contained in domestic wastewater. Appropriate countermeasures are being taken for each category.

As for industrial pollutants, the Prefecture and the cities designated by the ordinance, etc. conduct on-site inspections for factories and business sites subject to regulation to check the wastewater and the maintenance of their wastewater treatment facilities, based on the Water Pollution Control Law and the Prefectural Ordinance for Environmental Preservation. At those factories and business sites where discharged pollutants exceed the standards, the Prefecture takes administrative measures such as issuing a directive for improvement to ensure complete compliance with the wastewater standards.

## 5 BOD Load Ratio by Source in Fiscal 2004 (Across Saitama Prefecture)



## Control of Domestic Wastewater ... 5

With urbanization and improvements in living standards, untreated miscellaneous domestic wastewater (gray water) from cooking, washing and bathing are becoming a major cause of water pollution. In Saitama Prefecture, where the major cause of river pollution is domestic water (73.6% of the total BOD load), countermeasures need to focus on domestic water. The Prefecture has gradually increased the number of designated river basin areas where intensive measures concerning domestic water need to be implemented. The municipalities to which those river basin areas belong have cooperated to set their own promotion plans for

countermeasures to deal with domestic wastewater together with local residents. In order to accelerate effective improvements in sewerage systems, rural sewerage systems (domestic wastewater collection and treatment facilities in agricultural communities) and Gappei-shori Johkasou (on-site treatment facilities for domestic wastewater; gappei = combined, shori = treatment) for wastewater treatment, the Prefecture established in May 1998 the Saitama Prefecture Comprehensive Basic Plan on Domestic Wastewater Treatment that is applicable across the Prefecture. In fiscal 2003, the Prefecture reviewed this plan and established the Saitama Prefecture Development Plan on Domestic Wastewater Treatment Facilities.

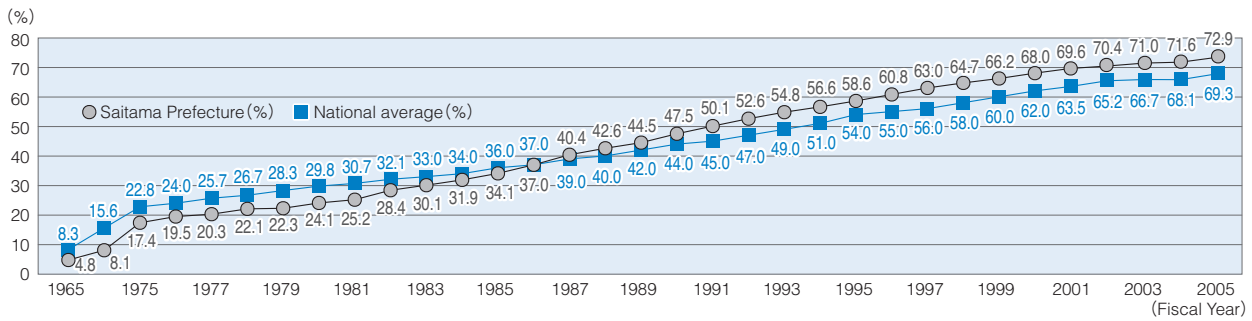
### Glossary

#### Gappei-shori Johkasou

Gappei-shori Johkasou are on-site treatment facilities for domestic wastewater that can treat together flush toilet wastewater and miscellaneous domestic wastewater from cooking, washing, and bathing. Compared with Tandoku-shori Johkasou, which treat only flush toilet wastewater (tandoku = sole, shori = treatment), Gappei-shori Johkasou can reduce impact on the water quality of rivers to about one-ninth. With the enforcement of amendments to the Johkasou Law in April 2001, as a rule, installation of Gappei-shori Johkasou was made compulsory, and new installation of Tandoku-shori Johkasou was prohibited.

# Water Pollution

## 6 Changes in Percentage Sewered Population in Saitama and Japan



Although sewerage systems are generally very effective since all the domestic wastewater is gathered at a final treatment plant, in some areas the individual treatment is more efficient. To help to spread the use of Gappei-shori Johkasou, which enables the self-treatment of domestic wastewater, the Prefecture gives subsidies to municipalities in these areas to subsidize the installation cost for these facilities and the removal costs for the existing Tandoku-shori Johkasou that should be removed.

In addition, the Prefecture is educating the public on measures concerning domestic wastewater by establishing a council consisting of administrative bodies and citizens as well as distributing brochure.

## Spread of Sewerage System ..... 6

To clean the water in rivers in the Prefecture, establishing sewerage systems is an urgent task. Looking at the percentage of sewered population obtained by dividing the population treated with sewerage systems by the population of the Prefecture, Saitama Prefecture's percentage stood at 72.9% at the end of fiscal 2005, exceeding the national average.

The Sewerage Law requires the prefectural governments to draw up a comprehensive basin-wide planning of sewerage systems for each public water area, where environmental quality standards for water are designated.

In compliance with the Law, Saitama Prefecture has drawn up the planning for the Arakawa River, the Nakagawa River, and the Tone River. Based on the planning, the Prefecture and municipalities are together making efforts to increase the percentage of sewered population.

## 4 Ground Subsidence

### Current Status

Although the level of ground subsidence is not worsening substantially in the long term, it is still progressing faster than in most other prefectures in Japan.

In fiscal 2005, no area showed a subsidence beyond the preset criteria by 2 cm per year in the Prefecture, and the area beyond the criteria decreased by 8.3 km<sup>2</sup> compared with a level in fiscal 2004. The worst record, 1.8 cm, was observed in Kouemon, Kurihashi Town, and the record was reduced by 2.9 cm compared with the worst record in fiscal 2004.

### Countermeasures

Because ground subsidence is mainly caused by excessive pumping of groundwater, reduction in pumping will be necessary to prevent ground subsidence.

The Prefecture therefore regulates the pumping of groundwater in compliance with the Industrial Water Law, the Law Concerning the Regulation of the Pumping-up of Groundwater for Use in Buildings, and the Prefectural Ordinance for Environmental Preservation. In addition, the Prefecture is striving to reduce the pumping of groundwater by discontinuing the use of groundwater for industrial water and water for water supply, using surface water, and so on.

# 5 Soil Contamination

## 1 Items in the Environmental Quality Standards for Soil Pollution

Substances subject to the Basic Environment Law: 27 Items		
Cadmium	Total cyanide	Organic phosphorus
Lead	Hexavalent chromium	Arsenic
Total mercury	Alkyl mercury	PCB
Copper	Dichloromethane	Carbon tetrachloride
1,2-dichloroethane	1,1-dichloroethylene	Cis-1,2-dichloroethylene
1,1,1-trichloroethane	1,1,2-trichloroethane	Trichloroethylene
Tetrachloroethylene	1,3-dichloropropene	Thiuram
Simazine	Thiobencarb	Benzene
Selenium	Fluorine	Boron
Law Concerning Special Measures against Dioxins		
Dioxins		

### Current Status and Countermeasures . . . 1

Soil can become contaminated by the accumulation of hazardous substances generated by human activities. Groundwater pollution is caused by hazardous substances permeating the ground, and this may affect human health. Hence, environmental quality standards have been defined to display that contamination of soil and groundwater ideally should not exceed the levels stipulated in the standards.

In February 2003, the Soil Contamination Countermeasures Law stipulating measures to determine soil contamination levels and prevent effects on human health caused by contamination was enforced, and landowners are obliged to take soil contamination countermeasures, including soil contamination investigations. If hazardous substances exceeding certain standards (designated standards) are detected from the soil as a result of a soil contamination investigation, the Prefecture will designate that land as a designated area and take necessary measures, such as

requiring the landowners to control the land and remove the contamination.

Furthermore, separately from the Soil Contamination Countermeasures Law, Saitama Prefecture imposes a soil investigation based on the Prefectural Ordinance for Environment Preservation on business operators handling hazardous substances and those who carry out land reforms above a certain level, aiming at the early detection of soil contamination.

The Prefecture also investigates the sources of contamination and gives guidance on water decontamination measures to businesses that caused contamination in areas where widespread groundwater pollution has been found at the time of general investigation into businesses handling trichloroethylene.

As for farmland, standards were set for cadmium, copper, and arsenic under the Law for the Prevention of Farmland Soil Pollution.

## 6 Offensive Odors

### 1 Malodorous Substances Subject to the Offensive Odor Control Law



### Current Status and Countermeasures ··· 1

An offensive odor is a sensory nuisance that causes nausea, anorexia, headache and annoyance, etc. The number of complaints on odors always ranks high among the seven typical public nuisances defined in the Basic Environment Law: air pollution, water pollution, soil contamination, noise, vibration, ground subsidence, and offensive odors.

The Prefecture regulates offensive odors and gives guidance on their prevention based on the Offensive Odor Control Law

and the Prefectural Ordinance for Environmental Preservation. The Prefecture designates regulated areas and sets regulating standards, while other work is done by the municipalities.

The control of offensive odors in accordance with the Offensive Odor Control Law is performed based on their concentrations for ammonia and 21 other substances, which are generally considered “smelly,” or the odor index which was introduced in October 2006 and indicates the overall strength of smells recognized by the human being.

## 7 Noise and Vibration Pollution

### Current Status of Noise and Vibration Pollution

Noise is a sensory nuisance closely linked to our daily lives. Along with the changes in the structure of industry and lifestyles, noise and vibration pollution are being produced from a variety of sources. Every year, the number of reports of noise and vibration pollution ranks high among the seven typical public nuisances.

In fiscal 2004, 1,222 cases of noise pollution were reported to the Prefecture and municipalities, which is a decrease of 14 cases compared with those in fiscal 2003. Of these, noise from factories and business sites accounted for the largest at 34.5%, totaling 421 cases, followed by noise caused by construction work, accounting for 23.7% or 290 cases.

Environmental Quality Standards for Noise, Environmental Quality Standards for Aircraft Noise, and Environmental Quality Standards for Shinkansen Superexpress Railway Noise have been defined based on the Basic Environment Law. The above three standards provide targeted countermeasures against noise and vibration pollution.

Vibration is, like noise or odor, one of the sensory nuisances. Although in some cases physical damage is caused, most of it affect us psychologically or physiologically. The area of impact is small, within a distance of 10 to 20 meters from the source.

In fiscal 2004, 164 cases of vibration pollution were reported to the Prefecture and municipalities, which is an increase of seven cases compared with those in fiscal 2003. Cases regarding construction work accounted for the largest at 52.4% or 86 cases.

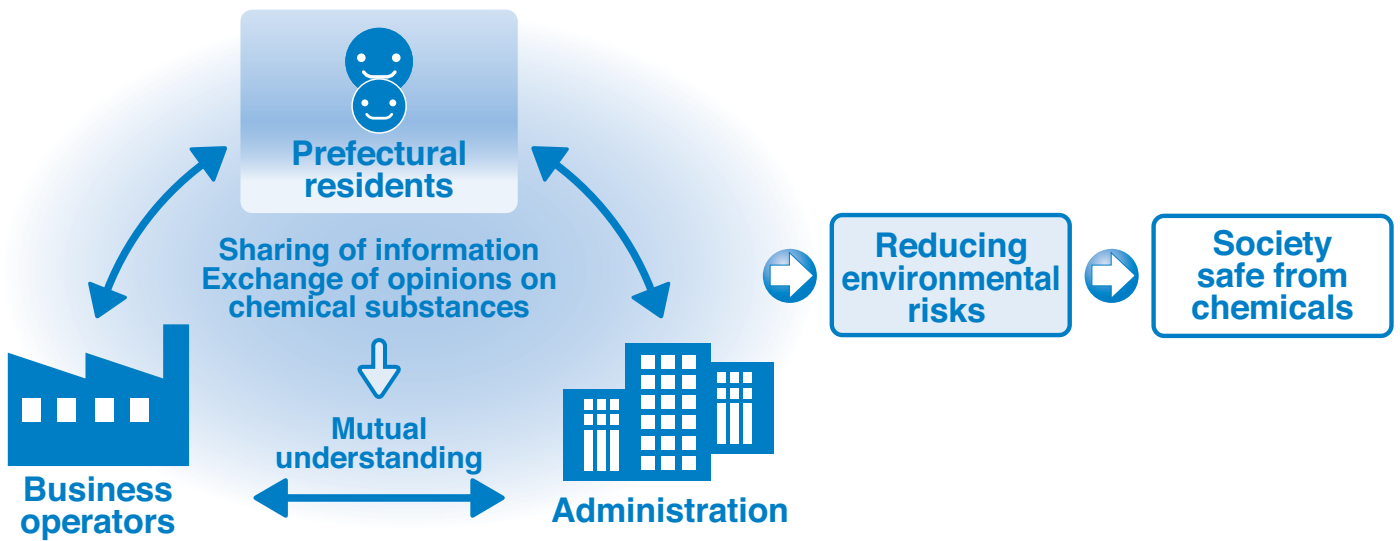
### Measures against Noise and Vibration Pollution

To prevent noise and vibration pollution, the Prefecture and municipalities regulate and give guidance based on the Noise Regulation Law, Vibration Regulation Law, and the Prefectural Ordinance for Environmental Preservation. The Prefecture designates regulated areas and sets regulation standards, while other managements are done by the municipalities.



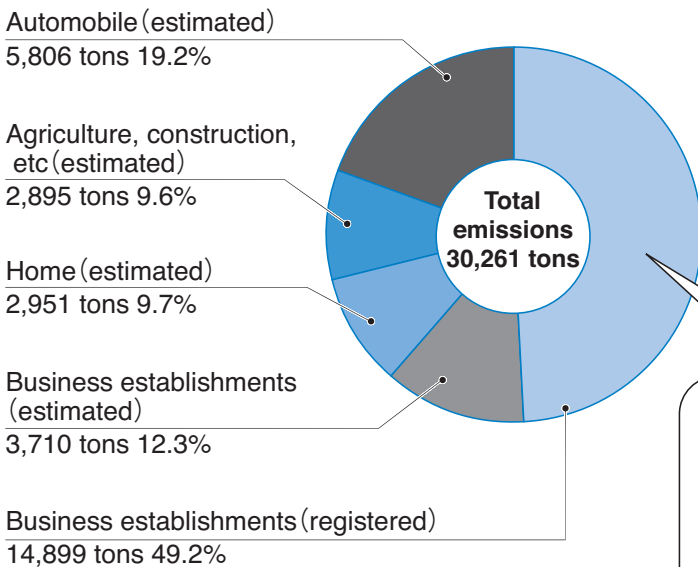
# 8 Chemicals

## 1 Risk Communication

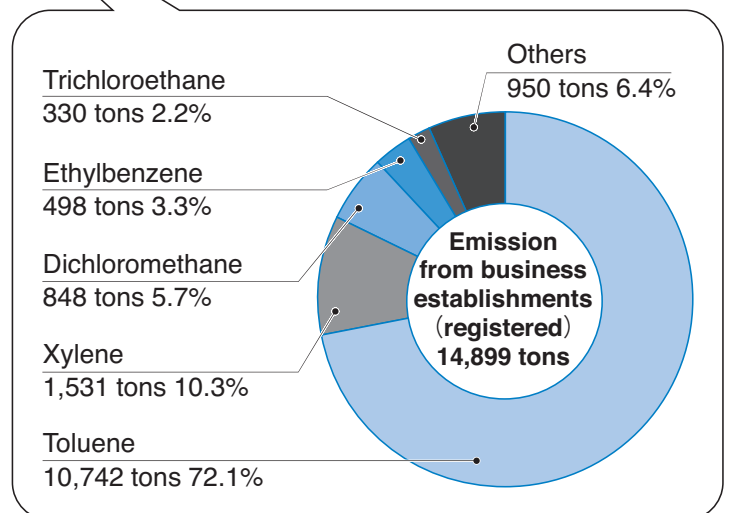


## 2 Amount of Chemical Substances Released in Saitama Prefecture (Fiscal 2004)

### Ratios of total emission



### Five top substances released at business establishments (registered)



# Chemicals

## PRTR System and Risk Communication ..... 1 2

The Law Concerning Reporting, etc. of Release of Specific Chemical Substances to the Environment and Promotion of the Improvement of Their Management (PRTR Law) and the Prefectural Ordinance for Environmental Preservation aim to promote business operators' independent and appropriate control of chemicals and reduce the load on environment by collecting and disclosing information on the handled and emitted amounts of chemical substances that may have a hazardous impact on human health and the ecosystem. For future measures to control chemicals, it will be very important to establish and popularize the concept of risk communication in society by utilizing a system in which, based on information obtained through the Pollutant Release and Transfer Register (PRTR), prefectural residents, business operators, and the administration share accurate information on chemicals,

deepen their mutual understanding through exchanges of opinions, and reduce environmental risks due to chemicals. Under these circumstances, to increase its efforts to reduce environmental risks, Saitama Prefecture held the Saitama Roundtable Meeting on Chemicals, presentation meeting to reduce environmental risks, a workshop for environment at industrial parks and a workshop to foster risk communication supporters. In addition, resident-driven risk communication was implemented at the Kiyoku Plant of Kantoh Leather Co., Ltd., the Tokorozawa Plant of Pioneer Corporation and the Iwatsuki Plant of Fujikura Rubber Ltd., in fiscal 2005. (Risk communication led by citizens' groups and other organizations.)

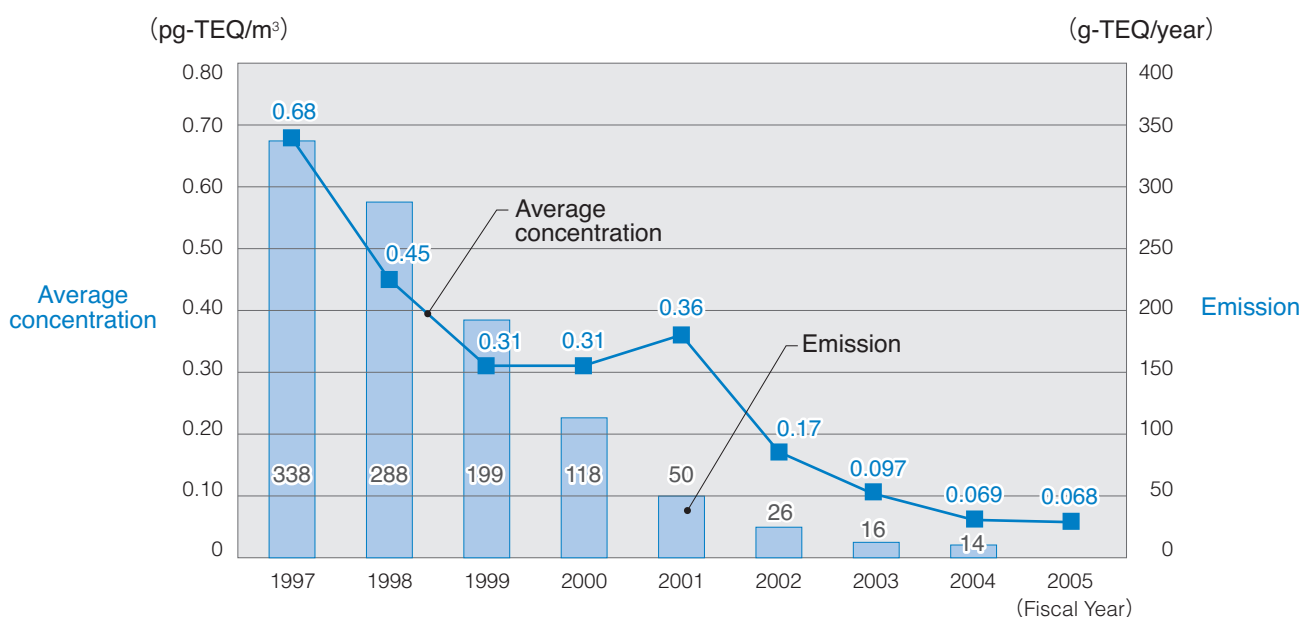
To determine the actual status of environmental risks around industrial parks, the Prefecture conducted an environmental monitoring survey of chemicals at two locations in the Prefecture.

### Glossary

#### PRTR System

PRTR stands for Pollutant Release and Transfer Register. Business operators are responsible to report the amount of chemical substances that could be hazardous to human health, plant, and animal life, released into the air, water, and soil, as well as those transferred to outside their business establishments with waste materials, to the national government through the prefectural government. The national government and prefectural governments are required to tabulate and announce the amounts emitted and transferred, based on reported data and estimates.

## 3 Changes in the Concentration and Emission of Dioxins



## 4 Results of Survey on Concentrations of Asbestos in the Air (Fiscal 2005)

No.	Land-use type	Cities & towns	Location of measurement	Results (fibers/liter)	No.	Land-use type	Cities & towns	Location of measurement	Results (fibers/liter)
1	Residential area	Kumagaya City	Kuge Branch, Kumagaya City Hall	0.24	11	Roadside	Soka City	Soka Hanaguri Automobile Exhaust Gas Monitoring Station	0.41
2	Residential area	Chichibu City	Chichibu City Culture & Sports Center	0.11	12	Roadside	Toda City	Toda Bijogi Automobile Exhaust Gas Monitoring Station	0.37
3	Residential area	Hanno City	Hanno City Hall	0.33	13	Roadside	Iruma City	National Iruma Automobile Exhaust Gas Monitoring Station	0.25
4	Residential area	Honjo City (formerly Kodama Town)	Kodama Branch, Honjo City Hall	0.31	14	Other	Ageo City	Ageo City Hokubu Water Treatment Plant	0.25
5	Residential area	Kasukabe City	Kasukabe City Hall	0.27	15	Other	Kuki City	Kuki Shobu Park	0.21
6	Residential area	Hanyu City	Hanyu City Hall	0.19	16	Other	Yashio City	Yashio Nishibukuro Drainage Pump Station	0.29
7	Residential area	Fukaya City	Fukaya City Hatara Community Center	0.20	17	Other	Miyoshi Town	Miyoshi Town Cleaning Center	0.23
8	Residential area	Tsurugashima City	Tsurugashima City Kita Community Center	0.28	18	Other	Namegawa Town	Namegawa Town Culture & Sports Center	0.20
9	Residential area	Ogawa Town	Ogawa Town General Welfare Center	0.16	19	Other	Yoshimi Town	Yoshimi Town Ecchu Park	0.14
10	Residential area	Washimiya Town	Washimiya Town Higashi Community Center	0.66	20	Other	Kisai Town	Center for Environmental Science in Saitama	0.22

\*1 Samples were taken per day at two places of one location over three days. (2 places per location x 3 days = 6 samples)

\*2 The average amount in one location is the geometric mean of the six samples.

\*3 The survey in Washimiya Town was conducted by the Ministry of the Environment.

### Countermeasures against Dioxins ··· 3

Since the Prefecture established the Action Plan to Promote Reduction of Dioxins in September 2000, prefectural residents, business operators and the administration jointly promoted countermeasures against dioxins. As the result, the Prefecture has achieved and will continue to achieve the following two goals set by the plan:

#### [Total Emission of Dioxins in the Prefecture]

Total emission of dioxins in the Prefecture were reduced by approximately 92% in fiscal 2002, compared with those in fiscal 1997, and further, by 95% in fiscal 2003, and by 96% in fiscal 2004.

#### [Concentration of Dioxins in the Air]

In fiscal 2003, the Prefecture achieved the goal of reducing atmospheric dioxins to half the environmental quality standard at all air pollution monitoring points and has continued to achieve this since 2004. The average concentration in all 26 points was 0.068 pg-TEQ/m<sup>3</sup> in fiscal 2005.

The Prefecture continues to strive to reduce emissions and further promote detoxification measures for dioxins that already exist in the environment.

### Countermeasures against Asbestos ··· 4

Asbestos, which, in the past, had been widely used mainly in buildings, must be prevented from scattering at the time of undertaking demolitions.

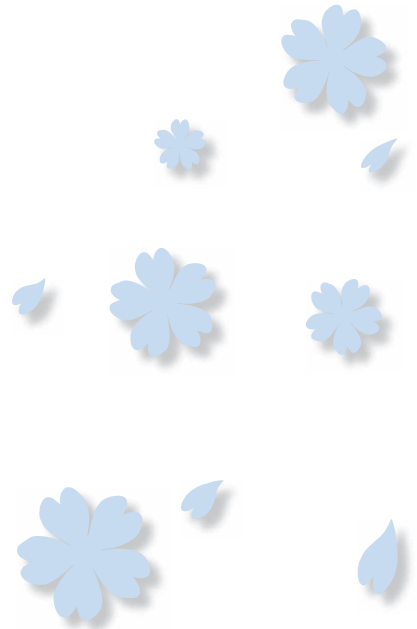
Measures must also be taken for the asbestos waste generated when buildings are demolished.

Saitama Prefecture has opened counseling counters at the environmental management offices to cope with questions and inquiries from residents about asbestos, and put on its Web pages and other media information concerning asbestos.

The Prefecture has also conducted on-site inspections at demolition sites of buildings for airborne asbestos, and given guidance to these sites on preventing asbestos from scattering.

The Prefecture has given demolition companies guidance about appropriate disposal of asbestos waste through workshops, conducted on-site inspections at intermediate treatment facilities for industrial wastes, and guided them to refrain from crushing asbestos-containing material waste.

The Prefecture also conducted survey on concentrations of asbestos in the air at 20 locations throughout the Prefecture.



## **The Environment in Saitama for Fiscal 2006**

Basic Facts & Figures

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