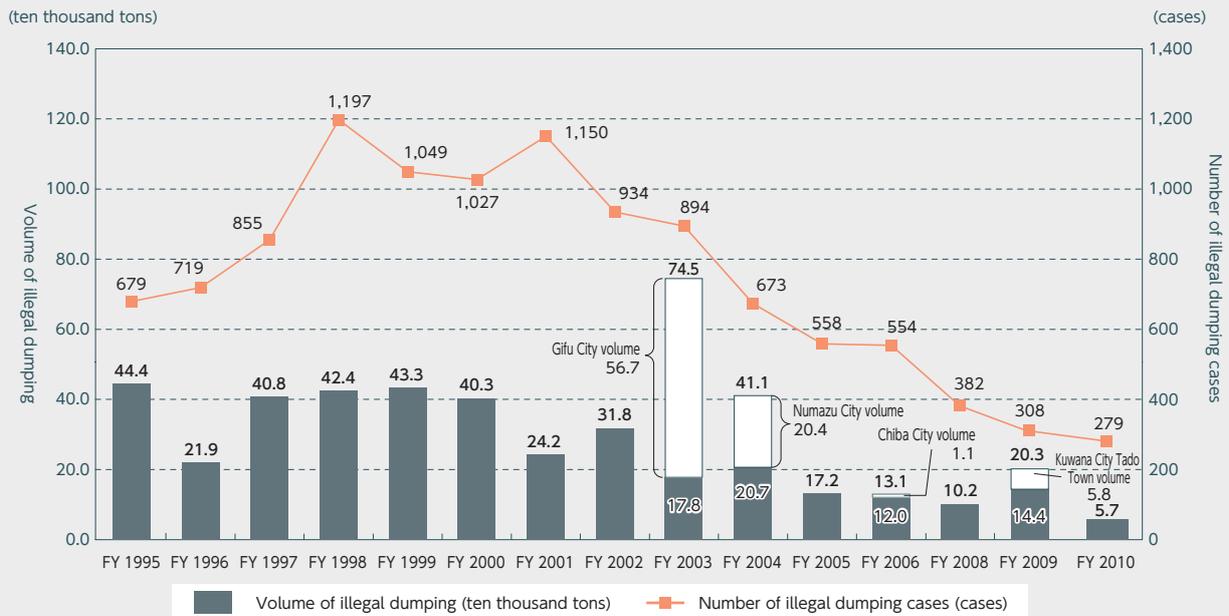


Figure 3-12 Changes in the Number of Illegal Dumping Cases of Industrial Waste and Volume Dumped



Note 1: Regarding the number of cases and volume of illegal dumping shown above, from among illegal dumping of industrial waste identified by prefectures and ordinance-designated cities, cases where the volume of dumping per case was 10 tons or more were totaled (however, cases including specially controlled industrial waste were all counted individually).

2: The cases of Gifu City and Numazu City were revealed in 2003 and 2004 respectively and it was found that the illegal dumping had already been carried out for several years by then. As a result, these cases were reported as a large-scale case in the above fiscal years. The case of Chiba City case (colored white) was revealed in FY 1998 but reported to the Ministry of the Environment in FY 2006.

The case of Kuwana City Tado Town (colored white) was revealed in FY 2006 but reported to the Ministry of the Environment in FY 2008.

3: Sulfate pitch cases and ferrosilt cases were excluded from this survey and would be arranged for separate survey reporting.

Ferrosilt was used as refill materials, and its sales and use started in August 2001. Approx. 720,000 tons were sold and used, but later this was identified as illegal dumping cases. The illegal dumping was confirmed at 45 sites in four prefectures, and removal of ferrosilt has been completed at 42 sites (as of February 15, 2010).

* Figures were rounded off; therefore the total may not equal to the breakdowns.

Source: Ministry of the Environment

4. Assessing and Managing the Environmental Risk of Chemical Substances

(1) Current State of Chemical Substances Remaining in the Environment

In today's society, a wide variety of chemical substances are used in various industrial activities and daily living, providing convenience to our lives. In addition, there are some chemical substances generated unintentionally as a result of incineration and other activities. There are some chemical substances that would pollute the environment, causing harmful effects to the human health and ecosystems, if they are not properly managed in the various stages of manufacturing, distribution, use, or disposal. The Ministry of the Environment has been conducting environmental survey and monitoring of the state of chemical substances remaining in the general environment and releasing the findings in "Chemicals in the Environment" (<http://www.env.go.jp/chemi/kurohon/>). The government has been examining the selection of target chemical substances and improving the survey methods in accordance with the environmental measures so that the results of the survey would be utilized effectively in measures to tackle chemicals in the environment since FY 2002. The government conducted the surveys with a new adopted framework that consisted of several surveys with

different purposes: the Initial Environmental Survey, the Detailed Environmental Survey for Exposure Study, and Environmental Monitoring from FY 2010. These survey results have been utilized in various substances-related policy measures, including the addition of substances for regulation to the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (Act No. 117 of October 16, 1973, hereinafter referred to as "the Chemical Substances Control Law"), review of the designation of certain chemical substances, under the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (Law No. 86 of 1999, hereinafter referred to as "PRTR Law"), and the basic data for the implementation of environmental risk assessment.

(2) Promoting the Environmental Risk Assessment of Chemical Substances

In response to the need in regard to environmental policies and based on the results of the above-mentioned environmental survey and monitoring of chemicals, the government is assessing the harmful effects on human

health and ecosystems from exposure to chemical substances in the environment (environmental risk). One of those efforts is the ninth report of the Preliminary Assessment of the Environmental Risk compiled in FY 2010. In the report, a preliminary initial assessment was conducted for 14 substances for their health risks and ecological risks. Furthermore, a preliminary assessment was conducted for an additional seven substances regarding their ecological risks. Based on the results, one substance was determined as the “candidates for detailed assessment” from its preliminary assessment for environmental risks, and two substances was determined to have possibility to have relatively high risk to from their preliminary

assessment of ecological risks.

To further enhance knowledge regarding effects on the ecosystems, the government has tested 18 substances in FY 2010 for their ecological effects on algae, daphnids and fish in accordance with the OECD testing guidelines. Following the amendment of the Chemical Substances Control Law in May 2009, the government reviewed the methods and other issues pertaining to environmental risk assessment based on the Chemical Substances Control Law.

Furthermore, since it is urgent need to acquire knowledge on the dynamics, toxicity, and environmental risk of the nanomaterials, the government collected information on experiences with nanomaterial and the technologies for the environmentally appropriate management of the nanomaterials both from Japan and overseas.

Figure 4-1 Outline of Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

Objective of Environmental pollution prevention concerning chemical substances with high risk
 Risk assessment and risk management with chemical substances

- | | |
|---|---|
| <p>1. Risk assessment</p> <ul style="list-style-type: none"> A person who intends to manufacture or import new chemical substances shall notify the government about their hazardous data points as listed below, and the government shall inspect them. <ol style="list-style-type: none"> biodegradation biomagnification toxicity for human health and living organisms The manufacturers and importers are obliged to submit reports to the government for review. The chemical substances that are persistent, biomagnificative, and have long-term toxicity are specified as Class-I Specified Chemical Substances. The chemical substances that are persistent and biomagnificative, but whose toxicity properties are unknown are specified as Monitoring Chemical Substances. The screening assessment is done with General Chemical Substances, etc (existing chemical substances and examined new chemical substances that don't correspond to the above-mentioned categories) based on manufactured or imported amount, and toxicity information. The chemical substances for which risk is assumed to exist are specified for Priority Assessment of Chemical Substances. | <p>2. Risk management</p> <ul style="list-style-type: none"> As a result of risk assessment, the specified Chemical Substances are managed by the regulation of manufacturing, import, and use according to properties of the material. |
|---|---|

Category	Measures	Category	Regulatory measures
Monitoring Chemical Substances (37 substances)	<ul style="list-style-type: none"> Mandatory reporting on actual manufactured or imported amounts When an investigation concerning harmfulness is directed, and long-term toxicity is admitted, it specifies the substance as a Class-I Specified Chemical Substance. 	The class - I Specified Chemical Substances. (28 substances including PCB)	<ul style="list-style-type: none"> Prohibition in principle of manufacturing, import, and use The handling technical guideline providing details in which use is allowed limitedly is observed.
Priority Assessment Chemical Substances (88 substances)	<ul style="list-style-type: none"> Mandatory reporting on actual manufactured or imported amounts When the risk assessment is done and the risk is acknowledged, it specifies the substance as a class-II Specified Chemical Substance. 	The class - II Specified Chemical Substances (23 substances including trichloroethylene)	<ul style="list-style-type: none"> Mandatory reporting of planned and actual manufactured or imported amounts (If necessary.) Limitation of manufacturing or import amounts Compliance with technical guidelines of handling

Annotation: The class of each material is that applied as of the end of March in 2011.
 Source: Ministry of Health, Labour and Welfare, Ministry of Economy, Trade and Industry, Ministry of the Environment.

(3) Management of the Environmental Risk of Chemical Substances

(a) Efforts based on the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

Based on the Chemical Substances Control Law, in FY 2010, the government received 660 applications for the manufacture/import of new chemical substances (339 of which were for low quantities) and conducted preliminary

Figure 4-2 Ratio of Release inside and outside Notification in FY 2009

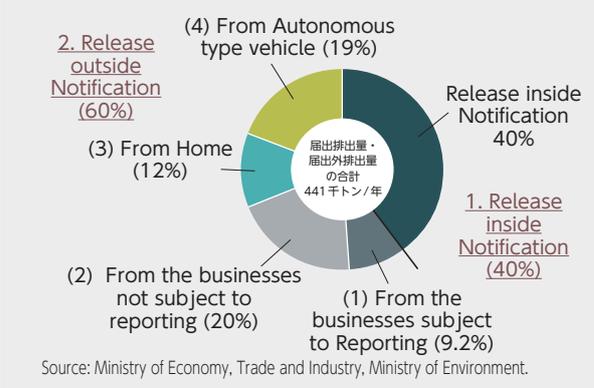
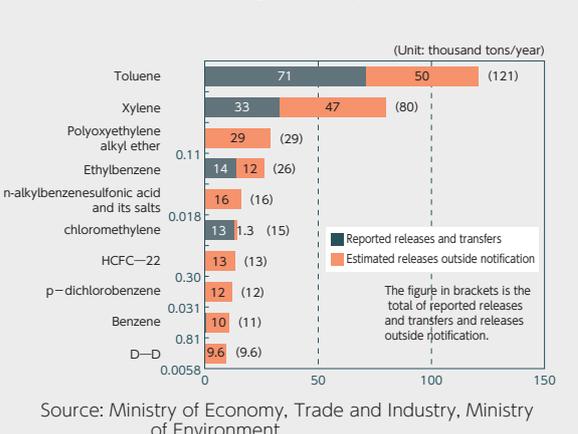


Figure 4-3 Top 10 Chemicals of those Reported Released and Transfers and Estimated Releases Outside Notification (FY 2009)



reviews accordingly.

(b) Law Concerning Reporting of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management

As for the Pollutant Release and Transfer Registers (PRTR) system based on the Law Concerning Reporting of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management, the ninth report since the enactment of the Law, regarding the volumes of pollutant released to the environment by businesses in FY 2009, was submitted to the national government via the local government prefectures. The Ministry of the Environment released estimated release volumes in February 2011 based on the reported data of individual businesses, their aggregate

result, and the government's estimation of the quantities of chemical substances of parties who are not designated as being subject to PRTR reporting (businesses exempt from reporting, domestic sector, automobile, etc.)

(c) Efforts for Dioxin Issues

The result of the environmental survey for dioxins in FY 2009 is as shown in the table. Based on a survey conducted in FY 2010 on the daily intake of dioxins, the government estimated that the average daily intake of dioxins from everyday meals and from the environment in FY 2009 was approximately 0.85 pg-TEQ per kilogram of body weight. The dioxin intake from food accounted for 0.84 pg-TEQ. This value does not deviate from the downward trend over time, and is lower than the daily tolerable intake of 4 pg-TEQ/kg/day.

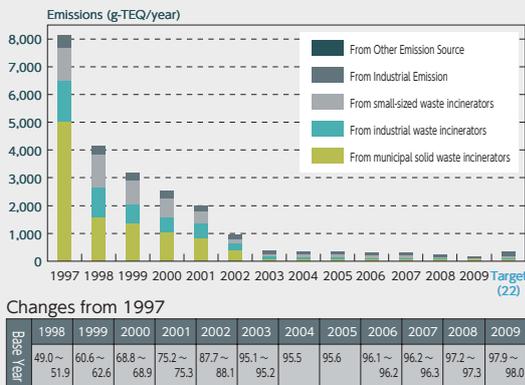
Figure 4-4 The environmental survey result of dioxins in FY 2009 (monitoring data)(outline)

environmental type	points	Environmental standards excess	Average*	Density range*
Atmosphere**	712points	0points (0%)	0.032pg-TEQ/m ³	0.0049 ~ 0.37pg-TEQ/m ³
Water	1,617points	19points (1.1%)	0.19pg-TEQ/L	0.011 ~ 3.1pg-TEQ/L
sediment	1,316points	6points (0.4%)	7.1pg-TEQ/g	0.059 ~ 390pg-TEQ/g
Groundwater***	608points	0points (0%)	0.055pg-TEQ/L	0.011 ~ 0.88pg-TEQ/L
Soil****	976points	0points (0%)	2.5pg-TEQ/g	0 ~ 85pg-TEQ/g

- * : The mean value is a yearly average of the various points, and the density range is minimum value and maximum value for the year.
- ** : Concerning the figure for the atmosphere, it is a result of the point assumed to evaluate the mean value during year by environmental standards among all investigation spots (755 points), and the result of the original investigation of the fixed point observation result and the Air Pollution Control Law government- ordinance-designated city of the Ministry of the Environment is included.
- *** : Concerning underground water, it is a result that investigates a general situation of the environment (general condition investigation), and the result of the investigation etc. regularly executed as a monitor of the continuing investigation of pollution is not included.
- **** : Concerning the soil, it is a result that investigates a general situation of the environment (investigation of the general environmental situation and investigation of situation around the source), and the results of the survey to determine the range of polluted area is not included. Moreover, the data of eight points measured by the simplified assay is not included in the calculations for the mean value and the density range.

Source: Ministry of Environment, "Environmental investigation results of dioxin in FY 2009"

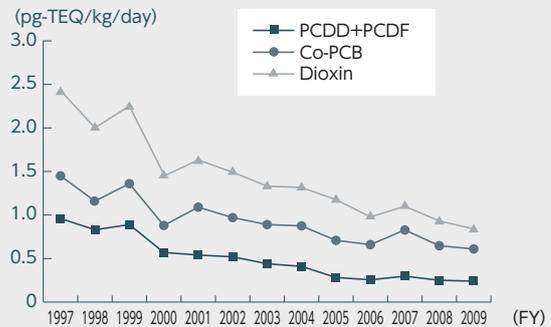
Figure 4-5 Changes in Total Dioxins Emissions



Note) Emissions from FY 1997 to FY 2007 were calculated using WHO-TEF (1998) as the toxicity equivalent factor. Emissions in 2008 and 2009 were calculated using WHO-TEF (2006) as far as applicable.

Source: Ministry of the Environment, "Dioxin Emission Inventory"

Figure 4-6 Secular change of daily intake of dioxin from food



Source: Ministry of Health, Labour and Welfare, "investigation of daily intake of dioxin from food"