# FUNDAMENTAL GUIDELINES OF JAPANESE GOVERNMENT FOR THE PROMOTION OF MEASURES TO REDUCE DIOXINS IN THE ENVIRONMENT

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## Introduction

The national surveillance performed by Japan Environment Agency in 1996 revealed that PCDDs/PCDFs concentrations in the atmosphere is fairly high: i. e., 1.00 pg I-TEQ/$m^3$ in average residential area in the vicinity of industrialized areas, 1.02 pg I-TEQ/ $m^3$ in average large cities, 0.82 pg I-TEQ/ $m^3$ in middle/small cities, and 0.07 pg I-TEQ/ $m^3$ in rural background areas. Other surveillance data indicated that the major route of human exposure is food intake, i.e., 1.25 pg I-TEQ/kg bw/day in average. Detailed examination of food performed by Ministry of Health and Welfare (1997) revealed daily intake of 0.96 pg I-TEQ/kg/day for PCDD/PCDF and 1.45 pg I-TEQ /kg/day for three co-planer PCBs. Consumption of fish is accounted for the major source of dioxin and related compounds. Breast milk study (MHW, 1999) showed PCDD/PCDF/PCB concentration of 22 pg/g fat.

Recognizing that more decisive measures against dioxins should be promoted to protect human health and to conserve the environment, the Ministerial (Council Chairman: Priminister K. Obuchi), on behalf of the Government of Japan, established the Fundamental Guidelines for the Promotion of Measures Against Dioxins on 30 March 1999. We here present and introduce the outline of the guidelines and specific counter-plans.

## Principles of the «Fundamental Guidelines for the Promotion of Measures Against Dioxins»

(1) Dioxin issues are the one with that the Cabinet as a whole ought to strengthen their efforts to cope in order to protect the health of the people and to conserve the environment.
(2) Based upon the guidelines, the Japanese government is aiming to reduce the total annual release of dioxins in the environment, within the next 4 years, by 90% of the amount that was emitted in FY 1997.
(3) Regarding the reported contamination of some vegetables and green tee leaves harvested around Tokorozawa City, a suburbs of Tokyo, it was confirmed by the Governmental investigation that there is no need of concern about their safety. However, it is recognized from the viewpoint of protecting human health and environment, the Government consider that it is imperative for responsible Ministries and Agencies to work together, and strengthen countermeasures to dioxins, to publicize correct information on dioxins and to wipe out the concern of the people.

(4) Under this recognition, the Government will promote the measures against dioxins, as described below, in harmony with municipal authorities, private sectors and the people.

**Urgent Counter-plans to Dioxins**

Under the principles of the Fundamental Guidelines, there are eight action-plans against dioxins.

**1. Re-evaluation of tolerable daily intake (TDI) and setting of environmental quality standards.**

(1) Re-evaluation of TDI

At present (as of May, 1999) there are two kinds of health-oriented values for dioxin control. One is the TDI (10pg I-TEQ/kg bw/day) adopted by Ministry of Health and Welfare and the other value of Health Risk Assessment Guideline value (5 pg I-TEQ/kg bw/day) proposed by Environment Agency. Re-evaluation of these values has been done at the Joint Expert Committee of Ministry of Health and Welfare and Environment Agency by studying newest scientific information with a special reference to the most recent WHO re-evaluation on dioxin and related compounds. A revised TDI ( 4pg TEQ/kgbw/day ) for dioxin and related compounds was adopted at the end of June, 1999, according to the report from the Joint Committee.

(2) Environmental standards and guidance values

The revised TDI value will be regarded as the basis of setting up environmental quality standards or guidance values for ambient air, water and soil contamination. Environment Agency Japan adopted ambient air guideline value of 0.8 pg I-TEQ/$m^3$ and controls emission from municipal incinerators since September 1997. Based upon the prospective TDI value in Japan as well as scientific information on human exposure data from various sources, Environment Agency Japan plans to review the current ambient air guideline value of 0.8 pg I-TEQ/$m^3$ and revise it within the next half a year.

Water and soil quality standards or guidelines are considered on the basis of human exposure through water and sediment system, and adoption of these values will be studied by reviewing human exposure data including absorption of dioxin and related compounds through the digestive tract.

**2. Promotion of emission control of dioxins**

(1) Preparation of inventory of dioxins in various emission sources of incinerators by June 1999.
(2) Emission control will be expanded and applied to the currently-unregulated industrial incinerator emission facilities. Results of reduction of dioxin emission from these facilities will be publicized every year and the goal of emission control for YR 2002 is to be attained.
(3) Study on the feasibility on emission control over the currently-unregulated industrial incinerator emission facilities.
(4) Strengthening of control over illegal waste incineration according to the clean air act and related legislature.
(5) Subsidization and technical support for construction of municipal waste incineration plants. Facilitation of financing for industrial waste incineration plants.
(6) Financial guidance is further attempted by utilizing low interest loan and taxation to the investment to the improvement of the facility.
(7) Establishment of standards to take measures against soil-contaminated sites and studying the mechanism of measures against dioxins based upon PPP (pollutants pay principle). Tentative guideline on soil contamination by dioxins was proposed in November 1998.

**3. Improvement of inspection system**

The analysis of dioxin and related compound in specimens from environmental media and human and biological sources handles extremely trace amounts of quite a few congeners. The analysis of dioxins needs considerably high-level of quality assurance and quality control, and inspection systems will be organized to obtain good and efficient data collection.

(1) Preparation of standard analytical protocol for determination of dioxins in the environment. Standard analytical manual for exhaust gas and sewage will be adopted by September 1999. Standard methodology for exhaust gas, atmosphere, soil, water, sediment and biological samples were proposed and set up before National Surveillance performed in 1998 to detect low level of dioxin and related compounds. To further improve the quality assurance and quality control for the analysis of dioxins at the local government research institutes, guidelines for the analytical assurance and quality control of the analytical data for dioxins will be prepared. Distribution of standards of particular congeners and reference materials will be planned.
(2) Training of technical staff of local government research institutes for chemical analysis of dioxins will be carried out from FY 1999.

**4. Monitoring of the actual conditions and situations on the effect of dioxins to human health and the environment.**

Environmental compartments including atmosphere, fall-out particles, soil, water, sediment and occupational settings as well as living organisms and human specimens will be further analyzed for dioxins to understand the actual status of contamination. The effect of emission control will be evaluated through continued monitoring. The results will be disseminated to the people in a more self-explanatory manner.
Environmental Agency, Ministry of Health and Welfare, Ministry of Agriculture, Forest and Fishery, Ministry of Labor, and Ministry of International Trade and Industry will monitor and obtain information on the actual conditions and situations of dioxin contamination as described above. For example, the following matters will be evaluated: (a) Environmental monitoring. Continued monitoring of sediment, atmosphere, living organism, water etc. (b) Food monitoring. Monitoring food PCDD/PCDF level will be continued to assess human exposure. (c) For Wildlife monitoring, biological specimens from birds, mammals and other animals will be collected for continued monitoring for dioxin contamination and for estimation of biological magnification through food chain. (d) To study the actual contamination conditions in humans, monitoring of human specimens such as blood, milk, placenta and umbilical cord will be performed. (e) Surveillance around emission sources. Emission to the atmosphere from Incinerator sources, emission to water system from industrial sources including unknown sources, waste disposal sites. (f) Contamination history study (sediment core study) and coastal and lake sediment.

**5. Promotion of research and development**

Promotion of research and development is required.
(1) Research and development will be pursued for toxicity, exposure and modeling of environmental fate analysis of dioxins and treatment techniques including soil decontamination.
(2) Research on toxicity and risk assessment will be particularly focused upon risk to fetus and

newborns, mechanism of action of dioxins, and metabolism and absorption rate.

(3) Development of decomposition and decontamination methods for dioxin and related compounds in soil-contaminated areas. New treatment techniques for water and soil decontamination will be particularly pursued.

(4) Development of more simplified methods for measurement of dioxins will be planned.

1999 Fiscal year budget of MHW is 16.4 M us$ and international co-operation will be done through inviting overseas scientists. Budget of EAJ of the same year is 20M$.

**6. Promotion of waste management and recycling measures**

(1) It is planned to decrease the amounts of waste disposals by promoting reduction, reuse and recycling of products.

(2) The Government will enforce the enterprises to improve the proper disposal of industrial waste by utilizing the ongoing waste management reporting ('Manifest') system, based on their own responsibility of discharging the waste.

(3) The Government will strengthen the activities of expanding environmental education and learning programs in the general public from the infants to the elderly.

**7. Promotion of information disclosure to the people**

(1) The Government will provide the appropriate and precise information with regard to the matters described above (1 to 6) to the people promptly in as self-explanatory manner as possible.

(2) In order to obtain cooperation from the people, the Government will provide information on dioxins through pamphlets, symposiums, and Internet and mass-media. and try to wipe out the people concerns that are based upon scientifically inappropriate information.

(3) By taking advantage of various occasions, the Government will let the people to reevaluate their own life-style and measure of value and try to facilitate of lessening the waste amounts from their daily life.

**8. Contribution to the international community**

(1) The Government will try to play an appropriate role in the international community in terms of cooperating with developing countries by transferring the experience and technology obtained in the course of promoting measures against dioxins in Japan.

(2) Inter-governmental negotiations are now underway to establish the persistent organic pollutants (POPs) under supervision of the United Nations Environment Programme (UNEP), and the Government of Japan will constructively contribute to this endeavor.

**Reference**

The Government of Japan, The Fundamental Guideline for the Promotion of Measures to Reduce dioxins in the environment. 30 March, 1999.