

Chapter 11

Administrative Actions Taken by the State in Connection with the Yusho Incident

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11.1. Promotion of Researches

The Science and Technology Agency financially assisted the Study Group for Yusho organized at Kyushu University in order to clarify the cause of the so-called “strange disease” in 1968. After the cause was clarified, the Study Group was reorganized in June 1969, to be named “Study Group for the Therapy of Chlorobiphenyls Poisoning” for developing the best medical treatments, health care and diagnostic methods for the patients (see Appendix 3). Since then, the Ministry of Health and Welfare has subsidized the Study Group as well as its successor, namely, the Study Group for the Therapy of “Yusho” for more than 25 years under the “Research Funds for Investigation of the Influence of Thermal Conductors on Human Health” managed by the Food Sanitation Division of the Ministry. It has assisted not only the above Study Groups at Kyushu University but also a research team on Yusho in Nagasaki Prefecture where more than 550 patients with Yusho live. The Ministry has also assisted prefectural governments taking care of Yusho patients by conducting annual health examinations for them. In 1984, the Study Group for the Therapy of “Yusho” at Kyushu University, the Study Group for Yusho in Nagasaki Prefecture and the above prefectural governments were united to form a new nationwide research team, that is, the reorganized Study Group for the Therapy of “Yusho”. Better communication and closer cooperation thus became feasible among those who had worked for the welfare of patients throughout the nation. The annual subsidies made by the Ministry to these study groups are shown in Appendix 5.

11.2. Amendments of the Food Sanitation Law

The Enforcement Regulation of the Food Sanitation Law was amended in August 1969, the year after the occurrence of Yusho, under which manufacturing industries of cooking oil and fat were forced to do business with a license. Producers or processors of cooking oil and fat were required to hire a full-time authorized food sanitation administrator. In June 1972, the Food Sanitation Law was further amended and the Minister of Health and Welfare was authorized to set criteria for the action to be taken for prevention of contamination of foods or food additives with toxic or noxious substances, and a criterion for the prevention of contamination with toxic or noxious heat-transfer agents was enacted in December 1974. Thus, the regulation for production and processing of cooking oil and fat and for use of heat transfer agents became much more strict after the incident of Yusho.

Table 11.1. The Tentative Regulatory Values of PCBs in Foods^a (The Ministry of Health and Welfare, Japan)

Foods	Concentration (ppm)
Fishes and shellfishes from oceans (edible portions)	0.5
Fishes and shellfishes from inland seas and bays, including inland waters (edible portions)	3
Milk (whole milk)	0.1
Dairy products (whole base)	1
Powdered milk for infants (whole base)	0.2
Meat (whole base)	0.5
Eggs (whole base)	0.2
Containers and packing materials	5

^a: Enacted in 1972.

11.3. Other Administrative Actions Taken by the Government

According to the Ministry of International Trade and Industry, the total PCB production in Japan in the period 1954–72 was 58,787 tons and the total amount used domestically in that period was 54,001 tons (Tatsukawa, 1976). As expected from these data, a wide-spread environmental contamination with PCBs similar to that seen in western industrialized countries (Jensen, 1966; Risebrough et al., 1968) was disclosed in Japan a few years after the incident of Yusho occurred. In February 1971, people became deeply concerned about an unanticipated fact that the popular carbon-less copying paper widely used throughout the world contained a very high concentration (3–5%) of PCBs (Masuda et al., 1972). After about a year of dispute, the use of PCBs for such paper was banned.

Samples of fish collected from Lake Biwa and Uji River were reported to contain as high as 10–20 ppm of PCBs (whole fish, wet base) and fish from inland seas and bays were also heavily contaminated (Mizutani et al., 1971; Isono, 1972; Tatsukawa, 1976). In order to regulate the PCB intake through foods, the Ministry of Health and Welfare set a standard for PCB residues in common foods in 1972, as shown in Table 11.1. A similar standard was also made for the residues in containers and wrapping materials for foods. The Environment Agency set “Environmental Water Quality Standards” for the protection of human health in 1971, which included the standard value for PCBs decided as “not detectable”.

In February 1972, Masuda et al. (1972) reported for the first time in Japan the contamination of breast milk with PCBs, finding 0.01–0.06 (av. 0.03) ppm of PCBs in all of the 19 samples collected from healthy women in Kyushu. In March 1972, another shocking news was announced that breast milk samples collected in the Osaka district where the industrial use of PCBs was known to have been very high were contaminated much more heavily, that is, with 0.1–0.7 ppm of PCBs

(whole base) as analyzed at the Osaka Prefectural Institute of Public Health (Fujiwara, 1972). Feeding of breast milk containing 0.7 ppm of PCBs may not be safe in view of the minimum intake of PCBs by an adult Yusho patient, that is, a total amount of 0.5 g of PCBs for 4 months by a 30-year-old man weighing 59 kg (ca. 70 microgram per kg per day) (Yoshimura, 1971; Kuratsune, 1972, 1973). Fortunately, a repeated analysis of the breast milk collected about 2 months later from the same woman whose previous breast milk had contained 0.7 ppm of PCBs showed a much lower level of PCBs. Fortunately again, no breast milk has ever been reported to contain as high as 0.7 ppm of PCBs since then, although countless analyses have been made on PCBs in breast milk, and no infants borne by non-Yusho women have been reported to be suffering from any lesions specific to Yusho. Even so, the Ministry of Health and Welfare set up a committee to examine and confirm the safety of the feeding of such contaminated breast milk. Repeating several nationwide epidemiologic investigations on the possible effect of the feeding of breast milk contaminated with PCBs on the health of infants, the committee reached a conclusion that such feeding will not do harm (Fukuwatari, 1973; Hayashi, 1978). As described in Chapter 4, our later study demonstrated that the PCBs contained in the toxic rice oil consumed by patients are contaminated with a significant amount of highly toxic PCDFs (Nagayama et al., 1975, 1976) and are much more toxic than the residual PCBs commonly found in foods, which are a simple mixture of PCB congeners. Since breast milk from non-Yusho women contains PCBs but practically no PCDFs, a simple application of our estimate figure for the minimum intake of PCBs by a Yusho patient to the present issue may not be realistic.

The fact that foods as well as human tissues are contaminated with PCBs frightened the general public and the control of PCBs became a matter of urgency. In early 1972, the Ministry of International Trade and Commerce ordered the industries neither to use PCBs in open systems such as paints, adhesive agents and others nor to produce them or to import machinery and tools using PCBs. Later, use and import of PCBs were also prohibited. The Ministry requested electric power companies and other industries to report about their use of electric transformers and condensers containing PCBs in order to strictly control the use. Under these harsh circumstances, Mitsubishi-Monsanto Co., Ltd., that had produced 2,461 tons of PCBs since 1969 discontinued its production in March 1972 and Kanegafuchi stopped the production in June of the same year after having manufactured 56,326 tons of PCBs since 1954 (Tatsukawa, 1976).

To prevent any future hazards to be caused by new chemicals with a high persistency and chronic toxicity like PCBs, a new law named "Law Concerning Examination and Regulation of Production, etc., of Chemical Substances" was enacted in

October 1973. Under this law, many new chemicals have been examined before their production or import to see whether they are hardly degradable, highly accumulative and chronically toxic, and chemicals with these properties have been regulated on their production, import, utilization and so forth.

Owing to all of the above administrative actions taken after the incident of Yusho, the contamination of foods and human tissues with PCBs has steadily been improved. A nationwide survey showed that the median concentration of PCBs in 840 samples of fish was 200 ppb in 1972 while the corresponding figure was less than 40 ppb in 1979, and another survey revealed that the concentration of PCBs in colostrum collected from women in the Osaka district was steadily but less markedly than in case of fish, decreasing since 1972 (Yakushiji, 1987).

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