III. Strategy to resolve problems of endocrine disruptors

1. Current approaches

(1) Main approach in Japan

In Japan, the discussions on the issue of endocrine disruptor has begun primarily in the administrative organizations concerned. In particular, since 1996, research has been actively conducted. In 1996, the Ministry of Health and Welfare (MHW) established a project team to discuss health effects on humans. Also, the Ministry of International Trade and Industry and the Environment Agency individually started research from the viewpoints of industrial activity and environmental conservation, respectively. In 1997, a liaison meeting was set up to develop a cooperative discussion system among the Ministry of Health and Welfare, the Environment Agency, the Ministry of International Trade and Industry, the Ministry of Agriculture, Forestry, and Fisheries, and the Ministry of Labor. After that meeting, the "Inter-Ministerial Directors' Conference on Endocrine Disrupting Chemical Problems" was established, consisting of nine ministries (see the chart below). These ministries are working together to promote research, to actively exchange information, and to conduct other various related activities. In April 1998, the MHW established the "Study Group on Health Effects of Endocrine Disrupting Chemicals" to discuss this issue comprehensively and to formulate Japanese policies to protect human health, based on the international situation. In May of the same year, the Environment Agency compiled policies for its future approach.

In industry, corporations have started to carry out various activities. They are gathering information on the safety of individual chemicals and their products and conducting evaluations based on elution tests and toxicity tests. Also, consumer groups are separately approaching problems from their standpoints. They are conducting elution tests for food containers and surveying consumer recognition of endocrine disruptors.

In the academic field, studies have been begun on endocrine disruptors, based on new understanding of the issue. Academic societies are making efforts to resolve the problems with these chemicals, such as holding symposia beyond the academic Figure Inter-Ministerial Cooperation on Endocrine Disruptor Problems

boundaries in cooperation with all related sections: consumers, universities, industries, and government. For example, in June 1998, the Japanese Society of Food Chemistry held the "International Symposium on Endocrine Disruptors and Human Life, Focusing on Food Safety" to clarify a comprehensive profile of the issue of these chemicals. The society invited experts from various fields including foreign guests from the Organization of Economic Cooperation and Development (OECD), the World Health Organization (WHO), and the US Environmental Protection Agency (EPA). These experts gave presentations from their own positions as researchers, consumers, manufacturers, and administrators. Matters discussed include the findings of research and studies, international cooperation, administrative approaches, and consumer views and awareness.

As mentioned above, a full-scale system for tackling the issue is being organized. Under the system, it is necessary to further strengthen measures to prevent adverse effects on human health.

(2) Recent approaches in the world

Endocrine disruptor problems are a global issue. International organizations and their member nations are conducting various activities from their own standpoints in cooperation with each other. The 1997 session of the Inter-governmental Forum on Chemical Safety (IFCS) indicated the potential human and ecological effects of endocrine disruptors. In the same year, the 50th World Health Assembly of the World Health Organization (WHO) adopted a resolution (WHA 50.13 1997). The resolution called on the WHO to take the necessary steps to reinforce its leadership in conducting risk assessment on problems of endocrine disruptors and in promoting research on the potential health effects of exposure to them. The International Programme on Chemical Safety (IPCS) and the Organization of Economic Cooperation and Development (OECD) are playing leading roles in international work on endocrine disruptors. The IPCS's activities include: Collecting findings on these problems worldwide; compiling understandings on potential health effects by the year 2000; and producing a database of information on ongoing research. The OECD's activities include; discussing basic strategies for tackling these problems globally and developing standard testing methods.

The United States is conducting assessments and analyses on the effects of

endocrine disruptors based on the "Special Report on Environmental Endocrine Disruption: An Effects Assessment Analysis" published by the US EPA in February 1997. The United States also is implementing a comprehensive strategy scheduled to end in the first quarter of the year 2003, based on reports by the Endocrine Disruptor Screening and Testing Advisory Committee (EDSTAC). The following section outlines historical backgrounds and future activities for individual nations and organizations.

1. The United States

In June 1991, experts from environmental, medical, and biological fields gathered at Wingspread in Wisconsin State and addressed the need to undertake detailed research into the effects of endocrine disruptors on wildlife and humans. In 1995, the Executive Office of the President established the Committee on the Environment and Natural Resources, and began to promote and register comprehensive research on endocrine disruptors. In March 1996, Colborn and other authors jointly published a book titled "Our Stolen Future," describing environmental issues which were thought to be related to endocrine disruptors. This book became a trigger, drawing much public attention. In August 1996, a new law, the Food Quality Protection Act passed the US congress and the Safe Drinking Water Act was amended. These Acts required the US EPA to develop a screening program for chemicals suspected to be endocrine disruptors by August 1998, to implement the program by August 1999, and to report the program's progress to the Congress by August 2000.

Under such circumstances, the Endocrine Disruptor Screening and Testing Advisory Committee (EDSTAC) was established in October 1996 to promote the effective conduct of the EPA's activities under the Acts. In January 1997, the Office of Science and Technology Policy of the President's Executive Office and the EPA jointly invited experts from foreign countries to the Smithsonian Workshop, disclosing a policy for future research. In August 1998, the EDSTAC published a final report consisting of seven chapters: (1) Introduction; (2) Background, (3) Conceptual framework and principles, (4) Priority setting, (5) Screening and testing, (6) Communications and outreach, and (7) Compilation of EDSTAC recommendations. The report also proposed a basic policy for problems of endocrine disruptors in the United States. 2. European nations and the Organization for Economic Cooperation and Development

a) In January 1995, in the UK, the Medical Research Council and the Institute of Environmental Health jointly held a Workshop on Research and Studies for Endocrine Disrupters, and compiled a memorandum entitled "Assessment of Environmental Estrogen: Effects on Humans and Wildlife." After this, various countries discussed the issue: the Netherlands (1995, 1997), Germany (1996), Italy (1996), and Norway (Arctic problems, 1997).

b) In December 1996, the European Commission held a European Workshop on Effects of Endocrine Disrupters on Humans and Wildlife in Weybridge, UK and invited Japanese experts. The workshop was the first international meeting to propose a definition of endocrine disruptors and to decide future approaches toward such problems. In the wake of the workshop, the OECD in April 1997 drew up and peer-reviewed a inventory of testing methods to detect endocrine disruptors, entitled "Screening and Testing Methods of Endocrine Disruptors."

c) In March 1998, the OECD established the Working Group on Endocrine Disrupters Testing and Assessment (EDTA), based on the OECD program on endocrine disruptors. The purposes of the OECD program are: To provide member countries with information and to coordinate their activities; to develop new testing methods to detect endocrine disruptors; to revise the existing test guidelines; and to standardize risk assessments of endocrine disruptors among member countries. The EDTA Working Group is so far working to accomplish the following:

• Compile comments obtained from member countries on "screening and testing methods of endocrine disruptors," which were asked for before the Working Group was established;

• Enhance ① the 28-day repeated dose toxicity study (TG407) and standardize ②the utero-trophic assay and ③Hershberger assay by November 1998, and start a joint study; and

- Make preparations for tests on fish and wildlife.
- 3. International Programme on Chemical Safety (IPCS)

The IPCS, a venture to evaluate chemicals from a scientific viewpoint, has established a steering committee and decided to conduct the following activites:

a) Establish a working definition of endocrine disruptors

The IPCS will establish a concept of endocrine disruptors by reviewing various proposals on endocrine disruptors, including key documents published (after 1995) by the Danish Environment and Energy Department on the male reproductive function and estrogen-mimetic substances.

b) Develop a global research database

The IPCS agreed to set up a global database of ongoing studies for potential human- and ecological-effects of endocrine disruptors. The IPCS will clarify weak areas in the research and suggest points to be strengthened by developing a system in which information is exchangeable.

c) Conduct science assessment of endocrine disruptors

The IPCS will sort problems of endocrine disruptors into solved and unsolved, and to clarify the direction which future research should take. To that end, it will publish a report outlining extensive research on human and ecological effects of endocrine disruptors by the year 2000. It needs urgently to make ready a system for this publication.