

## THE STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS AND KOREA'S CHEMICAL MANAGEMENT POLICIES

Doa-Young Cheong

The Ministry of Environment, Government Complex, Kwachon City, the Republic of Korea

### 1. Introduction

On March 23, 2001 the international community adopted a global, legally-binding instrument called the Stockholm Convention on POPs. The objective of the Convention is to protect human health and environment from the first twelve POPs. Once the Stockholm Convention enters into force, all of its signatories will be required to take measures to reduce or to eliminate the POP release. The Republic of Korea is in support of this global effort to combat POPs and is firmly committed to the objective of the Convention as has been pronounced by the head of delegations at the Conference of Plenipotentiaries. This paper briefly introduces the current environmental pressure produced by POPs in Korea, as well as her existing regulatory requirements, related environmental policies, and a planned course of action for the further reduction of POPs

### 2. Current State of POPs

#### *Environmental Monitoring*

The government-driven environmental monitoring for POPs started in 1999 in response to the public concerns over dioxin-like chemicals and endocrine disrupters(EDs). The Ministry of Environment(MoE) in conjunction with the Korea Institute Environmental Research(NIER) developed a Ten Year Monitoring and Research Plan for the years 1999 to 2008 for the systematic and extensive monitoring of EDs on environmental media and biota. In 1999, 37 EDs, including dioxin-like chemicals, from 113 sampling locations were analyzed. Table I shows the summary of dioxin monitoring results.

Table I: 1999 Dioxin Monitoring Results

|                               | Sampling points | Minimum ~ Maximum | Mean value |
|-------------------------------|-----------------|-------------------|------------|
| Water(pg-TEQ/ ℓ )             | 43              | 0 ~ 0.502         | 0.056      |
| Sediment(pg-TEQ/dry g)        | 11              | 0 ~ 0.984         | 0.148      |
| Air(pg-TEQ/N m <sup>3</sup> ) | 24              | 0 ~ 4.448         | 0.425      |
| Soil(pg-TEQ/dry g)            | 35              | 0 ~ 22.439        | 0.935      |

Source: Ministry of Environment(1999)

Based on the 1999 monitoring data, it can be stated that Korea's current contamination level in soils and sediment sby dioxin-like chemicals are lower than that of the most of other industrialized states. But this statement needs to be confirmed by further observations in the following years.

### ORGANOHALOGEN COMPOUNDS

## *Emission sources and its Inventory*

In 1997 MoE started to compile emission data for dioxin-like chemicals from major municipal waste incinerators(MWI) and industrial waste incinerators(IWI). In addition, stringent emission standards have been imposed, and the owners and operators with a treatment capacity of more than 200kg/hour were required to monitor the dioxin-like chemical emission at least once a year. Table II shows the compiled emission monitoring data of the dioxin-like chemicals for municipal and industrial incinerators. The results indicate that the emission level of waste incinerators is on decline, demonstrating the successful application of emission standards.

Table II Dioxin-like Chemicals Emission Data for Incinerators (unit: ngTEQ/Nm<sup>3</sup>)

| Capacity<br>(ton/hr) | MWI    | Industrial Waste Incinerators |               |
|----------------------|--------|-------------------------------|---------------|
|                      |        | Designated Waste              | General Waste |
| 2 and above          | 0.051  | 15.837                        | 48.620        |
| 0.2 - 2              | 20.633 | 7.623                         | 8.530         |
| 0.2 and below        | 89.367 | 84.011                        | 23.388        |

Source: Ministry of Environment and National Institute for Environmental Research 2000

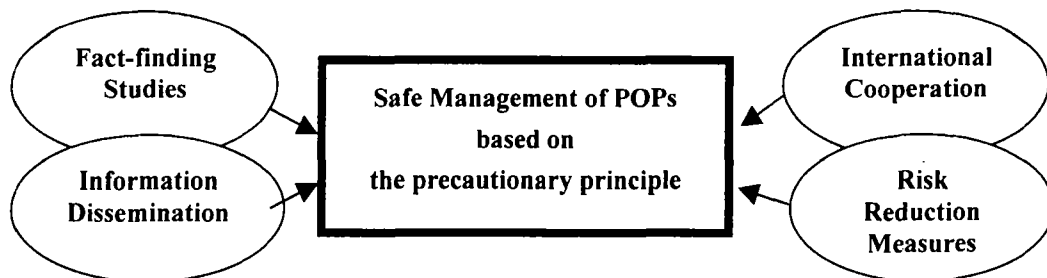
Identifying other sources of dioxin-like chemical emission are underway, and the official emission inventory is planned to be released by the end of 2002. However, it is believed that the waste incineration is the major source of dioxin-like chemicals.

### 3 Policy Responses on POPs

#### *Basic Policy Direction for POPs Management*

MoE plans to accelerate the establishment of a management system based on the strategies shown in Figure I.

Figure I: Policy Instruments for the Safe Management of POPs



#### *Current Regulatory Requirements*

In Korea, four Acts are enforced to regulate POPs – Hazardous Substance Management

# INTERNAT'L TREATIES

Act(HSMA), Agrochemical Management Act(AMA), Electricity Business Act(EBA) and Waste Management Act(WMA). Table III summarizes how POP chemicals are regulated by these Acts.

Table III: The current status of regulatory requirements for initial 12 POPs

| Substance  | Regulatory Actions                   |                                  |
|------------|--------------------------------------|----------------------------------|
| Aldrin     | Banned by HSMA in 1999               | Banned by AMA in 1969            |
| Endrin     | Banned by HSMA in 1999               | Banned by AMA in 1969            |
| Dieldrin   | Banned by HSMA in 1969               | Banned by AMA in 1970            |
| Chlorodane | Banned by HSMA in 1969               | Banned by AMA in 1969            |
| Heptachlor | Banned by HSMA in 1970               | Banned by AMA in 1979            |
| Mirex      | Not introduced into Korea            |                                  |
| HCB        | Not introduced into Korea            |                                  |
| Toxaphene  | Banned by HSMA in 1991               | Banned by AMA in 1982            |
| PCB        | Banned by HSMA in 1996               | EBA bans use as dielectric fluid |
| DDT        | Banned by HSMA in 1991               | Banned by AMA in 1969            |
| Dioxin     | Emission is regulated by WMA in 1997 |                                  |
| Furan      |                                      |                                  |

Source: Ministry of Environment(2000)

## *Planned Actions for Future*

### 1) Establishment of Management Targets and Formulation of Reduction Plans

To better comply with the provisions set forth in the Stockholm Convention, the MoE will promulgate a Special Law that will establish an environmental and emission standards for POPs. The Law will incorporate the notion of Tolerable Daily Intake(TDI) for POPs management and mandates extensive monitoring and inspections. Furthermore, the Law fosters public access to environmental information

### 2) Strengthening Fact-finding Mission

MoE will continue to monitor for the level of POPs in the environment as has been prescribed by the Ten Year Monitoring Plan. Starting in 2002, an investigation including in-use PCB survey will be launched to locate the stockpiles and wastes contaminated by POPs. Remedial plans will subsequently be developed.

By the end of 2002, MoE will complete the emission inventory, and a reduction target will be established based on this inventory. Various measures will be devised to attain the targets, which include controlling the emission sources based on BAT, promoting waste minimization and recycling, etc.

### 3) International Cooperation

MoE seeks international cooperation by participation and contribution to global efforts. In 2001, a MOU on the Joint Research on EDs with the Japanese Ministry of Environment was concluded. Efforts are being made to significantly increase the contribution to the GEF and other

environmental funds.

#### 4. Final Remarks

Korea started taking active countermeasures against POPs in the late 1990s. Accumulation of data is essential to obtaining a more complete estimation and characterization of POPs in Korea. It is often said that the issue of POPs is a reflection of industrialization history. This statement provides a valuable lesson to the newly industrialized states. As stated in the preamble to the Stockholm Convention, it is time to exercise the wisdom of prevention and precaution in formulating environmental policies especially in the newly-industrialized state like Korea.

#### Reference

1. Ministry of Environment and National Institute for Environmental Research(2000), Report on 1999 Endocrine Disrupters Monitoring Study,
2. Ministry of Environment(2000), The Five Year Basic Plan for Hazardous Substance Management Plan