

Persistent Organic Pollutants

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Persistent organic pollutants (POPs) are amongst the most dangerous substances released by humans into the environment. They possess toxic characteristics and are likely to cause significant adverse effects on health of exposed wildlife and humans, such as allergy, damaged nervous system and immunity, congenital diseases, cancer.

These substances are persistent, resist degradation under natural conditions and remain unchanged in the environment for a long period. They biomagnify in adipose tissues of living organisms to concentrations, many times (up to 70 000) exceeding the background level. The upper tropic levels of food chains (fish, predatory birds, mammals and humans) can bioaccumulate the highest concentrations of POPs. Therefore POPs have been found far from their site of origin in Arctic ecosystems and especially its indigenous people, who subsist on Arctic fish and mammals.

Very often the alternatives to persistent organic pollutants are available. But the high costs, poor public awareness, lack of appropriate infrastructure and technologies are the reasons why these alternatives are not being used widely enough. Possible solutions to these problems should be adjusted to the properties and possible use of each substance, as well as to the climatic and socio-economic circumstances of each country.

POPs are divided as follows:

- Pesticides (aldrin, DDT, dieldrin, endrin, hexabromobiphenyl, hexachlorobenzene, hexachlorocyclohexane, heptachlor, chlordane, chlordecone, mirex, toxaphene);
- Industrial chemicals (polychlorinated biphenyls (PCBs), hexachlorobenzene);
- By-products (polychlorinated dibenzo-p-dioxins (dioxins), polychlorinated dibenzofurans (furans), polycyclic aromatic hydrocarbons, PAHs, PCBs).

On June 24, 1998 in Aarhus (Denmark) the [Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Persistent Organic Pollutants](#) (Protocol) was adopted. Latvia signed the Protocol also. The objective of the Protocol is to control, reduce or eliminate discharges, emissions and losses of persistent organic pollutants. There are 16 especially dangerous substances in total: 12 pesticides, 2 industrial chemicals and 3 by-products (hexachlorobenzene has intentionally been used both as pesticide and as industrial chemical).

The Protocol bans the production and use of several substances (aldrin, chlordane, chlordecone, dieldrin, endrin, hexabromobiphenyl, mirex and toxaphene). Others are scheduled for elimination at a later stage (DDT, heptachlor, hexachlorocyclohexane and PCBs). Finally, the Protocol severely restricts the use of DDT, hexachlorocyclohexane (including its isomer lindane) and PCBs.

The Protocol defines regulations how to manage wastes, which contain substances scheduled for elimination. The Parties to the Protocol are required to reduce annual emissions of dioxins, furans, PAHs and hexachlorobenzene from the level of the emission in year 1990 or an alternative year from 1985 to 1995 inclusive. The Protocol gives emission limits for the municipal waste, hazardous waste and medical waste incineration.

The Protocol entered into force on October 2003.

Activities started by UN/ECE developed into global actions in regard to POPs. On May 22 and 23, 2001 in Stockholm during the Diplomatic Conference, ministers and other accredited persons adopted and signed the [Convention on Persistent Organic Pollutants](#) (Stockholm Convention). It shall enter into force when 50 States have ratified it. On December 2003 the Stockholm Convention was signed by 151 and ratified by 41 States.

The Stockholm Convention lists the measures to control production, import, export, use and disposal of persistent organic pollutants. The governments should promote the best available techniques and practices to replace existing POPs and not to allow development of new ones. The Parties will have to create national legislation and action plans to ensure that the commitments are fulfilled.

The control measures refer to 12 substances. A special commission will estimate on a regular basis, what new substances should be annexed to the list of the POPs to be in line with the latest scientific researches. Presently 12 POPs include 8 pesticides (aldrin, DDT, dieldrin, endrin, heptachlor, chlordane, mirex, toxaphene); 2 industrial chemicals (hexachlorobenzene and PCBs, the latter being pesticide also); 2 by-products (dioxins and furans).

The Stockholm Convention lists the following measures:

- To prepare inventories of sources of POPs and prevent their discharges;
- To phase in better techniques for different new and existing technologies and sources;
- To promote and where appropriate, to require the use of substitute materials, products and processes;
- When using the POPs, to prohibit and/or take legal or administrative measures to prevent production and use of several POPs, as well as to take necessary activities to eliminate the use of polychlorinated biphenyls (PCBs) in equipment no later than January 1, 2005;
- To ensure that wastes and stockpiles containing POPs are stored, collected, handled, transported and disposed of in an environmentally sound manner;
- To control emissions from the burning processes by promotion of the best available techniques.

The Stockholm Convention also decrees the order for exchange of information between Parties, the necessity to provide information on the POPs to the general public as well as other activities.

The Stockholm Convention prescribes the following general obligations for the Parties:

- To develop and try to implement the Action Plan for the fulfilment of requirements of the Stockholm Convention within two years of its entry into force;
- To report to the Conference of Parties information on the measures that have been taken to implement the requirements of the Stockholm Convention;
- To promote and carry out exchange of information on POPs, and to establish the National Co-ordination Centre;
- To promote the provision of information, education and awareness programmes to the general public and decision makers;
- To encourage and start research, development and monitoring related to POPs and their substitutes.

The Stockholm Convention also provides for other measures: preparing reports and communications.

The United Nations Development Programme (UNDP) and Global Environment Facility (GEF) project "[Development of National Implementation Plan for POPs under the Stockholm Convention](#)" (Project) was launched in 2002 in Latvia. The main goal of the Project is to develop the National Implementation Plan on gradual decrease in use of POPs and remediation of contaminated sites. Thus the Project will enable Latvia to ratify both the Stockholm Convention and the Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Persistent Organic Pollutants and to become a competent Party to these international agreements. In the course of implementation of the Project an inventory of the POPs containing products, wastes, raw materials, stockpiles etc. will be carried out as well as the current situation estimated. The inventory will include data on production, distribution, use, import and export of the POPs containing products, and also some evaluation of possible illegal use of POPs.

The samples of soil, water and air will be gathered to check the probable content of POPs in the environment. After the current situation is estimated and the POPs inventory accomplished, the POPs monitoring scheme will be worked out and database created. A thorough evaluation of situation and feasibility at the starting point of the Project is of great importance. Therefore it is envisaged to evaluate if the monitoring, chemical analyses, support for the scientific researches of the POPs is feasible.

While implementing the Project, other tasks will be performed as well, such as to evaluate the existing legislation on POPs in Latvia and to distribute information to the organisations involved and to the general public on toxicity of POPs and necessity for proper monitoring and management of POPs.

The Project is expected to give following results:

- Situation in Latvia regarding POPs has been evaluated;
- Database has been created, in which the POPs related information and description of the situation in Latvia can be found;
- National objectives and priorities regarding the use and control of emission levels of POPs have been approved;
- The National Implementation Plan has been worked out, one of its objectives being to prepare Latvia for ratification of the Stockholm Convention;
- Information is being provided to the organisations involved and to the general public on adverse effects of POPs on humans and environment as a whole.

Latvia ratified the Convention on the Protection of the Marine Environment of the Baltic Sea Area(Helsinki, 1992) in the year 1994. It entered into force on January 17, 2000. This international agreement decrees restrictions on production, use and storage of different chemical substances including persistent organic pollutants (aldrin, DDT, dieldrin, endrin, heptachlor, chlordane, chlordecone, PCBs, toxaphene) as well.

Existing legislation in Latvia referring to the use, distribution and storage of POPs as well as their emission limits are:

- Cabinet of Ministers Regulations No.107 "On Prohibited Plant Preservatives" (21.03.2000);
- Cabinet of Ministers Regulations No.158 "On Restriction and Prohibits for the Use and Marketing of Hazardous Chemical Substances and Hazardous Chemical Products" (25.04.2000);
- Cabinet of Ministers Regulations No.529 "On Management of Certain Hazardous Wastes" (18.12.2001.);
- Cabinet of Ministers Regulations No.117 "On Requirements in regard to Use and Labelling the Equipment and Products, Containing Certain Hazardous Chemical Substances, and on the List of Goods Hazardous for the Environment" (12.03.2002);
- Cabinet of Ministers Regulations No.286 "On Air Quality" (02.07.2002);
- Cabinet of Ministers Regulations No.323 "On Requirements in regard to Waste Incineration and to Operation the Waste Incineration Facilities" (17.07.2001); (amended 04.02.2002).

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