

# Practical Problems with POPs Exemptions

How U.S.-Proposed General Exemptions Undermine the International POPs Treaty

## Great Lakes United and Pesticide Action Network

The United States government has proposed that a number of general exemptions be included in the international treaty on persistent organic pollutants (POPs). During the March 2000 treaty negotiating session in Bonn (INC4), the U.S. promoted the following five general exemptions:

- 1) **To be used for laboratory-scale research or as a reference standard.**
- 2) **Occurring as *de minimis* contaminants in products.** This general exemption was proposed to allow small quantities of POPs in non-POP substances.
- 3) **Occurring as constituents of articles manufactured or already in use as of the implementation date.** This general exemption was proposed to allow POPs that have been applied to articles in use such as wood treated with heptachlor or fire-retardant clothing treated with mirex before the POPs treaty comes into effect.
- 4) **To be used as a closed-system and site-limited intermediate that is chemically transformed in the manufacture of other chemicals.** This general exemption would allow continued use of POPs in the manufacturing of other chemicals and continued production of POPs for this purpose.
- 5) **Which are in the possession of an end-use consumer prior to the entry into force.** This general exemption would allow continued use of chemicals or pesticides that are already in the hands of an end-user before the treaty comes into effect.

The following examples demonstrate some of the dangers posed by all but the first of these five exemptions,<sup>1</sup> and illustrate the importance of adopting a POPs treaty without the loopholes that the general exemptions would create.

### Accumulation of *De Minimis* Levels of POPs Causes Extensive Contamination

#### Low-level POPs Contaminants Lead to Superfund Sites

Major contamination of two rivers in the Lake Michigan basin has resulted from *de minimis* levels of polychlorinated biphenyls (PCBs) in products. Both the Lower Fox River in Green Bay, Wisconsin, and the Kalamazoo River in Michigan contain extensive PCB-contaminated sediments. In both rivers, this contamination came from the manufacture and recycling of carbonless copy paper.

**Lower Fox River, Green Bay, Wisconsin.** Several companies produced and recycled carbonless copy paper on the Lower Fox River in Green Bay, Wisconsin. PCB-containing Arochlor 1242 was used to make carbonless copy paper. According to the Wisconsin Department of Natural Resources, one sheet of carbonless copy paper weighing 0.01 lbs./sheet was estimated to contain 0.0034 lbs. of PCBs. Although the use of Arochlor was discontinued in 1971, an estimated 700,000 lbs. of PCBs were released into the Lower Fox River between 1957 and 1971. According to the U.S. EPA, PCB levels in the Lower Fox River are now 100 to 10,000 times levels considered to be safe. Fish consumption advisories are in effect. Currently there are 11 million cubic yards of contaminated sediment spanning 39 miles of the river. The U.S. EPA estimates cleanup costs to be \$150–728 million. The accumulation of *de minimis* levels of contamination has resulted in the Fox River becoming the largest contributor of PCBs to Lake Michigan.

**Kalamazoo River.** The Kalamazoo River is an 85-mile Superfund site contaminated with PCBs from the manufacture and recycling of carbonless copy paper. According to the U.S. EPA, 350,000 lbs. of PCBs were released into river sediments and there are approximately eight million cubic yards of contaminated wastes in five uncontained areas of the Kalamazoo River. Fish consumption advisories are in effect, and clean up costs are expected to be in the

millions. The Kalamazoo River is the second largest source of PCB contamination to Lake Michigan. Once again, articles containing *de minimis* concentrations of a POP have demonstrated the ability to cause extensive and costly contamination problems.

### **Continued Use of Contaminated Pesticide Results in DDT Releases**

Dicofol is an organochlorine miticide applied to the leaves of plants, primarily in production of cotton, apples and citrus. Dicofol is also registered for use on strawberries, mint, beans, peppers, tomatoes, pecans, walnuts, stonefruit, cucumbers, melons and non-residential lawns/ornamentals. It was first registered as a pesticide in the United States in 1957.

DDT is used to manufacture dicofol. In 1986, use of dicofol was temporarily cancelled by the U.S. EPA because of concerns raised by high levels of DDT contamination (9–15%). Improved production processes allowed manufacturers to reduce this contamination level to 0.1%, and registration was reinstated.

U.S. government standards for reporting releases of DDT and controlling occupational exposure recognize the significant threat to the environment and human health posed by very low levels of DDT.<sup>2</sup> DDT and its breakdown products are known to disrupt the human endocrine system at very low levels, and are recognized as probable human carcinogens.

Despite these recognized risks, the use of dicofol contaminated with DDT continues, representing significant releases of DDT into the environment. According to the U.S. Geological Survey's Annual Use Index, 1,101,559 pounds of dicofol were used in the United States in 1992. With a DDT contamination level of 0.1%, application of dicofol led to the release of more than 1,000 pounds of DDT into the environment in 1992, 20 years after all uses were banned in the United States. Using this number as a rough representation of DDT contamination, approximately 10,000 pounds of DDT have been released in the United States over the last 10 years.

Pesticide use reports from the California Department of Pesticide Regulation show that in 1997, more than 512,000 pounds of dicofol were applied to California crops, with 308,000 pounds of that total applied in cotton production. Again assuming 0.1% contamination with DDT, 512 pounds of DDT were released in California in 1997, with 308 pounds concentrated in cotton fields. Samples taken from California's San Joaquin River by the U.S. Geological Survey's National Water Quality Assessment Program provide additional evidence of continuing DDT contamination. Fourteen percent of water samples taken between 1992 and 1995 contained the DDT by-product DDE, indicating recent release of DDT into the environment.

Evidence of DDT contamination has been demonstrated in the Great Lakes region as well. In the late 1980s, an estimated 70,380 pounds per year of dicofol were applied in the Great Lakes basin. Assuming a DDT content of 0.1%, this amount of dicofol use means that more than 70 pounds of DDT were released annually in the Great Lakes during this period. A 1991 study of air quality in the Lake Michigan region found highly elevated levels of DDT in air samples, suggesting that DDT and its derivatives were re-volatilizing from local land applications.

These continuing releases of DDT represent an unnecessary and unacceptable risk to wildlife, human health and the environment. The proposed *de minimus* exemption would allow continued contamination of the environment with harmful levels of POPs.

### **POPs in "Articles In Use" Result in Ambient Air Contamination**

Articles that contain or are contaminated with POPs chemicals have been linked to high levels of ambient POPs contamination in some regions. Recent studies have shown, for example, that atmospheric PCB levels in the Chicago area are about three times higher than at other sampling locations in the lower Lake Michigan area. Dramatic differences in POPs levels in precipitation were also measured (Chicago's rain had PCB levels well above concentrations elsewhere in the region), leading scientists to conclude that local sources of PCBs—including the widespread use of PCB-containing products—are responsible for the elevated PCB levels in Chicago's air.

To combat high ambient levels of PCBs in the Chicago area, the U.S. EPA and local partners established a "PCB Clean Sweep" program in 1999 to collect PCB-containing articles in use. The program collects a wide range of PCB-containing articles, including: old light ballasts; switches; transformers; small capacitors in lamp ballasts, refrigerators, and washing machines; voltage regulators; reclosers; electromagnets; circuit breakers; sealant and oil reservoirs in vapor diffusion pumps, vacuum pumps and water well pumps; hydraulic systems; mining equipment; heat transfer fluids; pigments; and contaminated used oil.

A general "articles in use" exemption will contribute to continued ambient contamination levels such as those measured in the Chicago area.

## **Closed-System Intermediates: DDT in the Manufacture of Dicofol**

The chemical industry has expressed concern that innovation will be stifled without an exemption for closed-system intermediates. The ability to explore new processes, however, is protected by the laboratory-scale research exemption. If a process is identified that requires use of a POP chemical as an intermediate, manufacturers can apply for a specific exemption.

A general exemption for closed-system intermediates is not necessary. Even the European Chemical Industry Council (CEFIC), speaking on behalf of the International Council of Chemical Associations (ICCA), acknowledges that the chemical industry does not need a closed-system intermediate general exemption for any of the 12 priority POPs being addressed in the treaty negotiations.

To remain consistent with its objectives, the POPs treaty should discourage the development of new products that depend upon POPs chemicals as intermediates, rather than encouraging the development of such products through a broad general exemption.

The proposed general exemption for closed-system intermediates would not effectively protect human health and the environment. It would allow, for example, continued occupational exposure to DDT by workers involved in the dicofol production process, with no mechanism for restriction or review. The most significant exposure to DDT in the United States is occupational, occurring primarily among those who work or worked in the production of DDT or DDT-contaminated products. Significant increases in chromosomal damage have been reported in workers with direct and indirect occupational exposure to DDT.

Requiring country-specific exemptions for production processes such as that of dicofol, with regular review and sunset provisions, would be significantly more protective of human health and the environment, while at the same time flagging research and funding needs.

## **Banned Chemicals Can Be Collected from Consumers**

The fifth U.S.-proposed general exemption responds to a fear of the high costs of collecting POPs in the possession of end-users. Positive experiences with voluntary “clean sweep” collection programs in the United States, however, illustrate that the proposed exemption is not needed. As of 1998, 47 states had implemented some type of voluntary pesticide collection program, and a 1996 survey found that nearly ten million pounds of pesticides had been collected under these programs.

These collection programs are usually implemented by state governments, and the most common long-term financing mechanisms are pesticide product registration fees and pesticide product taxes. Particularly effective collection programs have been established in Michigan, Nevada, North Carolina, Pennsylvania and Vermont. The PCB Clean Sweep program in the Chicago area described above has developed effective partnerships and funding mechanisms to collect articles containing and/or contaminated with PCBs.

Exemptions for “existing stocks” of banned chemicals can result in long term continued use of the banned chemical, leading in turn to significant environmental and health problems. In 1993 in Hawaii, for example, Del Monte was found to be using “existing stocks” of the organochlorine insecticide heptachlor fifteen years after the chemical was banned in the United States. Residues of heptachlor and its metabolites were found in Hawaiian waters and wildlife at high levels, leading the state to issue several public warnings about contaminated fish and shellfish.

Failure to properly collect and dispose of banned chemicals is dangerous. Long term end-user storage of even small volumes of POPs involves risks of future misuse, spills, and natural catastrophes (e.g., floods and earthquakes) that could result in major health risks or environmental harm. These dangers are amplified by POPs’ persistent and bioaccumulative nature. Even minute quantities can damage human health and the environment.

In addition, an end-user exemption could promote both stockpiling of chemicals slated for elimination and illegal trade in those chemicals after the ban goes into effect. Examples of this are particularly common in developing countries. In Kenya, for instance, supplies of the pesticide dieldrin have been stockpiled for 25 years by coffee plantation owners, who continue to use the obsolete pesticide for tree banding. In both Kenya and Uganda, dieldrin is illegally reformulated from obsolete stockpiles and sold for widespread use in agriculture. And in Niger, chemical residues on vegetables indicate continued use of a range of banned pesticides, including aldrin, dieldrin, heptachlor, DDT and HCB. Distribution of old

stocks is suspected to be one of the major sources of continued use.

As these examples illustrate, the proposed exemption for POPs chemicals “in the possession of end-users prior to entry into force of the treaty” is not necessary and undermines the ultimate elimination goals of the treaty.

## Conclusion

With the exception of an exemption for laboratory-scale research, the general exemptions to the POPs treaty proposed by the United States pose clear dangers to human health and the environment. As the Superfund site examples illustrate, the exemptions would in some cases lead to significant and unnecessary financial costs for mitigation and clean up. Given the bioaccumulative and persistent nature of POPs chemicals, an effective POPs treaty must not include loopholes that sanction and potentially encourage the use of POPs chemicals in any way, whether in the production of other substances or in the utilization of existing stocks.

Proposed general exemptions 2, 3, 4 and 5 are dangerous and unnecessary. The treaty already includes provisions for specific exemptions. These are much more consistent with the treaty’s goals, since they refer to a particular substance, are precisely defined, well-justified, limited in duration, and subject to periodic review.

In the interest of a strong and protective treaty, the United States should withdraw its proposed general exemptions 2, 3, 4 and 5 in the upcoming INC5 sessions.

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**This fact sheet was produced in collaboration with:**

**Center for International Environmental Law**

Tel: +1.202.785.8700; csaladin@ciel.org

**Commonweal**

Tel: +1.415.868.0970; spatton@igc.org

**World Wildlife Fund**

Tel: +1.202.778.9625; palmer.olsen@wwfus.org

**For more information, contact:**

**Pesticide Action Network, North America**

49 Powell Street, Suite 500

San Francisco, California 94102

Tel: +1.415.981.1771, ext. 327

Fax: +1.415.981.1991

kristins@panna.org

<http://www.panna.org>

**Great Lakes United**

Buffalo State College, Casetty Hall

1300 Elmwood Avenue

Buffalo, New York 14222

Tel: +1.716.886.0142

Fax: +1.716.886.0303

thbrown@delta-institute.org

## Notes

<sup>1</sup> The laboratory-scale research exemption should specify the following narrowly tailored conditions: a) appropriate precautions to prevent accidents and to protect wildlife, workers, and public health; b) prohibition of POPs release to the environment; c) upon completion of research, elimination of all POPs chemicals or materials/articles contaminated with POPs, using environmentally-sound destruction technologies; d) emergency provisions to contain and mitigate accidental release; e) regular review and re-assessment of need for the exemption; and f) any facility utilizing POPs for laboratory-scale research must report to the public at least annually information on chemical type, quantity, and use.

<sup>2</sup> The Occupational Safety and Health Administration (OSHA) set an exposure limit of one milligram of DDT per cubic meter in work place air for an eight-hour workday, 40-hour work week. The National Institute for Occupational Safety and Health's (NIOSH) exposure limit in workplace air is 0.5 mg per cubic meter over a 10-hour workday, 40-hour workweek.



