

Environment Strategy



Persistent Organic Pollutants — A Legacy of Environmental Harm and Threats to Health

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POPs are toxic, long-lasting substances that have known and diverse effects on the environment and human health. As the rapid adoption of the May 2001 Stockholm Convention shows, controlling and eliminating persistent organic pollutants (POPs) has become a priority issue for many development agencies and governments in both industrial and developing countries. This note highlights how POPs influence the quality of life, economic growth, and the quality of the regional and global commons. Achieving improvements in each of these areas is a key objective of the World Bank's Environment Strategy (World Bank 2001), and the Bank is accordingly engaged in a number of activities to respond to the environmental threats posed by POPs.

WHAT ARE POPs?

Persistent organic pollutants are highly toxic chemical substances that may be produced intentionally for use in agriculture and industry or as byproducts of combustion and industrial processes. Some, such as polychlorinated biphenyls (PCBs), are industrial chemicals. Others, including aldrin, dieldrin, and DDT, were produced as pesticides. POPs such as dioxin and furans may also occur as unwanted byproducts of various technological processes and were never commercially produced.



As the name implies, POPs are long lasting. This can mean, for example, fewer applications of pesticides and less frequent product replacement, which often makes these substances cheap to use. But the very factors that make them cheap and effective have also contributed to long-term environmental problems. POPs have been linked to reproductive and developmental illnesses, immune suppression, cancers, and hormone disruption in both humans and wildlife. Marine mammals such as beluga whales, dolphins, and seals have suffered large population declines after being exposed to POPs.

POPs share a number of characteristics that contribute to their harmful effects:

- 🌿 They break down very slowly in soil, air, water, and living organisms and persist in the environment for long periods.
- 🌿 They are magnified in the food chain, building to high levels in the tissues of living creatures.
- 🌿 They travel long distances in air and water currents and become concentrated in the high-latitude, low-temperature regions of the globe.

Thus, because of their toxicity, persistence, mobility, and tendency to accumulate in organisms, POPs harm people and pose a threat to biodiversity and ecosystems. Coordinated local, national, and international efforts are needed to eliminate these chemicals, reduce current levels of contamination, and protect future generations.

POPs AND QUALITY OF LIFE, GROWTH, AND REGIONAL AND GLOBAL COMMONS

Quality of Life. POPs can affect the well-being of exposed populations by directly harming their health and by threatening their livelihoods, through contamination of freshwater resources, degradation of soil, and rapid depletion of fisheries and biodiversity. The main route of human exposure to POPs is through the food chain, and contamination of food can oc-

cur through environmental pollution of air, water, and soil (Goldman and Tran 2002). Research indicates links between reproductive dysfunction and cancers and exposure to some POPs (Ritter and others 1995).

The risk of exposure to POPs in developing countries is considerable. India is the largest user of POPs, with annual average consumption of 16,354 metric tons between 1990 and 1998 (Goldman and Tran 2002). Numerous examples of the impact of exposure to POPs have been reported—for instance, from use of pesticides in cotton fields in Kazakhstan, and indirectly through consumption of fish contaminated by industrial pollution in the Aral Sea region. There has, however, been little monitoring of POPs body burdens and environmental levels in developing countries, and few studies in peer-reviewed journals are available (*ibid.*)

Although people from all economic strata may be affected, in many cases poor people are more vulnerable to exposure to POPs than those in higher-income groups because of limited economic choices and living conditions. The urban poor frequently live in settlements close to highways or on unwanted wastelands in industrial areas. Economic necessity may also compel them to engage in activities that put them at greater risk of exposure to POPs. For example, sorting trash in informal factories and uncontrolled waste dumps can expose poor children and adults to a range of toxics that can result in illness and, in some cases, death.

The poor often cannot afford clean-burning stoves or alternative fuels. When wood or other biomass products (used by over half of the world's households), or coal or trash, are burned in inefficient stoves, incomplete combustion can lead to the production of dioxins. Moreover, poor people tend to be more vulnerable to the effects of POPs because of undernourishment or poverty-related illnesses.

In some cases people living in rural areas in developing countries have little opportunity to move away from stockpiles of obsolete pesticides or find new, uncontaminated sources of water. For example, in Tin Essako and Anefis, Mali, thousands of local people and nomads are dependent on two wells, both of which are highly contaminated with POPs and other chemicals from obsolete pesticide stockpiles. The communities have no funds to drill for water elsewhere or to remove the stockpiles (see Box 2, below).

Quality of Growth. Lack of environmental controls on POPs in industry and agriculture can lead to increased health costs, poor labor productivity due to ill health and poor quality of inputs, degradation of land and water resources, and unsustainable agricultural practices. Inappropriate policies or inadequate enforcement, whether stemming from lack of political will or lack of resources, can create unnecessary costs that hamper economic growth. Examples are the continued accumulation of obsolete pesticide stocks in developing countries as a result of oversupply of pesticides by bilateral donors or aid agencies, and countries' failure to invest in prevention and in better chemicals management. Costly cleanups of stocks may be undertaken again and again, although investment in good management of chemicals can bring about more sustainable outcomes with greater cost-efficiency.

Protecting the Quality of the Regional and Global Commons. Because of their persistence and ease of transport, POPs can have impacts on environmental and human health far from their original sources. In addition to the effects on the health of land, water, and wildlife, there is growing evi-

dence that POPs, especially those that are endocrine disrupters, are harming biodiversity.

POLICY ISSUES AND APPROACHES

A significant response by the international community to the POPs issue is the Stockholm Convention on Persistent Organic Pollutants, developed within five years of the initial request by the UNEP governing council (see Box 1). The convention identifies an initial set of 12 chemicals for control, 9 of which are pesticides. The chemicals fall into three main (nonexclusive) categories:

- 🌿 *Pesticides:* aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene (HCBs), mirex, and toxaphene
- 🌿 *Industrial chemicals:* HCBs and PCBs
- 🌿 *Unintended byproducts,* including dioxins and furans, which originate from incomplete combustion processes such as the incineration of hazardous wastes in substandard facilities but also from the processing of certain metals and from chlorine production.

Control of POPs is a complex issue. Many of the 12 POPs covered by the Stockholm Convention are no longer produced, yet persist in the environment, or they may be improperly stored in stockpiles of obsolete pesticides. DDT, chlordane, and mirex are among the POPs that are still being produced and used because fully tested and accepted alternatives are not yet available. For example, DDT is listed for eventual control under the Stockholm Convention, but it is still the most widely used method of controlling malaria. Alternatives may be more costly (at least in the short run), and testing their efficacy will take time. As noted in Box 1, the convention allows for continued use of DDT

for malaria control until alternatives such as treated bed nets and integrated vector control are fully tested and accepted throughout affected regions.

Policy approaches that can facilitate the phaseout of POPs and the acceptance and use of alternative methods and products might include:

Raising awareness among governments, civil society, and individuals. To illustrate, increased knowledge of the risks of POPs can limit acute exposure for farm laborers and their families and for communities located near unsafe pesticide stockpiles. At the government level, knowledge sharing can help concerned ministries prioritize and take appropriate action.

Promoting sound chemicals management. Such practices as disposing of chemical wastes through substandard incineration merely engender other problems with POPs emissions and contaminated ash. Governments need to pursue a “cradle to grave” approach to chemicals management.

Setting standards. Standards can create incentives for taking action, and their application can be phased to allow the realization of cost-efficiencies. For example, since PCB oils in electrical transformers do not pose a danger until drained, the transformers need not be replaced until they have reached the end of their useful life. No additional costs are incurred except for appropriate disposal.

BOX 1

THE STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS

The Stockholm Convention on Persistent Organic Pollutants was adopted in May 2001. By May 2002, over 150 countries had signed, and by the end of 2002, 25 countries had ratified or acceded to the convention. The key objectives of the convention are to:

- 🌿 Eliminate the production and use of specific POPs: aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, and toxaphene. There are exceptions for PCBs in use, and certain other limited exemptions.
- 🌿 Restrict the production and use of DDT, which is to be used only for disease vector control in accordance with World Health Organization guidelines.
- 🌿 Restrict exports of POPs.
- 🌿 Develop strategies for identifying stockpiles of POPs and products containing POPs.
- 🌿 Take measures to ensure that POPs wastes are managed and disposed of in an environmentally sound manner according to international standards and guidelines (e.g., the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal).
- 🌿 Endeavor to identify POPs-contaminated sites for possible remediation.
- 🌿 Ensure that PCBs are managed in an environmentally sound manner and, by 2025, take action to remove from use PCBs found above certain thresholds.
- 🌿 Develop and implement an action plan to identify the sources and reduce releases of POPs byproducts. Promote the use of best available techniques and best environmental practices.

Additional information on the Stockholm Convention is available at <www.pops.int>.

THE WORLD BANK'S RESPONSE

POPs issues cut across many sectors in which the Bank is actively working with its client countries—agriculture, health, water supply and sanitation, transportation, industry, energy and mining, and waste disposal. In addressing the environmental concerns posed by POPs, the World Bank is responding on a number of different fronts. As one of the implementing agencies of the Global Environment Facility (GEF)—the interim funding mechanism for the Stockholm Convention—the World Bank is assisting countries' efforts to comply with their obligations under this new global agreement. In time, this work

will translate into investments in identifying alternative technologies to facilitate the phaseout of POPs, in managing the safe disposal of pesticides and chemicals under the Stockholm Convention, in rehabilitating contaminated land, and in strengthening the regulatory framework, stocktaking, and monitoring.

The Bank is assisting client countries with the development and implementation of POPs-related operations. These projects aim to (a) replace POPs pesticides with nonchemical and least-toxic pest management methods in agriculture; (b) clean up obsolete stockpiles of POPs pesticides and end routine and illegal use of these substances (see Box 2); (c) replace DDT with effective and less harmful measures for controlling malaria and other diseases; (d) identify alternatives for waste disposal; (e) support relevant work in other industrial sectors; (f) raise public awareness about the impact of POPs on human and ecosystem health; and (g) contribute to knowledge concerning POPs through case studies reviewing the environmental and economic aspects of sectors that use or produce these substances.

In Latin America, Asia, and Eastern Europe the World Bank is assisting countries in developing national implementation plans outlining how they will meet their obligations under the Stockholm Convention. Studies on POPs issues that will support existing Bank work in areas such as health, mining, and tourism are under way in Peru and the Caribbean. The Bank's safeguard policies will be key tools for ensuring that its work properly addresses these environmental and human health issues. Some existing policies (for example, the Pest Management Policy, OP 4.09, which supports integrated pest management and tighter control of pesticides) are relevant to Stockholm Convention issues. In the near term, the Bank is assisting its client countries in the development of policies and approaches for the design and future implementation of national POPs strategies that can yield long-term, sustainable results. These initiatives are

BOX 2 THE AFRICA STOCKPILES PROGRAM

Obsolete pesticide stocks exist in almost every country in Africa, and the continent has a total of more than 50,000 metric tons of these wastes. The stocks pose a significant threat to human health and the environment through direct exposure, contamination of soil and groundwater, and the re-use of contaminated products. The Africa Stockpiles Program (ASP) will confront this threat through cleanup and disposal of the stockpiles in three or four phases over a period of 10 to 15 years. The ASP will also work to build capacity and put in place measures to help prevent the reaccumulation of such stocks. The program is being undertaken by a partnership that includes African regional organizations, nongovernmental organizations, the private sector, and international agencies (in particular, the Food and Agriculture Organization of the United Nations), with the World Bank taking the lead. The Global Environment Facility has approved US\$25 million for the first phase of the program, which will work with 15 client countries.

Additional information on the ASP is available at www.africastockpiles.org.

an integral part of the global effort, embodied in the Stockholm Convention, to eradicate POPs and remove the threat they represent to quality of life, economic growth, and the global environment.

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