DDT already eliminated in North America as world prepares to sign POPs Treaty

As environment ministers from around the world prepare to sign the POPs Treaty, North America has already eliminated one of the most infamous POPs of all, DDT

On 22–23 May 2001, the environment ministers or their representatives from the three NAFTA countries, along with their counterparts from around the world, will congregate in Stockholm, Sweden, to formally adopt and sign an international agreement to minimize and eliminate persistent organic pollutants (POPs), some of the most toxic substances ever created by human beings. The POPs treaty (formally known as the Conference of Plenipotentiaries for the Stockholm Convention on Persistent Organic Pollutants) is the product of United Nations Environment Programme (UNEP) negotiations that began in Montreal on 29 June 1998, and, after a total of five sessions, concluded on 10 December 2000, in Johannesburg, where diplomats from 122 countries finalized the text of the legally binding treaty.

The POPs treaty will apply to an initial list of 12 chemicals that cause adverse effects on humans and the ecosystem. They include eight pesticides (aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, and toxaphene), two industrial chemicals (PCBs and hexachlorobenzene, which is also a pesticide), and two unwanted byproducts of combustion and industrial processes (dioxins and furans). The treaty sets out control measures covering the production, import, export, disposal, and use of POPs. Each country will draw up national legislation and develop action plans to carry out their commitments. Under the treaty, most of the 12 initial POPs are subject to an immediate ban. Because it is still needed in many countries to control malaria-carrying mosquitoes, DDT has been granted a health-related exemption until it can be replaced with chemical and non-chemical alternatives that are cost-effective and environmentally friendly.

Mexico Shows Bold but Prudent Leadership in Malaria Control

Because DDT was widely used across the continent and does not respect political boundaries in its travels, Canada, Mexico and the United States recognized the need to work together to eradicate it from their shared environment. The three countries committed to eliminating the use of DDT and other POPs when they established the North American Commission for Environmental Cooperation (NACEC). Through NACEC's Sound Management of Chemicals program, in 1997 they established a North American Regional Action Plan (NARAP) on DDT as a vehicle to cooperate and share experiences in phasing out the substance.

Given that DDT had been banned in Canada and the United States since the early 1970s, Mexico has been the focus of action, where until recently DDT was still used to control

malaria. The NARAP guided Mexico in building on its national DDT reduction program, by using and evaluating the effectiveness of alternative chemicals and, in particular, various non-chemical controls. These included community participation in the environmental management of mosquitoes, the use of bacilli and nematodes to control the insects, and improving the Mexican Health Secretariat's surveillance, diagnosis and treatment system. Over the past two years, without relying on DDT, malaria cases have been reduced due to this alternative, integrated malaria control process. Through the NARAP, Mexico had committed to a reduction of 80 percent by 2000 and to stopping its use by 2002. The program was so successful that it completely stopped using DDT two years ahead of the plan's goal.

By developing and instituting a target-oriented strategy to replace DDT with effective alternatives, Mexico took bold yet prudent leadership in the face of malaria, a major killer in many tropical regions. The DDT NARAP is now being used as a model in other countries. Through a project supported by funds from NACEC and the United Nation's Global Environment Facility (GEF), the expertise Mexico gained in controlling malaria without DDT is being shared with Central American countries.

With the end of DDT use in all three countries, attention can now focus on ensuring that the remaining emergency stockpiles of DDT are safely stored or destroyed. North America is now well on the way to being essentially a DDT-free zone, putting it ahead of its commitments under the 2000 international POPs Treaty.

DDT, the infamous POP

Before the insidious effects of DDT on humans and wildlife were known, this potent nerve poison was widely used to control mosquitoes, black flies and other vectors that carry diseases such as malaria, typhus and yellow fever. Farmers also used it to control insect damage to their crops. In the 1950s and 60s, DDT was embraced as a cheap, effective, broad spectrum chemical pesticide. It was used worldwide and applied generously and indiscriminately to communities and crops alike. It did the job, reducing the threat of malaria and the loss of income to the agriculture industry.

But success came at a price. In 1962, in her seminal book *Silent Spring*, Rachel Carson showed that DDT was responsible for the deaths of thousands of songbirds. She alerted the scientific community to the dangers of chemical pesticides and soon the link was made between DDT and reproductive abnormalities, thinning eggshells and declining populations of a variety of bird species.

DDT's Traits

As a result, many countries stopped using DDT. Its manufacture and sale has been banned in the United States and Canada since 1972 and 1974, respectively. But despite this, DDT is still widely present in the environment because of three of its characteristics:

1. Mobility: DDT can be transported long distances because it evaporates, moves in the wind and condenses and falls to the land or water. This cycle repeats itself as it migrates northward with the prevailing air currents in what is called the 'grasshopper effect.' DDT and other POPs tend to concentrate in cold climates where they are trapped because of low evaporation rates, which allows them to enter the food chain. Animals and other organisms also carry POPs with them when they travel.

2. Persistence: DDT degrades extremely slowly and survives a long time after its initial application. Under certain conditions it can last for more than 30 years as small amounts of the chemical remain in the soil and are slowly transferred to crops or washed into watercourses.

3. Bioaccumulation: DDT is not easily metabolized in the body and tends to build up over time. It accumulates in the fatty tissue of fish, birds and animals and is transferred in increasingly concentrated amounts from prey to predator at each step up the food chain, delivering the highest doses to those at the top, such as predatory birds, mammals, and humans.

Thousands of kilometers from any major POPs sources, polar regions are particularly exposed to DDT and other POPs because of these traits. Especially threatened are indigenous peoples who rely heavily on animal protein in their traditional diets. Certain POPs are found in the breast milk of Inuit women at much higher levels than in women to the south. Babies who have been heavily exposed to DDT in the womb or through breast-feeding may have impaired immunity. Today, this man-made chemical is ubiquitous in our environment and food supply and we all have at least trace amounts in our bodies.

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