Rachel's Environment & Health News
#505 - The IJC's Eighth Report
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The IJC (International Joint Commission) has released its 8th biennial report on water quality in the Great Lakes.[1] The IJC is an international body created by the 1909 Boundary Waters Treaty between the U.S. and Canada, responsible for water quality in the Great Lakes. In its 1990, 1992, and 1994 reports, the IJC codified an important new approach to the control of toxics, calling for zero discharge and the ELIMINATION of persistent toxic substances. (See REHW #284 and #378.) The new, 8th report confirms the IJC's commitment to zero discharge and the elimination of toxics from the Great Lakes ecosystem.

A New Departure: The IJC's Approach to Toxics

In a joint 1978 Water Quality Agreement, the U.S. and Canada defined a "toxic substance" as "a substance which can cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological or reproductive malfunctions or physical deformities in any organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances."

The IJC in 1992 recommended defining a class of chemicals called "persistent toxic substances," which should then be ELIMINATED because they cannot be managed safely.

The IJC recommended that a persistent toxic substance be defined as any toxic chemical that bioaccumulates, or any toxic chemical that has a half-life greater than eight weeks in any medium (water, air, sediment, soil, or living things). Substances with either of these characteristics should be ELIMINATED, the IJC said.

The "half life" of a substance is the time it takes for half of it to disappear. For example, DDT has a "half-life" of about 20 years in soil; if a pound of DDT is released into soil today, half of it will still exist 20 years from now. The IJC recommends that any toxic substance with a half-life greater than 8 weeks be considered too dangerous to be released and should be ELIMINATED.

A substance bioaccumulates if its concentration increases as it moves through the food chain. For example, DDT may be found at one ppm (part per million) in fish and at 10 ppm in fish-eating birds. Thus DDT bioaccumulates. The IJC says any toxic substance that bioaccumulates should be ELIMINATED.

The IJC is recommending a completely new approach to chemical regulation. The standard way of managing toxics, used today by all federal and state agencies in the U.S. and Canada, is chemical-by-chemical risk assessment. This standard approach never bans, or even regulates, a chemical because of its inherent properties such as toxicity, persistence, or ability to bioaccumulate. Instead, each chemical is subjected to a "risk assessment." In a risk assessment, various assumptions are made about:

** the way the chemical will move through the environment after it has been released;

** which people and wildlife might become exposed to the chemical;

** and, finally, what sorts of toxic effects the chemical might cause in those exposed to it.

Such "risk assessments" are based on little more than sophisticated guesswork because so little is known about the ways in which chemicals move through the environment, the characteristics of the wildlife and humans that might be exposed, and the mechanisms of toxicity. (As one U.S. government risk assessor said recently: "Quantitative risk assessment to a large extent is still based on assumptions. There are a lot of critical assumptions that go into it that have yet to be verified biologically." --Ralph L. Kodell, U.S. Food and Drug Administration.[2]) Furthermore, risk assessments can never be scientific because all humans and all wildlife are constantly exposed to several (perhaps several hundred) chemicals simultaneously, and science has no way to predict the effects of multiple exposures.

Thus risk assessment is a kind of highly-paid intellectual monkey business, a game played by polluters and government regulators for their mutual benefit, at great cost to the public and to wildlife.

Because the results of risk assessment SEEM scientific, yet are ALWAYS subject to challenge, debate and revision (leaving plenty of room for political needs to be satisfied), risk assessment has become the main way that "business as usual" is justified, and allowed to proceed. Politically powerful polluters claim that their "risk assessment" shows that no harm will result from dumping billions of pounds of toxic chemicals and products directly into public air and water. Risk assessments by politically-sensitive government regulators typically conclude that the polluters cannot be proven grossly wrong, so must be given a license to proceed with their dumping. Everyone involved claims his or her work is based on "sound science." In the U.S., this is what passes for "chemical regulation" at the end of the 20th century.

This system was devised by Congress with the willing participation of most of the big environmental groups, so almost everyone has a stake in keeping the system intact, even though no one actually believes it works. Corporate lawyers and lobbyists spend their lives complaining that this system stifles creativity, innovation, and the entrepreneurial spirit, but in reality corporations are able to do pretty much anything they want (though they DO have to tolerate the ankle-biting of environmental lobbyists, the way bears eating honey have to tolerate bees), so long as they file the necessary paperwork with the regulatory bureaucrats who apply the necessary rubber stamp. The system amounts to little more than a job-creation program for corporate lawyers, government bureaucrats and environmental lobbyists.

The IJC's proposal is a new departure, would definitely work, and would prevent harm. It is clear, simple, and well-defined. Toxic is defined. Persistent is defined. Bioaccumulative is defined. If a chemical is toxic and either persistent or bioaccumulative, it should be eliminated, based on its intrinsic properties. No risk assessment needed.

This is a new direction for environmental management, one that offers hope that the world can be cleaned up, and that massive pollution can be PREVENTED at reasonable cost and with minimum bureaucracy. The 8th IJC report, just released, reaffirms the IJC's commitment to this new way of doing business:

"Protracted legal battles to remove DDT from use foreshadowed the continued struggles to reduce environmental contaminants. The time and resources required to document contamination and injury to establish linkages between cause and effect has [sic] inhibited action in a public health policy. A comprehensive approach to all persistent toxic chemicals is not only the preferred way to protect the integrity of the ecosystem and public health, but the only effective way," the new report says (pg. 8).

The 8th report goes on, "New studies are continuing to find various effects from exposure to persistent toxic substances on fish, wildlife and humans. Some effects are quite dramatic. Earlier studies are being re-examined based on new evidence. For example, a recent retrospective risk assessment suggested that dioxin in Lake Ontario may have caused complete reproductive failure in native lake trout populations by the early 1940s. This important fishery has required artificial stocking to this, day, with mixed results." (pg. 10)

And: "Mounting published evidence indicates that harm to humans from persistent toxic substances is similar to that caused in wildlife. Since our last Biennial Report, published studies indicate such harm is being caused, at least in part, by IN UTERO [in the womb] exposure to elevated levels of environmental estrogens. A synopsis

of research on endocrinal (hormonal) effects conducted in 1994 by the Danish Environmental Protection Agency showed that several aspects of human male reproductive health have declined over the past 30 to 50 years, including dramatic declines in sperm counts in otherwise healthy men to levels where fertility may be impaired. (See REHW #438.) Other cited problems are increased testicular cancer, undescended testis and genital tract disorders. The authors conclude that disorders seen today originated 20 to 40 years ago, during fetal and childhood development. Similarly, chemical influences on male reproductive health in today's babies may not become apparent for decades." (pg. 10)

"...[t]he emerging picture is not encouraging. The U.S. Agency for Toxic Substances and Disease Registry (ATSDR) is completing studies of potentially at-risk human populations in the Great Lakes Region, with fish consumption as the primary route of exposure to chemical contaminants. One study involved human infants in upper New York State whose mothers ate Lake Ontario salmon prior to pregnancy. The findings (preliminarily reported at our 1995 Biennial Meeting) support data of behavioral abnormalities found 15 years ago in progeny [offspring] of a similar group of mothers who ate Lake Michigan fish. The higher exposed infants in New York State were unable to adapt to mild frustration compared to a less exposed group. These new findings require us to ask again, what is the wisdom of exposing another generation of human infants to such toxins?" (pg. 11)

The 8th Report then returns to the subject of chemical-by-chemical, risk-assessment-based regulation:

"The practice of addressing one chemical at a time is a lengthy and resource-intensive process. The analysis, debate and negotiation over the risks, impacts and the restrictions for each chemical has effectively blocked regulation for years. This has been the case for dioxin, PCBs, DDT, various pesticides and a number of other chemicals....

"As a society, we cannot continue protracted debate while the actual or even suspected injury to living species continues to occur. Yet, this is precisely what occurs and will continue to occur until Governments address classes of chemicals rather than a few specific chemicals at a time....

"Approximately 72,000 chemicals are on U.S. EPA's TSCA [Toxic Substances Control Act] chemicals list, but regulations have been issued to control only nine new chemicals in 20 years, and the Act's provisions have not been used to control any existing substances other than PCBs....

"While proposed changes to the [Canadian Environmental Protection] Act are promising, the most restrictive procedures would be applied to a relatively small number of listed substances, based in part on risk assessment rather than their INHERENT TOXICITY....

"Reversing the onus, whereby the proponent manufacturer, importer or user would have to prove that suspected persistent toxic substances are not and will not be harmful, is a more reasonable and logical approach," the 8th IJC report says. (pgs. 15-17)

No doubt about it. This IS a new way of looking at things.

--Peter Montague (National Writers Union, UAW Local 1981/AFL-CIO)

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[1] International Joint Commission, EIGHTH BIENNIAL REPORT ON GREAT LAKES WATER QUALITY (Ottawa, Canada, and Washington, DC: International Joint Commission, July, 1996). Both reports are available free from the IJC. Telephone (in Detroit, Michigan): (313) 226-2170. In Canada, phone (519) 257-6700; fax: (519) 257-6740.

[2] Kodell quoted in Leslie Lang, "Strange Brew: Assessing Risk of Chemical Mixtures," ENVIRONMENTAL HEALTH PERSPECTIVES Vol. 103, No. 2 (February, 1995), pg. 144. Kodell is deputy director of the FDA's National Center for Toxicological Research in Jefferson, Arkansas.

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