

III. The Precautionary Principle and Toxics Use Reduction

By Joel Tickner

The Environmental Defense Fund (EDF) recently published a report entitled Toxic Ignorance, which follows a 1984 National Academy of Sciences (NAS) report that showed that we know little about the health effects of industrial chemicals. The EDF report found that 71% of some 3,000 high production/high priority chemicals lack even minimal screening data, the most basic of toxicological data. 52% of those chemicals on the Toxics Release Inventory, supposedly those most studied, lack basic data. For those chemicals identified as high exposure, 57% lack adequate data. Even less is known about chemicals that are of lower production or aren't of regulatory priority.

The authors conclude that uncertainty and ignorance about toxic chemicals and their effect has not improved since the NAS study yet government and industry continue to make decisions based on inadequate information that impact public and environmental health.

Many people would say the appropriate response to this lack of information is more testing and risk assessment. However, risk assessment cannot solve the problem of a lack of fundamental information about mechanisms of action or variability in exposure. Chemical by chemical risk assessment is costly and takes too long.

Risk Assessment was developed for well-defined, easily analyzed problems such as bridge construction. For complex environmental problems, risk assessment requires a wide variety of assumptions about hazard, exposure, dose-response, etc. Even single parameters such as human breathing rates can vary widely. The National Academy of Sciences has estimated that at least 50 assumptions are needed for the average risk assessment. As a

result, a single, simple risk assessment conducted by different scientists can vary widely in results.

The limitations of science to answer questions about cause-effect provide a clear rationale for the precautionary principle. We have great uncertainties about the effects of toxic chemicals on humans, some of which can be reduced, some not. We have to be clear that what we do in the face of scientific uncertainty is a policy decision, not a scientific one: not acting is a decision.

The precautionary principle says "act based on suspicion rather than proof." It demands that we look to see if there is a safer way of doing things. Rather than "how much is safe", which we can never know with any certainty, it asks "how much contamination can be avoided? What are the alternatives to this product or activity? The precautionary principle focuses on options, not risk, which shifts the nature of the problem to be solved. It forces the initiator of an activity to address fundamental questions of how it can behave in a more environmentally sensitive manner. When looking at options, risk assessment is relegated to a second tier, used for comparing options.

The Massachusetts Toxics Use Reduction Act (TURA) is a salient example of the principle of precautionary action. Passed in 1989, the Act requires that manufacturing firms using specific quantities of some 900 industrial chemicals undergo a bi-yearly process to identify alternatives to reduce use of those chemicals. There are several aspects of Toxics Use Reduction that make it a good example of precautionary action.

First, the Commonwealth established a goal of a 50% reduction of toxic by-product (waste) through toxics use reduction techniques.

Second, the Act does not instruct industrial facilities to identify the "safe" level of use, emissions or exposure to chemicals. Rather, the act instructs firms to identify ways to reduce their waste and,

subsequently, use of those chemicals - any amount of use is considered too much.

Third, the act instructs companies to go through an alternatives assessment process whereby they understand why they use a specific chemical (what "service" it provides); how it is used in the production process. They conduct a comprehensive financial, technical, environmental, and occupational health and safety analysis of viable alternatives. The firm is not required to undertake any particular option but in many cases the economic and environmental/health and safety benefits provide enough justification for action (waste is a sign of inefficiency in a production process and there are very high costs associated with chemical purchases, tracking, and waste disposal).

Lastly, companies are required to measure their progress yearly at reducing their use of toxic chemicals. This information is publicly available.

While the burden of proof is on the firm to identify alternatives and analyze their chemical impacts, Massachusetts provides support to ensure that progress is made reducing toxic chemical use.

Last year, TURI conducted an analysis of the Act. From 1990-1995 companies in Massachusetts reduced their toxic chemical emissions by more than two-thirds, their total chemical waste by 30% and their total use by 20%. On the cost side, the Act saved Massachusetts' industry some 15 million dollars. This figure does not include the public health and environmental benefits gained through the program.

Toxics use reduction provides an example of how the precautionary principle can be applied to industrial chemicals. The process involves understanding what you are trying to do, how you are doing it, measuring impacts and progress, and systematically searching for and analyzing alternatives on a

regular basis. This process can be applied to most human activities that impact public health or ecosystems.

Massachusetts now has an opportunity to expand on the Act by passing precautionary principle legislation introduced by the Hon. Pamela Resor. This legislation was brought before the Natural Resources Committee in last year's session. It is currently being redrafted to reflect the Wingspread conference on the precautionary principle.

In the end, if we are to move forward with the precautionary principle, more types of legislation like that passed in 1989 and now introduced in Massachusetts will be needed.

(This article is based on testimony provided before the Natural Resources Committee of the MA House of Representatives in Nov., 1997)