

Current Status and Implementation of the Precautionary Principle

Discussion of the role of the precautionary principle in environmental health policy has intensified in recent months, especially in the European Union and in the international arena but also in the United States and Canada. Much of this debate has been fueled by trade controversies over beef and milk containing growth hormones and over genetically modified foods. The precautionary principle dominated discussions at the recent Biosafety Protocol meeting in Montreal and was at the core of the final protocol. At last fall's World Trade Organization Ministerial meeting in Seattle, controversy swirled around the precautionary principle. The principle has been a central element in recent discussions of international food safety standards (Codex Alimentarius).

The Maastricht Treaty forming the European Union stated that Community environmental policy should be based on the precautionary principle and that environmental damage should be prevented at source. The European Commission has been debating the principle for several years and produced a Communication in February 2000 that solidifies the principle in European environmental policy and seeks to define its use.

Each EU member state accepts precaution as a general principle of environmental policy. The Danish Environmental Protection Agency held a national conference in 1998 to examine how the principle should be implemented. The British, Scottish, and Swedish governments have been undergoing similar exercises. The European Environment Agency will soon release a report examining several case studies of where precaution was and was not taken and offer recommendations for its implementation. Several other countries including Hungary and Brazil have adopted precaution as a guiding principle.

The United States has not adopted precaution as an explicit basis for environmental policy, even though this country has ratified the Rio Declaration on Environment and Development, which obliges nations to exercise the precautionary principle. Nonetheless, precaution has been articulated in some U.S. environmental laws and early court interpretations, as well as by the U.S. President's Council on Sustainable Development, in a 1996 statement of guiding principles for sustainable development. There has been little government or public debate about the precautionary principle in the United States, although this is changing. As the principle comes to the fore on the international arena and as environmental activists and academics embrace the principle with growing enthusiasm, U.S. officials are forced to come to terms with the principle and its meaning.

So far, U.S. official responses have been mostly negative. They come not from agencies with direct responsibility for environmental and health matters but from the U.S. Department of State, the U.S. Trade Representative, and the U.S. Department of Commerce, the latter two representing mainly economic and industrial interests. The bodies most competent to speak on matters of health and the environment - the Environmental Protection Agency, the Occupational Safety and Health Administration, and the Department of Health and Human Services - have been mostly silent.

That is partly because the World Trade Organization and other international economic institutions, such as the World Bank and the International Monetary Fund, are taking an increasingly important role in defining environmental policy throughout the world. By narrowly defining the basis for environmental decision-making (in terms of quantitative risk assessment), WTO rules serve to limit the breadth of international discussions on the precautionary principle and the ability of countries to take precautionary measures. WTO rules require that countries who institute environmental or health protection measures that might inhibit trade can only do so on the basis of a quantitative risk assessment and so long as the action (or standard) is consistent with international standards set by agencies such as Codex Alimentarius. Any stricter standard is at risk of being challenged by another country as a trade barrier. Any weaker standard, however, cannot be challenged as environmental dumping. While countries can take emergency measures to protect health or the environment, these are only "temporary" until further scientific information can be gathered.

The United States, some other countries (although not European ones), and some industry organizations have argued that the precautionary principle is being wielded as a protectionist measure - that it is redundant because "conservative" assumptions are already built into risk assessments and because the WTO already provides for emergency measures. On the other hand, a November White House statement said nations have the right to invoke the precautionary principle to protect their citizens, although such decisions should be based on science and should

not be arbitrary.

(For a summary of arguments for limiting the precautionary principle and responses to these points, see Nancy Myers, "Debating the Precautionary Principle," Science and Environmental Health Network, March 2000.)

The international trade regime is designed for economic liberalization and not for environmental protection or sustainable development. The priority given to the WTO and other trade harmonization schemes like Codex Alimentarius has contributed to certain weaknesses in the recent European Commission Communication on the Precautionary Principle. The statement also reflects the trend toward reductionism in environmental science and a lack of understanding of the complex nature of environmental threats:

- The Communication describes precaution as a risk management tool - only a part of a risk analysis framework rather than the overall guide to its implementation. According to this argument, precautionary action should only be taken after experts prepare an "objective" quantitative risk assessment.
- Precaution is discussed in the context of risk containment, not in terms of preventing risks and harm. This assumes that risks are inevitable and must be accepted by society - only the degree of acceptable risk is in question. The importance of assessing alternatives to potentially harmful activities is completely missing from the Communication.
- Precaution is seen as a temporary measure pending further scientific information. This is based on the assumption that science can eventually provide answers.

On the positive side, the Communication acknowledges the need to incorporate qualitative scientific evidence (not just quantitative evidence) and consider multiple disciplines and sources of information. While it calls for cost-benefit analysis, it notes that such quantitative analyses cannot always be undertaken. More important, it says that protection of health and the environment should come before economic concerns.

What is missing from such highly qualified, economics-based statements on precaution is the spirit of the original German framers of the Vorsorgeprinzip and the most thoughtful subsequent interpretations of the precautionary principle. The precautionary approach calls not only for foresight, but for "forecaring," to translate the German term directly. The principle embodies the idea of careful planning to avoid risks in the first place, rather than trying to determine how much risk is acceptable. The German framers of the principle believed that implementing the principle would not impose great economic hardship but would instead stimulate innovation and create jobs in the growing field of environmental technologies. Aggressive planning was viewed as central to sustainable development goals.

At the core of each subsequent statement of precaution is the idea that action should be taken to prevent harm to the environment and human health, even if scientific evidence is inconclusive. This essential component of the principle has been integrated into international environmental treaties, beginning with the Montreal Protocol and the Second International Convention on Protection of the North Sea in 1987. Since then, the principle has gained status as a customary principle of international environmental law. It has been built into virtually every international environmental treaty and declaration, including the 1992 Rio Declaration on Environment and Development, the 1990 and 1992 Global Climate Change Conferences, the 1992 Convention on Protection of the Environment of the Northeast Atlantic, and most recently the February 2000 Biosafety Protocol of the Cartagena Convention. The 1990 Bergen Ministerial Conference on Sustainable Development linked the concept of precaution to sustainable development.

The differences among these statements have to do mainly with how the principle should be carried out. The Rio Declaration calls for "cost-effective" measures to prevent degradation. The 1991 Bamako Convention calls for the implementation of clean production measures to prevent harm to the African environment. The 1998 Wingspread Conference on the Precautionary Principle summarized four components of the precautionary principle that should guide its implementation:

The Environmental Health Network and the Lowell Center for Sustainable Production, 1999

- action to prevent harm despite uncertainty,
- shifting the burden of proof to proponents of a potentially harmful activity,
- examination of a full range of alternatives to potentially harmful activities, including no action, and
- democratic decision making to ensure inclusion of those affected.

Elements of these four components have appeared in some statements of the principle and in some national implementation efforts. For example, in Sweden precaution is linked to the substitution principle, the ecocycle society principle, the sustainability principle, and the polluter pays principle. Unfortunately, however, most of the debate around precaution has focused on its interpretation and role in environmental policy rather than on tools and processes to guide precautionary action.

Precaution will be implemented in different ways in different countries. In the United States, implementing such an overarching principle will be especially challenging because industry holds great power over decision-making; because decision-makers rely on science to quantify environmental threats (to protect themselves in the courts); and because of the inflexible and often prescriptive nature of the U.S. environmental regulatory system. Innovation in U.S. environmental policy has been largely missing in recent years, due in part to increasing conservatism in national politics. As a result, the precautionary principle is likely to be debated and implemented on a local and state level, where there are more opportunities for innovative public policy. Legislation and policy implementing the principle at the local level can then influence national policy.

Implementing the precautionary principle is likely to be easier in Europe, where there is more flexibility in law and policy. There is more freedom to make political decisions in the face of scientific uncertainty, without having to quantify effects; less judicial review of decisions; and less influence by economic interests. The precautionary principle is more likely to be implemented on a national and international level in Europe.

Differences in the way the United States and European countries might implement precaution are illustrated in the controversy over phthalates in PVC children's toys. The Danish government banned phthalates in toys designed for children under three without calculating risks quantitatively.

Instead, they based the decision on qualitative considerations:

- exposure was occurring;
- phthalates are toxic to laboratory animals;
- children may be uniquely susceptible to toxic substances;
- alternatives were readily available.

By contrast, the U.S. government prepared a quantitative risk assessment of the impacts of phthalate exposure to children and found that the risk was very low. Nevertheless, officials called for a voluntary removal of phthalates based on residual uncertainties. And several major toy companies quickly complied, touting their decision, which was no doubt based on market pressures and the threat of litigation, as a voluntary move to protect the safety of children.

What structures and changes will be required to implement the precautionary principle? The first change should be the questions asked by decision-makers. Instead of asking, "What level of risk is safe or acceptable?" they must ask, "What alternatives exist to a potentially harmful activity?" and "Can harm be prevented?" These questions will shift the focus from analysis to careful planning.

Second, implementing precaution requires changes in science. The precautionary principle calls for more rigorous and honest science, drawing evidence from multiple disciplines and constituencies and being clear about uncertainties (including what is known, not known, and can be known).

Science must better anticipate harm and identify solutions. This requires qualitative methods in decision-making, that is, the exercising of good judgment. For example, a weight-of-evidence approach examines the cumulative sum of information, including common sense and experience. We must develop decision-making approaches that go

beyond examining risk and causality to consider the magnitude of potential harm, reversibility, temporal and spatial scales, vulnerable populations, need, and availability of alternatives.

Various components of a policy structure to implement the precautionary principle should be applied in all countries and all situations. Precautionary action need not always mean banning a potentially hazardous activity. There must be ways to say "yes" - with caution. Such tools and structures would shift the responsibility to those who create risks to examine and choose the most environmentally friendly options. Some of these components are:

- General duties to take preventive, precautionary action in the face of uncertainty. This would put in place a responsibility for government and businesses to act in a precautionary way if there is evidence that an activity (or substance) might pose a risk to health or the environment, even if there is no specific regulation of that activity. Such general duties can be accomplished through constitutional rights to a clean and healthy environment as well.
- Goal-setting for environmental and public health protection. Aggressive environmental health goals provide a stimulus for innovation and an acknowledgment of potential risks, even without proof of causality. For example, the Swedish government has proposed phasing out persistent and bioaccumulative substances in products by the year 2007 because they have characteristics that are not compatible with sustainability.
- Focusing on preventing harm by identifying safer and cleaner ways to provide specific services. Clean production is a well-known set of techniques to implement the precautionary principle. Clean production, which attempts to reduce the materials and toxics used in services and products, has been demonstrated not only to produce benefits to the environment but also to increase economic competitiveness and innovation. Other prevention-oriented methods include: pre-market testing; environmental impact assessments and audits; limitations pending further testing; labeling; and health-based exposure limits.
- Monitoring to continuously measure potential adverse effects of both current and alternative activities. Decisions made under a precautionary framework must be followed by continuous monitoring to ensure that they can be updated as new information becomes available. The goal should be to continuously improve environmental conditions, anticipate potential impacts before they occur (obey warning signals), and take action to prevent harm based on this information.
- Economic incentives to promote precaution. Polluters should be responsible for paying the full costs associated with the health and environmental damage they create. Environmental bonds, for example, provide an incentive to prevent harm in the face of uncertainty.
- Democratic decision-making structures. Because decisions regarding health and the environment are "public" decisions, those who might be affected must have a say in the decision-making process. Structures such as lay person juries, citizen advisory committees, local negotiation, and science shops can ensure that citizens have both the knowledge and access necessary to influence complex decisions.

(For a further elaboration of these components see Joel Tickner, "A Map Toward Precautionary Decision-Making" in C. Raffensperger and J. Tickner, eds., *Protecting Public Health and the Environment: Implementing the Precautionary Principle*, Island Press, 1999.)

While current trends provide reason for concern about the future of the precautionary principle in environmental policy, recent actions, initiatives, and statements on the principle by NGOs, academics, and some government officials offer some hope. Networks of environmental and consumer NGOs on both sides of the Atlantic are refining their understanding and positions on the precautionary principle and developing structures for its implementation.

Many academic researchers are orienting their research towards practical implementation of the principle. Finally, some political leaders are clearly articulating the fundamental importance of precaution in protecting the environment for future generations. These developments justify a sense of optimism that the precautionary principle

will in the future serve as an overarching principle to guide efforts towards sustainability.

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