The Precautionary Principle

A Common Sense Way to Protect Our Health & Environment

What is the precautionary principle?

The 1998 Wingspread Statement on the Precautionary Principle summarizes the principle this way: "When an activity raises threats of harm to the environment or human health, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically."

All statements of the Precautionary Principle contain a version of this formula: *When the health of humans and the environment is at stake, it may not be necessary to wait for scientific certainty to take protective action.*

Is there some special meaning for "precaution"?

Precaution is the common sense idea behind many adages: "Be careful." "Better safe than sorry." "Look before you leap." "First do no harm."

"Precautionary principle" is a translation of the German *Vorsorgeprinzip*. *Vorsorge* means, literally, "forecaring." It carries the sense of foresight and preparation—not merely "caution."

The principle applies to human health and the environment. The ethical assumption behind the precautionary principle is that humans are responsible to protect, preserve, and restore the global ecosystems on which all life, including our own, depends.

Why should we take action before science tells us what is harmful or what is causing harm?

Sometimes if we wait for certainty, it is too late. Scientific standards for demonstrating cause and effect are very high. For example, smoking was strongly suspected of causing lung cancer long before the link was demonstrated conclusively. By then, many smokers had died of lung cancer. However, many other people had already quit smoking because of the growing evidence that smoking was linked to lung cancer. These people were wisely exercising precaution despite some scientific uncertainty.

When evidence gives us good reason to believe that an activity, technology, or substance may be harmful, we should act to prevent harm. If we always wait for scientific certainty, people may suffer and die and the natural world may suffer irreversible damage.

How do we implement the precautionary principle?

The precautionary principle is most powerful when it serves as a guide to making wiser decisions in the face of uncertainty. *Any action that contributes to preventing harm to humans and the environment, learning more about the consequences of actions, and acting appropriately is precautionary.*

Precaution does not work if it is only a last resort and results only in bans or moratoriums. It is best linked to these implementation methods:

- Exploring **alternative ways** to do things, especially "clean" technologies that eliminate waste and toxic substances;
- Placing the **burden of proof** on proponents of an activity rather than on victims or potential victims of the activity;
- Setting and working toward **goals** that protect health and the environment; and
- Bringing **democracy and transparency** to decisions affecting health and the environment.

Why do we need the precautionary principle now?

The effects of careless and harmful activities have accumulated over the years. Humans and the rest of the natural world have a limited capacity to absorb and overcome this harm. There are plenty of warning signs:

- Chronic diseases and conditions affect more than 100 million men, women, and children in the United States—more than a third of the population. Cancer, asthma, Alzheimer's disease, autism, birth defects, developmental disabilities, diabetes, endometriosis, infertility, multiple sclerosis, and Parkinson's disease are becoming increasingly common.

- In laboratory animals, wildlife, and humans, considerable evidence documents a link between levels of environmental contamination and malignancies, birth defects, reproductive problems, impaired behavior, and impaired immune system function. Scientists' growing understanding of how biological systems develop and function leads to similar conclusions.
- Other warning signs are the dying off of plant and animal species, the destruction of ecosystems, the depletion of stratospheric ozone, and the likelihood of global warming.

Serious, evident effects such as endocrine disruption, climate change, cancer, and the disappearance of species can seldom be linked decisively to a single cause. Scientific standards of certainty may be impossible to attain when causes and outcomes are multiple; latent periods are long; timing of exposure is crucial; unexposed, "control" populations do not exist; or confounding factors are unidentified.

We have lots of environmental regulations. Aren't we already exercising precaution?

Precaution is at the basis of some U.S. environmental and food and drug legislation, although the principle is not mentioned by name. These laws incorporate foresight, prevention, and care, and many give regulators authority to take action to prevent possible but unproven harm. For example:

- As a precautionary measure, the Food and Drug Administration requires all new drugs to be tested before they are put on the market.
- The Food Quality and Protection Act of 1996 requires pesticides to be proven safe for children or removed. Several are being phased out.
- The National Environmental Policy Act is precautionary in two ways: 1) It emphasizes foresight and attention to consequences by requiring an environmental impact assessment for any federally funded project; and 2) it mandates consideration of alternative plans. NEPA is one of the best national examples of precautionary action.

Other laws are precautionary in intent. The Wilderness Act sets aside certain areas as nonviolable. The Occupational Safety and Health Act imposes a general duty on employers to provide safe working conditions and workplaces. The Endangered Species Act sets the goal of protecting biodiversity. The Clean Water Act establishes strict goals to "restore and maintain the chemical, physical, and biological integrity of the nation's waters."

Unfortunately, precautionary action has been the exception rather than the rule in U.S. environmental policy. Instead, even laws with precautionary intent and substance have been undermined, overridden, and poorly enforced.

Why have these laws failed to protect people and the environment?

Many regulations are aimed at cleaning up pollution and controlling the amount released into the environment rather than preventing the use and production of toxic substances. These laws are based on the assumption that humans and ecosystems can absorb a certain amount of contamination without being harmed. We are now learning how difficult it is to know what levels of contamination, if any, are safe.

But the greatest weakness in most conservation and toxics policies is that *they are based on the expectation that science can and must provide definitive proof of harm before protective action is taken.* This assumption creates a loophole in regulations, giving the benefit of the doubt to products, technologies, and development projects, even those that are likely to have harmful side effects.

How does the precautionary principle change all that without bringing the economy to a halt?

Preventive policies encourage the exploration of better, safer, and often ultimately cheaper alternatives—and the development of cleaner products and technologies. As public awareness grows of hazards and of safer alternatives, these practices represent not only good ethics but also smart business. The markets of the Twenty-First Century will increasingly demand safe products and sustainable technologies.

Countries that implement the precautionary principle, such as Germany and Sweden, are now exporting environmentally sound technologies. Other countries risk being left behind, with outdated, polluting facilities and technologies. When the public has a say in the deployment of technologies, society and future generations receive more benefits and pay fewer costs in money, suffering, and diminished resources.

How is the precautionary principle being used?

The precautionary principle should become the basis for reforming environmental laws and regulations. It can also be applied in industrial practices, science, consumer choices, education, city planning, and legal practice. Here are some examples of policies specifically based on the precautionary principle:

- San Francisco has adopted an environment code with the precautionary principle as article one. For a start, the city is applying the principle to its purchasing decisions.
- The European Union is forming a comprehensive policy, based on the precautionary principle, which would require all chemicals to be tested for their effects on health and the environment. It would put the burden on chemical manufacturers to demonstrate their products are safe. In addition, it would give government immediate authority to regulate substances that show problems.
- Two recent treaties, the Cartagena Biosafety Protocol and the Stockholm Treaty on Persistent Organic Pollutants, invoke the precautionary principle to govern genetically modified organisms and some toxic chemicals.
- The Los Angeles Unified School District adopted the precautionary principle to limit pesticide use in schools. A number of North American cities have similar ordinances.
- Legislation has been introduced in New York State applying the principle to state-funded new technologies. Massachusetts is considering precautionary principle legislation governing the phase-out of certain chemicals.
- Verizon Wireless sent a brochure in July 2001 to its US cell-phone customers describing the potential harm to children from radio frequencies emitted by cell phones. Verizon suggested parents adopt the precautionary principle and limit children's use of cell phones.