Last issue we began answering some of the criticisms of the precautionary principle. Of course, ours are not the only possible answers.

The precautionary principle is a new way of making decisions, and it is slowly replacing the "old way." Here is an example of how the "old way" worked: someone develops a new chemical for cleaning refrigerators. They do a "risk assessment" on that chemical and determine that it will only cause "acceptable" harm to humans and the environment. They commercialize the chemical, create a "need" for it by advertising, and rake in the money. They have strong incentives not to study the effects of their chemical, so the first signs of trouble are reported by citizens, and those early reports are ridiculed, denied and labeled "junk science." After a couple of decades, the chemical manufacturer (without ever admitting that the citizens were right) introduces a new refrigerator-cleaning chemical that they say is a big improvement and will only cause "acceptable" harm. Their risk assessment proves it. The merry-go-round continues.

The precautionary principle begins by asking, "What's the goal?" Answer: Clean refrigerators. "What's the least-damaging way to reach the goal?" This leads to an examination of alternative ways of cleaning refrigerators and a search for the least-harmful way (including, probably, vinegar-and-water or perhaps soap-and-water). The overarching goal isn't to inflict "acceptable" damage on humans and the environment -- the main goal is to avoid harm to the extent that we can. Once the least-harmful way has been selected, monitoring continues in case the decision was flawed (always a possibility).

So here are more answers to some of the criticisms of precaution:

Criticism #7: The precautionary principle is based on values and emotions and not on science.
Response #7: Everything we do is based on values. Of course the precautionary principle is based on values, but so is the old way -- the two approaches just emphasize different values.

The precautionary principle makes one set of values explicit - - protecting humans and ecosystems -- and puts that out front. Under the "old way" we try to hide our values behind "science," using scientific uncertainty as a cover for valuing short-term, private gain and ignoring the long-term and public/environmental consequences of our actions.

Even science starts with values. Scientific inquiry always begins by asking a question, and the questions that scientists choose to ask arise from particular values, particular assumptions about what is important.[1] So with science and precaution, as with all of life -- values come first.[2] There is nothing wrong with this. Indeed, there is no way to escape it. Making values explicit helps people understand what's really going on, and clarifies our choices as citizens.

Advocates of the precautionary principle definitely don't turn their backs on science, But they also don't turn their backs on other kinds of knowledge. Science is not the only valid way of knowing about the world; other kinds of knowledge can be useful to decision-makers -- historical knowledge, business knowledge, spiritual knowledge, local knowledge, community preferences, cultural values, artistic perceptions, and so on, can all play a valuable role in informing decision-makers.

Science cannot tell us what's best for society. Scientific experts can provide valuable information, but when it comes to setting political goals and making public policies, scientists have no special expertise. As the European Environment Agency has said, "Science should be on tap, not on top." We citizens should decide what we really want (our goals), take all available scientific information into account, take all the other relevant information into account, then do our best to become wise decision-makers.

Who are wise decision-makers?

** Those who are willing to monitor the consequences of their decision, to try to learn from past choices;[3]
** who are willing to revisit past decisions periodically, update their assessments, and modify policies accordingly;
** who favor decisions that can be reversed if things start to go sour;
** who experiment and try to learn before making a full-scale commitment down an unknown path;
** who consider all available alternatives, considering both costs and benefits before proceeding;
** who involve affected parties in decisions from the earliest stages when questions are being asked and goals set;
** who consider intergenerational equity in all decisions, asking whether we are saddling future generations with costs (or diminished opportunities) that we ourselves should be bearing;
** who ask whether justice and fairness are enhanced by the decision;
** who ask whether the decision will increase or decrease inequalities within and between communities;
** who ask what effect the decision will have on the most vulnerable and least capable among us.

Criticism #8: The precautionary principle envisions a new role for government, one without precedent or legitimacy.
Response #8: On the contrary, government has an ancient legal obligation to take precautionary action, to protect the public trust.
The Public Trust Doctrine is a legal doctrine handed down to us from Roman law, through English law, into the law of the 13 original colonies and now the states.[4]

The public trust doctrine asserts that the sovereign (in our case, state government) has an inalienable duty (a duty that cannot be denied or given away) to protect the common wealth -- air, water, wildlife, public health, our genetic heritage, and more -- which we all inherit and own together and none of us owns individually.[4]

As trustee, government must protect the trust assets (nature and human health) for the trust beneficiaries (present and future generations). Government even has a duty to protect the trust assets against harmful actions by the beneficiaries themselves, and so from time to time government must limit some of the prerogatives of private property in order to protect the common wealth for present and future generations.

In carrying out its duty to protect the public trust, government has a duty to anticipate harm, to look ahead to protect the trust against impending threats.[5] If government waits until harm can be demonstrated beyond doubt, then it will be too late -- the trust property will be damaged and government will have failed in its duty as trustee.

The precautionary principle provides a way for government to fulfill its responsibility to protect the public trust, to anticipate and avoid harm, to foresee and forestall. If there is no guarantee that any particular firm will be able to make good on the financial commitment inherent in "agreeing to pay for any harm that ensues, and taking responsibility for remediation as needed." If the Superfund program teaches us anything, it teaches us that even large firms claim that they cannot afford to remediate the problems they have created.

To deter fly-by-night firms, and to institutionalize the principle that "the polluter shall pay," ecological economist Robert Costanza has proposed a "precautionary principle polluter pays" (4P) assurance bond.[8, pgs. 209-215.] Using the "4P" approach, before a new technology, process or chemical could be introduced, the worst-case harm would be estimated in dollar terms. Then the proponent of the new activity would be required to post a bond for the full amount before startup.

Such "assurance bonds" are common in the construction industry today, to assure that a job will be completed on schedule and they are intended to keep "fly by night" firms out of the construction business where they might cut corners and endanger public health.

A "4P" bond effectively shifts the burden of proof onto the proponent -- the burden of producing information to show that the activity is less harmful than was initially assumed (or, if harm becomes evident, to pay restitution by forfeiting a portion of the bond). A "4P" bond would also give the proponent powerful financial incentives to reduce the worst case damages by, for example, adopting intrinsically safer alternatives.

Criticism #11: We don't need this new way of doing things because we're doing better than our predecessors did. We're even doing better than we ourselves did last year. We have new technologies that won't pollute as much as the old technologies polluted.

Response #11: The question isn't whether you are doing better than your predecessors, or better than you did last year. The question is, are you doing the best you can to protect human health and the environment? The precautionary
approach assumes you want to achieve your own goals, and the community’s goals, by the least-harmful means available. Precaution provides a way to learn whether you are measuring up to that standard. --Peter Montague


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