

Rachel's Environment & Health News

#670 - Hazardous Materials Policy

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A "sustainable" activity is one that you believe you can continue indefinitely into the future. Or at least for seven generations (roughly 200 years).[1]

As we saw last week, leading scientific societies say that the future promises irreversible environmental degradation and continued poverty for much of the world unless we control human population and change patterns of human activity. "The future of our planet is in the balance," said a 1992 statement issued jointly by the Royal Society of London and the U.S. National Academy of Sciences. (See REHW #669.) "The next 30 years may be crucial," these scientific societies said 7 years ago.

It is particularly important that the so-called "developed" countries change their ways. As the 1992 joint statement said, "Developed countries, with 85 percent of the world's gross national product and 23 percent of its population, account for the majority of mineral and fossil-fuel consumption. One issue alone, the increases in atmospheric carbon dioxide, has the potential for altering global climate with significant consequences for all countries. The prosperity and technology of the developed countries, however, give them the greater possibilities and the greater responsibility for addressing environmental problems."

What kinds of changes are needed? A group of Swedish scientists has described 4 conditions that are essential for sustainable use of the Earth. A worldwide movement, called The Natural Step, is promoting these four conditions, especially among business organizations.[1] The four "system conditions" necessary for sustainability are stated succinctly, so it is worth repeating them, then adding some flesh to the bare bones:

(1) Substances mined from the Earth's crust must not systematically increase in air, water, soil, or living things. This means that fossil fuels and metals must not be produced at a faster pace than their slow redeposit and reintegration into the Earth's crust;

(2) Substances created by humans must not systematically increase in air, water, soil, or living things. This means that substances must not be produced at a faster pace than they can be broken down and integrated back into the cycles of nature;

(3) The physical basis for productivity and diversity of nature must not be systematically diminished. This means that we cannot harvest or manipulate ecosystems in such a way that their productivity and diversity are systematically diminished.

(4) There must be a fair and efficient use of resources in meeting human needs. This means that basic human needs must be met efficiently, effectively, and fairly; it also means that the satisfaction of basic human needs must take precedence over the provision of luxuries.[1]

As we said in REHW #668, we consider condition #4 the most important for two reasons: (1) unfair distribution of resources is morally wrong; and (2) if we can't achieve a fair distribution of resources, we will remain mired in conflict, unable to organize ourselves effectively to achieve the first 3 system conditions. All will be lost. More on condition #4 at a later time.

The first two Natural Step "system conditions" are not difficult to understand. They require humans (1) to refrain from pulling materials like oil and metals out of the Earth faster than natural processes can re-incorporate such materials into the deep earth; and (2) to refrain from creating materials that nature cannot break down and recycle into their natural constituents.

However, to make these two system conditions workable, we need guidelines. Fortunately, useful guidelines have been developed by the Swedish government and others.

A General Duty to Investigate and to Warn

In 1985 the Swedish government passed a law called the Act on Chemical Products.[2] Article 5 of the Act says,

"Anyone handling or importing products hazardous to man or the environment shall take such steps and otherwise observe such precautions as are needed to prevent or minimize damage to man or the environment. Particularly anyone manufacturing or importing such a product must carefully investigate the composition of the product and its properties from the perspective of health and environmental protection. The products shall be clearly labeled with data of importance from the point of view of protecting health and the environment."

Thus we can see that the old excuse, used so often by American industry -- "Gosh, we just didn't know" -- is now a crime in Sweden. In Sweden, anyone using hazardous materials has a duty to investigate and to warn.

Principle of Precautionary Action

Of course Sweden is not alone in adopting the precautionary principle, which says, "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically." In other words, if you have reason to believe something bad might be about to happen, you have a duty to take action to prevent it from happening. This simple idea is forming the basis of a new approach to hazardous technologies world-wide. Eventually even U.S. corporations will be affected.

The Substitution Principle

In 1990 the Act on Chemical Products was amended to include the Substitution Principle, which reads:

"Anyone handling or importing a chemical product must take such steps and otherwise observe such precautions as are needed to prevent or minimize harm to man or the environment. This includes avoiding chemical products for which less hazardous substitutes are available." Thus anyone using hazardous materials has an obligation to search for -- or produce -- less harmful alternatives and to adopt those alternatives. Failure to apply the substitution principle is a violation of law in Sweden. In some instances, the substitution principle is automatic. For example, under Swedish law, if a new pesticide is registered that is safer than an older one, the older one automatically loses its registration.

Principle of Reverse Onus

What if there is doubt about the hazardous nature of a material? In situations where there are scientifically-based suspicions of harm about a chemical or product, the Principle of Reverse Onus (or Reverse Burden of Proof) holds: the burden is on the user or producer of a hazardous chemical or product to convince government authorities, beyond a reasonable doubt, that the product does not deserve to be restricted and that it is the least-damaging alternative available. The burden is not on the public (or the government) to prove harm -- at least not in Sweden.

The Polluter Pays Principle

This simple, clear idea places the financial burden for pollution squarely on those who pollute. (So far as I know, Sweden has not formally adopted this principle.) To avoid the situation, common in the U.S., in which the polluter declares bankruptcy (though, often, continues to do business, thus effectively evading liability), a "flexible assurance bond" could be required before a new technology or product is introduced.

The flexible assurance bond originated with Robert Costanza at University of Maryland. The idea is similar to performance bonds that are common today in the construction industry. (See REHW

#510.)

Under the flexible assurance bond plan, anyone introducing a new product or technology would have to do a "worst case analysis" to estimate the possible consequences, then post a bond to cover the costs of the worst case. As time passes, if the worst case seems less and less likely, part of the bond will be returned (with interest). This creates an incentive to monitor outcomes carefully. And it properly places the burden of proof on the proponents of new technology, not on the public.

Additional practical measures have been defined by the Swedish government. In a 1997 report (in English) titled TOWARDS A SUSTAINABLE CHEMICALS POLICY, the Chemicals Policy Committee of the Swedish Ministry of the Environment outlined specific goals, as follows:

Ban Chemicals that Persist or Bioaccumulate

The Chemicals Policy Committee argues that substances that are persistent and liable to bioaccumulate should be banned, even if they are not now known to have toxic effects. (The Committee provides quantitative definitions of persistence and bioaccumulation.) "Experience tells us that new unexpected forms of toxicity may be uncovered in the future," the Committee says. "For substances that are persistent and liable to bioaccumulate that knowledge will come too late. To act only when the knowledge [of a hazard] becomes available is not prevention. We therefore conclude that known or suspected toxicity is not a necessary criterion for measures against organic man-made substances that are persistent and liable to bioaccumulate. Such substances should in the future not be used at all." [3]

The Committee recommends other specific guidelines to Swedish industry:

** By the year 2007, all products on the market are to be free from

1. Substances that are persistent and liable to bioaccumulate;
2. Lead, mercury and cadmium;
3. Substances that give rise to serious or irreversible effects on health or the environment.

** By the year 2012 production processes should have developed to the extent that

1. They are free from the deliberate use of persistent and bioaccumulating substances, or lead, cadmium, or mercury;
2. Releases from production processes should be free from substances that cause serious or chronic health effects.

** By the year 2012 metals other than lead, cadmium and mercury are to be used only in applications where

1. The metals are mainly kept intact during use;
2. They are collected after use for reuse, recycling, or deposition.

** Do not use chemicals that are carcinogenic, mutagenic or toxic to reproductive or endocrine systems.

** By the year 2000, every company should have a written plan, to be updated annually, for meeting these goals.

What we have here is a group of principles and proposals that go a long way toward defining sustainable use of materials that are, or may be, hazardous. Any level of government could adopt these

principles, from municipal to national. Individual businesses could adopt them as well. More next week.

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

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[1] John Cairns, Jr., "Defining Goals and Conditions for a Sustainable World," ENVIRONMENTAL HEALTH PERSPECTIVES Vol. 105, No. 11 (November 1997), pgs. 1164-1170.

[2] Bo Wahlstrom, "The Precautionary Approach to Chemicals Management: A Swedish Perspective," in Carolyn Raffensperger and Joel A. Tickner, editors, PROTECTING PUBLIC HEALTH AND THE ENVIRONMENT; IMPLEMENTING THE PRECAUTIONARY PRINCIPLE (Washington, D.C.: Island Press, 1999), pgs. 51-69. ISBN 1-55963-688-2.

[3] Chemical Policies Committee, TOWARDS A SUSTAINABLE CHEMICALS POLICY (Stockholm, Sweden: Government Official Reports 1997:84, Ministry of the Environment, 1997).

Descriptor terms: sustainability; sustainable materials policies; sweden; precautionary principle; substitution principle; polluter pays principle; flexible assurance bonds; robert costanza; natural step' the natural step; tns; principle of reverse onus; reverse onus;