

Why the Precautionary Principle dictates that pesticides not be prohibited

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Anti-pesticide activists have used (or, more accurately, misused) the Precautionary Principle as one of their main tools for convincing governments to enact pesticide prohibitions. What has either been overlooked or ignored is that this much misunderstood principle—when used in its fullest sense—weighs in favour of maintaining the use of pesticides, whether agricultural or “cosmetic.” The most widely accepted version of the Precautionary Principle is the Rio Declaration of 1992. It was proclaimed as “Principle 15” at the United Nations Conference on Environment and Development, which took place in Rio de Janeiro from June 03 to 14, 1992. Principle 15 states:

“Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”

It must first be noted that there is no such thing as “full scientific certainty”—one cannot prove a negative. It is impossible to prove scientifically that pesticides—or any substance, including water—could never harm anything or anyone under any circumstances. There is also no proof of “environmental degradation” caused by what are erroneously termed “cosmetic” pesticides.

Of interest here are the words of Sir Colin Berry, a professor at the University of London, England:

“The objectives of safe management of our environment depend on caution—the taking of heed, precaution—and the exhibition of prudent foresight. But they cannot include an indemnity—an assurance that no one will come to harm from any action.” — Sir Colin Berry, “Risk, Science and Society,” speech given at London’s Royal Institution, 2001

Pesticides and the Precautionary Principle: Dr. Keith Solomon, an internationally respected toxicologist, has received awards for his work in North America, South America, Europe, and at the United Nations. He teaches toxicology at both the undergraduate and graduate level at the University of Guelph. Dr. Solomon has authored or co-authored hundreds of research articles and books, serves on several advisory committees on matters related to environmental toxicology and risk assessment of pesticides and other substances in Canada, the U.S.A., Europe, and for the United Nations Environmental Program. He is also the chair of the board of directors for the Canadian Network of Toxicology Centres.

States Dr. Solomon:

“Landscape and garden use of pesticides does not qualify for consideration under the precautionary principle. They are not serious, they are selective to pests, have low toxicity to non-target organisms, and are well understood. Their use is not widespread, less than 2 per cent of all active pesticide ingredients used in Canada are for landscape uses and the land area to which they are applied is small...

“The effects of these pesticides are not irreversible. There is rapid recovery through reinvasion and weed seeds and most need to be used at least once per season.” — Dr. Keith Solomon, Question and Answers about Landscape and Garden Pesticides, March 27, 2007.

Precautionary Principle Misunderstanding: It is of value to note that many of the anti-pesticide

organizations (including even the Canadian Cancer Society) have co-opted a different version of the principle, the Wingspread Statement on the Precautionary Principle, formulated in 1998 by a small group of environmentalists. The statement has become very popular with those against pesticides, as it is—at the same time—both more amorphous and more inclusive than the Rio Declaration. It reads as follows:

“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.” — The Wingspread Statement on the Precautionary Principle, January, 1998.

“Serious and irreversible”—which appears in the UN Rio Declaration—has been deleted and “human health” added, allowing the Wingspread Statement to be applied to virtually anything, for almost any reason. What is seldom mentioned is another clause from the same statement, as follows:

“The process of applying the Precautionary Principle must be open, informed and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action.” — The Wingspread Statement on the Precautionary Principle, January, 1998.

In his latest book, the renowned environmentalist Stewart Brand (creator and former editor and publisher of *The Whole Earth Catalog*), writes about the Wingspread Statement.

Relates Mr. Brand:

“They had me at ‘precautionary,’ worried me at ‘some cause and effect,’ and lost me at ‘fully established scientifically.’ That is an illusory, unattainable goal. Nothing is fully established scientifically, ever—not gravity, not Darwinian evolution, not the safety of peanut-butter-and-jelly sandwiches. Science is a perpetual argument.” — Stewart Brand, *Whole Earth Discipline: An Ecopragmatist Manifesto*, 2009.

If one does wish to reference the Precautionary Principle (particularly the Wingspread Version): There is substantial and undeniable proof for both “serious” and “irreversible” harm to employees and families of applicator companies (and to the companies themselves). In Quebec and Ontario, many companies have been driven out of business: there is no lack of any certainty about this. In spite of the claims of activists to the contrary, thousands of employees have lost their jobs, and they and their families are suffering the consequences, health and otherwise: there is no lack of certainty about this. There are no efficacious or cost-effective alternatives to the conventional products being banned. Due to their poor performance, the “alternative” products left have to be applied more often, with more applicator visits, dramatically increasing an applicator’s environmental footprint: there is no lack of certainty about this.

Therefore, particularly as it can be applied to human health and well-being, and in order to protect both (and the environment), the Precautionary Principle rules against enacting pesticide prohibitions.

Consider the following statement, which appears on the website of the British Columbia Ministry of the Environment:

“On sports turf, safety considerations also influence treatment decisions because bare areas or large weedy patches can increase the slipping hazard.” — IPM Manual for Landscape Pests in British Columbia, B.C. Ministry of the Environment website:

http://www.env.gov.bc.ca/epd/ipmp/publications/manuals/landscape_pests/chapter5.htm

Proper weed control on turf helps prevent slipping injuries by eliminating broad-leaved weeds. On the other hand, proper weed control on turf does not result in injuries. Therefore, the Precautionary Principle dictates that, with the choice between treating and not treating, the decision for proper weed control must be made—and therefore turf pesticides should not be prohibited.

According to Dr. James D. Lu (medical health officer for the Vancouver Coastal Health Unit) in a Feb. 19, 2009 letter to Richmond, B.C. Municipal Council:

“The aesthetics of urban landscapes has public health value. Appealing and well-kept neighbourhoods increase the public’s sense of safety and increase outdoor activities in neighbourhoods... A comprehensive Integrated Pest Management (IPM) approach offers a better alternative to cosmetic pesticide ban bylaws. IPM strikes a balance between prudence, public policy, and private choice.”

Since Ontario banned the use of “cosmetic” pesticides on April 22, 2009, there have been many media reports of an increase in allergic reactions, due to the greatly increased presence of weed pollen. Again, the Precautionary Principle weighs in favour of the use of pesticides to avoid or lessen ill effects to humans.

Anti-pesticide activists are asking that pesticides be banned because of what may be unknown factors, or what may be health problems. Many governments—provincial and municipal—have taken these unfounded claims at face value while ignoring the extremely negative effects on humans (and landscapes) of such actions. What kind of logic makes governments decide in favour of unproven and unsubstantiated claims while ignoring the real and provable harm done to its citizens—against the guidance of the Precautionary Principle?

Grounds for banning all vehicles, airplanes, industrial equipment, and thousands of other useful inventions could easily be established, simply by listing known adverse human health and environmental effects—not the least of which are tens of thousands of deaths and injuries every year.

The Precautionary Principle and agricultural pesticides: The Precautionary Principle weighs even more strongly against prohibition of agricultural pesticides. According to a September, 2009 statement released by the United Nations Food and Agricultural Organization, by 2050 the world must increase its food production by 70 per cent to adequately provide food for a projected world population of 9.1 billion. On the other hand, according to an April, 2003 report by the United States National Centre for Food and Agricultural Policy, crop production would be reduced by 21 per cent if herbicides (this does not include insecticides or fungicides) were not used.

According to the Food and Agriculture Organization of the United Nations (FAO), “for the first time in human history, more than one billion people are undernourished worldwide” (‘More People than Ever Are Victims of Hunger,’ FAO press release, June, 2009). As well, “since the 1990s, the number of undernourished people has been increasing.” (The State of Food and Agriculture, FAO, 2009, available online).

Cornell University’s Christopher Barrett, in a recent article in Science magazine outlined some of the problems with food security, stating:

“Although the most severe food insecurity is typically associated with disasters such as drought, floods, war, or earthquakes, most food insecurity is associated not with catastrophes, but rather with chronic poverty. Only 8 per cent of hunger-related deaths worldwide in 2004 were caused by humanitarian emergencies; 92 per cent were associated with chronic or recurring hunger and malnutrition.” — Christopher B. Barrett, “Measuring Food Insecurity,” *Science*, Vol.327, Feb. 12, 2010.

Obviously, any restriction on the use of pesticides would result in a substantial reduction in harvests and a related substantial increase in food costs. This, in turn, would quickly equate to a lack of affordable food, a huge increase in starvation, and tens of thousands of additional deaths among the poor of the world. The Precautionary Principle therefore would clearly and strongly dictate that agricultural pesticides not be banned.

Organic farming—with no use of conventional pesticides—cannot match the production of conventional farming. According to University of Edinburgh molecular biologist, Prof. Anthony Trewavas, “an intensive farm can match organic yields using only 50-70 per cent of the farmland” (Anthony Trewavas, ‘What’s so Great About Organic,’ *The Telegraph*, Feb. 22, 2009). Organic farming is incapable of feeding the entire world.

Dr. Norman Borlaug (1914-2009), a Nobel Peace Prize Laureate and the man credited with saving millions of lives through his development of the Green Revolution, stated in an interview in 2000:

“Even if you could use all the organic material that you have—the animal manures, the human waste, the plant residues—and get them back on the soil, you couldn't feed more than four billion people. In addition, if all agriculture were organic, you would have to increase cropland area dramatically, spreading out into marginal areas and cutting down millions of acres of forests.” — ‘Norman Borlaug, Happy 95th Birthday,’ interview by Ronald Bailey, re-published in *Reason Magazine*, March 26, 2009.

Many cancers have decreased since synthetic pesticides were introduced, and in the last 60 years stomach cancer has—in the Western world—declined by 60 per cent. Much of this reduction is attributed to the doubling of the consumption of vegetables and fruit (Anthony Trewavas, ‘A Critical Assessment of Organic Farming-and-food assertions with Particular Respect to the U.K. and the Potential Environmental Benefits of No-till Agriculture,’ *Crop Protection*, Vol. 23, 2004). Eliminating the use of pesticides, as stated above, would greatly increase the cost of produce, resulting in less consumption due to higher costs, and a subsequent increase in the incidence of cancer. Again, the Principle rules against the prohibition of pesticides, as human life and health are of utmost concern.

Further concerns: According to the 2008 December report of the Auditor General of Canada (available online):

“The report notes that invasive alien plant and plant pests can threaten the environment and the economy. In their new habitat, their impact on native ecosystems can be severe and often irreversible. In addition, they can threaten Canada’s agriculture and forestry sectors, which produce goods valued at about \$100 billion a year.” — News release: ‘Serious problems increase vulnerability to damage by invasive plants, pests and diseases,’ Office of the Auditor General of Canada, Feb. 5, 2009.

Since alien plants and plant pests can threaten both the environment and the economy (which can also have health implications), and since organic products are inadequate for the task, and since no application of pesticides is obviously not a solution, the use of pesticides is favoured by the Precautionary Principle.

An international overview of the Precautionary Principle: It might perhaps be educational to examine some evaluations of the Principle from around the world.

Václav Klaus, president of the Czech Republic:

“The precautionary principle is either misunderstood by the environmentalists or understood only too well, but in any case it is essentially misused to serve their own ambitions... We are witnessing the absolutist interpretation of the precautionary principle being used by environmentalists to justify any kind of regulatory intervention or ban. All they need to implement such regulations—once the imminent catastrophe is sufficiently described—is simple moralizing, noble preaching about the future, and demonstrating their ‘concern’ about humankind.” — Václav Klaus, *Blue Planet in Green Shackles*, 2007.

The Social Issues Research Centre (SIRC is a British independent, non-profit organization founded to conduct research on social and lifestyle issues):

“The burden of evidence and proof (in the Precautionary Principle) is taken away from those who make unjustified and often whimsical claims and placed on the scientific community which, because it proceeds logically and rationally, is often powerless to respond. This is what makes the principle so dangerous. It generates a quasi-religious bigotry which history should have taught us to fear. Its inherent irrationality renders it unsustainable.” — SIRC, ‘Beware the Precautionary Principle,’ online at www.sirc.org/articles/beware.html.

Indur M. Goklany, a science and technology policy analyst with the United States Department of the Interior:

“It may be argued that (the principle’s) first part is essentially vacuous, since we can almost never have ‘full scientific certainty,’ and therefore—like it or not—actions are almost invariably taken ‘in the absence of full scientific certainty.’” — Indur M. Goklany, *The Precautionary Principle: A Critical Appraisal of Environment Risk Assessment*, 2001.

James Peron, an editor in New Zealand:

“The precautionary principle is tantamount to a coup in legal theory. Say a developer wants to build an apartment and a Green group condemns the plan, saying it’s ‘harmful to the environment.’ The group would not have to present any evidence to stop the developer. Rather, the developer would have to prove that all possible outcomes from his plan are good. But he could never do that. This would also be true for the inventor, scientist, industrialist, and virtually anyone else who has to deal with the physical world—in other words, all of us. We must remain stagnant until we can prove that any particular action is good under all possible scenarios.” — James Peron, “The Irrational Principle,” in *The Freeman*, April 2004, Volume 54, Issue 4.

The prestigious U.K. Government’s Science and Technology Committee:

“We also note the view of the Head of the Government Economic Service, Sir Nicholas Stern, that risk analysis cannot be reduced to one principle ... (We) can confirm our initial view that the term ‘precautionary principle’ should not be used, and recommend that it cease to be included in policy guidance.” — Science and Technology Committee, *Science and Technology – Seventh Report, Session 2005-06*.

Benjamin Kerstein, Israeli author:

“The precautionary principle is not so much a legal or scientific principle, but rather a manifestation of collective panic.” — Benjamin Kerstein, “The Age of Catastrophic Thinking”, 2009.

Dr. Bill Durodie, Senior Research Fellow, King’s College, London, U.K.:

“There is no agreed definition of the precautionary principle. One of the more authoritative versions comes from the 1992 Rio ‘Earth’ Summit. It contains a rather famous triple negative, which is that: ‘Not having evidence is not a justification for not taking action’...

“Let me try to undo a couple of the knots in the triple negative phrase above for you. As you know, two negatives make a positive, so if I remove two of the negatives from that statement, it should mean the same thing, and we are left with: ‘Action without evidence is justified.’ That is it, in a nutshell. The precautionary principle is, above all else, an invitation to those without evidence, expertise or authority, to shape and influence political debates. It achieves that by introducing supposedly ethical or environmental elements into the process of scientific, corporate and governmental decision-making.” — Dr. Bill Durodie, in “An Apology for Capitalism?,” S. Kumaria, editor, 2004

Cass Sunstein, internationally respected expert in jurisprudence, and chosen in 2009 to head the influential Office of Information and Regulatory Affairs (out of the White House) by President Barack Obama:

“... For now, my only claim is that the principle is crude and sometimes perverse way of promoting desirable goals—and that if it is taken for all that it is worth, it is paralyzing, and therefore not helpful at all.” — Cass Sunstein, *Laws of Fear: Beyond the Precautionary Principle*, 2005.

Roselyne Bachelot, Minister of Health for France:

“The precautionary principle is a principle of reason, and under no circumstances a principle of emotion... The precautionary principle only applies when there are no reliable studies.” — Source: Agence France Press, 31 March, 2009.

The Canadian Government has used a precautionary approach/principle for years. The difference in its understanding of the Principle is that common sense should be added to the mixture:

“(The precautionary approach/principle) recognizes that the absence of full scientific certainty shall not be used as a reason to postpone decisions when faced with the threat of serious or irreversible harm. However, guidance and assurance are required as to the conditions governing the decisions that will be made... The precautionary approach/precautionary principle... is ultimately guided by judgement, based on values and priorities.” — Health Canada, “Application of the Precautionary Approach,” Online at <http://www.hc-sc.gc.ca/cps-spc/pubs/cons/walker-review-marchette/application-eng.php>

The Precautionary Principle, conclusions

Is the Precautionary Principle really worth considering? Certainly not in the way that anti-pesticide activists have misinterpreted it, either by design or by lack of understanding. If one insists on its utility, then the Principle can easily be seen to support the continued use of pesticides, and clearly rules against

their prohibition.

There is nothing wrong with wanting to take adequate precautions when there are serious concerns to human health. What is wrong is to disregard all of the available science and the scientists (such as the 350 qualified experts at Health Canada's Pest Management Regulatory Agency) who assure us that pesticides are safe to use according to label directions. It is equally incorrect to forward as "proof" some epidemiological studies that seem to illustrate weak links between pesticides and cancer.

Epidemiology has real problems when it comes to discerning small effects: one of the biggest problems with epidemiology is that most people do not know about the problems with epidemiology. The tools available are too inexact to ascertain small effects, and it is instructive to realize that there are also numerous studies showing no correlations between pesticides and cancer, or even inverse effects (i.e., less cancer when pesticides are used). By definition, epidemiology can only show correlations, not causation.

Unfortunately, anti-pesticide organizations and individuals insist on referencing only those studies which suggest weak links (which are probably due to chance, as are the correlations showing an inverse relationship), while ignoring the rest. It is imperative, because of the weaknesses of epidemiology, that toxicology be used to confirm any correlations. Toxicology does not support the suggested relationships in such studies. Why, then, is science taking a back seat to rhetoric?

When will it again be acceptable to listen to—and follow—the advice of qualified, respected, and knowledgeable scientists, instead of attempting to make science conform to mistaken moralistic beliefs and statements? On the Internet, it is all too easy to find support for any position one cares to take, including banning pesticides through the use of the Precautionary Principle. This is why it is important that the basis of the Principle is thoroughly understood. It is equally important to reference qualified scientists with acknowledged expertise in the science of pesticides when the topic of pesticides is discussed. Carefully-crafted propaganda devised to instil a public fear of pesticides has spread quickly beyond those products inaccurately termed "cosmetic." The stated goal of many anti-pesticide groups and individuals is to eliminate all products not categorized as "organic" (and some wish to prohibit even these) and this, without doubt, would result in the impossibility of feeding the world.

It is simply not enough to take the word of those whose stated objective is the banning of useful and important products merely because these organizations and individuals profess sincerity, have in hand a few epidemiological studies with tenuous claims, and proclaim the Precautionary Principle as the ultimate and guiding authority.

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