

43. Environmental Health Risks

Congress should

- take back the regulatory authority it has delegated to the Environmental Protection Agency;
- transfer responsibility for the safety of chemicals to industry;
- address the question, What is an acceptable level of risk?
- reexamine the acceptable risk level it set in the Food Quality Protection Act; and
- strip the EPA of its research functions.

Humans have always linked the environment to disease, and investigations of those links have led to important triumphs over infectious diseases. Investigations of possible links between chemicals in the environment and human diseases—cancer in particular—have been politically popular. They have also been costly and fruitless fiascoes. Congress faces a clear choice: It can continue funding the wasteful programs at the Environmental Protection Agency and elsewhere that are predicated on the belief that environmental chemicals are a health risk worth the expenditure of billions of dollars. Or it can find out, for itself and the public, what those programs accomplish and act on that information to restore some measure of sanity to environmental policy.

Triumph: The Environment and Infectious Diseases

Humans recognized that air and water harbored diseases long before there was any understanding of the mechanisms of disease transmission. The Italian *mala aria* (“bad air” or “miasma”) came into English as “malaria.” People learned to avoid damp places, but “bad air” wasn’t to blame. The subsequent discovery that certain mosquitoes that breed in damp or wet places spread the microbes that cause the disease led to malaria control. In 1854 the physician John Snow determined that London

residents who purchased water from a particular water company were likely to develop cholera. He inferred that a “cholera poison” was present in the water of the people who had become sick, and using water from other sources greatly reduced the incidence of cholera (the organism that causes cholera was not identified until 1883).

By mid-20th century, microorganisms—viruses, bacteria, amoebas, and so on—that are sometimes present in air, water, soil, and food had been identified as the causes of most diseases. Sanitation—the provision of clean drinking water and well-engineered sewage and waste disposal—along with immunization programs reduced the toll of diseases that had been the big killers of infants, children, and women in childbirth and had been responsible for more deaths in the world’s soldiery than all the clubs, spears, bullets, bombs, and shells in history. Better surgery and medical care, especially the discovery and production of antibiotics, gave mankind the upper hand over formerly fatal or disabling traumatic injuries and infections.

To be sure, many diseases, although less common than before, persist, and the last few decades have seen some major unpleasant surprises such as AIDS and the emergence of antibiotic-resistant bacteria. By any measure, however, identification of disease agents that are transmitted through air, water, and soil has opened the door to controlling them.

Hubris and Political Expediency: Chemicals in the Environment and Cancer

The inevitable byproduct of control of infectious diseases was that more people lived to the ages at which they were likely to develop diseases that are common in the elderly. Nowhere was that clearer than in the soaring numbers of deaths caused by cancer. By the late 1960s, environmental activists, politicians, and scientists of various stripes loudly proclaimed that the country was caught in a terrifying and growing “cancer epidemic” and that chemicals in the environment were responsible.

The conjecture that environmental chemicals were causing cancer was based on two observations: workers in a few occupations, who had been exposed to very high concentrations of some chemicals, had increased risks of cancer, and greatly increased chemical production during and after World War II had resulted in more chemicals in the air, water, and soil. No causal link was demonstrated between environmental chemicals and cancer.

The cry “The environment causes 90 [or 80 or 70] percent of cancer!” was frightening, but it carried a promise. Simply reducing exposures to environmental chemicals promised to eliminate much of the cancer that plagued the nation. The promise, with no basis in fact, was very appealing to policymakers, who saw an opportunity to do something about a dreaded disease. The policies enacted when the promise shone brightest persist, and they need changing.

First of all, there was (and is) no cancer epidemic in the sense that the disease was (or is) becoming more common. As was well known to scientists by 1981, the control of infectious diseases had resulted in more people reaching the ages at which cancer has always been common, but the frequency of cancer had not increased in any age group.

Even so, wasn’t it possible that environmental chemicals were a major cause of cancer? The answer, again available in 1981, was no. At worst, chemical pollution of air, water, and soil was associated with 2 percent of cancers. In remarkable agreement, EPA scientists who examined the same question in 1986 estimated that chemical pollutants were associated with 1 to 3 percent of all cancers.

Before and during the time that science was deflating the myths of the “cancer epidemic” and the environmental causes of cancer, President Nixon established the EPA (in 1970) and Congress passed a number of laws (in the 1970s) that directed the EPA to regulate environmental chemicals that cause cancer. By 1981 there was no reason to expect that any action of the EPA could have much effect on cancer, but the agency, with congressional provision of funding, had established a great risk assessment enterprise.

EPA-funded scientists and, far more often, scientists who work for companies that must comply with EPA regulations, stuff laboratory rats and mice with near-lethal amounts of chemicals to see if the chemicals cause cancer. Regardless of the mismatch between the huge doses of chemicals administered to animals and human exposures, which are often thousands of times lower, risk assessors, again in accordance with EPA guidelines, estimate the cancer risk the chemicals pose to humans.

That procedure “identifies” plenty of carcinogens. About 50 percent of all tested chemicals, whether naturally occurring in fruits and vegetables and human metabolism or the products of the chemical industry, cause cancer in the tests. Although the EPA, as a regulatory agency, directs its attention to the synthetic chemicals because it can regulate those, exposures to naturally occurring carcinogens (as identified in animal tests) are far higher.

One of the foundations of the EPA's cancer risk assessments has been the assumption that any exposure to a carcinogenic chemical, no matter how small, increases the risk of cancer. As a result, one critical point of the EPA's policies has been the definition of an acceptable level of risk. The usual acceptable level is an estimated one additional cancer case in a million people.

It is unclear where the “one-in-a-million” number came from, and the suggestion that it's because no lover ever said, “you're one in a hundred thousand” seems as good as any. Whatever its origins, that level is a major determinant of the stringency, costs, and expected benefits of regulations. Regulatory costs are enormous and benefits are very uncertain and tiny, at best.

EPA regulations, most of them directed at carcinogens, cost about \$8 million for each estimated year of life saved. That is 400 times more expensive than medical care, which saves a year of life for less than \$20,000, on average. Although the Office of Management and Budget values a human life at \$5.5 million, the EPA's regulations require the expenditure of about 1.5 times as much money to save one estimated year of life. Whether EPA regulations save anything at all is far from clear. Most EPA risk estimates are based on animal tests, and, to its credit, the EPA acknowledges that those tests may be completely misleading about human risk, in which case, human risk may be zero. If the risk is zero, spending a dollar to reduce it is a complete waste.

But haven't there been benefits? Experts on the causes, prevention, and treatment of cancer have provided the clearest answer. If there are any benefits, they are so tiny that they cannot be seen or measured. University and federal scientists have verified that the rates of new cancer cases and cancer deaths have been falling since about 1990. New cases have fallen because of decreased smoking, increased standards of living, and, probably, better diets. Mortality has fallen because of the decrease in new cases and improvements in diagnosis and treatment. Nowhere in the analysis of the decreases is there mention of environmental chemicals or their regulation.

The EPA can claim no successes in terms of lives saved or diseases prevented. It has produced no breakthroughs in understanding the causes and prevention of disease. It has reaped constantly increased funding and imposed huge and increasing regulatory costs by claiming it is protecting public health. It is not.

More Hubris and Political Expediency: Noncancer Health Risks from the Environment

Carcinogens are losing their regulatory luster. The announcement that chemical after chemical is a carcinogen has engendered a fatalistic “everything causes cancer” attitude among the public. Many scientists question the value of the standard “stuff the rat full of the chemical” cancer test and the extrapolation of results from that test to predictions of human effects. Even worse for the EPA, an editorial, “Our Contribution to the Public Fear of Cancer,” in a magazine published by the National Institutes of Health reflects increasing disenchantment with the idea that regulation can affect cancer. “A current view is that given a safe workplace, the remaining risk factors (sunlight, diet, smoking) are, for the most part, under our individual control.”

As the promise of regulatory control of cancer dims, other health risks are being propped up. “Environmental estrogens”—a widely diverse group of chemicals that are blamed for adverse effects on reproduction, sexual development, and school performance; increasing hyperactivity in children; and just about every other malady in humans and animals—are the current favorite of environmental activists and regulatory agencies.

The diversity of the chemicals and the diversity of the purported effects are a gold mine for environmental activists and regulators. Accusing Chemical C of causing Effect E can cause the manufacturer or user or disposer of Chemical C to run tests to see if it really does. If, in fact, there is no evidence for any increase in Effect E, it’s a simple thing to make a new accusation and blame Chemical C for causing Effect EE. The testing and risk assessment enterprise that was erected to feed the EPA’s cancer regulation effort will be a tiny thing indeed compared with the one that will be necessary to chase every effect blamed on environmental estrogens.

Children are the other great shining hope for environmental activists and regulators. Surely children are at more risk than adults from whatever dangers lurk in the environment. After all, they eat more and drink more and breathe more in proportion to their body weight than do adults. Of course, the risks from many (probably most) environmental exposures are zero for adults, and they would be zero for children. But the emotional appeal of protecting children is a strong selling point for increasing regulations.

Environmental estrogens and risks to children came together in Congress’s hasty passage of the Food Quality Protection Act (FQPA) in 1996.

The new law imposes sweeping new testing requirements on manufacturers of pesticides and other chemicals that might end up in the food supply, no matter how trivial the amount, and it decreases the permitted exposures to such chemicals because the lower exposures are deemed necessary to protect children. Nowhere is there evidence that current levels of those chemicals in food are causing adverse effects in children, but the new testing and regulatory requirements may drive a major proportion of pesticides off the market.

An unintentional consequence of the disappearance of pesticides will be an increase in food prices, especially for fresh fruits and vegetables. As prices increase, consumption of fresh fruits and vegetables will decline. The National Cancer Institute says that eating five or more fresh fruits or vegetables every day reduces the risk of cancer. Some people will be priced out of that cancer prevention activity.

There is no limit to the risks that can be associated with chemicals in the environment. Risks can be manufactured out of, literally, thin air, and they find ready acceptance in the media and Congress and give rise to cries that the government should do something about them. Draconian steps such as banning a chemical are relatively rare. Flawed as it is, the regulatory process has checks and balances that allow commercial interests to oppose regulations. It's far easier for Congress to impose additional testing requirements as it did in FQPA. The tests take time, cost great amounts of money, heighten public fear that "chemicals are bad," and divert attention from other activities that might improve health. They will not improve health, and they may make it worse by increasing the cost of food and other necessities.

Congressional Actions

The treadmill of pointing to potential environmental health risks, testing to see if the risks exist, extrapolating from the test results to expected effects on human health, and imposing more regulations and tests on the producers and consumers in the economy will continue until Congress asserts its responsibility and authority. That assertion can take several forms.

Congress Should Take Back the Regulatory Authority It Has Delegated to the EPA

Congress can eliminate the EPA and return its responsibilities to the agencies and states from which they were taken, but Congress is unlikely

to do so. Short of that, Congress can impose its authority on the EPA and make the agency accountable to elected officials.

David Schoenbrod has described the process by which Congress delegates its legislative authority to executive branch agencies when it authorizes them to make regulations. To restore congressional responsibility in accord with the Constitution, he proposes executive branch agencies be required to submit a proposed regulation to an up-or-down vote in Congress before it can be promulgated.

The Congressional Review Act approaches this problem by providing for congressional review of a regulation after it has been promulgated. As was vividly demonstrated by congressional response to the EPA's 1997 regulations under the Clean Air Act, the Congressional Review Act is toothless. By the time a regulation is promulgated, the administration, including the president, has signed off on it. Having committed himself to the regulation, the president can be expected to veto a congressional vote against the regulation, and he can expect members of his party to support the veto, and a 2/3 congressional vote to override the veto is unlikely.

Schonebrod's proposal would require only a simple majority in Congress to stop a regulation. Adoption of his proposal would make Congress responsible for regulations, and make members of Congress responsible to the voters for regulations.

Congress Should Transfer Responsibility for the Safety of Chemicals to Industry

See Chapter 38 on third-party certification.

Congress Should Address the Question, What Is an Acceptable Level of Risk?

Congress should decide on the level of risk (or the range of levels) that is acceptable. It should immediately throw out the one-in-a-million risk number that the EPA has adopted as the dividing line between acceptable and unacceptable cancer risks and tell the EPA not to rely on it anymore.

Congress should then decide on an acceptable risk number based on real-world risks. For instance, the risk of a white-collar worker's dying from a job-related accident or from a job-related disease appears to be an acceptable risk—no one receives hazard pay for such a job, and insurance companies don't increase premiums to cover those risks. A risk of equal magnitude or 1/2 or 1/10 or some other fraction of that number might be

set as acceptable. Congress can commission studies by executive branch agencies and independent organizations to produce estimates of and justifications for acceptable risks for exposures to carcinogens, hold hearings to consider the suggested numbers, and decide on an acceptable number or range or numbers.

Congress Should Reexamine the Acceptable Risk Level It Set in the Food Quality Protection Act

Two years have passed since Congress passed and the president signed the FQPA, and its provisions will drive large numbers of pesticides—and probably all pesticides of some chemical classes—off the market. The EPA, trade associations, agricultural organizations, and consumer and environmental groups are all involved in trying to implement the new law. While those efforts go ahead, there has been no attempt by Congress to understand (1) if the new provisions are necessary and (2) what the effects of those provisions will be on food production, distribution, and costs.

Congress should debate those questions. Unless it does, regulations based on the hastily passed FQPA will be promulgated, and the acceptable risk number for noncancer health risks that is incorporated in them will spread throughout the government. Health will not be improved, but costs—and prices of food and other commodities—will increase.

Congress Should Strip the EPA of Its Research Functions

Congress has ample evidence that the EPA cannot manage good scientific research, and Congress should strip the agency of any research capability and funding. Instead of good science, the EPA practices a form of political science that provides justification for the agency's regulatory agenda. In 1992 a committee of scientists who examined the EPA's research reached the following conclusions, among others:

- “EPA has not always ensured that contrasting, reputable scientific views are well-explored and well-documented. . . . [EPA’s] legal process fosters the presentation of the extremes of scientific opinion.”
- “EPA science is *perceived* by many people, both inside and outside the Agency, to be adjusted to fit policy” [emphasis in original].
- “Scientists at all levels throughout EPA believe the Agency does not use their science effectively.”

In 1998 U.S. District Court Judge Thomas Osteen ruled that the EPA had wrongly declared secondhand smoke a human carcinogen and blasted

the EPA's 1993 risk assessment about secondhand smoke. He said the EPA had "adjusted established procedure and scientific norms to validate the Agency's public conclusion . . . disregarded information and made findings on selective information; . . . failed to disclose important findings and reasoning; and left significant questions without answers." Even more bluntly, "There is evidence in the record supporting the accusation that EPA 'cherry picked' its data."

The EPA has demonstrated that it cannot collect and evaluate scientific data about environmental health risks honestly. Recognizing that fact, Congress needs to designate other organizations to collect and analyze the data. Or, if Congress elects to allow manufacturers to self-certify the safety of their products or to allow them to contract with third-party organizations for certification, Congress can place the costs and responsibilities for chemical safety on the organizations that will most benefit from ensuring the safety of chemicals in the environment.

Recommended Readings

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Byrd, D. "Goodbye Pesticides?" *Regulation* 20, no. 4 (1997).

Doll, R., and R. Peto. "The Causes of Cancer: Quantitative Estimates of Avoidable Risks of Cancer in the United States Today." *Journal of the National Cancer Institute* 66 (1981).

Gough, Michael. "Estimating Cancer Mortality: Epidemiological and Toxicological Methods Produce Similar Assessments." *Environmental Science and Technology* 23 (1989).

Schoenbrod, D. *Power without Responsibility*. New Haven, Conn.: Yale University Press, 1993.

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