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GETTING BEYOND RISK ASSESSMENT

[Rachel's introduction: Most environment-and-health decisions are now made using numerical risk assessment. But this technique has fatal flaws that cannot easily be overcome. So how can we make good decisions?]

By Peter Montague

As every community activist knows, in the U.S., decisions about the environment and human health are based on numerical risk assessments. In a numerical risk assessment (also known as "quantitative risk assessment") the dangers of a project are translated into numbers and those numbers become the basis for a decision.

For example, in Camden, N.J., government officials have declared that the dangers of living near a garbage incinerator are "acceptable" because their risk assessment concluded that only one in a million people living near the incinerator for a lifetime will get cancer from breathing the fumes and soot.

This particular incinerator spews one ton of toxic lead each year (in the form of a breathable dust) into a residential community of people who are already stressed by low-income and racism. But risk assessors have managed to declare this enormous quantity of a potent neurotoxin "no problem" by considering only its ability to cause cancer. Its ability to cause brain-damage in children has been assigned a value of zero. This is the great appeal of numerical risk assessment -- it allows really serious dangers and injustices to evaporate in a cloud of numbers -- poof!

In recent years, quantitative risk assessment (QRA) has been heavily criticized not only by citizen-activists but also by scientists; see, for example Silbergeld 1993{2}, Karstadt 1988{3} and Kriebel 2001{4}

Seven scientific criticisms of Quantitative Risk Assessment

QRA is criticized because

(a) We are all exposed to multiple stressors all the time, and the effects of multiple stressors are difficult or impossible to evaluate; in many cases standardized protocols do not even exist for making the needed assessments.

(b) The timing of an exposure can be critical. A fetus exposed to a chemical during the 4th week of pregnancy may develop a birth defect, but exposed to the same chemical in the 12th week may show no effects at all. Chemical toxicity tests are too crude to reveal all such time-dependent effects.

(c) By definition, QRA only takes into consideration things that can be quantified, so QRA omits much that local people might consider important. Historical knowledge, local preferences, spiritual values, ethical perspectives of right, wrong, and justice/injustice -- all are ignored by QRA because they cannot be turned into numbers.

(d) QRA is difficult for most people to understand, and obscure decision-making techniques run counter to the principles of an open society.

(e) Politics can -- and do -- enter into QRA. William Ruckelshaus (first administrator of U.S. Environmental Protection Agency) said in 1984{5}, "We should remember that risk assessment data can be like the captured spy: If you torture it long enough, it will tell you anything you want to know."

(f) The results of a QRA are not reproducible from laboratory to laboratory{6} and so QRA does not meet the basic criterion for being considered "science" or "scientific."

As the National Academy of Sciences said in 1991, "Risk assessment techniques are highly speculative, and almost all rely on multiple assumptions of fact -- some of which are entirely untestable." (Quoted in Anthony B. Miller and others, *Environmental Epidemiology*, Volume 1: Public Health and Hazardous Wastes{7} (Washington, DC: National Academy of Sciences, 1991), pg. 45.)

(g) By focusing attention on the "most exposed individual," quantitative risk assessments have given a green light to hundreds of thousands or millions of "safe" or "acceptable" or "insignificant" discharges that have had the cumulative effect of contaminating the entire planet with industrial

poisons. See Travis and Hester, 1991{8} and Rachel's News #831{9}.

So quantitative risk assessment stands scientifically discredited. But we still have to make decisions. If risk assessment isn't an adequate basis for decisions, what is?

Guidelines for making decisions under uncertainty

Back in 1993, Donald Ludwig and others offered some awfully good advice about decision-making, in an article in Science magazine{10}:

"Most principles of decision-making under uncertainty are simply common sense," they wrote.

They went on: To make good decisions under uncertainty, we can

** consider a variety of plausible hypotheses about the world (in other words, examine the available alternatives{11})

** favor actions that are robust to uncertainties (in other words, ask, "What if we're wrong?" and make decisions accordingly.)

** hedge (which I take to mean, "Don't put all your eggs in one basket.")

The next 4 suggestions from Ludwig are similar to "Adaptive Management." (See Holing, 1978{12}; Walters, 1986{13}; and Lee, 1993{14}.)

** favor actions that are informative;

** probe and experiment;

** monitor results;

** update assessments and modify policy accordingly.

And finally:

** favor actions that are reversible.

As you might imagine, if these criteria were applied to the municipal discards (aka "garbage") of Camden, New Jersey, it is unlikely that an incinerator in a residential neighborhood would be the answer.

Other ways of gathering information

In addition to using common sense in making decisions, decision makers can use modern techniques for gathering information, to prepare themselves for making good decisions. Quantitative risk assessment is one way of gaining information, but there are others. I will briefly describe three.

1) Identify hazard, not risk

Risk assessment requires scientific knowledge of (1) the hazard posed by a chemical (or combination of chemicals), plus (2) knowledge of how people may become exposed, plus (3) knowledge of how the human body will react to the

exposure. In reality this information is exceedingly expensive to collect, and therefore exceedingly rare. Missing knowledge is assigned a numerical value and the risk assessment proceeds.

A simpler approach is to stop at the stage of "hazard assessment" and then require chemical users every few years to search for less-hazardous alternatives. However, even this approach is not as simple as it sounds because microbiologists are constantly learning many new ways in which chemicals can influence living things.

Under this simplified approach, chemical manufacturers (or users) would be given several years in which to make a reasonable demonstration of hazard for each of their chemicals (including its associated byproducts and breakdown products), to show that each is neither persistent nor bio accumulative, nor carcinogenic, nor mutagenic, nor disruptive of intracellular signaling (by hormones, neurotransmitters, growth factors, cytokines, and so on), nor toxic at low doses to growth, development, reproduction, immunity, or neurological function. Testing would occur on multiple generations of sensitive species of animals, unless testing on less than whole animals can give equivalently useful and reliable results.

As you can see, even "hazard assessment" is contentious and difficult. (Adapted from Thornton, 2000{15}.)

2) Delphi technique.

The Delphi technique (or simply, "Delphi") has been widely used in the medical field to try to reach consensus among experts on important questions that entail considerable uncertainty. Delphi consists of a series of questionnaires sent to a group of experts, who usually remain anonymous and never meet face-to-face (thus keeping costs low).

Initially, the experts are asked an open-ended question, such as "What are the 50 most important problems facing nurses who specialize in cancer?" After the initial results are tabulated, a second and third round (or more) of questionnaires are sent to the experts asking them to rank the results of the first round. In between rounds, the experts are given feedback on the results of the process so far. The goal is to reach consensus, though consensus is sometimes not carefully defined, and may never be achieved. In any case the technique improves communication, reveals areas of agreement and disagreement, and uncovers gaps in knowledge.

In Delphi, the selection of the "expert" panel is crucial and can skew the results. The technique avoids the problems sometimes encountered with dominant personalities in face-to-face discussions. To have a chance of succeeding in reaching consensus on public policy issues, Delphi would need to include experts that citizens trust.

To learn more, see Tickner 2001{16}, Powell 2002{17}, and Beech 1999{18}.

3) Citizens Juries

Juries composed of citizens are a form of participation based on the legal jury system and promoted by the Jefferson Center in Minneapolis, Minnesota. The Center randomly selects a panel of 12 jurors who are expected to represent the community. The jury is asked to study a particular public issue (for example, solid waste, traffic congestion, or physician assisted suicide); the jury meets for four or five days to hear expert witnesses with a range of views on the issue, deliberates, and then presents its recommendations to the public. The Jefferson Center has trademarked the term Citizen Jury so if someone wants to use this exact phrase they must go through the Jefferson Center). On the other hand, anyone could create a similar process in their own community and call it something like a "civic jury" without violating copyright laws. This process may be limited because some minority views may not be adequately represented, and there is no guarantee that the results of the jury will become part of a decision. Whoever sets up the jury process needs to make sure that these problems are addressed. This description taken from Pellerano 2002{19}. See also Anonymous 2004{20} and Veasey 2004{21}.

4) Consensus Conferences

Originally developed by the U.S. National Institutes of Health to produce consensus statements on controversial medical topics, consensus conferences are now being used by European governments to reach consensus on controversial social issues (for example, genetically altering livestock, telecommunications policy, or the use of transplants in medicine). The conference is managed by a steering committee that chooses a lay panel of 15 volunteer participants who lack significant prior knowledge about the issue. Working with a skilled facilitator, the lay panel discusses a government-provided background paper on the subject and formulates questions for a public forum. The government agency sponsoring the conference assembles an expert panel including scientific, technical, social, and ethics experts and stakeholders from unions, industry, and environmental organizations. The lay panel then reviews more agency-provided background papers, asks more questions, and suggests additions and deletions to the expert panel. During the concluding four-day public forum, the experts make presentations and answer questions from the lay panel and sometimes from the audience. The lay panel deliberates and then cross-examines the expert panel to fill in information gaps and to clarify areas of disagreement. The lay panel then writes a report, summarizing the issues on which it has achieved consensus and identifying points of disagreement. Results of the panel are widely distributed to the media and local hearings are held to stimulate informed public debate, help citizens understand the issues, and influence decision-makers. As with all these processes, serious effort is needed to insure a diverse panel. This description was taken from Pellerano 2002{22}. See also work by Sklove here{23} and here{24}.

A Precautionary Approach

Given that numerical risk assessments have allowed the entire planet, and all of its inhabitants, to become contaminated with toxic chemicals{25}, another approach seems in order. The precautionary principle describes such an approach -- a constant search for the least-harmful alternative, involving affected people in decisions, a commitment to consider the consequences for the seventh generation, an explicit, acknowledged duty to monitor outcomes and to take action to prevent harm, with nature and human health being given the benefit of the doubt. Risk assessment asks the question, "How much toxic exposure can we get away with?" The precautionary approach asks, "How much toxic exposure can we avoid?"

The precautionary approach suggests some large goals for us all to consider:

** To make it repugnant and unthinkable to harm public health or nature any more than is minimally necessary to achieve our human purposes;

** To make it repugnant and unthinkable to deprive anyone of liberty, equality, or democracy any more than is minimally necessary to achieve our human purposes. Achieving these goals will require deep cultural shifts toward acknowledgment of limits and of the value of sharing.

My hypothesis about achieving such a deep cultural shift is that adopting the precautionary principle at the local level will help people adopt transformation goals.

Consider the San Francisco precautionary principle ordinance, which begins:

"Every San Franciscan has an equal right to a healthy and safe environment. This requires that our air, water, earth, and food be of a sufficiently high standard that individuals and communities can live healthy, fulfilling, and dignified lives.

"The duty to enhance, protect and preserve San Francisco's environment rests on the shoulders of government, residents, citizen groups and businesses alike." (The full text of the San Francisco ordinance is available here{26}.)

Notice that it starts with an assertion of rights and ends with an assertion of responsibilities. And it suggests some worthy goals that most of us can probably agree upon: everyone has a right to an environment of sufficiently high quality to allow everyone to enjoy healthy, fulfilling, and dignified lives.

Zero waste and the precautionary principle

Zero waste{27} and the precautionary principle are two key ideas driving a worldwide movement to reorder priorities, built on the bedrock of the U.N. Universal Declaration of Human Rights of 1948{28}. (Be sure to see Paul Palmer's zero waste piece{29} in this issue of Rachel's News.)

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Some other parts of the same international movement can be described by phrases such as clean production, extended producer responsibility, the public trust doctrine, protecting the commons and our common wealth, green chemistry, green engineering, green building, biomimicry, cradle-to-cradle design, the soft energy path, sustainable agriculture, global justice, and environmental justice.

Together, they aim to create the world anew with liberty, justice and a peaceable, decent life for all. Another world really is possible.

- {1} http://www.rachel.org/bulletin/index.cfm?issue_ID=2426
- {2} <http://www.rachel.org/library/getfile.cfm?ID=514>
- {3} <http://www.rachel.org/library/getfile.cfm?ID=512>
- {4} <http://www.rachel.org/library/getfile.cfm?ID=170>
- {5} <http://www.rachel.org/library/getfile.cfm?ID=361>
- {6} http://www.rachel.org/bulletin/index.cfm?issue_ID=705
- {7} http://www.amazon.com/gp/product/0309044960/qid=1142527508/sr=1-2/ref=sr_1_2/104-7218214-4639144?s=books&v=glance&n=283155
- {8} <http://www.rachel.org/library/getfile.cfm?ID=452>
- {9} http://www.precaution.org/lib/06/ra_pollutes_the_globe.051129.htm
- {10} <http://www.rachel.org/library/getfile.cfm?ID=517>
- {11} <http://www.powells.com/biblio/1-0262650533-0>
- {12} <http://www.powells.com/biblio/64-1932846077-0>
- {13} http://www.amazon.com/gp/product/1930665431/qid=1142529097/sr=1-1/ref=sr_1_1/104-7218214-4639144?s=books&v=glance&n=283155
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- {25} <http://www.rachel.org/library/getfile.cfm?ID=452>
- {26} http://www.rachel.org/bulletin/index.cfm?issue_ID=2338
- {27} <http://www.precaution.org/lib/05/rpr16.htm>
- {28} <http://www.un.org/Overview/rights.html>
- {29} http://www.precaution.org/lib/06/zero_waste.060303.htm

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URL: http://www.precaution.org/lib/06/transforming_american_law.060313.htm

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[Rachel's introduction: In this important strategy paper, Joe Guth lays out a plan for bringing the courts into the 21st century. At present the courts tend to accept environmental devastation as an inevitable (and tolerable) by-product of economic growth. But the world has changed and we can no longer afford unlimited growth because human survival requires that the natural world remain intact and functioning.]

Reprinted from The Networker, the newsletter of the Science & Environmental Health Network{1}.

By Joseph H. Guth, JD, PhD**

This is an outline of arguments intended to transform American law, beginning with the common law, so that it will promote preservation of the earth rather than accept environmental destruction as a byproduct of economic growth. These arguments call on the law to bridge the gap between biologists, who see us outgrowing our habitat, and mainstream economists, who foresee a future of unlimited economic growth.

A. How Common Law is Created

The "common law" is the body of law created by judges, as distinguished from law created by other authorities, such as constitutions and statutes. While judges must accept and interpret constitutions and statutes as they find them, judges must develop common law on their own. There was a time when judges believed they developed the common law by "discovering" law or by logically and inevitably deriving it from "first principles." However, since late in the nineteenth century, judges have been understood to resolve common law cases by reference not just to precedents and to logic, but also to the current social environment. This makes the common law a "battleground of social theory" in which judges have the power, indeed the responsibility, to adapt the law to changing circumstances.

B. The Current Common Law

The common law has long been called on to balance economic activity with damage to human health and the environment. Its modern structure was developed during the nineteenth century, as the Industrial Revolution arose as a dominating social force. Historically, the common law had contained two approaches to imposing liability on enterprises. One made defendants strictly liable for the damage they caused regardless of whether they were guilty of any wrongdoing, and the other let the damage lie unless defendants were somehow at fault, that is, in the wrong. But as early nineteenth century judges struggled with these doctrines, it became clear that strict liability threatened the viability of the huge new industrial enterprises that were arising.

In his famous 1881 treatise, *The Common Law*, Oliver Wendell Holmes considered the long history and various justifications for the competing principles of strict liability and fault, and then explained why the law should not hold a "man" strictly liable for all the consequences of his acts:

A man need not, it is true, do this or that act, -- the term act implies a choice, -- but he must act somehow. Furthermore, the public generally profits by individual activity. As action cannot be avoided, and tends to the public good, there is obviously no policy in throwing the hazard of what is at once desirable and inevitable upon the actor. [i]

Note how concisely Holmes articulates two crucial propositions, one of economics and one of legal theory. Holmes's economic proposition, that human activity generally provides a net benefit to society, was widely accepted, as exuberantly expressed in 1873 by the New York State Supreme Court:

The general rules that I may have the exclusive and undisturbed use and possession of my real estate, and that I must so use my real estate as not to injure my neighbor, are much modified by the exigencies of the social state. We must have factories, machinery, dams, canals, and railroads. They are demanded by the manifold wants of mankind, and lay at the basis of all our civilization. [The victim] receives his compensation... by the general good, in which he shares, and the right which he has to place the same things upon his lands.[ii]

Holmes's proposition of legal theory is that because human activity is generally desirable, the law should encourage it by shielding it from liability for damage it "inevitably" causes. Well before the end of the nineteenth century, common law judges had accepted this legal theory and implemented it by crafting rules of law that would allow the Industrial Revolution to proceed.

Judges created the legal theory of "negligence" and made it the common law's principal tool for resolving civil claims, including claims grounded in environmental damage. Presuming that economic activity was desirable, they shielded defendants from liability except for any conduct that a plaintiff could prove did not provide a net social benefit. They invented a requirement that, to receive compensation for damage caused by a defendant, a plaintiff must first prove that the defendant could have prevented the damage by taking steps that were reasonable according to a utilitarian calculus. Thus, judges implemented a presumption that damage should lie where it falls and placed a burden on plaintiffs to prove that a defendant's conduct was "negligent," i.e., that the conduct resulted in "unreasonable" risk. [iii] "Unreasonable" risk "is usually determined upon a risk-benefit form of analysis: by balancing the risk, in the light of the social value of the interest threatened, and the probability and extent of the harm, against the value of the interest which the actor is seeking to protect, and the expedience of the course pursued." [iv] To meet this burden of proof, plaintiffs usually must identify a cost-effective

alternative measure that the defendant should have adopted, such as installing a guardrail or scrubbing a waste stream. Moreover, because plaintiffs must prove that particular conduct by particular defendants caused their particular harm, the common law examines the "reasonableness" of each particular damage-causing conduct independently, one case at a time.

Common law judges also developed the modern structure of the legal theories of private nuisance (protecting a person's interests in private use and enjoyment of land) and public nuisance (protecting rights common to the general public). As reflected in the 1873 New York State opinion quoted above, judges saw the need to shield enterprises from liability in nuisance rather than follow some of the older cases that were intolerant of industrial invasions of lands and other interests. They came to require plaintiffs to prove, as in negligence, that the damaging conduct was "unreasonable" according to utilitarian principles.

Strict liability has become disfavored in modern common law, though it has not been eliminated. It is now generally confined to a few forms of conduct, including narrowly defined "abnormally dangerous" activities (such as blasting), sale of defective products, and some forms of trespass to land. Thus, according to the core structure of its predominant doctrines, negligence and nuisance, the common law intentionally presumes that damage to the environment should lie where it falls, without compensation even if the defendant can afford to pay, unless a plaintiff can prove that the defendant's conduct was to society's net detriment (i.e., that the damage was avoidable by cost-effective measures). It is this core structure that presents the greatest barrier to protection of the environment by the common law. This core structure must be changed.

C. The Environmental Statutes Contain the Same Core Structure as Does the Common Law

Some historians argue that the law shifted during the nineteenth century from an earlier grounding in strict liability as one element of a many-faceted transformation in the legal system sought by powerful interests in order to shift wealth and power from weaker elements of society to commercial and entrepreneurial groups.[v] Indeed, the common law did come to contain many impediments, besides the core structure of its predominant doctrines, to the ability of plaintiffs to obtain compensation for damage caused even by "unreasonable" conduct. These include refusing liability unless defendants are deemed to bear a legal "duty" to plaintiffs, limiting liability for damages to harm deemed to be both "proximately caused" by and "foreseeable" from the defendant's conduct, requiring that damage be "substantial" to be compensable, and many others. More recent impediments include judicial demands for "sound science," secret settlements, and financial influence in science and the judiciary.[vi]

Reacting to the obvious limitations in the ability of the common law to protect the environment, the federal

government enacted numerous environmental statutes beginning in the late 1960s. These statutes overcame some of the impediments of the common law and have enabled a measure of environmental protection that the common law could not. But, with few exceptions, the environmental statutes embody the same economic and legal propositions that lie at the core of the common law. Most of these statutes provide the administrative agencies not with plenary authority to protect public health and the environment but with only the authority to take "reasonable" or "cost-justified" protective actions (exceptions include the "fishable" and "swimmable" water quality goals of the Clean Water Act; the health-based standards for specific "criteria" pollutants under the Clean Air Act; and the "reasonable certainty of no harm" standard for pesticide food tolerances under the Food Quality Protection Act.). Executive Order 12866 (Clinton, 1993), rigorously enforced by the White House's Office of Management and Budget, requires all regulations promulgated by executive agencies to cost less than the value of the avoided damage, unless a particular statute requires otherwise. Thus, like the common law, the federal environmental statutes generally permit environmental damage unless the government can prove that the damage is avoidable by cost-effective measures.

D. Environmental Protection Now Turns On Cost-Benefit Calculations

Environmentalists, biologists, and public health advocates can demonstrate many forms of substantial industrial damage to human health and the environment, but this alone does not meet the burdens of proof imposed by the law. Today's legal battles to protect the environment are fought almost entirely on the circumscribed battleground of whether protective steps can be justified by utilitarian cost-benefit calculations. In each calculation, an increment of damage to the environment is monetized and then traded off against other monetized costs and benefits, with no limit on the total amount of damage that can be justified. Environmentalists and industry are in bitter conflict over the value-laden assumptions that underlie these calculations. Industry resists even "cost-effective" regulations because industry bears the direct costs of environmental protection while the benefits accrue to society. Society has little confidence in the regulatory decisions resulting from this system but is so locked into Holmes's two propositions that the case for applying cost-benefit analysis to environmental risks can seem compelling: Why shouldn't we pursue activities that create net benefits, even if they cause some environmental risks or even damage? Why shouldn't we require that regulations be "reasonable"? Why should we worry more about environmental damage than about other types of risk? Wouldn't that cause us to forgo many activities that would have a net social benefit? Overall, isn't it sensible to let economic development proceed while we develop the best possible cost-benefit calculations?

E. Unleashing the Industrial Revolution Onto An Empty World

The core structure of the common law was adopted when the world was viewed as an "empty world," in which the human impact on the environment was small compared to the assimilative capacity of the earth as a whole. Since then, Holmes's propositions have become embedded in our entire political economy. This can be seen in our obsessive commitment to permanent growth in the Gross National Product (GNP), which is grounded in the belief that GNP measures human welfare. Reflecting an abiding faith in the net social benefit of economic activity, GNP measures only the total dollar value of all goods and services produced each year and makes no effort to deduct the accompanying environmental costs. GNP incorporates no deduction for depletion of natural resources or damage to human health, the environment, or many other components of any true vision of human welfare. It counts liquidation of resource stocks such as oil, forests, and fisheries solely as positive contributions to GNP. Even defensive expenditures such as environmental remediation and medical costs for industrially caused disease are recorded as positive contributions to GNP, with no debit for the underlying damage. By failing to include these losses in our GNP accounting, our commitment to growth in GNP deludes us into accepting losses not just when they appear justified, as they did to Holmes, but also as they continue to mount, no matter how serious they become.

The free market, the engine of GNP growth, is structured in the same way. If a resource carries a price, the free market can reduce use of that resource once it becomes scarce by causing the price to rise, but the market contains no mechanism for preventing its scarcity. Today's neoclassical economists tell us not to worry about this because they believe, as an article of faith, that we will always be able to overcome resource scarcity by deploying technology and accumulated capital to find substitutes. Perhaps more important, the free market comprises no markets or prices for the clean air, water, or other vital resources of the commons that industry now uses as pollution sinks. Industry pollutes the commons for free, externalizing onto society this cost of industrial production. Because industrial damage to the commons is not reflected in the price of goods and services, the market can only encourage environmental damage and cannot discourage or prevent it. With the law intentionally shielding industry from most liability for this damage, the market drives us without restraint to exhaust the pollution sinks and the resources our economy feeds upon.

This political economy has unleashed astonishing growth in GNP over the first two centuries of the Industrial Revolution. While global population has grown 6-fold since 1800, global GNP has grown even faster, rising 50-fold in the last 180 years.[vii] But this is only the beginning. In the neoclassical economics that dominates public policy today, no theoretical limit exists to the potential size of GNP, and massive further growth is the only accepted solution to global poverty. The world population, most of which is poor, will grow to 8-10 billion by 2050. Economists expect GNP, even in rich countries with stable populations, to continue to grow at about 3% per year (doubling every 25 years). The World Bank projects that world GNP will quadruple by 2050.[viii]

Can we expand U.S. and world GNP by 50-fold again (5 to 6 more doublings) in the next 180 years? Our current political economy, driven by an insatiable consumer culture, the desperate needs of the world's poor, and resistance to significant redistribution between rich and poor, is giving us no other option but to try.

F. Our New Circumstances: The Finite Size of the Earth

Today we can see that we no longer live in an empty world. The biosphere appears now as a shockingly thin film on the surface of the earth, and it is the only habitable place we know in a forbidding universe. It contains only so much air, so much fresh water, so much arable land, so much room for us to share with all the rest of life. The earth and its interdependent ecosystems can assimilate only so much pollution per year, and we see that the various forms of environmental damage we visit upon the earth do not occur in isolation but form a networked web of assaults, each compounding the effects of the others. Because it is finite, the biosphere can withstand only so much sustained environmental damage before becoming biotically impoverished, with decreased ability to sustain life, including us.

As our GNP grows forever, the accompanying cost-benefit-justified damage to the environment, which also grows forever, will inevitably reach and surpass the rate of environmental damage that the earth can sustainably assimilate. Environmental damage at a rate beyond the earth's assimilative capacity will inexorably diminish and eventually devastate the earth's biosphere. Along this path, we can foresee that the earth's decreasing assimilative capacity, in a vicious feedback loop, will accelerate the biosphere's decline. Many of the losses, such as diminished biodiversity will be unrecoverable in any timeframe relevant to us. Some perceived long ago that we would surpass this assimilative limit. Others, sequestered in privileged refuges, will refuse to see it until the last tree is felled. But the key to protecting the environment from the juggernaut of GNP growth is to accept that a physical, inescapable limit exists to the earth's assimilative capacity for environmental damage, and that this limit is upon us.

The consequences are profound for our economic and legal systems. Beyond the earth's sustainable assimilative limit, each increment of sustained environmental damage will have an adverse effect on the environment and on human welfare that is far greater than the effect it would have in an empty world. Eventually, further GNP growth accompanied by environmental damage that might have been justifiable on an empty-world, cost-benefit basis, must actually become "anti-economic," decreasing rather than increasing human welfare.

To prevent both the impoverishment of the earth and anti-economic GNP growth, we must limit our total cumulative scale of environmental damage. This constraint in scale, as explained by former World Bank economist Herman E. Daly, must be imposed from outside the market system because it is determined by the size and nature of the earth

itself.[ix] If we accept this constraint, we should still be able to increase economic productivity, though not while mindlessly also increasing the scale of environmental damage. Instead, we would seek perpetually to reduce environmental damage per unit of productivity. We may even be able to increase true human welfare indefinitely, as long as we are inventive enough. Cost-benefit analysis might help us choose among alternatives as we develop a less damaging economy. But we could no longer justify environmental damage by monetizing it and trading it off on an equal footing with other monetized costs and benefits, for this dooms us to limitless environmental destruction in the quest for limitless benefits. Environmental damage must be preferentially avoided because it alone must be capped.

This shift in focus is happening. Progressive economists are beginning to create measures of human welfare that include the value of resource stocks, human health, the state of the environment, and other factors, and some have concluded that growth in GNP has already become anti-economic.[x] We are fitfully developing systems for imposing caps on emissions of some pollutants, such as sulfur dioxide and carbon dioxide, and for maintaining stocks of resources such as wetlands and fisheries. The precautionary principle is emerging as a tool for focusing environmental decisions on avoiding unnecessary damage. Alternative, greener technologies are struggling for a place in the market.

G. The New Structure of the Law

Containing the damage to the earth is the most important task facing humanity. The rules of law spawned by Holmes's two propositions must be overturned to the extent they govern liability for environmental damage. The law must be transformed so that the earth's limited assimilative capacity will operate as a real constraint on our economy. This transformation in the law can begin with common law judges, who are called on now, as they have been for centuries, to adjust the law to changing circumstances.

Now that the limits to the earth's assimilative capacity for environmental damage are upon us and we can foresee anti-economic growth in GNP, judges cannot mindlessly continue to ground our law in a presumption favoring all economic activity. Judges must now presume that we must limit the scale of our environmental destruction by acting to avoid it wherever possible. To accept this new presumption, judges need not first measure precisely the assimilative capacity of the earth or determine exactly when GNP growth becomes anti-economic. Nineteenth century judges needed no mathematical proof that economic growth was desirable before implementing their sweeping rules of law. Today's judges need only comprehend the reality of the limits we face and perceive that the preservation of the earth has become an ethical, moral, and economic imperative. One can imagine such judges, in crafting new rules of law, decrying environmental destruction with the same profound sense of urgency that the New York Supreme Court expressed in embracing economic development in 1873.

To act on this new presumption, it is plain that the law must turn its shield from protecting actors from liability to protecting the environment from destruction. First, judges must now presume that defendants, not plaintiffs, should bear the burden of environmentally damaging conduct. Second, this burden must be sufficient to deter environmental destruction and promote development of less damaging forms of production. Judges have many tools available in crafting such rules of law, and the touchstone for calibrating their proper strength must be whether they are sufficient to protect the earth. Judges can make defendants strictly liable for environmental destruction. They can ensure that the measure of damages is sufficient to drive vigorous development of safer alternatives. They can impose liability if a defendant has failed to employ a less damaging alternative. They can develop legal preferences to further disfavor economic activities that do not materially improve human welfare. While such rules may seem burdensome to defendants, they will build the shield for the environment that we now must have, and they are not unlike the burdens judges placed on plaintiffs long ago when they thought the world was empty.

Environmental laws governed by other authorities, such as statutes and constitutions, must be rewritten as well. Meanwhile, judges should, where reasonable, interpret existing laws in ways that further the new overriding imperative of protecting the earth.

These transformations in the law would cause our market economy to conform to the real, inescapable constraints imposed by the finite capacities of the earth, deter environmental destruction, and motivate a relentless drive to develop less damaging forms of economic production. Under such a political economy, perhaps we could indeed continually increase human welfare and still preserve the earth and all its benefits.

[i] Holmes, O.W., *The Common Law*{2}, Lecture III, p. 95 (Dover Publications 1991) (originally published in 1881).

[ii] *Losee v. Buchanan*, 51 N.Y. 476, 484 (1873).

[iii] Restatement (Second) of Torts 291.

[iv] Keeton et al., *Prosser and Keeton on Torts*, 30 (pp. 164-65), 31 (p. 173), 5th Edition (West 1984).

[v] See Horowitz, M.J., *The Transformation of American Law 1780- 1860*{3}, pp. 63-108 (Harvard University Press, 1978).

[vi] See Raffensperger, C. and N. Myers, *Detox for Torts: How to Bring Justice Back to the Tort System*{4} (SEHN White Paper, 2003)

[vii] Angus Maddison, *The World Economy: a Millennial Perspective*{5}; p. 261, Table B-18 (OECD 2001).

[viii] *Responsible Growth for the New Millennium*{6} at pp. 1-3 (World Bank, 2004).

[ix] See Daly, H. E., *Beyond Growth*{7} (Beacon Press, 1996).

[x] See "Sustainability Indicators{8}," *Redefining Progress* Daly, H.E. and Farley, J. *Ecological Economics*{9} 233-44 (Island Press, 2004).

** Joe Guth is the legal director of the Science & Environmental Health Network{10}.

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URL: <http://www.grist.org/news/maindish/2006/03/14/dicum/index.html?source=daily>

From: Grist, Mar. 14, 2006

JUSTICE IN TIME

[Rachel's introduction: Robert Bullard put environmental justice on the map when he published *Dumping in Dixie* in 1990. In this interview he explains, among other things, why the devastation wrought by hurricane Katrina was not an aberration. His new book is *The Quest for Environmental Justice: Human Rights and the Politics of Pollution*{1}.]

Meet Robert Bullard, the father of environmental justice

By Gregory Dicum**

Robert Bullard says he was "drafted" into environmental justice while working as an environmental sociologist in Houston in the late 1970s. His work there on the siting of garbage dumps in black neighborhoods identified systematic patterns of injustice. The book that Bullard eventually wrote about that work, 1990's *Dumping in Dixie*{3}, is widely regarded as the first to fully articulate the concept of environmental justice.

Since then, Bullard, who is as much activist as academic, has been one of the leading voices of environmental-justice advocacy. He was one of the planners of the First National People of Color Environmental Leadership Summit in 1991, at which the organizing principles of modern environmental justice{4} were formulated. Bullard later helped the Clinton administration write the watershed executive order{5} that

required all federal agencies to consider environmental justice in their programs.

Under the Bush administration, progress made during the 1990s is under attack, with even the U.S. EPA working to dismantle that provision{6}. As he has for 25 years, Bullard stands at the forefront of efforts to maintain environmental-justice gains, and to make mainstream environmentalists aware of the issues at stake.

Currently on sabbatical from his position as director of the Environmental Justice Resource Center{7} at Clark Atlanta University, Bullard has just published his 12th book. *The Quest for Environmental Justice: Human Rights and the Politics of Pollution*{8} brings together more than 20 contributors for a survey of the movement's past and future.

Grist caught up with Bullard as he took a break from working on a Ford Foundation-funded study of how government actions have endangered the health and welfare of African Americans{9} over the past seven decades. Most recently, this work has turned Bullard's attention to the area devastated by Hurricane Katrina{10}, which he describes as the latest urban environmental sacrifice zone.

Q: How did you first become involved in environmental justice?

A: I was a young sociology professor just two years out of graduate school. My wife asked me to collect data for a lawsuit she had filed. A company had decided to put a landfill in the middle of a predominantly black, middle-class, suburban neighborhood -- a neighborhood where 85 percent of the people owned their homes. Of course, the state gave them a permit, but the people said "no."

I saw that 100 percent of all the city-owned landfills in Houston were in black neighborhoods, though blacks made up only 25 percent of the population. Three out of four of the privately owned landfills were located in predominantly black neighborhoods, and six out of eight of the city-owned incinerators. In a city that does not have zoning, it meant that these were decisions made by individuals in government.

That's how I got dragged into this.

Q: And you got hooked.

A: I got hooked. I started connecting the dots in terms of housing, residential patterns, patterns of land use, where highways go, where transportation routes go, and how economic-development decisions are made. It was very clear that people who were making decisions -- county commissioners or industrial boards or city councils -- were not the same people who were "hosting" these facilities in their communities.

Without a doubt, it was a form of apartheid where whites were making decisions and black people and brown people

and people of color, including Native Americans on reservations, had no seat at the table.

Q: Just before Hurricane Katrina, you were getting ready to look at natural disasters as part of a study of how government actions endanger the health of African Americans in the South. How does Katrina fit the historical pattern?

A: Katrina was not isolated. It was not an aberration, and it was not incompetence on the part of FEMA and Michael Brown and the Bush administration. This has been going on for a long time under Republicans and Democrats, and the central theme that drives all of this is race and class.

Q: You've done a lot of work with schools. Why is that of particular concern?

A: Poor children in urban areas are poisoned in their homes. And when they go to school, they get another dose. And when they go outside and play, they get another dose. It's a slow-motion disaster: the most vulnerable population in our society is children, and the most vulnerable children are children of color. If we protect the most vulnerable in our society -- these children -- we protect everybody.

Q: Can you give a sense of the scale of the problem surrounding these schools?

A: Moton Elementary School, in New Orleans, is built on top of a landfill, causing lots of problems with the water in the school. The playgrounds in Norco, La., in Cancer Alley{11}, are across from a huge Shell refinery. You stay there 15 minutes and you can't breathe. And in South Camden, N.J., there are schools and playgrounds on the waterfront where you have all this industry, all this nasty stuff. Almost two-thirds of the children in that neighborhood have asthma. In West Harlem, the North River Water Treatment Plant covers eight blocks near a school. On the south side of Chicago, it's the same kind of thing.

From coast to coast, you see this happening. It's not just the landfill, it's not just the incinerator, it's not just the garbage dump, it's not just the crisscrossing freeway and highway, and the bus barns that dump all that stuff in these neighborhoods -- it's all that combined. Even if each particular facility is in compliance, there are no regulations that take into account this saturation. It may be legal, but it is immoral. Just like slavery was legal, but slavery has always been immoral.

Q: Let's look at a specific case{12} in which you're an expert witness: In Dickson County, Tenn., a county that is just over 4 percent black, a landfill was sited in the middle of a poor black community several decades ago. The dump was later a candidate for Superfund status, yet black families contend that authorities told them their water was OK to drink, even as they were telling white families not to drink it. In 2003, one family whose land borders the dump began a lawsuit against the county and the company that allegedly dumped

the industrial waste. What does it take for a community to stand up against such comprehensive injustice?

A: In every struggle, somebody has to step forward, just like Rosa Parks or Martin Luther King Jr. In this case, it's the Holt family: they have drawn a line in the dirt and said "no."

Every time I go there, I'm amazed at their spirits. These are fighters, from strong stock: this is a community of black people who owned land dating back over 100 years. They are resilient. But at the same time, they're sick. Harry Holt is the patriarch in the family right now, and he has cancer. His daughter, Sheila Holt-Orsted, has cancer. His son has an immune deficiency.

That's how these lawsuits play out: it's a waiting game. The people with the money can wait the longest, and the people who are sick generally can't, because at some point, sick people die. And they know that. That is the cruelty and the horrific nature of environmental racism.

Q: What keeps you going?

A: People who fight. People like the Holt family. People who do not let the garbage trucks and the landfills and the petrochemical plants roll over them. That has kept me in this movement for the last 25 years.

And in the last 10 years, we've been winning: lawsuits are being won, reparations are being paid, apologies are being made. These companies have been put on notice that they can't do this anymore, anywhere.

Q: It's no longer overt policy to practice environmental racism in this country, yet it keeps happening. Where is the locus of the problem now?

A: Now it's institutional racism. You don't have a lot of individuals out there wearing sheets and hoods. Instead you see it as the policies get played out. On their face, policies may appear to be race-neutral. They say, "We're going to look at unemployment, poverty rates, and educational level," but the poorest areas oftentimes correspond to racialized places. Without even talking about race, you can almost predict where these locally unwanted land uses, or LULUs, will go.

Q: In your 2003 book *Just Sustainabilities: Development in an Unequal World*^{13}, you took a look at what sustainability means from an environmental-justice perspective. Is there such a thing as sustainability without justice?

A: No, there's not. This whole question of environment, economics, and equity is a three-legged stool. If the third leg of that stool is dealt with as an afterthought, that stool won't stand. The equity components have to be given equal weight. But racial and economic and social equity can be very painful topics: people get uncomfortable when questions of poor people and race are raised.

Q: In your latest book, you wrote, "Building a multiethnic, multiracial, multi-issue, anti-racist movement is not easy." That seems like a huge understatement. Has anything like that ever been done?

A: No. What we're up against is really trying to disentangle and unpack a lot of baggage, from slavery to colonialism to neo-colonialism to imperialism, and all those -isms that have really served as wedges.

For example, before we had the First National People of Color Environmental Leadership Summit, there was very little interaction and understanding and collaboration among African Americans and Latino Americans and Native Americans and Asian and Pacific Islander Americans on anything. We had the civil-rights movement, but the modern civil-rights movement was not necessarily your model multiethnic, multiracial movement.

There was friction and lots of confrontations and animosities in terms of who's going to lead and the extent to which paternalism and racism and sexism could be eliminated. The environmental-justice movement took on the huge task of breaking down mistrust and stereotypes and the internalized racisms that we're all victims of. You have some dynamics that are really very complex. But we've made a lot of progress: we've worked out the relationships for partnering and respecting leadership styles.

Q: There are a couple of cases in your latest book of people involved in local struggles who went on to hold elected office. How representative is that of environmental justice as a leadership incubator?

A: In at least a quarter of cases, the leaders that emerge to work on local environmental-justice issues get involved in electoral politics. They get elected to school boards, city councils, and run for state representative. And 35 percent of them are women.

In other cases, they become the go-to people when it comes to, "What about jobs? What about this facility? Will it be a good thing or is this just a sell job?" Whether they be retired school teachers or retired mail carriers or little old grandmothers who have lots of time to devote to these issues, this is the training ground for leaders.

Q: Marshall Ganz^{14} has pointed out that many of the mainstream, national environmental groups are D.C.-based lobbying organizations that don't have the really engaged grassroots constituencies you're describing. How do you see these two different kinds of groups working together?

A: The environmental-justice movement was never about creating little black Greenpeaces or little brown Environmental Defenses or little red Audubon Societies. These organizations have their expertise and when we can work together and maximize our strengths, that's when we win.

There's division of labor that can work to the advantage of this whole movement. When the mainstream national environmental groups pair up with environmental-justice groups that have the ability to mobilize large numbers of constituents -- to get people marching and filling up those courtrooms and city council meetings -- that's when you can talk about an environmental movement.

A great example of how it should be done is happening right now in Louisiana. The Natural Resources Defense Council is partnering with the Deep South Center for Environmental Justice{15} and the Louisiana Environmental Action Network{16} to work on testing and issues of environmental justice after Katrina. NRDC brings a lot of expertise, but is respecting those organizations based in New Orleans and Cancer Alley. They're really showing how a national group and local groups can form a relationship that is principled.

Q: So you're hopeful?

A: On our side we have lots of committed troops on the ground and a growing movement of young people. Because of the way race operates in this society, there are some people -- poor white people, for example -- who have been given blinders; they're blinded by racism and have voted against their own best interests. When we take the blinders off and allow every single American to rise and reach his or her potential without these artificial barriers, then we could really become a great country.

What environmental-justice issues might we be surprisingly close to breaking through on?

Globally we've got a long way to go, but the fact is we don't have a lot of time -- I think that reality will force collaboration. An awareness that what we do in the developed world doesn't just impact us is now pretty much a given. But we have to move that to another level of action and policy: the framework that environmental justice has laid out can resonate across a lot of developing countries.

In the end, I think we'll be able to get our message out because it's based on principles and it's based on truth and justice.

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Click here{17} to read more thoughts from Robert Bullard on Katrina and institutionalized racism.

** Gregory Dicum is the author of Window Seat: Reading the Landscape from the Air{18}. He writes a biweekly column for SFGate, the online edition of the San Francisco Chronicle, and has written for the New York Times Magazine, Harper's, Mother Jones, and others.

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URL: http://www.precaution.org/lib/06/zero_waste.060303.htm

From: Getting to Zero Waste, Mar. 3, 2006

WHAT DOES ZERO WASTE REALLY MEAN?

[Rachel's introduction: The first job of a zerowaster is not just to define the concept academically but to instill comfort in the idea that the creation of garbage has become unacceptable, unnecessary and no longer has to be tolerated.... The "right" to create and throw away garbage is another delusion that can and will be changed. Wait and see!]

By Paul Palmer paulp@sonic.net

[Paul Palmer is the author of Getting to Zero Waste{1} (Sebastopol, Calif.: Purple Sky Press, 2004; ISBN 0-976057-0-7).

A verse in a well-known blues runs: Everybody wants to go to heaven but nobody wants to die.

In a similar way, (almost) everyone wants to get rid of garbage but (almost) nobody wants to adopt zero waste thinking.

Zero Waste{2} is an idea that is spreading from one city to another, from one county to another and is being adopted by environmental groups, individuals and even countries.

But what is it? In one sense, it really isn't that difficult. Zero Waste means that there isn't any waste. No garbage! No throwing anything away in a pit in the ground! No burning things just to "get rid of them". Everything is reused. On this level, the concept could hardly be simpler.

Unfortunately garbage has been with us for so long that most people have internalized it as a social behavior. Too many people have convinced themselves that the creation of garbage is an innate activity, even a social right! No matter that there is nothing to back up this defeatist idea except that we are used to it. So the first job of a zerowaster is not just to define the concept academically but to instill comfort in the idea that the creation of garbage has become unacceptable, unnecessary and no longer has to be tolerated.

A short while ago, cigarette smoking was considered to be a personal right. When people began to organize against polluted air, a powerful industry fought like a tiger to continue their socially destructive sales. People who had grown up with smoking shouted that they had a right to pollute everyone's air and no one could stop them. But social expectations changed. The rights were turned on their head to where no one has the right to pollute. The "right" to create and throw away garbage is another delusion that can and will be changed. Wait and see!

Moving to a deeper level, zero waste is a way to organize society so that every article or commodity that is used, by industry, commerce or personal consumer, is designed for reuse after its first use. And then for reuse after that.

I would like to tell you that this is a simple change from today's practices but I can't. There are lots of implications in that brief description.

Today, there is essentially no design for reuse at all. To incorporate this new overriding design principle will take a lot of engineering and technical changes.

Unlike recycling, zero waste is not an end-of-pipe strategy. It means abandoning the idea that articles are used and discarded and then, surprise! we suddenly need to find a way to reuse the materials that are in them. With the adoption of zero waste principles, this will never happen, because the reuse practices were designed in right from the start. So it is clear that zero waste has very little in common with recycling. In fact, if zero waste thinking is implemented, recycling will essentially disappear. Recycling of materials will persist only when no higher form of reuse can be found, and then only temporarily until a higher form of reuse is found.

Are you confused by this? Are you thinking that design for reuse is the same as design for recycling? Not at all! In most cases, recycling is the lowest form of reuse you can find. This is because the most important thing to reuse is not the materials of which an item is made but the function that it serves. The first goal of any redesign is to make the entire

article, or the largest piece of it, reusable in its highest form. Breaking a complex article into its bare materials is hardly better than discarding it into a dump. True, it temporarily keeps the materials out of a dump. But by degrading the complex article into mere materials, you practically guarantee that those same materials will soon find their way into another dump. And in many, many cases, they won't even stop to pass go -- "recycled" materials often move directly into dumps. End-of-pipe methods are hugely inefficient.

Recycling has been an amazingly successful social innovation. Over the past thirty years, it has raised the public consciousness and made dumping much less acceptable. But now it is time to move past that into taking true responsibility for everything that we create.

Why is function more important than the mere materials of which used articles are composed? Here are some examples. Consider the glass and plastic bottles that we are so often urged to recycle. Their function is to contain. Their materials are just glass or plastic. How much of the value of the bottle lies in the material of which they are made? Maybe five percent, or even less. All of the value is found in the proprietary shape, in the unique profile, in the recognizable identity, in the seal which allows them to be closed and poured from - -in short, in the fact that they can be used to contain a beverage. When a glass bottle is broken, it loses all of that value. In order to then recover some small residual value from the broken glass, it has to be transported a long distance and then melted and reformed into a new bottle at great expense in fuel. Then it has to be refilled with some product and trucked back to the original customer. What a waste! How much better it would be to simply refill the original, unbroken bottle. It is already in the hands of a bottle user who just emptied it. No transportation and no remelting. This is what reusing function can accomplish but recycling discards.

As for the crushed plastic bottles, they are of so little value that in most cases, their "recycling" is just a pretense to make them more attractive to the public. In fact, they are most often taken directly to a dump.

In the case of the bottle, responsibility does cost the user something. He needs to wash out his bottle, keep it intact and ultimately bring it to a refilling station in order to refill it. When the garbage industry markets its pretense of recycling by telling the homeowner that there is no need to wash or clean, no need to separate plastic from glass, they are blowing smoke. They are selling irresponsibility and trying to take advantage of laziness. But the result is that the planet fills up with polluting garbage and destroys our earth's patrimony, both silica (for glass) and petroleum (for transportation and heat). As we approach the end of the Age of Oil, we must simultaneously end the Age of Garbage.

Another example is found in the way that computers are mismanaged by the garbage industry. These immensely complicated instruments, which were wrung from simple materials by the application of high engineering skills, years

of expensive research and the prodigal exploitation of human labor in multibillion dollar fabrication plants are insulted by the garbage industry which brightly claims them to consist of nothing but some steel, some plastic, some glass and bits of gold and copper. They actually have developed ways to crush, smash, shred and smelt these machines back into the lowest forms of raw materials. What a waste!

Even without the benefit of design for repeated reuse, there is a smaller industry which finds that it can refurbish and reuse many of these computers. They call themselves the Computer Refurbisher Industry and every week they collectively provide thousands of used computers to schools, training classes and people who could not otherwise afford a computer. But imagine how much more they could accomplish if those same computers were actually carefully designed for long life and perpetual reuse of all possible parts and features. Designing willy-nilly for maximum profit, assuming that a dump will always be there to welcome anything anyone wants to throw into it, is a primitive, irresponsible way to run a civilized manufacturing industry.

There is one industry that illustrates these principles so beautifully, it is essential to take a look at it. Imagine an industry that spends a great deal of money and human labor to produce a product that uses no materials whatsoever but can nevertheless be designed for reuse. Can you guess what it is?

The industry I have in mind is the one that produces software. From the zero waste point of view this is no different from the automotive industry, but the issues are clearer. Every programmer knows that he is simply wasting effort if he designs software to be used once and never again. There is a tremendous push in the software industry to design software in reusable modules called objects and other names. So if the product has no materials to speak of, where does the recycling come in? Recycling theory may look at only the dribbles of paper or plastic that the software is recorded on. But the real cost of software is in the human labor. The huge investment in materials represented by software are all of those materials used by all those programmers as they buy homes, eat food, drive cars, read books and newspapers etc. In an exactly parallel way, the real investment in a bottle, which is summed up in the concept of function, is the resources used up by the laborers and engineers who created the bottle. This is the only reason there is such a wide gap between the value of the bare plastic or glass materials and the completed bottle. The same is true of computers, cars and every other product we produce.

Recycling has been reinterpreted by the garbage industry to be merely an add-on to the collection and disposal of garbage. California law, especially in AB 939 passed in 1989 has obligingly mandated what is called diversion, as the desired form of reuse. This means, first make garbage but then divert a small portion of it into recycling. It is the garbage industry which owns most of the beat and heat recyclers, and which picks up the most profitable materials at the curb. They have also instituted a way to fund recycling

departments and efforts that is insidious, namely by surcharges on dumping. This gives recyclers a stake in continued dumping, undercutting their ideological commitment to getting rid of dumps.

Zero Waste, on the other hand, suffers from no such contradictions. It stands for the end of all garbage as we know it and for the end of that harmful anachronism which is the garbage industry. It requires no direct subsidies since the reuse of all manufactured articles will be paid for at the time of first sale. The major indirect subsidy which it requires is the same one that all modern technical industries require, namely university based scientific research to develop ways for manufacturers to design for reuse.

Zero Waste closes the responsibility gap by demanding that our society stop pretending that unwanted articles and goods can be ignored, thrown away and discarded into dumps. Down that road lies all pollution. In taking responsibility, we are also taking back our one, precious planet. There can be no alternative.

{1} http://www.amazon.com/gp/product/0976057107/qid=1142033788/sr=1-1/ref=sr_1_1/104-7218214-4639144?s=books&v=glance&n=283155

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From: Rachel's News #846, Mar. 16, 2006

RESPONSE TO 'CAN WE REGULATE DANGEROUS TECHNOLOGIES?'

[Rachel's introduction: In Rachel's #842 we asked whether corporate power has now outstripped the ability of all governments to curb scientific fraud and regulate dangerous technologies. A reader responds...]

By Sonja Biorn-Hansen**

[In Rachel's News #842{1}, we wrote, "This [chromium contamination] story raises the possibility that corporate scientific malfeasance has now grown so bold, so well-financed and so generally-accepted as standard operating procedure that no unit of government can muster the will, the staff, the effort or the courage it would take to set things right. Maybe corporate power has now outstripped the ability of any government to rein it in....

"Is a workable system of regulation even imaginable under modern conditions? If you think the answer is 'yes,' we'd like to hear your ideas. If the answer is 'No,' then many of us would have to acknowledge that we have been wasting our time devising new regulatory approaches that could never, in fact, work within the current framework of political power." Here a reader responds.-- Editors.]

I don't think we have been wasting our time trying to devise regulatory solutions to environmental problems in that sometimes you have to work on the wrong solution in order to figure out what the right one is. I prefer the phrase "successful failure" to describe such situations: you don't accomplish what you wanted, but you do find out something you needed to know.

Enough pep talk. I agree that the current framework of political power (where corporations drive the ship) is a huge problem, but I have trouble picturing a political solution to our problem. We humans have a longstanding tendency to create and unleash new technologies on ourselves. We do it in order to solve problems that other species by virtue of their more evolved bodies and smaller brains either don't have, put up with or die from. We develop these technologies with little regard to the consequences. Sometimes the disregard is willful on the part of a small number of people who hope to make a bunch of money off the rest of us. Sometimes it is simply naive. Who could have anticipated endocrin disruptors? We had to accidentally invent them and suffer the consequences before we could appreciate them.

Like I said, I have trouble picturing a political solution to this, though politics can sure make things a lot worse. Instead, I think about what things would look like if we were all skeptical consumers. A skeptical consumer is someone who is aware of how inadequate existing environmental regulations are, and who practices the precautionary principle reflexively whenever they shop and in how they choose to live their lives. Here are some examples of thinking like a skeptical consumer:

1. If it disrupts a natural process, it is probably bad for something in nature. So, chemicals designed to keep water from freezing, organic matter from rotting, or me from feeling sleepy, are probably bad for something, sometime, somewhere. That certainly doesn't mean I never buy any such things, but I do think about it. If I can find something that solves the problem in a low tech way (use sand to keep from slipping on ice, make the planter boxes out of masonry or at least of recycled lumber, take a nap), I try to go with that solution.

2. Avoid "solutions" that create more problems than they solve, or that just externalize the problem. Getting colds is a drag, but using anti-bacterial soap is not a solution because you would have to rub your hands with it for something like 2 minutes for it to kill the germs on your hands, after which you are (still) releasing a toxin into the environment. Ditto for drinking water out of plastic bottles. Not only can the plastic release stuff into the water that isn't good for you, but then there is the problem of all those empty bottles. Get a filter and carry your own water if you need to.

3. What would it look like if Everyone decided they needed this thing that I think I need? North Americans are among the richest few percent of people on the planet but consume far more than a few percent of the world's resources. Multiply all that needing by 10 or 20 or 50 and the results get scary fast.

4. If a thing has to be advertised in order to get me to buy it, maybe that means I don't really need it. I mean, if I Really needed it, wouldn't I notice on my own without the help of an advertising agency?

5. While we are on the subject of advertising, it is worthwhile to get in the habit of asking what the message of the advertisement really is. I remember driving one day with my kid before she could read, and she kept asking about a billboard that showed an ad for a vacation in Mexico. I told her it was an ad for a vacation to Mexico. She didn't seem satisfied with that answer. I finally explained that the people who made the ad want you to think that if you shell out the money to go to Mexico, you will be gorgeous and happy like the picture of the couple on the beach. My daughter sat in stunned silence for a minute and then burst out "But that's not true!" She was three. See, we are born smart and then advertising gets to us...

My two cents.

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{1} <http://www.precaution.org/lib/06/dhn842.htm>

Rachel's Democracy & Health News (formerly Rachel's Environment & Health News) highlights the connections between issues that are often considered separately or not at all. The natural world is deteriorating and human health is declining because those who make the important decisions aren't the ones who bear the brunt.

Our purpose is to connect the dots between human health, the destruction of nature, the decline of community, the rise of economic insecurity and inequalities, growing stress among workers and families, and the crippling legacies of patriarchy, intolerance, and racial injustice that allow us to be divided and therefore ruled by the few. In a democracy, there are no more fundamental questions than, "Who gets to decide?" And, "How do the few control the many, and what might be done about it?"

As you come across stories that might help people connect the dots please Email them to us at dhn@rachel.org. Rachel's Democracy & Health News is published as often as necessary to provide readers with up-to-date coverage of the subject. Editors: Peter Montague - peter@rachel.org; Tim Montague - tim@rachel.org