

A Precautionary Approach to Economic Analysis

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Precautionary Principle and Economics

Economics has been used as the number one argument against the precautionary principle of preventing harm and against protective policies of all kinds. So since practically day one of this movement, people have been asking for economic arguments that prove precaution pays.

The ethic that guides decision making is the belief that economic activity is the main source of good for society. That's why economic activity gets the benefit of the doubt, and why there is no strict liability for harm from enterprise. This is the way law and policy has been written since the late 19th century. It is the ethical basis of "cost-benefit analysis" that emphasizes costs and benefits to industry and minimizes or excludes the externalized "costs" of harm. But it was an ethic for an empty world, with no apparent limits on human enterprise.

The precautionary principle sets a different ethic, based on the state of the world today. The preponderance of scientific evidence now says it is time to give the benefit of the doubt to human health and the environment. Precaution is based on science about the state of the world and the ethic of protecting and sustaining life on this planet.

What do we do about economics and precaution?

We can easily come up with scientific and ethical arguments for precautionary policies. But somehow economics always trumps. So, we need to begin to shift the terms of the economic debate. We're focusing on a precautionary economic analysis, not on economic activity or the kind of economic systems we want—that's a whole other very important topic. This kind of exercise, economic analysis, has three purposes.

Precautionary Economic Analysis

1. It can correct some of the huge distortions of current cost benefit analyses. It's a bad system. But there are some distortions in it that can at least be exposed, and if exposed, potentially corrected. The use of discounting, for example, that whittles away long-term benefits to zero, or being very selective in what effects and harms you factor into policy decisions and regulations. Most important, we can give weight and reality to the costs and benefits that fall to the public and the environment. This is what the cost of pollution studies are helping us do. We can put numbers where there have been none before, or where they have been ignored.

2. It can get the attention of those who only listen to economic arguments. That's not only policymakers but also the public. The public is afraid of anything that threatens the economy, and they're afraid environmental regulation does that. Policymakers are even more scared of challenging business as usual. *If we can produce more numbers on the cost of harm and the benefits of precaution we can tip the balance the other way.* These exercises can give policymakers a rationale for rejecting arguments that privilege

the economy over health and wholeness. They can help communities get a handle on the real choices they face in economic development.

3. It can begin to break the stranglehold of money as a measure of what we value as a society and how we make our decisions. And here we move into the two other realms that are beyond the scope of the studies we're talking about: the realm of the priceless and the realm of the uncertain. The precautionary principle directs us to go ahead and take necessary protective action based on the best available information, not to wait for science's standards of proof. That doesn't mean ignoring science; it means incorporating science into our decisions but not backing off and letting science decide. Nor does it mean ignoring economics; it means incorporating what we value into our decisions, and monetary value is only a part of this.

We cannot let monetary values make the decisions. Paradoxically, I think we have to use money and numbers to help us get beyond making our decisions by money and numbers alone. We have a chance to change the terms of the debate about money and numbers by pushing them as far as we can toward reality. In this process we can make explicit what we value, what can be monetized, and what cannot. We have a chance to shift the debate through numbers to value, ethics, and responsibility.

Case Study: Precautionary Economic Analysis of Coalbed Methane Development

The analysis looked at a huge resource development project still in the early stages—extracting methane from coalbeds in a section of Wyoming and Montana. It was conducted by Josh Skov, an economist, and myself, a writer and policy analyst, with the help of some graduate students.

The coalbed methane development project was being sold on the basis of economics. With natural gas prices on the rise, the energy companies were convincing politicians that it would be good for the region economically. State budget deficits would be turned into huge surpluses. 10,000 new jobs were promised. Industry studies projected \$5 billion in economic benefits to the states.

The opponents knew there would be terrible environmental consequences. They thought it was a huge rip off of public lands and resources and they worried about water impacts. They asked the Science & Environmental Health Network (SEHN) to look into whether the precautionary principle could help. SEHN decided to challenge the industry claims about economic benefits. How would we use the precautionary approach to do an economic analysis? Here's what we decided it means. It means assigning value to human health and the environment as a precautionary ethic. That doesn't necessarily mean dollar value. It means taking uncertainty into account in some meaningful way. It means describing full costs and harms as well as benefits and describing the distribution of those costs—fairness is inherent in the precautionary ethic. Finally, in looking at recommendations, we'd be examining alternatives. That's what we tried to do.

Certain things stood out immediately. One was the **short-term nature of benefits**. At planned rates of extraction, methane would be produced in this region for about 20 years. The total amount would be the equivalent of about one year's supply of natural gas in the United States. Another was that **huge public costs were not being figured in**. So we set out to calculate some we could easily put dollar figures to. We came up with the following results.

- \$1 to \$2 billion in public subsidies over 5 years was provided to coalbed methane (CBM) development. These subsidies are given to the energy industry as a whole and to "alternative fuels". CBM is classified as an alternative even though it is a fossil fuel and exploiting it has become highly profitable.
- \$2 to \$10 billion in water costs over a 20 year period were estimated from well remediation and "lost" water. We figured the value of water from recent water war settlements. We calculated how much water would be brought up and wasted in the arid West, and where population and demand are growing.
- The value of water lost by CBM development amounts to \$84 to \$400 for every man, woman and child in Wyoming and Montana every year for 20 years. This was a telling statistic. It was the figure that *Casper Star Tribune* picked up from our study results presentation at the University of Wyoming in August 2004.

We discovered that without monetizing everything, it was hard to come up with a single bottom line. Here is as close as we came to that:

- **Public benefits to the states: \$5 billion (using industry figures).**
- **Public costs to the states: \$2 to \$10 billion for water alone.**

So the public costs and benefits of CBM development are in the same ballpark.

- **The development would bring no net economic gain to the public.**
- **Plus it would bring huge harms and risks.** It is difficult or counterproductive to assign dollar values to these.

The CBM development would also create a permanently scarred landscape:

77,000 new wells in the region, more than 5 per square mile. Some 25,000 miles of unpaved roads and 47,000 miles of pipelines and power lines will transform thousands of acres of natural landscape into an industrial wasteland. Monetary and nonmonetary costs to lifestyle, livelihood and recreation, along with remediation expenses, will fall mostly to the public.

Here is a summary of the benefits, costs, risks and their distribution for Coalbed Methane Development.

- The benefits of CBM development occur in the immediate and near future, while the costs spread over several generations.
- The benefits are highly concentrated, spilling over slightly to the public as a whole and to the public sector in the region, but still overwhelmingly concentrated with the oil and gas companies that would develop the resource.

- Significant public money has been directed to this project, further enriching the small cadre of beneficiaries at the expense of the larger public.
- **The major revelation is that the project is a tradeoff between two valuable resources, natural gas v. water.**

What happened to this big project?

Two years after the report, the big push for CBM develop still hasn't happened. Maybe our report helped solidify public opposition. And one of the best way to hold up a juggernaut like this is still through the courts. In 2005, a federal judge revoked a Clean Water Act permit for dumping CBM water into the Powder River. Other cases are pending, brought by coalitions of ranchers, hunters, and environmentalists. More studies are being done.

What did we learn?

1. You can't put numbers to everything, but you can come up with enough numbers to make the case.
2. Activists need those numbers. They need help getting them. We could use a cadre of economists to help us figure out how to do these analyses, and a cadre of grad students to help do the research and crunch the numbers.
3. The economic case needs to be made repeatedly, in many ways, to the public and to government, before people understand that what we're sacrificing has real value.

You can talk about lost water, lost way of life, environmental damage, poisoning, but having a dollar figure makes it more real. It feels more like a rational, hard-headed matter instead of an emotional one. It's not, but unfortunately we've been conditioned to think that way. We need to change that conditioning.