Green Chemistry
An Interdisciplinary Approach to Sustainability
Sustainable Biofuels Development
Chem, ESPM, SPH 234

Class 7: Introduction to General Impact Analysis, Valuation, and Ethics

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Presidential Executive Order 12866
"Regulatory Planning and Review" (58 FR 51735; Oct. 4, 1993) §§ 1(a), 1(b), 1(b)(6)

Section 1.
……

(b) *The Principles of Regulation.* To ensure that the agencies' regulatory programs are consistent with the philosophy set forth above, agencies should adhere to the following principles, **to the extent permitted by law** and where applicable:
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(6) **Each agency shall** assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, **propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs**.

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Class 5: Class Exercise

Read E.O. 12,866 §§ 1(a), 1(b)(6)

Under the decision-making structure imposed by E.O. 12,866:

(1) Who bears the burden of proof under TSCA?

(2) What legal test must be met before, for example, a chemical can be regulated under TSCA?

(3) Under E.O. 12,866, what does the TSCA "unreasonable risk" standard mean?

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Prevailing Welfare Maximization Decision-Making Structure

Economic actors are free to pursue activity, even if it causes damage to human health and the environment, unless government can carry its burden of proof to demonstrate that harm can be avoided by regulations that have net benefit (i.e., pass a cost-benefit test).

Plaintiffs in a common law tort suit for damages (such as negligence) bear a similar burden of proof.

- **Does this make sense to you?**

Douglas Kysar, "Agency and Optimality" Chapter 1, *Regulating From Nowhere*

A. (i) Environment: Is it ok to sacrifice environment for gains in social welfare?
(ii) Human welfare: Is it ok to sacrifice through environmental damage human health and lives for gains in social welfare?
(iii) Surgeon: Would you intentionally sacrifice one patient to save five?

B. "Utilitarianism" vs. "deontological approach" to determining the right decision. Though the US makes many decisions using CBA, there are many examples of rights based-approaches. (Name some.)

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Wingspread Statement of the Precautionary Principle (1998)

When an activity raises **threats of harm to human health or the environment**, **precautionary measures should be taken** even if some cause and effect relationships are not fully established scientifically.

In this context **the proponent of an activity**, rather than the public, **should bear the burden of proof.**

The process of applying the Precautionary Principle must be open, informed and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action.

"The Precautionary Principle is Deeply Incoherent"

(Cass R. Sunstein, Harvard Law School, Former Director of OIRA)
"Throwing precaution to the wind: Why the 'safe' choice can be dangerous," Boston Globe, (2008)

1. Precautionary Principle means: "Avoid steps that will create risk of harm."

2. Risk of harm is on all sides of decisions, including action and non-action.
   E.g.: GMO food vs. less productive agriculture: environment, human health on both sides
   DDT bans: bird eggs vs. human deaths from malaria
   Drug lags for safety testing: human health risks from delay but also introduction

3. Despite this incoherence, PP is attractive to people because:
   a. Psychological belief that nature is benign (erroneous, e.g.. sunlight, tobacco kill)
   b. Belief that natural is safer (for example chemicals, erroneous)
   c. Psychological aversion to loss of what one has vs. foregone benefits
   d. People will tolerate familiar risks more than new risks, even if they are statistically identical (e.g., driving vs. GMO foods, chemicals, terrorism).

4. Therefore, only sensible course is to evaluate costs and benefits. QED.

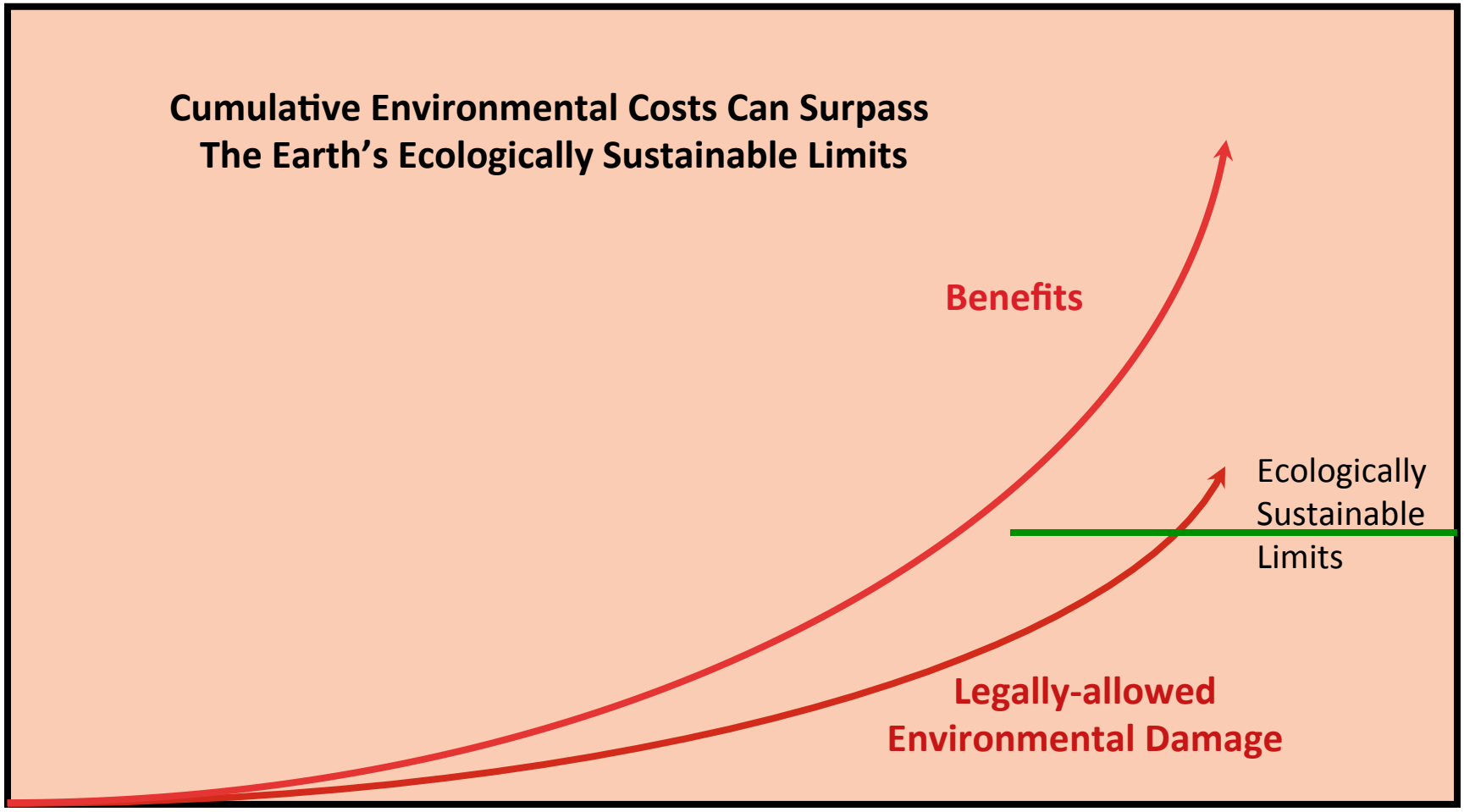
Regulating From Nowhere: Environmental Law and the Search for Objectivity
Douglas A. Kysar, Yale University Press (2010)

1. The US has become a "cost-benefit state," using CBA as prevailing decision-making tool and urging international community to do so as well. Original precautionary elements of US environmental laws has become diverted into economic welfare maximization.

2. Deficiency of welfare maximization using tools of CBA:
   a. We can't actually do the calculations
   b. Impossible to account for impacts on polities or environment outside US
   c. Impossible to account for non-instrumental impacts on other species
   d. Impossible to account for environmental justice disparities
   e. Impossible to account for our responsibility to future generations

3. CBA for individual impacts does not allow the cumulative effect of numerous impacts, in a finite world, to be accounted for.

4. Environmental laws have ethical and moral components, and represent democratic decisions by polity as to how to exercise collective ethical agency on all of the above issues, especially in view of the inherent irreducible uncertainties.


Cumulative Environmental Costs Can Surpass
The Earth's Ecologically Sustainable Limits
Benefits
Ecologically
Sustainable
Limits
Legally-allowed
Environmental Damage
time

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Elements of the Precautionary Principle

1. Preferentially avoids threats of harm to human health or the environment.

2. Acts on early warnings of harm even if some cause and effect relationships are not fully established scientifically.

3. The proponent of an activity, rather than the public, should bear the burden of proof.

4. The process of applying the Precautionary Principle must be open, informed and democratic, must include potentially affected parties.

5. It must also involve an examination of the full range of alternatives, including no action.

Precautionary Principle Decision-making Structures

1. Safety standard: move from cost-benefit test to health/safety/technology standards

2. Burden of proof: Switch from government to industry

3. Level of certainty required: move from definitive evidence to acting on early warnings