



CASE WESTERN RESERVE
UNIVERSITY
SCHOOL OF LAW

The Problems with Precaution: *A Principle without Principle*

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The Precautionary Principle

“Better Safe than Sorry”

“First, Do No Harm”

The Precautionary Principle

“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 the activity, rather than the public, should bear the burden of proof.”

Wingspread Statement (1998)

The Precautionary Principle

- **Action in the face of uncertainty to prevent harm**
- **Shifting the burden of proof**
- **Examination of alternatives, including no action**
- **Democratic decision-making structures**

Joel Tickner & Carolyn Raffanperger (2001)

The Precautionary Principle

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

1992 Rio Declaration

The Precautionary Principle

“Where potential adverse effects are not fully understood, the activities should not proceed.”

World Charter for Nature

The Precautionary Principle

“Community policy on the environment . . . Shall be based on the precautionary principle and on the principles that preventative action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.”

Maastricht Treaty (1992)

Is Precaution Safer?

“The truly fatal flaw of the precautionary principle . . . is the unsupported presumption that an action aimed at public health protection cannot possibly have negative effects on public health”

Frank Cross (1996)

Two Types of Error

	Net Risk	Net Benefit
No Control	<i>Type I</i>	
Control		<i>Type II</i>

Two Types of Error

Type I

- FDA approves a dangerous pharmaceutical**

Type II

- FDA fails to approve a life-saving pharmaceutical**

FDA Drug Approval

**Risks of Approving a
“Dangerous” Drug**

**How many people may be
harmed by a new
pharmaceutical**

**Risks of *Not* Approving a
“Dangerous” Drug**

**How many people could
have been saved by a new
pharmaceutical**

Example: Misoprostol

Two Types of Error

Type I

- Agricultural chemicals pose health or environmental risks that are uncontrolled**

Type II

- Regulation prevents use of agricultural chemicals to alleviate other health or environmental risks**

Risk v. Risk

Risks of Agricultural Chemical Use

- Human Health Concerns
- Water Pollution
- Biodiversity Loss
- Ecological Impacts

Risks of Limiting Agricultural Chemical Use

- Lower Crop Yields
- Human Health Concerns
- Higher Food Prices
- Loss of Crop Diversity
- Biodiversity Loss
- Ecological Impacts

Risk v. Risk

Case Study: **Ethylene Dibromide**

- Fungicide used to control mold on grains
- Banned in 1983 as potential carcinogen
- Molds can be source of carcinogens (e.g. aflatoxin)
- Alternative chemicals less effective, applied in higher quantities

Cross (1996); Gray & Graham (1995)

The Need for Agricultural Technology

- **Rising Global Population**

Approaching 9 billion by 2050

- **Increasing Food Demand**

800 million receive inadequate nutrition already

Over 6 million children die from inadequate nutrition

- **Conversion to Cropland**

1.6 billion hectares without increase in productivity

325 million hectares with 1 percent annual increase

Recover 98 million hectares with 1.5 percent annual increase

Goklany 2001

The Incoherent Principle

“the precautionary principle, for all its rhetorical appeal, is deeply incoherent. It is of course true that we should take precautions against some speculative dangers. But there are always risks on both sides of a decision; inaction can bring danger, but so can action. Precautions, in other words, themselves create risks – and hence the principle bans what it simultaneously requires.”

Cass Sunstein (2008)

Precaution's Appeal

Cognitive Biases

- **Loss Aversion**
- **Myth of Benevolent Nature**
- **Availability Heuristic**
- **Probability Neglect**
- **System Neglect (Tradeoff Neglect)**

Sunstein (2003)

Precaution's Appeal

- **Ideology**
- **Rent-Seeking**

The Way Forward

- Institutional Arrangements
- Consumer Sovereignty
- True Precaution

Criteria for Precautionary Action

- **Human Mortality**
- **Human Morbidity**
- **Immediacy**
- **Uncertainty**
- **Expectation-Value**
- **Adaptation**
- **Irreversibility**

Goklany 2001

Risk vs. Risk

“The empirical question is whether the health [and environmental] gains from the regulation of the substances involved are greater or lesser than the health [and environmental] costs of the regulation.”

Aaron Wildavsky

***"Better safe than sorry"
isn't always safer***

END