Impact of the Precautionary Principle on Feeding Current and Future Generations

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Precaution and the Precautionary Principle

- Broad agreement that precaution is an essential aspect of regulation
- *No* broad agreement or guidelines for how to apply precaution in any given situation
- The precautionary principle seeks to make application of precaution:
  - More explicit
  - More stringent
Textbox 2. Precaution terminology.

**Precaution**: As defined by Webster’s dictionary, “a measure taken beforehand against possible danger.”

**Precautionary Approach**: A regulatory approach, such as that applied by the United States, that seeks to err on the side of safety by applying precaution informally and implicitly in regulatory decisions.

**Precautionary Principle**: A legal requirement, such as that enacted by the EU, that mandates the formal and explicit application of precaution in regulatory decisions.
The Proliferation of the Precautionary Principle

- Incorporated into more than 60 international environmental treaties
- Included in 1992 Maastricht amendments to European Treaty
- Incorporated into national laws of many countries (e.g., many EU nations, Australia, Canada)
- Being applied as binding law by some courts (e.g., Australia, New Zealand, India)
- Recently adopted by U.S. cities of San Francisco, Berkeley, Seattle, Lyndhurst (NJ)
Factors Explaining Rise of PP

- Record of past risk management failures
- Growing mistrust of government and industry
- Rapid development of many new “exotic” technologies (e.g., GMOs, nanotechnology, synbio)
- Increased uncertainty about new risks
- Outdated laws and risk regulatory approaches
- Increased role for NGOs on scientific and risk issues
- Can be used as a protectionist trade tool
“By 2050 the world’s population will reach 9.1 billion, 34 percent higher than today. Nearly all of this population increase will occur in developing countries…. In order to feed this larger, more urban and richer population, food production (net of food used for biofuels) must increase by 70 percent.”

- FAO (2009)
Urgency and Timeliness of the PP Controversy

- Proliferation of calls for restrictions on emerging new technologies based on PP
  - e.g., biotech, nanotech, synbio, animal cloning

- Increasing international tensions and trade disputes based on the PP
  - e.g., EU restrictions on GMOs

- Differences over PP stand as major obstacle to U.S. and EU free trade negotiations

- Growing need for new food and agricultural technologies
  - Due to declining growth in agricultural productivity, population growth, climate change, etc.
There is no standard text of the precautionary principle

Treaties, regulators, and courts apply “the” precautionary principle without specifying which version they are using

Dozens of different formulations have been proposed; subtle differences in wording have significant policy consequences
Competing Definitions of the Precautionary Principle

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

- **Wingspread Definition (1999):**
  - “When an activity raises threats of harms to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.”

- **World Charter for Nature (1982):**
  - “Activities which are likely to pose a significant risk to nature shall be preceded by an exhaustive examination; their proponents shall demonstrate that expected benefits outweigh potential damage to nature, and where potential adverse effects are not fully understood, the activities should not proceed . . .”
Problem 2: Arbitrariness

- How substantial must the potential risk be?
- What level of risk is acceptable?
- What early indications of potential hazard are needed to trigger precaution?
- How much data must proponent produce to demonstrate “safe”?
- How are costs and risk-risk trade-offs factored in?
- What action is required to satisfy PP?
Norway invoked the precautionary principle to ban Kellogg’s Corn Flakes® fortified with vitamins because “the fortification in question might be a health hazard when eaten in uncontrollable and unforeseen amounts.

France employed the precautionary principle to ban the caffeinated energy drink Red Bull® based on a concern that its citizens, in particular pregnant women, would consume too much caffeine.

Denmark invoked the precautionary principle to prohibit the marketing of Ocean Spray Cranberry® drink on the grounds that the vitamin C added to the beverage could conceivably harm some individuals.

The President of Zambia expressly cited the precautionary principle as the basis for his recent decision to reject food aid from the United States that contained some genetically modified corn kernels, even though an estimated 3 million of his citizens were starving.

The EU invoked the precautionary principle to justify state aid to the coal-producing industry.

Problem 3: Countervailing Risks

- The PP has effect of impeding new technologies that are often safer than the older technologies they would replace.

- Many technologies present both potential health and environmental benefits and risks:
  - It is unclear whether the PP would prohibit or require such technologies.

- Application of the PP may increase rather than decrease public anxiety about a technology (Wiedemann and Schutz 2005).
“[T]he 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.”

• *Boston Globe*, July 13, 2008
Three Food-related Case Studies

1. Agricultural chemicals
2. Genetically modified foods
3. Food irradiation
Agricultural Chemicals

- U.S. applies a precautionary approach (not PP) to pesticides; but overly precautionary risk assessment and risk management requirements may do more harm than good

- Specifically, U.S. regulatory approach does not consider significant health, environmental, and food security benefits of ag chemicals
  - e.g., proposed revocation of sulfuryl fluoride tolerances based on cumulative risk—even though this chemical contributes less than 3% of overall fluoride exposure and will disrupt commodity markets with no other fumigant (thus increasing yield gap)
GM Foods

- GM foods have been severely restricted in the EU and now countries like India and the Philippines based on the PP
  - Notwithstanding numerous scientific studies and reviews concluding that GM crops present no greater risks than conventional foods

- Unwarranted restrictions on GM foods are disrupting international trade and delaying nutritionally important crops such as golden rice and improved cassava for developing world
Food Irradiation

- Food irradiation has been shown to be safe and beneficial in numerous studies over many years.
- Many governments limit or restrict use of food irradiation with precautionary requirements that do more harm than good to public health.
- No provision for weighing risks of technology against risks of not using the technology.
Evaluation of the PP

- The “precautionary principle may well be the most innovative, pervasive, and significant new concept in environmental policy over the past quarter century. It may also be the most reckless, arbitrary, and ill-advised.”
  - Marchant and Mossman (2004)
PP: Fix It or Ditch It?

- The PP is clearly flawed in its current formulation due to its
  - Ambiguity
  - Arbitrariness
  - Failure to consider countervailing risks

- After 20 years of experience, no progress has been made in addressing these flaws, nor is there any foreseeable prospect for fixing the PP

- Conclusion: The PP is a failed policy and should be rejected
Conclusion

- Precaution is a necessary component of regulation, but the precautionary principle fails to provide a principled approach for applying precaution
  - Cannot circumvent addressing the core questions in risk decision making
  - A slogan cannot replace the complexity of risk decision making

The Goldilocks Strategy may be the most appropriate when striving for a balanced and deliberate approach to precaution.
There is always an easy solution to every human problem—neat, plausible, and wrong.

- H. L. Mencken
“Something’s just not right—our air is clean, our water is pure, we all get plenty of exercise, everything we eat is organic and free-range, and yet nobody lives past thirty.”
Questions/Discussion

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Abstraction

After a research-based analysis and peer-reviewed process, the authors of this CAST Issue Paper make it clear: "The precautionary principle will be the most innovative, perceptive, and significant new concept in environmental policy over the past quarter century. It may also be the most revisionary, arbitrary, and ill-advised." Using data, specific examples, and case studies, the task force members conclude with allusions to a literary paradox, a child's fairy tale, and a familiar axiom to make their points.

The paper first looks at the history of the precautionary principle (PP) and then examines problems of ambiguity, arbitrary application, and bias against new technologies. Because the publication is especially focused on the need to feed a growing population, the case studies center on agricultural issues such as chemical use and genetically modified foods. They use a quote to illustrate their Catch-22 concern: "A ban on genetic engineering of food is literally dangerous to people who have a great deal to gain from genetic modification. The precautionary principle forbids genetic modification of food because it gives rise to risk, but the precautionary principle also forbids forbidding genetic engineering of food because forbidding genetic engineering of food gives rise to risk" (Gustave 2006b).

The authors give examples of the PP’s failure to offer a credible and refined framework for the application of risk management. They describe inconsistencies and suggest that the PP will be increasingly controversial, marginalized, and ignored in the future. They acknowledge the importance of safety and give credit to the general concept that sparked the PP but they indicate it has become unworkable and counterproductive. A passage in the conclusion illustrates this: "As with many things in life, the Goldilocks strategy may be the most appropriate—not too little precaution, not too much, but just the right amount is needed. If the PP helps us to more consciously strive for such a deliberate and balanced approach to precaution, that might be its most positive legacy."

The PP has played an important part in bringing attention to appropriate risk management. If it is applied in its more stringent formulations, however, the PP will suppress innovation, to the detriment of both the economy and human health. For example, a precautionary approach to managing the risks associated with food irradiation sends a message..."