5th Annual IAS-STS Conference "Critical Issues in Science and Technology Studies", Graz, Austria, 26th-27th May 2006

On Causes of the Dispute over the Precautionary Principle in Agri-Biotechnology Risk Governance

Marko Ahteensuu

Department of Philosophy

Assistentinkatu 7

20014 University of Turku

Finland

Abstract

The precautionary principle (henceforth the PP) that is presumed to provide guidance in the decision-making of uncertain and complex environmental and health risks is a matter of ongoing debate. Despite the academic efforts to clarify the principle and established policy documents (such as the CEC 2000), the PP has remained elusive and controversial (see e.g. VanderZwaag 2002, 165-170). Recently, the PP has frequently been linked to the discussion on well-founded risk governance of modern agricultural biotechnology (Lewidow et al. 2005, 261,274). The controversy on the regulatory procedures of genetically modified products (and so on the PP) may, partly, derive from possible unique characteristics of modern agricultural biotechnology, and consequently the development of a new kind of risk governance might be ethically required. However, in what follows, I intend to show that a few fundamental reasons can be used to explain why the dispute over the PP has not been solved, and that these reasons are external to the issues of agri-biotechnology risk governance. In particular, two causes of the debate are considered. First, a significant part of the current conceptual framework that is used to understand and evaluate the principle is found flawed. Second, it is argued that certain disagreements in the dispute are fundamental in nature, that is, they reflect differing commitments in moral and epistemic values, and norms.

1. Introduction: The Precautionary Principle (PP)

(I) WHAT: What is the PP?

-*Status*: A principle of practical decision-making

-*Core idea*: Environmental and health risks should be anticipated (*foresee*n), and they ought to be prevented (*forestall*ed) before the damage comes to fruition even if scientific understanding of the risks is inadequate

-*Three substantial propositions implied by the PP:*

1 Environmental damage and health hazards should be anticipated before they actually take place

2 Pre-emptive actions should be taken in order to protect the environment and human health

3 Adequate scientific understanding of a threat is not a necessary condition for taking precautions

-Paradigm examples of the PP:

-"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" (UNCED 1992, Principle 15)

-"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" (*Wingspread Statement* 1998)

-Basic structure of the PP:

1 Trigger condition (environmental damage, health hazards, harm to other sentient beings)

-Damage threshold (e.g. irreversibility, mortality)

-Knowledge threshold (e.g. scientific uncertainty, ambiguity)

2 Precautionary response (e.g. bans, phase-outs, moratoria, pre-market testing, labelling, precautionary risk assessment methodologies)

(II) FROM WHERE: The origin and development of the PP

1 General idea of precaution

2 Precautionary arguments

3 Decision theory, ethical codes and policies

4 Law texts

(III) WHY: The rationale for (taking) precautions

1 Stakes have become higher

2 Growing recognition of the sensitivity and interdependence of many natural systems

3 Limits of scientific knowledge

4 Drawbacks of prevailing risk governance methodologies

2. The Dispute over the Precautionary Principle in the Risk Governance of Modern Agri-Biotech

(I) Two facts:

1 The PP has an influential role in environmental and health risk governance

-National laws, e.g. Finland's reformed *Genetic Engineering Act* (2004/847)

-International treaties, e.g. *Cartagena Protocol on Biosafety* (CPB 2000)

-Other official documents, such as the *Directive 2001/18/EC*

-Support of some independent research institutes (e.g. EEA 2001; FEC 2003) and several academic scholars (e.g. Myhr & Traavik 2003)

-Endorsed by a number of non-governmental organizations (e.g. SEHN, Greenpeace)

2 The PP is a matter of ongoing debate

(I) Theoretical issues

-One principle / several principles

-Terminological questions (principle / approach)

-The status of the principle (law principle / ethical principle / organizing concept)

-Exact definition

(II) Issues of application

-In the discussion on the PP, discrepancies and disagreements touch upon even the most basic theoretical questions of the principle

(II) The PP has frequently been linked to the discussion on well-founded risk governance of modern agricultural biotechnology

-"[i]n the European Union (EU), regulatory procedures for genetically modified (GM) products are still held up by disagreements among experts; claims about a product's safety often correspond to a narrower account of precaution than broader counterclaims from objectors (…) regulatory conflicts involve different ways to link science and policy, corresponding to different accounts of precaution" (Lewidow et al. 2005, 261,274)

(III) THESES:

(1) A few fundamental reasons can be used to explain why the debate on the PP has not been solved

-Flaws in the current conceptual framework

-Fundamental disagreements

(2) These fundamental explanatory reasons are external to the possible unique features of modern agri-biotech risk issues

3. Flaws in the Conceptual Framework: Problematizing the Traditional Distinction Between Strong Interpretation and Weak Interpretation of the Precautionary Principle

(I) The distinction between strong interpretation and weak interpretation of the PP (TD)

-A basic distinction in the discussion on the principle

-The TD is used in the academic literature of the PP (e.g. Foster et al. 2000, 979) and in policy documents (e.g. ECNH 2003, 11-13)

-The purpose of the TD is explicatory

(II) Three arguments against the (use of the) TD:

(1) Ambiguity

-The TD is defined in various ways

-Decisive feature between interpretations:

1 The status of scientific evidence (e.g. ECNH 2003, 11-13)

2 Placing the burden of proof (e.g. Manson 1999, 12; Wiener & Rogers 2002, 321)

3 The normative status of precautionary measures (e.g. Godard 1997, 25)

4 The status of cost-benefit analysis (e.g. Myhr & Traavik 2003, 229; see also Soule 2002, 18,22)

(2) Inexhaustiveness

-The TD is not an exhaustive distinction, i.e. it does not cover all the readings of the PP

1 Official formulations (or definitions) of the PP vary in a large scope

2 The PP is not restricted to the legal arena

-An example: precautionary risk assessment methodologies

(3) Misleadingness

-The TD is semantically misleading

1 The strength of the interpretations in general

2 The weakness or strength within the interpretations

4. Fundamental Disagreements: What Is the Right Status of the Precautionary Principle in Scientific Risk Analysis?

(I) The dissension:

(1) The PP is a risk management principle/tool. An application of the principle is always a risk management decision that should be kept separate from the earlier process of risk assessment. (E.g. CEC 2000, 3,13.)

-"[p]recautionary principles have been proposed as a fundamental element of sound risk management" (Löfstedt et al. 2002, 381)

-the PP "is invoked in the process of risk management" (Rogers 2001, 1)

(2) The PP should already be taken into consideration at the level of risk assessment, not only in the process of risk management. The use of the principle in a regulatory framework changes the way in which risk assessment is conducted. (E.g. Goldstein & Carruth 2004, 491-493; see also Levidow et al. 2005, 268-269)

-'precautionary appraisal' (Klinke et al. 2003)

-'precautionary assessment' (Tickner 2003)

(II) The identified theoretical positions (1&2) reflect a fundamental disagreement

1 The positions are mutually exclusive

2 Risk assessment and risk management have traditionally been strictly separated

3 Fundamental commitments that exceed the scope of science

5. Conclusion

(I) Fundamental reasons that are external to the issues of modern agri-biotechnology risk governance can be used to explain why the dispute over the PP has not been solved

(II) Practical implications:

1 The use of the TD may result in difficulties, or even make it impossible, to answer the question whether the PP is a well-founded principle of agri-biotech risk governance

2 It may be impossible to determine the right (commonly agreed) scope of precaution in particular cases, and this seems to be the case regardless of the possible unique characteristics of different regulatory contexts

References

CEC=Commission of European Communities (2000), *Communication on the Precautionary Principle*.

CPB=*Cartagena Protocol on Biosafety to the Convention on Biological Diversity* (2000).

ECNH=Swiss Ethics Committee on Non-Human Gene Technology (2003), *Gene Technology for Food: Ethical Considerations for the Marketing of Genetically Modified Foodstuffs and Animal Feed*.

EEA= European Environment Agency (2001), *Late Lessons from Early Warnings: The Precautionary Principle 1896-2000.*

FEC=Food Ethics Council (2003), *Engineering Nutrition: GM Crops for Global Justice?*

*Finnish Genetic Engineering Act (*Finn. *Geenitekniikkalaki)* (2004/847 [1995/377]).

Foster, Kenneth & Vecchia, Paolo & Repacholi, Michael H. (2000), 'Science and the Precautionary Principle', *Science* (May 12th): 979-981.

Godard, Olivier (1997), 'Introduction générale', in Godard, Olivier (ed.), *Le Principe de Précaution dans la Conduite des Affaires Humaines*, Coéditions INRA, MSH et Association Natures, Sciences, Société-Dialogues.

Goldstein, Bernard & Carruth, Russellyn S. (2004), 'The Precautionary Principle and/or Risk Assessment in World Trade Organization Decisions: A Possible Role for Risk Perception', *Risk Analysis* 24 (2): 491-499.

Klinke, Andreas & Renn, Ortwin & Dreyer, Marion & Losert, Christine (2003), 'Project Outline and Conceptual Considerations for a General Model of Precautionary Risk Regulation', *Application of the Precautionary Principle in the*

European Union (Final Document), EU-project: Regulatory Strategies and Research Needs to Compose and Specify a European Policy on the Application of the Precautionary Principle (PrecauPri).

Levidow, Les & Carr, Susan & Wield, David (2005), 'European Union Regulation of Agri-Biotechnology: Precautionary Links between Science, Expertise and Policy', *Science and Public Policy* 32 (4): 261-276.

Löfstedt, Ragnar E. & Fischhoff, Baruch & Fischhoff, Ilya R. (2002), 'Precautionary Principles: General Definitions and Specific Applications to Genetically Modified Organisms', *Journal of Policy Analysis and Management* 21 (3): 381-407.

Manson, Neil A. (1999), 'The Precautionary Principle, the Catastrophe Argument, and Pascal's Wager', *Journal of Ends and Means* 4: 12-16.

Myhr, Anne Ingeborg & Traavik, Terje (2003), 'Genetically Modified (GM) Crops: Precautionary Science and Conflicts of Interests', *Journal of Agricultural and Environmental Ethics* 16: 227-247.

Rogers, Michael D. (2001), 'Scientific and Technological Uncertainty, the Precautionary Principle, Scenarios and Risk Management', *Journal of Risk Research* 4 (1): 1-15.

Soule, Edward (2002), 'Assessing the Precautionary Principle in the Regulation of Genetically Modified Organisms', *International Journal of Biotechnology* 4 (1): 18-33.

Tickner, Joel A. (2003), 'Precautionary Assessment: A Framework for Integrating Science, Uncertainty, and Preventative Policy', in Tickner, Joel A. (ed.) *Precaution, Environmental Science, and Preventive Public Policy*, Washington, Island Press.

UNCED (1992), *Rio Declaration on Environment and Development*, United Nations Conference on Environment and Development, Rio de Janeiro (June 3rd-14th).

Wiener, Jonathan B. & Rogers, Michael D. (2002), 'Comparing Precaution in the United States and Europe', *Journal of Risk Research* 5: 317-349.

Wingspread Statement on the Precautionary Principle (1998).

2001/18/EC=*Directive 2001/18/EC* of the European Parliament and of the Council (2001) on the Deliberate Release into the Environment of Genetically Modified Organisms and Repealing Council Directive 90/220/EEC.