

## **The Precautionary Principle**

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While there is no definitive formulation of the precautionary principle, there is far more agreement about it than many commentators, especially its opponents, would have us believe. If we look carefully at the various statements, especially those that appear in government documents rather than in academic discussions, we see it really consists of two parts.

The first, which is common to all formulations, is that the principle is to be applied when (a) there is scientific evidence for a threat to the environment or to health, but (b) the evidence, while sound, is not conclusive. This is crucial: there must be a *prima facie* scientific case for a threat before the precautionary principle can apply.

If there is, we do not have to wait until we are certain about the hazard before we can take measures to mitigate or avoid it. If the evidence is sufficient to raise concern, then we should carry out a careful assessment of the situation and, if in the light of this we judge this to be appropriate, we should adopt measures to prevent damage. We are permitted to take action on the basis of evidence that is not conclusive, but we are not obliged to. What, if anything, we actually do is a matter for judgment on the basis of the evidence that we have in front of us.

The second part of the precautionary principle, which not all statements include, states that when the principle is invoked, the burden of proof is on the proponents of the new activity. It is for them to show that the activity is acceptably safe; it is not for the regulators, or society in general, to show that it is unacceptably hazardous.

Opponents of the precautionary principle often claim that it will bring progress and innovation to a halt. They forget that while in the criminal courts the burden of proof is on the prosecution, many defendants are convicted. What is required is not proof in the sense of a mathematical theorem, but proof "beyond reasonable doubt". Every year, thousands of ordinary people serve on juries and are perfectly capable of understanding what this means and reaching verdicts on basis of the evidence that is presented to them.

Not only must juries understand the principle of the burden of proof, they have to decide for themselves what they consider to be reasonable doubt and they have to listen to the evidence and reach a verdict. The principle has a significant effect on the outcome of many criminal trials, but it still leaves juries with a lot to do. In the same way, while accepting the precautionary principle can profoundly influence some of the decisions we reach about health and the environment, it does not free us from the

responsibility of weighing up the scientific evidence and deciding how best to proceed.

### **The Precautionary Principle in the UK**

The precautionary principle has featured in UK government policy at least since 1990. In 2002, it was the subject of a report by the Inter-Departmental Liaison Group on Risk Assessment (ILGRA). They recommended that it should be invoked “when there is good reason to believe that harmful effects may occur to human, animal or plant health or to the environment; and the level of scientific uncertainty about the consequences or likelihood of the risk is such that the best available scientific advice cannot assess the risk with sufficient confidence to inform decision-making.”

They also wrote that when the precautionary principle has been invoked, the burden of proof shifts away from the regulator and it is for the proponents of the activity in question to demonstrate an acceptable level of safety. Thus the Group made it clear that they were recommending both parts of the precautionary principle.

The report was accepted by ministers, and a paper subsequently issued jointly by the Treasury and the Cabinet Office states that the government will apply the precautionary principle where there is good reason to believe that irreversible harm may occur and where it is impossible to assess the risk with confidence. In its report on Science and Treaties, the House of Lords Science and Technology Select Committee specifically recommended the use of the ILGRA guidelines on the precautionary principle.

Despite this, many within government departments and agencies have clearly been less than enthusiastic about the precautionary principle. In the cases of GM crops, electromagnetic fields from power lines, and mobile phones (to name but three), they have applied instead the anti-precautionary principle, that something must be considered safe unless and until the hazards can be firmly established. There appears to have been a difference of views within Whitehall, and possibly within the government as well.

And sure enough, almost as soon as the ink was dry on the documents that stressed the importance of the precautionary principle, new ones appeared that did not. It can be found in the Treasury Green Book, but only in an appendix. What is more, according to the Green Book the precautionary principle means only that action may be taken where outcomes are very bad even though unlikely, a situation that is, or ought to be, covered by ordinary risk assessment. There is nothing about cases of scientific uncertainty or the burden of proof.

The contrast with the position of only a year or two before was so stark that Lord Broers, the President of the Royal Academy of Engineering, asked in a written question in the House of Lords why the new document made no reference to the guidance contained in the ILGRA report and whether the government planned to strengthen what it says about the precautionary principle. The answer was that it did not. (In response to an enquiry, a Treasury spokesperson explained to me that the principles of the earlier statement are “embedded” in the Green Book and its annexes. “Buried” would be a better word.)

Last summer, the House of Commons Select Committee on Science and Technology produced a report on the use of scientific advice, and in the course of this they came out against the precautionary principle. It is not at all clear what their objection was, because on the one hand they thought it was so strong that it would hinder progress too much, and at the same time they agreed with the government's Chief Scientific Adviser that it says nothing more than that one should be cautious.

Thus in no more than five years from the time that the precautionary principle had been accepted as a key part of UK government policy on risk management, it had completely disappeared from it. Yet at no point had there been a debate in Parliament or even a government statement. This is in complete contrast to the situation in France, where the precautionary principle has been incorporated into the constitution. Even if the French government were to change its mind, as the UK government has, it would not be able to discard the principle quietly when it thought no one was looking.

## **Conclusion**

How to manage risk when the available scientific evidence gives us cause for concern but is not conclusive is not just a subject for academic discussion. On the contrary, it is a very practical matter and the consequences of getting it wrong can be very serious. You can get an idea of the scale of the problem and how frequently it arises from the examples in the European Environmental Agency's report *Late Lessons from Early Warnings*, which David Gee has described in his contribution.

We cannot know how many lives would have been saved and how much damage to health and the environment avoided if the precautionary principle had been applied in these cases. Even where we know in detail what the evidence was at every stage, we cannot always say at what point the authorities would have judged that the potential risk justified action. But it is impossible to study the examples in this report and not believe that it would have made a real difference. The number of avoidable deaths due to asbestos alone was in the hundreds of thousands, and there are more to come.

Had governments applied the precautionary principle, they would surely have begun to act when the epidemiological evidence for the link between smoking and lung cancer appeared shortly after the Second War. Instead, they waited for conclusive evidence of cause and effect, and millions died before their time while they waited.

In any risk assessment, and even more so when the evidence is not conclusive, we have to strike a balance between on the one hand, the need to protect health and the environment, and on the other, the advantages that we can lose if we impose restrictions that turn out in the end to be unwarranted. Whether we should adopt the precautionary principle and, if we do, when we should invoke it, are matters that society and its representatives will have to decide. In doing that, however we must both be clear about what it is that the principle implies, and also conscious of the magnitude of the consequences that can follow if we choose to reject it.