



Risky Business

Rupert Read and David Burnham on what philosophy can tell us about dealing with uncertainty, systemic risk, and potential catastrophe

The Philippines Supreme Court recently made a worldwide landmark decision, from a jurisprudential point of view, invoking for the first time ever the precautionary principle as **a decisive basis for acting against GM crops**. This decision has **come under fire** from scientists in the Philippines and America for being ‘anti-science’, but it has also been **strongly defended**. The defence throws up an issue of interest for philosophers, as the case for the defence prominently invokes recent work on the **precautionary principle**.

Ever since the precautionary principle was first invented, critics have argued that it is merely a naïve and blunt instrument for blocking policy that various lobby groups do not approve of. One of its earliest and most influential forms, the Rio Declaration of 1992, states the principle as ‘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’. This statement of the principle sums up its basic intent fairly well; however, it leads to problems in some respects, notably by virtue of introducing the non-instantiated concept of ‘full scientific certainty’. This sets the bar too high, and so makes it appear as though the precautionary principle will always be relevant.

Helpfully, the recent *Inquirer* article from the Philippines Supreme Court case suggests how the precautionary principle can be reformulated so as to avoid such problems, namely, via the new and improved version of the precautionary principle put forward by *Read et al.* Unlike many other definitions of the precautionary principle, this paper provides a non-naïve, philosophically rigorous approach to the problem of precaution and lays down clear guidelines as to when, *and when not*, to apply it. It bridges the gap between precaution and evidentiary action (see below) by invoking our ability to evaluate the difference between systemic, global risk and merely local, non-catastrophic risk.


Broadly, Read *et al.* argue that the precautionary principle should only be invoked to *settle* an issue (that is, it can only be a decisive consideration) in extreme situations, when the potential harm is systemic and the possible consequences involve total and irreversible ruin, such as extinction (human or otherwise). This is as opposed to situations where the risks are non-propagating and merely local in scope.

It is essential to distinguish here between ordinary risk management and the precautionary principle. We encounter risks almost every moment of every day, and these require managing. In these cases, we typically know most of the variables and our calculations can take these into account when deciding on the appropriate course of action. So too with many other run-of-the-mill scientific or economic decisions: we more or less know the possible outcomes. And even if we do not know the possible outcomes, we at least know something about their upper bound. For example, the worst thing that can happen to one of us crossing a road is to get run over. If one is run over, that's very bad; but it's not a catastrophe. The precautionary principle doesn't therefore recommend against crossing the road (though it would recommend against crossing the road blindfolded, as it were). The precautionary principle is decisive when unavoidable uncertainty or ignorance is involved, especially when one of the uncertain risks is the risk of ruin. For one cannot calculate anything when a number of the variables are missing, have such a broad range that they essentially say nothing, or have a potentially infinite value.

The idea of ruin is a key point for making the precautionary principle salient. A system that achieves (sic!) ruin cannot recover; in these cases, there is clear need for a precautionary intervention, especially when the system that is at risk is one that plays a major role in vulnerable ecosystems or in life on this planet. A key constituent of ruin is increased uncertainty, because as uncertainty increases, so too does the scope for harm. Critics ('sceptics') often use this argument to say that because there is uncertainty associated with, for instance, the evidence for man-made climate change, the risks may be less than people think. This is true, but it neglects to mention that the risks may, symmetrically, also **be greatly increased** (or they may lie anywhere in between). And it is this ruinous case, where the risk is far greater than we could have known, that we need to be determined to prevent.

One could suggest that this is merely an ideological point, that human beings are naturally risk-takers and that we should let people make their own decisions instead of 'hampering' them with this principle. But this is a misunderstanding of ruin. Ruin is not a mere possibility, it is a statistical certainty if the action that is ruinous is continued. For example, if a human being jumps off a footstool, he is very, very unlikely to die; but if he jumps off a twenty-storey building, he will surely die —and even if he only jumps off a two-storey building enough times, he will die. There is a point after which the system, in this case the human body, cannot absorb any more damage; in the case of the planet, it might be after losing a particular percentage of biodiversity or perhaps the ocean-acidity reaching a certain pH.

It is useful to dwell for a moment in a little detail on a concrete case. The risks and uncertainties associated with genetically modified organisms (GMOs) serve as an excellent example of where the principle could and should be applied. GMOs represent a systemic risk to both human health and various ecosystems. We have no truly long-term studies on any of the 'tail' risks to human health or ecosystem health from GMOs, and it is as yet unclear how such studies *could* be undertaken safely, outside the laboratory (and they would need to be undertaken outside the laboratory, to demonstrate safety). The risk of complete ecosystem breakdown through collapse of homogenized mega-monocultures and the connected risk of biodiversity collapse are risks it would be reckless to take. Thus, Read *et al.* conclude, GMOs offer a clear and systemic risk of ruin.

 argued that the precautionary principle is merely negative, stifling innovation. Contrary to many sceptics' claims along these lines, Read *et al.* argue that while it can be used to ban or stop certain activities—for instance, certainly GMOs and possibly nuclear power—it can also be used to *prompt* actions, such as further research or the implementation of one technology over another. The hope is that this clarification of the principle will allow decision makers at all levels to discern when and where to apply it. In the right hands, the versatility of the principle could make it a

lynchpin of modern policy decisions the world over, to keep us safe without stifling innovation.

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In recent years the precautionary principle has also been seen in opposition to the 'proactionary principle'. The latter says that we should be proactive about pushing humanity forward into the next technological age, allegedly the age of AI, even of 'trans-humanism'. Its adherents argue that we, as a species, should court risk as an inevitable part of our existence. However, the problem with this is that it will inevitably generate ever more uncertainty, and would undermine completely the process of building down of risk that a precautionary ethic recommends. In other words, if we continue to take risky actions it would commit us to the ruin outlined above as a racing certainty.

Furthermore, it is unclear that the term 'proactionary' really makes much sense, if it is supposed to pick out something *opposed* to the precautionary principle. For, as we have just laid out, precautionary reasoning, properly understood, is proactionary: it involves acting to pre-empt catastrophic threats, and such pre-emption can take the form of (for example) recommending new research programmes or the proactive adoption of safe systems (for example, agro-ecology rather than GM).

In conclusion, the fundamental point is this: Philosophers, like virtually everyone else nowadays, tend to demand evidence when presented with a hypothesis. But most so-called evidence simply does not include actual or potential catastrophes. Thus, where there is a sane possibility of such catastrophes, such 'evidence' is statistically insignificant.

One can see all around us the evidence (!) of a world view that is not precautionous, including in the discussion of the greatest threat of all currently facing us: **man-made climate change**. It is to be hoped that the precautionary principle can go a long way toward changing society's attitude to such potentially catastrophic problems and also toward forestalling further major problems that we are not even aware of yet. Let us put it this way: without a precautionary ethic, the chances of humanity lasting for the truly long term are, we suspect, grim, and slim.

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