Precaution

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Introduction

Precaution is rightly selected as a protean theme for this mighty collection of essays. It emerged as a central tenet of European environmental policy in the mid 1970s (Boehmer-Christiansen, 1994; Jordan, 2000, Gee 2013). Its regulatory companions were carefully juxtaposed: stimulation of the best available technology for prevention and efficiency of resource use, safeguarding of nurturing environmental space, proportionality of action in relation to gains and losses, sharing the burden of regulatory responsibilities, ensuring the interests of forthcoming lives of people and biota, making the polluter pay, and placing the burden of proof of additionality to sustainability on those proposing to introduce new products, technology or developments. Its genius lies in making it clear that the good cause need not necessarily be certainty, fully known knowledge, or even evidence-based analysis. It may be simply *exposure*. Exposure to a grave potential harm.

In essence, precaution imposes a duty of planetary care on the human will. It seeks to deepen, widen and lengthen all manner of so-called impact assessments. Above all, it provides a basis for public discussion and deliberation over what kind of society and moral accountability we collectively should choose to adopt.

In this formulation, precaution fits in with many, if not all, of the themes encompassed by companion chapters. It certainly addresses the notions of safe planetary boundaries, of participatory science, of the 'Anthropocene', of bioethics, of political power and corporate manipulation, and of cultural sensitivities. Because of its universality of agenda, precaution is cherished, tolerated, ignored and despised in equal measure. It reached the heady status of a Rio Principle:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious…irreversible

damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. (Principle 15)

A key role of precaution is to slow the implementation of innovations that may have cause to be seriously destructive. This Rio formulation brings out clearly the other side of this coin: that rapid intervention is called for to *prevent* such destruction, even before research may have demonstrated that such action is necessary. Precaution calls upon us to take care, and first of all to do no harm; it simultaneously calls upon us to act swiftly in order to head off great harm.

Since 1992 its interpretative star has waned. Here we examine its strengths, its weaknesses, and its pathways to restorative salvation.

The power of precaution in its initial formulation

The precautionary principle is an heir to the German *Vorsorgeprinzip* (Boehmer-Christiansen, 1994: 33–43). Though often interpreted as 'foresight', *Vorsorge* applies to responsible and equitable appraisal of future *action*. 'Fore-care' is a useful literal translation.

It was developed in the mid-1970s in the aftermath of the UN Conference on the Human Environment held in Stockholm in 1972, and in the furor following the publication of *The Limits to Growth* (Meadows et al. 1972); (see also O'Riordan 2012). Lying behind the evolution of this interpretation were both a sense of provable responsibility for public, private and civic actions, and a sharing of accountability between the state, the change-agent and the electorate. In this sense, precaution connects with more recent trends in the deliberative approaches to uncertainty and forecasting, as well as to the question of methods of calculating toxicity and biodiversity damage.

Today, there is a greater willingness (arguably resulting from corporate capture of public discourse) to accept regulatory voluntarism as an expression of self-styled corporate social responsibility. This is despite continuing skepticism amongst wary public interest groups. The early rise of precaution relied more on formal rules of engagement and consensus amongst business, unions and civil society brokered by the state. This arrangement coincided with the emergence of powerful state-run health and safety organizations, powerful pollution prevention agencies, and a heightened regulatory legal regime. By the mid-1980s, in its regulatory heyday, the precautionary principle guided many of the procedures for assessing

health and safety generally, chemical toxicity, for protecting endangered species, and for providing regulatory space in the face of scientific ignorance

In the UK the emergence of the prestigious and multidisciplinary Royal Commission on Environmental Pollution in 1970 (Owens 2015) coincided with a deepening ethical and even theological interpretation of precaution. In its path-breaking reports on radioactive waste, setting environmental standards, restricting marine pollution, avoiding possible toxic effects of pesticides and incineration, and exploring the scope of genetically modified organisms, the Commission imaginatively explored the widening of the precautionary principle.

In all of this flurry of mid 1980s legislation, the precautionary principle was invoked to ensure that the integrity of ecosystems-functioning was protected, that primary biodiversity was enhanced, and that human health and wellbeing were given attention, especially where minority rights and future generations were concerned. In its early formulation(s), precaution championed the interests of the two unseen and unheard components of the planet: future generations, especially of the disadvantaged, and ecological assemblages and interconnections, which combine to retain life and habitability.

Mid-life crisis

The original ideals for precaution, especially regarding shifting the burden of proof onto the promoter, together with strong and social justice driven regulatory arrangements, were steadily eroded. This was in part a direct result of deregulatory pressure. In the case of toxic pesticides, for example, the evidence is instructive. A group of pesticides known as neonicotinoids, closely associated with damage to insect pollinators, especially bees, should have been banned on the basis of precaution. Instead, after extensive lobbying by the farming and agro-chemical industries, the European Commission announced a three year temporary ban to explore the outcomes of the trial removal. It is impossible for ecological science to prove one way or another that such a ‘fallow period’ would show the effects on bee populations which are under attack from many sources. But it was, seemingly, equally (politically) impossible for the Commission to ban these formulations simply on the basis of precaution.

On the politically explosive front of genetically modified organisms, the role of precaution has coincided with widespread public disquiet throughout Europe (but not in North or South

America) over the introduction of non-natural genes into living organisms, especially food crops. Here the application of precaution coincided and helped to buttress that massive opposition by consumers. So it is possible for precaution still to have a role. But such a role probably has to be subsumed into a wider and more potent political anger. Acting on its own, precaution is nowadays a weakened scientific and political weapon.

The Precautionary Principle has been targeted in recent years by those who seem determined to prevent anything preventing the free rein of 'the free market' (American Enterprise Institute, 2016). Moreover, much of what is called 'evidence' by those who want to downgrade the precautionary principle is not statistically significant, in relation to the potential for catastrophic events (Taleb 2007; see also Taleb et al 2014). Such events are by definition rare, and usually barely-evidenced. Where substantial evidence in the true sense of the word is lacking, the precautionary principle ought to fill the breach. In practice, it will only do so by a deliberate act of political or legal will.

Precaution, future generations and the ethics of sustainability

Thus advocates of precaution are fighting back using such routes as mass citizen awareness and/or the legal intervention. In today's world of active social media, where political opinion can be explosive if well-targeted and directed; and where there are increasing legislative demands for formal consultation, there is perhaps a new lease of life for precaution. The emergence of potentially-devastating crises in *other* areas of human concern beside 'the environment' has also, arguably, underscored the contemporary salience of precautionary reasoning. Examples here include *finance* (Taleb 2007); and *public health*, where potential super-epidemics such as Ebola (Bar-Yam and Hardcastle 2014), or the potential ineffectiveness of antibiotics, echo the same kinds of non-calculable risk of serious potentially-irreversible harm.

The emergence of deliberative science, as creatively explored in an official UK science report (Wolport 2014), has come of age. No longer is it possible to introduce new technology, or products, onto an unsuspecting public. Increasingly it is also necessary for creators of innovative products or technology formally and publicly to take into account the interests of both the disadvantaged and the next generations (social and intergenerational justice tests).

The precautionary principle is particularly relevant here. Where there is a clear and sharp *asymmetry* where one party, which will make the decision, stands potentially to benefit, while another party, which has no say in the decision, stands catastrophically to lose out – then the application of the precautionary principle arguably ought to be decisive.

As many of the companion chapters will reveal, environmental concepts are metaphors for social ills and moral triumphs. All of the themes in this volume are constantly being reinterpreted in the context of changing cultures and new environmental bedfellows. The precautionary principle epitomizes this feature. It will rise and fall in social salience and in our consciences according to the swells of all of the other notions which adorn this volume. Thus it speaks for the age and for the uniqueness of the human condition.

References

Boehmer-Christiansen, S. 1994. The precautionary principle in Germany – enabling government. In O'Riordan and Cameron, pp. 31-60.

Gee, D. (ed.) 2013. Late Lessons from Early Warnings: science, precaution, innovation. European Environment Agency, Copenhagen.

Jordan, A. 2000. The precautionary principle in the European Union. In O'Riordan, Cameron and Jordan (2000) pp. 143-162.

Meadows, D. H., Meadows, D. L., Randers, J. and Behrens III, J. 1972. The Limits to Growth: A report for the Club of Rome's project on the predicament of Mankind. Universe Books, New York.

Owens, S. 2015. Knowledge, Policy and Expertise: the UK Royal Commission on Environmental Pollution 1970-2011. Oxford University Press, Oxford.

O'Riordan, T. 2012. *The Limits to Growth* revisited. In S. G. Vaz, (ed.) Environment: Why read the classics? Greenleaf Publishing, Sheffield, pp. 93-113.

O'Riordan T. and Cameron, J. (eds.) 1994. Interpreting the Precautionary Principle. Cameron and May, London,

O'Riordan, T. Cameron, J. and Jordan, A. 2000. Reinterpreting the Precautionary Principle. Cameron and May, London.

Taleb, Nassim N. 2007. The black swan: the impact of the highly-improbable. Random House, New York.

Wolport, M. (ed.) 2014. Innovation: managing risk not avoiding it. Annual Report of the Government Chief Science Advisor. Department of Business, Innovation and Skills, London.

Websites:

Bar-Yam and Hardcastle, 2014:
http://necsi.edu/research/social/pandemics/ebola3.pdf

Denis Campbell, 2014:
http://www.theguardian.com/society/2016/mar/15/antibiotics-becoming-ineffective-at-treating-some-child-infections

WHO factsheet:
http://www.who.int/mediacentre/factsheets/fs194/en/

American Enterprise Institute, 2016:
https://www.aei.org/publication/the-problems-with-precaution-a-principle-without-principle/

Taleb, Read, Douady, Norman and Bar-Yam, 2014:

http://www.fooledbyrandomness.com/pp2