

**Submission to the House of Commons Science and Technology Committee  
inquiry: GM foods and application of the precautionary principle in Europe**

**Written evidence submitted by the Nuffield Council on Bioethics**

**Summary statement**

1. The use of the precautionary principle as a regulatory decision principle tends to invite arguments orientated towards justifying one or other of two mutually contradictory outcomes. The arguments are therefore steered away from the middle ground between these extremes, towards serving one or other of the options. The use of the precautionary principle in this way can thereby become an obstacle to constructive debate about GM foods policy.
2. The Nuffield Council on Bioethics' view is that reasoning about GM foods policy should not be based on the precautionary principle, but rather on a precautionary procedure which recognises:
  - a) The complex and evolving context in which GM foods policy is made, including political, economic, climatic and population changes that put pressure on food supplies, both locally and globally; and
  - b) That there is no neutral option (one that does not have consequences) – i.e. to 'do nothing' is a conscious choice that has consequences.

**Introduction**

3. The Nuffield Council on Bioethics is an independent body that informs policy and supports public discussion by identifying, exploring and reporting on ethical issues in science and medicine. The Council aims to help ensure that policy is informed by the best possible consideration of ethical implications through carefully reasoned analysis of important current issues arising out of bioscientific research.
4. The evidence provided in this submission is based on consideration of the use of the precautionary principle (and other responses to uncertainty) in several areas of bioscience policy that have been addressed in Council reports, including, but not limited to GM technologies. Part one of the submission provides a brief statement of the Council's position; part two provides relevant extracts from Council work in the following areas:
  - a) Precaution and the environment: GM Crops: ethical issues
  - b) The use of GM Crops in Developing Countries
  - c) Precaution in innovation: Emerging Biotechnologies

5. Implied in this submission are a number of important observations about the use of the term GM and its implications, including:
  - a) There are a variety of GM technologies and a variety of GM organisms which all have different properties;
  - b) However narrowly or broadly the category GM is demarcated, GM products are likely to have substantial similarities with non-GM products;
  - c) Both GM and non-GM instances have complex profiles of properties and the significance given to those properties depends largely on contextual factors.

### **Part I – Position statement**

6. Questions of policy that concern the adoption of measures to facilitate or control the growth of genetically modified (GM) foods, cannot be reduced to questions of evidence that are in principle susceptible to scientific investigation. The public record shows that discussion of policy relating to the use of GM technologies and the control of GM products has frequently either misunderstood or attempted to deny the relevance of this observation. This unfortunate history has prejudiced attempts to broach new policy initiatives, created a climate of distrust between governments and sections of the public, and all but abolished any common ground of public reasoning on this subject.
7. There is a substantial literature on what is called the ‘precautionary principle’ although there are several principles and rules that have been given this title. The literature is largely concerned with attempts to formulate and defend a rule for action in cases of uncertainty or scientific disagreement about the consequences of action, where those consequences may include uncontrollable, deleterious and irreversible effects. This rule cannot, logically, itself be based on risk - ‘What is the risk of there being unknown or uncertain consequences?’ is an incoherent question - but must be based on more nuanced forms of reasoning.
8. The interpretation of the precautionary principle in the Europe Union has led to it being used as a regulatory principle in relation to specific questions of implementation.<sup>1</sup> These regulatory questions take the form of asking whether a

---

<sup>1</sup> See the Commission Communication [COM\(2000\)1](#); the principle is part of European environmental law through Art.191 of the [Treaty on the Functioning of the European Union](#) (where it is invoked but not defined). The Communication makes it clear that it has broad application (beyond the environment, including to consumer protection), but is to be “essentially used by decision-makers in the management of risk”. It is therefore already inscribed within the discourse on scientifically defined risks (the risks are scientifically identified but not quantified) that can, in principle, be scientifically assessed.

particular proposal can satisfy an arbitrary standard: their outcome is binary (yes or no). Policy questions, however, should not simply demand a yes or no answer but instead engage a wider range of voices in the policy discourse, and consider a more complex range of options: ('which one(s)? how much? etc.')

9. This use of the precautionary principle in this narrow way is inherently divisive, since it invites arguments orientated towards justifying one or other of two mutually contradictory outcomes. Reasoning therefore becomes an evacuation – rather than an exploration – of the middle ground between these extremes. The use of the precautionary principle in this way can be seen as an obstacle to constructive debate about GM foods policy.
10. In the Council's view, reasoning about GM foods policy should not be based on the precautionary principle but on a precautionary procedure. This foregrounds the idea of proceeding, albeit in a cautionary mode, rather than holding back; it recognises that the context in which GM foods policy is made is complex and evolving due to local and global political, economic, climatic and population changes that put pressure on food supplies and many other factors besides, and that there is no neutral option (one that does not have consequences).
11. Decisions about GM food policy are (like most other policy questions) complex mixtures of factual and moral judgements. Scientific uncertainty and moral controversy should be treated not as a reason to invoke a narrow interpretation of the 'precautionary principle' (which closes down the question) but as a reason to open up the question in two ways: from a limited question about a particular technology, product or practice to more general questions about alternative technologies, products or practices that may be available to address whatever challenge is in view; and from a question about the collection of more evidence of a particular kind, to a question about what other forms of evidence and other ways of interpreting and valuing the evidence might be brought to bear and gain in importance. Also important is the way in which the challenge itself is construed i.e. whether this is the result of its construction in accordance with certain sectional interests or prejudices.
12. In practice this means reopening difficult policy questions with regard to GM foods rather than looking for simple or binary regulatory solutions. At the very least, it will involve a readiness of those in a position to generate wider debate (politicians, media, etc) and those in influential policy roles (industry, public servants, regulators, etc) to open up their processes beyond conventional and interested positions. Although the current position is unsatisfactory, more damaging to the future of GM foods would be simply to change the regulatory position without an open policy process that involves a precautionary procedure and broader engagement in public discourse.

## Part II – The Council’s conclusions on GM technologies

### Precaution and the environment

The Council’s report ‘*Genetically modified crops: the ethical and social issues*’ (published in 1999) put forward the following conclusions:

- Genetic modification of plants does not differ to such an extent from conventional breeding that it is itself morally objectionable.
- There is no clear dividing line which could prescribe what types of genetic modification are unacceptable because they are considered by some to be ‘unnatural’.
- All GM food so far on the market in the UK is safe for human consumption
- There is not enough evidence of actual or potential harm to justify a moratorium on GM crop research or field trials.
- Concentrating exclusively on the impact of GM crops in the UK and Europe may distract governments and the public from giving proper attention to the benefits it could bring to developing and developed countries.
- The moral imperative for making GM crops readily and economically available to developing countries who want them is compelling.
- The need for concerted action to assist in the safe application of plant genetic modification by industry in partnership with governments, charitable foundations and international research organisations to food staples of the developing world is urgent.
- The EU has put in place a regulatory framework that has provided a reasonable set of controls for the experimental stage of the technology. But we consider that the UK government now needs to take further steps to:
  - a) determine the desirability of particular types of genetic modification
  - b) strengthen the safeguards against specific risks
  - c) strengthen consumer choice
  - d) secure better dissemination of information
  - e) understand more fully the ethical basis of concern

In this report the Council recommended:

- An over-arching, independent biotechnology advisory committee to consider scientific and ethical issues together with public values associated with GM crops should be established.
- Increased financial support for GM crop research with appropriate international safeguards.
- Some commercial planting of the most promising GM crops should be allowed, on a limited and closely monitored basis, designed to identify and contain any adverse environmental and safety effects.

- Steps should be taken to ensure that appropriate amounts of non-GM planting continue to support the availability of non-GM foods.
- Foods containing GM material should be appropriately labelled.

A full summary of the conclusions and recommendations can be found at: <http://www.nuffieldbioethics.org/sites/default/files/GM%20Crops%201%20Chapter%2008-%20Conclusions%20and%20recommendations.pdf>

### **The use of GM crops in developing countries**

This follow-up discussion paper published by the Council in 2003 explored the potential of GM crops to improve agriculture in developing countries. The main conclusions and recommendations were:

- Affirmation of the conclusion of the 1999 report: there is an ethical obligation to explore the potential benefits of GM crops responsibly in order to contribute to the reduction of poverty and to improve food security and profitable agriculture in developing countries.
- The costs, benefits and risks associated with particular GM crops can be assessed only on a case by case basis taking into account factors such as the gene, or combination of genes, the nature of the target crop, local agricultural practices, agro-ecological conditions and trade policies of the country where grown.
- Research on the use of GM crops in developing countries should be sustained, governed by a reasonable application of the precautionary approach.
- Accumulating evidence from new scientific developments must be used to inform discussions about the current or future use of GM crops.
- The views of farmers and other relevant stakeholders must also be taken into account.

Conclusions and recommendations in this report specifically regarding the precautionary principle were as follows:

- An excessively conservative interpretation of the precautionary approach is fundamentally at odds with any practical strategy of investigating new technologies.
- We use the term ***precautionary approach*** to indicate not a single inflexible rule but a way of applying interacting criteria to a given situation.
- It is easier to forgo possible benefits in the light of assumed hazards, if the status quo is already largely satisfactory. Thus, for developed countries, the benefits offered by GM crops may, so far, be relatively modest. However, in developing countries the degree of poverty and the often unsatisfactory state

of health and agricultural sustainability is the baseline, and the feasibility of alternative ways to improve their situation must be the comparator.

- To hold to the most conservative interpretation of the precautionary approach invokes the fallacy of thinking that the option of doing nothing is itself without risk. Yet, food security and environmental conditions are actually deteriorating in many developing countries. In some cases the use of a GM crop variety may well pose fewer risks than the agricultural system already in operation.
- Restrictive interpretations of the precautionary approach that imply a general prohibition on the use of GM technology therefore require very strong justification.
- An adequate interpretation of the precautionary approach would require comparison of the risks of the status quo with those posed by other possible paths of action. Such assessments must be based on sound scientific data.

Conclusions and recommendations in this report specifically regarding EU regulation were as follows:

- Developing countries might well be reluctant to approve GM crop varieties because of fears of jeopardising their current and future export markets. They may also not be able to provide the necessary infrastructure to enable compliance with EU requirements for traceability and labelling.
- There is a considerable imbalance between the hypothetical benefits afforded by the EU policy for its own citizens, and the probable and substantial benefits that could be afforded to developing countries. Current provisions have not given sufficient consideration to the likely effects of these policies on developing countries.
- We recommend that the European Commission (EC), the UK Department for International Development (DFID) and appropriate non-governmental organisations which monitor the agricultural policies of developing countries examine the consequences of EU regulatory policies for the use of GM crops in developing countries. We recommend that the European Commission establish a procedure to report on the impact of its regulations accordingly.

A full summary of the conclusions and recommendations can be found at: <http://www.nuffieldbioethics.org/sites/default/files/GM%20Crops%20summary.pdf>

### **Precaution in innovation: Emerging Biotechnologies**

The Council's report '*Emerging biotechnologies: technology, choice and the public good*' (published in 2012) later made observations about the impact of GM crops on biotechnology policy, as follows:

- Concern about the impact of GM crops on human health, the environment and economic wellbeing has played a significant part in defining the political terrain of biotechnology policy in the UK and Europe. Levels of distrust and suspicion have been aggravated by apparently poorly framed attempts on the part of policy makers to engage with these concerns. These controversies have been further compounded, particularly with initiatives to introduce GM crops in developing economies, by concerns about economic and social implications, such as concentration of industrial supply chains, ownership of intellectual property, and selection of products and technologies that prioritise private producer benefits at the expense of public benefits. [Paragraphs 2.8 & 2.9]
  
- The (non-)introduction of GM crops into the UK is often highlighted as an example of a failure to commercialise a new technology. To some extent, these issues could have been avoided (which does not necessarily mean a different outcome would have resulted) if there had been a more sophisticated appreciation of the complex nature of the uncertainties and ambiguities associated with the technology: simply noting the safety of a technology within particular defined boundaries does not necessarily address the concerns of those objecting to its introduction if there is a fundamental disagreement about the significance of its effects. However, despite this, the abandonment of the public dialogue on GM food in 2010 seems to indicate that these lessons have not been taken to heart by regulators. [Paragraph 8.13]
  
- The virtue of caution, says this report, means that as uncertainty and ambiguity increase, correspondingly greater attention, effort and time should be devoted to:
  - broadening the array of issues that are considered, going beyond the small set of direct or immediate factors that are most readily quantified (e.g. as risks), to include potential benefits and justifications as well as the tolerability of projected possible harms, including, for example, how to balance avoidance, resilience and remediation in the face of adverse impacts;
  - gathering a diversity of relevant knowledge on each of these;
  - engaging a plurality of different perspectives;
  - symmetrically interrogating a range of alternative options (including that of 'doing nothing'); and
  - weighing up both the pros and the cons of each option (rather than considering just 'risks' or 'acceptability') exploring a variety of potential scenarios (to address different possible notions of pessimism or optimism) and deliberation over general qualities of different technologies that might not otherwise come to the fore (like their reversibility, flexibility, diversity and adaptability in the event of surprise).

- The resolution of regulatory dilemmas can be inhibited by over attachment to certain features and principles of regulatory design, including **inappropriate application of the emerging biotechnologies precautionary principle** to the single dimension of risk management, overemphasis on surveillance, over-intrusive regulation and ‘soft’ regulation.
- We conclude that regulatory design cannot provide all the answers to securing benefits or averting harms from emerging biotechnologies, not least because emerging biotechnologies do not fit easily into risk-based regulatory models but require instead an approach guided by caution which, in turn, requires a continuous and reflective engagement with broader societal interests.

The full report is available at:

[http://www.nuffieldbioethics.org/sites/default/files/Emerging\\_biotechnologies\\_full\\_report\\_web\\_0.pdf](http://www.nuffieldbioethics.org/sites/default/files/Emerging_biotechnologies_full_report_web_0.pdf)