

This response was submitted to the consultation held by the Nuffield Council on Bioethics on Emerging biotechnologies between April 2011 and June 2011. The views expressed are solely those of the respondent (s) and not those of the Council.

1) How would you define an 'emerging technology' and an 'emerging biotechnology'? How have these terms been used by others?

Emerging technologies (ET) are all new and innovative technologies which might have a substantial effect on the way we live and on major aspects of our lives. Emerging Biotechnology (EB) is new and innovative technologies in the field of life-science, biology, medicine etc, such as use of stem cells therapy. Usually, people use these terms to describe new "trends" in these fields, not just new technologies, but those which seem to be promising, and might take over the market or have a great impact.

2) Do you think that there are there features that are essential or common to emerging biotechnologies? (If so, please indicate what you think these are.)

EB usually deal with Genetics, DNA and other "building blocks" of life. It might be considered dangerous, but mostly because the dangers are unknown and hard to predict or measure.

3) What currently emerging biotechnologies do you consider have the most important implications ethically, socially and legally?

Use of stem cell, embryonic or other, Genetic modification of plants and animals, nanotechnology in medicine, and innovative assisted reproduction technologies (ART).

4) Are there examples where social, cultural and geographical factors have influenced the development of emerging biotechnologies (either in the past or currently)?

I think the cultural value of reproduction in Israel had a significant effect on the level of use of ART, and contributed to innovative approach in this field in Israel. I can expect similar influences on other fields in different places.

5) Are there examples where social, cultural and geographical factors have influenced public acceptance or rejection of emerging biotechnologies?

I think in general social and cultural factors can have a great influence on the acceptance of ET, but I can't think of an example at the moment.

6) Are there examples where internationalisation or globalisation of research, markets and regulation have influenced the development of emerging biotechnologies?

I cannot say.

7) How have political traditions (such as liberal democracy) and political conditions (e.g. war) influenced the emergence of biotechnologies?

Though I am sure they have – I cannot say how.

8) Are there ethical or policy issues that are common to most or many emerging biotechnologies? Are there ethical or policy issues that are specific to emerging biotechnologies? Which of these, if any, are the most important?

Most or all EB must deal with ethical issues of risk assessment, and Informed consent (when relevant)/

Environmental influence – should it be a cost/benefit approach.

The risk of abuse of new technologies, and how tight should regulation be? Can the regulator really be "on top" of everything new?

Also, when relevant – the questions of public funding, either for the research or treatment, and budget allocation.

9) Do you think that some social and ethical themes are commonly overlooked in discussions about emerging biotechnologies? If so, what are they?

Most public discussions tend to focus on the risks and demand more regulation, ignoring the promise and potential benefits, at first. There's a push towards over-regulating.

10) What evidence is there that ethical, social and policy issues have affected decisions in (i) setting research priorities, (ii) setting priorities for technological development, and (iii) deploying emerging biotechnologies, in either the public or private sector?

There are specific laws promoting on one hand, and limiting on the other hand, specific ETs, encouraging or discouraging it's uses and applications. Most of these laws in Israel are a result of pressure groups driven by social, economical or ethical motivation.

I cannot say that about research priorities, specifically, but I assume it happens there too.

11) What ethical principles should be taken into account when considering emerging biotechnologies? Are any of these specific to emerging biotechnologies? Which are the most important?

Risk assessment should be done carefully, not rule out something just because it might be abused.

What should be taken into account is that technologies will be developed and information will be available to the public.

It's possible to limit the uses to reduce risk, but not the development itself. It's more important than ever to provide information to the public, in a clear and simple way, to avoid mislead fears – or hopes.

Some aspects that may be new is a need for a global look, ethically, economically and environmentally. One can no longer assume that only developed countries set the rules and ethics, and the influence on humanity should be considered, not just national and local aspects.

12) Who should bear responsibility for decision making at each stage of the development of an emerging biotechnology? Is there a clear chain of accountability if a risk of adverse effects is realised?

The same rules and regulations should apply, as to other developments in science and medicine. The regulators involvement starts at a certain stage, and until that stage the responsibility and liability are of the developer.

13) What roles have 'risk' and 'precaution' played in policy decisions concerning emerging biotechnologies?

Precaution and risk assessment are important, but are not the only concerns. A risk-benefit approach might be more helpful in decision making regarding risks that are difficult to assess or when the risk is high but so are the potential benefits.

14) To what extent is it possible or desirable to regulate emerging biotechnologies via a single framework as opposed to individually or in small clusters?

It is sometimes possible to regulate EB with the existing tools, but an open mind is absolutely imperative: a willingness to individually assess unique technologies if necessary and a legal framework which allows flexibility.

15) What role should public opinion play in the development of policy around emerging biotechnologies?

An important role, but while considering that in fact, only a very small part of the "public" truly takes an interest and have the understanding to participate. The option should be there, however.

16) What public engagement activities are, or are not, particularly valuable with respect to emerging biotechnologies? How should we evaluate public engagement activities?

Open to the public conferences, articles in the regular press and internet, use of social media and other websites, and in some cases – public hearings, publish committees and debates in the parliament.

17) Is there something unique about emerging biotechnologies, relative to other complex areas of government policy making, that requires special kinds of public engagement outside the normal democratic channels?

It seems the "non-professional" public has greater interest in regulation of EB than in other regulative issues, or policy making. The fears and concerns are greater, justified or not. Comparing to other fields of innovation or regulation, regarding EB –

it looks like everyone is an expert and the normal discussions within the government and parliament – leave the public feeling things have not been thoroughly examined. This leads to much post-legislation debate, and frequent demands to change or amend the rules and laws.