sciencewise
EXPERT RESOURCE CENTRE

BIS Department for Business Innovation & Skills

Case Study

Industrial Biotechnology

A dialogue on the public views, aspirations and concerns around the use and potential development of industrial biotechnology

Vital statistics

Commissioning bodies: Department for Business, Innovation and Skills (BIS) formerly the Department for Business, Enterprise and Regulatory Reform (BERR); commissioning team in the department was the Industrial Biotechnology Innovation and Growth Team (IB-IGT).

Duration of process: 5 months: August – December 2008

Number of public participants: 48

Number of experts/stakeholders involved: Experts/stakeholders = 18 Advisory Group members

Cost of project: £110,000 total, Sciencewise-ERC funding = £60,000

Industrial Biotechnology is the application of biotechnology for industrial purposes, including manufacturing, alternative energy (or 'bioenergy') and biomaterials. It includes the practice of using cells or components of cells, such as enzymes, to generate industrially useful products.

The Industrial Biotechnology Innovation and Growth Team (IB-IGT) is a project that is led by the Department for Business, Innovation and Skills (BIS) to work with industry and explore the challenges to innovation and growth in the Industrial Biotechnology (IB) sector. Biotechnology uses biological systems or living organisms, including genetically modified (GM) organisms, to modify products or processes for new uses. Biotechnology has potential applications in a variety of industries including medicines, renewable energy and food. This emergent technology raises a number of concerns and the public dialogue sought to cover a number of issues including public perception of Industrial Biotechnology, for instance: the use of GM organisms; and the use of crops for chemicals as opposed to for bioenergy, biofuel and food.

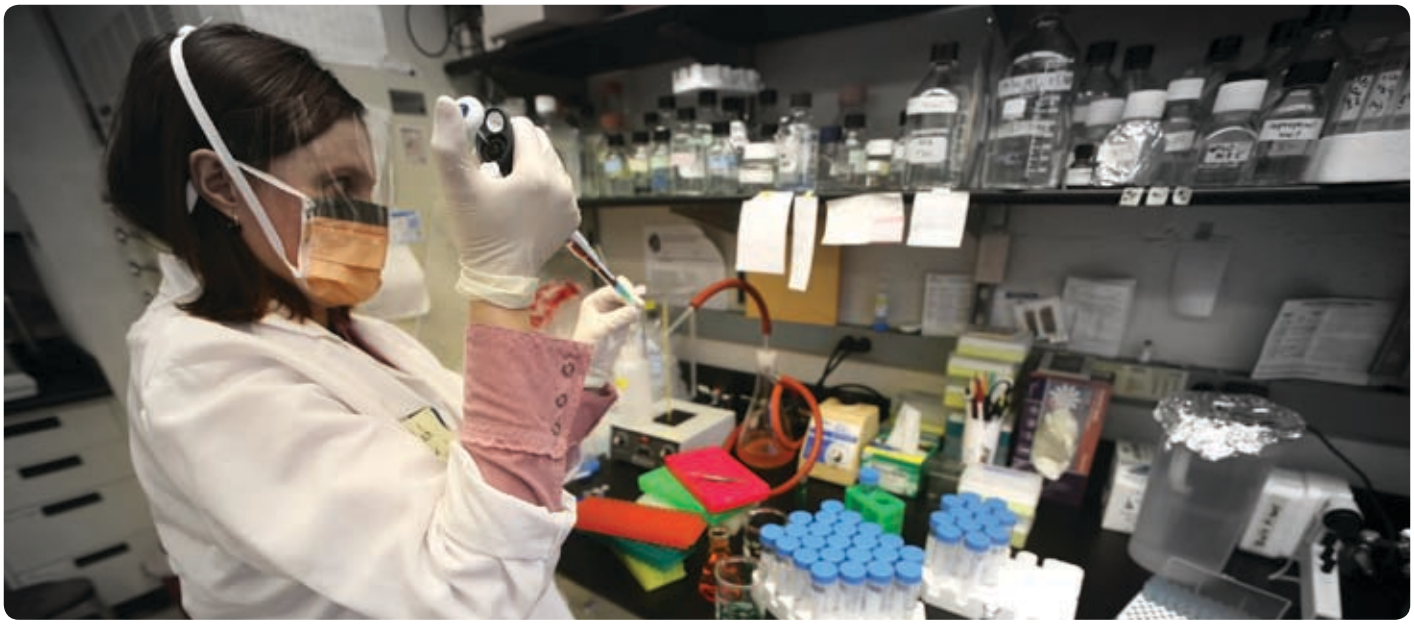
Key messages from the public

Key issues raised by the public participants in the dialogue included:

- The regulation and control of IB
- The unfamiliarity of the new technology and its subsequent consequences of use
- The environmental impact - there is a difference between what is perceived as IB being uncontrolled in nature versus IB developed in laboratories
- The human or consumer impact and the need for factual information on the consequences of different applications of IB to help consideration.

Policy influence

- The results informed the IB-IGT action plan for the industry to 2021, and led to a specific recommendation for further public and stakeholder engagement in the future
- The dialogue helped policy makers understand the values that underpinned the public views and, therefore, provided insights to guide future work on IB
- The dialogue led to BIS establishing a group with non-governmental organisations (NGOs) to look further at IB. The dialogue process created a mandate and space for this work, and started to build new relationships around policy development
- The dialogue provided hard evidence of public views and underlying public values on the topic, which enable BIS to make better informed decision on policy relating to IB
- Government's decision to open up dialogue with the public increased transparency around a potentially highly contentious subject.



Background

Tackling climate change, societal expectations and meeting the challenges of globalisation are creating demand for the bio-based production of chemicals. The IB-IGT was launched in November 2007 with a remit to develop a strategic view, including an action plan and recommendations for Government, industry and others that will increase the use of IB by the chemicals and chemicals-using sectors.

GM was a key concern for the general public following press exposure in recent years. The Government was aware that there were issues relating to IB's public perception that needed to be understood and addressed if the UK were to reap the opportunities that IB presents in assisting the development of new technologies for the UK.

The dialogue project sought to explore public perceptions of IB, and to understand what excites and worries people about this emerging technology. The main findings included the fact that the public found the science and technology confusing, and that there was very little awareness of IB. For most, the science behind IB was a complete unknown. For this reason it appeared intimidating and, in some cases, even the term conjured negative connotations.

The dialogue activities

The aim of the dialogue was to establish public views, aspirations and concerns regarding the use and potential development of IB.

The specific objectives of the project were to:

- Use the understanding gained from the project to help make better-informed policy decisions regarding the uptake of IB by the chemicals-using sectors
- Identify the key issues of importance for consumers to help with potential future communication exercises in IB and public dialogue, avoiding costly conflict and to be as effective as possible
- Enable the IB-IGT to understand public perceptions of IB and to understand what, if anything, might raise public concern
- Draw out the relationship between IB and GM
- Create a mechanism for drawing a wider range of NGOs into the IB-IGT process.

The process involved a multi-stakeholder advisory group and a two-stage citizens' jury approach that allowed participants time to take on board new information, learn about biotechnology, think and talk about the issues and come to conclusions. There were four main stages to the project:

Stage 1: A Project Advisory Group was convened, made up of Government, industry and NGO representatives. The group met to discuss the objectives for the work and oversee the information public participants would need to begin to debate the issues

Stage 2: Two citizens' group meetings were held, one in Manchester and one in London, with 24 people taking part in each. At this stage, the groups met for an evening and one full day. Participants were given basic information about IB and had time to read, question and discuss what biotechnology is, how it works and the potential of new IB applications. An independent scientist was present at each meeting and was able to respond to participants' questions. Argument cards were used to provide brief scenarios that exposed participants to a variety of views on IB, a pub quiz was used to introduce concepts such as 'what is a chemical?', and a 'true or false' game introduced environmental concepts. The session ended with participants identifying the questions and knowledge gaps that they felt should be addressed at the next meeting

Stage 3: The Project Advisory Group met to discuss the outcomes of the citizens' group meeting and offered guidance on the agenda for the next meetings

Stage 4: 24 participants were reconvened from the first meetings (12 from each location) to take part in a two-day deliberative workshop. Participants heard evidence from 18 different experts in policy, bioplastics and polymers, speciality chemicals and bio-refineries. Experts came from a mix of academic bodies, industry, Government bodies and NGOs. Participants had the opportunity to ask questions of the experts before going into their own discussions to develop their conclusions

The two-day meeting ended with an interactive session where participants presented their views to interested stakeholders, the IB-IGT, BIS and the Sciencewise-ERC.

Summary of good practice and innovation

- A diverse group of interests was represented on the Project Advisory Group. The group provided information sources, suggested expert speakers, oversaw the accuracy of the information produced for the public and provided a good breadth of viewpoints on IB. As a result, the information was recognised as authoritative and credible
- Specialist stakeholder engagement expertise was brought in at an early stage to support and develop the Project Advisory Group
- Participants were recruited to broadly reflect the composition of the general public in terms of gender, age, ethnicity, socio-economic group and/or education, and work status. This approach to recruitment was seen to be sufficient to provide a diverse range of views and, therefore, enhanced the credibility of the project results with policy makers
- The two-stage citizens' jury approach allowed participants time to digest information, to think and talk about the issues and to come to conclusions
- The information communicated to the public participants was provided in engaging ways. The range of methods helped to encourage and maintain participant interest and engagement throughout
- The experts involved represented a mix of academic bodies, policy makers and the IB-IGT
- The final report was sent to all participants
- There was an independent evaluation, which resulted in a published report.

Lessons for future practice include:

- In order to discuss complex scientific issues effectively, public participants need sufficient background information and sufficient time to explore issues in appropriate depth
- It is important for the negative as well as positive implications of a new technology to be clearly articulated for the public. Without this, public trust in the process can be reduced and the findings can be of less use to policy makers who want to know public views of negative arguments.
- New ways need to be found to engage NGOs that may not see the topic as an immediate priority. It can be particularly important to include NGOs among those providing input directly to the public participants to ensure there is an appropriate balance of perspectives
- It takes time to develop the individual relationships that will encourage the participation of key stakeholders in these sorts of public dialogue projects
- Close working relationships between the delivery team, policy makers and experts, through a well-facilitated advisory group, help ensure the results of the dialogue are of value for policy and decision makers
- Public participants often trust information provided by independent scientists more than information from Government or industry
- It can be particularly valuable for policy makers to see and hear public discussions first-hand, especially where decisions need to be made in tight timescales and in intensive processes of this sort.

Impacts

Policy impacts are covered on the first page of this summary. This section examines the impacts on all of the participants in the process.

Influence on policy makers

- The dialogue helped policy makers understand the values that underpinned public views and, therefore, provided insights to guide future work on IB
- The dialogue helped policy makers understand the level of public knowledge on the subject and, therefore, to plan future education work better
- The dialogue helped policy makers formulate future messages and develop future communications strategies
- The dialogue helped policy makers understand where they could use public dialogue in the future
- The dialogue provided an opportunity to spread awareness and understanding about IB
- Policy makers valued the role of the dialogue in bringing different interests in the policy-making process together, including the private sector meeting with the public.

Impacts on public participants

- 100% of public participants said they had learnt something they didn't know before. 29% said they wanted to learn more
- 49% of public participants at the first event and 100% of those at the second event said they had changed their views as a result of taking part
- Participants trusted that policy makers were listening to their views. More than half thought the Government would take the public's views into account. Just over half said the meeting had boosted their trust in the Government's decision about these issues
- The dialogue stimulated interest in IB among some participants that continued after the events, and they found out more and discussed what they had learnt within their own social circles
- After the event, 96% of public participants thought it was very important to consult with the public about issues such as IB.

> “It has influenced us internally here by seeing first-hand what the public thinks the issues are and the misconception, misinformation and misunderstanding that is out there. This has helped us to realise that there is a lot of work that needs to be done if we want to move this thing forward which is helpful… to see, to hear the public’s views is quite eye opening sometimes.”
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> **Policy maker**

> “If we hadn’t had such a long period of discussion we would have only had surface level impact: we would only have had the knee-jerk reactions we got at first. Also the participants wouldn’t have spoken to and learnt from each other.”
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> **Policy maker**

> “Clearly, we wanted to have evidence-based conclusions and people can see we haven’t made it up. It also reassured industry about public fears.”
>
> **Policy maker**

> “It surprised me how much people were concerned about the environment and climate change. They find it very hard to see Industrial Biotechnology in isolation which is fair enough because it is all related, we can’t just focus it on specific technology issues, we are going to have to focus on the big picture, otherwise people just don’t get it. It’s about global warming, climate change, land use and waste.”
>
> **Policy maker**

Impacts on scientists/experts and other stakeholders

- The dialogue provided opportunities for scientists to develop communication skills and to try out messages directly with the public, so gaining instant feedback
- The project enabled experts to hear public views, fears and aspirations first-hand
- The experience helped some expert speakers overcome fears of public hostility, to the extent that they were more willing to take part in similar events in the future.

Overall impacts

This was a deep and detailed project with the public. It worked well to build understanding of public values on the potential for the development of IB and to feed that understanding into future policy development. Scientists from a wide range of backgrounds were extensively involved, especially in the later stages of the project. Although the project struggled to get as much involvement from NGOs as had been hoped, there was some, and relationships were sufficiently developed to lead to the establishment of important longer-term links. This dialogue was seen as the first stage of continuing public and stakeholder engagement on IB, and this approach was agreed to be an integral part of the IB-IGT action plan for the industry to 2021.

Contacts and links

Commissioning bodies

Department for Business, Innovation and Skills
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Reports

Full project and evaluation reports available from Sciencewise-ERC on **www.sciencewise-erc.org.uk/cms/public-perception-of-industrial-biotechnology**