



# DEMOCRATISING BIOTECHNOLOGY: AN OVERVIEW

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**A**gricultural biotechnology has become one of the most intensely debated subjects of our time. In northern settings these encounters have been emotive and polarised, with consumers and civil society pitted against governments and corporations, and threats of major trade wars. The same vibrancy is unquestionably evident in the developing world. Indeed, in many ways, biotechnology becomes even more polarised when it takes on a 'development' angle. This is because, as many argue, it is precisely the poor in the developing world who stand to gain the most from biotechnological innovation, or, alternatively, who will be the most badly affected by the introduction of genetically modified crops. These dilemmas are the subject of this briefing series. For a range of different issues, the briefings argue that a democratisation of biotechnology is needed if some of the worst case scenarios are to be avoided, and if imagined food and farming futures really are to be 'pro-poor'.

## A bright GM future?

According to biotechnology advocates, transgenic crops will revolutionise agriculture in developing parts of the world – overcoming production constraints, achieving breakthroughs in crops where conventional breeding has reached its limits, and creating plentiful, cheap food. Others seriously question this techno-optimism and present a far more pessimistic picture of the future, where the poorest are actually the ones who lose, as biotechnology exacerbates trends towards industrialisation of agriculture, erosion of the diversity of agro-ecosystems and undermining of farmers' rights.

Neither course is inevitable. But as biotechnology is currently unfolding in developing world contexts there are good reasons to doubt the possibility of GM technology really facilitating agricultural change that benefits the poor. From a range of different perspectives, the scientific, legal and governance processes surrounding GMOs are weak at allowing the priorities of either poorer countries, or the poorer parts of their populations, to meaningfully contribute to

policy framing and regulation. Agricultural biotechnology, and wider processes of planning for change in food and farming in which they are embedded, need to be opened up, and made more responsive and accountable (see box). This kind of democratisation is vital if there is to be any possibility that agricultural and food systems respond to the concerns and priorities of marginalised farmers and consumers. The briefings draw out different aspects of this. They are based on a series of research projects that have investigated national and international biotechnology policy and regulation. This research has explored the particularities of processes in China, India, Kenya and Zimbabwe, and also their relation to changing global processes. The different briefings reflect key themes emerging from this research.

## CHALLENGES FOR THE DEMOCRATISATION OF BIOTECHNOLOGY

From a development perspective, several aspects of policy in the biotechnology debate need to be rethought in quite fundamental ways. These include:

- understanding the impact of different trade choices for developing countries.
- allowing for alternatives to dominant intellectual property right models.
- fashioning regulatory systems responsive to local needs.
- scrutinising the role of 'sound science' in decision-making.
- thinking carefully about 'front-end' technology choice issues, not only 'back-end' regulation.
- allowing the marginalised, as well as elites, to reflect on the role of different technologies in different food and farming futures.

## Food security, corporations and knowledge rights

'Can biotechnology feed the world?' is the apparently simple, but, in reality, complex question asked in Briefing 2. At the moment the results don't look too promising, with technologies geared primarily at wealthy farmers in affluent parts of the world, and many of the assumptions of pro-biotechnology advocates looking shaky. A key

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reason for this is the dominant role of the private sector in shaping research and development of GM crops (Briefing 3), and particularly the associated intellectual property rights (IPR) regimes, which frequently limit the options of both the national and international public sector (Briefing 4).

### **Trade, regulation and science-policy**

Trade and regulation are key themes with particular implications for developing countries. The choices a country makes about the role of GM technologies are fundamentally shaped by trade concerns, and by the choices of more powerful, northern states, as Briefing 5 explores. Equally, international regulatory regimes frequently constrain countries fashioning their own responses suited to their own circumstances, needs and priorities (Briefings 6 and 7). The 'sound science' basis of many models of regulation and risk assessment is questioned in Briefing 8. How science-based approaches can handle uncertainty more effectively, and balance different forms of knowledge in decision-making processes, are key questions.

### **Appropriate technology?**

However, it is not only 'back-end' regulation that is important in relation to biotechnology debates. A key question is to what extent 'front-end' technology choices are relevant to the priorities of poor farmers. The Bt cotton experience is reflected on in Briefing 9. This technology was primarily developed with industrial agriculture in mind, but it is being taken up in many developing world settings. Nevertheless, concerns about long-term sustainability and biosafety remain. Briefing 10 examines biotechnology in the African context, and explores some of the specific challenges of ensuring biotechnology is relevant to the needs of the continent's smallholders. Briefing 11 looks at China, and asks to what extent the Chinese state, through its substantial investment in transgenic technologies, has been able to create a type of biotechnology development that offers an alternative to the dominant international agribusiness-led approach.

### **Citizen participation and rights**

What types of changes are required for a democratisation of biotechnology? The final two briefings pick up this theme. Briefing 12 highlights the importance of a rights approach in allowing farmers and consumers to expand

risk approaches to incorporate important socio-economic considerations, and to allow livelihood concerns to drive technology choice. These issues are echoed in Briefing 13 which looks at the need for new types of inclusionary practice in policy-making. This briefing explores the role that innovative techniques, such as citizens' juries, can play in giving a voice to marginalised groups, and allowing them to frame their priorities for food and farming futures.

### **Ways forward?**

Across the briefings what becomes clear is that fostering genuinely inclusionary biotechnology policy and regulation is a serious challenge. One key aspect of biotechnology is that it has many dimensions: it involves cutting edge science, and emergent fields of law, regulation and policy. Local realities, ecologies and livelihoods, in turn, are criss-crossed by global processes. These, too, are embedded in the politics of states, corporations, citizenship and development in a highly unequal world. However, despite this complexity, clear messages emerge. Decisions about biotechnology futures cannot be decided on the basis of simple cost-benefit analyses, law or 'sound science' alone. Finding ways of bringing together the different dimensions of GM debates, and the multiple perspectives they generate, is essential. Responsive and accountable biotechnology needs to be placed in the context of wider deliberations about values, livelihoods and the possibilities of different types of development. This is, the briefings suggest, the new agenda for policy and practice.

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**For further information visit: [www.ids.ac.uk/biotech](http://www.ids.ac.uk/biotech)**

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