The GM Debate – Who Decides?

An analysis of decision-making about genetically modified crops in developing countries

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Introduction

Genetically modified (GM) crop plants are being developed and adopted around the world at a rapid pace. In 2004, 81 million hectares of land were under the legal cultivation of GM crops (around 1.6 per cent of the total agricultural land in the world) and the area is growing at a rate of 20 per cent every year.

But GM crops are still highly controversial. Proponents claim that genetic modification (GM) will enable farmers to produce more food, for lower cost, without using more land or natural resources, and using lower levels of chemical inputs. On the other hand, there are concerns about the long-term impacts of GM technology on the environment and fears about the safety of GM crops for human health. Information and discussion about GM technology is often polarised and polemical, with supporters of GM dismissing opponents as 'anti-progress', while opponents of GM often conjure up exaggerated and inaccurate fears. Reasoned argument, assessing benefits and risks, and seeking consensus are rare.

Why does GM technology arouse such strong passions? One reason is that opponents of GM see the introduction of GM crops into an environment as an irreversible decision, whose long-term results are unknown. For instance, modified genes may escape from a crop into neighbouring crops or wild plants and start being reproduced naturally. Another reason for controversy is that until now private biotechnology companies have been the leading actors in developing and promoting GM crops, and opponents or sceptics of GM suspect that their motives are to increase their profits rather than the public good.

Decision-making on GM crops

In this atmosphere of heightened expectations and fears, governments have to work within international law to make policy and draw up legislation on a range of issues: whether to allow the import of GM foods; whether to allow planting of GM crops; how to regulate them to minimise risks; and whether to support research to develop GM crops for their own country. Governments have to make their decisions based on a number of considerations: the science of genetic technology, the potential benefits and risks, as well as other questions of economic and social development.

Like any other new technology, GM technology will bring benefits to some and disadvantages to others. If increased food production and greater agricultural sustainability result, these benefits will be shared by the whole society. But so will the risks – to the environment, and perhaps to human health.

Scientific evidence about the impacts and the potential benefits of GM crops is inconclusive. This is largely because GM is such a new technology, with a short history of use, in a limited number of different environments. Its impacts may only become apparent in the longer term. As a result, decisions about what risks are worth taking, what can be done to minimise them, and how much risk the public can be asked to live with have to be taken in the absence of full scientific knowledge of the benefits and risks.

Government decisions about GM, which affect the lives of everyone in the country, are of course based on discussion with experts and interested stakeholders, but should be made in a consultative and consensual way, with the involvement of people and their elected representatives. In most countries, society is increasingly scrutinising science-based policy decisions, and demanding that decisions to accept risk should be transparent.

Encouraging consultative and participatory decision-making

Consultative and participatory decision-making requires accessible information and a high quality of public debate. To participate effectively, people – including MPs and governments – should have accurate information, understanding of the science, understanding of the issues, and awareness of the views and concerns of different stakeholders. Such public information and debate could be supported and stimulated by good media coverage.

This report is not about the science of genetic modification, but about the politics of decision-making on GM in developing countries. Three of the world's top five nations growing GM crops are developing countries – Argentina, Brazil and China. (The top two GM-growers are Canada and the US.) In addition, India and South Africa have large GM research programmes and are preparing to commercialise GM crops on a greater scale. In all, more than two dozen developing countries are now active in pursuing research into and commercial growing of GM crops.

How do governments in developing countries decide whether GM crops are to be grown? What considerations influence them? To what extent is the public able to influence decision-making, directly, through NGOs or through parliaments? This report summarises key policy-making issues on GM crops, such as the interpretation of scientific research, the roles of the biotechnology industry and the public sector in funding research, the role of international NGOs, and crucial trade policy disputes between the US and the EU.

The report also draws on case studies from five developing countries – Brazil, India, Kenya, Thailand and Zambia. As well as exploring decision-making processes and who is involved in them, the case studies examine the media coverage of GM and the extent to which the media facilitates vigorous and well-informed debate representing the multiplicity of views and interests that exist in any country. They included more than 100 interviews, some of which are quoted in this report.

In order to make appropriate decisions about GM, it is vital that the views of all interested parties are heard – policy-makers, farmers, industry, NGOs, international donors and scientists. As well as being of interest to these key stakeholders, this report is also intended for journalists and others working in the media, who have a key role to play in creating spaces where the different views in the GM debate can be expressed and explored.

Annex: GM crops around the world

Table 10
GM crops grown on a commercial scale around the world

Country	GM crop area (hectares)	GM crops
United States	42.8 million	Maize, cotton, soy, canola
Argentina	13.9 million	Soy, maize, cotton
Canada	4.4 million	Canola, maize, soy
Brazil	3.0 million	Soy
China	2.8 million	Maize, soy, cotton
India	500,000	Cotton
South Africa	400,000	Cotton

Table 11
Planning for GM field crops

G grown for commercial use
A approved by regulators
F in field tests
L in laboratory tests

	soy	cotton	maize	canola	sugar-beet	rice	flax	wheat	sugar cane	barley	alfalfa	sunflower
Canada	G	A	G	G	A	A	A	F		F	F	F
US	G	G	G	G	A	A	A	F	F	F	F	
EU (15)	A	F	G	A	F	F		F		F	F	F
Brazil	G	F	F			F			F			
China	F	G	F	L	L	F		L		L		
Egypt		A	F	A				F	F	L		
India		G		F		L						
Kenya			L									
South Africa	G	G	G	F					F			
Thailand		F				F						

Table 12
Planning for GM vegetables

G grown for commercial use
A approved by regulators
F in field tests
L in laboratory tests

	potato	tomato	squash	pepper	pea/ bean	lettuce	cucumber	carrot
Canada	A	A	A					
US	A	A	G		F	F	F	
EU (13/15)	F	F	F		F	F		F
Brazil	F	F			F	L		F
China	F	G		G				L
Egypt	F	F	F		L		F	
India	L	L						
Kenya	F							
South Africa	F							
Thailand		F		F	L			

Table 13
Planning for GM fruit

G grown for commercial use
A approved by regulators
F in field tests
L in laboratory tests

	papaya	melon	banana	pineapple	apple	grape	plum	strawberry	watermelon	citrus
Canada	A					F				
US	G	A	F		F		F		F	
EU (8/15)		F			F	F	F	F	F	F
Brazil	F									
China	F	F								
Egypt		F	L							
India										
Kenya										
South Africa								F		
Thailand	L									

Source: *Global Diffusion of Plant Biotechnology: International adoption and research in 2004*, C F Runge and B Ryan, University of Minnesota/Council on Biotechnology Information, Washington DC.

Contacts and news sources

News Sources

Food Safety Network
www.foodsafetynetwork.ca

This is a daily email list-serve providing a summary of the main policy and science news relating to agricultural biotechnology around the world. A comprehensive, must-have source for any journalist who needs to closely follow a GM story. It is compiled by the mostly pro-GM University of Guelph in Canada.

Gaianet
Contact: gaia@gaianet.org

Periodic email list-serve that is a good source of news and comment on a breaking GM story anywhere in the developing world – particularly Africa and Latin America. Compiled by the London-based Gaia Foundation, a small NGO, which is mostly opposed to GM in agriculture.

Science and Development Network
www.scidev.net

Authoritative source of daily news on science from developing countries written by a growing network of correspondents in major capital cities including Nairobi, New Delhi and São Paulo. Services include free weekly email news alert; comprehensive dossier on GM crops; and free access to research papers from the site's sponsors *Nature* and *Science*.

World Bank research newsletter
http://econ.worldbank.org

Monthly email newsletter from the World Bank including abstracts and full-text papers on the latest research from inside the Bank, which is one of the world's largest publishers of development research. Agricultural biotechnology is frequently featured in the newsletter.

Linkages Update
Contact: enb@iisd.org
www.iisd.ca

Fortnightly electronic newsletter including news, publications, international media reports, announcements and meetings relating to the environment and sustainable development. Published by the *Earth Negotiations Bulletin*, a project of the Canada-based International Institute for Sustainable Development.

Information sources

African Centre for Technology Studies
www.acts.or.ke

Nairobi-based policy research institute that regularly publishes research and analysis on the relationship between people, science, technology and the environment.

GM Watch
www.gmwatch.org

Frequently-updated website with news, opinion, comment and contact details on the global anti-GM campaign.

Consultative Group on International Agricultural Research (CGIAR)
www.cgiar.org

The CGIAR is a network of international agricultural research centres in developing countries, funded by rich countries and organised through the World Bank. CGIAR scientists develop new seeds and farming management methods to poor farmers. They fear that the rapid expansion of patented GM technology could mean they will no longer be able to provide this free of cost.

id21
www.id21.org

Free development research reporting service, offering the latest UK-resourced research on developing countries.

International donor agencies

International donors frequently sponsor GM-related research and other projects in developing countries. Organisations worth keeping abreast of include: The Rockefeller Foundation (www.rockfound.org) and the US Agency for International Development (www.usaid.gov).

International NGO Directory
http://www.climnet.org/members/criter.htm

Published by the Climate Action Network, this is a free-to-access online directory containing names and contact information for nearly 400 of the world's leading NGOs working in environment and sustainable development.

Institute of Development Studies, Environment Group
www.ids.ac.uk

Publishes research into agricultural biotechnology and policy processes in developing countries.