IDS Working Paper 198

Public participation in national biotechnology policy and biosafety regulation[1]

Dominic Glover

August 2003

INSTITUTE OF DEVELOPMENT STUDIES
Brighton, Sussex BN1 9RE
ENGLAND

[1] I am indebted to James Keeley, Peter Newell, Ian Scoones and Farhana Yamin for their insightful comments and helpful suggestions on earlier drafts of this paper.

ISBN 1 85864 512 3

Summary

This paper considers the challenges entailed in applying the principles and methods of public participation to national and international policy processes. It draws on evidence from the field of biotechnology policy and biosafety regulation in Brazil, Canada, China, Denmark, Estonia, Ethiopia, India, Kenya, Malaysia, Mexico, Namibia, New Zealand, Norway, the United Kingdom, the United States and Zimbabwe.

The paper makes a distinction between the regulatory-scientific concept of "biosafety" and the more encompassing and socially-defined politics of "biotechnology". "Biosafety", developed largely at the international level, frames the regulatory issues relating to genetically modified organisms (GMOs) within narrow and technically-defined boundaries. As a consequence of the drive to harmonise and normalise biosafety regulation internationally, it has confronted the more diverse, unruly and contested politics of biotechnology at national and local levels.

The way in which participation occurs in practice is shaped and constrained by the interplay of the politics of "biosafety" and international harmonisation on one hand, and the more inclusive politics of biotechnology on the other, in particular national contexts. The experiences of the 16 countries are discussed along three dimensions: the influence of the European Union's moratorium on GMOs; their domestic contexts (including ecological, socio-economic and political-cultural factors, as well as international aid, trade and investment relationships); and their domestic capacity in biotechnology research and development.

While there are positive examples to be found in the experiences of different countries, generally there is an unsatisfactory compromise between the obligation to promote public participation and the need to conform to international standards. Often, lip service is paid to participation without providing the substance. More seriously, even when governments have the will to include the public in decision making, they may lack the capacity to do so effectively, or to stand by the concerns of their publics in the face of opposition from powerful foreign countries.

Contents

www.ids.ac.uk/biotech

Preface

Biotechnology Policy Series

This IDS Working Paper series emerges from a series of three interlinked projects. They involve collaboration between IDS and the Foundation for International Environmental Law and Development (FIELD) in the UK and partners in China (Center for Chinese Agricultural Policy (CCAP)), India (Centre for the Study of Developing Societies, Delhi; Research and Information Systems for the Non-Aligned and Other Developing Countries (RIS), Delhi; National Law School, Bangalore), Kenya (African Centre for Technology Studies, Nairobi) and Zimbabwe.

Three key questions guide the research programme:

- What influences the dynamics of policy-making in different local and national contexts, and with what implications for the rural poor?
- What role can mechanisms of international governance play in supporting the national efforts of developing countries to address food security concerns?
- How can policy processes become more inclusive and responsive to poor people's perspectives? What methods, processes and procedures are required to "democratise" biotechnology?

The work is funded by the UK Department for International Development (DfID) ('Biotechnology and the Policy Process in Developing Countries' and 'Globalisation and the International Governance of Modern Biotechnology') and the Rockefeller Foundation ('Democratising Biotechnology').

This paper is a product of the 'Democratising Biotechnology' project. Other papers in the Biotechnology Policy Series are listed inside the back cover.

Also available
'Democratising Biotechnology: Genetically-Modified Crops in Developing Countries' Policy Briefing Series

Issues covered in the series include: food security and biotechnology, trade, IPRs, the role of the corporate sector, science and decision-making, biosafety regulation, biotech in Africa and China, Bt cotton, rights-based approaches to biotech, and the use of citizens juries to expand participation in biotechnology policymaking.

The briefings can be downloaded free of charge from www.ids.ac.uk/biotech
Hard copies of the set can be obtained free of charge for those in non-OECD countries from Oliver Burch, email o.burch@ids.ac.uk or purchased from the IDS bookshop www.ids.ac.uk/ids/bookshop

1 Introduction

This paper considers the challenges that are entailed when the principles and concepts of participation are applied to national policy processes, in practical situations where decisions need to be made, interests conflict, and uncertainty prevails. Using the example of the Cartagena Protocol on Biosafety, which is an international agreement to govern the international trade ("transboundary movement") of genetically modified organisms (GMOs),[2] it reflects on lessons learned from research carried out by a team from the Institute of Development Studies (IDS), Brighton, UK.[3] IDS was commissioned by the United Nations Environment Programme – Global Environment Facility (UNEP-GEF) and funded by the Department for International Development (DFID, UK) to carry out a study of public participation in the development and implementation of "national biosafety frameworks" (NBFs) – the regulatory systems for the management of "biosafety". The aim was to review how a range of different countries had sought to fulfil their obligations to promote and facilitate public awareness and participation under Article 23 of the Biosafety Protocol. Sixteen countries were studied, including developed, developing and "transition" countries, and encompassing both Parties and non-Parties to the Protocol. The countries were Brazil, Canada, China, Denmark, Estonia, Ethiopia, India, Kenya, Malaysia, Mexico, Namibia, New Zealand, Norway, the United Kingdom, the United States and Zimbabwe.[4]

1.1 Public participation in national and international policy processes

Public participation in policy processes and decision-making is understood to be a central element of good governance and sustainable development because, in principle, participation should contribute to better-informed, more appropriate and effective, more legitimate and more broadly "owned" decisions and policies. However, inclusive and participatory methods have generally been developed in the limited context of aid projects or development programmes. Extending the concepts, methods and practices of participation into the realm of broader policy and decision-making processes represents a new challenge. Whereas projects or programmes are usually relatively discrete and limited in their scope and impacts, policy arenas are generally broader (often national or even international in scope), longer term, more complex and often characterised by significant degrees of uncertainty. The range of relevant stakeholders may be much wider and their stakes more diverse or conflicting. It may be difficult to define the parameters and scope of the participatory process clearly. The more nebulous, long-term or uncertain the issues are, the harder it may be to integrate the outcomes of participatory consultations into official decision-making and implementation processes (Glover *et al.* 2003).

---

2 GMOs are defined in the Protocol as "living modified organisms" (LMOs).

3 www.ids.ac.uk/ids/

4 The main output of this research was a report describing and discussing the methods and tools employed by different countries (Glover *et al.* 2003). The report was conceived by UNEP-GEF and DFID as a toolkit or resource on 'what works, when and how', and was used to inform a series of regional workshops organised under the UNEP-GEF Project on Development of National Biosafety Frameworks.

Since the 1992 Earth Summit in Rio de Janeiro, the inclusion of requirements of public participation in international conventions and agreements has become almost a matter of course. Principle 10 of the Rio Declaration states that environmental issues 'are best handled with the participation of all concerned citizens, at the relevant level'. The Principle commits Parties to provide individuals with appropriate access to publicly-held information; to give them 'the opportunity to participate in decision-making processes'; to 'facilitate and encourage public awareness and participation by making information widely available'; and to ensure access to justice.[5] The 1998 Aårhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, which was conceived as an instrument to put Principle 10 into practice in European countries, is an international agreement[6] specifically aimed at ensuring that public rights to participation and access to information are incorporated into environmental policy making at the national level.

Other issue-areas where participation is conceived as a central element of broad policy and decision-making processes include national efforts to elaborate National Strategies for Sustainable Development (NSSDs) and Poverty Reduction Strategy Papers (PRSPs) (under the World Bank/International Monetary Fund (IMF) HIPC[7] II initiative). In addition, some international agreements and instruments dealing with specific issues, such as the Biosafety Protocol, include clauses which create obligations on states to promote and enable public participation. NSSD, PRSP and NBF processes all represent examples of the application of participatory methods and mechanisms to broad, national policy processes. In all three cases, the participatory element is conceived as a mechanism for ensuring that the strategy or policy process is nationally-owned, appropriate and relevant to the specific national or local context.

The case of the Biosafety Protocol, in particular, provides an interesting window for considering why and how public participation in national policy processes occurs in practice, under what circumstances or conditions and with what limitations. The Protocol was adopted by the Parties to the Convention on Biological Diversity on 29 January 2000, and opened for signature between May 2000 and June 2001. It has 103 signatures and will come into force ninety days after the fiftieth signatory ratifies the Protocol.[8] The relevant provision of the Protocol with regard to public awareness and participation is Article 23, which states:

1) Parties [to the Protocol] shall:

   a) Promote and facilitate public awareness, education and participation concerning the safe transfer, handling and use of living modified organisms in relation to the conservation and sustainable use of

---

5 The Rio Declaration on Environment and Development: www.un.org/documents/ga/conf151/aconf15126-1annex1.htm (26/03/03).

6 The Convention was negotiated under the auspices of UNECE (the UN Economic Commission for Europe) and is therefore limited to UNECE member-countries.

7 Highly Indebted Poor Countries.

8 At the time of writing, 45 countries have ratified the Protocol. Observers expect the fiftieth ratification to be lodged during 2003.

biological diversity, taking also into account risks to human health. In so doing Parties shall cooperate, as appropriate, with other states and international bodies;

b) Endeavour to ensure that public awareness and education encompass access to information on living modified organisms identified in accordance with this Protocol that may be imported.

2) The Parties shall, in accordance with their respective laws and regulations, consult the public in the decision-making process regarding the living modified organisms and shall make the results of such decisions available to the public, while respecting confidential information in accordance with Article 21.

Various exercises in public consultation and dialogue on biosafety issues have been initiated and carried out by governments or official agencies in different countries and at the international level. Often, these have been linked explicitly to Article 23. A prominent example is the inclusion of participation and awareness-raising issues in the UNEP-GEF Project on Development of National Biosafety Frameworks,[9] which aims to assist developing and transition countries to implement their national regulatory frameworks for GMOs-in-transit. However, as international experience has shown, the process of public debate and controversy over biotechnology has not been limited to such "top-down" mechanisms and forums of consultation and dialogue. To a significant degree, the space for public participation has been opened up through, or in response to, popular political pressure. Indeed, in many countries, public protests, consumer boycotts, civil disobedience and lobbying campaigns by grass-roots activists, environmentalists, development NGOs and consumers have played a prominent role in struggles to open decision-making processes on biotechnology and biosafety to public scrutiny and challenge (Glover 2002; Levidow and Murphy 2002; Newell and Glover 2003).

To a large extent, therefore, the public debate is an essentially spontaneous social and political debate which did not require to be artificially generated by "facilitation" or "promotion" under the Biosafety Protocol. It is clear that there are multiple drivers of public participation, emanating not only from international obligations taken on by states but also in response to domestic political demands, and perhaps other sources. In this light, an interesting set of questions arises about why and how these pressures for public participation arise, and how they come to be resolved into the particular forms of public participation and inclusion that have emerged at national or local level. The way in which participation is practised in different places will depend on local contexts and perspectives; we need to look to the particular situations in different countries to understand why and how public participation has emerged in the form it has.

In the next section, I discuss some of the factors that drive and promote public participation, as well as some broad, general factors that limit it in practice. This discussion is framed around the distinction that exists between the politics of "biosafety" at the international level and the more locally and nationally

[9] See: www.unep.ch/biosafety/

rooted politics of "biotechnology" in general. "Biosafety" is a regulatory-scientific concept which serves to separate technically defined and legalistic issues of risk assessment and risk management from broader social, economic and ethical concerns about biotechnology. Its very purpose and meaning can therefore be seen to be essentially in conflict with the aspirations of public participation. The "biosafety" concept reflects a conventional way of thinking about risk, in which the potential impacts of new technologies are regarded as primarily a technical matter to be identified and evaluated by "scientists", while the "public" is construed as ignorant and unqualified to participate fully in this process of defining and assessing risks. This conceptual separation has implications for the way public participation is envisaged, normally as a subsidiary and subsequent element in a larger process of scientific risk assessment, and consequently limited within rather narrow boundaries. This is well illustrated by the international "capacity-building" projects and initiatives which are under way to assist poorer countries to fulfil their obligation to promote and facilitate public participation and awareness.

Countries' efforts to implement their biosafety regulatory frameworks and fulfil their obligations in relation to public participation reveal the inherent tension that exists between pressures for international regulatory harmonisation, on the one hand, and the need to promote national ownership and respond to diverse national contexts and public concerns, on the other. In the penultimate section, I use examples from the sixteen case studies to show how processes of public participation are necessarily embedded in particular national contexts, which help to determine when and how transparency, public participation and accountability are demanded or considered politically necessary for decision-making, as well as what forms and mechanisms of participation are likely to be possible in different circumstances. The discussion will show how inappropriate it is to consider public participation in terms of a standard "toolkit" which can be applied with relative ease in diverse contexts. The discussion will also indicate how, meaningful and inclusive public participation is more likely to be possible in practice when the stakes are lower.

2 Drivers and limits of participation

On the surface, the processes of public participation surrounding the development and implementation of national biosafety frameworks can be attributed to the obligation in Article 23 of the Biosafety Protocol, which requires governments to promote public awareness, education and participation. In this sense, one of the primary drivers of public participation might be assumed to be a legal obligation emanating from the international level. Arguably, since the Rio Earth Summit, clauses requiring public participation are included in international instruments as a matter of routine. However, the notion that something has become "routine" has both positive and negative connotations. On the positive side, it means that an approach or practice has, to some extent, become internalised or conventional. On the other hand, routine or automatic acceptance of a form of words may mean that the concept in question is devoid of substance or is not embedded in practice.

2.1 A legal mandate for public participation?

The mere fact that international instruments mandate public education and participation does not mean that such activities will automatically occur. In principle, the rules of international law contained in treaties depend on national laws for their domestic implementation, and can only be enforced as between the sovereign states which are parties to the agreement. Therefore it is difficult to see how the provisions of Article 23 might come to be invoked. On the one hand, it is hard to imagine a situation in which a Party to the Protocol would challenge the failure of another Party to fulfil its commitment to promote public participation. On the other hand, with certain exceptions (such as the laws of supranational institutions like the European Union), international rules are not generally enforceable directly by citizens, unless states have taken specific steps to give them such powers. It is therefore doubtful whether a citizen would be able to enforce the provisions of Article 23 against his or her own government.

In the case of PRS processes, countries have a clear incentive to carry out participatory exercises in consultation and planning, because they need to satisfy the requirements of the World Bank or IMF in order to secure debt relief or loans. In the area of NBF processes, by contrast, it is less easy to identify a material incentive or sanction that encourages countries to comply with their legal obligations on participation. Indeed, promoting public participation can involve significant costs and difficulties which might be assumed to discourage governments from adopting such practices. Nevertheless, "capacity-building" projects have been initiated within the framework of the Cartagena Protocol and the Aårhus Convention, to help countries fulfil – among other things – their obligations in relation to public participation. International organisations and bilateral donor agencies are making available both financial and technical resources to support and encourage developing and "transitional" countries to implement their national biosafety frameworks, including their obligations on public participation. Such initiatives provide a material incentive for developing countries to fulfil their obligations on public participation as a step in the development of their biosafety frameworks. There may be various reasons why this activity is taking place, and why aid donors are paying for it, but we should look to the political rather than the legal arena for an explanation.

2.2 Reconciling the international politics of "biosafety" regulation with local and national politics of "biotechnology"

A central theme that emerges from our examination of public participation under the Biosafety Protocol is the tension that exists between the international politics of "biosafety" regulation and the much broader, more diverse and controversial politics of "biotechnology" in general. The difference between these two arenas is important and revealing. "Biosafety" is understood to refer to the management of the risks associated with the contained use and environmental release of GMOs. The Biosafety Protocol is an international agreement on how to manage these risks in relation to the transboundary movement of GMOs. The scope of the Protocol is also limited, conceptually speaking, by the fact that it is a protocol to the Convention on Biological Diversity, which implies that its scope must be limited to the management

of risks flowing from the potential impacts of GMOs on biological diversity. Of course, like any other international agreement, the Protocol cannot be taken to represent the single, coherent will of the countries involved in its negotiation. Nevertheless, conceptually it reflects a set of key assumptions: that, in principle, there can and should be a trade in GMOs; that such a trade may be conducted safely; and that any associated risks can be identified and effectively managed.

It is clear from international experience that public debates and political controversies have not been limited to issues of "biosafety", although it is true that concerns about human health and environmental impacts have been prominent. The politics of "biotechnology" have encompassed a much broader set of issues, including ethical questions and concerns about the purposes of genetic modification, the ownership of the technology, the distribution of the potential benefits and risks, and the degree of scientific uncertainty that exists regarding the potential impacts of genetic modification. As the material from the sixteen cases shows (see below), reconciling these conflicting concepts is problematic, and has been resolved differently in particular local or national contexts.

The concept of biosafety can be seen to be based implicitly on the concept of "risk", and in particular the assumption that the environmental and human health risks associated with GMOs can be identified, evaluated and controlled by science (Wynne 2001). More particularly, it reflects a separation that has been effected between the realms of "risk" and "ethics", in which scientists and regulators are empowered to handle issues of risk, whereas public concerns are dealt with separately, often by recasting them as "ethical issues" – which, ironically, can then also be delegated to specialists for "expert" evaluation (Carr and Levidow 1997; Levidow 2001; Wynne 2001). Often the conclusions of these "experts" have meant that the "ethical" issues have been defined as matters of 'individual choice which can be resolved by market mechanisms alone' (Wynne 2001: 446-7) – a definition which reflects the underlying assumption of the Biosafety Protocol that there can and should be a trade in GMOs, leaving individual purchasers to choose whether or not they wish to buy or consume them. As Wynne (2001) points out, it is this kind of reasoning that has led the issue of identification and labelling of GMOs, necessary for the preservation of consumer choice, to be prominent in the Protocol negotiations.

The concept of "biosafety" therefore needs to be understood as a device which frames the implications of GMOs, that are considered to be relevant from a regulatory point of view, within quite narrow boundaries. This narrow framing has direct implications for the scope of public awareness and participation activities that are envisaged under the Protocol. In particular, there is a strong and pervasive assumption that public consultations are to take place in separate processes from (and in particular, subsequent to) "scientific" risk assessments of GMOs. In addition, as we have seen, the foundational assumptions behind the Protocol imply strongly that there can and should be a trade in GMOs, and that such a trade can be conducted safely. Logically, there has to be a strong presumption that these questions, having been decided in other arenas, cannot be reopened and are therefore to be excluded from public debate. This restriction is apparent in the wording of Article 23, which states that public participation should be limited to consideration of the implications of the 'safe transfer, handling and use of living

modified organisms in relation to the *conservation and sustainable use of biological diversity*, taking also into account *risks to human health*' [emphasis added]. Clearly, the terms of the Protocol imply that there should be quite narrow limits on the scope for public participation to consider the socio-economic, ethical or religious implications of GMOs, unless they can be closely linked to impacts on biological diversity or human health.

Seen in this light, there has to be a question, what the purposes of public participation are supposed to be. As Wynne (2001) shows, the explanation may have the same roots as the separation of "risk" and "ethics" into specialised categories of knowledge susceptible to expert understanding and analysis. The unifying strand that links these together is the way that "the public" is conventionally constructed by scientists as "ignorant" and 'only capable of taking sentimental, emotional and intellectually vacuous positions' (Wynne 2001: 445). In this construction, the science is taken for granted, whereas the public failure to embrace it is attributed to fear and misunderstanding founded on ignorance or irrationality: 'controversies around transgenic crops . . . are confusions that result from a lack of knowledge' whereas 'a positive choice for biotechnology . . . is seen as scientific . . . [P]ublic opposition to science follows from public ignorance of science and can be "cured" by removing the "deficit" in the public's knowledge and understanding' (Jansen and Roquas 2002: 6–7).

On this basis, it is taken for granted by many scientists and policy-makers that the public will naturally accept the judgements of science as soon as it can be made to understand them. Consequently it is equally often assumed that public participation or consultation exercises will naturally lead towards consensus – that is, general agreement with "expert" opinion. Hence the involvement of the public in decision making around biotechnology comes to seem a useful stepping-stone in 'what has been called the "harmony" model of development . . . in which poor people's voices, concerns and participation are viewed as technical inputs to rational decision making processes – rather than as contending interests in processes characterised by highly unequal power relations' (Chambers and Pettit, forthcoming).

At this point it is useful to recall the fact that Article 23 of the Biosafety Protocol, in its call for Parties to 'promote and facilitate public *awareness, education* and participation' [emphasis added], implies that an important role for the public is to be the passive recipient of information about biotechnology. In fact, there is plenty of evidence that public wariness towards science and technology is not intellectually empty or irrational at all (Wynne 2001). However, founded on the assumption that it is – and bearing in mind the implicit, prior assumption that GMOs can and should be traded – it may be that public "participation" is envisaged by many proponents of biotechnology as a primary means of "curing public ignorance" through education and awareness-raising activities and securing consumer acceptance of biotechnology.

"Public participation" has a necessary part to play in ensuring the effectiveness of national biosafety frameworks for practical reasons, but not necessarily because public consultation regarded as a necessary foundation for drafting rules or establishing administrative systems. In order for the Protocol's rules on the risk assessment and risk management of trade in GMOs to be effective – which is to say, in order that

the international trade in GMOs can be conducted smoothly and safely – it is necessary to ensure that various "stakeholders" and affected parties are aware of what the rules are and what obligations they entail. The implementation of Article 23 is driven not only by the need to promote public involvement in the biosafety decision-making process and regulatory framework, but by a more direct and practical need to inform relevant "stakeholders" about how to implement the rules on the ground. Various private individuals and groups – such as farmers, laboratory technicians, freight drivers and company managers – not to mention public officials such as customs officers, emergency services and government inspectors, will need to know how to handle GMOs-in-transit safely. In this sense, "public participation" may not be interpreted to mean public consultation or the inclusion of public views, but merely the "involvement" of "stakeholders" (through education and information) in the practical implementation and administration of the pre-defined, largely expert-driven regulatory system.

The tendency to conceptualise *participation* in terms of the *provision of information* to "stakeholders" is pervasive. We found examples of this among officials and policy-makers in countries as different as Estonia, India, Kenya, Namibia and the United States.[10] Among representatives of the private sector in particular there is a tendency to use the term "stakeholder" in a strictly limited sense, to mean those individuals and groups whom they consider to have a legitimate – usually material or financial – stake in the issues surrounding the regulation of biotechnology and biosafety. Paradoxically, whereas proponents of public participation use the concept of "stakeholders" as a lever to prise open elite policy processes, others have taken up the term and interpreted it as a way to limit the circle of participants within quite narrow boundaries. In particular, the concept of a stakeholder is often used as a device to challenge the inclusion of undesired participants, notably "environmental extremists" and "unrepresentative NGOs". By contrast, many observers and practitioners of participation stress the importance of enabling people to identify themselves as stakeholders, rather than allowing the convenors of participatory processes, or other powerful groups, to label and categorise others according to their own assumptions, prejudices or interests (Hemmati 2002).

Providing access to information is an essential prerequisite for effective and inclusive public participation, but it is only the first step on the "ladder of participation" (see McGee with Norton 2000: 14ff). Among other considerations, the form and manner in which information is made available needs to be appropriate and accessible to people who might want to use it. However, a number of initiatives which have been established to share biosafety information under the Protocol reflect the assumption that the material is relevant mainly to a relatively narrow group of "stakeholders", especially government bureaucrats, research scientists and companies. A number of these initiatives use the internet as a primary platform for providing access to information about biosafety regulations, GMO risk assessments, official documentation and so on, for different countries. Web-based databases, portals and gateways are

[10] NB the United States is not a signatory to the Convention on Biological Diversity or the Cartagena Protocol.

accessible to anyone who has efficient access to the internet, including reasonably up-to-date versions of the software necessary to browse the web and download documents. However, internet-based sources of information are often of little use to policy-makers and officials, let alone ordinary citizens, in countries that have a poor infrastructure for information and communication technologies. In addition, information on the internet is often presented in technical, scientific or legal language which is unlikely to be understood by non-specialists. Often, the information is presented only in English or perhaps another major global language. There is a danger that such sources of information are much more likely to be useful to the potential importers of GMOs than to many of the people living in the importing country. Citizens in Europe or the United States are probably in a better position to find out about applications for commercialisation of GM crops in Malawi than a poor rural citizen of that country. Concerns such as these lend weight to claims that the Biosafety Protocol is better understood as an instrument for gaining market access and normalising the trade in GMOs than it is as an instrument for managing the risks associated with them.

It would be inappropriate and misleading to imply that public participation in biotechnology policy and biosafety regulation is undertaken only for cynical reasons. In fact, as the case-studies suggest, some governments appear to regard inclusive public participation in decision-making as a strategic opportunity to make better-informed, more appropriate, more legitimate and ultimately more effective policies. Moreover, it is important to recognise that public consultation and participation can help to strengthen a government's hand in international negotiations, if it can show that its policy decisions and regulatory approaches are rooted in broad public support or, conversely, if it can demonstrate that there would be a lack of support or even opposition to proposed reforms which it is being urged to accept by another country or countries. The issue of public participation in national policy processes that have an international dimension therefore lies at the heart of the tension that exists between the need to respond to local circumstances and needs on the one hand, and pressures for the international harmonisation of rules on the other.

2.3 Public participation and the international harmonisation of biosafety rules

International regulatory harmonisation is often considered to be a good in itself, largely because it provides greater certainty for companies engaged in international trade and reduces transaction costs. Regulatory systems can be easier to administer if different countries apply common standards and procedures. In principle, harmonised rules can also help to level the playing field between different countries in the international system, by ensuring that all countries are playing by the same rules. However, limiting the autonomy of countries to diverge from agreed standards and procedures places corresponding limits on the extent to which local concerns and priorities may influence or determine public policies. This has inevitable implications for public participation, because it imposes a need to reserve certain policy options or decisions outside the arena of public consultation. Below, I discuss three general themes which affect how the tension between the international harmonisation of biosafety rules and responsiveness to local needs and concerns can play themselves out in particular contexts.

2.3.1 Conformity with world trade rules

One of the major constraints on the scope of public participation in the area of biotechnology and biosafety is the need to ensure that national provisions for the regulation of the trade in GMOs do not contravene the rules of the World Trade Organisation (WTO). Because it has been intensely controversial, the relationship between the Protocol and the WTO Agreements has essentially been fudged. In principle, it remains open to Parties to the Biosafety Protocol to determine independently the level of protection of environmental or human health they wish to achieve, and they may then impose such restrictions on the trade in GMOs as are appropriate to achieve the desired level of protection. Under the Protocol, countries are entitled to take into account "socio-economic considerations arising from the impact of [GMOs] on the conservation and sustainable use of biological diversity" in determining whether to approve the import of a GMO (Article 26). Such a determination – despite the apparent limits to the scope of participation noted above – might well be based on broad public consultation, so that the rules would command broad public support. However, there is considerable concern that the WTO may be used to challenge and potentially overturn trade regulations introduced by countries under the Biosafety Protocol, even if they have been tailored to the needs of the country and respond to public concerns. Under the WTO's General Agreement on Tariffs and Trade (GATT) and the Agreements on Sanitary and Phytosanitary Measures (SPS) and Technical Barriers to Trade (TBT), the reasons that may be used to justify restrictions on trade are strictly limited; in particular, they must be based on scientific risk assessments (see Mackenzie 2003).

2.3.2 Political and commercial commitments to biotechnology

Often however, national governments, or at least leading politicians and ministries, are enthusiastic supporters of biotechnology and are cautious about allowing public awareness and participation to deflect progress in this direction. For example, senior politicians and officials of the governments of China, India and the United Kingdom have made clear their strong support for biotechnology and urged that their countries should position themselves to take advantage of the potential biotech revolution. In the United States the situation is even more stark, because the federal government, biotechnology corporations, many farmers and commodity shippers have committed themselves to biotechnology, to the point where it would be enormously difficult and costly to retreat from that path. Under such circumstances, a number of powerful interests share a common incentive to avoid opening up public debates about the implications of biotechnology, in case public opposition or consumer unease were to place political constraints on its further development and commercialisation. Thus, in the US, strong material and economic foundations have been laid down that underpin the incipient biotechnology revolution, and provide a frame that helps to contain the zone of public debate within relatively narrow boundaries. A similar path-determining quality can be seen in instruments like the Biosafety Protocol itself, which can be interpreted as a framing device for normalising and entrenching the trade in GMOs in ways that limit the space available for alternative technological pathways to be considered and chosen. Governments and their specialist advisers have expended a great deal of time and effort in negotiating the Protocol, to the

point where many of the framing assumptions and conditions concerning issues like risk, liability and ownership cannot easily be reopened for public discussion.

2.3.3 Practical challenges and capacity issues

A range of practical challenges also inhibit public participation in practice, such as the cost, time and complexity of organising effective and inclusive participatory consultations. Some of the most authentically inclusive, deliberative and participatory methods and mechanisms, such as citizens' juries, consensus conferences and public enquiries are both time- and resource-intensive. Moreover, such exercises can generally only include a tiny sample of the affected stakeholders or wider interest groups, and therefore need to be integrated with other mechanisms to achieve a wider reach (Hemmati 2002; Holmes and Scoones 2000; Munton 2003). Governments are often reluctant to devote sufficient resources to such exercises, and there is often a great deal of pressure to reach firm decisions quickly and with the maximum possible certainty. There is a tendency to avoid public consultation for fear of losing control of the policy-making process. These issues are currently playing themselves out in the United Kingdom: although the government has been applauded for launching a national debate on GM farming, facilitated by an independent steering committee, it has been criticised for providing insufficient funding, demanding an outcome too quickly, and failing to effectively integrate the participatory elements with other aspects of the debate.

2.4 Harmonisation through "capacity building"

Ironically, the obligation in the Biosafety Protocol to promote and facilitate public awareness and participation is itself a form of international harmonisation, which implies that there should be a standard approach not only to the question how countries approach the regulation of the trade in GMOs, but also in the methods and processes by which they develop and implement their national biosafety systems. Nevertheless, the Biosafety Protocol itself does not specify the exact form and content that national public participation should take. Participation and consultation are intended, in principle at least, to promote responsiveness, appropriate policy, legitimacy, and national "ownership". This should imply that the mechanisms, methods and scope of participation themselves ought to be appropriate and relevant to the circumstances and situation of the country concerned. In particular, as experience from other fields has shown, effective participatory processes need to allow space for participants and stakeholders to bring their own issues to the table, and frame the issues that concern them according to their own values and priorities.

Even if the will exists to promote and facilitate authentic public participation, in practice, issues of capacity mean that many countries find that they need to rely on bilateral or international assistance to develop and implement their participatory processes and frameworks. Whereas, on the one hand, developing countries may face special challenges such as the inclusion of poor and illiterate rural citizens, on the other hand they are also more likely to lack the funds and specialised facilitators to coordinate participatory processes. In response to this problem, a range of "capacity building" projects have been

initiated at the international level. The UNEP-GEF Project on the Development of National Biosafety Frameworks is a prominent example. Some governments are also providing bilateral financial and technical support for capacity building in the area of public participation. Examples are the support being given to East European "transition" countries by the Danish government (under the framework of the Aårhus Convention) and Dutch government (as part of the UNEP-GEF NBFs project). As Jansen and Roquas (2002) have described, it is through this kind of capacity building assistance that standardised approaches may emerge most strongly.

There is an inherent problem that emerges when politicians turn to "experts" for advice and guidance on "technical" issues. "Epistemic communities" of "experts" are brought together to create a "cognitive consensus" on what should be done, and how. These "absentee experts" – detached from local contexts – often end up defining regulatory frameworks, standards, guidelines and "best practices" – for both "scientific" regulation and public participation – which are imported in the form of models and need to be "translated" into national and local contexts. Although, in principle, the process of "translating" international codes or standards allows countries to adapt them to their local needs, in practice 'many weak states have not the capacity to develop legislation with an authentic orientation, i.e. functional to the domestic context' (ibid.: 5). A key problem is the unequal participation by representatives from smaller and weaker countries in the process of defining the key issues and what should be done about them. Even though national scientists may be involved in the process of defining international standards – either because they have the status of international experts in their own right, or because they receive training in the international standards in "capacity building" workshops – the very fact of belonging to the 'cosmopolitan world of international science' implies that the expert 'becomes a member of a social group whose "thought style" prioritises certain disciplines, causal principles, problems and solutions which are not necessarily shared by social actors in the different countries themselves' (ibid.: 9).

As discussed above, there is a tendency to assume that promoting public awareness and education on issues relating to biotechnology is essentially a question of disseminating science-based information in order to overcome public fears that are caused by public ignorance of science. Since scientific and technical information is generally assumed to be objective and neutral, it is unproblematic to assume that a common basic approach or "toolkit" can be applied in any country. As the material from the case-studies shows, however, the circumstances of different countries make substantial, material differences to the context in which participation takes place, conditioning how it can be promoted and facilitated.

These types of difficulty are implicit in the approach to public participation and awareness contained in the UNEP-GEF Project on National Biosafety Frameworks. In designing the project, the UNEP-GEF team has naturally been guided by the types of capacity-building support requested by the project participants. However, the form and content of the project has also been dictated largely by the need to achieve rapid progress with a limited budget. The pressure of time is created by factors outside the control of the project organisers, because national biosafety frameworks need to be in place by the time the Biosafety Protocol enters into force, which is expected in late 2003. Nevertheless, the upshot is that

many developing countries are trying to complete in a matter of months the elaboration and implementation of their national biosafety systems, a task which developed countries have wrestled with for many years. The project has also faced the challenge of accommodating busy officials and practitioners from developing countries, many of whom are not specialists in biotechnology and biosafety issues, nor experienced in areas like public participation. There have also been challenges associated with basic language and communication difficulties. Given these factors, it is perhaps inevitable that there has been pressure to provide materials and workshops in the form of standardised "toolkits" and modules, prepared by "absentee experts" and financed by international donor agencies, which are simple for non-specialists to understand and straightforward to implement.

The design of the project reflects the separation discussed above, between issues of risk assessment (which are regarded as technical and scientific issues) and public participation (which is seen as a separate and subsidiary process). In a series of regional workshops, under way at the time of writing, risk assessment and participation are being treated as discrete strands, with participants divided into separate groups to discuss them before coming together in a plenary session to share what has been discussed. The coordinators of the project have implicitly and repeatedly expressed the assumption that public consultation should occur *after* the specialised process of risk assessment, carried out by scientists, has taken place. For them, the primary task of the workshops was to design a technical risk assessment and risk management process and identify the points at which input from stakeholders would be invited into this existing framework. The workshop participants were asked to design a flow-diagram of their decision process, and then identify "entry points" for public participation. The delegates drew, often rather elaborate flowcharts, involving committees of technical "experts" and professional "ethicists", in which public participation often resembled little more than an appendix or afterthought. It appeared that participation was to be inserted into an essentially technical process rather than helping to shape the very framework within which that process would occur.

The difficulty with such an approach is twofold. Firstly, the "toolkit" model implies that there can be a "one-size-fits-all" approach to public participation, overlooking the need to develop mechanisms of public awareness and participation that are appropriate and sensitive to local circumstances and needs. Secondly, it reproduces and reinforces the unhelpful separation between risk issues and participation, which relegates public involvement to a secondary and subsidiary process. Public involvement is invited only after a number of important decisions and value-judgements have already been made, thus circumscribing the space for members of the public to define for themselves the issues that concern them. Rarely, if ever, are people given the opportunity to help frame the initial set of question they want to ask about the new technology, including the opportunities it offers and costs it entails. Instead, people are generally presented with a limited field of decision, which rarely matches different publics' own appreciation of what matters.

Such an approach to public participation makes it harder to stimulate a public debate about the issues that genuinely concern diverse publics. It restricts public involvement in official or formal

processes to consideration of so-called "back-end" issues associated with the evaluation and management of "risk", while closing down the space for public consideration of "front-end" concerns; these may include the human purposes of biotechnological innovation, ownership of the technology, socio-economic consequences and a desire to evaluate alternative technological choices and pathways (Wynne, pers. comm.). As experience from various countries has shown, the likely consequence is that the expression of such concerns will be displaced into other avenues, rather than going away (see Glover 2002; Newell and Glover 2003). There is a risk that the failure to engage openly with real, as opposed to assumed public concerns, will provoke further scepticism and distrust in the policy process and undermine the legitimacy of regulation. In other words, as other observers and practitioners of public participation have noted, flawed attempts at public participation can be worse than no participation at all (Hemmati 2002).

2.5 Summary

In this section I have argued that the concept of "biosafety" reflects an implicit "cognitive consensus" about what it is about biotechnology that matters from a regulatory point of view – namely a set of "risks" and "benefits" narrowly defined by "science" / "scientists". Having been elaborated and adopted by elite groups and organisations of technocratic "experts", largely insulated from social pressures and concerns, and operating mainly at the international level, the biosafety concept has then been adopted by bureaucrats and policy-makers as a normative template or lens for regulating biotechnology at the international and national levels. Donor resources are being made available through international and bilateral "capacity-building" projects and programmes to help developing countries understand these needs and develop their ability to meet them. As if to confirm this separation between "biosafety" and "biotechnology", it is instructive to note the frequency with which scientists and bureaucrats from developing countries complain about the distinction between the two fields. They point out that training a cadre of moderately skilled technicians and equipping a few basic laboratories – sufficient to carry out simple risk assessments and safety tests as part of an essentially bureaucratic regulatory process – is not by any means the same thing as transferring the higher levels of technology and knowledge necessary for conducting advanced biotechnology research and development.

In the next section I argue that this effort, to transfer or translate the norms and frameworks of the cognitive consensus on biosafety to less developed countries, runs into conflict with the much more diverse and encompassing national and local politics of biotechnology. To an extent this dichotomy and opposition between the managed, largely international politics of biosafety and the much more unruly national politics of biotechnology overstates the case. In fact, campaigning NGOs at both national and international levels have mobilised scientific "expertise" of their own to contest the biosafety concept "from within", and especially to critique the scientific basis of recommended risk assessment and safety

testing procedures (Levidow and Murphy 2002).[11] An "epistemic community" of academic scientists and social scientists has also criticised the scientific merits of concepts such as "substantial equivalence" and called for the broadening of risk assessment to include socio-economic criteria, in the pages of journals such as *Nature* and *Nature Biotechnology* (see Levidow and Murphy 2002; Millstone *et al.* 1999; Crompton and Wakeford 1998). The fact remains, however, that the technocratic concept of biosafety can be regarded as a framing device which necessarily implies a limitation of the scope for public participation and consultation, because it privileges scientific methods and evaluations as prior and super-ordinate elements of the process for defining and managing what matters about biotechnology. As such, it takes on an inherently political meaning. Efforts to disseminate and translate the concept into different national arenas need to be understood in this light. Once this is recognised, it is not surprising that the reception of biosafety regulatory norms into national arenas has been greeted with opposition and resistance by groups and individuals trying to put "non-scientific" "political" and social issues back on the agenda (see Glover 2002).

The case material presented in the next section illustrates how "participation in practice" in different countries has been shaped by local or national political, socio-economic and cultural contexts. In particular, the cases help to illustrate the tensions identified above between the international politics of biosafety regulation and diverse national and local politics of biotechnology; and between the pressure for international harmonisation and local responsiveness. These tensions are resolved at national level through complex and locally-specific political processes, rooted in national circumstances – including the country's international relationships. The cases show how both the scope for public participation to occur, and the forms and mechanisms which it takes, are conditioned by these contextual factors. As such, the case material illustrates why it is problematic to assume that there can be a standardised or "one-size-fits-all" approach or "toolkit" for public participation in different countries.

3 Participation in practice: an embedded phenomenon

The case-studies provide a good illustration of the range of factors which distinguish different countries and lead to divergent pressures. They reflect different manifestations of the tension between the pressure to harmonise international rules on the trade in GMOs, on the one hand, and the need to respond to and accommodate local needs and priorities, on the other. A number of factors might be used to explain these differences, including the following:

- The particular country's trading relationship with the European Union, in the context of the ongoing EU moratorium on GMOs.
- Essentially domestic factors, to do with the political culture, legal system or socio-economic issues in the various countries.

[11] See Xue (2002) or the work of the Institute of Science in Society (www.i-sis.org.uk) as examples of this type of NGO critique of the scientific bases and shortcomings of biosafety risk assessment and management.

- A particular country's strategic position or competitive capacity in relation to the biotechnology industry, either in the private or public sector.

Below, these issues are considered in turn from the perspective of their implications for public participation and consultation in each case.[12]

3.1 Trade relations – the impact of the EU moratorium on GMOs

The politics of biotechnology are often played out through the politics of international trade. Ever since it was announced in 1999, the most prominent nexus linking these two fields has been the European Union's *de facto* moratorium on new approvals for the production and import of GMOs. The size of the European market means that its policies strongly affect global food and feed production, commodity prices and trade patterns, and therefore influence the policies of many other countries. The impacts of the EU moratorium have included a rapid change in the patterns of transatlantic trade in commodities like soya and maize, as European buyers sought supplies of non-GM grain from formally GM-free countries such as Brazil instead of traditional suppliers in the United States. The moratorium has also affected the decisions of other countries, notably China, with regard to the commercialisation of GM crops. China appeared poised to commercialise GM varieties of food crops such as maize and rice. However when the European moratorium began, the commercialisation of GM food crops in China was unofficially and indefinitely put on hold.

The countries we looked at included a variety of situations in relation to Europe. The nature of this relationship in each case had significant impacts on the politics of biotechnology in the country, which in turn helped to shape the conditions within which public debates could take place.

The cases included two countries, *Denmark* and the *United Kingdom*, that are members of the EU. These two countries are directly affected by EU laws, such as the Directives on Deliberate Release (Directives 90/220 and 2001/18) and Contained Use (Directive 90/219) of GMOs, as well as the collective EU negotiating position in the international negotiations on the Biosafety Protocol. Although European legislation itself contains rules which require public participation, the need to agree common positions and abide by European laws constrains the freedom of EU members to reach independent positions. This inevitably limits the scope for public participation at the national level to influence government policies, because of the need to remain in conformity with EU norms and rules. Nevertheless, the two countries have approached the issue of public participation differently, largely because of domestic conventions and expectations; these are discussed in more detail below.

Norway is a member of the European Economic Area (EEA) but not of the EU. The country has a specific provision of its treaty with the EU which allows it to depart from EU regulations in relation to

---

12 The material in this section draws extensively on Glover *et al.* (2003); this is only noted in the text where a specific page reference is appropriate. Dominic Glover acknowledges his debt to his collaborators on that report, especially James Keeley and Peter Newell. However the views expressed in this paper are those of Dominic Glover and any errors are his responsibility.

GMOs. This has given Norway greater freedom to develop its own approach to biotechnology and GMOs, through processes which have allowed significant scope for public consultation and participation.

Estonia is one of the ten "accession countries", scheduled to join the EU in 2004. Consequently the country has expended a great deal of legislative effort in bringing its domestic laws into conformity with European rules. Therefore, the scope for public participation to shape the country's laws is conditioned by the need to remain in conformity with European legislation. Estonia has also received capacity-building support from the EU and individual EU members, including, in the case of biosafety and public participation, Denmark and the Netherlands. As discussed above, such capacity building support brings with it the risk of predetermining what models and standards of regulation are deemed appropriate and acceptable according to international consensus.

Many of the other countries examined are trading partners of the EU, including some which export much of their agricultural production to European countries. Within this group, however, there is a variety of different positions:

- In *Namibia*, there has been much concern among livestock exporters about the possibility that GM animal feed could threaten their markets in the EU (even though the EU moratorium does not extend to banning livestock that have been fed on GM grain). Since the livestock sector is large and around 80 per cent of meat exports are sent to the EU, there appears to have been substantially greater consensus on the need to protect Namibia's meat exports by keeping GM grain imports under careful scrutiny and control. The relative lack of controversy has made public consultation less problematic for the government and key stakeholders.
- By contrast, *Brazil* has experienced a much more controversial debate. Conventional soya growers in the country have benefited from the shift in European sourcing patterns, but at the same time many growers have been enthusiastic about adopting GM crops. Under such circumstances the public debate in the country has been much more intense.
- The food crisis in southern Africa provided the background for a controversy over GMOs in *Zimbabwe*. Southern African countries are concerned about the threat posed by GM food aid, supplied by the US government and the World Food Programme, to their agricultural exports of food crops to European countries. The pressure applied to the governments of Zimbabwe, Zambia, Malawi and Mozambique to accept the GM food shipments in a situation of urgent food crisis, highlights the risk that GMOs could become a *fait accompli*, rendering any public debate about biosafety or biotechnology entirely academic. As if to highlight the vulnerability of weaker countries to the pressures and demands of more powerful trading partners and aid donors, the southern African countries found themselves being used as a football in a bitter public row between the US and EU over food aid and GMOs.
- For the *United States*, the European Union is a major trading partner and a large potential market for GM crops. To a large extent, it was the resistance to GM crops among consumers and

environmentalists in Europe that sparked off a broader public debate in the United States. Prior to the EU moratorium, there had been very little public controversy in America; since 1999, the topic has attracted greater media and public attention, prompting government, industry players and others to engage in broader public debate.

- In *China*, concerns about trade relations, not only with the EU but also with the United States, especially in the context of the country's recent entry into the WTO, have helped to frame policy debates over biotechnology and GMOs. In part, this has helped condition the space for public debate as issues like labelling have come to the attention of urban consumers, in relation to imports of soya from the US.

International trade concerns, and in these examples specifically the various different relationships which the case-study countries have with the European Union, provide an international context within which domestic debates, including public consultations and deliberations, have taken place. However, the prism of trade relations with the EU is merely illustrative for the purposes of this paper. For example, for a country like *Mexico*, relations with its neighbour and partner in the North American Free Trade Agreement, the United States, are more influential than relations with Europe. The point is that an individual country's foreign and trade relations will help to frame and shape the domestic debates and policy choices facing its decision-makers, with consequent implications for the scope and form of public participation in the country. In the next section some of the domestic factors, which appear to be significant, are discussed.

3.2 Domestic contexts and conditions for participation

3.2.1 Ecological contexts

A central reason why public participation is so important in biotechnology and biosafety policy processes, is the need to tailor national approaches to regulation to address the specific circumstances of individual countries or regions. Even from a scientific perspective, the impacts and risks associated with GMOs are likely to be specific to different local and regional ecological conditions, biodiversity and farming practices. The types and degrees of risk, ranging from effects on the local environment to impacts on global biodiversity, will vary according to the local situation. For example, GM maize is understood to pose greater potential risks to biodiversity in countries such as *Mexico*, which is the centre of origin and biodiversity for maize, than in a country which has few wild relatives of maize. GM risk assessments and public consultations in *Norway* were informed by the need to carefully assess the potential impacts of introduced GM varieties across the forty different agro-ecological zones which this long, narrow country encompasses. Similar concerns have informed debates in *Ethiopia*, whose experience of famine has focused attention on the need to protect the country's rich biodiversity and unique cropping systems. Meanwhile in *Namibia*, the process of consulting key stakeholders took place in the context of broader debates about conserving and managing the country's arid ecosystems.

In countries like these, debates about biotechnology and biosafety are intimately connected with broader concerns about the preservation and management of complex ecological systems, biodiversity, livelihood security and agricultural sustainability. In such circumstances, broad participation involving all relevant stakeholders and interests can help to ensure that as many different factors as possible are identified and taken into account. This can improve the robustness of decision-making and help to ensure that proposed management and regulatory systems are likely to be effective and appropriate to local needs and priorities. In addition, where there is a broad range or large number of stakeholders who are directly interested in ecological or agricultural management, participation is likely to be important to the transparency and legitimacy of decision-making.

3.2.2 Socio-economic contexts

The nature of public and stakeholder concerns, and the challenges involved in stimulating and facilitating public debate, will also vary according to socio-economic, political and other factors. For example, the structure of the farming sector is likely to be significant. Looking at developing countries such as *China*, *India* and *Zimbabwe*, there is a stark contrast between the interests and needs of the large numbers of poor smallholders and subsistence farmers and much smaller numbers of large-scale commercial growers. These contrasts may be accentuated and exacerbated by inequalities in power and political influence, sometimes combined (as in the examples of India and Zimbabwe) with the historical legacies of colonialism and/or the politics of race and caste. By contrast, in China the agricultural sector is dominated overwhelmingly by smallholders, with very few large-scale farmers. At the same time, biotechnology research and development is dominated by the public sector, and it is significant that the public institutes have sought to focus their research and development programmes on the agronomic constraints facing smallholders.

In many countries, the challenges of raising public awareness and promoting participation are accentuated by the need to provide information in different languages and through different channels in order to include sections of the population distinguished by language or ethnicity. In *New Zealand*, for example, the government appointed a Royal Commission – a kind of independent public enquiry – to carry out a consultative process on biotechnology and GM foods. The Commission organised a number of special public assemblies (*hui*), at national and regional level, to provide Maoris with formal channels to make oral or written submissions to the commissioners. In other contexts, the inclusion of minority ethnic or linguistic groups may be more problematic. For example, In *Estonia* almost one third of the population speaks Russian rather than Estonian as a first language; in some districts, Russian-speakers form the majority. However, in the post-Soviet period the status of Soviet-era immigrants and ethnic minorities is controversial. Estonia's naturalisation laws require applicants to pass an Estonian language test, and national identity issues are electorally sensitive. Although government officials acknowledge the need to communicate information on biosafety and GMOs in the Russian language, doing so is politically difficult for the government. Currently there is very little information available in Russian.

In many developing countries, the difficulty of including ethnic or linguistic minorities or disadvantaged groups may be compounded by the prevalence of illiteracy, especially in rural areas. In *Kenya*, there has been some discussion of the possibility of using radio programmes to broadcast information in some of the many different local languages and dialects, or at least in Swahili. However, doing so may be complex and expensive for the government or NGOs. At present much of the public debate on biotechnology and GMOs is limited to narrow policy circles in Nairobi, and takes place primarily in English.

A citizens' jury convened in Andhra Pradesh, *India*, deliberately included *dalits* ("untouchables"), *adivasis* (tribal people) and women in order to involve a group of disadvantaged rural people in a deliberative debate about GM crops and rural development scenarios. This meant that, among other arrangements, interpreters were needed in order to facilitate communication between the jurors, witnesses and observers of the process. Although the process demonstrated that it is possible to involve illiterate and uneducated people in decision-making, it was a relatively costly and time-consuming process which required the support of a number of facilitators and specialists (Pimbert and Wakeford 2002). Necessarily, the process only reached a handful of citizens directly; it remains unclear to what extent the investment of these resources has succeeded in influencing government policies or broader public debates (PLA Notes 2003).

Another issue which distinguishes countries in terms of their ability to share information and promote participation is the degree to which citizens have access to information. Besides the issues of language and literacy, discussed above, there is a wide gap between the ability of industrialised and developing countries to harness information and communication technologies. Whereas the case-studies showed that *Canada*, *Denmark*, *Estonia*, *New Zealand*, *Norway*, the *UK* and the *US* all make use of the internet to some degree to make information available and sometimes to enable two-way dialogue, this mechanism only plays a minor role, if any, for the developing countries.

3.2.3 Political-cultural contexts

The domestic factors discussed so far relate to the environmental or socio-economic contexts that condition and shape the space for participation at the national level. However, political-cultural, historical and institutional factors are equally important. A major influence on the space for public participation is the degree to which a country has a culture or tradition of public participation, linked to democratic, transparent and accountable government. Democratic structures are not well-embedded in many places, while in some countries there is an established tradition of involving stakeholders and the general public in decisions. For example, *Denmark* and *Norway* both have experience of participatory technology assessment, devolved decision-making and forms and forums of public engagement and participation. The processes followed in these countries appear to have been relatively smooth and have contributed to reasonably high levels of public satisfaction that their views and concerns have been sought and taken into account. By contrast, however, *Ethiopia* has little experience or history of inclusive participatory

decision-making. Rights to freedom of expression are fairly new, citizens lack trust in government-led processes and the country does not have a strongly-embedded culture of civil society engagement in political processes.

The need and urgency to engage public participation may be heightened where there is a high level of public concern and protest. For example, in the *UK* as well as other European countries, the recent history of food scares and concerns about the impacts of industrialised agriculture, such as "mad cow disease" (bovine spongiform encephalopathy, BSE) and its human variant Creutzfeld-Jakob Disease (CJD), have fostered a general scepticism about scientific advice and a marked lack of public trust in the ability of governments and officials to protect public health and safety. However, the UK may be an example of a situation where the degree of public concern was so high that the government and supermarkets were compelled to listen to their concerns. In other countries, such as the *United States* and *Estonia*, politicians, officials and industry representatives claim that there is no demand for broader public consultations because the public is generally unconcerned about the issues and trusts the government to manage them. However, in both of these countries it was hard to reconcile these claims against very clear evidence that public ignorance about biotechnology or GM food was high and that there was a clamour for more information.

In other countries, by contrast, the lack of intense controversy has created a space for a consultative process and public debate to take place. The key factor, in countries such as *Norway* and *Namibia*, appears to have been the willingness of the government to delegate consultative and decision-making powers to groups of stakeholders. In both cases, the scope of participation was generally limited to a relatively narrow set of interest groups and "experts", with limited space for the involvement of ordinary members of the public. However, in both cases, the government was willing to allow its advisory committee significant scope to consult, reach decisions and draft legislative frameworks and guidelines. Similarly, in *New Zealand*, the government gave a sufficiently broad and flexible mandate to its Royal Commission on Genetic Modification to allow it to take a range of issues into account (including ethical, cultural, environmental, social and economic risks and benefits) and hear evidence from a wide range of stakeholders. This gave the Commission the freedom to make recommendations which included adopting the general principle of a precautionary approach, and allowing all forms of agriculture to co-exist. The Commission's recommendations have subsequently provided a very public framework which conditions (and in some degree also strengthens) the government's capacity to make balanced strategic decisions on the future of biotechnology in New Zealand.

In countries such as *India* and *Brazil* the policy debates about biotechnology and biosafety have to a large extent been challenged by bottom-up processes of activism led by NGOs, and organisations of farmers and landless peasants. In both countries, citizens' juries have been undertaken and law-suits by NGOs have been instrumental in challenging the legality of government policies in relation to environmental impact assessments and the granting of approvals for field trials of GM crops. These cases

illustrate the importance of having an enabling framework of rights and effective systems of justice which enable citizens to express their views and hold governmental agencies to account.

The situation in a country like *China* is distinctive from the other cases. Although China does not have a representative liberal-democratic system of government, nevertheless there are functioning practices of "consultation" through mass organisations and traditions of learning from the grass-roots through "sit-down discussions" and so on. However, there is concern that these practices and traditions have been eroded in recent years.[13] In general, consultation and debate over biotechnology and biosafety regulations takes place primarily within government ministries and public scientific and policy institutes (Keeley 2003a, b). However, China is also distinguished from all the other cases in that the country's significant investments and capacity in biotechnological research and development are mainly in, and dominated by, the public rather than the private sector. Consequently, despite the lack of public consultation, the research and commercialisation priorities of Chinese biotechnology have arguably been driven more by the need to address the production constraints of poor farmers than has been the case in other countries.

Whereas in principle the provision of information is an essential pre-requisite for inclusive public participation, the amount of publicly available information is limited in China. Although information is available on China's biotechnology policies and public research, information about biosafety evaluations of particular GMOs is not published. Naturally, this inhibits the possibility for the public to participate in debates about biotechnology and biosafety, but it also helps to preserve the Chinese government's bargaining power in relation to the foreign transnational companies and governments that are lobbying for greater access to the Chinese market. Restricting the flow of information, or making it obscure or ambiguous, can limit the ability of foreign companies to challenge China's policy-makers and undermine their competitive strength. This appears to be part of a deliberate strategy to develop China's domestic capacity in biotechnology and build an internationally competitive indigenous biotechnology industry, rather than allow the sector to be dominated from the start by well-resourced foreign companies. Such a strategy is not open to the governments of smaller and economically or administratively more dependent countries, which have less power to resist the demands of powerful countries to open their markets.

Perhaps more significantly from the perspective of public awareness and participation, there is no significant effort in China to communicate proactively with the public about the range of issues or diverse perspectives on debates about biotechnology and biosafety. The lack of information of this kind inhibits public debate and can make it appear that there is little public demand for such a discussion. However, a public debate is beginning to emerge, especially in the cities, with consumer groups demanding the enforcement of GMO labelling regulations. Again, the Chinese government has been able to point to this growing public concern about labelling when justifying its domestic regulations to foreign governments (Keeley 2003a, b).

---

[13] I am indebted to James Keeley for these insights.

3.3 Strategic positioning in relation to biotechnology

Another factor which is significant in defining and shaping the scope for public participation in biotechnology and biosafety policy is the degree to which biotechnology is seen by key politicians and business leaders to be central to the strategy for international competitiveness for the country in question. Some countries are in a much better position to realistically position themselves to be at the forefront of the biotechnology revolution; many of these consider it to be vital that they do not lose ground to competitors at an early stage.

In different ways, the governments of the *US* (most prominently), the *UK* and *China* have all committed themselves to some extent to pursuing the industrial and commercial opportunities presented by biotechnology. The degree to which US government, industry, farmers, food processors and shippers are committed to the path of agricultural biotechnology is very apparent. Meanwhile in the UK, various elements of the government, including the Prime Minister, Tony Blair, have expressed their strong belief in and support for biotechnology as a strategic sector in which the UK must be competitive. The Chinese government has embarked on a major strategic investment in biotechnology, and clearly regards the sector as one in which it could be a major, globally competitive player. Similarly, in *India* the rhetoric of moving "from IT to BT" (information technology to biotechnology) has been used by some voices to create a powerful narrative of India's potential to make a developmental leap through biotechnology (Scoones 2002, 2003). Part of this Indian narrative has been the spectre of being left behind by other countries, especially China – India's powerful neighbour and rival.

In each of these countries, it is possible to identify powerful resistance to the notion of opening up biotechnology and biosafety to public debate and scrutiny. US government officials and industry representatives continue, on the basis of questionable evidence, to deny that there is any public concern about GM foods and crops, and assert that the public has confidence in the ability of its regulatory agencies to manage the potential risks associated with GMOs. The UK government has responded slowly and with obvious reluctance to pressure for a public debate about biotechnology. In India, a complex and elaborate regulatory machinery is almost entirely insulated from public participation and consultation. China's state-run biotechnology sector involves policy-makers, scientists and seed companies in a close-knit network that is ill-equipped to respond to public misgivings or manage the uncertainties inherent in biotechnology research and development (Keeley 2003a, b).

These cases provide a stark contrast to other countries which regard biotechnology as a less pressing priority, sometimes because they lack any significant capacity to engage in the sector. In these countries, governments have been much more willing to facilitate public participation and allow stakeholders' concerns to shape the government's policy response. Examples of this approach include *Norway* and *Namibia*. In Norway, the government initiated a broad-ranging public debate on the implications of biotechnology at an early stage. A series of consultations and participatory events were important in shaping the Norwegian approach to biotechnology, which is relatively precautionary, is founded on a set

of cultural and religious values and encompasses the consideration of ethical and social as well as scientific and economic benefits and costs.

In Namibia, the government was faced with the need to upgrade its scientific and regulatory capacity largely in response to developments in biotechnology taking place elsewhere. Namibia has a negligible domestic capacity in biotechnological research, but needed to address possible threats to its livestock sector. In addition, the country was embarking on a process to review the management and sustainable use of its fragile environmental resources. There appears to have been a relatively high level of consensus across the general public, farmers and scientists. In these circumstances the government was able to initiate and convene a process of deliberation and delegate a substantial degree of autonomy to its advisory board to discuss the issues, consult stakeholders and draft the country's biotechnology and biosafety policy. It would be misleading to overstate the degree to which the Norwegian and Namibian processes succeeded in mobilising broad publics in the debate. In effect, they remained elite, technocratic decision-making processes, dominated by "experts". Nevertheless, it is significant that, in cases where there are few vested or intensely opposed interests, and the level of consensus among key stakeholders seems relatively high, governments may have greater freedom to open the doors to a more inclusive deliberative process and devolve decision-making to other bodies. Sadly, therefore, it seems that in practice public participation is much more likely when the stakes are lower – in other words, when it matters less.

3.4 Summary

Governments everywhere are cautious about opening the door to broader public participation, because of the risk of losing control of a decision-making process. However, some seem more willing and able to embrace the possibility. This section has discussed a few of the factors which seem to make it more or less likely that a government will feel the freedom to adopt participatory mechanisms to involve citizens and stakeholders in framing, implementing and administering their national biosafety frameworks. These include the dynamics of a country's international relations, especially trade relations and the constraints imposed by international laws, as well as factors such as the ability of countries to resist pressure from other, more powerful countries. They also include domestic factors. These range from the nature of the local or regional ecological issues facing the country to socio-economic issues such as the structure of the farming sector. They also extend to political-cultural issues such as the country's experience with participatory practices in the governance of other issue-areas.

Efforts to build capacity for public participation in national biosafety frameworks often assume, implicitly, that there can be a standardised "toolkit" of methods and processes which might be applicable in different countries, enabling them to fulfil their commitments under the Cartagena Protocol. However, public participation is inherently political and necessarily embedded in social and political processes and structures – historically and culturally. It can occur in the absence of state-led efforts to invite or facilitate it, although it may be easier to promote public participation and consultation in situations where the state is willing to involve the public in decisions. However, as the experiences of countries like Brazil, India and

the United Kingdom have shown, participation can also occur in "bottom-up" processes, where demand is expressed by social groups such as farmers and consumers, NGOs or other stakeholders. Participation of this type can open up decision-making from below, even if the state does not invite or encourage it. However, this process is facilitated considerably in societies where there is a legal and political process within which citizens are able to articulate their interests and express demands. Even where such avenues exist, they are generally only open to sections of society that have access to information, the ability to invoke legal or judicial procedures, or are otherwise politically empowered.

Nevertheless, if governments choose to harness them, methods of conscious and deliberate public participation in decision-making can provide a strategic opportunity to manage the process of adopting radical new technologies in a way that promotes more responsive and accountable, better informed, more legitimate and broadly owned policies. However, despite the variations in national experience discussed in this paper, few governments anywhere are taking full advantage of the potential benefits of participation. Part of the difficulty is that some types of participatory exercise, such as citizens' juries and consensus conferences, remain expensive and time-consuming and, since they necessarily reach only a few people directly, need to be integrated with other information processes and consultation mechanisms as well. Consequently there is a challenge for practitioners and advocates of this kind of participatory exercise to convince others that such methodologies can be made practical, affordable and efficient, especially for poor countries. Convincing arguments can be made, however. There is often a tendency for governments to measure the immediate costs of participatory and inclusive processes and fail to offset the potential long-term costs of failing to allow space for popular participation. These costs may be measured in terms of dysfunctional, inappropriate or inefficient regulation, illegitimacy or poor accountability in decision-making, and resistance to the implementation of unpopular policies.

Ultimately, one of the major factors determining whether space is made available for public participation, and on what terms, is the depth of a government's prior conviction that biotechnology is a way forward for the economy. In countries which lack the capacity to compete in biotechnology, or where the degree of vested interests or the intensity of controversy is low, it is more likely that participation will be feasible and that public concerns will be allowed to frame the issues under consideration, as well as shaping the decisions to be made. Where these factors are missing, there is a tendency to permit public participation only under very restricted terms, where the scope for public deliberation is circumscribed within rather narrow boundaries and often constrained by unwillingness to open up some of the prior framing assumptions to general discussion. There is a general tendency to limit the scope of public debate to issues of "risk" and risk management, often as defined by science, rather than allowing the public to consider a broader set of questions about technology choices and developmental pathways which society might choose to take. The circle of participation is often limited to technicians and scientists, firms and bureaucrats, with a lack of serious attention to reaching a genuinely broad audience.

4 Conclusion

This paper has argued that the distinction between the regulatory concept of biosafety and the more encompassing field of biotechnology indicates the way in which the regulatory significance of biotechnology, particularly GMOs, has been narrowly defined in terms of technical issues of risk. The biosafety concept has been elaborated by scientific, legal and bureaucratic "experts" and has gained currency largely at the international level. The concept is based implicitly on a conventional understanding of the separation of risk, which is a technical issue susceptible to expert evaluation and control, from other issues, notably ethics but also socio-economic and political questions. International and bilateral "capacity-building" initiatives have sought to manage the reception of the biosafety concept into developing countries. Through this process, the controlled and technocratic politics of biosafety regulation have run into the much more turbulent and unpredictable politics of biotechnology at the national and local level. Citizens, interest groups and organisations of stakeholders have mobilised to highlight issues such as the ownership of and access to the technology, to ensure that these controversial issues remain prominent.

Alongside the biosafety concept, countries have taken on the obligation to promote and facilitate public awareness and participation in decision making around GMOs. The two requirements are inherently contradictory. Whereas biosafety is a framing device which reserves issues of risk assessment and management to "experts", involving the public in decision making implies that the circle of information sharing and consultation must be drawn much wider. The effort to reconcile these two conflicting priorities often produces an unsatisfactory compromise in which lip service is paid to public participation without providing the substance. Information may be shared as a substitute for public involvement in decision making, and is often made available in inappropriate locations, formats or languages; public consultation exercises may be organised, but with insufficient resources or in too great a hurry to allow meaningful deliberation to take place. In developing countries, these shortcomings may easily be attributed to a lack of resources, but even in rich countries there are only a few examples of authentically inclusive and participatory exercises in public consultation. Capacity building projects, ostensibly designed to help developing and transitional countries fulfil their obligations in respect of public participation, seem to replicate the very narrow and restrictive model of public participation which is implied by the demarcation of risk expertise as a discrete, specialist function in the decision making process.

It is widely acknowledged that scientific risk assessments of the environmental and health impacts of GMOs need to take into account locally-specific ecological factors and characteristics. However, as the sixteen case-examples show, the scope for public participation and consultation also depends strongly on national contexts. Therefore national biosafety frameworks need to take account not only of different ecological contexts, but also of the social, economic, political and cultural characteristics of the society concerned. For this reason the simplistic notion that it is possible or even desirable to recommend simple standardised formulae or "toolkits" for "how to do" public participation in different countries is flawed.

Unfortunately, the nature of "capacity building" projects and workshops implies that such "training" can be given. As consultants to the UNEP-GEF project on national biosafety frameworks, the IDS researchers struggled and probably failed to avoid assuming the role of "absentee experts" on public participation – and in fact there was a demand among workshop participants as well as a desire by the project coordinators, that the IDS report would provide straightforward guidelines on "how to do" public participation and awareness-raising.

It is not possible to evaluate the impacts of new technology without reference to social concerns. Conceptually, neither "risks" nor "benefits" can have any meaning without reference to social values. It is impossible to tell a person what risks they should be concerned about, unless one knows something about the value they put on those risks, as well as the potential benefits, including the extent of both beneficial and adverse outcomes, their likelihood of occurring, and their distribution among the population. If public participation in biosafety regulation and biotechnology policy were to be made real, an approach would be needed which would be sensitive to local contexts and responsive to local demands. This would mean that public concerns should be allowed to help frame the very process of identifying and evaluating risks; concerns about socio-economic impacts or ethical issues would have to be taken into account alongside "scientific" criteria and technical measurements; and sufficient time and resources would be made available to enable meaningful consultation and deliberation to take place. In practice, the very act of opening up the box of participation will naturally draw in these other public concerns. Convenors of a participatory process may have specific, narrowly defined reasons for convening it, such as a government gathering information or seeking endorsement for a decision. Whatever questions they ask, however, they should expect that participants will bring their own issues to the table, including questions about why the technology may be needed, who may benefit from it and who may lose, and what the alternatives are.

The key problem is that such an approach is not really feasible, given that national governments are constrained by the need to conform to international rules such as the WTO Agreements and the Biosafety Protocol. Poor countries frequently also find that their policy autonomy is curtailed by the need to sustain good relationships with more powerful trading partners, aid donors or providers of foreign investment. These constraints necessarily imply limits on the scope for public views and opinions to shape policies or regulations. For poor countries, these are exacerbated by resource limitations which place a large obstacle in the way of authentic participatory consultations. Overlying these considerations are equally serious questions about the internal politics of both rich and poor countries. The concerns of elite scientists and business interests routinely override the concerns of less organised and influential sections of society, such as consumers or poor farmers. Indeed, it seems that public consultation is more likely to be feasible when there are fewer vested interests or prior commitments to pursue a particular path – normally along the biotechnology route – because the stakes are lower. This gloomy conclusion suggests that we are still a long way from a situation where the development and diffusion of radical and potentially risky new technologies are democratised and accountable to all.

References

Carr, S. and Levidow, L., 1997, 'How biotechnology regulation separates ethics from risk', *Outlook on Agriculture,* Vol 26 No 3: 145–50

Chambers, R. and Pettit, J., forthcoming, 'Shifting Power: To Make a Difference', in L. Groves and R. Hinton (eds), *Inclusive Aid: Changing Power and Relationships in International Development,* London: Earthscan

Crompton, T. and Wakeford, T., 1998, 'Socioeconomics and the protocol on biosafety', *Nature Biotechnology* 16, August: 697–8

Glover, D., 2002, 'Transnational corporate science and regulation of biotechnology', *Economic and Political Weekly* (India), Vol 37 No 27: 2734–40

Glover, D., Keeley, J., McGee, R., Newell, P., Da Costa, P., Ortega, A.R., Loureiro, M. and Lin, L.L., 2003, *Public Participation in National Biosafety Frameworks: A Report for UNEP-GEF and DFID*. Brighton: Institute of Development Studies. Available from www.ids.ac.uk/ids/env/biotech/biotechpubs.html#ADD

Hemmati, M., 2002, *Multi-Stakeholder Processes for Governance and Accountability,* London: Earthscan

Holmes, T., and Scoones, I., 2000, 'Participatory environmental policy processes: experiences from North and South', *IDS Working Paper* 113, Brighton: Institute of Development Studies

Jansen, K. and Roquas, E., 2002, 'Absentee expertise: international epistemic communities and biotechnology regulation in Latin America', paper presented at the conference 'Science and citizenship in a global context: challenges from new technologies', Institute of Development Studies, Brighton, UK, 12–13 December

Keeley, J., 2003a, 'The biotech developmental state? Investigating the Chinese gene revolution', *IDS Working Paper, Biotechnology Policy Series* 6, Brighton: Institute of Development Studies

—— 2003b, 'Regulating biotechnology in China: the politics of biosafety', *IDS Working Paper, Biotechnology Policy Series* 7, Brighton: Institute of Development Studies

Levidow, L., 2001, 'Utilitarian bioethics? Market fetishism in the GM crops debate', *New Genetics and Society,* Vol 20 No 1: 75–84

Levidow, L. and Murphy, J., 2002, 'The decline of substantial equivalence: how civil society demoted a risky concept', paper presented at the conference 'Science and citizenship in a global context: challenges from new technologies', Institute of Development Studies, Brighton, UK, 12–13 December

Mackenzie, R., 2003, 'The international regulation of modern biotechnology: finding space for food security?', *IDS Working Paper, Biotechnology Policy Series* 18, Brighton: Institute of Development Studies

McGee, R. with Norton, A., 2000, 'Participation in poverty reduction strategies: a synthesis of experience with participatory approaches to policy design, implementation and monitoring', *IDS Working Paper* 109, Brighton: Institute of Development Studies

Millstone, E., Brunner, E. and Mayer, S., 1999, 'Beyond "substantial equivalence"', *Nature,* Vol 401 No 7: 525–6

Munton, R., 2003, 'Deliberative Democracy and Environmental Decision Making', in F. Berkhout, M. Leach and I. Scoones (eds), *Negotiating Environmental Change,* Cheltenham, UK: Edward Elgar

Newell, P. and Glover, D., 2003, 'Business and Biotechnology: Regulation and the Politics of Influence', in K. Jansen and S. Vellema (eds), *Agribusiness and Society: Corporate Responses to Environmentalism, Market Opportunities and Public Regulation*, London: Zed Books

Pimbert, M. and Wakeford, T., 2002, *Prajateerpu: A Citizens' Jury / Scenario Workshop on Food and Farming Futures in Andhra Pradesh, India,* London: International Institute for Environment and Development

PLA Notes, 2003, 'Special issue: participatory processes for policy change', *PLA Notes 46*, February, London: International Institute for Environment and Development

Scoones, I., 2003, 'Making policy: the case of Karnataka's biotechnology policy', *IDS Working Paper* 196, *Biotechnology Policy Series* 13, Brighton: Institute of Development Studies

—— 2002, 'Biotech science, biotech business: current challenges and future prospects', *Economic and Political Weekly* (India), Vol 37 No 27: 2725–33

Wynne, B., 2001, 'Creating public alienation: expert cultures of risk and ethics on GMOs', *Science as Culture,* Vol 10 No 4: 445–81

Xue, D., 2002, *A Summary of Research on the Environmental Impacts of Bt Cotton in China*, Nanjing, China: Nanjing Institute of Environmental Sciences of the State Environmental Protection Administration, China and Greenpeace