

## Chapter 34

### Public Participation in Biosafety Issues

LIM LI CHING  
THIRD WORLD NETWORK

#### *1. Introduction*

'Public participation' is a buzzword that has been gaining increasing popularity in discussions about genetic engineering, in part due to obligations laid down in the Cartagena Protocol on Biosafety, and in part due to the debate that has surrounded the issue. A discussion on public participation in the context of biosafety necessitates an examination of the following questions: *What* is the purpose of participation? *Why* engage in it? *In what* should the public participate? *How* should this be done? *When* should the public participate?

This chapter will explore some of these questions, and will argue that public participation, at all stages in decision making involving genetic engineering and genetically modified organisms (GMOs), is critical for the effectiveness of regulatory frameworks and to inform policy and decisions. However, to truly have public participation, an appreciation and understanding of values as well as socio-cultural, economic and political contexts are necessary. As a consequence, concerns about socio-economic impacts or ethical issues will also have to be taken into account alongside scientific criteria and technical measurements. Ensuring public participation, however, is not an easy task. There are no templates or toolkits for participation, neither is there a universal prescription or standard formula.

This chapter starts with a short overview of the legal frameworks that support the need for participation. It then explores other reasons why public participation is encouraged and practiced in relation to biosafety, and gives some examples of what the public has participated in. Finally, it describes some experiences and lessons that have been learnt.

#### *2. International agreements that support public participation*

There is an increasing trend for multilateral environmental agreements to contain provisions on public participation, which place the responsibility on governments to engage in awareness raising and participation activities. The rationale is that public involvement is critical to the effectiveness of any regulatory framework. Some relevant examples from the multilateral arena, which enshrine public participation, are given in the following.

##### *2.1 Rio Declaration on Environment and Development*

One of the outcomes of the United Nations Conference on Environment and Development (the 'Earth Summit') in 1992 was the Rio Declaration on Environment and Development. The Rio Declaration comprises a series of principles that define the rights and responsibilities of States in the area of environment and development.

Principle 10 of the Rio Declaration (UNCED 1992) states:

*Environmental issues are best handled with participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.*

Principle 10 thus clearly links environmental issues with public participation. The key elements are appropriate access to information, facilitating awareness and participation in decision-making processes, and access to judicial and administrative proceedings.

### 2.2 Aarhus Convention

The UN Economic Commission for Europe Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, also known as the Aarhus Convention, entered into force in October 2001. The Convention covers Parties from the Pan-European region, including Europe, Caucasus and Central Asia region (EECCA). It has been ratified by 39 countries, including the European Community.

The Aarhus Convention grants the public rights, and imposes obligations on Parties and public authorities regarding access to information and public participation. There are three pillars to the Convention: access to information, public participation and access to justice (UNECE 1998). Public participation relies upon the other two pillars – the information pillar to ensure that the public can participate in an informed fashion, and the access to justice pillar to ensure that participation happens in reality.

Activities involving GMOs were not initially subjected to the Convention's participation requirements, but were referred to national legislation. However, in May 2005, agreement was reached on an Amendment that provides a legal obligation for Parties to provide the public with early and effective information, and public participation prior to making decisions on whether or not to authorize a GMO release for experimental and for commercial purposes. When decisions are made, due account has to be taken of the public participation outcomes.

### 2.3 Cartagena Protocol on Biosafety

The Cartagena Protocol on Biosafety (Secretariat of the Convention on Biological Diversity 2000) places a clear obligation in Article 23 (see Box 34.1) on Parties to promote and facilitate public awareness, education and participation, including access to information, and also requires mandatory public consultation and disclosure of results of decisions to the public in the decision-making process (Chee & Lim 2005).

---

#### **Box 34.1 Article 23. Public Awareness and Participation**

1. The Parties 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 biological diversity, taking also into account risks to human health. In doing so, the 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 living modified organisms and shall make the results of

such decisions available to the public, while respecting confidential information in accordance with Article 21.

3. Each Party shall endeavour to inform its public about the means of public access to the Biosafety Clearing-House.

-----

There are common elements in the aforementioned three multilateral instruments. Important among these is that they refer to the *active* provision of information, that is, the right of the public to receive information and the obligation of authorities to proactively collect and disseminate information of public interest, without the need for a specific request (Goven 2004). They also refer to public participation across different stages (in policy making, specific decisions, etc.). Obligations are placed on governments to ensure transparency and accountability of response. Nonetheless, there are other elements crucial to participation that are not addressed, which are discussed further below.

### *3. Ensuring informed policy and decisions through public participation*

Ensuring informed policy and decisions is a key reason for public participation. Participation is integral to a good policy and biosafety regulatory framework. This is because, in many cases, regulators will not be dealing with GMOs that have been developed in their particular countries. Instead, different countries will have different local environments and agroecosystems, in which there may be no previous field release and hence experiences with the GMO in question. Participation by local people with knowledge of local conditions thus becomes important (Goven 2004).

To ensure informed policy and decisions, we also need information on diverse experiences and perspectives that are relevant to assess and manage the risks and impacts of GMOs (Goven 2004). Past experiences with introduced technologies, and the power relations associated with them are relevant. Technologies themselves are not neutral instruments as they are embedded in particular cultural worldviews and contexts.

It is not only the physical environment that is relevant, as there is also the social environment, and the economic, political and cultural characteristics of the society concerned (Altieri 2004; Goven 2004). For instance, the release of genetically modified (GM) crops involves interactions with social systems such as agricultural practices and farming. This ultimately raises questions as to whether farmers' rights to use, save, exchange, and sell seeds – practices vital to the farming communities in most developing countries – would be affected by proprietary GM crops. What are the cultural implications of crossing cultural boundaries, or the significance of manipulating organisms for which peoples have relationships with, and custodianship over? What are the implications of an instrumental treatment of maize, for example, which is integral to the cultural and spiritual life of many indigenous peoples?

Public participation can help to provide answers to these questions by mapping local knowledge, i.e., information on diverse local conditions, practices and cultures that are relevant for the assessment of risks and impacts of GMOs (Altieri 2004). The authorities have to know which ecological and social systems the technology is going to interact with, and have to engage with the people who live in those conditions, as they will have a key role in evaluating the risks and impacts of GMOs.

This suggests that assessments of GMOs must include an assessment of risks to cultural integrity (Altieri 2004). However, neither 'risks' nor 'benefits' can have any meaning without reference to social values. Risk is embedded in values, in that it is a situation or event in which something of

value to people is at stake and the outcome is uncertain. So, assessing risk requires knowledge of what people value, why they value what they do, and who decides upon the value. It is thus not possible to evaluate the impacts of new technologies without reference to social concerns. At the very least, it means that assessments where this cultural significance is absent are not applicable (Goven 2004).

Although the debate may sometimes seem polarized due to the controversies surrounding GMOs, experience suggests that open engagement with different opinions and values helps reveal a more complex and diverse picture of public attitudes, interests, needs, and priorities, allowing policy makers to see ways forward (Glover et al. 2003).

### 3.1 Public awareness

Public awareness plays a crucial role in ensuring informed policy and decisions. However, ‘public awareness’ may be misused as a code for public education about the benefits and safety of GMOs. In this respect, proponents of the technology see participation as a key to ensuring that a skeptical and worried public accepts the technology. This is not what we are talking about here. One purpose of public participation is to increase the awareness of the public and the regulators. Such increased awareness increases the ability to identify relevant social and ecological changes. An awareness and sense of the known issues, questions and concerns related to biosafety in a country helps participants to identify the knowledge they have that is relevant, and thus to inform policy. It is an iterative process.

Public participation and public awareness are thus intrinsically linked. Participation is impossible without information being shared and accessed effectively. On the other hand, sharing information and raising awareness invites participation because it enables the public to consider issues and form opinions on them.

### 4. Participation in what?

Public participation is relevant throughout all stages of assessment and regulation of genetic engineering and GMOs. This includes participation in national policy discussions, in the development, implementation and review of national biosafety frameworks (NBFs), policies and laws, in evaluation of risk assessments and specific applications, and in monitoring processes.

The identification of problems, needs, priorities, and options in relation to the sustainable use of biodiversity is critical at an early stage of any discussion about GMOs and biosafety. Public participation is important at this stage, as the use of biodiversity needs to be *socially* as well as environmentally sustainable, for example, in relation to food security, cultural integrity and poverty reduction. Hence, a wider public debate on the role of genetic engineering and on what alternatives and options are available for a country is also needed. While, for example, the Cartagena Protocol on Biosafety’s framework on public participation may be limited (to the transfer, handling and use of GMOs in relation to conservation and sustainable use of biodiversity, but with reference to human health risks and socio-economic conditions) once participatory exercises on biosafety are initiated, wider socio-economic, ethical and moral issues are invariably raised. Processes that are unresponsive to such public demands for a more broadly defined approach to regulation are likely to lack credibility and legitimacy (Glover 2003; Glover et al. 2003). Such a broadly defined approach is needs-driven (Goven 2004), rather than technology-driven. Questions such as ‘Who determines the needs?’ and ‘What determines the arrival of a new technology?’ should be addressed. The public, not the technology developers, should make that determination.

Public participation is also crucial in the development, implementation and review of national biosafety frameworks (NBFs,) policies and laws. However, it is not just a matter of inviting the public to participate once an NBF has been developed. What is needed is also public input into the determination of the proper scope of an NBF. Questions such as what should be addressed within the NBF and who gets to frame the framework all need to link with the relation to society's needs, problems, priorities, and options.

In the implementation of the NBF, policies and laws, regulators will have to take decisions on specific applications and conduct risk assessments. Here, public participation is also important, as local conditions, local knowledge and social practices matter.

Furthermore, the NBF and decisions related to GMOs need to be reviewed as conditions change, scientific understanding evolves, problems emerge, and new challenges arise. Even though a GMO may not be approved for release in a particular country, there could still be contamination or inadvertent release, and associated effects, which need to be monitored. Public participation is relevant in monitoring, particularly in providing local knowledge and experiences (especially of those who are affected by particular decisions) that can inform decision making, helping governments adjust decisions and policies accordingly. For instance, public participation in monitoring can help local people to work with policy makers to decide how changes should be monitored (for example, in helping to design and adapt methodology, in collecting and analyzing data), what criteria should be used, and how results should be acted upon (Guijt & Gaventa 1998). It can reveal valuable lessons and approve accountability (see also Chapter 32 and the case study presented in the following).

#### *4.1 Participation in monitoring: Bt cotton in Andhra Pradesh, India as a case study*

Three varieties of Bt cotton were commercially planted for the first time in 2002 in central and southern India. From the first year of planting, there were conflicting reports as to what benefits or otherwise were associated with Bt cotton. In such situations, it is clear that local level information and knowledge are needed, based on farmers' actual experiences. Participation in monitoring can help shed light on what may be a confusing situation, as it provides an opportunity for those directly affected to make their experiences known.

The Deccan Development Society (DDS) and the Andhra Pradesh Coalition in Defence of Diversity (APCIDD), a coalition of over 140 civil society groups in Andhra Pradesh, began monitoring Bt cotton, focusing particularly on the cotton district of Warangal. The aim was to assess the performance of Bt cotton vis-à-vis the claims made of increased yield, reduced pesticides use and higher profits, and to make the experiences available for public debate. The study involved all the stakeholders in the district – farmers who cultivated Bt and non-Bt cotton, cotton scientists, officials of the State agriculture department and the agricultural market committee, and the manager of a ginning factory. Data collectors were village-based grass-roots researchers from eleven local NGOs, who stayed continuously with farmers and farming communities to record changing perceptions on Bt cotton throughout the growing season. The focus was on small farmers who farm under rain-fed conditions.

The three-year study was carried out over each growing season, with interviews conducted with farmers every two weeks (Qayum & Sakhari 2005). Focus group discussions were also carried out. There was fortnightly recording of data on field operations, use of fertilizers and pesticides, and status of crop and pest damage, while scientists regularly visited the fields to verify data collection. Participatory video was used by the DDS Community Media Trust, a rural women's media collective. The women, themselves poor and marginal farmers, filmed and interviewed

farmers, documenting changes and analyzing the reasons for these changes with the farmers (DDS Community Media Trust 2004). Hundreds of farmers testified in the study and on film.

The methodology used over the three years was broadly the same, but with some modifications made on the basis of experience, and to focus the study more specifically on the experiences of small farmers. The needs and priorities of poor and marginal small farmers were very much related in economic terms, so the main indicators used were economic in nature and related to yield (and hence profit), costs (of seed, pesticides, irrigation, etc.), pesticide reduction (because pesticides are expensive inputs), and net income.

The study obtained results showing that non-Bt cotton yielded more than Bt cotton, but incurred less expense (Qayum & Sakhari 2005). There was, however, a slight, but insignificant reduction in pesticide use for Bt cotton farmers, compared to non-Bt cotton farmers. As a result of the higher yields with non-Bt cotton, non-Bt cotton farmers earned 60% more on average than Bt cotton farmers.

#### 4.1.1 Monitoring leading to policy shifts

In May 2005, the Indian regulatory authority, the Genetic Engineering Approval Committee (GEAC), decided not to extend the approval for commercial cultivation of the three varieties of Bt cotton in question (Mech-162, Mech-12 and Mech-184) in Andhra Pradesh. In addition, the GEAC decided not to renew the approval for commercial cultivation of Mech-12 Bt cotton in South India. The three varieties can still be cultivated in other parts of India, and other varieties of Bt cotton are approved by the GEAC, including for Andhra Pradesh.

A GEAC official said: 'This decision was taken on receiving adverse reports from about twenty farmers' organizations. The Andhra Pradesh government had given adverse reports on the performance of Bt cotton while other states like Karnataka, Tamil Nadu, Maharashtra, and Madhya Pradesh have sent mixed reports.' Moreover, Andhra Pradesh farmers who had suffered poor results after planting Bt cotton had also protested on the streets, and burnt seed outlets that stocked the Bt cotton.

#### 4.1.2 Some lessons

The study initiated by DDS and APCIDD is a good example of participation in monitoring. It had captured farmers' experiences over the three years and was a channel by which farmers' experiences with Bt cotton could be fed back to the government. However, this does not mean that the burden of monitoring should be off-loaded to civil society or farmers or the people who are affected by decisions (Goven 2004). Moreover, in this case, farmers still took to the streets in protest. Hence, one lesson is the need for mechanisms by which a regulatory authority can take into account new information, developments in science, etc. that come to light because of a monitoring process.

Feedback mechanisms need to be created, in order to ensure that monitoring results are communicated back to the decision maker, as well as procedures for acting on the feedback. People affected by particular decisions need an avenue by which to inform the authorities of their experiences and the implications of the decisions. Are there, for example, advisory review committees that can review new information and recommend changes? How would the public be involved in these processes? Equally critical is assigning responsibility for determining what changes may be necessary in the regulatory system. Will this be a strictly governmental decision or will there be input from a broader range of interests? Where the public has been involved in making recommendations and offering opinions, will there be any explanation of which options have been rejected and which have been taken forward, and why?

## 5. The context of ‘participation’

### 5.1 Why does context matter?

In biosafety science, we miss the point if we focus only on the transgenic construct apart from its context. This applies to participation as well. Technology development is imbued with power relations and science is not value-free. Even if this was potentially true, science never occurs outside society. Science is embedded in societal power relations and vice versa. Questions such as ‘What determines what research gets done?’, ‘What drives the research agenda?’, ‘Who does the research?’, ‘What is done with the results?’, and ‘What is the fate of inconvenient findings?’ need to be asked.

### 5.2 Understanding the context and its implications

‘Participation’ as a notion has become increasingly popular – it is specified in international agreements, advocated by international organizations (e.g. World Bank), and is increasingly embraced in GMO policy by Northern governments. It is, however, rarely acknowledged that meaningful participation requires the possibility to bring about change in policy.

There has also been emphasis on the procedural aspects of participation, with increasing focus on techniques, e.g. toolkits, best practice standards and harmonization. However, there is actually no universal template for participation; instead participation needs to be framed by local needs and concerns (Goven 2004). Imposing a formal template or formulaic techniques will not ensure true participation.

The focus on procedures can also obscure important contextual issues – both the local context and the power context. It can facilitate participation becoming a tool of legitimation rather than investigation, and it obscures the inherently political nature of participation itself. Framed and promoted this way, there is a danger that ‘participation’ will become another disempowering technology – governments’ ‘performance’ of the technique will be judged externally (by donors and development agencies), while it de-legitimizes bottom-up self-organized civil society participation.

Institutionalized participation is not a substitute for self-organizing civil society organizations. It is not meant to displace them, but should exist alongside. If institutionalized participation processes are used to marginalize or de-legitimize civil society, this is not compatible with participation as a means to effective and informed policy and decisions (Goven 2004).

An obvious reason for public participation is that people who are likely to bear the consequences of a decision should have a say in the decision. Participation is not just a means, but a democratic right that everyone has. Yet, one of the most important rights to participation is the right *not* to participate. Some people or civil society organizations may choose not to participate in processes they do not consider to be legitimate. This decision has to be respected by the authorities.

Dilemmas do exist for civil society; if it rejects participation, then decision making would likely be dominated by experts and elites. Alternatively, active civil society can be a crucial asset in the sustainability of participation, and in the processes of gathering relevant information and recognizing risks. Civil society can bring important issues to public attention and are often repositories of enormous amounts of relevant knowledge. It can also create spaces for participation, on its own, or facilitated by government.

### 6. Making participation happen

Participation does not just happen; it needs to be made to happen. External actors can either strengthen or limit participation. Hence, a key question is: Who creates the space for participation? This has implications for what can happen within the space and the impact it can have. Governments would be more likely to take up and use the outcomes from participatory deliberations in a space it created itself, than in a space created by civil society, for example. Yet, it is important to recognize that the two kinds of spaces are not necessarily antagonistic (Glover et al., 2003). Furthermore, governments can play two roles – initiating participatory and awareness-raising activities, and creating an enabling environment for others to take the initiative.

What is needed for participation to happen? Legal avenues and obligations (e.g. in EU Directive 2001/18 the public is given opportunity to comment on each GMO application), constitutional provisions, the attitudes of those in charge, and guarantees of access to information all affect whether participation is helped or hindered. For example, access to good, complete information is crucial for effective participation.

Furthermore, enabling processes need to be in place for eliciting local and distributed knowledge, including enabling processes for minority or marginalized groups (Goven 2004). Special efforts may be needed to reach these groups directly; otherwise inclusion may be restricted to a narrow circle of participants, potentially reproducing social inequalities. The following issues also need to be considered: translation into relevant languages, means of communication (non-print for non-literate), resources (including time), and terminology to be avoided (e.g. obscure words, jargon). Experience shows that the public is capable of discussing scientific issues. However, ways must be found to make scientific knowledge accessible and useful to ‘non-scientists’. The challenge is to provide people with the opportunity to engage on their own terms, to ask their own questions on the technology and on what forms of regulation may be appropriate for managing associated risks.

Transparency is needed, not just in making the timing or location of a decision process apparent, but also in the decision trail and reasoning, so that a decision can be justified *in relation to public input*. If participation is to be sustainable, the process must be considered legitimate, and for that the public needs to know what happens to their inputs, and the reasons why their inputs are adopted or not. The credibility of public participation initiatives is dependent on the degree of accountability and responsiveness of the convening institutions.

### 7. Some mechanisms used in relation to GMOs

#### 7.1 Advisory boards and committees

Advisory boards and committees are a common tool used to advise governments on biosafety decisions (see for instance Chapter 24, which discusses the Norwegian Gene Technology Act). The authority and credibility of such bodies depend heavily on their independence from government and industry, the extent to which they include the perspectives of non-scientists, and their ability to represent a broad range of interests. The composition of these advisory boards and committees is important. Some advisory boards and committees may include civil society representatives and lay people, but this alone is not evidence of public participation. Moreover, while it is critical to have technical and scientific advice, there are also socio-economic, cultural, ethical, and other concerns related to GMOs, which have also to be taken into account.

Advisory boards and committees can be required to hold public hearings and consultations. How they go about doing so will determine the extent of public participation.



### 7.2 Public debates

A public debate can raise awareness of biosafety issues, as well as is a means to feed back public opinion to the authorities. An example is the United Kingdom's 'GM Nation?' debate (GM Nation 2003), which originated from a recommendation of the Agricultural and Environment Biotechnology Commission (AEBC), an independent body which advises the government on biotechnology issues and their impact on agriculture and the environment. The debate was not treated as a simple exercise to say 'Yes' or 'No' to GM crops. It tried to establish the nature and full spectrum of the public's views on genetic engineering and the possible commercialization of GM crops, and any conditions it might want to impose.

Nine 'foundation discussion workshops' were held prior to the debate, to enable the public to help frame the debate, and to identify the questions that should be asked. The 'GM Nation?' debate was a large exercise, involving 675 public meetings all over the United Kingdom. At least 8,324 people attended a public meeting (based on feedback forms received), but this was thought to be an underestimate, and the total attendance may have been nearer 20,000. Over 1,200 letters and e-mails expressing views on GM issues were received, and 36,557 feedback forms were returned. 'Narrow but deep' group discussions were also organized, where a comparatively small number of randomly selected people were given an opportunity to study the issue in-depth and respond accordingly.

### 7.3 Citizens' juries and scenario workshops

Citizens' juries and scenario workshops are collectively known as 'deliberative and inclusive (or inclusionary) policy processes' (DIPs) (Glover et al. 2003). DIPs have the potential to widen the circle of participation, and may enable a deeper form of participation in which choices are deliberated and cross-examination of expert opinion is encouraged, which would not normally feature in conventional consultative processes. The aim is to facilitate meaningful collective deliberation among participants, rather than merely to collect information or solicit opinions out of context. They are distinguishable from events such as hearings or public meetings where a panel of officials or experts seeks information or views and answers questions, without enabling opportunity for collective discussion or open dialogue among various participants.

Participatory deliberation aims to go beyond formal and perfunctory approaches to consultation that generally succeed in involving only conventional stakeholder groups, such as academics, unions, industry, and pressure groups (Glover et al. 2003). DIPs aim to provide for meaningful participation by individuals and groups from a broad and diverse range of perspectives. The question of how participants are selected is therefore crucial. It is also important to appreciate the risk of reproducing power inequalities.

For example, a combination of a citizens' jury/scenario workshop on food and farming futures for Andhra Pradesh, India was held in 2001 (Pimbert & Wakeford 2002). GM crops were a major topic of deliberation. Participants were marginal-livelihood citizens. Selection was facilitated by independent researchers and based on selection criteria – small or marginal farmers living near or below the poverty line; open-minded, with no close connection to non-governmental organizations or political parties; and likely to be articulate. The jurors were presented with three different scenarios or visions for the future. Invited specialist witnesses defended a particular vision, and were open to cross-examination. The jurors considered all three visions, assessing pros and cons on the basis of their own knowledge, priorities and aspirations, taking into account the specialist witnesses' contributions. They did not choose one of the three visions per se, but assessed critically the viability and relevance of all elements of each scenario, and constructed their own unique vision.

DIPs are often complex and resource-intensive processes, but they point to the possibility of developing an approach defined first by needs, followed by a consideration of how the technology fits in with those needs. They can thus provide valuable insights that help both to define questions and to evaluate solutions. DIPs can therefore be used both to support effective, informed decisions and to enhance the transparency, democracy and legitimacy of decision-making processes (Glover et al. 2003).

#### 8. *Some key issues for public participation*

- \* Early involvement of the public – The credibility, legitimacy and effectiveness of any public participation process depends strongly on the extent to which it enables the public to help frame the issues to be considered.
- \* Independence and transparency – These are critical factors that foster legitimacy, trust, credibility, and confidence. The public needs to know what happens to their inputs, and the reasons why their inputs are not adopted.
- \* Access to good, complete information – This is crucial for effective participation. Participation is impossible without information being shared and accessed effectively. Access to information allows the public to make decisions that are informed.
- \* Adequate allocation of resources – Participatory processes can be resource-intensive, especially in the short term. Sufficient time and resources are needed to enable meaningful consultation and deliberation. However, if better-informed and more widely supported decisions are made through meaningful participation, this may reduce the political, social and economic costs in the long term. Such costs could include breakdown in public trust, loss of confidence in regulatory bodies, and loss of legitimacy that may result either from a lack of participation or ill-conceived participatory processes.
- \* Recognition that participation is a process – Participation should not stop with the creation of an NBF or legislation, or just because a particular exercise has been successfully carried out. It is an ongoing process that feeds into the implementation of NBFs, policies and laws, and their monitoring and review. Furthermore, experience shows that broad, open-ended, dynamic and responsive processes are better able to accommodate the range of concerns on GMOs (Glover et al. 2003). Processes that succeed in accommodating this diversity are more likely to command public credibility and respect.

#### *References*

- Altieri, M. A. (2004) 'Socio-cultural aspects of native maize diversity', in *Maize and Biodiversity: the Effects of Transgenic Maize in Mexico*, Commission for Environmental Cooperation of North America.
- Chee Y.L. and Lim L.L. (2005) 'Public participation in the implementation of the Biosafety Protocol', TWN Biosafety Briefing, Penang: Third World Network.
- DDS Community Media Trust (2004) *Bt Cotton in Warangal: A Three Year Fraud*, Hyderabad: AP Coalition in Defence of Diversity and Deccan Development Society.
- Glover, D. (2003). 'Public participation in national biotechnology policy and biosafety regulation', IDS Working Paper 198, Brighton: Institute of Development Studies.
- Glover, D., Keeley, J., Newell, P. and McGee, R. (2003) *Public Participation and the Cartagena Protocol on Biosafety, A Review for DFID and GEF Part I: The Main Report*, Brighton: Institute of Development Studies.

- GM Nation? The findings of the public debate (2003), London: Department of Trade and Industry. <http://www.gmnation.org.uk>
- Goven, J. (2004) Slides and notes from Public Participation Lectures presented at 'Holistic Foundations for Assessment and Regulation of Genetic Engineering and Genetically Modified Organisms', Tromsø, 2004.
- Guijt, I. and Gaventa, J. (1998) 'Participatory monitoring and evaluation: learning from change', IDS Policy Briefing, Issue 12, Brighton: Institute of Development Studies.
- Pimbert, M.P. and Wakeford, T. (2002) 'Prajateerpu: a citizens jury/scenario workshop on food and farming futures for Andhra Pradesh', *Economic and Political Weekly (India)* 32(27) (Review of Science Studies) 6-12 July: 2778-87.
- Qayum, A. and Sakkhari, K. (2005) *Bt Cotton in Andhra Pradesh: A Three-year Assessment*, Hyderabad: Deccan Development Society, Andhra Pradesh Coalition in Defence of Diversity and Permaculture Association of India.
- Secretariat of the Convention on Biological Diversity (2000). *Cartagena Protocol on Biosafety to the Convention on Biological Diversity: text and annexes*. Montreal: Secretariat of the Convention on Biological Diversity.
- UNCED (United Nations Conference on Environment and Development) (1992) *Earth Summit '92*, London: The Regency Press.
- UNECE (United Nations Economic Commission for Europe) (1998) <http://www.unece.org/env/pp>