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Summary document of the FAO e-mail conference: "Public participation in decision-making regarding GMOs in developing countries: How to effectively involve rural people"

Executive Summary

The rural people in developing countries are often far removed from many important decision-making processes. Production and consumption of genetically modified organisms (GMOs) is a topical issue and could impact on socio-cultural systems of rural populations in developing countries. Involving the rural people in decision-making on GMOs was discussed during this moderated e-mail conference hosted by the FAO Biotechnology Forum from 17 January to 13 February 2005. Over 500 people subscribed to the conference and 116 messages were posted, from 70 people living in 35 different countries. Half of the messages were from people in developing countries.

There was broad agreement that citizens, including rural people, should be involved in decision-making when it is likely to impact on them, but opinions on the degree and nature of the suggested participation differed. It was proposed that participation of the rural people could usually be indirect, through representatives they had chosen. It was felt that effective participation depended on access to unbiased and comprehensive information on the nature and consequences of GMOs. This information would have to be adapted to the needs and capacities of the various groups of rural people and their representatives in order for it to be helpful. Once available, the information would have to be communicated effectively. Numerous channels of communication were suggested and the importance of extension services, radio and use of local languages was particularly emphasised. Many participants complained that misinformation abounded (both for and against GMOs) and some were quite sceptical that a real public participation exercise might take place on this issue and, if it did, that its outcomes would have any impact. It was suggested that the costs of involving the rural populations in decision-making might be shared between the government and other relevant stakeholders. International agreements were regarded as being useful, but concern was expressed that commitments to these agreements might compromise the outcomes of an eventual national debate on GMOs.

1. Introduction

The title of this e-mail conference, the 12th one to be hosted by the FAO Biotechnology Forum was "Public participation in decision-making regarding GMOs in developing countries: How to effectively involve rural people". It ran from 17 January until 13 February 2005 and a Background Document was prepared and posted before the conference to be used as an aid to the debate. The document covered subjects including the status of GMOs in food and agriculture, potential decision-making areas for public involvement, an account of pertinent international agreements and a discussion about information access and public participation of people in rural areas of developing countries.

The conference generated interesting and valuable discussion, with 116 e-mail messages posted, numbered in chronological order of posting, from 70 people living in 35 different countries. Protz (103) in the last week of the conference wrote "I've been very impressed with the geographical range of the comments and the diversity of experience represented - farmers, scientists, lawyers, academics, anthropologists, activists, communicators, bioethics specialists, consumer affairs specialists...". This Summary Document represents a synopsis of the principal issues and discussions from the conference. Specific messages are referred to in the document using participants' surnames and message numbers. All the messages can be read at the Archives of Conference 12. Participants were assumed to have written in their personal capacity unless they stated otherwise.

The Background Document suggested that the relative importance of public participation regarding GMOs in the different food and agriculture sectors, namely crops, forestry, livestock, aquaculture and agro-industry, might be discussed. GMOs were frequently discussed in the conference without reference to a particular sector, but GMOs and food were of primary concern and particularly food derived from genetically modified (GM) crops.

In Section 2 of this document the main issues discussed during the conference are summarised under 7 main themes. Section 3 provides information on participation and Section 4 provides a list of names and countries of the people who sent messages that are referenced in the document.

2. Main themes discussed

2.1 The degree and nature of public participation of rural people in decision-making regarding GMOs

A major topic of discussion during the e-mail conference was if, and to what degree, the public, particularly the rural populations of developing countries, should participate in decision-making regarding GMOs. There was a certain polarisation seen in the views expressed here, no doubt reflecting polarisation of views held on the production and release of GMOs per se.

While most people agreed that participation of rural populations, including women (Keter, 34; Huyer, 104) and indigenous populations (Krishna, 1; Vallings, 26; Lin, 89; Protz, 108), was a good and necessary development (e.g. Krishna, 1; Okello, 62), there was considerable discussion about the optimal level of participation and the form it should take. Midway through the conference, Torres (60) noted that the prevailing opinion in the conference was in favour of public involvement, although the question of "how" had only been touched on by some messages. Shantharam (48) suggested that no-one seemed to know how to go about involving the rural public in such a complex issue.

Some of the discussion hinged on the use and meaning of words, including "involve" and "consult" and the extent to which "involvement" and "consultation" needed to be implemented. For example, Infante (40) regarded "involved" and "consulted" as being quite different and argued that the public should be consulted in the decision-making process, but that decision-making about GMOs had to be carried out by people "with the right expertise". Shantharam (28) felt that "public participation, public input, public comment and public right to know" could be reasonably accommodated, but not public decision-making, as, unless decision-making was left to a small group of decision-makers, chaos would reign. He (15) suggested that seeking general public input would not really serve any purpose, but that stratifying the public into focus groups and surveying them for their perceptions and opinions on a continuous basis would be useful.

Infante (4) and Kambikambi (29), among others, questioned why the public would be involved in decision-making on GMOs, given the technical nature of the subject and the fact that the public was not involved in many other analogous decision-making processes (e.g. approval of new chemicals for agriculture or of new human drugs). Djoulde (21) felt that if GMOs had been authorised by scientists and international or national authorities, there was no need to involve the public. For Izquierdo (86), decision-making should remain in government hands, and they should receive the most accurate expert advice. Infante (105) suggested, however, that, in some cases, decision-makers in government ministries lacked the necessary knowledge about GMOs. Mayer (66) stressed the need for technically versed staff in administrative/regulatory posts in developing countries rather than purely political administrators.

Others argued that decision-making should not be left to scientific experts. For example, Hodges (49) maintained that the experts do not agree on the risks and benefits of GMOs, so leaving them with the responsibility for decisions on GMOs was not an acceptable solution. Harris (83) also suggested that there was not a single scientifically correct answer on GMOs as "at all levels of scientific quality, the literature is still replete with widely divergent estimates of the impacts of various biotechnologies, their costs and benefits, and their probabilities". Dunn (53) noted that change is a social process and that biotechnologies cannot be judged to be desirable (or not) by scientists alone, but that local knowledge needs also be to be sought and blended with outside knowledge. Although pointing out that they are not problem-free, he (53, 64, 70), supported by Protz (107), advocated participatory approaches, noting that each situation required a tailored methodology. Lin (10) indicated that several case studies already existed of applying participatory approaches to biotechnology. Nasar (47) argued that public participation on this issue should be allowed for at the different levels of a democratic system and that an "informed decision is essential". For Torres (60), the bottom line was that "participation and access to information affecting one's life is a basic human right".

Chibisa (9) believed that rural people should be given the first priority in decision-making about GMOs and Obura (41) suggested that involving the farmers in policy making at the pre-release GM crop stage was necessary and valid. Others raised the difficult question of who exactly from the rural populations might be expected to participate in decision-making on GMOs. Nishio (43) noted that it was unrealistic to expect the involvement of huge numbers of people in decision-making of the sort being discussed here. Communication with the rural poor may be difficult. For example, Krishna (1) commented that in many parts of rural India, people are "not part of the formal communication networks that keep them up to date and in poor communities, newspapers, radios and television are scarce". Nevertheless, Soleri (30) suggested, with examples from Cuba, Guatemala and Mexico, that it was possible to quickly and inexpensively include smallholders in discussions and policies about GMOs.

Benedito (2) pointed out that rural populations are quite heterogeneous, with different education, economic and political profiles. For Brazil, he noted that they could be sorted into several categories, including big farmers (with access to finance, good organisation and the ability to influence politics, even at the national level); medium farmers (with a wide range of education and technology uptake, usually with political influence at the local level); and small/subsistence farmers (who are mostly lowly educated, poor, unorganised and with no political influence). For Africa's rural poor, Mbassa (98) wondered how they could be expected to decide on GMOs when they are "powerless, information-less, starving, and in abject poverty". Instead, for Seth (45), "the fact that farmers in many countries are uneducated or illiterate is no excuse for not consulting them and taking them into full confidence before

introducing new technologies. Farmers are very good judges of the value of a new technology. In fact, they should also be directly involved in helping to target research to their priority needs". Indeed, Krishna (1, 18) gave an example of a project in India where rural people were involved in all stages of a biotechnology project. These messages highlighted the fact that there is great diversity among rural peoples regarding their capacity to participate in decision-making processes and that this would influence the structure of any debate involving the public in developing countries.

For the practical reasons mentioned previously, participants supporting public participation generally favoured indirect participation of the rural people through their representatives. Khouma (8) suggested that democracy and good governance required participation of all stakeholders, and that public participation must be organised to be representative, otherwise "we will have as many opinions as individuals". For Torres (60), regardless of the communities or sectors involved, "participation by representation still remains as the basic workable management tool for large scale involvement". Farnese (11) argued that true democracy requires all citizens being involved in the democratic process and that elected representatives have therefore a duty to ensure that their actions are representative of all voices. She concluded that without the voice of the rural population on GMOs, government regulation in this area would be illegitimate. Mayer (66) believed that democracy in practice was not about involving the people in every decision but letting them choose their representatives.

Who should the representatives be? Obura (35), with an example from Kenya, highlighted the difficulties of choosing suitable representatives for the people and Muchugi (19) indicated that representatives did not always represent the views of the people they were elected to represent. Krishna (18) thought local representatives, with credibility in the villages and nominated by people in the villages, as well as credible civil society organisations could represent the interests of the rural people. For Vallings (26), they could be democratically elected representatives of farming groups, foresters and local communities. Hogg (54) noted that every society had some form of social structure, including leadership functions. Protz (108) also noted that most organised indigenous groups have clearly identified leaders that could represent them and that they also have their own processes for discussion and decision-making. Huyer (104) emphasised that particular efforts were needed to ensure women were involved as, in many cases, despite being the ones with practical environmental/agricultural knowledge, they were not included in community decision-making sessions.

Birner (116) felt that stakeholder consultation was essential on an issue as controversial as GMOs, even if elected policy-makers usually were the legitimate body to make final decisions on GMOs or to delegate the decisions to regulatory bodies: people therefore are given a "voice" but not a "vote". In a similar vein, Shantharam (48) suggested that democracy can guarantee an opportunity to contribute, but cannot guarantee that everyone's input will be included in decision-making. Cuming (71) emphasised the importance of the fundamental rights of consumers, arguing that even if rural communities were not aware of them, their governments should take them into account when making important decisions on GM agriculture and food aid.

Although the conference title specified decision-making in developing countries, some examples were provided from developed counties of public participation exercises in this sensitive area. These examples could be usefully taken into account in planning similar endeavours in other countries. Burke (78) provided details of some United Kingdom government initiatives for consulting with the public and building consensus regarding GM food, concluding "we in the UK have been unable to

find a mechanism which leads to conclusions satisfactory to companies, scientists and NGOs. The public has become confused and I think rather bored by the whole debate..." Regarding decision-making at committee (representative) level, he said the major stumbling block had been groups holding non-negotiable positions that were effectively able to veto decisions. Lin (56), later supplemented by Birner (116), provided brief information on public debates on GMOs in Germany, Switzerland and the United Kingdom. Structure of the 3 debates differed considerably, but the main questions addressed were similar. He suggested that the debates represented efforts to bring different stakeholders together, sometimes for the first time, but did not actually represent efforts towards public decision-making and that the process of public consultation and decision-making could vary from country to country and might reflect the political environment and level of openness in a given society. Shantharam (15) said that his experience in the United States from allowing public input on regulatory decision-making had been that the inputs were not very useful and that the public was not really interested in the topic.

2.2 What type of information do the rural people require?

There was considerable agreement that the information needed to assist the rural people to participate in decision-making processes associated with GMOs should be adapted to the needs and capacities of the various groups of rural people and their representatives. Overly technical information/language should be avoided.

Mayer (88) suggested that with appropriate representation at all levels and with good control mechanisms in place, there would be no need for the general public to be involved in the scientific details. Similarly, Protz (103) argued that while rural people should be involved in decision-making regarding biosafety legislation, policy and regulatory frameworks, it would probably not be necessary to involve them in understanding detailed scientific information. Krishna (58) suggested that when getting views from the public, they should be provided with a simple understandable abstract of the scientific dossier. The practical aspects and implications of the technology were important for the rural people and not the complex scientific details, said Mesghenna (82). Bhatia (92) asked how anyone, including professional science communicators, could explain genetic modification to illiterate farmers when not even the literate public of developed countries was fully familiar with the relevant information or other standard information on less technical issues. Blanchfield (110) said it was important to distinguish between the 3 components of risk analysis i.e. risk assessment, risk management and risk communication, where participation of the rural people was valuable and essential for this final component. He emphasised that it was 2-way and not 1-way communication and that the rural people provided crucial input on their "on the ground" needs and problems and, in this context, they did not need detailed scientific knowledge about genetic modification.

Newman (50) argued that bombarding farmers with information not relevant to farming was a waste of time and money; information relevant to their farming practice was, on the other hand, crucial, including e.g. details of costs involved with GM crops. Many lectures she had attended, which had focused only on the scientific issues, had left most farmers "feeling understandably confused and numb to the debate", she suggested. Similarly, Moghaddam (63) noted that scientists are poor at communicating with non-scientists. Since scientific information about GMOs could be difficult to understand, Farnese (22) suggested it was the duty of scientists to make their research findings accessible to the general public. Infante (40) supported this, although noting that it is sometimes difficult to explain research to a non-technical audience. In a similar vein, Olutogun (37) advocated delivering messages "in simple language that the layman can understand", although Torres (38) noted that popularising technical jargon was itself a science and an art that must be learnt.

Kosky (6) stressed the need for rural people to know the advantages of GMOs, while Keter (34) said the general population felt that the scientific world had failed to fully explain the disadvantages of GMOs. Information on opportunities, costs and risks of GMOs was considered essential for the rural people by Mesghenna (55), while information regarding liability for adverse impacts caused by the introduction of GM crops was emphasised by Newman (31, 95). She believed that aspects of liability would have to be explained to potential users of the technology and that no information should be withheld from public disclosure. Stone (90), supported by Dunn (96), pointed out, however, that farmers do not necessarily use economic or agronomic criteria in decision-making. Social processes, he suggested, are important and farmers may adopt new practices or varieties for cultural reasons, citing the case of adoption of cotton types in Andhra Pradesh, where strong local preferences for cotton cultivars had little or no agronomic basis.

2.3 Misinformation and the quality of information required by the rural people

Participants stressed the need for the public to have access to unbiased information but many complained that misinformation (either for or against GMOs) was a problem.

The importance of education and access to good quality information was emphasised in several messages. For example, Kosalko (16) considered education to be an essential first step in any new proposed change, but said it was important to first ask why we wished to educate the rural people on this particular issue, echoing the sentiments of Ferry (3). Sitengu (39) and Bridges (72) thought that education of rural people needed to be prioritised: without education, they "will go with the wind and follow the opinions of their informants rather than making their own decisions" (Sitengu, 39). Nishio (43) felt that "educating the masses" was currently unrealistic and that educating political representatives and their staff seemed a good strategy.

The standard of the information required by rural populations was defined by participants in a variety of ways: it should be quality, unbiased, factual and objective (e.g. Mkula, 12; Newman, 5, 24; Nasar, 14), although Stone (33) argued that the definition of "correct" or "objective" information was a complex problem that merited more study. Hogg (87) suggested that the media should be provided with data that is "unbiased, consistent and relevant", through fact sheets prepared by national/regional bodies. McNeely (76) said that the key factor was provision of objective information from a credible source (or sources), in languages relevant to local people, although Shantharam (48) was not convinced that "anyone can provide so-called objective and impartial information on biotechnology today". Ferry (27) also argued that unbiased and rigorous information on the consequences or relative advantage of GMOs was not yet available. According to McNeely (76), developing countries often seemed to be under considerable pressure from parties with an interest for or against GMOs. He argued, supported by Steane (79), that a government agency would probably be the most appropriate intermediary for information provision and would be likely to be trusted by the local people, when its credibility had been proven over time. Ramirez (57), however, believed that governments and universities in many countries had yielded to the influence of the biotechnology industry and had lost their independent public service role. Mayer (66) felt that, although there was a danger of a conflict of interest, companies could provide good information and training opportunities to farmers, proposing also the establishment of alliances between governments and companies in extension services. Both Newman (84) and Ashton (100) had concerns about such alliances.

Soleri (30) commented that proponents and opponents of GM crops often speak on behalf of farmers whose own voices are seldom heard. Zidana (17) suggested that, in Malawi, extension agents engendered considerable trust among the rural people and that more investment in them was merited. He emphasised that they needed to be well informed about the scientific and ethical issues of GMOs. Farnese (22) agreed with him that extension agents had a critical role to play in providing balanced, unbiased information on GMOs. Huyer (104) also advocated including women in extension teams to facilitate discussions with women farmers. Seth (45) suggested that increasing privatisation of science meant that developing countries were not always able to get unbiased information. In a similar vein, Farnese (22) wondered what the implications of the shift of extension services from the public to the private sphere might be.

Several messages dealt with the consequences of providing poor quality or inappropriate information, illustrating also the perception of many participants that misleading information on GMOs abounds. For Nasar (14), pressure groups take opposite and, at times, fundamentally extreme views and "the casualties are the real issues and facts about GMOs. Public participation, unless based on informed decision-making, will only complicate the process". Vallings (26) complained that farmers are targeted by those with vested interests and that the unbiased information that farmers and policy makers need for decision-making is not freely available. Hogg (87) noted that "it is easy to "scare" the public or lull them into a "sense of security". It is so much more difficult to "inform and educate"". Olutogun (37) urged that scare-mongers should not be allowed to provide spurious information about GMOs to the public without being challenged, while Kambikambi (29) bemoaned the "misinformation" provided at a national GMO consultation in Zambia. Infante (4) claimed there is a demagogic campaign again GMOs, especially in Venezuela, while Jarrín (32) criticised the lack of proper objective information in Ecuador. Djoulde (21) described a case in Cameroon where negative information about a new sorghum variety was prematurely released to the public and which caused panic and prejudice against new technologies, illustrating the importance of appropriate dialogue with the public. Paz (74) wrote that the rural people in Brazil had been provided with misleading information about the advantages of GMOs and that rural people there were unaware of the consequences of adopting GMOs. Claparols (77) maintained that developing countries were in the grips of interest groups who wished only to sell GMOs. Conflicting information about spraying Bt-cotton in India had, according to Stone (33), exacerbated breakdown of the social process of skilling (i.e. farmers learning how a technology works and integrating it into farm management strategy). Nasar (14) suggested that the public's suspicion of being exploited when Bt-cotton was introduced to India had led to persistent suspicion about GMOs in general, something which had made meaningful participation of the public in decision-making difficult.

2.4 Scepticism about the public participation process

Some people were sceptical about the whole subject. For example, Blaney (46) was sceptical about the eventuality of public participation in decision-making on GMOs in developing countries, asking "how can we implement a public participation in this decision making process when it was never or scarcely done in the developed and "officially" democratic countries", arguing also that there was insufficient public participation generally in health and nutrition projects being implemented in developing countries. In a similar vein, McNeely (76) suggested that the 800 million hungry people in the world have generally little influence on formulation of agricultural policy and would therefore be unlikely to be involved in decisions about GMOs, noting that "the rural poor most in need of better agricultural support are usually the last to be consulted", echoing the comments of Benedito (2).

Even if such a process was to take place, some people were sceptical about the outcomes. For example, Mbassa (98) was pessimistic, arguing that the rural people might be involved in the process and make decisions about GMOs, but their decisions might not be honoured, so the process would be just pretence or hypocrisy. Hogg (42) also highlighted that if the people are involved then they must be listened to as, too often, "communities are asked to share opinions but they are not really paid attention to, and their concerns may even be totally ignored". Beitel (69) also emphasised that any well-intentioned dialogue must be accompanied by choice, with the existence of a meaningful alternative, and that farmers should be able to exercise their choice in a meaningful manner. Goven (59), supported by Ferry (67), warned that a public participation exercise could become a sham if the organisers assumed that the right answer was already known and that "public persuasion" rather than "public participation" was sought. For Ramirez (57), the key was having a legitimate convenor at the country level that was not seen to have a vested interest. Given the complexity of the GMO debate and the difficulties in communicating with the rural poor, Ferry (3) suggested that involving the rural people might be just a hypocritical exercise or one with a hidden objective.

2.5 Appropriate channels for communicating with the rural people in developing countries

Numerous suggestions were made by participants as to how to get information to and from the rural populations in developing countries (e.g. Krishna, 1). It became apparent from the suggestions that facilities differ enormously within and between countries. Interestingly, a self-described peasant farmer from Bangladesh, Zakir Hossain (23), contributed an e-mail to this conference. His contribution must, however, be regarded as an exception because the vast majority of the rural poor in developing countries currently do not have access to e-mail or other modern ICTs (information and communication technologies) and do not write fluent English. Müller (115) noted that this conference had been very interesting for the very select public with access to the internet. Even standard communication technologies such as telephones, mentioned by Protz (113) in the context of hot-lines for communicating information, would only be feasible in relatively few circumstances. The cyber centres mentioned by Huyer (104) as a means of communicating with rural populations would likewise not be broadly applicable today. Some of the barriers to communication are more basic than restricted access to modern media. Literacy, as pointed out by Khouma (8) for Africa, is often weak in many rural societies (e.g. Ahmed, 109). This being so, many written means of communication, including newspapers and fact-sheets, suggested by Hogg (87), and pamphlets (Krishna, 18), have reduced impact. Apart from the question of access, Nasar (14) also noted that deprived rural communities have little time for the library, television, radio and printed media and, likewise, "computer, internet, video and cinema are yet to be used by the majority in the remote countryside".

Although Torres (38) pointed out that it was a basic communication principle that "there is no single best medium", many contributors thought that modern mass media, including television and radio, could be used to great effect to communicate information to rural populations. Ahmed (109) advocated their use when illiteracy rates are high. The importance of radio, in particular, was highlighted by many participants (e.g. Krishna, 1; Chibisa, 9; Keter, 34; Zidana, 51). For example, Dakunimata (73) and Deo (91) suggested it was a particularly suitable medium for communicating information to the rural populations of the scattered islands of Fiji, where door-to-door contact (mentioned by Krishna, 1; Kosalko, 16; Mbassa, 101; Edema, 106, among others) would not be practicable.

There was considerable support in the conference for the idea of communicating with rural populations through existing structures such as the extension services. Zidana

(17) favoured this means for Malawi where extension planning areas, each with staff of sector-specific expertise housed in the villages and thus part of the rural communities, represented platforms for providing information on new technologies in agriculture. Farnese (22) pointed out that in Canada, although extension agents played a key role in communicating unbiased, balanced information, their numbers had been significantly reduced. Zidana (51), supported by Brown (52), proposed that extension service staff could deliver information materials to radio stations for dissemination by radio at a given time. Dunn (64) suggested that extension, instead of being an add-on discipline to hard science, should be included in the biotechnology research from the beginning. In a similar vein, Harris (83) suggested that "science should itself be produced through a discursive or dialogic process involving public social decision makers". Ezeronye (111) argued that communication of information to the rural people would benefit greatly from the involvement of representatives from many disciplines, including biotechnology experts, researchers, environmental scientists and lawyers, and that an international body like FAO could help in this endeavour.

Torres (60) saw a role for development communicators, who could provide guidance on what information should be shared, "with whom, with what expected behavior outcome, through what channels, and at what cost". She said that, in this context, it was essential to "know the stakeholders" as they cannot all be lumped together into a "faceless public". One way of knowing the stakeholders, proposed by Torres (38) and Protz (112), was to use KAP (knowledge, attitude and practice) surveys, the results of which allow "an understanding of the differences among rural people so that effective communication strategies and participation approaches can be designed".

The need to use local languages to communicate information effectively was stressed by many contributors (e.g. Chibisa, 9; Krishna, 18; Vallings, 26; Zidana, 51; Mesghenna, 55). Khouma (8) said they had translated some GMO booklets into local languages in Senegal, while Deo (91) promoted the use of local languages through the radio for information dissemination.

Protz (107) drew attention to the circumstances in the Caribbean, where she said that a range of factors, including race, class, gender, age and religion, needed to be considered in communicating with rural communities. She suggested that civil servants, NGOs, extension officers, teachers, health workers and staff of farm supply stores could play a useful role in communicating information. She also pointed out that, in the Caribbean, rural men and youths might be contacted through rum shops, while women gather more at churches, clinics, schools and markets. Women's groups and teachers were also mentioned as being important in Kenya (Keter, 34) and New Zealand (Vallings, 26), among other countries. In some circumstances, religious leaders could play useful roles in providing and communicating credible information to rural communities according to Mesghenna (55) and Protz (107, 112). Other means of communication, in harmony with local traditions, included staging drama (Ahmed, 109; Protz, 113) and making use of model farmers (Mesghenna, 82), train-the-trainers programmes and imbizos (Ashton, 100), community elders (Mesghenna, 55) and farmer organisations (Rakotonjanahary, 97) to promote farmer-to-farmer communication. In summary, as Steane (81) noted, methods of communication of information will depend on the country and its culture.

2.6 Costs of public participation

Involving the rural people in decision-making on GMOs can be difficult and expensive (e.g. Obura, 35). Even for developed countries, getting information to and from the public can be costly, as indicated by Müller (115), who gave an example from the Canadian debate on GM wheat. She pointed out that Canada has good

communication systems, is democratic and does not have a problem of illiteracy and yet considerable time and money was needed for farmer organisations and environmental groups to influence the debate. Sitengu (39) suggested that the costs of involving rural people might be too large in the presence of limited resources in a developing country and might not be prioritised when pressing issues of debt repayment, health and education had to be considered. Kambikambi (29) pointed out that if the public needed to be educated to allow them to participate effectively, it would increase the costs of the GM product to be put on the market. Krishna (36) suggested, however, that the costs were not high when compared to the expense of developing GM products. Chibisa (65) argued there might also be a cost to not including rural people in the decision-making process (e.g. lack of public confidence in regulatory mechanisms).

Hogg (54) suggested that if countries were prepared to work as regional units, then money and other scarce resources could be saved. Citing the case of the Caribbean countries, she suggested that they lack economies of scale and could also speak with a greater voice as an economic, strategic planning and policy-making regional block. Lin (68) mentioned a regional initiative called the African Policy Dialogues on Biotechnology that, although not addressing the rural population directly, aims at national and regional consensus. Ramirez (57) said there was a need for national and regional fora on a global scale to continue what FAO had begun through this e-mail conference.

Many contributors supported a shared responsibility for the costs. Zidana (51) considered that as a developing country government is responsible for its citizens it is up to the government to seek funds for such initiatives, which would usually come from development projects funded by developed countries. Birner (116) thought that the government or international donors should bear the costs. Steane (81) felt that costs should be borne by the government, the companies involved and "whoever else is directly involved in the planning, operating and scientific evaluation and reporting of results". Hogg (42, 87) thought that the financial burden should be shared between GMO producers, local and national governments and non-governmental agencies. Chibisa (65) suggested the government should contribute, together with NGOs and farmer organisations. Torres (38), however, advocated that those selling an innovation should bear the costs associated with public participation and Ahmed (109) also believed that the GMO producer should pay.

2.7 International agreements/guidelines and public participation

Several contributors raised issues of public participation in connection with international agreements/guidelines on decision-making and GMOs. Lin (10, 13, 85) pointed out that many developing countries have signed international agreements (such as the Convention on Biological Diversity, the Cartagena Protocol on Biosafety and various World Trade Organisation agreements) that are relevant to GMOs. He (10, 13) argued, supported by Muchugi (19) and Krishna (36), that national autonomy has been limited by signing these agreements and this might compromise the outcomes of an eventual national debate and public decision-making process on GMOs, leading to disillusionment with the consultation process. He emphasised that, before developing regulatory frameworks and approving GM products, development of a national biotechnology policy, based on public consensus and decision-making, should be the priority. Krishna (36) highlighted the importance of three international instruments relevant to public participation and GMOs that were mentioned in the Background Document (i.e. the Aarhus Convention, the Cartagena Protocol on Biosafety and Codex principles on risk analysis), but noted that some countries had not made provisions for these public participation issues in their national legislation. Paz (74) suggested that the Brazilian government had shown little interest in

applying the Codex principles on risk analysis. Krishna (1) also noted the relevance of the Rio Declaration to this area.

Oliva (20) provided details on the Aarhus Convention, stating that decisions on GMOs were currently excluded from the binding requirements on public participation, but that discussion of various options for a legally-binding approach in the field of GMOs was ongoing *[After the e-mail conference was finished, at the 2nd meeting of the Parties to the Aarhus Convention in May 2005, an amendment to the Convention was adopted, extending the rights of the public to participate in decision-making on GMOs...Moderator]*. She also discussed the Cartagena Protocol on Biosafety, writing that, although of more limited application than the Aarhus Convention, it does contain important public participation provisions.

3. Participation

The conference ran for four weeks, from 17 January to 13 February 2005. There were 508 subscribers to the conference, of which 70 (i.e. 14%) submitted at least a single message. There were 116 messages in total. Contribution to the conference was global, with 24 messages (21%) coming from Europe, 23 (20%) from Africa, 20 (17%) from North America, 17 (15%) from Latin America and the Caribbean and 16 each (14%) from Asia and Oceania. Contributors were living in 35 countries, the greatest numbers of messages coming from people in the United States, Australia, India, France, Canada, Jamaica, Spain, Kenya, the Philippines and the United Kingdom respectively. Participants living in developing and developed countries contributed equally to the conference in terms of the numbers of message submitted. The majority of messages came from people working in universities (37%), as independent consultants (22%), in research centres (20%), for non-governmental organisations (14%) and in government ministries (3%).

4. Name and country of participants with referenced messages

Ahmed, Kasem Zaki. Egypt
Ashton, Glenn. South Africa
Beitel, Karl. United States
Benedito, Vagner Augusto. Brazil
Bhatia, C.R. India
Birner, Regina. United States
Blanchfield, Ralph. United Kingdom
Blaney, Sonia. Canada
Bridges, Anne. United States
Brown, J. Lynne. United States
Burke, Derek. United Kingdom
Chibisa, Gwinyai. Zimbabwe
Claparols, Javier. The Philippines
Cuming, David. United Kingdom
Dakunimata, Ruci. Fiji
Deo, Permal. Fiji
Djoulde, Darman Roger. Cameroon
Dunn, Anthony. Australia
Edema, Olayinka. Nigeria
Ezeronye, O.U. Nigeria
Farnese, Patricia. Canada
Ferry, Michel. Spain
Goven, Joanna. New Zealand
Harris, Craig. United States
Hodges, John. Austria
Hogg, Bridget. Bahamas

Hossain , Zakir. Bangladesh
Huyer, Sophia. Canada
Infante, Diógenes. Venezuela
Izquierdo, Luis Plácido Ortega. Cuba
Jarrín, Galo. Ecuador
Kambikambi, Tamala Tonga. Zambia
Keter, Carol. Kenya
Khouma, Mamadou. Senegal
Kosalko, Sylvia. United States
Kosky, Rafael Gómez. Cuba
Krishna , Janaki. India
Lin, Edo. France
Mayer, Jorge. Germany
Mbassa, Gabriel. Tanzania
McNeely, Jeffrey. Switzerland
Mesghenna, Yoel. Eritrea
Mkula, Charles. Malawi
Moghaddam, Atefeh Fooladi. Iran
Muchugi, Alice. Kenya
Müller, Birgit. France
Nasar, S.K.T. India
Newman, Julie. Australia
Nishio, John. United States
Obura, Mallowa Sally. Kenya
Okello, Paul. Italy
Oliva, Maria Julia. Switzerland
Olutogun, Olusanya. Nigeria
Paz, Sezifredo. Brazil
Protz, Maria. Jamaica
Rakotonjanahary, Xavier. Madagascar
Ramirez, Ricardo. Canada
Seth, Ashok. United Kingdom
Shantharam, Shanthu. United States
Sitengu, Jackson. Zambia
Soleri, Daniela. United States
Steane, David. Thailand
Stone, Glenn Davis. United States
Torres, Cleofe. The Philippines
Vallings, Zelka. New Zealand
Zidana, Hastings. Malawi

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