

## 10. Risk communication among stakeholders

### Introduction

Risk communication is one of the three distinct but closely linked components of risk analysis as defined by the Codex Alimentarius Commission<sup>35</sup>. It is “the interactive exchange of information and opinions throughout the risk analysis process concerning risk, risk-related factors and risk perceptions, among risk assessors, risk managers, consumers, industry, the academic community and other interested parties, including the explanation of risk assessment findings and the basis of risk management decisions”. Along with risk assessment and risk management, risk communication is integral to the overall risk analysis of a food derived from recombinant-DNA plants. Risk communication is the science of understanding scientific and technological risk and how it is communicated within a sociopolitical structure (Powell, 2000).

The processes of assessing the risks involved, and the methods of managing them whilst focusing on health and the safety of the environment, need to be communicated in a simple comprehensive manner without getting into the depths of the technological details involved. It is useful to make it clear to the stakeholder that if a GM crop has a bacterial gene for a specific protein, it does not mean that the transformed crop will be harbouring the bacterium itself, but it only means that the crop now has the capability of producing the new protein from within its own physiology using the gene that was originally present in the bacterium. Once this is established, the communication details should focus on the various regulatory processes involved in ensuring the safe deployment of the technology and its benefits to the end users.

<sup>35</sup> *Working principles for risk analysis for application in the framework of the Codex Alimentarius* (adopted by the 26th Session of the Codex Alimentarius Commission, 2003; Codex Alimentarius Commission Procedural Manual; 13th edition)

#### Box 10.1. Risk communication in the process of risk analysis

1. promote awareness and understanding of the specific issues under consideration during the risk analysis;
2. promote consistency and transparency in formulating risk management options/recommendations;
3. provide a sound basis for understanding the risk management decisions proposed;
4. improve the overall effectiveness and efficiency of the risk analysis;
5. strengthen the working relationships among participants;
6. foster public understanding of the process, so as to enhance trust and confidence in the safety of the food supply;
7. promote the appropriate involvement of all interested parties;
8. exchange information in relation to the concerns of interested parties about the risks associated with food.

### Essential features of risk communication

The Codex Alimentarius Commission (2003) lists the characteristics that should be included in risk communication in the process of risk analysis (Box 10.1).

The major function of risk communication should be to ensure that all information and opinions required for effective risk management are incorporated into the decision-making process. It should include a transparent explanation of the risk assessment policy and of the assessment of risk, including the uncertainty. The need for specific standards or related texts and the procedures followed to determine them, including how the uncertainty was dealt with, should also be clearly explained. It should indicate any constraints,

uncertainties, assumptions and their impact on the risk analysis, and minority opinions that have been expressed in the course of the risk assessment. However, even though it is expected to be transparent and accessible to all interested parties, if there are legitimate concerns to

preserve confidentiality, these should be respected while information on the risk analysis should be made available.

Risk communication is an important part of the biosafety procedures that ensure public acceptance of food derived from recombinant-DNA plants. To communicate and interact with the public at large about the specific risks and the actions taken to alleviate them before the recombinant-DNA crop reaches the field or the derived food reaches the markets is a crucial step in reassuring the stakeholders. It is also a mechanism that builds confidence among the stakeholders in a gradual manner, moving along with the different phases of the development of the recombinant-DNA plant and the foods derived from it. In the absence of this channel, a void gets created leading to the stakeholders not being made aware of the efforts taken by the regulators to reduce the risks assessed with the technology. This also encourages the spread of fictitious stories from not fully informed individuals to others, along with their own potentially misleading messages.

Media coverage of food derived from recombinant-DNA plants can become polarized into safety versus risk; science moving forward versus science out of control; competitiveness versus safety (Powell and Leiss, 1997). Media analysis is a tool used to help understand the formation of public opinion and to look at what people are saying and what they are being told. This reliance on the media helps to define the public's sense of reality (Nelkin, 1987) and their perceptions of risks or benefits.

Risk communication can be divided into two major components: technical components that generally comprise the scientific hazards evaluated in the risk assessment and the management options arising out of the assessment, and non-technical components that include the administrative protocols, and the cultural and ethical issues in society as dealt with by the regulatory agencies during the process of risk analysis.

## Regulatory risk communication

Regulatory risk communication starts primarily by keeping the stakeholder groups (the whole food chain involving scientist, farmer, trader, processor, product developer, market player [retailer] and consumer) informed of the upcoming technology as soon as the technology development project for a particular crop is approved by an institution. From this stage onwards, methods need to be devised for comprehensible transmission of information at various stages of product development until it reaches the markets, so that the primary stakeholder at each stage is taken into confidence.

It is important that only accurate information should be given, as risk communication tends to influence psychological and cultural beliefs. Assessment of the scientific risks must be coupled with appropriate research-based risk management and communication activities to provide consumers, the media and others with a balanced, science-based assessment of both

**CODEX PRINCIPLES PARAGRAPH 22.** Effective risk communication is essential at all phases of risk assessment and risk management. It is an interactive process involving all interested parties, including government, industry, academia, media and consumers.

**CODEX PRINCIPLES PARAGRAPH 23.** Risk communication should include transparent safety assessment and risk management decision-making processes. These processes should be fully documented at all stages and open to public scrutiny, whilst respecting legitimate concerns to safeguard the confidentiality of commercial and industrial information. In particular, reports prepared on the safety assessments and other aspects of the decision-making process should be made available to all interested parties.

**CODEX PRINCIPLES PARAGRAPH 24.** Effective risk communication should include responsive consultation processes. Consultation processes should be interactive. The views of all interested parties should be sought and relevant food safety and nutritional issues that are raised during consultation should be addressed during the risk analysis process.

the potential benefits and the risks of a particular technology, and to positively impact the development of public policy. The challenge is to incorporate public perceptions into policy development without abdicating the leadership role of science.

Risk communication is addressed in the Codex Principles for the Risk Analysis of Foods Derived from Modern Biotechnology (see Appendix 1) as follows.

Risk communication is used to explain both how and why decisions are taken. It specifically acknowledges any concerns raised by stakeholders, including the public, and explains how these concerns have been addressed. This captures the reality that risk communication is an iterative exchange between interested and affected parties that primarily, but not exclusively, focuses on risks. In practice, because of the wide diversity of stakeholders involved in agricultural biotechnology, risk communication is largely a non-technical dialogue about both real and perceived risks.

It is widely recognized that more could – and should – be done to make information concerning the safety assessment of novel foods available to the public. This has become more important with increased consumer interest in the safety of food derived from recombinant-DNA plants. The OECD countries and intergovernmental organizations are looking for new ways to share their experiences. They are promoting information dissemination and sound understanding of the safety issues on the part of consumers (OECD, 2000). A number of countries have adopted measures concerned with sharing information on the safety assessment of GM foods with the public. These include:

- a. inviting public comments on reports containing safety evaluations by scientific assessment bodies;
- b. disclosure of data used in safety assessments to support applications;
- c. publication of results of meetings of safety assessment bodies.

Regulatory authorities are actively involving, and consulting, the public with regard to food safety and regulation. Some authorities have a policy of full disclosure of the information contained in applications (except for confidential commercial information). The Internet is increasingly used to make information on safety assessment and approval procedures available to the public. It is a good source of information on crops and other foods that have been approved. Some countries are exploring the potential of the Internet to make details of applications more widely available, in order to make the assessment process as open, transparent and inclusive as possible.

The OECD's BioTrack Online site (<http://www.oecd.org/ehs/service.htm>) is a valuable source of information on regulatory developments in Member countries. It includes information on responsible ministries or agencies, and details of laws, regulations and guidelines. There are also two important databases, one of products that have been commercialized, and the other of field trials of GM crops that have taken place in OECD countries.

## Risk communication as a two-way process

Regulatory risk communication deals with providing information about the regulatory framework and processes designed to assess and manage risk, such as policy development, application processes, stakeholder participation, product-specific decisions, and access to the information that is used to inform regulatory decision-making. In order to avoid real or perceived conflicts of interest many regulatory agencies undertake only regulatory risk communication activities and leave more technology- or product-focused communication efforts to other stakeholder groups. As much effort should be put into gathering input and feedback as into giving out information.

To be effective, regulatory risk communicators need to devise appropriate mechanisms to receive feedback, analyse it and use the information to revise and improve their communication outreach. Obtaining feedback and input from stakeholders enables regulators and risk assessors

**Box 10.2. Useful considerations in risk communication****Know the audience**

Before formulating risk communication messages, the audience should be analysed to understand their motivations and opinions. Beyond knowing in general who the audience is, it is necessary actually to get to know them as groups, and ideally as individuals, to understand their concerns and feelings and to maintain an open channel of communication with them. Listening to all interested parties is an important part of risk communication.

**Involve the scientific experts**

Scientific experts, in their capacity as risk assessors, must be able to explain the concepts and processes of risk assessment. They need to be able to explain the results of their assessment and the scientific data, assumptions and subjective judgements upon which it is based, so that risk managers and other interested parties clearly understand the risk. They must also be able to communicate clearly what they know and what they do not know, and to explain the uncertainties related to the risk assessment process. In turn, the risk managers must be able to explain how the risk management decisions have been arrived at.

**Establish expertise in communication**

Successful risk communication requires expertise in conveying understandable and usable information to all interested parties. Risk managers and technical experts may not have the time or the skill to perform complex risk communication tasks, such as responding to the needs of the various audiences (public, industry, media, etc.) and preparing effective messages. People with expertise in risk communication should therefore be involved as early as possible in the process. This expertise will probably have to be developed by training and experience.

**Be a credible source of information**

Information from credible sources is more likely to influence the public perception of a risk than is information from sources that lack this attribute. The credibility accorded to a source by a target audience may vary according to the nature of the hazard, culture, social and economic status, and other factors. If consistent messages are received from multiple sources then the credibility of the message is reinforced. Factors determining source credibility include recognized competence or expertise, trustworthiness, fairness and lack of bias. For example, the terms that consumers have associated with high credibility include factual, knowledgeable, expert, public welfare, responsible, truthful and good “track record”. Trust and credibility must be nurtured, and it can be eroded or lost through ineffective or inappropriate communication. In studies, consumers have indicated that distrust and low credibility result from exaggeration, distortion and perceived vested interest.

Effective communications acknowledge current issues and problems, are open in their content and approach, and are timely. Timeliness of the message is most important because many controversies become focused on the question “why didn’t you tell us sooner?”, rather than on the risk itself. Omissions, distortions and self-serving statements will damage credibility in the longer term.

**Share responsibility**

Regulatory agencies of governments at the national, regional and local levels have a fundamental responsibility for risk communication. The public expects the government to play a leading role in managing public health risks. This is true when the risk management decision involves regulatory or voluntary controls, and is even true when the government decision is to take no action. In the latter event, communication is still essential to provide the reasons why taking no action is the best option. In order to understand public concerns and to ensure that risk management decisions respond to those concerns in appropriate ways, the government needs to determine what the public knows about the risks and what the public thinks of the various options being considered to manage those risks.

The media play an essential role in the communication process and therefore share these responsibilities. Communication on immediate risks involving human health, particularly when there is a potential for serious health consequences, such as with food-borne illnesses, cannot be treated in the same manner as less immediate food safety concerns. Industry also has a responsibility for risk communication, especially when the risk is as a result of their products or processes. All parties involved in the risk communication process (e.g. government, industry, media) have joint responsibilities for the outcome of that communication, even though their individual roles may differ. Because science must be the basis for decision-making, all parties involved in the communication process should know the basic principles and data supporting the risk assessment and the policies underlying the resulting risk management decisions.

**Differentiate between science and value judgement**

It is essential to separate “facts” from “values” in considering risk management options. At a practical level, it is useful to report the facts that are known at the time as well as the uncertainties that are involved in the risk management decisions being proposed or implemented. The risk communicator bears the responsibility to explain what is known as fact and where the limits of this knowledge begin and end. Value judgements are involved in the concept of acceptable levels of risk. Consequently, risk communicators should be able to justify the level of acceptable risk to the public. Many people take the term “safe food” to mean food with zero risk, but zero risk is often unattainable. In practice, “safe food” usually means food that is “safe enough”. Making this clear is an important function of risk communication.

**Assure transparency**

For the public to accept the risk analysis process and its outcomes, the process must be transparent. While respecting legitimate concerns to preserve confidentiality (e.g. proprietary information or data), transparency in risk analysis consists of having the process open and available for scrutiny by interested parties. Effective two-way communication between risk managers and the public and other interested parties is both an essential part of risk management and a key to achieving transparency.

to identify and address stakeholder concerns. Often the best route for information dissemination involves strengthening existing information channels. For example, if governments publish progress updates in local newspapers, mechanisms to use this for agricultural biotechnology risk communication may be best in the short term. However, if governments rely only on mechanisms such as “Government Gazettes”, which are poorly distributed, to inform the public then attention needs to be paid to alternative ways of disseminating information to and receiving it from the target groups.

Credibility is often built into a communication process by providing technical reviews of the process in simple language. For example, reviews can be commissioned that explain the science and technology involved in the process and the regulatory procedures involved (Beever and Kemp, 2000).

Different audiences or stakeholder groups have different needs and so it is important to understand an audience well before designing communication for them. Identifying an audience’s needs, concerns, knowledge level, opinions and preferred mechanisms for communicating through consultation supports the development of a communication style that will be effective.

The type of audience should also be carefully considered when selecting the best communicators. Effective communicators need to be credible and trusted, and different people may be required for different target groups. In addition communicators need to have excellent language and listening skills. In general, the credibility of communicators depends on cultural norms and differs from society to society and between sectors.

Two targeted questions that need to be answered during risk communication are: “are foods from recombinant-DNA plants safe?” and “what foods have been genetically modified?”. This raises the issue of choice and knowing what foods from recombinant-DNA plants may be in the marketplace. In order to address these questions, regulatory authorities typically make information available about the national regulatory framework that identifies the competent authorities; details the regulatory requirements for the different stages in product development (e.g. research and development, confined or experimental field testing, and premarket safety assessments); explains how safety assessments are conducted, and clearly indicates how decisions are made, including opportunities for public participation in decision-making and the factors taken into account by decision-makers. The feedback is also put within a time frame so that any additional information or clarification can be provided to interested parties.

Additionally, many regulatory authorities publish product-specific decision summaries that provide information about specific transgenic events.

The report of a joint FAO/WHO Expert Consultation on the application of risk communication to food standards and safety matters provides a helpful summary of principles for risk communication that are applicable to those involved in communicating about the regulation and safety assessment of foods from recombinant-DNA plants<sup>36</sup>.

## Risk communication in safety assessment

Although most countries attempt to provide complete and clear information on the foods derived from recombinant-DNA plants, the information itself is often found to be too complex and multidisciplinary in nature to be understood fully by the public without bias or ambiguity. The challenge is to present the material in a suitable form for different audiences without compromising the accuracy of the information. It is necessary to make the message as communicative as possible to enable the consumer to make an informed choice on accepting the food derived from recombinant-DNA plants with reference to the risks associated with it. The Canadian Biotechnology Advisory Committee (CBAC, 2002) considered the options listed below.

- a. **Creation of better information about the regulatory system.** An initial step may be to improve the description and communication of information about the Canadian food regulatory

<sup>36</sup> FAO. 1999. *The application of risk communication to food standards and safety matters*. FAO Food and Nutrition Paper 70. Rome, Food and Agriculture Organization. <http://www.fao.org/docrep/005/x1271e/x1271E00.HTM>



system for GM and other novel foods, and to ensure that the material provided is complete, understandable and easily retrievable. A variety of media (for example, the Internet, booklets, articles) could be used to make the information more widely available. The material could be presented with various levels of complexity to be helpful to different readers.

- b. **Creation of a centralized information body.** A centralized body for consumer information on food biotechnology could provide information on food production, GM foods and other novel food biotechnology, relevant laws and regulations, scientific knowledge, perspectives on ethical and social issues, ongoing research and activities, and how to contribute to government-related activities. In addition to discussing the traditional foods and plant-breeding practices, an attempt should be made to provide a meaningful description of the benefits, risks and uncertainties associated with different types of foods.
- c. **Increase public awareness and engagement.** In addition to the above options, a proactive communications programme may be useful for increasing public awareness. Opportunities for Canadians to comment on various aspects of GM foods could be provided through public dialogue sessions.

The Biotechnology Consortium of India Limited (BCIL) is another such communication portal and is a unique combination of public–private partnership providing all the technical information and social concerns with respect to biosafety assessment on recombinant-DNA research and commercial activities. Developed on the pattern of the biosafety clearing house concept, it also undertakes to conduct workshops in different parts of the country in an open forum involving all stakeholders and regulatory agencies on specific issues (BCIL, 2007). For interested parties, hyperlinks or downloadable access to self-contained reviews may be provided to enable an informed understanding among stakeholders on the safety issues, and effective management strategies.

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