Food Quality and Safety: A Priority Area of FAO

Key points

Food quality is specified in terms of composition, identity characteristics and safety. The qualities should be in conformity with claims made in labelling.

Food safety concerns assurance that the food will not cause harm to the consumer when it is prepared and eaten according to its intended use.

The 1996 World Food Summit (WFS) reaffirmed that access to safe and nutritious food is not a luxury of the rich but a right of all people. Food safety is inherent in the concept of food security.

Although public awareness of food safety issues has increased dramatically in developed countries recently, mechanisms of science-based risk analysis, supported by Codex Alimentarius Commission, have been in place for considerably more time.

FAO attaches very high priority to supporting the establishment and implementation of international frameworks in the areas of human, plant and animal health, which fall within its mandate.

FAO, in partnership with its sister agencies of the United Nations system, particularly the World Health Organization (WHO), is engaged in a series of important initiatives to enhance food safety in developed and developing countries. This, in turn, will facilitate trade in safe foods.

The nature of emerging food safety concerns

Food safety hazards

The causes and categories of food safety hazards are many. The principal categories include those of microbiological origin, contaminants entering the food chain from the environment, and residues of substances used in agricultural production and processing systems. The public perceives agricultural residues, principally from nitrate fertilisers, pesticides and veterinary drugs as major sources of risk to health, but empirical evidence does not support these perceptions. Science-based risk assessment and risk management techniques are well established and effective for these types of substances in food.

Of increasing concern is the high level, and possibly rising trend, of food-borne diseases resulting from microbiological contamination, which can occur at all stages in the food chain. Methods for assessing and managing these risks are in need of considerable improvement.

Challenges to food safety also arise from new strains of bacterial pathogens, new food and feed products and increasing anti-microbial resistance of food-borne pathogens. The rapid
transmission of these hazards through the expansion of trade makes responses to these challenges even more urgent.

Natural toxins, such as mycotoxins, constitute a real concern for all countries because of their significant impact on human health, animal productivity and domestic and international trade. A recent World Bank study has estimated that African countries incur annual costs on the order of US$250 million because of non-compliance of their export groundnut products with the aflatoxin standards of importing countries.

The use of modern biotechnology for the genetic modification of plants, microorganisms and animals for the production and processing of foods poses additional concerns to certain consumer groups. FAO recognises that modern biotechnologies have great potential to raise agricultural productivity, to reduce dependence on harmful chemicals and to raise the nutritional value of foods. However, FAO also acknowledges that there are possible risks to human and animal health and to the environment, which require case-by-case risk assessment.

**Public awareness of food safety issues**

Food safety and quality are of interest to every individual. Consumers expect their food to be enjoyable, nutritious and safe. Unfortunately, we are still far from meeting these expectations in many parts of the world, including the affluent countries. All countries, including those with high food standards and sophisticated food inspection and control systems, experience cases of food contamination and related health hazards.

Public awareness of food safety issues has increased dramatically, especially in developed countries, in the 5 years since the WFS. This awareness is derived from concerns over BSE (Bovine Spongiform Encephalopathy), antibiotic-resistant pathogenic bacteria in foods, dioxin contamination, outbreaks of food-borne illnesses due to microbial contamination and the finding that a genetically-modified maize approved only for animal feeding appeared in foods intended for human consumption.

These recent experiences confirm that particular caution should be exercised in dealing with emerging and unpredicted food-based health hazards and that more effective rapid alert and response mechanisms are required.

**Food safety concerns in developing countries**

Often, consumer lobbies are less vocal and regulatory systems less effective in developing countries. However, serious food contamination outbreaks and health hazards occur and may be undetected until they lead to sickness or death.

Food systems in developing countries are not always as organised and developed as in the industrialised world. Moreover, problems of growing population, urbanisation, lack of resources to deal with pre- and post- harvest losses in food, and environmental and food hygiene issues mean that food systems in developing countries continue to be stressed, adversely affecting the quality and safety of food supplies. People in these countries are exposed to a wide range of potential food quality and safety risks.

Where hygiene is poor, frequently due to lack of access to clean water, microbial contamination is commonplace. This is a major source of illness and mortality, especially amongst children.
Misuse and excessive use of pesticides is of greater concern in developing countries than developed countries. This often leads to residue levels that exceed internationally established standards and most national legislative standards.

The participation of developing countries in international standard setting fora, such as the Codex Alimentarius Commission, is often sporadic and insufficient. This inhibits equal participation in the decision-making processes regarding the establishment of international food standards, guidelines and recommendations pertaining to food quality and safety. In addition, there often is no national institutional mechanism that enables these countries to present a consolidated position when discussing a topic of interest for them at such fora.

International efforts to harmonise and improve the regulatory frameworks for food safety and quality

**International mechanisms for establishing standards for the protection of human, plant and animal health**

A perception exists amongst the public that some food safety crises have arisen because existing measures are ineffective or inefficiently applied. There are perceptions that measures are applied only in the interest of increased trade or benefits to producers or to industry, but not necessarily in the interest of consumers. While this may occasionally be so, these perceptions also reflect a lack of awareness by a segment of the public about the existing regulatory institutions.

The existing international mechanisms for establishing standards for the protection of human, plant and animal health are well prepared to meet the safety interests of consumers as stipulated by the Agreements on Sanitary and Phytosanitary Measures (SPS) and on Technical Barriers to Trade (TBT) of the WTO and other relevant agreements. Of course, these mechanisms are constantly evolving in light of emerging concerns, particularly in the context of the globalisation of markets. FAO plays an important role in supporting the establishment and implementation of international frameworks in the areas of human, plant and animal health, which fall within its mandate. FAO provides the secretariat for two of the three international standard-setting bodies referred to in the relevant WTO agreements.

Together with WHO, FAO provides the secretariat for the Codex Alimentarius Commission, which deals with food standards for the protection of human health. Codex is a very comprehensive standard-setting mechanism aiming to seek international harmonisation of rules to ensure food quality and safety and contribute to fair international trade. The Codex Alimentarius Commission is an inter-governmental body currently with a membership of 165 countries and encompassing a large array of subordinated committees dealing with the various aspects of food quality and safety.

The International Plant Protection Convention (IPPC), with its secretariat in FAO, deals with plant health. Animal health is dealt with by another organisation, the International Organization for Epizootics (OIE), with which FAO has close contacts.

FAO also contributes technical inputs to other international bodies and agreements where they relate to food and agriculture. Of importance, in particular, is the Cartagena Protocol on Biosafety that was concluded in January 2000.
Strengthening the scientific basis of food safety standards and procedures

Food quality and safety standards are based on the principle of sound scientific analysis and evidence, involving a thorough review of all relevant information. When elaborating and deciding upon food standards, the Codex Alimentarius Commission also takes account of, where appropriate, other legitimate factors relevant to the health protection of consumers and the promotion of fair practices in food trade. Moreover, consideration of health and safety aspects in this standard setting process should be based on risk assessment, involving sound science and quantified to the extent possible, as appropriate to the situation.

FAO attaches high priority to the application of risk assessment in all matters involving food safety, including in the work of the Codex Alimentarius Commission, based on sound scientific advice and evidence provided by panels of independent experts. Panel members are selected in a transparent and open process, and participate as experts in their own right and not as representatives of their respective governments or institutions. At present, there are two permanent panels, the Joint FAO/WHO Expert Committee on Food Additives and Contaminants (JECFA), and the Joint FAO/WHO Meeting on Pesticide Residues (JMPR). In addition, FAO and WHO convene expert consultations when needed to address specific issues not covered by the permanent panels. For example, there have been consultations genetically modified foods and animal feed.

With regard to genetically modified foods, a special effort is currently underway for reaching an international consensus on the general principles for their risk assessment and management. This is the subject of an inter-governmental task force on foods derived from biotechnology.

Efforts are being made internationally to bring food safety issues into closer focus, with emphasis on the scientific basis of decision-making and the exercise of caution when the scientific base is inadequate. Efforts are being made to improve communication with consumers and the public at large on science-based risk assessments of food.
The Codex Alimentarius Commission

The Codex Alimentarius Commission (CAC) is the most complex of the standard-setting mechanisms. It deals with food quality and safety, particularly as related to international trade in food. Codex is an inter-governmental body served by a joint FAO/WHO secretariat.

The Codex Alimentarius is a collection of international food standards which have the principal aim of protecting the health of consumers. Through the wide adherence to harmonised and science-based food standards, this contributes to fair practices in food trade and to the avoidance of unjustified trade barriers. Inter-governmental decisions on these standards are based on the principle of sound scientific analysis and evidence. Consideration can also be given to other legitimate factors, where appropriate.

The Agreement on Sanitary and Phytosanitary Measures provides that international food safety standards are those adopted by the Codex Alimentarius Commission, and requires parties to the Agreement to harmonise their national safety standards with the Codex standards. Measures which conform to these international standards are presumed to meet the requirements of the WTO. Countries may apply measures that are more strict than the international standards, if such measures are justified on the basis of scientific risk assessment.

Of the many sensitive and controversial issues which the Codex Alimentarius Commission has had to address, the risk evaluation of the safety implications of genetically modified foods is certainly one of the most important and complex. Recently, Codex has established the Intergovernmental Task Force on Foods derived from Biotechnology, which has held two meetings in Japan. It is hoped that by the end of 2003, the CAC will adopt the Draft General Principles for the Risk Analysis of Foods Derived from Recombinant-DNA Plants, which is being prepared by the Task Force. An interim report was submitted to the 2001 Session of the Codex Alimentarius Commission in July this year.

FAO initiatives to address food safety issues globally, regionally and nationally

FAO places high priority on food safety issues. At the global and regional levels, FAO provides a forum for its members to consider norms and standards for adoption through the relevant bodies such as the Codex Alimentarius Commission. At the national level, FAO also provides direct assistance and advice. In particular, advice is given to developing countries to strengthen their food control and safety systems both for the benefit of their consumers and to enable these countries to engage in international trade. In these efforts, FAO collaborates closely with WHO and other concerned organisations including the World Bank and development assistance agencies of member countries.
FAO/WHO Global Forum of Food Safety Regulators, October 2001

As suggested by the G-8 Okinawa Summit, the purpose of the Global Forum is to promote the exchange of information and experience on ways and means to deal with food safety concerns of importance to public health and international food trade. It aims to advance the process of science-based public consultations and to facilitate capacity building in the food safety control. Subsequent fora may be considered on the basis of the experience gained at this forum.

Subjects to be addressed at the forum include: experiences in the reduction of food-borne hazards; communicating food safety regulations and risk management procedures; the scientific basis for food safety regulations; interactions between food safety risk assessors and risk managers; ensuring compliance with food safety regulations; emerging food-borne illnesses; new inspection models and their implications for food safety regulations; experiences with the implementation of Codex standards and guidelines; and transboundary consequences of food safety emergencies.

The Global Forum will not be a decision making body, nor will it duplicate the work of the Codex Alimentarius Commission or other organisations. It will bring together officials involved in the regulation of food and risk management from all member countries of FAO and WHO. Representatives of international organisations will be invited and non-governmental organisations representing consumers, producers, the food industry and trade interests will be observers.

The Global Forum is scheduled for 22-24 October 2001 in Marrakech (Morocco).

Pan-European Conference on Food Safety and Quality

The 22nd Session of the FAO Regional Conference for Europe (Porto, July 2000) endorsed the proposal made by the Minister of Agriculture of the Netherlands to organise a conference on food safety and quality for the entire European region. In addition, it requested that similar conferences be organised for other FAO regions.

The main objective of the Pan-European Conference is to promote the creation of a platform for mutual understanding of food safety and quality problems among the countries of the region. It will foster institutional co-operation and the exchange of information on policy and technical issues of relevance to food safety in the region. The Conference aims to provide an opportunity for countries to discuss measures to improve the reliability of the European food production and distribution system and to restore consumer confidence in the safety of foods. Furthermore, the Conference will discuss the feasibility of establishing a Pan-European information and communication system on food safety.

The Conference will be held in Budapest, 18-21 February 2002, jointly with WHO.
Joint WHO/FAO/OIE Technical Consultation on BSE, Public Health and Trade

This Consultation, held in Paris, 11-14 June 2001, reviewed the scientific information available on Bovine Spongiform Encephalopathy (BSE) and addressed outstanding questions related to this animal disease and its transmission to humans in the form of variant Creuzfeldt-Jacobs Disease (vCJD). The Consultation provided member countries with recommendations relevant to the protection of human populations from vCJD and livestock populations from BSE, and the prevention of global spread of BSE and vCJD through appropriate international, regional and national actions.

Participants included BSE specialists, veterinary and medical experts, representatives of consumer associations, other international organisations, experts from developing countries and national food control and public health authorities.

Global Facility on Food Safety and Quality for Least Developed Countries

Food safety and quality in the Least Developed Countries (LDCs) is of paramount importance not only for public health but to improve the competitiveness of their food products in the international market. Often, their food control systems and institutions are weak: basic elements include food legislation, food inspection, and quality assurance.

This facility would support national capacity building in the development of national food quality and standards and enhancing participation of LDCs in international standard setting bodies such as the Codex Alimentarius Commission.

The facility would support two types of activities: improving government regulatory frameworks, including legislation, inspection, laboratory facilities and participation in international standard setting bodies and capacity building for ensuring food safety and quality, including on- and off-farm food handling, processing, distribution and packaging.

Resources for the facility would come from voluntary contributions from bilateral and multilateral donors (multi-donor trust fund). The fund would be administered by FAO and managed by a steering committee with representatives from relevant United Nations agencies, bilateral and multilateral donors, national agencies and relevant civil society organisations of LDCs.

It is estimated that implementing projects to achieve the objective of the facility within 3-5 years would require on average of US$ 2 million per country, or US$ 96 million for the 48 LDCs.
International Mechanism on Food Safety and Plant and Animal Health Information

Access to information on food safety, animal health and plant health is of paramount importance for countries to protect human health, agriculture and the environment as well as to facilitate international trade. Such information includes international standards and scientific evaluations, national legislation, regulations and standards; international and national alerts related to food safety and plant and animal health.

Easy access to this information creates a common ground for determining equivalency and assessing risk. However, as the need for relevant information has increased, access to such information has become more problematic. The proliferation of digital information sources now outpaces the ability to organise, search and access data.

FAO believes there is an urgent need for a mechanism by which the relevant, existing information is gathered in a systematic and organised manner and made publicly available to all interested parties. The mechanism, to be based on a portal, or single access point technology would enable users to search and to view relevant existing Internet sites and databases. The main sources would be official information issued and published by competent authorities in member countries as well as by regional and international organisations. Ownership of information would remain with the originators.

The Government of the United States of America and the Government of the Netherlands have made initial contributions for the development of the mechanism.