

Committee on Sanitary and Phytosanitary Measures

REPORT BY THE WORLD HEALTH ORGANIZATION (WHO)

Meeting of 10-11 July 2001

A. JOINT ACTIVITIES WITH FAO AND OIE

1. Joint FAO/WHO Expert Committee on Food Additives (JECFA)

During the period 1998-2001 eight meetings of JECFA were held:

- Fiftieth meeting, Rome, Italy, 17-26 February 1998. *Veterinary drugs*
- Fifty-first meeting, Geneva, Switzerland, 9-18 June 1998. *Food additives*
- Fifty-second meeting, Rome, Italy, 2-11 February 1999. *Veterinary drug residues*
- Fifty-third meeting, Rome, Italy, 1-10 June 1999. *Food additives and contaminants*
- Fifty-fourth meeting, Geneva, Switzerland, 15-24 February 2000. *Veterinary drug residues*
- Fifty-fifth meeting, Geneva, Switzerland, 6-15 June 2000. *Food additives and contaminants*
- Fifty-sixth meeting, Geneva, Switzerland, 6-15 February 2001. *Mycotoxins*
- Fifty-seventh meeting, Rome, Italy, 5-14 June 2001. *Food additives and contaminants*

(a) Evaluation of food additives and contaminants

Approximately 740 food additives, including 680 flavouring agents, were evaluated at the fifty-first, fifty-third, fifty-fifth, and fifty-seventh meetings of JECFA. Thirteen contaminants were evaluated at the fifty-third, fifty-fifth, fifty-sixth, and fifty-seventh meetings: lead, methylmercury, zearalenone, cadmium, tin, aflatoxin M₁, fumonisins, ochratoxin A, deoxynivalenol, T-2 and HT-2 toxins, 3-chloro-1,2-propanediol, 1,3-dichloro-2-propanol, and dioxins.

Principles governing the assessment of food additives and contaminants, which are included in the general consideration sections of the reports published in the WHO Technical Report Series, are updated on a continuous basis. Toxicological monographs are published in the WHO Food Additives Series and specifications for the identity and purity of food additives are published in addenda to FAO Food and Nutrition Paper No. 52.

At its fifty-third meeting the Committee reviewed a WHO Expert Report on the scientific criteria for including and/or excluding specific food and food products as food allergens at the request of the Codex Committee on Food Labelling and considered the allergenicity of peanut and soya bean oils.

(b) Evaluation of veterinary drugs

Residues of 43 veterinary drugs in food were evaluated at the fiftieth, fifty-second, and fifty-fourth meetings of JECFA. One β -adrenoceptor-blocking agent, 7 anthelmintic agents, 15 antimicrobial agents, 3 antiprotozoal agents, 1 glucocorticosteroid, 8 insecticides, 6 production aids, and 2 tranquilizing agents were considered. Acceptable daily intakes (ADIs) were established either at these or earlier meetings and a large number of maximum residue limits (MRLs) were recommended for most of these veterinary drugs.

JECFA has made substantial progress in harmonising its procedures with those of JMPR for assessing substances used either as pesticides or as veterinary drugs, including new or revised definitions regarding the matrix or product to which an MRL applies.

Reports are published in the WHO Technical Report Series. Toxicological monographs are published in the WHO Food Additives Series and residues monographs are published as addenda to FAO Food and Nutrition Paper series 41.

2. Joint FAO/WHO Meeting on Pesticide Residues (JMPR)

During the period 1998-2000 three meetings of JMPR were held:

- 1998 JMPR, Rome, Italy, 21-30 September 1998
- 1999 JMPR, Rome, Italy, 20-29 September 1999
- 2000 JMPR, Geneva, Switzerland, 20-29 September 2000

The 1998 JMPR evaluated 28 pesticides, including one new compound and 18 that were subjected to full re-evaluation, for toxicology or residues or both, within the Periodic Review Programme of the Codex Committee on Pesticide Residues (CCPR). The 1999 JMPR evaluated 30 pesticides, including one new compound and 12 that were completely re-evaluated. The 2000 JMPR evaluated 20 pesticides, including one new compound and 10 compounds that were re-evaluated. The 2000 Joint Meeting also evaluated one contaminant, DDT.

The 2001 JMPR will be held in Geneva, Switzerland, from 16 to 25 September. Three pesticides will be evaluated for the first time and 10 full re-evaluations will be undertaken.

Joint FAO/WHO Workshop on Methodology for Exposure Assessment of Contaminants and Toxins in Foods

The purpose of the Workshop held 7-8 June 2000 in Geneva, Switzerland, was to bring together people with expertise in exposure assessments and people with experience in the Codex standard-setting processes. The Workshop produced a publication entitled "Methodology for Exposure Assessment of Contaminants and Toxins in Food" (WHO/SDE/THG/FOS/00.5) which outlines the main steps of a method for undertaking exposure assessment.

Second International Total Diet Workshop

This Workshop will be held on 12-23 November 2001 in Brisbane, Australia with the purpose to develop procedures for Total Diet Studies in Member States and to train staff and encourage participation in such studies. Member States who undertake these activities will acquire data which is needed for an effective participation in Codex-standard setting processes and also in assessing risks posed by chemical chemicals in food at a national level. Assessment of such risks builds capacity for priority setting of food-borne risks and allows effective risk management. This Workshop will be

held in collaboration with a FAO workshop on food composition and nutrient assessment, also held in Brisbane.

Meeting of Global Environment Monitoring System/Food Contamination Monitoring and Assessment Programme (GEMS/Food-Euro) Contact Points

This meeting which will be held on 10-12 July 2001 in Berlin, Germany, will discuss the re-establishing of data collection and cooperation in the area of food contamination monitoring. A training course in the electronic reporting of data will be held immediately following the Workshop.

3. Microbiological Risk Assessment

Risk analysis of microbiological hazards in foods has been identified as a priority area of work for the Codex Alimentarius Commission and microbiological risk assessment as a priority for WHO and FAO. In response, FAO and WHO, have jointly launched a programme of work with the objective of providing expert advice on risk assessment of microbiological hazards in foods to their Member countries and to the Codex Alimentarius Commission. To implement this programme of work, FAO and WHO have convened the following major meetings:

Joint FAO/WHO Expert Consultations on Risk Assessment of Microbiological Hazards in Foods

Expert Consultation in March 1999

FAO and WHO convened this Consultation to take the next step in the development of an international strategy and supporting mechanisms for risk assessment of microbiological hazards in foods.

First expert consultation in July 2000

The risk assessments of *Salmonella* spp. in broiler chicken and eggs and *Listeria monocytogenes* in ready-to-eat foods began in January 2000 with a plan of a two-year process. In July 2000 an expert consultation was convened to review the hazard identification, exposure assessment and hazard characterization components of the risk assessment (FAO Food and Nutrition Paper 71. *Joint FAO/WHO Expert Consultation on Risk Assessment of Microbiological Hazards in Foods*, 2000). That expert consultation made recommendations for the improvement of the documents, identified knowledge gaps and information requirements needed to complete the risk assessment work, and developed a list of issues to be brought to the attention of the CCFH. The report of that consultation was presented to the 33rd Session of the Codex Committee on Food Hygiene for further guidance on the future direction of the work. In the discussion that followed, the CCFH put forward a number of specific risk management questions related to these pathogen-commodity combinations that they wanted to have addressed in the risk assessment (ALINORM 01/13A).

Second expert consultation in April 2001

The 2nd expert consultation examined the technical documents provided by the drafting groups on risk characterization of *Salmonella* spp. in broiler chickens and eggs and *Listeria monocytogenes* in ready-to-eat foods with the following objectives:

- To critically review the risk assessments giving particular attention to the assumptions on which the risk assessments are based.

- To use the risk assessments of *Salmonella* spp. in broiler chickens and eggs and *Listeria monocytogenes* in ready-to-eat foods to provide a science based response to the specific risk management questions posed by the 33rd session of the CCFH and guidance on how these results may be used by the CCFH.
- To provide advice and guidance on how the FAO/WHO risk assessments on *Salmonella* spp. in broiler chickens and eggs and *Listeria monocytogenes* in ready-to-eat foods can be adapted by FAO/WHO Member countries to their national situations.

The report presents a summary of the risk characterizations, answers to the questions posed by the CCFH, and recommendations for the adaptation of these risk assessments to the work of Member countries. This report will be presented to the 34th Session of the CCFH in October 2001. Following a peer review and a public review, FAO and WHO will publish the complete risk assessment documents as well as interpretative summaries of the risk assessments for use by their Member countries and the CAC.

Third expert consultation in July 2001

In March 2001 FAO and WHO initiated risk assessment work on two more pathogen-commodity combinations identified as priority issues by the CCFH, namely *Vibrio* spp. in seafood and *Campylobacter* spp. in broiler chickens. Two *ad hoc* expert drafting groups have been established to examine the available relevant information on the above mentioned pathogen-commodity combinations and these are currently preparing documentation on both the exposure assessment and hazard characterisation steps of the risk assessment. These documents will be reviewed and evaluated by the joint expert consultation in July 2001.

In October 2001 the preliminary report of this Joint FAO/WHO Consultation on risk assessment of microbiological hazards in foods will be delivered to CCFH. The preliminary report will address exposure assessment and hazard characterization for the two pathogen-commodity combinations. The CCFH is expected to define more focused questions for the expert drafting group's continued work. A final report will be delivered in 2002.

4. Joint FAO/WHO Expert Consultations on Foods Derived from Biotechnology

In 1999 FAO and WHO decided to organize, in support of the work of the Codex *Ad Hoc* Intergovernmental Task Force on Foods Derived from Biotechnology, a series of expert consultations on the safety of genetically modified foods (GM foods), recognizing the increasing interest in this issue among their member countries. FAO and WHO have organized two Joint FAO/WHO Expert Consultations.

The First Consultation held in Geneva from 29 May to 2 June 2000 dealt with scientific principles for the evaluation of safety and nutritional aspects of GM foods and concentrated on the notion of substantial equivalence¹. The Consultation prepared also replies to specific questions raised by the Task Force on Foods Derived from Biotechnology at its first session.

The Second Consultation² held in Rome from 22 to 25 January 2001 addressed specifically the question of allergenicity of GM foods and modified the decision tree for the assessment of the allergenic potential of foods derived from genetically modified crop plants which had been adopted

¹ WHO (2000): "Safety aspects of genetically modified foods of plant origin" Report of a Joint FAO/WHO Expert Consultation on Foods derived from Biotechnology.

² FAO (2001): "Evaluation of Allergenicity of Genetically Modified Foods" Report of a Joint FAO/WHO Expert Consultation on Foods derived from Biotechnology.

by the 2001 FAO/WHO Joint Consultation. The outcome of both consultations was well taken into account during the drafting work of the Task Force.

The Second Session of the Task Force, held in Chiba, Japan in March 2001, reviewed the Proposed Draft Principles for the Risk Analysis of Foods Derived from Modern Biotechnology and the Proposed Draft Guideline for the Conduct of Food Safety Assessment of Foods Derived from Recombinant-DNA Plants. At the same session, it was decided that, subject to approval of the 24th Session of the Codex Alimentarius Commission, to expand its work in starting the drafting of a Proposed Draft Guideline on the Safety Assessment of genetically Modified Microorganisms in Food and established a new Working Group to prepare a draft document. It was agreed that FAO and WHO would convene a Third Joint Expert Consultation to consider the scientific aspects of the safety assessment of genetically modified microorganisms. The Third Consultation will be held on 24-28 September 2001 in Geneva.

5. FAO/WHO Consultation on the Guidelines for Strengthening National Food Control Systems

The meeting held on 27-28 June 2001 in Geneva reviewed the document to assist development of food control systems in developing countries. The concise draft document produced by the meeting will be circulated for comments with a view to finalizing it around October.

6. Joint Technical Consultation on BSE: Public Health, Animal Health and Trade

A note on the four-day meeting held in Paris on 11-14 June, 2001 has been submitted separately by OIE/FAO/WHO (G/SPS/GEN/260).

B. WHO ONLY ACTIVITIES

1. WHO Strategic Planning Meeting on Food Safety

The 53rd World Health Assembly (WHA) in May 2000 recognized food safety as a priority area of WHO and identified future areas of work on food safety. This reflected global concerns about food safety and its significance as an essential public health function. The Resolution on Food Safety (WHA 53.15) requested the Director General to convene a strategic planning meeting, involving food safety experts, to assist in the development of a WHO Strategy on Food Safety. Following the resolution, WHO convened the Strategy Planning Meeting in February 2001 to consider emerging issues and challenges to food safety at a global level. Based on this and other consultations, WHO has prepared a draft *Global WHO Food Safety Strategy* (Annex) which was submitted to the 108th WHO Executive Board in May 2001. There will be a further consultation with Member States and other interested parties, and the strategy document will be finalized towards the end of this year with a view to adoption at the 55th WHA in May 2002.

Synopsis of A *Global WHO Food Safety Strategy*

The draft strategy document seeks to identify directions that, when taken at a global level, would achieve the WHO goal of reducing food-borne disease. It focuses on concepts of consideration of the food-borne risk to human health along the entire food production chain, while taking cognizance of the need for sustainable agricultural production systems in all regions of the world.

Goal

To reduce the health burden of food-borne disease.

Approaches

- Prevent exposure to unacceptable levels of microbiological agents and chemicals in food along the entire production chain.
- Bring scientific rigour, objectivity and balance to food safety initiatives.
- Adopt an innovative approach to problem solving and accept the challenge of change.
- Advocate and assist in the development of risk-based, sustainable, integrated food safety systems.
- In cooperation with other sectors and partners, effectively and promptly assess, communicate and manage food-borne risks.

The Strategy includes the following approaches:

- I. Strengthening surveillance systems of food-borne disease;
- II. improving risk assessments;
- III. developing methods for assessing the safety of the products of new technologies;
- IV. enhancing the scientific and public health role of WHO in Codex;
- V. enhancing risk communication and advocacy;
- VI. improving international and national cooperation;
- VII. strengthening capacity building in developing countries.

2. Antimicrobial Resistance

(a) WHO Consultation on Global Principles for the Containment of Antimicrobial Resistance in Animals Intended for Food

This Consultation held on 5-9 June 2000 in Geneva with the participation of FAO and OIE focused on the public and human health aspects of antimicrobial use in animals intended for food while recognizing the ongoing need for antimicrobial treatment of diseased animals. The WHO Global Principles for the Containment of Antimicrobial Resistance in Animals Intended for Food is an important component of the general WHO Global Strategy for the Containment of Antimicrobial Resistance. This latter Strategy aims to identify the key factors associated with emerging antimicrobial resistance related to human disease and to develop an effective implementing strategy that will reduce resistance development. Such interventions will involve the general community, prescribers and hospitals and will include the establishment of resistance and antimicrobial consumption surveillance programmes, the reduction of unnecessary animal antimicrobial use, new research and development and the coordination of the work of international organizations.

(b) WHO Consultation on Methods and Principles for the Monitoring of Antimicrobial Usage in Food Animal Production for the Protection of Human Health

In concurrence with recommendations from the WHO Consultation on the Medical Impact of the Use of Antimicrobials in Food Animals, Berlin, October 1997, many international bodies have

identified surveillance of antimicrobial consumption in food animals as a indispensable pre-requisite for the identification of risk factors for the emergence of antimicrobial resistance in zoonotic bacteria and the evaluation of public health intervention for their containment.

However, there is still insufficient information available on antimicrobial consumption, as very little progress has been made on strengthening of antimicrobial usage surveillance at national and international levels. The above-mentioned Consultation will focus on this issue, it will be held in Oslo, Norway, 10-13 September 2001.

Objectives are to develop models for and an inventory on existing national and international strategies for national and international surveillance of antimicrobial usage in food animals for the protection of human health, and to make recommendations to support governments, national authorities, the pharmaceutical industry, international organizations and other stakeholders in their endeavours to establish national antimicrobial usage surveillance programmes

Existing data on the consumption of non-human antimicrobial usage, national experiences and approaches in the setting up of antimicrobial usage surveillance systems will be reviewed.

The WHO Collaborating Centre for Drug Statistics Methodology and pharmaceutical industry representatives will participate in the Consultation. Recommendations and/or guidelines that can assist countries' in their endeavours to establish national monitoring programs will be developed.

3. WHO Consultation on Pre-harvest Food Safety

A WHO Consultation on Pre-Harvest Food Safety, with the participation of OIE and FAO was held in Berlin, Germany on 26-28 March 2001. The meeting focused on activities and measures related to farm-animal production, which contribute to the protection of human health from diseases transmitted to humans via food products originating from these farm animals. It included meat in particular. The Consultation constituted part of WHO's activities for developing sustainable and integrated food safety systems for the reduction of public health risks along the entire food chain, from primary producer to the consumer. In addition to veterinary, medical and academic participants, various international organizations and institutions, which have both interests and important activities in the area of pre-harvest food safety participated in the consultation. Recommendations have been finalized.

4. International Health Regulation Revision

The Executive Board of the World Health Assembly was briefed on the changes and intended direction for the revision of the International Health Regulations in January of this year. There was agreement in principle with the direction proposed by the Secretariat. There is obviously a great deal of work to do to move from the new concepts to a regulatory text, but WHO can now begin testing the new approaches and protocols, in direct collaboration with the Member State experts who have agreed to be part of the extended revision team. Their input will be critical, as they represent the end users of the Regulations, and will be impacted most directly by the changes. There are obviously other international stakeholders in this exercise, and the SPS Committee and the United Nations Agencies like the International Civil Aviation Organization and the International Maritime Organization are good examples. For this reason WHO would like to keep the Committee informed of our progress, and we will seek the advice of the Committee Members as part of our testing and verification process.

Because of the extensive consultation required, the revised date for submission of the final IHR draft to the World Health Assembly is 2004. The IHR will provide the legal framework for the Global Public Health Security concept, and it is an integral part of this larger initiative. Interim agreement will be sought from future meetings of the Executive Board and the World Health

Assembly for pivotal aspects of the IHR, and a series of drafts will be prepared for Member State review well before final submission. Further reports will be provided to the SPS Committee as these aspects are tested and clarified.

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ANNEX

A Global WHO Food Safety Strategy

Safer food for better health

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FOREWORD

FOOD SAFETY: A PUBLIC HEALTH PRIORITY

Food-borne disease takes a major toll on health: Thousands of millions of people fall ill and many die as a result of eating unsafe food. Deeply concerned by this, the Fifty-third World Health Assembly adopted a resolution calling upon WHO and its Member States to recognize food safety as an essential public health function. The Resolution also called on WHO to develop a Global Strategy for reducing the burden of food-borne disease.

The availability of safe food improves the health of people and is a basic human right. Safe food contributes to health and productivity and provides an effective platform for development and poverty alleviation. People are becoming increasingly concerned about the health risks posed by microbial pathogens and potentially hazardous chemicals in food. Up to one third of the populations of developed countries are affected by food-borne illness each year, and the problem is likely to be even more widespread in developing countries. The poor are the most susceptible to ill health. Food and waterborne diarrhoeal diseases, for example, are leading causes of illness and death in less developed countries, killing about 2.2 million people, most of whom are children. Diarrhoea is the commonest symptom of food-borne illness, but other serious consequences include kidney and liver failure, brain and neural disorders, and death. The debilitating long-term complications of food-borne disease include reactive arthritis and paralysis.

New ways for producing, distributing, preparing and eating food present new challenges for ensuring its safety. Food grown in one country can now be transported and consumed halfway across the world. People demand a wider variety of foods than in the past; they want foods that are not in season and often eat away from home. Institutionalizing children in schools and childcare facilities and a growing number of elderly persons in hospitals and nursing homes means that food for many is prepared by a few and can therefore be the source of major food-borne disease outbreaks. Greater life expectancy and increasing numbers of immunocompromised people mean a larger vulnerable population for whom unsafe food is a serious threat.

WHO and its Member States have responded to these new challenges by recognizing food safety as an essential public health function. Food safety must be ensured along the entire food chain by measures based on sound scientific information at both national and international levels. WHO's capacity to assess the risks posed by chemical and microbiological hazards and by new food-related technologies must be enhanced. New methods are needed for evaluating and reducing the burden of food-borne disease. Food safety strategies can be implemented only by countries that have an adequate capacity to do so, and WHO will continue to assist Member States in establishing and updating their systems for improving food safety.

WHO is committed to achieving better health for all people and recognizes food safety as a global public health priority. The food safety strategy described in this document defines a strengthened role for WHO in food safety, outlines the approaches to be taken to reduce the risks posed by microbial and chemical hazards in food, and provides a roadmap for making the world's food safer. As food safety affects the entire community, all stakeholders must be involved. Thus, effective implementation of this strategy will require strengthened partnerships between international organizations involved in food safety as well as between agencies at the national level.

WHY IS FOOD SAFETY AN ESSENTIAL PUBLIC HEALTH ISSUE?

Serious outbreaks of food-borne disease have occurred on virtually every continent in the past decade, illustrating both the public health and social significance of these diseases. Outbreaks are likely, however, to be only the visible aspect of a much broader, more persistent problem. Food-borne diseases most seriously affect children, pregnant women, the elderly and people already affected by other diseases. Consumers everywhere view food-borne disease outbreaks with ever-increasing concern.

Food-borne diseases not only significantly affect people's health and well-being, but they also have economic consequences for individuals, families, communities, businesses and countries. They also impose a substantial burden on health-care systems and markedly reduce economic productivity. Poor people tend to live from day to day, and loss of income due to food-borne illness perpetuates the cycle of poverty.

NEW CHALLENGES TO FOOD SAFETY

The integration and consolidation of agricultural and food industries and the globalization of the food trade are changing the patterns of food production and distribution. These conditions are creating an environment in which both known and new food-borne diseases can become prevalent. Food and feed are distributed over far greater distances than before, creating the conditions necessary for widespread outbreaks of food-borne illness. In a recent crisis, more than 1500 farms in Europe received dioxin-contaminated feed from a single source over a two-week period. Food produced from animals given this contaminated fodder found its way onto every continent within weeks. The effects of exposure to dioxin from this source on public health may become known only after years of investigation. The international spread of meat and bonemeal prepared from cattle affected by BSE need not be described. The full economic consequences of such incidents and the anxiety raised among consumers are still being assessed.

Other factors account for the emergence of food safety as a public health issue. The increasing urbanization leads to greater requirements for transport, storage and preparation of food. Increasing wealth, an urban lifestyle and sometimes a lack of facilities mean that people eat much of their food away from home. In developing countries, food is often prepared by street vendors. In developed countries, up to 50% of the food budget may be spent on food prepared outside the home. All these changes lead to situations in which a single source of contamination can have global consequences. Developing countries in particular are experiencing rapid changes in their health and social environments, and the strains on their limited resources are compounded by expanding urbanization, increasing dependence on stored foods and insufficient access to safe water and facilities for safe food preparation.

The globalization of the food trade offers many benefits to consumers, as it results in a wider variety of high-quality foods that are accessible, affordable and safe, meeting consumer demand. A diversity of foods in a balanced diet improves nutritional status and health. The global food trade provides opportunities for food-exporting countries to earn foreign exchange, which is indispensable for the economic development of many countries and for improving the standard of living of many people. However, these changes also present new challenges to safe food production and distribution and have been shown to have widespread repercussions on health.

Food safety programmes are increasingly focusing on a farm-to-table approach as an effective means of reducing food-borne hazards. This holistic approach to the control of food-related risks involves consideration of every step in the chain, from raw material to food consumption. Hazards can enter the food chain on the farm and can continue to be introduced or exacerbated at any point in the chain until the food reaches the consumer.

Although significant progress has been made in many countries in making food safer, thousands of millions of people become ill each year from eating contaminated food. The public is therefore increasingly aware of the risks posed by pathogenic microorganisms and chemical substances in the food supply. The introduction of new technologies, including genetic engineering and irradiation, into this climate of concern about food safety is posing a special challenge. Some new technologies will increase agricultural production and make food safer, but their usefulness and safety must be demonstrated if they are to be accepted by consumers. Furthermore, the evaluation must be open, transparent and be conducted using internationally agreed methods.

Until recently, most systems for regulating food safety were based on legal definitions of unsafe food, enforcement programmes for the removal of unsafe food from the market and sanctions for the responsible parties after the fact. These traditional systems cannot respond to existing and emerging challenges to food safety because they do not provide or stimulate a *preventive* approach. During the past decade, there was a transition to risk analysis based on better scientific knowledge of food-borne illness and its causes. This provides a preventive basis for regulatory measures for food safety at both national and international levels. The risk-based approach must be backed by information on the most appropriate and effective means to control food-borne hazards.

INTERNATIONAL FOOD STANDARDS BASED ON HEALTH CONSIDERATIONS

The globalization of the food trade resulted in the introduction of international standards. In Resolution WHA 16.42 (May 1963), the Sixteenth World Health Assembly approved the establishment of the Joint FAO/WHO Food Standards Programme, with the Joint FAO/WHO Codex Alimentarius Commission (Codex) as its principal organ. The objective of Codex is to develop standards for food moving in international trade, in order to protect public health, and to ensure fair trading practices.

The Commission has adopted many international standards on food safety. Standards are usually set in consultation with FAO and WHO, but recent international agreements have resulted in inclusion of the World Trade Organization (WTO) as an interested party. All health and safety requirements must be justifiable on the grounds of protecting public health and must be based on a sound, scientific risk assessment.

The elaboration of health-based international standards and their adoption by Member States will improve the safety of food in both the domestic market and at a global level. It can also facilitate trade in food and contribute economically to development and to improving living standards in food-exporting countries. Effective participation in the development of international standards to ensure that they meet the needs of all Member States is vital to this process.

MAJOR ISSUES IN FOOD SAFETY

Food-borne illness can be caused by microbiological, chemical or physical hazards. The nature and extent of these risks are being elucidated by an increasing body of scientific data, although several areas of information gathering, such as the surveillance of food-borne illness, need to be strengthened. There is also mounting concern about new technologies and especially the introduction of genetically modified organisms into the food supply. It is important to recognize that there will always be inherent hazards in the food supply, which may have significant public health, social, economic and political effects.

MICROBIOLOGICAL HAZARDS

Food-borne illness caused by microorganisms is a large and growing public health problem. Most countries with systems for reporting cases of food-borne illness have documented significant

increases over the past few decades in the incidence of diseases caused by microorganisms in food, including *Salmonella*, *Campylobacter jejuni* and enterohaemorrhagic *Escherichia coli*.

One person in three in industrialized countries may be affected by food-borne illness each year. In the USA, some 76 million cases of food-borne illness, resulting in 325 000 hospitalizations and 5000 deaths, are estimated to occur each year. There are only limited data on the economic consequences of food contamination and food-borne disease. In studies in the USA in 1995, it was estimated that the annual cost of the 3.3–12 million cases of food-borne illness caused by seven pathogens was US \$6.5–35 billion. The medical costs and the value of the lives lost during just five food-borne outbreaks in England and Wales in 1996 were estimated at UK£ 300–700 million. The cost of the estimated 11 500 daily cases of food poisoning in Australia was calculated at AU\$ 2.6 billion annually. Approximately 1.8 million children in developing countries (excluding China) died from diarrhoeal disease in 1998, caused by microbiological agents.

The increased incidence of food-borne disease due to microbiological hazards is dependent on a multiplicity of factors, all associated with our fast-changing world. Demographic profiles are being altered, with increasing proportions of people who are more susceptible to microorganisms in food. Changes in farm practices, more extensive food distribution systems and the increasing preference for meat and poultry in developing countries all have the potential to increase the incidence of food-borne illness. Extensive food distribution systems raise the potential for rapid, widespread distribution of contaminated food products. Changes in food production are producing new types of food that may harbour less common pathogens. Intensive animal husbandry technologies, introduced to minimize production costs, have led to the emergence of new zoonotic diseases, which affect humans. Safe disposal of manure from large-scale animal and poultry production facilities is a growing food safety problem, as manure frequently contains pathogens.

Changes in eating patterns, such as a preference for fresh and minimally processed foods, the increasingly longer interval between processing and consumption of foods and the increasing prevalence of eating food prepared outside the home all contribute to the increased incidences of food-borne illness ascribed to microbiological organisms. The emergence of new pathogens and pathogens not previously associated with food is a major public health concern. *E. coli* O157:H7 was identified for the first time in 1979 and has subsequently caused illness and deaths (especially among children) owing to its presence in ground beef, unpasteurized apple cider, milk, lettuce, alfalfa sprouts and drinking-water in several countries. *Salmonella typhimurium* DT104 has developed genetic resistance to five commonly prescribed antibiotics and is a major concern in several countries because of its rapid spread during the 1990s.

These changes in microbiological hazards in foods were recognized by WHA and Codex. The 22nd session of Codex and the 45th Codex Executive Committee requested the Food and Agriculture Organization (FAO) of the United Nations and the World Health Organization (WHO) to convene an international expert advisory body similar to the JECFA and JMPR on the microbiological aspects of food safety to address particularly microbiological risk assessment. The results of these risk assessments will provide the scientific basis for measure to reduce illness from microbiological hazards in foods.

Effective management of microbiological hazards is enhanced through the use of tools like Microbiological Risk Assessment (MRA) and Hazard Analysis and Critical Control Points Systems (HACCP). Sound microbiological risk assessment based on an understanding of the nature of the hazard is a tool to set priorities for interventions. HACCP is a tool for process control through the identification of critical control points. The ultimate goal is improvement of public health, and both MRA and HACCP are means to that end.

CHEMICAL HAZARDS

Chemicals are a significant source of food-borne illness, although effects are often difficult to link with a particular food. Chemical contaminants in food include natural toxicants such as mycotoxins and marine toxins, environmental contaminants such as mercury, lead, radionuclides and dioxins, and naturally occurring chemicals in plants, such as glycoalkaloids in potatoes, may also pose a potential risk to health. Food additives and nutrients such as vitamins and essential minerals, pesticide and veterinary drug residues are deliberately used to increase or improve the food supply, but assurance must first be obtained that all such uses are safe.

Chemical contamination of food can affect health after a single exposure or, more often, after long-term exposure; however, the health consequences of exposure to chemicals in food are often inadequately understood. While assessments of the risks associated with exposure to pesticides, veterinary drugs and food additives are usually supported by extensive information, fewer data are available on the toxicology of contaminants in food. New understanding of the potential for chemicals to affect the immune, endocrine and developing nervous systems should continue to be incorporated into hazard characterizations of chemicals in food.

Risk assessments must take into account the potential risks of sensitive population groups such as children, pregnant women and the elderly. They must also address concern about cumulative, low-level exposure to multiple chemicals. Testing procedures and other methods of assessment for adequate evaluation of these potential risks are being developed and validated. Estimates of the exposure of specific sub-populations are often hampered by inadequate data on dietary intake and on levels of contamination of food. This lack of information is exacerbated in developing countries, where little reliable information is available on the exposure of their populations to chemicals in food.

Public awareness about chemicals in food is relatively high, and consumers continue to express concern about the risks to health due to the deliberate addition of chemicals to food. Increasing concern is also being expressed about the introduction of contaminants into the food chain from industrial pollution of the environment. Recognition that some pesticide residues and other chemicals may affect the hormonal system has further heightened public concern about persistent organic pollutants (POPs).

The challenges for risk assessment of chemicals include consideration of susceptible populations such as children, pregnant women and the elderly, cumulative low-level exposure to multiple chemicals and effects on foetal neural development. Work is needed to develop and validate methods to evaluate these potential risks adequately. The GEMS/Food database should be expanded to include more countries and more comprehensive data on the food intake of sub-populations and on the concentrations of contaminants in food commodities. Improved risk assessments with minimized uncertainty will provide a better, more acceptable basis for international and national standard setting and reduce concern about the safety of food.

SURVEILLANCE

- (a) Outbreaks of food-borne disease attract media attention and raise consumer concern. However, cases of food-borne illness occur daily in all countries, from the most to the least developed. As most of these cases are not reported, the true dimension of the problem is unknown. This hidden burden means that in many countries the issue of food safety fails to secure the resources and support necessary for the identification and implementation of effective solutions.
- (b) Effective control of food-borne disease must be based on evaluated information about food-borne hazards and the incidence of food-borne disease. Development of a

strategy to reduce food-related risks requires knowledge about the current levels of food-borne disease in Member States. It must also be based on an appreciation of the targets and time-frame for improving food safety. This should be an on-going process, in which new targets are set when old ones are achieved, and progress should be monitored continuously in targeted surveys.

The absence of reliable data on the burden of food-borne disease impedes understanding about its public health importance and prevents the development of risk-based solutions to its management. Strategies and methods are needed for surveying food-borne disease and food contamination. An epidemiological, laboratory-based survey system should be based on sentinel sites and regional and/or international laboratory networks. A necessary prerequisite for risk-based strategies based on optimized surveys is an interdisciplinary approach involving strong collaboration among all sectors dealing with food-borne disease surveillance and food safety in the health sector.

NEW TECHNOLOGIES

The objectives of new technologies, such as genetic engineering, irradiation of food, ohmic heating and modified-atmosphere packaging, are to increase agricultural production, extend shelf life or make food safer. Their potential benefit for public health is great: genetic engineering of plants can increase the nutrient content of foods, decrease their allergenicity and improve the efficiency of food production. However, the potential public health effects of these technologies have raised concern globally during the past decade.

Some new technologies benefit the health and economy of communities and contribute to sustainable development. However, countries should be provided with the results of objective, rigorous assessments of the potential risks associated with these technologies before being asked to accept them. Moreover, countries should be assisted in developing capacities for analysis and assessment of such results of risk assessments. The basis for the safety assessments should be easy to understand and well communicated, so that the public can be involved at the early stages of this process. The evaluation should be based on internationally agreed principles that include factors other than considerations of safety and risk, such as (health) benefits, socioeconomic factors, ethical issues and environmental assessments. Such considerations should be developed with other WHO partners such as FAO, UNEP, OECD and the World Bank.

CAPACITY BUILDING

Most developed countries continue to expand their capacity to protect their populations from exposure to unacceptable levels of microorganisms and chemicals in food. Public awareness of the risks involved is relatively high in these countries, and many governments have made clear commitments to improve food safety.

Developing countries have many competing priorities in their health agendas, and food safety has not, in the past, been recognized as a vital public health issue. However, it is becoming clear that food-borne disease has a significant impact on health. The globalization of the food trade and the development of international food standards have also raised awareness of food safety in developing countries. Placing it on the political agenda is the first vital step in reducing food-borne illness.

The consumption of locally produced food is more common in developing countries. Fewer processed and packaged foods are available, large volumes of fresh food are traded in traditional markets, and food eaten outside the home is typically prepared by street sellers. Most of the concern for food safety is related to inappropriate use of agricultural chemicals, poor storage of food, an absence of food inspection, lack of infrastructure such as potable water and inadequate refrigeration and lack of awareness about food safety and hygiene.

Many developing countries are poorly equipped to respond to existing and emerging food safety problems. They lack technical and financial resources, an effective institutional framework, trained manpower and sufficient information about the hazards and risks involved. The risks are especially great in countries where low national income coincides with rapid industrial and agricultural development.

A WHO survey in 1989 of national capacities for effective protection against adverse environmental factors, including a clean water supply, basic sanitation and food safety, showed that less than 10% of the 136 developing countries had adequate capacities. Few of these countries had adequate legislation, standards or regulations or the capacity to enforce and assess them. Most lacked adequately skilled staff, effective mechanisms for intersectoral action and adequate financing and strategies to overcome these limitations. Therefore, while the identification of hazards and risks in food is vital in strategic planning, the capacity to assess and manage those risks is a fundamental lack in many developing countries. Future work will focus on identifying gaps in the infrastructure and capacity of Member States to address food safety, and tailored programmes will be designed to close those gaps. WHO will advocate food safety as a public health issue at the national level and as a priority for funding from donors. WHO will also provide appropriate technical assistance and education tools for food safety initiatives.

THE ROLE OF WHO IN FOOD SAFETY

WHO'S MANDATE

WHO has a specific mandate for the protection of public health. Its mission is '*the attainment by all people of the highest possible level of health*'. WHO's role in food safety is to reduce the burden of food-borne illness by advising and assisting Member States to reduce exposure to unacceptable levels of chemicals or microorganisms in food.

The 1948 Constitution includes specific charges relating to food safety:

- Assist governments in strengthening health services relating to food safety;
- promote improved nutrition, sanitation and other aspects of environmental hygiene;
- develop international standards for food; and
- assist in developing an informed public opinion among all peoples on matters of food safety.

WHO's approach to achieving these changes is to cooperate with countries on technical issues and to stimulate cooperation so that people everywhere may achieve health for all, while maintaining a healthy environment and charting a course for sustainable development. A food supply that is adequate in quantity, quality and safety is a prerequisite for achieving and maintaining the health of the world's population.

WHO FOOD SAFETY INITIATIVES

WHO has been involved in food safety for over five decades. In May 1963, the Sixteenth World Health Assembly approved the establishment of the Joint FAO/WHO Food Standards Programme, with Codex as its principal organ. The main objective of the Commission is to protect the health of consumers and to ensure fair practice in food trade through the elaboration of food

standards contained in a food code (Codex). The participation of WHO was required because of its mandate for public health and food safety.

In 1978, the Health Assembly requested the Director-General to develop a food safety programme and address the control of food-borne diseases and food hygiene.

WHO's central role is a normative one and includes international standard setting and the facilitation of risk assessments. WHO has promoted the concept of risk analysis as a framework for the management of food safety. The main focus is the development of methods for quantitative microbiological and chemical risk assessment, food-borne disease surveillance and assessment of the safety of the products of genetic engineering.

WHO also provides technical assistance to governments, through its regional offices, to ensure a safe food supply for their populations. As a part of its mandate to support capacity building in Member States, WHO provides training in food sanitation in community-based programmes and the Healthy Market Initiatives. In collaboration with international, regional and national agencies, it provides training in risk analysis and other aspects of food safety. WHO assists national governments in developing and implementing food safety programmes and food legislation and provides support for setting up information systems for monitoring food contamination and surveying food-borne disease.

WORLD HEALTH ASSEMBLY RESOLUTION

The Fifty-third World Health Assembly in May 2000 gave unanimous support for Resolution WHA53.15 on food safety. This Resolution confirmed food safety as an essential public health priority and committed WHO and its Member States to a range of multisectoral and multidisciplinary actions to promote the safety of food at local, national and international levels. Specifically, it resolved to expand WHO's responsibilities in food safety, and to use limited resources efficiently to promote interventions that will improve global food safety to promote food safety as an essential public health function.

WHO'S FOOD SAFETY STRATEGY

Goal

To reduce the health burden of food-borne disease.

Approaches

- Prevent exposure to unacceptable levels of microbiological agents and chemicals in food along the entire production chain.
- Bring scientific rigour, objectivity and balance to food safety initiatives.
- Adopt an innovative approach to problem solving and accept the challenge of change.
- Advocate and assist in the development of risk-based, sustainable, integrated food safety systems.
- In cooperation with other sectors and partners, effectively and promptly assess, communicate and manage food-borne risks.

Issues

- Public trust and confidence places WHO in a leadership position in global food safety.
- Current food safety systems do not perform optimally, and new preventive efforts are needed to reduce the burden of food-borne disease.
- A risk-based approach should be used to set priorities for risk-reducing activities.
- Cooperation between international agencies, especially FAO, must be improved and better links forged between national agencies involved in food safety to eliminate duplication, promote interdisciplinary work and increase the effectiveness of activities to reduce food-borne disease.
- Food safety systems based on a preventive approach, such as HACCP, are needed, especially in developing countries. Such systems should be based on the premise that food safety is a priority for health.
- Effective participation of Member States, especially developing countries, is needed in setting international standards.
- Risk assessment, surveillance and capacity building contribute to reducing food-borne disease.

The WHO Food Safety Strategy has been developed with the assistance of experts from Member States, regional advisers in food safety, international partners and related programmes at WHO. Its aim is to identify global needs in food safety and to provide a global approach to reducing the burden of food-borne illness. The Strategy gives broad lines of action which, when adopted, will result in a reduction in food-borne illness. It aims to reinforce the pivotal role of WHO in global food safety and to assist Member States, donor agencies and funding organizations to identify, support and implement programmes that address this issue.

WHO has pointed out that traditional food safety measures have not been efficient in preventing food-borne disease over the last decades primarily because of problems of linking hazard in foods with human health risk and because of poor collaboration between the different actors in food safety management systems. WHO's goal of reducing the public health burden of food-borne disease can best be achieved through systematic application of risk analysis. Structures and systems must therefore be developed at national, regional and international levels to survey food-borne disease, conduct risk assessments and implement risk management strategies. Capacity building and coordination of scientific effort are essential roles of WHO and are important elements of its food safety strategy, but these must be combined with strong commitment and resources in order to ensure food safety through targeted, risk-based prevention initiatives.

In implementing this strategy, WHO will take a prominent role in promoting food safety and act as the international broker and coordinator of food safety initiatives, primarily in cooperation with FAO. WHO will assist in raising the profile of food safety for public health at the national level, promote the development of a global framework for food safety and assist with capacity building in food safety to Member States, including the provision of technical assistance.

The WHO food safety strategy outlines the broad lines of action needed to reduce food-borne illness. Once the Strategy has been agreed upon by Member States, WHO will elaborate a more detailed work plan outlining specific activities and initiatives to ensure the Strategy's success. The Strategy is predicated on a long-term commitment to food safety as a means of improving public health, which will be reflected in medium- and long-term work plans.

While the existing activities in food safety have focused primarily on hazards in food, the proposed strategy will address the broader concept of risk along the entire food production chain. It will take into consideration the need for sustainable agricultural production systems in all regions of

the world and will redirect some of the existing approaches to ensure that they meet the emerging challenges of global food safety.

The proposed Global Strategy takes into account strategies and resolutions on food safety that have been adopted by regional committees, which are consistent with the new Global Strategy. Countries are therefore urged to take guidance from them in improving food safety.

The Strategy includes the following approaches:

- I. Strengthening surveillance systems of food-borne diseases;
- II. improving risk assessments;
- III. developing methods for assessing the safety of the products of new technologies;
- IV. enhancing the scientific and public health role of WHO in Codex;
- V. enhancing risk communication and advocacy;
- VI. improving international and national cooperation;
- VII. strengthening capacity building in developing countries.

APPROACH I

Strengthening surveillance systems of food-borne diseases

Surveillance of food-borne diseases is becoming an increasingly high priority in the public health agenda in many countries. It is instrumental for estimating the burden of food-borne diseases, assessing its relative impact on health and economics and evaluating disease prevention and control programmes. It allows a rapid detection and response to outbreak. In addition, it is a major source of information for conducting risk assessment, and more broadly for risk management and communication. Food-borne disease surveillance should be integrated with food monitoring data along the entire feed-food chain. Integrating such data would result in robust surveillance information and will allow appropriate priority setting and public health interventions. Intersectorial and inter-institutional collaborations are of paramount importance.

The WHO strategy recognizes that surveillance of food-borne diseases should be given a high priority in the development of food safety infrastructure. Building capacity for public health laboratories to conduct laboratory-based surveillance and for conducting epidemiologically-based surveillance are important global public health objectives. The needs of developing countries should be particularly considered. WHO should be proactive in establishing one or more sentinel sites for food-borne disease in developing countries. There is a need to develop and coordinate a global approach to strengthen surveillance at national, regional and international levels. Food-borne disease reporting should be integrated into the revision of the International Health Regulations.

Activities:

- Encourage Member States commitment to food-borne disease surveillance.
- Facilitate the strengthening of food-borne disease surveillance systems (laboratory- and epidemiologically-based systems) and food monitoring programmes.
- Promote sentinel sites in developing countries.
- Develop and coordinate global approaches for food-borne disease surveillance.

APPROACH II

Improving Risk Assessments

WHO and FAO have been in the forefront of the development of risk based approaches for the management of public health hazards in food. Risk analysis is well established for chemical hazards. Now WHO and FAO are extending the experience and expertise developed in risk analysis for chemical hazards to microbiological hazards. WHO and FAO have embarked on a new programme of activities with the objective of conducting risk assessments that can serve as a basis for risk assessment. The results of these risk assessments will be published in a new series of documents on microbiological risk assessment.

The development by Codex of an internationally agreed framework for risk analysis that serves as a basis for setting food standards at national and international levels has focused attention on the adequacy of risk assessments. WHO has a long history of providing assessments of risk in food to Codex and to Member States. The Joint FAO/WHO Expert Committee on Food Additives (JECFA) and the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) are recognized as being at the forefront of scientific knowledge in assessing the risks of chemicals in food. The pressure on these advisory bodies to meet the needs of the Commission is increasing. JECFA and JMPR must also deal with issues such as cumulative exposure to low concentrations of chemicals, foetal neurotoxicity and the risks of specific sub-populations. To meet the needs in this area, the work of WHO in risk assessment will be strengthened, and the reports of the assessments will be more detailed and be made available to Member States more promptly. WHO will also review the procedures used by the expert bodies to ensure consistency, transparency and to avoid conflict of interests.

Through the GEMS/Food programme, WHO plays a leading role in promoting the collection, collation and evaluation of data on chemicals in foods and the total diet at regional and international levels. WHO develops and maintains the GEMS/Food databases and the OPAL database, which are the main sources for estimating exposure to chemicals in food. These databases must be strengthened to meet the demand for information on differences in exposure to chemicals in different regions. They are also needed for estimating the exposure to chemicals of subgroups within populations, such as children. These challenges are being taken up by WHO and are being incorporated into the work of JECFA and JMPR.

A better evaluation of the burden of food-borne disease is urgently required in order to set priorities for future activities of national food safety programmes. The available data suggest that the frequency of food-borne disease is increasing globally, but disease incidence and cause-and-effect relationships must be documented. WHO will initiate a Global Strategy for surveying food-borne diseases by urging Member States to set up laboratory-based systems covering both outbreaks and endemics and for monitoring contamination of food by chemicals and microorganisms. When

requested by Member States, WHO will support capacity building for data collection and survey systems. WHO will also establish common, internationally agreed formats for harmonized data collection and determine the minimal data requirements for future food safety initiatives in the regions. WHO will also develop a web-based system to collect, report and communicate data from surveys conducted in Member States. A surveillance system for *Salmonella* and anti-microbial resistance already exists.

Activities:

- Development of internationally agreed tools for national and international standard setting and for setting national priorities and food safety initiatives;
- development of timely, appropriate risk assessments to serve as a basis for international standards and guidelines and national food regulations;
- development of accurate, comprehensive information on the global status of food-borne disease and on chemicals and microorganisms in food;
- development of timely, readily available risk assessments from JECFA, JMPR and JEMRA to Member States;
- effective transfer of technologies and data for microbiological risk assessments between countries.

APPROACH III

Methods for Assessing the Safety and Risks of New Technologies

Application of advances in biotechnology to food production presents consumers with new challenges and questions. The Resolution of the Fifty-third World Health Assembly recognized genetic engineering of food as an important public health issue and resolved that WHO should strengthen its capacity to provide a scientific basis for decisions on the effects on human health of genetically modified foods.

WHO and FAO have worked since 1990 to achieve consistent standards and criteria for assessing the safety of foods and food ingredients derived from genetic engineering. The Joint FAO/WHO Expert Consultation, held in June 2000, established the substantial equivalence approach as a key step for assessing safety and risks and as general guidance for scientific assessment of the risks associated with genetically modified food. The safety assessment itself requires an integrated, consistent, case-by-case approach to the evaluation of such foods. A subsequent Expert Consultation focused mainly on the allergenic potential of genetically modified foods, which remains the most widely discussed issue in this area. Reliable methods are needed for assessing the allergenic potential of foods produced by recombinant DNA technologies.

WHO continues to take part in discussions on this subject by providing expert advice on the health risks of these new technologies and by contributing to a better understanding of new developments in order to address the concerns of consumers. Future work will be coordinated with the activities of other international organizations. This series of expert consultations will continue to provide a scientific framework for the safety and nutritional assessment of foods derived from biotechnology, as well as for the inclusion of other scientific aspects of the introduction of such foods.

Activities:

- Promotion of a holistic approach to the production and safe use of foods and food ingredients derived by both traditional and new methods of production, including genetic engineering;
- development of improved, internationally agreed methods and guidelines for evaluating the safety of new technologies;
- formulation of policy and guidance on the use of foods and food ingredients derived by genetic engineering;
- development of a framework for evaluation that includes not only considerations of safety but also factors such as health benefits, environmental effects and socioeconomic consequences.

APPROACH IV

Enhancing the Scientific and Public Health Role of WHO in Codex

Unsafe food produced in one country or region poses a potential problem for all consumers, as the global distribution of food increases the possibility that contaminated food produced in one country could pose a risk in other or all parts of the world. The establishment of global food safety standards will help to protect people everywhere from the risks of food-borne disease. While considerable resources are allocated to food safety in most developed countries, the greatest challenges remain in building systems and infrastructures for reducing food-borne illness in developing countries.

The Resolution of the Health Assembly recognized the importance of standards, guidelines and other recommendations of Codex in protecting the health of consumers and ensuring fair trading practices. WHO plays a major role in the scientific and public health work of Codex, by providing scientifically based risk assessments of short-term and long-term risks to health related to food. It also plays a significant role by advocating that the standards set by the Commission are based on considerations of public health and safety.

WHO will improve the methods for risk assessment for chemicals and microbiological hazards in food in order to provide accurate, globally representative bases for standard setting by Codex. In regard to GEMS/Food databases, it will strive to obtain better data on food intake and on the level of contamination of food in developing countries to ensure that the risk characterizations provided to Codex are of global significance. The risk assessments will also provide adequate information to risk managers on issues such as the risks associated with exposure of children, pregnant women and the elderly to food-borne chemicals.

The adoption and enforcement of national standards consistent with Codex standards will help to ensure a safe food supply and will also facilitate entry into the global marketplace. It is essential that developing countries and regions participate effectively in the development of Codex standards. To do so, they must develop and/or improve their survey and monitoring methods for food contamination and intake and use these data to establish achievable international limits and recommendations for hazards in food. WHO will assist countries with local technical and scientific training and, when possible, assist them in obtaining the necessary data for risk assessments.

Activities:

- Greater involvement of the health sector in the development of Codex standards, guidelines and recommendations;
- work to ensure that the decisions of Codex are based on the premise that the health of consumers must be protected;
- encourage and assist in the effective participation of developing countries in the work of Codex.

APPROACH V

Enhancing Risk Communication and Advocacy

WHO recognizes the importance of open, intelligible risk communication between all parties affected by food-borne risks and will take a prominent role in both global and regional initiatives. Good communication will result in useful dialogue between the stakeholders (consumers) in risk analysis and will enable their participation in the process. It will also increase information sharing and consumer education aimed at improving food safety practices at home.

Enhancing risk communication will promote consumer confidence in the safety of the food supply. Risk communication is an essential component of any strategy for food safety. Clear, accurate, readily accessible information about food safety issues must be available to the entire community. The high level of trust that Member States have in WHO places it in a responsible position with regard to risk communication on matters of food safety. Risk communication must address the specific needs of the target audience — Member States, consumers, the food industry and regulators — by gauging which mechanisms and technologies are best for delivering the messages. Countries may need special assistance in risk communication strategies.

The WHO risk communication strategy must encompass information derived from risk assessments, crisis response and rapid alert systems and perceptions of risk. Communication of uncertainties and greater transparency in risk assessment and risk management are both important and WHO should explore ways to improve effective interaction between risk assessors and risk managers. WHO risk assessments must thus be clear and concise and be made available promptly.

One of the major impediments to improving food safety at a global level is the relatively low priority given to this issue in the public health agendas of many developing countries. WHO will advocate food safety as a priority. It will sensitize policy-makers in Member States by emphasizing the many public health and economic gains to be achieved by increased activity in this area, such as the alleviation of human suffering and prevention of loss of life, the reduction of poverty, reduction of the costs of medical treatment and those associated with sick leave, improvement of the marketability of food with all the attendant benefits for economic development, and the promotion of tourism.

WHO will continue to exercise a leadership role in food safety by developing a risk communication strategy and a range of products designed to promote food safety in Member States.

Activities:

- Advocacy to ensure that food safety is considered a public health priority;
- advocacy to ensure that the results of risk analyses are communicated in a readily understandable form to permit dialogue between stakeholders, including consumers;
- development of food safety products and publications for targeted audiences;
- development of dialogues and methods for fostering participation, including focusing and evaluating the effects of risk communication.

APPROACH VI

Improving International and National Cooperation

Wide-ranging cooperative activity is needed to ensure safe food at both national and international levels. WHO must work in collaboration with other international organizations to include food safety as an essential public health function. The goal of such collaboration is sustainable, integrated food safety systems to ensure a reduction in health risks along the entire food chain, from primary production to the consumer. WHO has established a network of Collaborating Centres for various aspects of food safety which have contributed significantly to the work of the Organization.

WHO's scientific and public health role in the work of Codex, undertaken jointly with FAO within the Joint FAO/WHO Food Standards Programme, will expand to meet the challenges of food safety and to ensure that standards are set on the basis of the protection of public health. WHO will also continue its work with WTO to ensure that Member States take health considerations into account in the globalization of trade. WHO also collaborates on food safety with UNEP, UNDP, ILO, OECD, and many other nongovernmental organizations, including Consumers International, International Association of Consumer Food Organizations, the Industry Council for Development, the International Life Sciences Institute, development banks and academia. This collaboration should be based upon the comparative understanding of each organization.

At the country level, WHO will improve the coordination of food safety activities in order to raise awareness about the public health issues and to reduce duplications of effort and confusion about the roles of the various sectors involved in food safety. The *Guidelines for Strengthening Food Control Systems* drafted by WHO and FAO and the preparation of guidelines for national food legislation are examples of the type of assistance provided to Member States.

Activities:

- Support Member States in taking health considerations into account in the globalization of food trade, in cooperation with WTO;
- establish an international coordination group on food safety to ensure a consistent, effective approach to food safety;
- coordinate activities on food safety undertaken by international bodies at the country level;
- develop effective links and coordination among agencies involved in food safety in Member States.

APPROACH VII

Capacity Building

WHO attempts to improve food safety in Member States predominantly through its regional and country offices. While much progress has been made by the provision of technical cooperation for the development of national food safety programmes and capacity building, much remains to be done.

The Food Safety Resolution of the Fifty-third World Health Assembly (WHA53.15) requested the Director-General to support capacity building in Member States, and especially in less developed countries, and to facilitate their full participation in the work of Codex and its various committees, including risk analysis.

Inadequate capacities in developing countries continues to be a major obstacle in achieving WHO's food safety objectives. Underdevelopment poses difficulties for producing safe food, for domestic consumption and export. Countries that gain these capacities can improve health at both national and international levels. Improved capacity for surveying and monitoring is essential in enabling individual countries to assess the risks associated with food hazards and to set priorities and manage those risks more effectively.

Many developing Member States are considering the adoption of new food laws and food regulatory systems. In establishing systems for delivering safer food, they can draw lessons from the experience of more developed Member States and build food safety programmes that are based on the public health principle of prevention, rather than on the concept of sanctions. Their programmes should include laws that give them a clear mandate and the authority to include prevention and to take a holistic view in reducing food-borne disease.

Capacity building activities range from advocacy to technical collaboration with ministries of health (and other partners) in Member States and include human resource development. The building of national capacity for food safety involves many players, such as the health, agriculture, trade and commerce sectors as well as provincial and municipal governments. It is essential that capacity building be based on collaboration and coordination among these actors. The health portfolio is often, but not always, the most appropriate lead agency at the national level.

Capacity building must start with an assessment of gaps and needs to ensure that the activities are appropriate and will address deficiencies, including the absence of national food safety plans, outdated laws and regulations, the absence of surveys for food-borne disease, poorly resourced and structured food inspectorates and a lack of educational and training materials for food safety. The key steps include strengthening local technical and scientific capacity and developing effective educational tools and programmes.

The WHO Regional Offices have developed or are in the process of developing regional strategies for food safety. The Global Strategy has taken these draft regional strategies into consideration. Success in capacity building depends on strong involvement of the Regional Offices in identifying food safety capacity needs and priorities. Training remains an important component of capacity building. WHO Collaborating Centres should be better used for training staff in fields such as surveying food-borne disease and laboratory technologies. These centres could also be used in coordinating regional food safety activities and more innovatively to achieve food safety goals.

Activities:

- Encourage donor support for food safety as a priority in public health in the least developed countries;
 - development of regional food safety strategies based on both the common elements outlined in the WHO food safety strategy and specific regional needs;
 - establishment of a network of WHO collaborating centres engaged in capacity building;
 - provision of technical assistance and educational tools for food safety initiatives.
-