



FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS



E

GF/PROCEEDINGS

FAO/WHO
GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakesh, Morocco, 28 – 30 January 2002

Improving Efficiency and Transparency in Food Safety Systems
Sharing Experiences

PROCEEDINGS OF THE FORUM

FAO
Rome, April 2002

FAO/WHO
GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakesh, Morocco, 28 – 30 January 2002

*Improving Efficiency and Transparency in Food Safety Systems
Sharing Experiences*

PROCEEDINGS OF THE FORUM

TABLE OF CONTENTS

INTRODUCTION.....	1
REGULATORY ISSUES	2
NATIONAL AND TRANSBOUNDARY FOOD SAFETY EMERGENCIES.....	3
<i>Lessons Learned.....</i>	3
<i>Follow-up Discussion</i>	3
NEW INSPECTION APPROACHES AND TECHNIQUES – IMPLICATIONS FOR FOOD SAFETY REGULATIONS.....	4
<i>Lessons Learned.....</i>	4
<i>Follow-up Discussion</i>	4
RISK MANAGEMENT.....	5
REDUCTION OF FOODBORNE HAZARDS, INCLUDING MICROBIOLOGICAL AND OTHERS, WITH EMPHASIS ON EMERGING HAZARDS.....	5
<i>Lessons Learned.....</i>	6
INTEGRATED APPROACHES TO THE MANAGEMENT OF FOOD SAFETY THROUGHOUT THE FOOD CHAIN	6
<i>Lessons Learned.....</i>	7
<i>Follow-up Discussion</i>	7
CAPACITY BUILDING.....	8
TECHNICAL ASSISTANCE TO DEVELOPING COUNTRIES.....	9
<i>Lessons Learned.....</i>	9
<i>Follow-up Discussion</i>	9
NEW APPROACHES AND BUILDING ALLIANCES IN CAPACITY BUILDING AND TECHNICAL ASSISTANCE	9
<i>Lessons Learned.....</i>	10
<i>Follow-up Discussion</i>	10
COMMUNICATION AND PARTICIPATION.....	11
COMMUNICATING FOOD SAFETY REGULATIONS AND RISK MANAGEMENT – INVOLVEMENT AND PARTICIPATION OF CONSUMERS AND OTHER STAKEHOLDERS	12
<i>Lessons Learned.....</i>	12
<i>Follow-up Discussion</i>	12
ENSURING EFFICIENT COMMUNICATION AND INTERACTION BETWEEN FOOD SAFETY RISK ASSESSORS AND RISK MANAGERS.....	13
<i>Follow-up Discussion</i>	13
FUTURE GLOBAL FORA	14
CLOSING THE GLOBAL FORUM.....	15

LIST OF APPENDICES AND ANNEX

ANNEX I	CHAIRMEN’S SUMMARY	17
APPENDIX I	LIST OF PARTICIPANTS	19-56
APPENDIX II	OPENING REMARKS OF THE MINISTERS OF HEALTH AND AGRICULTURE OF THE KINGDOM OF MOROCCO	57-62
APPENDIX III	INAUGURAL STATEMENTS FROM FAO AND WHO	63-64
APPENDIX IV	INTRODUCTORY REMARKS BY MR DAVID HEYMAN	65-68
APPENDIX V	INTRODUCTORY REMARKS BY MR HARTWIG DE HAEN.....	69-72
APPENDIX VI	AGENDA OF THE GLOBAL FORUM	73-76
APPENDIX VII	KEYNOTE ADDRESS BY PROF. MAMDOUH GABR.....	77-82
APPENDIX VIII	THEME AND TOPIC PAPERS : REGULATORY ISSUES	83-118
APPENDIX IX	THEME AND TOPIC PAPERS : RISK MANAGEMENT	119-152
APPENDIX X	THEME AND TOPIC PAPERS : CAPACITY BUILDING.....	153-192
APPENDIX XI	THEME AND TOPIC PAPERS : RISK COMMUNICATION AND PARTICIPATION	193-216
APPENDIX XII	LIST OF CONFERENCE ROOM DOCUMENTS SUBMITTED BY COUNTRIES .	217-219

INTRODUCTION

The Global Forum of Food Safety Regulators was the first opportunity for food safety regulation officials from 110 countries to meet and discuss food safety issues of international importance. The Forum was also attended by 17 international organizations, NGOs and observers having an interest in food safety matters. The list of all participants is attached as Appendix 1.

The Forum was jointly opened by H.E. Touhami Khiari, the Minister of Health of Morocco and Mr. Ahmed Sbihi representing the Minister of Agriculture, Rural Development, Water Resources and Forestry of Morocco (see Appendix 2 for both presentations in the original language). Both stressed the need to consider and adopt new approaches to ensure safe food. They further noted that food safety must be balanced with economic concerns and market requirements. They agreed that capacity building for developing countries is now a necessity.

The Directors-General of FAO, Dr. Jacques Diouf, and of WHO, Dr. Gro Harlem Brundtland, welcomed the Forum participants by video (Appendix 3). Both noted the alarming number of deaths from food-borne diseases that occur each year, world-wide, particularly among children. Food safety is the responsibility of all and new ways must be found to prevent and respond to food-borne hazards. The entire food chain must be considered where food safety concerns are involved.

Dr. David Heymann, Executive Director, Communicable Diseases, WHO, described various emerging food-borne diseases and their impacts on human health, economics and trade. He demonstrated how risk analysis can be used as a guide for appropriate international response to food crises, particularly for developing countries. He underlined the value of international surveillance systems in these efforts (Appendix 4).

Dr. Hartwig de Haen, Assistant Director-General, Economic and Social Department, FAO, stressed the vital importance of ensuring the quality and safety of food to all countries and all people. He noted that food safety control systems must be adapted to national needs and that there must be a balance between food safety and other important aspects of food quality. Dr. de Haen also underlined the urgency of international co-operation in emergency response, communication and capacity building (Appendix 5).

The Forum elected Mr. Abdelrahman Hilali, Directeur de la Protection des Végétaux, du Contrôle Technique et de la Répression des Fraudes, Ministry of Agriculture and Rural Development of Morocco, and Mr. Jaouad Mahjour, Directeur de l'Epidémiologie, Ministry of Health of Morocco, as co-Chairmen. The Forum further elected Mrs Catherine Geslain-Lanéelle of France and Mr. Ronald Doering of Canada as co-Vice Chairpersons.

The Chairmen formally opened the Forum and the participants adopted the Provisional Agenda of the Forum (Appendix 6). Dr Mamdouh Gabr, Professor of Pediatrics, Cairo University, Egypt, was introduced to present the Global Forum Keynote Address (Appendix 7). Dr Gabr noted the continuing massive number of illnesses and deaths from food-borne disease world-wide. The problem is especially acute in developing countries. He outlined some of the key challenges that face national regulators when considering food safety issues. For example, although a quantitative approach to risk assessment is needed, it should be tempered by subjective considerations. He discussed the difficulties in both establishing and implementing food safety regulations. National policy on food safety is increasingly affected by public opinion. Dr Gabr stressed that a public information system is needed. He noted that more co-ordination is needed

both internationally and nationally to avoid unnecessary controversy in food safety control. Dr Gabr concluded by outlining some future trends and research needs in the food safety area.

The Chairmen reminded the participants that the Global Forum was not intended to lead to recommendations or to decisions and that the Forum Proceedings would summarize the main issues discussed, as well as identify new developments in food safety and areas in which more dialogue and cooperation is considered necessary.

In order to focus the Forum discussions four major themes were identified, each of which involved a global food safety issue. The themes selected were *Regulatory Issues*, *Risk Management*, *Capacity Building* and *Communication and Participation*. Each theme had two key topics representing specific areas of concern within that theme. The themes and their topics were presented by food safety experts in four Discussion Groups that met separately to consider, discuss and exchange views. Conference Room Documents outlining national experiences or food safety problems encountered were provided by many countries for each Group to consider when discussing specific topics. A Discussion Summary from each Discussion Group was presented to and discussed by the entire Forum in plenary session for inclusion in these Proceedings. The following Discussion Summaries for each theme reflect the plenary comments.

REGULATORY ISSUES

The Discussion Group on Regulatory Issues was chaired by Sr. Don Angel Sartori Arellano of Chile. The Vice Chair was Dr. Piergiuseppe Facelli of Italy. Dr. Mitsuhiro Ushio of Japan's Ministry of Health, Labour and Welfare (MHLW) introduced the Regulatory Issues theme by providing an overview of Japan's food safety regulatory system and presenting important regulatory issues that all countries should consider.

The MHLW and the Ministry of Agriculture, Forestry and Fisheries (MAFF) share responsibility for the provision of safe food in Japan at the central level. MHLW and local authorities implement food safety regulation based on the Food Sanitation Law.

Japan uses a comprehensive sanitary control system based on the Hazard Analysis and Critical Control Points (HACCP) System. The MHLW approves food manufacturing or processing facilities if it is confirmed that the appropriate level of hygiene is achieved.

Food safety continues to be a challenge. Further improvement of hygiene levels, public education, and coordination of epidemiological and laboratory investigations are required.

Dr Ushio raised several regulatory issues for consideration. He indicated that a farm-to-table approach could most effectively reduce risk through the principle of prevention. This approach is hard to implement because of the time lag, geographical differences in practices, and the variety of stakeholders. The type and size of the organization(s) that are necessary to implement the food safety strategy is an important issue. Experiences with a "single food safety agency" were elicited.

Dr Ushio asked participants to share thoughts on how the safety of imported foods could be ensured by highlighting several strategies. Attendees were also reminded that they are faced with the challenge of regulating newly developed food and food derived from modern technologies. Options for motivation and implementation of an effective food safety system were presented. Strategies suggested were 1) appeal to an individual moral sense and ethics; 2) economic incentives; 3) education and communication; and 4) regulatory procedures.

NATIONAL AND TRANSBOUNDARY FOOD SAFETY EMERGENCIES

Dr. Richard Harding of the United Kingdom's Food Standards Agency presented the first of the two topics under the main theme. He discussed the chronology of events in the UK associated with Bovine Spongiform Encephalopathy (BSE) and the application of food safety control measures. Controls have resulted in a drastic reduction of detected cases of BSE in the UK, and effective protection of public health.

Lessons Learned

There was benefit in a co-ordinated European approach. The UK learned that effective control measures must be rigorously applied. This supported the need to match policy with practice, a point made in the keynote address. Mr Harding observed that risk assessments must be based on best scientific data available. Areas such as this are characterized by uncertainty, and in practice this meant that different experts sometimes reached different conclusions, and that control measures were then set at a precautionary level to take this uncertainty into account.

Follow-up Discussion

A concern was raised that importing countries may not have the necessary resources to verify the safety of their imports. It was noted that both importing and exporting countries must ensure that appropriate controls are in place to address BSE and other food safety concerns. Another concern expressed was export by developed countries of products with standards lower than their own domestic standards. A number of countries reported that laws were in place that required exports to meet domestic standards.

It was noted that the science-based assessment of an identified risk can lead to the identification of other potential risks. Along these lines, other specific aspects about BSE were raised that merit proactive risk assessment.

An issue was raised as to the quantity of food that is lost due to burdensome regulations. There was a general agreement on the need for science-based risk assessments, and the value and need for international co-operation in the development of risk assessments. It was stressed that the measures should be proportional to the risk to public health, and that it was important to involve all stakeholders.

Recognition of the equivalence of foreign inspection systems was suggested as a means of facilitating trade. Developed countries were urged to take concrete steps in concluding such equivalence agreements with developing countries, as many difficulties seem to have been experienced in this regard. Industry was recognized as having a role and a responsibility in ensuring the safety of food. The need for even more co-operation and communication between industry and government was highlighted.

Some countries noted that regulation development is a capacity building issue. Countries where street food is a major component of the daily diet raised the question of what regulatory guidance or experiences on the subject could be shared. Codex indicated that guidelines on the safe preparation of street food were recently approved.

The issue of the safety and quality of complementary foods for infants in developing countries was raised. Concern was also expressed on the compliance to the international Code of Marketing of breast milk substitutes.

NEW INSPECTION APPROACHES AND TECHNIQUES – IMPLICATIONS FOR FOOD SAFETY REGULATIONS

Mr. Greg Roche of the Australia New Zealand Food Authority (ANZFA) presented the second topic. He discussed the challenging, but ultimately successful, efforts to develop and implement the new Australian Food Safety Standards.

The success story showed that mixed regulatory approaches combining mandatory requirements with voluntary prescriptive guidelines can accommodate the specific requirements of a spectrum of food related businesses. Classifying food businesses by relative levels of risk ensured resources were effectively allocated.

Lessons Learned

The ANZFA experience showed that:

- Creating a single, uniform and simpler system of food safety laws takes time. (It took six years to get the least controversial elements introduced. The future of mandatory HACCP food safety programs is still uncertain.);
- Lengthy, exhaustive consultations with stakeholders are essential;
- Anticipate resistance from small businesses to the introduction of mandatory food safety programs;
- The basis for food safety regulation is hampered by the low amount of high-quality data - specifically, on the method and pattern of transmission of food-borne pathogens to humans and the extent and cost of food-borne illness.

Follow-up Discussion

To achieve maximum prevention it is essential that safety should be built into food products from production through to consumption. This calls for a comprehensive and integrated farm-to-table approach. In this context, some countries felt that it is necessary to consider conditions under which animals are raised (including animal feeding practices and use of veterinary medical drugs) or vegetable primary products are produced (use of pesticides etc.).

In recent years, many countries have changed the structure of organizations and their philosophy of control to a more systematic application of risk analysis and use of HACCP principles. Strict co-operation is necessary between various stakeholders in the development and implementation of safe food production measures, particularly between industry and public authorities.

It was stressed that there was a need for more co-operation at the international level, and even at the regional level. It was reported that FAO/WHO have recently produced a new publication entitled '*Assuring Food Safety and Quality: Guidelines for Strengthening National Food Control Systems*'. Some countries stressed the importance of information exchanges, particularly between countries with similar conditions, to ensure effective regulatory measures.

The creation of an early and rapid alert system by FAO and WHO in the Codex framework was suggested. Some barriers such as shortage of human and financial resources were noted. In this context, existing experiences in the European Union, the USA and other countries would help to achieve a global network system.

The issue of food safety regulation regarding food aid was raised. In this connection, Article 9 of the WTO SPS Agreement on Technical Assistance for the developing countries was referred to.

It was noted that consumers in some developing countries had not received full benefits of domestic food safety regulatory control, since limited resources had to be devoted to quality control of exports in order that demands of importing countries in this area are fulfilled.

***N.B.** The theme and both topic presentations under Regulatory Issues as well as a summary of each of the CRDs submitted for each topic, are attached as Appendix 8.*

RISK MANAGEMENT

The Discussion Group on Risk Management was chaired by Dr Zeinab Abd El-Haleim Hewidy of Egypt. The Vice Chair was Dr Hataya Kongchuntuk of Thailand. Mrs. Catherine Geslain-Lanéelle, Directrice générale de l'alimentation, France, introduced the Risk Management theme by presenting an overview of risk management issues that all countries need to consider. She provided specific examples from France.

The 1999 dioxin crisis in Europe was used to illustrate the precautionary principle in risk management. Bearing in mind the recognized carcinogenic effect of dioxin and the absence of specific information on the extent of contamination associated with feed containing Belgian fat, temporary precautionary measures were taken. The European Commission banned certain products of Belgian origin and restrictive measures were applied to likely contaminated flocks identified in a French traceability study. Protective measures were amended, and progressively lifted, as more precise information became available.

All aspects of food production from farm-to-table have an impact on food safety. Socio-economic changes over the last 30 years call for an integrated approach. This approach facilitates the circulation of information, allows better coherence and effectiveness of epidemiological surveillance networks and allows the traceability of foods. Traceability was presented as an important food safety management option .

Risk managers must be prepared for emergencies and emerging risks. Health surveillance is vital. It was suggested that effective regulation must be based on scientific evaluation but also requires taking account of socio-economic concerns.

There is a risk management role for food chain professionals. They are responsible for the safety of foods, provide guidance in hygiene practices, meet voluntary certification requirements, set and meet standards, and contribute information to permit traceability.

REDUCTION OF FOODBORNE HAZARDS, INCLUDING MICROBIOLOGICAL AND OTHERS, WITH EMPHASIS ON EMERGING HAZARDS

Mr. Ron Hicks of the Food Safety and Inspection Service of the United States presented the first topic under the main theme. He shared the US approach to risk management, which includes:

- Transparent development of risk management strategies;
- Strategies are based on best available information;
- Strategies evolve to address emerging risks; and

- Strategies evolve to utilize advances in technology and new scientific data.

The tools utilized by the US in its risk management approach include (1) regulations; (2) guidance to industry; (3) education; (4) surveillance; and (5) use of any or all available research.

This risk management approach was illustrated by the measures taken in regard to *Listeria monocytogenes* (LM). A 1985 illness outbreak associated with LM in soft cheese led to increased monitoring, improvements in plant sanitation procedures including voluntary HACCP systems, and a substantial government education campaign. Annual illness rates from LM declined by 44 percent. A 1998 illness outbreak associated with ready-to-eat meat products was a reminder that risk management strategies must be reassessed based on the best available information. A new risk analysis led to multiple new risk management measures, including:

- Education of at-risk populations, the medical community, and care-givers;
- Guidance on post-processing contamination controls;
- Training for regulators and industry;
- Enhanced disease surveillance;
- Projects with retail operations;
- Coordinated research; and
- Proposing regulations to detect and prevent contamination in meat plants.

The implementation of mandatory HACCP systems in meat and poultry plants was also highlighted. The prevalence of *Salmonella* in meat and poultry products in the US has been dramatically reduced with a corresponding decrease in foodborne illnesses.

Lessons Learned

Risk management is most effective when it is based on sound scientific information or on the best available data. Strategies must evolve over time to address emerging risks or better handle known risks. Strategies should also evolve to make optimal use of technological and scientific advances. Lastly, it must include the effort of all those involved along the farm-to-table continuum.

INTEGRATED APPROACHES TO THE MANAGEMENT OF FOOD SAFETY THROUGHOUT THE FOOD CHAIN

Dr. Stuart Slorach, Deputy Director-General of Sweden's National Food Administration, presented the second topic within the theme. He discussed a holistic, risk-based, "prevention is better than the cure" approach in managing food safety throughout the food chain.

The role of the supervisory authorities is to prescribe safety standards and to ensure that producers, processors and traders, who are identified as having primary responsibility for food safety have adequate internal control system based on HACCP principles. This could be accomplished best by having a single agency with responsibility for the whole food chain or close co-ordination if more than one agency is involved. Consumers have responsibility for food hygiene in the home and for dietary habits.

Sweden's approach to controlling *Salmonella* in broilers illustrated the holistic approach (1) the breeding pyramid and the feed are kept free of *Salmonella*; (2) Production facilities, flocks and

carcasses are monitored; (3) Controls are carried out at the retail level and consumers and caterers are educated; (4) There is follow up of food poisoning outbreaks.

Lessons Learned

- Food safety strategies should be risk-based and cover the entire food chain.
- The follow-up and reporting of foodborne disease outbreaks should be improved.
- An integrated, multidisciplinary approach to food safety, that addresses problems at the source, should be adopted.
- In-house control systems based on the HACCP approach are needed.
- Food inspection and monitoring results should be made public.
- Training of catering personnel and the education of consumers in food hygiene should be improved.
- Contacts between food safety and environmental protection officials should be improved.
- Adequate resources should be assigned for the detection of emerging risks.

Follow-up Discussion

N.B. The discussion was delayed until after presentation of the second topic paper. The following therefore reflects the combined discussion of both topics.

Many countries described their systems for risk management, including regulatory aspects, control programs, agencies involved, crisis management, sanitary surveillance and food monitoring, and networking among others.

Specific hazards discussed included deteriorated sugar cane food poisoning in China, *Escherichia coli* outbreaks in Japan and the United Kingdom, the “Dioxin crisis”, and *Salmonella* control in Sweden.

During the discussions, the following observations were made:

- National food safety management systems are different and co-operation among competent bodies was recognized as essential;
- Co-operation and effective partnership among governments, farmers, industries and consumers in sharing responsibilities to address food safety issues is needed;
- Risk managers have employed various strategies. These include:
 - risk assessment using available data and continuous revision;
 - support by some that precaution is a tool in the case of incomplete risk assessment;
 - support by some for the use of traceability or trace-back systems;
 - strategies that deal with all aspects of food protection from farm-to-table including relevant cooling and freezing systems; and
 - emphasis on prevention by implementing systems such as HACCP;
- It was recognized that research on food safety hazards was important to fill data gaps and provide practical tools for reducing food-borne hazards and also necessary to

assess the risk management strategies. The involvement of universities and research institutes is vital.

- Surveillance and reporting systems were considered as the base for the timely detection of illness outbreaks and emerging food-borne hazards.

Concerns were expressed on the following main issues:

- lack of a specific food safety policy or the consideration that such a policy is of low priority;
- lack of data on food-borne illness while trying to maintain a high level of vigilance for food-borne hazards;
- the need to sensitize food handlers and consumers to the relationship between hygienic practice, food safety and food-borne disease;
- the need to train officials and upgrade laboratories to accomplish food safety control;
- the safety of imported foods is a major concern for some countries due to lack of facilities for laboratory testing;
- the difficulty of reducing hazards when the educational level of the audience is low.

***N.B.** The theme and both topic presentations under Risk Management, as well as a summary of each of the CRDs submitted for each topic, are attached as Appendix 9.*

CAPACITY BUILDING

The Discussion Group on Capacity Building was chaired by Dr Junshi Chen of China with Dr Svetlana Borislavova Tcherkezova of Bulgaria serving as Vice-Chair. Mr. Gregory Orriss of the Canadian Food Inspection Agency introduced the Capacity Building theme by presenting an overview of international capacity building and technical assistance. He emphasized the importance of food safety capacity in the context of public health and access to international markets. WHO estimates that in 1998 2.2 million people, mostly children, died from diarrhoeal diseases, many attributable to contamination of food and drinking water. Developing countries face challenges due to population growth, growth in the number of immuno-compromised individuals, increased urbanization, and inadequate infrastructure.

Developing countries have opportunities to expand markets due to worldwide reductions in tariffs and subsidies, new rights and obligations under the SPS Agreement, and increased demand for a variety of foods. Still, developing countries that export food face significant challenges in meeting importing country health and safety requirements. Developing countries need capacity building to be able to take full advantage of their SPS rights and obligations. The capacity and technical assistance needs of developing countries can be summarized as: (1) Basic infrastructure, (2) National food control strategy; (3) Food legislation and regulatory framework; (4) Food inspection services; (5) Food control laboratories and equipment; (6) Disease surveillance systems; (7) Participation in international standard-setting organizations; (8) Implementation of food quality and safety assurance systems by the industry; (9) Collaboration and cooperation of food control agencies; and (10) Scientific and technical expertise.

While there has been considerable technical assistance provided over the recent years, it has not been effectively coordinated and has been inadequate for many developing countries to meet their public health and market access needs. Recently, in Doha, FAO, OIE, WHO, WTO and the World Bank pledged to work together to strengthen the capacity of developing countries to establish and implement science-based sanitary and phytosanitary measures.

Suggested approaches for capacity building included: (1) Building alliances; (2) Communication and exchange of information; (3) Coordination of activities; (3) Preparation of an assessment of needs and a country profile; (4) Identifying financing sources; (5) Initiating technical cooperation between countries and institutions; (6) Sector specific activities; and (7) Regional approaches. Solutions will require the concerted efforts of developing countries, FAO, WHO, other international organizations, and developed countries.

TECHNICAL ASSISTANCE TO DEVELOPING COUNTRIES

Dr. Leo Hagedoorn of the Ministry of Agriculture of The Netherlands presented the first topic under the main theme. He shared the Netherlands' experience in technical assistance and capacity building efforts. The Netherlands supports the efforts of international organizations in capacity building. Further, the Netherlands is a Member State of the European Union, which over the past 10 years has tripled external assistance programs to reach 12.3 billion Euros in year 2000.

Three assistance activities of the Netherlands were highlighted including (1) the Center for Promotion of Imports from developing countries, which has initiated a program to enhance the fresh fruit and vegetable sector in selected African countries - the aim is to address some of the critical technical non-tariff barriers to trade and to build up local institutional capacity; (2) the Europe/SADC Initiative, which is a Dutch initiative aimed at achieving further regional cooperation in the area of agriculture between countries in the EU and the South African Development Community - areas for cooperation are food security, food safety, trade in agricultural products, and sustainable agriculture; and (3) the ASEM (Asia-European Meeting) seminars, which promotes the use of risk analysis as the basis for establishing SPS measures.

Lessons Learned

The Netherlands' experience in technical assistance and capacity building suggests that support should be given for longer periods and that more emphasis should be given to regional approaches. Capacity building provided by international organizations should be integrated and co-ordinated.

Follow-up Discussion

Many developed countries described their specific technical assistance activities. However, many developing countries, while appreciating that assistance, expressed concerns that the assistance did not adequately meet their public health and market access needs.

Specific concerns included the lack of focus and co-ordination of assistance received. Several countries and international organizations provided further information on their technical co-operation programmes. While recognizing the logic of regional approaches, a number of countries expressed the view that careful consideration should be given to specific national needs.

NEW APPROACHES AND BUILDING ALLIANCES IN CAPACITY BUILDING AND TECHNICAL ASSISTANCE

Mr. Deepak Gupta, Joint Secretary and Chairman, National Codex Committee at India's Ministry of Health gave the second topic presentation. He discussed new approaches and building alliances in capacity building and technical assistance. He emphasized that progress in taking food safety measures will only come when capacity is created to design and effectively implement those measures.

Capacity building must reflect the needs, priorities and conditions of developing countries. Some problem areas were identified as:

- While much has been done in capacity building, efforts have been sporadic and critical mass and multiplier effects have not been achieved.
- Technical assistance has been largely focussed in food export areas and is seminar driven, which is expensive and has limited reach.
- Technical assistance under the SPS Agreement has been largely notional even when developing countries have incurred substantial costs to meet import requirements.
- Increasing sophistication of laboratory instrumentation and methods of food analysis
- Codex standards primarily based on information provided by developed countries on the principle of 'highest' not 'appropriate' levels of protection, thus acting as non-tariff barriers to some developing country exports.
- Capacity building required to enable developing countries to take part fully in the standard setting process including physical attendance at Codex meetings
- Poor response by developed countries in concluding Equivalence Agreements

Lessons Learned

Specific areas of action were identified as: (1) the development of a National Action Plan based on a needs assessment; (2) the strengthening of national food control systems; (3) collaborative projects for capacity building within the National Plan; (4) improving laboratory infrastructures; (5) preparation of GMP / HACCP / GHP norms for medium and small businesses, with special attention to street food/catering establishments; (5) sustainable education and training; (6) a national alliance of scientific and academic institutions, professional associations, and trade bodies; (7) strengthening existing institutions to Centres of Excellence and Collaborating Centres; and (8) improved foodborne disease surveillance.

Some topics deserving further consideration include (1) consideration by FAO, WHO and other international organizations to co-ordinate all technical assistance at the country level; (2) preparation of national HACCP training and implementation programmes; (3) consideration by WHO to strengthen WHO Regional Offices; (4) provision of technical support in the form of experts at National Food Safety Control points; (5) preparation of Internet-based training and sensitization programmes; (6) improvement of data generation from developing countries for Codex standard setting; (7) preparation of a database of import requirements of developed countries; (8) setting up a Global Food Safety Fund or other funding mechanism to support developing countries; and (9) identification of appropriate instrumentation and methods of food analysis.

Follow-up Discussion

Several key issues were identified for capacity building based on country experiences and problems. Channels of communication and mechanisms for collaboration are needed for co-ordinating efforts and building partnerships. Existing research and academic institutions could be used for specific tasks related to food safety. This will promote co-ordination and sustainability.

Several countries suggested that food safety should be integrated into primary and secondary school education. Networking of laboratories was proposed by several countries as a means to improve efficiency and share laboratory expertise.

A number of countries emphasized the need for communication and co-operation among international, regional and national organizations. These communications may have several mechanisms such as periodic meetings, inventories of actions and needs, information on seminars and workshops (e.g. venue and content), and creation of a database related to technical assistance. Co-operation between all involved organizations was considered essential for an optimal programme of work. Participants were informed of ongoing efforts to better co-ordinate technical assistance and capacity building activities among the FAO, WHO, OIE, World Bank and WTO.

The participants placed a great emphasis on an inventory of needs. It was felt that such an evaluation should be undertaken by the candidate countries themselves with the assistance of international organizations.

It was noted that through ongoing technical assistance programmes, national expertise in developing countries has been established. However, quite often this expertise is not acknowledged at an international level. Engagement of local expertise along side of international experts was seen as an important contribution to capacity building in developing countries as well as being of extreme value in binding alliances between developing countries, by contributing to better adjustment of the technical cooperation to the beneficiary countries through better insight into national specifics.

Many countries emphasized the fact that, in order for technical co-operation activities to be effective and sustainable in the long term, all other stakeholders should be involved in addition to professional capacity building. Special emphasis should be given to appropriate sensitization of key persons, such as policy makers, and to the development of public education programmes related to food safety, such as school health education and the development of consumer awareness.

N.B. The theme and both topic presentations under Capacity Building as well as a summary of each of the CRDs submitted for each topic, are attached as Appendix 10.

COMMUNICATION AND PARTICIPATION

Dr. C.J. Kedera of Kenya chaired the Discussion Group on Communication and Participation. Dr Azriman Rosman of Malaysia was the Vice Chair. Mr José Luis Flores of the Secretariat of Health of Mexico presented an overview of the theme of Communication and Participation using the experience of Mexico as an example. He explained the roles of the various officials involved in food control and noted that Mexico's efforts to communicate during the development of food safety laws and regulations raised issues for all countries to consider. These included:

- Establishment of a General Office for Consumers' Communication;
- Basic education on food safety is required at the elementary school to foster communication and participation;
- Forming a Master Plan on Food Safety for the promotion of GAP, GMP, SSOP and HACCP;
- Offering a training program for housewives to foster hygiene practices and handling of food in the home;
- Creation of a single food safety system through a consultation with all stake holders;
- Promoting awareness programs with producers' associations to facilitate the process of establishing risk reduction systems.

COMMUNICATING FOOD SAFETY REGULATIONS AND RISK MANAGEMENT – INVOLVEMENT AND PARTICIPATION OF CONSUMERS AND OTHER STAKEHOLDERS

Ms. Antonia Maria de Aquino, Ministry of Health, Brazil introduced the first topic under the general theme. She shared Brazil's experience in the implementation of risk analysis.

She related two experiences highlighting Brazil's methods of communicating food safety information. The first involved botulism associated with canned palm heart. A risk analysis was initiated and a technical group comprised of all stakeholders was formed. Initially, a temporary product label was used to warn consumers. In addition, a "Warning to the Population" was announced in popular newspapers and on television. Products associated with the outbreak were recalled.

In second instance, a survey of salt samples showed large deviations in levels of added iodine. New requirements were established for the iodized salt industry. The Service for Industrial Learning was enlisted to help disseminate the new requirements. Advertising campaigns by the mass media was done and information materials were delivered to schools to inform consumers about risks from iodine deficiency. Health community agents, of whom there are 144,000 members, took part in the risk communication through housecalls.

Lessons Learned

Ms. Aquino's presentation identified a number of communication options, including:

- Warning labels;
- Notification through newspapers and television;
- Use of Internet;
- Enlisting organizations in communications with industry, schools and direct visits to homes.

Follow-up Discussion

It was clear during the ensuing discussion that communication has an all-important role in many aspects of food safety, including:

- Controlling and managing food safety crises;
- Safety standards of food as well as new regulations;
- Informing and educating consumers and public at large;
- Getting feedback from consumers and other stake holders.

Communications with consumers and other stakeholders has improved the quality of risk management decisions, allayed public fears and reduced panic when food safety emergencies have occurred.

Several possibilities were suggested to accomplish effective communications. These included:

- Information in relation to risk management needs to be shared by the members of an inter-ministerial body to address public comments and concerns;
- Establishment of consumer forums and public meetings to discuss food safety;
- Enacting national laws which require governments to consider consumer participation and contribution;
- Use of existing groups such as Codex National Committees.

It was noted that the characteristics of effective communications are multi-channelled dialogues with all stake holders that are complete and factual, that note and acknowledge uncertainties, and that ensure that communications are timely, clear, specific and understandable.

ENSURING EFFICIENT COMMUNICATION AND INTERACTION BETWEEN FOOD SAFETY RISK ASSESSORS AND RISK MANAGERS

Dr. Hans Dieter Boehm, Germany's Federal Ministry of Consumer Protection, Food and Agriculture introduced the second topic under the general theme. He discussed a paper based on the WHO Expert Consultation *The Interaction between Assessors and Managers of Microbiological Hazards in Food* held during March 2000 in Kiel, Germany. This Expert Consultation made the following principle comments and proposals:

- Food safety systems should be structured on a risk-based approach with appropriate interaction between risk assessors, risk managers, and stakeholders;
- A functional separation of risk assessment and management is essential;
- Independence, transparency, and robustness of scientific analyses are essential for credibility. Nonetheless, dialogue among assessors, managers, and stakeholders is essential to maximize utility of assessment findings;
- National governments should acknowledge the importance of functional risk assessment and risk management while ensuring transparent and appropriate interactions.

Follow-up Discussion

It was generally noted that risk assessors and risk managers were separate groups. However, some countries were of the opinion that both functions could be combined especially where the documentation is publicly available. The functional separation of risk assessment and risk management contributes to increasing the transparency of the risk analysis process. Where both the risk assessment and risk management processes are documented and transparent, the integrity of the risk assessment process can be maintained. In addition, there are several other benefits that can be derived from this separation:

- Maintenance of scientific independence
- Facilitation of an open dialogue and open communication between risk assessors and risk managers
- Clarification of communications with the public on scientific issues as well as other relevant factors considered in the risk assessment

It was noted that risk assessment need not be a long or expensive process. The final consideration being that any use of the risk assessment process will improve risk management decisions. The use of the risk analysis paradigm will ensure the effective use of limited resources in the food safety area.

Several countries expressed the need for generic risk assessment. It was noted that generic risk assessment framework is available and is used at the international level. However, application at the national level requires local data on intake and exposure to be included into the generic risk assessment to reflect the realities of the local conditions.

Some concerns were expressed that the mass media may misreport a food safety emergency and cause public panic. It was suggested that in order to avoid this circumstance and build trust there must be complete transparency in the risk assessment process and open, direct communication with the media.

It was noted that capacity building and development activities must include information, education and training for consumers and other interested parties who may be involved in the risk assessment and risk management processes.

N.B. *The theme and both topic presentations under Communication and Participation, as well as a summary of each of the CRDs submitted for each topic, are attached as Appendix 11.*

FUTURE GLOBAL FORA

There was general agreement among the participants that a second forum with possible succeeding fora should be held. The Global Forum is not designed to compete with or replace other ongoing international meetings. As the participants are primarily food regulators, many are involved with Codex activities. The Codex Alimentarius Commission (CAC) meets on alternate years with the next session scheduled for 2003. It was therefore suggested and agreed that the next Global Forum meet in 2004, with any succeeding fora meeting during those years that the CAC does not meet.

The joint secretariat provided two suggested themes for the next Global Forum, for consideration by the participants. These were:

1. Application of risk analysis in food safety

The Global Forum is a forum to share information and experiences. Several countries have in recent years started adopting new thinking in food safety and are producing their first experiences in the application and use of risk-based food safety management systems.

These changes generate new regulations that will affect the safety of the food supply along the whole food chain not only domestically but also in other countries when traded goods enter the food chain. Thus, even countries that do not yet have a risk-based food safety system will undoubtedly also be affected by the actions of countries adopting risk-based regulations. They will therefore also have experiences to share. Since this is a new area, most countries will be in dire need of information and experiences from which they can learn and from which they will eventually be able to improve the functioning of food safety systems.

2. Building effective food safety systems

The Global Forum is a forum to share information and experiences. In all countries the area of food safety is defined by the interplay of government, private sector, consumers and other partners such as the academia and the media. It has been demonstrated that the effectiveness of food safety systems relies heavily on coordination, collaboration and communication of all activities, not only to be cost-effective but also to increase confidence. The role and responsibilities of each partner in a food safety system should be clearly defined, the overall functioning of the system should be based on a number of agreed principles, and it is felt that the aim of the forum could be to share information on the structure of existing food safety systems, their strengths and weaknesses, in order to find ways of improving the present systems throughout the world with a view to directly improving the food safety situation, and to increase subsequently the confidence of all stakeholders.

There was considerable discussion over the choice of the central theme for the next forum. Most countries supported the second suggested theme (building effective food safety systems). Several countries also supported a possible theme of development of a worldwide food safety information system. One country pointed out that a future forum would benefit from regional conferences to discuss food safety needs held in advance of the forum. It was decided that the final decision would be left to the joint FAO/WHO Secretariat. It was also suggested that a scoping meeting may be convened by FAO and WHO to decide on the theme for the 2004 Global Forum. Several countries requested that the topics selected for the next forum be practical and pragmatic with a narrow scope allowing greater focus during discussions. It was also suggested that more time be allowed as it was felt that the present Forum was too short. It was further suggested that the next forum venue again be in a developing country.

The secretariat summarized the points agreed to by the participants as:

- The next Global Forum to be held in 2004 with any succeeding fora held during years that the CAC is not in session;
- The next Forum theme to be *Building effective food safety systems*;
- Selected topics under the main theme to be limited in scope as well as being practical and pragmatic;
- Additional time to be considered;
- The next Forum venue to be held in a developing country.

CLOSING THE GLOBAL FORUM

Prior to the closing of the Global Forum the Chairman of the Codex Alimentarius Commission, Mr. Tom Billy, was invited to make a presentation regarding the present and future activities of Codex. Mr. Billy noted that at the last Commission session in 2001, the Codex adopted both a Strategic Vision statement and a Strategic Framework with Objectives. The Framework established six strategic objectives and priorities of Codex. These were:

- Promotion of sound national food control and regulatory systems from farm to table;
- Promotion of the widest application of risk analysis;
- Promotion of seamless linkages between Codex and multilateral bodies;
- Increased efficiency and stronger management oversight of Codex work;
- Full participation by Codex members and interested parties;
- Promote the maximum use of Codex standards, nationally and internationally.

He advised the participants that the work on the new objectives has already begun. FAO and WHO are designing a Codex Participation Trust Fund for developing countries. Also, a FAO/WHO management review and evaluation of the work of Codex has been initiated.

H.E. Ismail Alaoui, The Minister of Agriculture, Rural Development and Forests of Morocco, officially closed this first Global Forum of Food Safety Regulators on behalf of the Government of Morocco and H.R.H. King Mohammed VI. He stressed the importance of international meetings such as this to focus the attention of the world on food safety matters. He noted that the Forum opened new horizons for co-operation between institutions and organizations responsible for food safety. He thanked the participants for their efforts over the previous three days and stated that Morocco was pleased to have been the host of this most important activity.

The Chairmen provided the Forum participants with a general statement and summary of the deliberations and findings of this first FAO/WHO Global Forum of Food Safety Regulators (see the following page).

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS**Chairmen's Summary****ANNEX I**

This Global Forum was held to exchange experiences, both good and bad, on the efforts of governments to assure the safety of their food supplies. The Forum was characterized by very active participation of all delegates. The meetings were held in an atmosphere of conviviality and countries were willing to learn from each other and openly discuss all experiences presented.

All of the Forum discussions were based on the principle that regulations must be science-based and built on risk assessment as appropriate to circumstance. These discussions demonstrated a global recognition that actions need to be taken throughout the food production chain from farm and fishing boat to the consumer.

The Forum held the view that all stakeholders should be involved in the regulatory process and that its implementation should be based on the risk analysis paradigm.

In the process of sharing experiences, countries learned that it is possible to use food safety regulations to reduce foodborne illness and improve the overall health of their populations. This also helps countries develop their trade opportunities and strengthen consumer confidence in the safety of their food supply.

Nevertheless, many areas require further discussion in appropriate fora to clarify the application of the risk analysis paradigm in all situations. There is also a need for further dialogue and interaction between countries to deal with food safety issues where there is uncertainty or lack of agreement on the science.

It was recognized that further application of the risk analysis approach in developing countries requires additional investigation and more transfer of knowledge and information, as well as an efficient sharing of relevant data between countries. The pivotal role of international organizations in mediating this development was stressed.

Many of the discussions were based on practical examples, included in the more than 90 country papers submitted to the Forum. Such examples include the resolution of the dioxin crisis and efforts underway in several countries to reduce microbiological risks, such as *Salmonella* and *Campylobacter*, in some cases quite significantly.

The Forum also shared examples on how food safety systems are being adapted to ensure a more sustainable consultation and involvement of consumers and other stakeholders in the regulatory process.

Because food safety should no longer be the luxury of the rich, actions need to be taken urgently to develop the capacity in particular in developing countries to assure the safety of the food supply to their populations. Building such capacities will also assist in building export capacity, improving public health and reducing poverty. It improves the confidence of all consumers in the foods that they buy in the global marketplace.

The Forum had a vibrant exchange of views on the assistance needs of developing countries and how capacity building efforts can be more effectively utilized. There was recognition that an assessment of needs and priorities of developing countries concerning technical assistance is necessary. Many countries reported ongoing efforts of capacity building and called for more information, communication and consultation to enhance the effectiveness of these activities.

It was recognized that communication and consumer involvement both need further development in many national food safety systems. Improved emergency response systems, especially at the international level, will assist in improving communication and understanding of food safety emergencies and assist in better and more targeted response at the national level.

With the risk analysis approach, improved communication, and increased capacity building efforts there is a bright prospect of improvements in food safety both nationally and internationally.

APPENDIX I

**LIST OF PARTICIPANTS
LISTE DES PARTICIPANTS
LISTA DE PARTICIPANTS****Algeria
Algérie
Argelia**

Mr Rachid Bouguedour
Directeur des services vétérinaires
Ministère de l'agriculture
12 Boulevard Colonel Amirouche
Alger
Tel: +213 21 743434
Fax: +213 21 743434/746333
E-mail: dsval@wissal.dz
rbouguedour@ifrance.com

Dr H'mida Benaouf
Directeur du laboratoire vétérinaire
Institut national de la médecine vétérinaire
Ministère de l'agriculture
B.P. 125 Hassen Badi
El Marrach
Alger
Tel: +213 21 53 67 51-52/ +213 38 69 33 79
Fax: +213 21 53 67 20
E-mail: h.benaouf@caramail.com

Mr Aissa Zelmati
Inspecteur Central
Inspection centrale des enquêtes économiques
et de la répression des fraudes
Ministère du commerce
Tel: +219 21 643 253

Mr Ramdane Bousenadji
Directeur du laboratoire
Ministère du commerce
Tel: +219 21 523 391

Mr Ahmed Amrane
Directeur du laboratoire
Ministère du commerce
Tel: +219 27 775 224
Fax: +219 27 775 257

**Australia
Australie**

Mr Gregory Brian Roche
General Manager – Food Safety
Australia New Zealand Food Authority
55 Blackall Street
Barton, ACT 2610
Tel: +61 2 6271 2285
Fax: +61 2 6271 2685
E-mail: greg.roche@anzfa.gov.au

Mr Craig Burns
Minister-Counsellor (Agriculture)
Australian Delegation to the OECD
4 rue Jean Rey
75015 Paris
France
Tel: +33 1 4059 3370
Fax: +33 1 4059 3394

**Austria
Autriche**

Mr Ernst Bobek
Director General
Federal Ministry for Social Security
and Generations
Radetzkystraße 2
A-1031 Wien
Tel: +43 1 711 00 4852
Fax: +43 1 713 79 52
E-mail: christa.oser@bmsg.gv.at

Belgium
Belgique
Bélgica

Ing. Marcel Lafarge
 Ambassade de Belgique – Madrid
 Paseo de la Castellana 18 – 8
 28046 Madrid
 Spain
 Tel: +34 91 576 6226
 Fax: +34 91 538 3216
 E-mail: ambadel.agri@terre.es

Benin
Bénin

M. Aristide Sagbohan
 Directeur
 Direction de l'Alimentation et de la Nutrition
 Appliquée (DANA)
 Ministère de l'Agriculture, de l'Élevage et
 de la Pêche
 BP 295 Porto Novo
 Tel: +229 212 670 /213 963
 Fax: +229 213 963
 E-mail: danamdr@leland.bj

Dr Bernard Gnhoui-David
 Directeur Par Interim
 Direction de l'Hygiène et de l'Assainissement
 de Base
 Ministère de la Santé Publique
 Tel: +229 339 720
 Fax: +229 330 401
 E-mail: bernard@gnahoui.david.as

Bhutan
Bhoutan
Bhután

Mr Thuji Tshering
 Joint Director
 Quality Control & Regulatory Service
 Ministry of Agriculture
 PO Box # 1071
 Thimphu
 Tel: +975 2 327 031
 Fax: +975 2 327 032
 E-mail: t.tshering@moa.gov.bt

Ms Karma Tshering
 Nutritionist
 Public Health Division
 Ministry of Health & Education
 Thimphu
 Tel: +975 2 321 789
 Fax: +975 2 321 592
 E-mail: k_tsh2001@yahoo.com

Bolivia
Bolivie

Ing. Maria Lourdes Abularach
 Jefe Nacional de Inocuidad Alimentaria
 Servicio Nacional de Sanidad Agropecuaria
 e Inocuidad Alimentaria (SENASAG)
 Tel: +591 3 462 0151
 Fax: +591 3 465 2096
 E-mail: senasagia@yahoo.com

Brazil
Brésil
Brasilia

Dr Luiz Carlos de Oliveira
 Secretario de Defesa Agropecuaria
 Ministerio de Agricultura; Pecuaria
 e Abastecimento
 Tel: +55 61 226 9771
 Fax: +55 61 224 3995
 E-mail: luizcarlos@agricultura.gov.br

Sra Leslie Sasson Cohen
 Assessora del Ministro
 Ministerio de Agricultura; Pecuaria
 e Abastecimento
 Esplanada dos Ministerios
 Bloco D
 8° andar 70053-900
 Brasilia – DF
 Tel: +55 61 226 5161
 Fax: +55 61 226 8091
 E-mail: leslie@agricultura.gov.br

Dr Antonia Maria Aquino
Gerente de Produtos Especiais
SEPN 515 – Bloco B – Ed. Ômega
70770-502 Brasília – DF
Tel: +55 61 448 1084 /448 1085
Fax: +55 61 448 1080
E-mail: alimentos@anvisa.gov.br

Bulgaria
Bulgarie
Bulgaria

Dr Svetlana Borislavova Tcherkezova
Chief Expert, Food Safety
Ministry of Health
5, Sveta Nedelya 59
1000 Sofia
Tel: +359 2 9301 271
Fax: +359 2 98 83 413
E-mail: scherkezova@mh.government.bg

Burkina Faso

Mr Gnile Taminy
Responsable du laboratoire
Service de contrôle du conditionnement et
de la qualité
Ministère de l'agriculture
BP 5362 Ouagadougou 01
Tel: +226 33 25 33
Fax: +226 33 06 76

Mr Saïdou Dominique Bambara
Chef du Laboratoire de Nutrition
Centre National pour la Nutrition
Ministère de la Santé
03 BP 7068 Ouagadougou 03
Tel: +226 30 87 48
E-mail: cnnbf@fasonet.bf

Burundi

Mr Juxenal Cishahayo
Chef de Laboratoire d'Analyse Alimentaire
Centre National de Technologie Alimentaire
Tel: +257 2325 86 / 85
Fax: +257 222 445
E-mail: cnta@cbinf.com

Mr Thérence Ntawurishira
Médecin Provincial
Ministère de la Santé
Bujumbura
Tel: +257 26 11 07
Fax: +257 26 11 07

Cambodia
Cambodge
Camboya

Dr Sivutha Pau Ann
Chief
Food Safety Office
Department of Drugs and Food
Ministry of Health
Tel: +855 23 880 2481 / HP 016 988 366
Fax: +855 23 880 247

Mr Lim Thearith
National Codex Contact Point
Ministry of Commerce
Tel: +855 23 926 166
Fax: +855 23 426 166

Cameroon
Cameroun
Camerún

Ing. Daniel Sibetcheu
Head of Nutrition
Nutrition Unit
Directorate of Community Health
Ministry of Public Health
PO Box 11058
Yaoundé
Tel: +237 223 93 48 / 778 13 21
Fax: +237 222 44 19
E-mail: ppen@camnet.cm

Canada
Canadá

Mr Ronald L. Doering
President
Canadian Food Inspection Agency
59 Camelot Drive
Nepean
Ontario K1A 0Y9
Tel: +1 613 225 2342
Fax: +1 613 228 6608
E-mail: rdoering@inspection.gc.ca

Mrs Danielle Karamchandani
Senior Trade Policy Advisor
Technical Barriers and Regulations Divisions
Foreign Affairs and International Trade
L.P. Pearson Building, 125 Sussex Drive
Ottawa, Ontario K1A 0G2
Tel: +1 613 825 0419
Fax: +1 613 944 0756
E-mail: daniell.karamchandani@dfait-
maeci.gc.ca

Ms Josée Nadon
Senior Advisor, International Program
Food Regulatory, International &
Interagency Affairs
Health Products and Food Branch
Health Canada
Bldg. # 7, Tunney's Pasture (AL #0702CI)
Ottawa, ON, K1A 0L2
Tel: +1 613 957 8917
Fax: +1 613 941 3537
E-mail: josee_nadon@hc-sc.gc.ca

Dr Karen L. Dodds
Director-General, Food Directorate
Health Products and Food Branch
Health Canada
Building 7, Room 1110
Tunney's Pasture, A.L. 0701A5
Ottawa, Ontario K1A 0L2
Tel: +1 613 957 1821
Fax: +1 613 957 1784
E-mail: karen_dodds_@hc-sc.gc.ca

Mr Gregory D. Orriss
Director
Bureau of Food Safety and Consumer
Protection
Canadian Food Inspection Agency
59 Camelot Drive
Nepean
Ontario K1A 0Y9
Tel: +1 613 225 2342 ext. 3795
Fax: +1 613 228 6611
E-mail: orrissgr@em.agr.ca

Mr Paul Haddow
Executive Director
International Affairs
Canadian Food Inspection Agency
59 Camelot Drive
Ottawa, Ontario, K1A 0Y9
Tel: +1 613 225 2342 ext. 4203
Fax: +1 613 228 6634
E-mail: phaddow@inspection.gc.ca

Ms Céline Duguay
Director
International Trade Policy Directorate
Agriculture and Agri-food Canada
Sir John Carling Bldg, room 1051
930 Carling Avenue
Ottawa, Ontario, K1A 0C5
Tel.: +1 613 759 7648
Fax: +1 613 759 1113
E-mail: duguay@em.agr.ca

Mr Ron Burke
Director, Bureau of Food Regulatory,
International & Interagency Affairs
Health Products and Food Branch
Health Canada
Building #7, Room 2395
Tunney's Pasture, 0702C1
Ottawa, Ontario, K1A 0L2
Tel.: +1 613 957 1748
Fax: +1 613 941 3537
E-mail: ronald_burke@hc-sc.gc.ca

Cape Verde
Cap-Vert
Cabo Verde

Ing Joao Santos Gonçalves
Technician
Ministère de l'Agriculture
Praia
Tel: +238 618207
Fax: +238 618206
E-mail: dssamap@cvtelecom.cv

Dr Teresa Morais
Responsable du Programme National de
Nutrition
Ministère de la Santé
Direction Générale de la Santé
Praia
Tel: +238 610122
Fax: + 238 610 178
E-mail: teresa.morais@ms.gov.cv

Central African Republic
Republique Centrafricaine
República Centroafricana

Dr Dieu-Donné Coumanzi-Malo
Directeur Exécutif
Cercle de Reflexion et d'Action en Nutrition
BP 1964
Bangui
Tel: +236 615207
Fax: +236 615207
E-mail: malori@itnet.cf

Chad
Tchad

Ing Takia Nanga
Responsable du Programme de lutte contre
les toxi-infections alimentaires
Ministry of Agriculture

M. Bandalla Kouzoungui
Chef de Division hygiène du milieu et
de l'environnement
Ministry of Health

Chile
Chili

Sra Carmen Veronica Echavarri Vesperinas
Asesor
Subsecretaria de agricultura
Teatinos Piso 5
Santiago
Tel: +56 2 3935030
Fax: +56 2 6873618
E-mail: vechavar@minagri.gob.cl

Dr Luis Claudio Marcelo Rodríguez Fuentes
Supervisor Veterinario
Servicio Agrícola y Ganadero
Avda. Bulnes No 140
7° Piso
Santiago
Tel: +56 72 571153
Fax: +56 72 573790
E-mail: sector.sanvicente@sag.gob.cl

Sr Don Angel Sartori Arellano
Ambassador
Embassy of Chile
Via Po 22
00198 Roma
Italy
Tel: +06 841 7450
Fax: +06 8583 3855

China
Chine

Ms Hong Wang
Ministry of Agriculture
Mai Zi Lian Street No 20
PO Box 100026
Beijing, Chao Yang
Tel: +86 10 6419 5082
Fax: +86 10 6508 5601
E-mail: weiqiwen@agri.gov.cn

Dr Zhihua Ye
 Director General and Professor
 Science and Technology Management
 Department
 Chinese Academy of Agricultural Science
 Beijing 100081
 Tel: +86 10 6891 9419
 Fax: +86 10 6897 5104
 E-mail: zhihuaye@mail.caas.net.cn

Mr Kan Xuegui
 Counsel
 Department of Health Legislation and
 Inspection
 Ministry of Health
 1 Nanlu Xizhimenwaili
 Xicheng District
 Beijing
 Tel: +86 10 6879 2384
 Fax: +86 10 687 92387
 E-mail: xgk2@chsi.moh.gov.cn

Mr Chen Junshi
 Professor
 Institute of Nutrition and Food Hygiene
 Chinese Academy of Preventive Medicines
 29 Nanvei Lu
 Xuan Wu District
 Beijing
 Tel: +86 10 631 87585
 Fax: +86 10 6301 1875
 E-mail: jshchen@public.east.cn.net

Colombia Colombie

Dr Ramon Correa Nieto
 Director Desarrollo Tecnológico y
 Protección Sanitaria
 Ministerio de Agricultura y Desarrollo Rural
 Tel: +57 2 43 79 19 / 3 34 11 99 Ext: 446
 Fax: +57 2 82 81 73
 E-mail: destecno@minagricultura.gov.co

Comoros, Federal Islamic Republic Comores, République Fédérale Islamique Comoras, Republica Federal Islamica

Ing Ali Mohamed Soilihi
 Directeur Général
 Direction Générale de l'Agriculture
 Ministère de la Production et de
 l'Environnement
 B.P. 289 Moroni
 Tel: +269 736045 / 736140
 Fax: +269 736140
 E-mail: pafr@snpt.km

Mr Ahmed Mansouri
 Charge de Service de Nutrition
 Direction Générale de l'Agriculture et
 du Développement Rural
 Ministère de la Production et de
 l'Environnement
 B.P. 289 Moroni
 Tel: +269 736140
 Fax: +269 736140
 E-mail: psam@snpt.km

Congo

Dr Gustave Matingou-Passi
 Chef de bureau inspection de salubrité
 Ministère de l'Agriculture et de l'Elevage
 BP 83 Brazzaville
 Tel: +242 361034

Ing. Jean-Christophe Matouala
 Chef de Bureau Législation agricole
 Ministère de l'agriculture et de l'élevage
 BP 83 Brazzaville
 Tel: +242 36 13 93

Congo, Democratic Republic of République démocratique du Congo República Democrática del Congo

Dr Ramazani Hubert Ali
 Secrétaire Général
 Ministère de l'Agriculture, Pêche et Elevage
 BP 8722 Kinshasa
 Tel: +243 99 06 017
 Fax: +243 88 433 53
 E-mail: hubert_ali@yahoo.fr

Dr Theophile Ntambwe Kibambe
 Directeur
 Programme National de Nutrition
 Avenue du Comité Urgain No 35
 B.P. 3250
 Kinshasa/Gombe
 Tel: +243 993 5004
 Fax: +530 68 77 535
 E-mail: tntambwe@caramail.com

Côte d'Ivoire

Dr Oumou Barry
 Ministère de l'Agriculture et des Ressources
 Animales
 Direction de l'Alimentation et de la Qualité
 BPV 84 Abidjan
 Tel: +225 20 21 90 85
 Fax: +225 20 21 90 71
 E-mail: daq@africaonline.co.ci

Dr Hélène Assita Coulibaly-Fanny
 Directrice
 Ministère de l'Agriculture et des Ressources
 Animales
 Direction de l'Alimentation et de la Qualité
 BPV 84 Abidjan
 Tel: +225 20 21 89 72
 Fax: +225 20 21 90 71
 E-mail: daq@africaonline.co.ci

Croatia Croatie

Dr Krunoslav Capak
 Head Environmental Health Service
 Croatian Institute of Public Health
 Rockefellerova 7
 10 000 Zagreb
 Tel: +385 1 46 83 007
 Fax: +385 1 46 83 007
 Mobile: 098 325 362
 E-mail: krunoslav.capak@hzjz.hr

Czech Republic République tchèque República Checa

Jirí Ruprich
 Head of Food Safety Division
 National Institute of Public Health
 Palckého 1-3
 Brno 656 77
 Tel: +42 5 4121 1764
 Fax: +42 5 4121 1764
 E-mail: jrurprich@chpr.szu.cz

Denmark Danemark Dinamarca

Mrs Birgit Nørrung
 Head of Division (Microbiological Safety)
 Danish Veterinary and Food Administration
 Moerkhoej Bygade 19
 2860 Soeborg
 Tel: + 45 33956181
 Fax: +45 33956001
 E-mail: bin@fdir.dk

Djibouti

Dr Mohamed Ibrahim
 Médecin – Chef du secteur sanitaire de
 balballa
 Ministère de la Santé
 Cité Ministérielle
 RDD
 Tel: 35 08 43

Dominican Republic République dominicaine República Dominicana

Mr Lázaro José Ricardo Guzmán Suero
 Secretario Ejecutivo Comisión nacional
 de Plaguicidas
 Secretaría de Estado de Agricultura
 Av. Kennedy
 Santo Domingo
 Tel: +1809 547 3888 Ext: 2493
 Fax: +1809 562 8939 /533 5308
 E-mail: lazaro@tricom.net

Ing Andrea Osidia Feliz Lebron
 Encargada División de Registro de Plaguicidas
 Secretaría de Estado de Agricultura
 Los Jardines del Norte, Km 6 ½ Autopista
 Duarte
 Tel: +1809 547 3888 Ext: 2493
 Fax: +1809 562 8939
 E-mail: osidia@hotmail.com

Ecuador
Équateur

Dr Hernan Vinelli Merino
 Coordinador Nacional
 Programa Nacional de Alimentación y Nutrición
 Pann 2000
 Tel: +593 2 256 0514
 Fax: +593 2 254 515
 E-mail: pann2000@hotmail.com

Egypt
Egypte
Egipto

Dr Mamdou H. Kamal Gabr
 12 Tahir Street
 Cairo
 Tel: +202 397 0267
 Fax: +202 574 0450

Dr Zeisal Elaziez
 Director
 Ministry of Health and Population
 Food Safety and Control Department
 3 Hagless El Sharif Street
 Cairo
 Tel: +20 2 794 8152
 Fax: +20 2 792 1077

Dr Kamal el Din El Gemeie
 Assistant Director of Food Control Safety
 Ministry of Health
 Tel: +202 7921077

Sherif Shaheen
 Councillor
 Egyptian Embassy in Rabat
 31 Algeria St
 Rabat
 Morocco
 Tel: +212 37 731 834
 Fax: +212 37 706 821

Dr Zeinab Add El-Haliem Hewidy
 Director Department of Food Safety and
 Control
 Ministry of Health and Population
 Cairo
 Tel: +202 792 1077
 Fax: +202 358 8152

El Salvador

Ing. Luís Rafael Arévalo Castillo
 Director General de Sanidad Vegetal
 y Animal (DGSVA)
 Ministerio de Agricultura y Ganaderia
 Tel: +503 288 5220
 Fax: +503 228 9029
 E-mail: regfis@salnet.net

Ing. Ana Lila Urbina Argueta
 Coordinador Programa Nacional Alimentos
 Ministerio de Salud Pública y Asistencia
 Social
 Alameda Roosevelt Edificio Dr. Max Block
 Tel: +503 271 1282
 Fax: +503 260 6835
 E-mail: aurbina@msp.gov.sv or
 dpsanamb@es.com.sv

Eritrea
Érythrée

Mr Tesfai Yosieph Hidru
 Head, Veterinary Public Health Expert
 Animal Resources Department
 Ministry of Agriculture
 P.O. Box. 1162
 Asmara
 Tel: +291 1 127508
 Fax: +291 1 127508
 E-mail: vet12@eol.com.er

Mr Ismail Adam Ali
Chemist
Central Health Laboratory
Ministry of Health
PO Box
Asmara
Tel: +291 1 123596 / 114 354
Fax: +291 1 121 585
E-mail: centlab@gemel.com.er

Ethiopia
Éthiopie
Etiopía

Dr Getachew Tesfaye
Quarantine and Inspection
Senior Veterinary Officer
Ministry of Agriculture
P.O. Box 62347
Addis Ababa
Tel: +251 1 512122
E-mail: gtesfaye2002@yahoo.co.uk

Mr Mulu Araya
Team Leader
Food and Beverage Quality Control
Ministry of Health
Addis Ababa
Tel:+251 1 53 05 01

Finland
Finlande
Finlandia

Mr Matti Aho
Deputy Director-General
Ministry of Agriculture and Forestry
PO Box 30 Government
00023 Valtioneuvosto
Tel: +358 9 160 3380
Fax: +358 9 160 3338
E-mail: matti.aho@mmm.fi

France
Francia

Mme Catherine Geslain-Lanéelle
Directrice Générale
Direction générale de l'alimentation
251 rue de Vaugirard
75732 Paris Cédex 15
Tel: +33 1 4955 5810
Fax: +33.01.4955.8182
E-mail: catherine.geslain-laneelle@agriculture.gouv.fr

Dr Catherine Rogy
Chef du secteur des accords multilatéraux
sanitaires et phytosanitaires
Ministère de l'agriculture et de la pêche
Direction générale de l'alimentation
251 rue de Vaugirard
75732 Paris Cédex 15
Tel: +33 1 49 55 84 86
Fax: +33 1 49 55 44 62
E-mail: catherine.rogly@agriculture.gouv.fr

Mme Catherine Renard
Chargée de mission
Ministère des affaires étrangères
37 Quai d'Orsay
75700 Paris 07 SP
Tel: +33 1 43 17 57 36
Fax: +33 1 43 17 57 45
E-mail: catherine.renard@diplomatic.gouv.fr

M. Michel Thibier
Rep. Perm. Adjoint de la France
Pres. FAO/Conseiller scientifique
Représentation permanente de la France
auprès de la FAO
Corso del Rinascimento, 52
00186 Rome
Italy
Tel: +39 06 68405240
Fax: +39 06 6892692

Dr Olivier Degenmann
Chargé de Mission
Bureau de la Politique, Agricole Extérieure
Direction des relations économiques extérieures
Ministère de l'économie, des finances et de
l'industrie
139, rue de Bery
75572 Paris Cedex 12
Tel: +33 1 5318 8264
Fax: +33 1 5318 9608
E-mail: olivier.degenmann@dree.org

Mme Roseline Lecourt
Chargée de mission
Direction générale de la concurrence, de la
consommation et de la répression des fraudes
59 bd Vincent Auriol
75703 Paris Cédex 13
Tel: +33 1 4497 3470
Fax: +33 1 4497 3037
E-mail:
roseline.lecourt@dgccrf.finances.gouv.fr

M. Thierry Michelin
Sous-directeur
Ministère délégué à la santé
Direction générale de la santé
Tel: +33 1 40564049
Fax: +33 1 40565056
E-mail: thierry.michelon@santé.gouv.fr

M. Paul Luu
Chef du bureau de réglementation alimentaire
et des biotechnologies (MAP)
Ministère de l'Agriculture et de la Pêche
Dir. Générale Alimentation
251 rue de Vaugirard
75732 Paris Cedex 15
Tel: +33 1 4955 5584
Fax: +33 1 4955 5948
E-mail: paul.luu@agriculture.gouv.fr

Mlle Gaelle Cottonnec
Juriste
Agence Française de Sécurité Sanitaire
des Aliments (AFSSA)
23 Avenue du Gal de Gaulle
BP 19 94701 Maison-Alfort Cedex
Tel: +33 1 49 77 26 79
Fax: +33 1 49 77 27 78
E-mail: g.cottonnec@afssa.fr

M. Gilles Le Lard
Adjoint sous-directeur des affaires
européennes
Ministère de l'agriculture et de la pêche
Direction des politiques économique et
internationale
3 rue Barbet de Jouy
75007 Paris
Tel: +33 1 49 55 48 64
Fax: +33 1 45 51 67 87
E-mail: gilles.lelard@agriculture.gouv.fr

Gambia **Gambie**

Dr Badara Loum
Deputy Permanent Secretary
The Department of State for Agriculture
The Quadrangle
Banjul
Tel: +220 22 94 31 (Office) 220 39 50 76
(Home) 220 9079 66 (Mobile)
Fax: +220 20 11 87
Email: loumbadara@hotmail.com

Ms Isatou Jallow Semega-Janneh
Executive Director
National Nutrition Agency
P.M.B. 162
Banjul
Tel: +220 202406
Fax: +240 202407
E-mail: semega-janneh@qanet.gm

Federal Republic of Germany
République fédérale d'Allemagne
República Federal de Alemania

Dr Hans Boehm
Food Hygiene and Food Trade
Federal Ministry of Consumer Protection
Food and Agriculture
53107 Bonn
Tel: +49 228 529 4675
Fax: +49 228 529 4944
E-mail: 321@bmvel.bund.de
hans.boehm@bmvel.bund.de

Dr med. Vet. Heinrich David
Federal Ministry of the Environment,
Agriculture and Consumer Protection
40190 Düsseldorf
Tel: +49 211 4566 300
Fax: +49 211 4566 432
E-mail: heinrich.david@munlv.nrw.de

Mr Thomas Isenberg
Head of Division
Verbraucherzentrale Bundesverband e. V.
Markgrafenstraße 66
10969 Berlin
Tel: +49 30 258 00 431
Fax: +49 30 258 00 418
E-mail: isenberg@vzbv.de

Ms Dr Petra Schill
Planning Officer
Department for Rural Development
Deutsche Gesellschaft für Technische
Zusammenarbeit (GTZ) GmbH
Technical Cooperation Federal Republic
of Germany
Dag-Hammarskjöld-Weg 1-5
65760 Eschborn
Tel: +49 6196 791414
Fax: +49 6196 797173
E-mail: Petra.Schill@gtz.de

Ms Angelika Mrohs
Managing Director
Bund für Lebensmittelrecht
und Lebensmittelkunde
Godenberger Allee 142-148
53175 Bonn
Tel: +49 228 819 930
Fax: +49 228 375069
E-mail: amrohs@bll-online.de

Ghana

Mr Lawrence Erzuah Yankey
Director – Standards/Certification
Ghana Standards Board
PO Box MB 245
Accra
Tel: +233 21 501 936
Fax: +233 21 500 092
E-mail: gsplib@ghana.com

Guinea (Republic of)
Guinée (Republique de)
Guinea (República de)

Dr Facely Camara
Chef Section
Ministère de la santé publique
Tel: +224 11 299311
E-mail: fao.gin@field.fao.org

Dr Mamadou Diallo
Chef de la Section Santé publique vétérinaire
Ministère de l'Agriculture, de l'élevage
et des eaux et forêts
Tel: +224 11 45 30 50
Fax: +224 11 45 20 47
E-mail: dne-parc@biary.net

Guinea Bissau
Guinée-Bissau
Guinea-Bissau

Dr Miguel Henrique Fernandes Soares Gama
Chef de Division
Ministerio da Agricultura
Tel: +245 221719

M. Augusta Albino Nhaga
 Director Tecnico
 Ministerio de Saude Publica
 Tel: +245 252404
 Fax: +245 252404
 E-mail: nhaga_a@hotmail.com

Guinea – Equatorial
Guinée – Equatoriale
Guinea- Equadorial

Ing. Carlos Eyi Obama
 Ministerio Delegado
 Ministerio de Agricultura, Ganaderia y
 Desarrollo Rural
 Malabo
 Tel: +240 75083/94227
 Fax: +240 94227

Dr Maria Mangué Mazene
 Coordinadora Regional de Nutrición
 Ministerio de Sanidad y Bienestar Social
 Tel: +240 9 4227 / 75083 / 74485
 Fax: +240 9 4227

Haiti
Haïti
Haití

M. Michel Alain Louis
 Ingénieur agronome et Médecin vétérinaire
 Directeur du laboratoire vétérinaire central
 du tamarinier (LVCT)
 Ministère de l'agriculture, des ressources
 naturelles et du développement rural
 Laboratoire no. 1 Damien
 Port-au-Prince
 Tel: +509 510 3247/509 511 5849
 E-mail: michelalainlouis@yahoo.com

Dr Francesca Joseline Marhone Pierre
 Coordinatrice nationale des programmes
 de nutrition
 Ministère de la santé publique et de la
 population
 Programmes nationaux de nutrition
 111 Rue Saint-Honoré
 Port-au-Prince
 Tel: +509 4041 3692
 E-mail: Frajomapi@hotmail.com

Hungary
Hongrie
Hungría

Dr (Ms) Diána Bánáti
 General-Director
 Central Food Research Institute
 Herman Ottó út 15
 Budapest, 1022
 Tel: +36 1 355 8991
 Fax: +36 1 212 9853
 E-mail: d.banati@cfri.hu

Mrs Maria Szabo
 Deputy-Director
 National Institute of Food Hygiene and
 Nutrition
 Budapest, H-1476
 P.O. Box 52
 Tel:+36 1 216 90 27
 Fax:+36 1 215 15 45
 E-mail: h5727sza@ella.hu

India
Inde

Dr Sandhya Kulshrestha
 Joint Director (Medical)
 Dte. of Plant Protection, Quarantine & Storage
 Dept. of Agri. & Coop.
 NH.IV Faridabad, Haryana-121001
 Tel: +91 129 541 3002
 Fax: +91 129 541 2129

Dr Deepak Gupta
 Joint Secretary & Chairman
 National Codex Committee
 Ministry of Health
 Government of India
 Tel: +91 11 301 8842
 E-mail: dgupta@bol.net.in

Indonesia
Indonésie

R Sunggul Sinaga
Embassy of the Republic of Indonesia
Via Campania 55
00817 Rome
Italy
Tel: +39 06 420 0911 / 420 09134
Fax: +39 06 488 0280
E-mail: attani@tiscalinet.it

Mr Syukur Iwantoro
Director
Centre for Standardization and Accreditation
Ministry of Agriculture, GO. E. 7 Floor
Jakarta Selatan
Tel: +62 21 7884 2042
Fax: +62 21 7884 2043
E-mail: syukur@agrimutu.com

Iran
Irán

Mr Gholam Abbas Abdollahi
Director, PPDR
Plant Pests and Diseases Research Institute
PO Box 1454
Tehran 19395
Tel: +98 21 240 1242
Fax: +98 21 240 3691
E-mail: abbasmo2001@yahoo.com

Mohssen Morowati
Head, Pesticide Research Dept., PPDR
Plant Pests and Diseases Research Institute
PO Box 1454
Tehran 19395
Tel: +98 21 240 2839
Fax: +98 21 240 3691
E-mail: m_morowati@yahoo.com

Ireland
Irlande
Irlanda

Ms Siobhán McEvoy
A/Chief Environmental Health Officer
Department of Health and Children
Hawkins House
Hawkins Street
Dublin 2
Tel: +353 1 635 4400
Fax: +353 1 635 4552
E-mail: siobhan.mcevoy@health.irlgov.ir

Mrs Joan Regan
Assistant Principal
Department of Health and Children
Hawkins House
Hawkins Street
Dublin 2
Tel: +353 1 635 4247
E-mail: joan.regan@health.irlgov.ir

Mr Kilian Unger
Superintending Veterinary Inspector
Department of Agriculture Food and
Rural Development
Agriculture House, Kildare Street
Dublin 2
Tel: +35318436404
E-mail: kilian.unger@agriculture.gov.ie or
kilian.unger@daff.irlgov.ie or
ungerk@indigo.ie

Italy
Italie
Italia

Dr Piergiuseppe Facelli
Direttore dell'Ufficio III della Direzione
Generale della Sanità Pubblica Veterinaria
degli Alimenti e della Nutrizione
Piazza Marconi, 25
00144 Roma
Tel: +39 06 59994 3613
Fax: + 39 06 5994 3555
E-mail: pg.facelli@sanita.it

Dr Paolo Aureli
 Direttore del Laboratorio Alimenti
 Istituto Superiore di Sanità
 Viale Regina Elena n. 299
 00161 Roma
 Tel: +39 06 4990 3420
 Fax: +39 06 4938 7101
 E-mail: alimenti@iss.it

Mr Michele Tommasi
 Economica Counselor
 Italian Embassy in Morocco
 Tel: +212 37 776 592
 Fax: +212 37 706 882

Jamaica
Jamaïque

Mr Peter Knight
 Food Safety Specialist
 Ministry of Health
 2-4 King Street
 Kingston
 Tel: +876 967 1100 ext. 2283
 Fax: +876 967 1280
 E-mail: pknight@epi.org.jm

Japan
Japon
Japón

Dr Mitsuhiro Ushio
 Director for International Food Safety Planning
 Policy Planning Division
 Department of Food Safety
 Pharmaceutical and Medical Safety Bureau
 Ministry of Health, Labour and Welfare
 1-2-2 Kasumigaseki, Chiyoda-ku, Tokyo
 Tel: +81 3 3595 2326
 Fax: +81 3 3503 7965
 E-mail: ushio-mitsuhiro@mhlw.go.jp

Mr Ichiro Fujita
 Chief of Planning and Legal Affairs Unit
 Policy Planning Division
 Department of Food Safety
 Pharmaceutical and Medical Safety Bureau
 Ministry of Health, Labour and Welfare
 1-2-2 Kasumigaseki, Chiyoda-ku, Tokyo
 Tel: +81 3 3595 2326
 Fax: +81 3 3503 7965
 E-mail: fujita-ichiro@mhlw.go.jp

Mr Sho Sudo
 Official
 International Affairs Division
 Minister's Secretariat
 Ministry of Health, Labour and Welfare
 1-2-2 Kasumigaseki, Chiyoda-ku, Tokyo
 Tel: +81 3 3595 2403
 Fax: +81 3 3501 2532
 E-mail: sudou-shou@mhlw.go.jp

Dr Yukiko Yamada
 Director for International Affairs
 Research Planning & Coordination Division
 National Food Research Institute
 2-1-12 Kannondai, Tsukuba 305-8642
 Tel: +81 298 38 8017
 Fax: +81 298 38 8005
 E-mail: yamadayk@nfri.affrc.go.jp

Mr Tomio Suzuki
 Deputy Director
 Consumers Life Division
 General Food Policy Bureau
 Ministry of Agriculture, Forestry and Fisheries
 Tel: +81 3 3502 5722
 Fax: +81 3 3502 0438
 E-mail: tomio-suzuki@nm.maff.go.jp

Dr Tadahiro Nagata
 Director
 Food Safety and Quality Division
 National Food Research Institute
 2-1-12 Kannondai, Tsukuba 305-8642
 Tel: +81 298 38 8008
 E-mail: nagata@nfri.affrc.go.jp

Jordan
Jordanie
Jordania

Dr Ahmad Al-Burmawi
Director, Food Safety Department
Ministry of Health
PO Box 86
Amman
Tel: +962 6 568 9629
E-mail: food@moh.gov.jo

Ing Rima H. Zu'Mot
Food Control Division Head
Aqaba Special Economic Zone Authority
PO Box 2565
Zip Code 77110 Aqaba
Tel: +962 3 209 1000 Ext: 2083
Fax: +962 3 201 4204
E-mail: rimazqq@hotmail.com

Dr Abazeed Hesham
Assistant Director
Ministry of Health
Tel: +962 79 402 612

Mr Mazen M. Khalil Haobsha
Head, Environmental Planning
Aqaba Special Economic Zone Authority
PO Box 2565
Zip Code 77110 Aqaba
Tel: +962 3 209 1000
Fax: +962 3 201 4204
E-mail: ippsjordan@yahoo.com

Kenya
Kenia

Mrs Fatuma Abdulkadir Mahmoud Ali
Kenya Bureau of Standards
PO Box 54974 Nairobi
Tel: +254 1 1230938 or 2 502278
Fax: +254 1 1229448 or 2 503293
E-mail: kebs-nsa@swiftmambasa.co.ke

Dr Chagemu Kedera
Managing Director
Kenya Plant Health Inspectorate Service
P.O. Box 49592
Nairobi
Tel: +254 2 440087
Fax: +254 2 448940
E-mail: kephis@nbnet.co.ke

Mr James Mwirigi Mwitari
Public Health Officer
Ministry of Health
P.O. Box 30016
Nairobi
Tel: +254 2 717077 Ext. 45195
Fax: +254 2 710055
E-mail: jmwitari@yahoo.com

Kiribati

Mr Manate Tenang
Chief Agricultural Officer
Ministry of Natural Resources Development
Agriculture Division
PO Box 267 Bikenibeu
Takawa
Tel: +686 28108 / 28096
Fax: +686 28121
E-mail: manatet@mnr.gov.ki

Mr Tianuare Taeuea
Ministry of Health
PO Box 268 Wawerewere
Tarawa
Tel: +686 28100
Fax: +686 28152
E-mail: mhpt@tskl.ki

Korea (Republic of)
Corée (Republique de la)
Corea (República de)

Ms Dong Hee Yoo
 Deputy Director
 Korea Food and Drug Administration
 5 Nokbundong Enpyung-gu
 Seoul 122-704
 Tel: +82 2 380 1733
 Fax: +82 2 388 6392
 E-mail: dhyoo0908@kfda.go.kr

Mr Woo-Seok Chang
 Veterinary Officer
 Ministry of Agriculture and Forestry
 National Veterinary Research and Quarantine
 Service
 Quarantine and Inspection Division
 480, Anyang 6-Dong, Anyang-Si
 Kyungki-do
 Tel: +82 31 467 1907
 Fax: +82 31 467 1717
 E-mail: Jangws@nvrqs.go.kr

Mr Dong-Sik Lee
 Veterinary Officer
 Ministry of Agriculture and Forestry
 National Veterinary Research and
 Quarantine Service
 Livestock Product Safety Division
 480, Anyang 6-Dong, Anyang-Si
 Kyungki-do
 Tel: +82 31 467 1969
 Fax: +82 31 467 1974
 E-mail: lds@nvrqs.go.kr

Lao People's Democratic Republic
République démocratique populaire lao
República Democrática Popular Lao

Dr Khamphone Hao Onechanh
 Director of Animal Health Division
 Department of Livestock and Fisheries
 Ministry of Agriculture and Forestry
 Vientiane
 Tel: +816 21 415674
 Fax: +816 21 415674

Dr Sivilay Naphayvong
 Chief of Food Control Division
 Food and Drug Department
 Ministry of Health
 Tel: +856 21 214014
 Fax: +856 21 214015
 E-mail: drug@laotel.com

Latvia
Lettonie
Letonia

Mr Ernests Zavadskis
 Head of Food Control Department (national
 level)
 Food and Veterinary Service
 Republikas laukums 2
 Riga, LV1981
 Tel: +371 709 5261 / +371 652 2870 (mobile)
 Fax: +371 732 2727
 E-mail: ernests@vvd.vita.gov.lv

Lesotho

Mr Cyprian Tlhako Mokhorro
 Chief Standards Officer
 Ministry of Industry, Trade and Marketing
 PO Box 747
 Maseru 100
 Tel: +266 317454 / 320695
 Fax: +266 310326 / 310644
 E-mail: lessqa@leo.co.ls

Mr Gabriel Themba Fobo
 Senior Health Inspector
 Ministry of Health and Social Welfare
 Environmental Health Department
 PO Box 514
 Maseru 100
 Tel: +9266 316605
 Fax: +9266 313010
 E-mail: lessqa@leo.co.ls

Liberia**Libéria**

Mr Francis N'Woieni Kanu
Director
Division of Environmental and Occupational
Health
Ministry of Health and Social Welfare
P.O. Box 9009-10-1000
Monrovia
Tel: +231 227 378
Fax: +231 226 181
E-mail: wco.wholr@undp.org

Mr Edwin J. Hansen
Director
Plant Quarantine Division
Ministry of Agriculture
PO Box 10-9010
1000 Monrovia 10
Tel: +231 226399

Madagascar

Mr Aimé Ravélonasy
Contrôleur phytosanitaire
Ministère de l'Agriculture
Service de la Quarantine végétale
Tel: +320777596 / 22 41588 / 22 41678
E-mail: dirpnva@dts.mg

Malawi

Samuel M. A. Zabula
Environmental Health Officer
Ministry of Health and Population
PO Box 30377
Lilongwe 3
Tel: +265 788 657 / 789 400
Fax: +265 789 431
E-mail: samzabula@yahoo.com

Dr Gift Wiseman Wanda
Deputy Director of Animal Health and
Industry
Ministry of Agriculture
Tel: +265 751349
Fax: +265 751349
E-mail: agric.dahi@sdpn.org.mw

Malaysia**Malaisie****Malasia**

Dr Azriman Bin Rosman
Food Quality Control Division
Department of Public Health
Ministry of Health Malaysia
Block E, 4th Floor, Offices Complex
Jalan Dungun, Bukit Damansara
50490 Kuala Lumpur
Tel: +60 3 254 0088 ext 318
Fax: +60 3 253 7804
E-mail: azriman@dph.gov.my

Maldives**Maldivas**

Ms Geela Ali
Programme Manager
Ministry of Health
Ameenee Magu
Malé
Tel: +960 315 334
Fax: +960 314 635
E-mail: dphinfo@dhivehinet.net.mv

Mali**Malí**

Dr Kola Bocoum
Chef Section Hygiène, Alimentaire et de l'eau
Direction Nationale de la Santé
Division hygiène Publique et Salubrité
Tel: +223 222921

Mme Kadidia Diarra
Conseiller Technique
Ministère Développement Rural
BP 61 Bamako
Tel: +223 22 29 79 / 23 10 23
Fax: +223 22 02 95 / 22 43 78

Malta
Malte

Mr Malcolm David Micallef
Principal Health Inspector
Public Health Department
37/39 Rue D'Argens
Msida MSD 05
Tel: +356 332 225
Fax: +356 344 767
E-mail: malcolm.micallef@magnet.mt

Mexico
Mexique
México

Ms Amada Velez
Directora de Servicios y Apoyo Técnico
Responsable del Programa de Inocuidad
y Calidad Agroalimentaria
Secretaría de Agricultura, Ganadería, Desarrollo
Rural, Pesca y Alimentación
Tel: +52 5 658 2828
Fax: +52 5 658 7402
E-mail: Amada.velez@sagar.gov.mx

Sr José Luis Flores Luna
Director de Vigilancia Sanitaria
Secretaria de Salud
Donceles 39
Colonia Centro
Tel: +525 55 211 273
Fax: +525 55 129 628
E-mail: lflores@mail.ssa.gob.mx

Mongolia
Mongolie

Dr Vanchinkhuu Surenchimeg
Head, International Cooperation Department
Ministry of Health
Olympic Street 2
Ulaanbaatar
Tel: +976 11 322 577 / +976 99 151 835
Fax: +976 11 320 916
E-mail: surenchimeg@moh.mng.net /
suren_chimeg@hotmail.com

Dr Tserendorj Sodnompil
State Secretary
Ministry of Health
Olympic Street 2, Government Bldg 8
Ulaanbaatar – 48
Tel: +976 11 323 541
Fax: +976 11 323 541
E-mail: sodnompil@mongol.net

Mrs G. Batmunkh
Officer, State Inspector
City Inspectorate of Health
Ulaanbaatar
Tel: +976 99 48 6510
Fax: +976 11 320916

Ms B. Batchimeg
Deputy Director of the State Inspection
State Inspection Agency for Food Safety
and Agriculture
Ulaanbaatar-210349
Enkhtaivan Avenue-16a
Government Building 9
Tel: +976 11 460614
Fax: +976 11 451752
E-mail: batchimeg@yahoo.com

Morocco
Maroc
Marruecos

Dr Jaouad Mahjour
Chef du délégalion
Directeur de l'épidémiologie et de la lutte
contre les maladies
Ministère de la santé
14 Ibn El Haitam DELM
Agdal Rabat
Tel: +212 37 771969
Fax: +212 37 772014

Ing. Mustapha Bennouna
Chef de la division de l'hygiène du milieu
Ministère de la Santé
14 Rue Ibn Haïtom
Agdal
Rabat
Tel: +212 37 771607
Fax: +212 37 772014
E-mail: mbennouna@sante.gov.ma

Ing. Brahim El Mekroum
Chef du Service d'Hygiène Alimentaire
Ministère de la Santé
14 Ibn El Haïtom
Agdal
Rabat
Tel: +212 37 771634
Fax: +212 37 772014
E-mail: belmekroum@sante.gov.ma

Dr Hassan El Hasnaoui
Cabinet du Ministre
Ministère de l'agriculture du développement
rural et des eaux & forêts
Tel: +212 61 424676

Mr Hamid Lachhab
Chef du Service de la réglementation sanitaire
Ministère de l'agriculture
Direction de l'élevage et des services
vétérinaires
Rabat
Tel: + 212 37 768417 / 37 760687
Fax: +212 37 76 44 04
E-mail: lachhab@de.madrpm.gov.ma

Mr Abderrahmane Hilali
Directeur de la protection des végétaux,
des contrôles techniques et de la
répression des fraudes
Ministère de l'agriculture, du
développement rural et des eaux et forêts
Tel: +212 37 297544
Fax: +212 37 248150

Ing Larbi Hachimi
Directeur
Laboratoire officiel de l'analyse et des
recherches chimiques
25 Raul
Casablanca
Tel: +212 22 302196 / 98
Fax: +212 22 301972

Dr Kacem Ben Kaddour
Chef du Service
Direction de l'épidémiologie de la lutte contre
les maladies
Service des maladies épidémiques
14, Rue Ibn Al Haitau
Agdal-Rabat
Tel: +212 37 770404
Fax: +212 37 770404

Dr Abdesselam Arhoutane
Chef de service de la législation et de la
réglementation sanitaire
Ministère de la santé
Direction de la réglementation et du
contentieux
21 Rue Aderjaad
Rabat
Tel: +212 37 769965/66
Fax: +212 37 769969

M. Abdelhamid Biya
Chef du service du contrôle
Ministère de l'intérieur
Direction de la coordination des affaires
économiques (DCAE)
Tel: +212 37 671126
Fax: +212 37 671258

M. Lhoussaïne Saad
Chef du service technique
Ministère de l'agriculture, du développement
rural et des eaux et forêts
Tel: +212 37 297546
Fax: +212 37 298150

M. Ahmed Sbihi
Directeur de l'Elevage
Ministère de l'agriculture, du développement
rural et des eaux et forêts
Tel: +212 37 765077
Fax: +212 37 764404

M. El Alami Zine
 Directeur de laboratoires
 Etablissement et Autonome du contrôle et de
 coordination des exportations (EACCE)
 72 rue Mohamed Smiha
 Casablanca
 Tel: +212 22 31 4480/3051
 Fax: +212 22 30 51 56/30 25 57
 Ing. Mokhtar Moudden
 Institut National de la Recherche Agronomique
 Rabat
 Tel: +212 1 775660

M. Abdelkabar Amnar
 Responsable de la Division de la Coopération
 Ministère de l'Agriculture, Développement
 Rural et des Eaux et Forêts
 Tel: +212 37 764891
 Fax: +212 37 768548

Mlle Souad Benqaddi
 Office National Interprofessionnel des Céréales
 et des Légumes
 BP 154
 Rabat
 Tel: +212 1 37 701441

M. Mohamed Majdi
 Chef de la Division de la Répression des
 Fraudes
 Ministère de l'Agriculture, du développement
 rural et des eaux et des forêts
 Tel: 037.298.150
 E-mail: m.madji@homadi.fr

Ing. Rachid Lakdar
 Conseil général du développement agricole
 MADREF

M. Mouawya Moukrite
 CGEN
 Tel: +212 22 76 9036
 Fax: +212 22 75 9037

M. Mohamed Belmahi
 Président
 Ligue Nationale Marocaine de Protection
 du Consommateur
 43 Avenue Hassan II
 Meknes
 Tel. +212 1 61 154 137
 Fax. +212 5 55 40 4991

Mozambique

Mrs Olga Palmira Fernando Ofigo
 Munguambe
 Deputy National Director of Commerce
 Ministry of Industry and Commerce
 of Mozambique
 Tel: +258 1 431 137 / 082 321 169
 Fax: +258 1 433934 / 300 664
 E-mail: faodmai@mailtropical.co.mz

Ing Mrs Gariela Alice Rebello da Silva
 Director
 National Institute of Standardization and
 Quality
 Tel: +258 1 303 822 / 3
 Fax: +258 1 303 658
 E-mail: innoq@emilmoz.com

Mr Sergio Gouveia
 National Director of Agriculture
 Ministry of Agriculture and Rural
 Development
 Tel: +258 1 460195
 Fax: +258 1 460195
 E-mail: sgouveia@map.gov.mz

Myanmar

Dr Thet Thet Mar
 Assistant Director (Food)
 Food and Drug Administration
 35, Minkyaung Street
 Dagon 11191, Yangon
 Tel: +95 1 245332
 Fax: +95 1 202026
 E-mail: myanmarfda@mptmail.net.mm

Dr Mya Thwin
General Manager
Myanmar Agriculture Service
Ministry of Agriculture and Irrigation
Agriculture Lane
Kan be, Yankin
PO Box 11081 Yangon
Tel: +95 1 667 867
Fax: +95 1 667 991
E-mail: mas.moai@mptmail.net.mm

Namibia
Namibie

Mr F. Amulungu
Chief, Public Health
Ministry of Health and Social Services
Private Bag 13198
Windhoek
Tel: +264 61 203 2308
Fax: +264 61 203 2310
E-mail: famulungu@mhss.gov.na

Nepal
Népal

Mr Radha Raman Prasad Teli
Senior Drug Administrator
Department of Drug Administration
Ministry of Health
Bijuli Bazar
Kathmandu
Tel: +977 1 491 432 / 490 0227
Fax: +977 1 498 572
E-mail: dda@healthnet.org.np / bk@col.com.np

Mr Dip Jung Shah
Deputy Director General
Department of Food Tech. & Quality
Ministry of Agriculture
Babar Mahal
Kathmandu
Tel: +977 1 262369
Fax: +977 1 262737

Netherlands
Pays-Bas
Países Bajos

Dr Leo Frans Hagedoorn
Ministry of Agriculture
PO Box 20401
2500 EK The Hague
Tel: +31 70 378 5788
Fax: +31 70 378 6141
E-mail: l.f.hagedoorn@vva.agro.nl

Mr Edwin Hecker
Deputy Director
Department of Food and Veterinary Affairs
Ministry of Agriculture, Nature Management
and Fisheries
PO Box 20401
2500 EK The Hague
Tel: +31 70 378 5686
Fax: +31 70 378 6141
E-mail: e.f.f.hecker@vva.agro.nl

Mr Jacobus J. Neeteson
Policy Coordinator FAO
Department of International Affairs
Ministry of Agriculture, Nature Management
and Fisheries
PO Box 20401
2500 EK The Hague
Tel: +31 70 37 4171
Fax: +31 70 378 6126
E-mail: j.j.neeteson@iz.agro.nl

Mr W. F. G. L. Droppers
Coordinator Veterinary Public Health
Ministry of Health, Welfare and Sport
P.O. Box 20350
2500 EY The Hague
Tel: +31 70 3406999
Fax: +31 70 3405554
E-mail: WF.DROPPERS@MINVWS.NL

New Zealand
Nouvelle-Zélande
Nueva Zelandia

Mr Neil McLeod
 Market Access Counsellor
 Food Assurance Authority
 P.O. Box 2526
 Wellington
 Tel: +64 4 474 4180
 Fax: +64 4 474 4239
 E-mail: mcleodn@maf.govt.nz

Niger

Mr Ari Kime Maina
 Directeur Adjoint
 Direction de l'Hygiène Publique et de
 l'Éducation au Santé
 Ministère de la Santé et de la Lutte Contre
 les Endemies
 B.P 623 Niamey
 Tel: +227 735459
 Fax: +227 732887

Mr Moussa Nahindou
 Chef Section Législation
 Direction de la Protection des Végétaux
 Ministère du Développement Agricole
 BP 323 Niamey
 Tel: +227 742 556
 Fax: +227 741 983

Nigeria

Mrs M. E. Eshiett
 Chief Stds. Officer
 Standards Organization of Nigeria
 Federal Secretariat, Phase 1, (9th floor)
 Ikoyi-Lagos
 Tel: +234 01 2696178
 Fax: +234 01 2696176

Mrs O.B. Ayeni
 Asst Chief Stds. Officer
 Standards Organization of Nigeria
 Federal Secretariat, Phase 1, (9th floor)
 Ikoyi-Lagos
 Tel: +234 01 2696178
 Fax: +234 01 2696176

Mr Rufus Kayode Omotayo
 Director
 Food and Drug Services Department
 Federal Ministry of Health
 Federal Secretariat
 Abuja
 Tel: +234 9 523 7759
 Fax: +234 9 523 8190
 E-mail: rkomotayo@hotmail.com

Mrs Stella A. Denloye
 Chief Regulatory Officer
 National Agency for Food and Drugs
 Administration and Control (NAFDAC)
 Tel: +234 1 452 4270 / 08 02 311 8986
 E-mail: nafdacos@beta.linkserve.com /
 denloye_stella@yahoo.com

Norway
Norvège
Noruega

Mr Harald Ribe
 Assistant Director General
 Ministry of Agriculture
 Dep. of Food Production and Plant and
 Animal Health
 P.O. Box 8007 Dep.
 N-0030 Oslo
 Tel: +47 22 24 94 11
 Fax: +47 22 24 95 59
 E-mail: harald.ribe@ld.dep.no

Ms Bodil Blaker
 Adviser
 Ministry of Health
 Tel: +47 22 24 87 01
 Fax: +47 22 24 86 56
 E-mail: bodil.blaker@shd.dep.no

Oman
Omán

Ahmed Alhosni
 Ministry of Agriculture and Fisheries
 PO Box 50
 PC 121
 Muscat

Mr Khalid Mohammad Kalshoaily
Head of Food Processing Assistant
Ministry of Agriculture and Fisheries
PO Box 50
PC 121
Muscat
Tel: +943 6830
Fax: +968 893 097
E-mail: kalshoaily@yahoo.com

Pakistan
Paquistán

Mr Muhammad Saleem
Chief
Nutrition Division
Islamabad
Tel: 9255079
Fax: 9255099

Philippines
Filipinas

Mr Gilberto F. Layese
Officer-in-Charge, Director
Bureau of Agriculture and Fisheries Product
Standards
BPI Compound
Elliptical Road, cor. Visayas Avenue
Diliman
Quezon City
Tel: +63 2 920 6131/2/3
Fax: +63 2 920 6134
E-mail: bafps@yahoo.com

Ms Adelisa C. Ramos
Deputy Director
Department of Health – Bureau of Food and
Drugs
Civic Drive, Filinvest Corporate City
Alabang, Muntinlupa City 1770
Manila
Tel: +63 807 82 85
Fax: +63 807 82 85 / 807 07 51
E-mail: ndp@doh.com.gov.ph

Mrs Christmasita Oblepias
Food Drug Regulations Officer II
Department of Health – Bureau of Food and
Drugs
Civic Drive, Filinvest Corporate City
Alabang, Muntinlupa City 1770
Manila
Tel: +63 842 46 25
Fax: +63 842 46 25
E-mail: rao619@yahoo.com

Poland
Pologne
Polonia

Mr Mirosław Różycki
DVM
National Veterinary Research Institute
Tel: +48 81 886 3051
Fax: +48 81 886 2595
E-mail: mrozycki@pinet.pulawy.pl

Russian Federation
Fédération de Russie
Federación de Rusia

Dr Prof. Viktor Tuteljan
Director, Food Institute
Russian Academy of Medicine
Rahmanovskij pr. 2/4
109240 Moscow
Tel: +7 95 298 18 59
Fax: +7 95 298 18 72
E-mail: tutelyan@ion.ru

Mr Oleg Julius Kobiakov
1st Secretary FAO/WFP Desk
Department of International Organizations
MFA of Russia
32/34 Smolenskaya – Sennaya Sq
121200 Moscow
Tel: +7 95 244 4211
Fax: +7 95 244 2401
E-mail: dmo@mid.ru

Mrs Olga Egorova
 Biosafety Expert
 Ministry of Industry, Science and Technologies
 of the Russian Federation
 Department for Life Sciences and the Earth
 103905 Moscow
 Tel: +7 95 229 0418
 Fax: +7 95 229 5575/1702
 E-mail: root@ignat.mnts.msk.ru

Mr Valery Popovtsev
 Head of Division
 Ministry of Agriculture
 1/11 Orlikov PER.
 107139 Moscow
 Tel: +7 95 2074833
 Fax: +7 95 2889580
 E-mail: Stranger@agro.ariz.ru

Rwanda

Dr Tito Migabo
 Director General
 Rwanda Bureau of Standards
 PO Box 6185 Kigali
 Tel: +250 82949 / 830 3197
 Fax: +250 83305
 E-mail: tmigabo@yahoo.com

Dr Veronique Nakyamzi Mugisha
 Directrice de l'épidémiologie et hygiène
 publique
 Ministry of Health
 BP 54 Kigali
 Tel: +250 57 5416
 Fax: +250 575416
 E-mail: dehp@rwanda1.com

Senegal **Sénégal**

M. Alhousseynou Moctar Hanne
 Chef de Bureau Législation et Contrôle
 Phytosanitaire et Qualité
 Ministère de l'Agriculture et de l'Élevage
 Direction de la Protection des Végétaux
 Division Legislation C. phytosanitaire et
 Qualité
 Dakar
 Tel: +221 640 7517/8340 397
 Fax: +221 834 2854/834 9567
 E-mail: maedpv@primature.sn

M. Diakhaidia Diarra
 Service National de l'Alimentation et de
 la Nutrition
 Coordinateur de Comité National du Codex
 Dakar
 Tel: +221 638 3456
 Fax: +221 825 0948

Mr Tbou Ndiaye
 Ambassadeur du Sénégal au Maroc
 Tel: +212 37 639 163 / 061185713

Sierra Leone

Mr. M.S. Ibrahim
 Environmental Health Manager
 Ministry of Health and Sanitation
 Freetown

Singapore **Singapour** **Singapúr**

Dr Sin Bin Chua
 Director
 Food & Veterinary Administration
 Agri-Food & Veterinary Authority of
 Singapore
 5 Maxwell Road #04-00, Tower Block
 MND Complex
 Singapore 069110
 Tel: +65 325 7622
 Fax: +65 224 0601
 E-mail: CHUA_Sin_Bin@ava.gov.sg

Dr Bryan Wei Yi Kong
Head/Abattoirs
Agri-Food & Veterinary Authority of Singapore
51 Jalan Buroh
Singapore 619495
Tel: +65 267 0838
Fax: +65 265 0784
E-mail: Bryan_KONG@ava.gov.sg

Mr Sin-I Chu
Chief Food Officer
Ministry of the Environment
Environment Building
40 Scotts Road #19-00
Singapore 228231
Tel: +65 731 9859
Fax: +65 731 9347
E-mail: CHU_Sin-I@env.gov.sg

Slovakia
Slovaquie
Eslovaquia

Mr Peter Šimko
Deputy Director
Food Research Institute
Priemysel'ná 4
P.O. Box 25
820 06 Bratislava
Tel: +42 12 5557 4622
Fax: +42 12 5557 1417
E-mail: peter.simko@vup.sk

Dr Michal Ondrejčák
Head of Office
Ministry of Health of the Slovak Republic
Limbova 2
83752 Bratislava
Tel: +42 12 5477 6083
Fax: +42 12 5477 7943
E-mail: michal.ondrejčák@health.gov.sk

Dr Ivan Rovny
Chief Hygienist
Ministry of Health of the Slovak Republic
Limbova 2
83752 Bratislava
Tel: +42 12 4437 2906
Fax: +42 12 4437 2641
E-mail: zvezana.cervena@health.gov.sk

Solomon Islands
Iles Salomon
Islas Salomón

Mr Abednigo Maeohu
Senior Health Inspector
Environmental Health Division
Ministry of Health and Medical Services
PO Box 349
Honiara
Tel: +677 26493/27555
Fax: +677 21344
E-mail: whosol@who.org.cb

Spain
Espagne
España

Ms Dolores Flores Cerdán
Directora General de Salud Pública y
Consumo
Ministerio de Sanidad y Consumo
Pº del Prado 18-20
28071 Madrid
Tel: +91 596 20 62
Fax: +91 596 44 09
E-mail: dflores@msc.es

Sudan
Soudan
Sudán

Mrs Suad Hassan Satti
Director, National Chemical Laboratories
Food Safety Coordinator
Federal Ministry of Health
PO Box 287 Khartoum
Tel: +249 11 779 789 / 772 991
Fax: +249 11 795 164
E-mail: satti10@hotmail.com

Dr Abdelhalim Rahma Ahmed
Prof., Head, FQC Section
Food Research Center
Agriculture Research Corporation
PO Box 213
Khartoum North
Tel: +249 13 311053
Fax: +249 13 311049
E-mail: frc@sudanmail.net

Swaziland
Swazilandia

Mrs Thankful M. Dlamini
Nutrition Officer
Ministry of Agriculture and Crops
PO Box 162 Mbabane
Tel: +268 404 2731
Fax: +268 404 3852

Ms Danisile Busie Vilakati
Nutrition Programme Manager
Swaziland National Nutrition Council
Ministry of Health
PO Box 4918 Mbabane
Tel: +268 404 3852
Fax: +268 404 3852
E-mail: swannuco@realnet.co.sz

Mr Richard Mamba
Senior Health Inspector
Ministry of Health and Social Welfare
PO Box 5 Mbabane
Tel: +268 404 2431/3
Fax: +268 404 2092

Ms Khanyisile F. Mabuza
Food Technologist
Ministry of Agriculture
PO Box 162 Mbabane
Tel: +268 404 2731
Fax: +268 404 7220

Sweden
Suède
Suecia

Mr Stuart Slorach
Deputy Director-General
Swedish National Food Administration
P.O. Box 622
S-75126 Uppsala
Tel: +46 18 17 5594
Fax: +46 18 10 5848
E-mail: stsl@slv.se

Switzerland
Suisse
Suiza

Mme Awilo Ochieng Pernet
Responsable du Codex Alimentarius
Office fédéral de la santé publique
Sûreté alimentaire
3003 Berne
Tel: +41 31 322 0041
Fax: +41 31 322 9574
E-mail: awilo.ochieng@bag.admin.ch

M. Markus Hardegger
Division Moyens de production
Office fédéral de l'agriculture
Mattenhofstrasse 5
CH-3003 Berne

Syria
Syrie
Siria

Dr Abdullatif Baroudi
Tech. Direct.
Ministry of Supply and Inter-trade
PO Box 7076 Damascus
Tel: +963 11 512 1109
Fax: +963 11 512 2390
E-mail: baroudi@scs-net.org

Thailand
Thaïlande
Tailandia

Mr Charun Pornkuntham
Senior Scientist
Dept. of Agriculture
Chatuhak
Bangkok 10900
Tel: +66 2 940 7474
Fax: +66 2 940 7448
E-mail: charun@doa.go.th

Dr Hataya Kongchuntuk
Senior Food Specialist
Food and Drug Administration
Ministry of Public Health
Tiwanond Road
Nonthaburi 11000
Tel: +66 2590 7183
Fax: +66 2591 8460
E-mail: hatk@health.moph.go.th

Dr Songsak Saicheua
Counsellor
Department of European Affairs
Ministry of Foreign Affairs
Bangkok
Tel: +66 2 643 5145
Fax: +66 2 643 5146
E-mail: div0402@mfa.go.th

Mr Bundit Limschoon
First Secretary
Department of Economic Affairs
Ministry of Foreign Affairs
Bangkok
Tel: +66 2 643 5000
Fax: +66 2 643 5243
E-mail: limschoon@hotmail.com

Togo

Dr Andrée Bassuka
Responsable/Chef du Service
Département Nutrition
Ministère de la Santé Publique
Tel: +228 902 8628
Fax: +228 221 7832
E-mail: andree275@yahoo.fr

Mr Akotchayé Kokou Akoegnon
Responsable Laboratoire de Microbiologie
L'Institut Togolais des Recherche Agronomique
Ministère de l'Agriculture de l'Élevage et de
la Pêche
BP 1163 Lomé
Tel: +228 225 4118
Fax: +228 225 1559
E-mail: akoegnon_boha@yahoo.fr or
itra@cafe.tg

Trinidad and Tobago **Trinité-et-Tobago** **Trinidad y Tabago**

Dr Francis Edward Davis
Director
Animal Production and Health
Ministry of Food Production and Marine
Resources
St. Claire Circle
St. Clair
Port of Spain
Tel: +868 628 4333
Fax: +868 628 4344
E-mail: bingdavis@hotmail.com

Tunisia **Tunisie** **Túnez**

Dr Ing Slaheddine Cheniti
Directeur Général
Agence nationale de contrôle sanitaire et
environnemental des produits
Immeuble Idriss 3^o étage
Bloc 9 cité Ahiri les Berges du Lac
Tunis 2045
Tel: +216 71 960 014
Fax: +216 71 960 146
E-mail: slaheddine.cheniti@rms.tn

Ing. Mabrouk Nedhif
Directeur
Ministère de la Santé Publique
Tel: +216 71 576 115
Fax: +216 71 576 010

M. Bouali Saaidia
Directeur Général
Centre Technique de l'Agro-Alimentaire
12 Rue de l'Usine
Z.I. Charguia II 2035
Tunis Carthage
Tel: +216 7194 0198
Fax: +216 7194 1080
E-mail: ctaa@email.ati.tn

Meftah Amara
Directeur Général
Ministère de l'Industrie
Tel: +216 7128 9562
Fax: +216 7178 9159

Turkey
Turquie
Turquía

Ms Nermin Kahraman
MSc. Food Engineer
Ministry of Health of Turkey
Primary Health Care General Directorate
Food Safety and Laboratories Department
Sihhiye – Ankara
Tel: +90 312 435 6440/1237
Fax: +90 312 434 4449
E-mail: knermin@yahoo.com;
kahraman@hacettepe.edu.tr

Mrs Tülay Demir
Agriculture Engineer
The Ministry of Agriculture
Bagdat Street no. 333
Caddeboston
Istanbul
Tel: +90 216 302 41 00 1221
Fax: +90 216 359 90 60
E-mail: i.tulay@ttnet.net.tr

Dr Ahmet Altindisli
Assoc. Prof. Dr (Lecturer)
Ege University, Agriculture Faculty
Dep of Horticulture
35100 Bornova
Tel: +90 232 388 1864
Fax: +90 232 388 1864
E-mail: altindis@ziraat.ege.edu.tr

Uganda
Ouganda

Dr Ben Manyindo
Ag. Executive Director
Uganda National Bureau of Standards
P.O. Box 6329 Kampala
Tel: +256 41 222367/9
Fax: +256 41 286126
Email: unbs@afsat.com

Dr Samuel Zaramba
Director Health Service
Ministry of Health
PO Box 7272 Kampala
Tel: +256 41 340 882
Fax: +256 41 344 616
E-mail: zaramba@moh.g.ug

Ukraine
Ucrania

Dr Maksym Melnychuk
Director
National Agricultural University
Institute of Agrotechnologies and Plant
Products Quality
Tel: +38 44 267 8430
Fax: +38 44 263 7155
E-mail: marsym@navv.kiev.ua

Dr Mykola Prodanchuk
Director of Institute Ecohygiene and
Toxicology
Ministry of Health
Tel: +380 44 250 7200
Fax: +380 44 251 9643
E-mail: pmg@medved.kiev.ua

Dr Anatoli Podrushnyak
Deputy Director
Institute of Institute Ecohygiene and
Toxicology
Tel: +38 044 261 33 10

Dr Sergiy Melnychuk
Dean of Faculty
National Agricultural University
Tel: +38 044 267 8954
Fax: +38 044 263 7155
E-mail: smelnich@nauu.kiev.ua

United Kingdom
Royaume-Uni
Reino Unido

Dr Richard Harding
Head of Food Chain Strategy
Food Standards Agency
Room 429
Aviation House
125 Kingsway
London WC2B 6NH
Tel: +44 20 7276 8483
Fax: +44 20 7276 8478
E-mail:
richard.harding@foodstandards.gsi.gov.uk

Dr Dorian Kennedy
Head of Branch
Food Standards Agency
Room 124
Aviation House
125 Kingsway
London WC2B 6NH
Tel: +44 20 7276 8177
Fax: +44 20 7276 8192
E-mail:
dorian.kennedy@foodstandards.gsi.gov.uk

United Republic of Tanzania
République-Unie de Tanzanie
República Unida de Tanzania

Dr Claude John Shara Mosha
Chief Standards Officer (Food Safety
and Quality)
Head, Agriculture and Food Section
Tanzania Bureau of Standards (TBS)
P.O. Box 9524
Dar Es Salaam
Tel: +255 741 324495 (Mob)
+255 245 0298 (Office)
Fax: +255 245 0959
E-mail: cjsmosha@yahoo.co.uk
tbsinfo@uccmail.co.tz

Mr Richard Nyambita Magoma
Agricultural Officer
Ministry of Agriculture and Food Security
Plant Protection Services
P.O. Box 9071 Dar Es Salaam
Tel: +255 22 286 5641/2/3
Fax: +255 22 286 5641/2
E-mail: pps@kilimo.go.tz
ipm@africaonline.co.tz

United States of America
les États-Unis d'Amérique
los Estados Unidos de América

Mr Ronald Franklin Hicks
Acting Assistant Administrator
U.S. Department of Agriculture
Food Safety and Inspection Service
14th E Independence Ave. S.W., Room 331-E
Washington, DC 20250
Tel: +1 202 720 7025
Fax: +1 202 690 0550
E-mail: ron.hicks@usda.gov

Mr L. Robert Lake
Director of Regulations and Policy
U.S. Food and Drug Administration
Center for Food Safety and Applied Nutrition
200 C Street, S.W. (HFS-4)
Washington, DC 20204
Tel: +1 202 205 4160
Fax: +1 202 401 7739
E-mail: robert.lake@cfsan.fda.gov

Mr Morris (Morrie) Potter
Lead Scientist
U.S. Food and Drug Administration
Center for Food Safety and Applied Nutrition
200 C Street, S.W.
HFS-006
Washington, D.C. 20204
Tel: +1 404 253 1225
Fax: +1 202 160 4710 / +1 404 253 1218
E-mail: morrie.potter@cfsan.fda.gov

Ms Marilyn Veek
Associate Director
U.S. Food and Drug Administration
Office of International Programs
5600 Fishers Lane Room 15A55
Rockville, Maryland 20857
Tel: +1 301 827 0906
Fax: +1 301 827 0003
E-mail: mveek@oc.fda.gov

Mr David Patterson Lambert
Counselor for Agricultural Affairs
U.S. Mission to the U.N. Organizations for
Food and Agriculture
Via Sardegna 49
00187 Roma
Tel: +39 06 4674 3507
Fax: +39 06 4788 7047
E-mail: lambertd@fas.usda.gov

Mr Loren Lange
Assistant Deputy Administrator
U.S. Department of Agriculture
Food Safety and Inspection Service
14th E Independence Ave. S.W., Room 314-E
Washington, DC 20250
Tel: +1 202 690 6356
Fax: +1 202 690 6565
E-mail: loren.lange@usda.gov

Ms Maritza Colón-Pullano
Senior Advisor
International Food Safety
U.S. Department of Agriculture
Food Safety and Inspection Service
14th E Independence Ave. S.W.
Room 3843-E
Washington, DC 20250-3700
Tel: +1 202 720 6288
Fax: +1 202 720 6050
E-mail: maritza.colon-pullano@usda.gov

Mr Aziz Abdelali
Agricultural Specialist
U.S. Department of Agriculture
Foreign Agriculture Service
U.S. Embassy
Rabat, Morocco
Tel: +212 3 765 987
Fax: +212 3 765 493
E-mail: agrabat@mtds.com

Mr Tom Billy
Special Adviser – USDA
Chairman – CODEX
E-mail: thomas.billy@usda.gov

Mr Stephen Hawkins
International Affairs Specialist
U.S. Department of Agriculture
Food Safety and Inspection Service
14th E Independence Ave. SW
Room 331-E
Washington, DC 20250
Tel: +1 202 690 3122
E-mail: stephen.hawkins@usda.gov

Uruguay

Ing Ana Maria Berti
Director
División Protección de Alimentos Vegetales
Ministerio de Ganadería, Agricultura y Pesca
Tel: +598 2 309 3069/309 20 74
Fax: +598 2 309 30 69/309 22 19
E-mail: anaberti@hotmail.com

Vanuatu

Mr Viran Tovu
Senior Environmental Health Officer
Environmental Health Section
Public Health Directorate
P.M.B. 009
Port Vila
Tel: +678 22512
Fax: +678 26204
E-mail: vtovu@vanuatu.gov.vu

Ms Emily Kalsakau
Senior Food Technologist (Manager)
Food Technology Department Centre
C/- Department of Industry and Trade
Private Mail Bag 030
Port Vila
Tel: +678 25978
Fax: +678 25640
E-mail: ftcd@vanuatu.com.vu

Viet Nam

Dr Kim Thi Phan
Director
Vietnam Food Administration
Ministry of Health
138A Giang Vo str
Hanoi
Tel: +844 846 3839
Fax: +844 846 3739
E-mail: cucqltp@hn.vnn.vn

Yemen **Yémen**

Dr Taher Ali Mahoud Al Hamdani
Adviser on Food Safety
Ministry of Public Health and Population
Sana'a
Tel: +967 1 252 213
Fax: +967 1 251 612

Ing. Mohammed Al-Sonmi Mohammed
Director General of Mahwit Branch
Ministry of Agriculture and Irrigation
Sana'a
Tel: +967 7 404 321
Fax: +967 7 404 151

Mohamed H. E. Abul Hassen
Head, Quality Control Department
Yemen Food Standards Institute
Sana'a
Tel: +967 1 219978
Fax: +967 1 402 636

Yugoslavia **Yougoslavie**

Mrs Milena Radojicic
Senior Adviser for Legislature
Fed. Secret. of Labour, Health and Social
Welfare
Bulevar Lenjina 2
11070Novi Beograd
Tel: +381 11 602 565
Fax: +381 11 311 7127

Dr Olga Cosic
Councillor of Minister
Federal Ministry of Labour, Health and
Social Welfare
Tel: +381 63 229454
E-mail: cosic@eunet.yu

Zambia **Zambie**

Mrs Christabel Kunda Malijani
Provincial Health Inspector
Ministry of Health
Box 30205 Lusaka
Tel: +260 1 221644
Fax: +260 1 231057

Mr George Chingumbe Kaitisha
Principal Agricultural Research Officer
MT Makulu Research Station
Ministry of Agriculture, Food & Fisheries
P/BAG 7
Chilanga
Tel: +260 1 278130
Fax: 260 1 278130
E-mail: genetics@zannet.zm

Mrs Margaret Sakala Mazhamo
A/Head
Ministry of Health
Food and Drugs Control Laboratory
Box 30138
Lusaka
Tel: +260 1 252 875
Fax: +260 1 253 344

Zimbabwe

Mrs Theodora Netsai Nyamandi
Deputy Government Analyst
Government Analyst Laboratory
Box CY 231
Causeway
Tel: +263 4 792 026
Fax: +263 4 722 265 / 708 527
E-mail: theod@africaonline.co.zw

**INTERNATIONAL ORGANIZATIONS
ORGANISATIONS INTERNATIONALES
ORGANIZACIONES INTERNACIONALES**

**Arab Industrial Development and Mining
Organization (AIDMO)**

Mr Mahmoud Khasawneh
Director of Quality
PO Box 8019
United Nations 10102
Agdal – Rabat
Morocco
Tel: +212 037 772600
E-mail: afrinet@org.ma

Codex

Dr Alan Randell
Joint FAO/WHO Food Standards Programme
FAO
Viale delle Terme di Caracalla
00100 Rome
Italy
Tel: +39 06 570 54390
Fax: +39 06 570 54593
E-mail: alan.randell@fao.org

Dr Seung Yong Lee
Joint FAO/WHO Food Standards Programme
FAO
Viale delle Terme di Caracalla
00100 Rome
Italy
Tel: +39 06 570 56243
Fax: +39 06 570 54593
E-mail: seungyong.lee@fao.org

**Comité Européen des Fabricants de Sucre
(CEFS)**

Dr Nathalie Henin
Conseiller scientifique
CEFS
182, avenue de Tervuren
B-1150 Bruxelles
Tel: +32 2 762 07 60
Fax: +32 2 771 00 26
E-mail: nathalie.henin@cefs.org

Consumers International

Dr Edward Groth
Senior Scientist, CV
24 Highbury Crescent
London, N5 1RX
Tel: +44 20 7226 6663
Fax: +44 20 7354 0607
E-mail: groted@consumer.org

Professor Samir El Jaafari
Member
CI - London
Tel: +212 61 480 440
Fax: +212 61 733 796
E-mail: s.eljaafari@iam.net.ma

Mrs Rowsan Hannan
Food Programme Co-ordinator
24 Highbury Crescent
London, N5 1RX
Tel: +44 20 7226 6663
Fax: +44 20 7354 0607
E-mail: rhannan@consint.org

Council of Europe

Dr Frances Agius
Committee on Agriculture, Food
and Environment
Council of Europe
Strasbourg
France
Tel: +33 3 5689 6975
E-mail: francis.agius@magnet.mt

European Commission (EC)

Mr Marc Cronin
Administrator
European Commission
1049 Brussels
Belgium
Tel.: +32 2 299 3852
Fax: +32.3.299.1046
E-mail: marc.cronin@cec.eu.int

Mme Paola Testori-Coggi
Director Food Safety
Direction Générale Santé et Protection des
Consommateurs
1049 Brussels
Belgium
Tel: +32 2 295 34 30
Fax: +32 2 295 0285
E-mail: paola.testori@cec.eu.int

M. José Luis De Felipe Gardon
Administrateur Risques physiques et chimiques
Direction Générale Santé et Protection des
Consommateurs
Tel: +32 2 299 3880
Fax: +32 2 296 4736
E-mail: jose.defilipe@cec.eu.int

M. Jens Nymand-Christensen
Head of Unit
200 Rue de la Loi
DG Health and Consumer Protection
1049 Brussels
Belgium
Tel: +32 2 299 5026

Food and Agriculture Organization (FAO)

Mr Hartwig de Haen
Assistant Director-General
Economic and Social Department
FAO
Viale delle Terme di Caracalla
00100 Rome
Italy
Tel: +39 06 570 53566
Fax: +39 06 570 54593
E-mail: hartwig.dehaen@fao.org

Mr Lahsen Ababouch
Chief
Fish Utilization and Marketing Service
FAO
Viale delle Terme di Caracalla
00100 Rome
Italy
Tel: +39 06 570 54157
Fax: +39 06 570 53152
E-mail: lahsen.ababouch@fao.org

Mr Hector M. Lupin
Senior Fishery Industry Officer
(Quality Assurance)
Fish Utilization and Marketing Service
FAO
Viale delle Terme di Caracalla
00100 Rome
Italy
Tel: +39 06 570 56459
Fax: +39 06 570 53152
E-mail: hector.lupin@fao.org

Mr John Riddle
Press Office
FAO
Viale delle Terme di Caracalla
00100 Rome
Italy
Tel: +39 06 570 53259
Fax: +39 06 570 53152
E-mail: john.riddle@fao.org

Mr A. Ben Romdhane
FAO Representative
B.P. 1369 Rabat
Morocco
Tel: +212 37 654 308
Fax: +212 37 654 552
E-mail: FAO-MAR@field.fao.org

M. A. Bouchanine
FAO Morocco
B.P. 1369 Rabat
Morocco
Tel: +212 37 654 308
Fax: +212 37 654 552
E-mail: FAO-MAR@field.fao.org

Mr Mohamed Belgsyer
Representation de la FAO au Maroc
Rabat
Tel: +212 612 229482

Mme Nadia Touil
FAO Morocco
B.P. 1369 Rabat
Morocco
Tel: +212 61 400601

Mme. Fatima Hashem
Food and Nutrition Officer
Regional Office for the Near East (RNE)
11, El Eslah El Zerai Str.
Dokki, Cairo
Egypt
Tel: +202 331 6000
Fax: +202 749 5981
E-mail: FAO-RNE@fao.org

Dr Georges Codjia
Regional Food and Nutrition Officer (SAFR)
FAO Sub Regional Office for Southern and
Eastern Africa (SAFR)
P.O. Box 3730
Harare
Zimbabwe
Tel: +263 4 253655 or +263 91 251 168
Fax: +263 4 700 724
E-mail: georges.codjia@fao.org

Dr Cheikh N'Diaye
Fonctionnaire Principal
FAO Bureau Regional Afrique
BP 1628 Accra
Ghana
Tel: +233 21 701 0930
Fax: +233 21 701 0943
E-mail: cheikh.ndiaye@fao.org

International Council For Development (ICD)

Mrs Yasmine Motarjemi
Food Safety Manager
Nestec Ltd
Avenue Nestle 55
CH-1800 Vevey
Switzerland
Tel: +41 21 924 4246
Fax: +41 21 924 2810
E-mail: yasmine.motarjemi@nestle.com

ILSI Risk Science Institute

Dr Isabel Walls
ILSI Risk Science Institute
One Thomas Circle, NW, 9th Floor
Washington, D.C. 20005
USA
Tel: +1 202 659 0074
Fax: +1 202 659 3617
E-mail: iwalls@ilsu.org

International Institute Of Refrigeration (IIR)

M. Moha Marghi
Délégué de l'IIF au Maroc
Directeur de la Production Végétale
Ministère de l'Agriculture et du
Développement Rural et des Eaux et Forêts
BP 1387 Rabat
Morocco
Tel: +212 3776 5871
Fax: +212 3776 1557
E-mail: dpv@dpv.madrpm.gov.ma

Prof. Najib Berrada
Vice Président de la Commission B1 de l'IIF
Dept. Physique, Faculté des Sciences Dhar El
Mehraz
BP 1796 Atlas, Fès
Morocco
Tel.: +212 5565 2173
Fax: +212 564 2394
E-mail: najiberrada@yahoo.fr et
nberrada@hotmail.com

Masterfoods

Mrs Maha Tahiri
3 Chemin de la Sandlach
BP 36
67501 Haguenau Cedex
France
Tel: +33 3 88 05 11 23
Fax: +33 3 88 05 10 07
E-mail: maha.tahiri@eu.effem.com

Office International des Epizooties (OIE)

Mr Alejandro Thiermann
12 rue de Prony
75017 Paris
France
Tel: +33 1 44 15 18 88
Fax: + 33 1 42 67 09 87
E-mail: oie@oie.int

Dr Karim Ben Jebara
Chef de service de l'information zoosanitaire
12 rue de Prony
75017 Paris
France
Tel: +33 1 44 15 18 88
Fax: +33 1 42 67 09 87
E-mail: k.benjebara@oie.int

ORMVA

Mr M'Hammed Assila
Chef du Service de l'Eleavage
Marrakech
Tel: +212 4 443 5428

Organisation for Economic Co-operation and Development (OECD)

Mr Wayne Jones
2, Rue André Pascal
75116 Paris
France
Tel: +33 1 4524 7874
Fax: +33 1 4524 1890
E-mail: wayne.jones@oecd.org

Mrs Fatima Yazza
2, Rue André Pascal
75116 Paris
France
Tel: +33 1 4524 1679
Fax: +33 1 4524 1890
E-mail: fatima.yazz@oecd.org

UNESCO

Mr Mohamed Atibi
Member
Tel: +212 6 821 9755

World Health Organization (WHO)

Dr David Heymann
Executive Director
Communicable Diseases
WHO
20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel: +41 22 791 2212
E-mail: heymannd@who.int

Dr Hajime Toyofuku
Food Safety Programme
WHO
20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel: +41 22 791 3556
Fax: +41 22 791 4807
E-mail: toyofukuh@who.int

Dr Yasuhisa Nakamura
Food Safety Programme
WHO
20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel: +41 22 791 4324
Fax: +41 22 791 4807
E-mail: nakamuray@who.int

Ms Melinda Henry
 Press office
 WHO
 20 Avenue Appia
 CH-1211 Geneva 27
 Switzerland
 Tel: +41 22 791 2535
 E-mail: henrym@who.int

Dr Raouf Ben Ammar
 Représentant de l’OMS au Maroc
 Boîte postale 812
 Rabat Mechouar
 Maroc
 Tel: +212 37 76 67 41
 Fax: +212 37 76 68 05
 E-mail: rbenamar@sante.gov.ma

Mrs Susanne Gelders
 Regional Office for the Eastern Mediterranean
 Abdul Razzak Al Sanhoury Street
 PO Box 7608 Nasr City
 Cairo 11371
 Egypt
 Tel: +20 2 652 7378
 Fax: +20 2 670 2492
 E-mail: gelderss@emro.who.int

Dr Cristina Tirado
 WHO Regional Office for Europe
 European Centre for Environment and
 Health (ECEH)
 Rome Division
 Via Francesco Crispi, 10
 I-00187 Rome
 Italy
 Tel: +39 06 487 7525
 Fax: +39 06 487 7599
 E-mail: cti@who.it

Mrs Emilienne Ntame Anikpo
 Directrice de Division
 OMS – AFRO
 BP 06
 Brazzaville
 Congo
 Tel: +242 636 757
 E-mail: anikpoe@afro.who.int

Dr Genaro W. Garcia
 Regional Adviser Food Safety
 Pan American Health Organization
 (PAHO/WHO)
 525 23rd Street N.W.
 Washington, DC 20037
 USA
 Tel: +1 202 9743116 / 3173
 Fax: +1 202 974 3643
 E-mail: garciage@paho.org

Mr Anthony Roy Hazzard
 Technical Officer Food Safety
 Regional Office for the Western Pacific
 PO Box 2932
 Manila 1000
 Philippines
 Tel: +632 528 9872
 E-mail: hazzardt@wpro.who.int

World Trade Organization (WTO)

Mr João Magalhães
 Counsellor
 Agriculture and Commodities Division
 WTO
 Centre William Rappard
 Rue de Lausanne 154
 Geneva
 Switzerland
 Tel: +41 22 731 4206
 Fax: +41 22 739 5760
 E-mail: joao.magalhaes@wto.org

FAO/WHO SECRETARIAT SECRETARIAT FAO/OMS SECRETARIADO FAO/OMS

FAO

Dr Ezzeddine Boutrif
 Food Quality and Standards Service
 FAO
 Viale delle Terme di Caracalla
 00100 Rome
 Italy
 Tel: +39 06 570 56156
 Fax: +39 06 570 54593
 E-mail: ezzeddine.boutrif@fao.org

Dr Jean-Louis Jouve
Food Quality and Standards Service
FAO
Viale delle Terme di Caracalla
00100 Rome
Italy
Tel: +39 06 570 55858
Fax: +39 06 570 54593
E-mail: JeanLouis.Jouve@fao.org

Mr Christophe Leprêtre
Food Quality and Standards Service
FAO
Viale delle Terme di Caracalla
00100 Rome
Italy
Tel: +39 06 570 55621
Fax: +39 06 570 54593
E-mail: Christophe.Lepretre@fao.org

Mr Christopher Church
Food Quality and Standards Service
FAO
Viale delle Terme di Caracalla
00100 Rome
Italy
E-mail: christopher.church@fao.org

Mr John Weatherwax
Consultant
1990 Willow Loop
Florence, OR
USA
E-mail: johnwax@harborside.com

WHO

Dr Jørgen Schlundt
Coordinator
Food Safety Programme
WHO
20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel: +41 22 791 3445
Fax: +41 22 791 4807
E-mail: schlundtj@who.int

Dr Gerald Moy
Food Safety Programme
WHO
20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel: +41 22 791 3698
Fax: +41 22 791 4807
E-mail: moyg@who.int

Dr Peter Ben Embarek
Food Safety Programme
WHO
20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel: +41 22 791 4204
Fax: +41 22 791 4807
E-mail: benembarekp@who.int

Dr Maura Ricketts
Food Safety Programme
WHO
20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel: +41 22 791 3935
Fax: +41 22 791 4807
E-mail: rickettism@who.int

Mrs Françoise Fontannaz
Food Safety Programme
WHO
20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel: +41 22 791 3697
Fax: +41 22 791 4807
E-mail: fontannazf@who.int

Ms Jenny Murcott
Food Safety Programme
WHO
20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel: +41 22 791 3557
Fax: +41 22 791 4807
E-mail: murcottj@who.int

APPENDIX II

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakesh, Morocco, 28–30 January 2002

**OPENING REMARKS OF THE MINISTERS OF HEALTH AND AGRICULTURE
OF THE KINGDOM OF MOROCCO**

The views expressed in the Global Forum documents are those of the author(s), and do not necessarily reflect the opinions of FAO or WHO. Designations employed and presentation of material do not imply the expression of any opinion on the part of FAO or WHO concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

Mr Ahmed Sbihi
Representative for H.E. Minister of Agriculture, Rural Development, Water, and Forestry
The Kingdom of Morocco

Your Excellency,
Mr. Governor,
Distinguished participants,
Mr. Director-General of the FAO,
Mr. Director-General of the WHO,
Honourable Regional Representatives of these two organizations,
Distinguished Ambassadors, Experts, Ladies and Gentlemen;

Allow me first of all to welcome, in my name and on behalf of the Government of His Majesty King Mohammad VI, the delegates of the Member States of the Food and Agriculture Organization of the United Nations and the World Health Organization, the experts in these two organizations, and the representatives of all other organizations participating in this scientific event. This gathering aims, as you all know, at exchanging experiences and identifying cooperation opportunities for more efficient and transparent food safety evaluation and system measures world wide.

It is a great honour for the Kingdom of Morocco to host this Global Forum in Marrakesh where the World Trade Organization (WTO) came into being in April 1994. Hosting the Forum is an embodiment of His Majesty King Mohammad VI's sublime volition that was expressed during the audience of FAO's Director-General, Mr. Jacques Diouf with His Majesty during his visit to Morocco last year. His Majesty showed great interest in this Forum given his concern about this field.

Ladies and gentlemen,

What makes this Forum so important to us? First of all, because food safety is nowadays a strategic priority for all states and international organizations, such as the FAO, WHO, WTO and others, due to the economic globalization, the freedom of exchange, and the ensuing increase in production and expanded use of technology.

Therefore, we are all requested in such a gathering to build on the Rome Declaration which came as a result of the 1996 World Food Summit. All leaders participating in the Summit stressed the right of all to have access to sufficient and safe food.

The idea of holding such an international event emerged during the G8 Summit in Okinawa in 1999. During its Conference in Genoa, Italy in 2001 the G8 emphasized the need to include the food security issue among the urgent issues to be discussed at the global level, in order to come up with an efficient health crisis prevention mechanism based on scientific data.

In fact, in view of the recent health-related crises, such as bovine spongiform encephalopathy (BSE) or the presence of high levels of dioxin in food products of animal origin, which had severe economical and social repercussions in most developed and underdeveloped countries, major efforts are needed to satisfy the consumers' needs in facing health-related hazards.

We see this Forum as an appropriate platform for those responsible for food safety in over 150 countries, to freely express their concerns and exchange their expertise and experiences in this regard.

Ladies and gentlemen,

The importance of this Forum stems also from the nature of the issues on its agenda. These are important and complex issues as they compare varying procedures according to each country, culture and means, but all aim at a unique objective, i.e. ensuring the safety of consumers.

I would like to discuss in particular the issue of “capacity building” which is, in our view, a practical framework to promote international cooperation in order to assist developing countries in the implementation of food safety mechanisms.

Although most developed countries have reached a high level of food safety, most developing countries are still lagging behind due to limited financial resources and lack of expertise.

In developed countries, globalization and the liberalization of markets occurred in a framework of highly-processed agricultural and animal products. Another characteristic is the increase in the consumers’ needs and the existence of more tighter laws and more sophisticated monitoring techniques. All these factors make the access of the developing countries’ exports to the markets of these countries extremely complicated and difficult.

However, in developing countries, the globalization and the freedom of exchange occurred with an unsophisticated production system with limited marketability and informal trade. Also, the majority of citizens in these countries are more concerned about their basic subsistence needs; while the control mechanisms lack the necessary financial and human resources, therefore making the national markets the main target of likely hazardous and unsafe products. These structural impediments, in addition to the lowering of customs tariffs, will certainly lead to imbalances in trade exchanges in favour of developed countries.

This shows us the valuable role of the global community as a whole in setting a framework of solidarity enabling all people to have access to sufficient and safe food products. The international organizations concerned also play a vital role, in particular FAO and WHO, in filling the gap among countries in terms of plant sanitary control systems. In this regard, it is necessary to establish an international fund with the sufficient financial resources in order to finance framework-setting, elaboration, and rehabilitation programmes for developing countries. At the same time, FAO and WHO play a crucial role in finalizing diagnosis and premonitory studies and in participating in the elaboration of action plans that will satisfy the needs of these states. Developing countries should be enabled to participate in the setting of international standards and measures such as the international sanitary reference code or Codex Alimentarius, in order for them to preserve their interests with equal opportunities in terms of trade exchange. This will provide the international law with an unsuspected legitimacy thanks to the preservation of the interests of all countries around the world.

Ladies and gentlemen,

Morocco is fully aware of the importance of food for the Moroccan consumers’ health and for the reputation of its food exports. Therefore, we introduced a package of in-depth reforms to the national sanitary safety system.

In this regard, a network of laboratories was set up covering the entire territory and satisfying most of the needs in terms of analysis; this in addition to a special rehabilitation programme which trained a large number of specialised human personnel. On the border check-points, a newly created unified network is in charge of sanitary control. A broad-based programme was also launched to create self-control regulations at the production units’ level, based on sophisticated techniques such as the “Forestry check-points for risk assessment technique” (HACCP) and the “Good production procedures technique” (BPF).

We were also able, with FAO’s support, to reform and modernize the basic law on fraud fighting. We are currently working on the creation of a neutral scientific assessment agency for sanitary hazards in food, in addition to a structural reform study to cope with these hazards.

In the same context, we included the food traceability issue on our list of priorities. We are also trying to make a clear distinction between risk assessment and risk prevention operations in order to optimize the control's transparency and autonomy with regard to public authorities, industrialists and non-industrialists. The control institutions and those responsible for risk prevention should coordinate their efforts to reach a high level of food safety. All kinds of cooperation - whether bilateral or multilateral - are welcome in this regard in order to work on a common basis which will ensure the sanitary safety of food both on the regional and the international levels.

Ladies and gentlemen,

Given the high-level participation in this Forum, its activities will certainly lead to practical results and recommendations which will contribute to the elaboration of new working trends and plans to provide the needed protection and prevention for all people.

Finally, I would again like to thank FAO and WHO for choosing the Kingdom of Morocco to host the First Global Forum of Food Safety Regulators. I would like to welcome you all to Morocco and to extend my best wishes for the success of our Forum.

Thank you.

H.E. Touhami Khiari
Minister of Health
The Kingdom of Morocco

Distinguished Representatives of FAO and WHO,

Your Excellencies the Ambassadors,

Ladies and gentlemen,

First of all, I would like to express my thanks and appreciation to FAO and WHO for choosing Morocco to host this important Forum and I wish all participants a pleasant stay among us.

Ladies and gentlemen,

Such meetings make Marrakesh the capital of international gatherings and conferences and enhance its reputation as the city where important decisions are taken. Our city has been the birthplace of World Trade Organization in 1994. Recently, countries around the world agreed here to take important steps towards combating pollution at the 7th Conference on Climate Change.

Apart from its beauty, cultural heritage and history, Marrakesh has always been a welcoming place that brings people together. That is why Marrakesh has been chosen for this meeting with the hope of adopting decisions which will improve human life.

Ladies and gentlemen,

In spite of the technological revolution we enjoy today, we are still confused regarding certain issues. These issues are related to unprecedented changes and developments in our societies which make us wonder how human brains can assimilate and accommodate such new ideas and technologies. Among these issues are the way we behave, our patterns of living and how to achieve our aspirations.

The theme of your meeting is within one of these issues. The way we handle such a theme is contrary to what we might have imagined not very long ago. The recent events and the way they were handled politically and at the media level would not have the same effect had they occurred twenty or even ten years ago. The ever changing needs of the world population, the development of their rights and the struggle to maintain them have not limited the pressures to institutional bodies, but have extended to include the media, the civil society and other means. Politicians are subjected to greater pressures other than the responsibilities they have been entrusted with.

To find solutions to all these problems and to respond to the needs of our citizens, we have to first identify them and then find real solutions.

Ladies and gentlemen,

The theme of today's meeting reflects these conditions under which we live in. Let us take, for example, BSE, which was the major international event that led to severe actions at the international level, even without any scientific proof to justify them. A new concept has been introduced in our terminology related to precautionary measures. While a clear definition of such measures were absent, they were applied blindly and in many cases in an exaggerated way.

The most striking example is the withdrawal of the suture used in surgical operations extracted from cows. The reason given was that it could cause possible damage in the long run. Instead an artificial and expensive one was introduced with the consequences of such action. Now the question is how to accept these consequences in order to avoid possible dangers which could be subjective in nature?

Adopting such measures has financial implications which burden the budget of every state. It is not a secret to tell you that an action such as this is detrimental to our people's needs and creates problems to our development programmes.

In the meantime, the complexity of the problem remains within conflicting economic interests and preoccupation of a human dimension. If we have to create wealth, it should not be at the expense of human interest and acceptance of the status quo. The integration of world economy would create comparative advantages to individuals, groups and societies. However, it would lead to food dependence on a global level.

Your meeting is important as it tackles problems related to changes and shifts in our societies, which require new methods and solutions to ensure food security to our people.

The last years ten years have witnessed the increase of food-related diseases world wide. These diseases have social, psychological and economic implications that go beyond the individual, the family and society to reach an international level. No state is isolated from such problems, however, the most affected are the developing countries which lack resources, mechanisms, technologies, legal and logistic capabilities to address such problems. These problems are doubled as these countries import food and commodities to satisfy the basic needs of their population.

Although the number of mad cow cases declared by developing countries does mean much, this epidemic indirectly reached Europe and it was obliged to destroy huge numbers of animals and animal products and use alternative and expensive products.

Ladies and gentlemen,

During the last century, food-related diseases have been brought under control, however, their economic, social or cultural implications could not be identified or assessed. Therefore, strategies in food safety should concentrate on sustainable actions. Efforts in this field should also be coordinated at the national and international levels. I would like to take this opportunity to congratulate consumer societies which played an important role in improving the standard of food safety.

Your meeting is an occasion to exchange information on problems related to food safety, identifying shortfalls and developing strategies. I believe that the aim of this meeting is to give a scientific dimension to the question of food safety and to find logical and realistic solutions. Scientists are requested to clarify the problem so as countries, especially developing countries, can take necessary actions without wasting their resources. These actions should be taken without any external pressures, especially from developed countries, within new equilibrium and globalization.

Ladies and gentlemen,

There is a need for an approach based on identifying risks in food safety to improve the detection of food-related diseases and to develop national infrastructures to analyze them, especially in developing countries.

As you know, science and technology are developing rapidly, however, the gap between developed and developing countries is widening to the detriment of the latter as they lack analytical techniques in this field.

We have, therefore, to think of an international system in the form of an agency or observatory to coordinate food safety and identify food risks among countries at the international level. Assistance has to be provided to developing countries to strengthen their systems of control for food safety.

Finally, I would like express my congratulations to the organizers of this meeting especially those from FAO and WHO and to extend my thanks to the participants who share their knowledge and experience with us. I wish your meeting every success and the best of luck.

APPENDIX III

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS*Marrakesh, Morocco, 28 – 30 January 2002***INAUGURAL STATEMENTS FROM FAO AND WHO***Dr Jacques DIOUF**Director-General
Food and Agriculture Organization of the United Nations*

Excellencies,

Ladies and Gentlemen,

First of all, I should like to express my gratitude to His Majesty King Mohammed VI and his Government for having kindly invited us to hold the Global Forum of Food Safety Regulators in this lovely historical city of Marrakech.

Food security is one of FAO's top priorities. Feeding - and feeding properly - the hundreds of millions of people who suffer from hunger and malnutrition requires attention not only to calorie needs but also to quality concerns.

Several million people suffer or die each year from foodborne diseases. This unacceptable situation calls for prompt and effective remedial action. It is not only a health and economic imperative but also a moral responsibility.

Food safety concerns all participants in the food chain, from primary producers to consumers, as food can be contaminated by pathogens at any link of this chain. The most effective and often least expensive actions should therefore aim to prevent such contamination at source.

The latest food crises have highlighted the responsibility of farming and farmers in consolidating food safety. Their involvement in resolving the problem is therefore more than a requirement; it is a duty. Responsibility for food safety must also be shared by the private sector, consumers and public authorities who need to work together to put in place adequate regulations, appropriate institutions, proven capacities and effective controls.

Finally, food safety is a shared responsibility of developed and developing countries. With the increasing globalization of trade in food products, health requirements applied by importing countries must seek to protect consumers and not to raise technical barriers to trade. Food safety is thus clearly the responsibility of all. I therefore urge the developed countries to provide the developing countries with their technical and financial support.

FAO is ready to play a major role in setting up an integrated international food safety system, in cooperation with WHO and the other international agencies concerned. Food safety and food security are inseparable. Food safety is an inalienable right of each individual and requires an effort of understanding, communication and cooperation.

I am convinced that this Forum will produce real progress towards ensuring that everyone has access to safe food. I therefore wish you every success in your deliberations.

Dr Gro Harlem BRUNDTLAND

***Director-General
World Health Organization***

Honourable Ministers and Dear Participants,

I am very happy to address you at the opening of this first ever Global Forum of Food Safety Regulators.

This is a pioneering and exciting event. Food safety is an essential public health priority all over the world. It is one of WHO's present priorities. Not long ago, food safety - like tobacco - was regarded as a luxury problem of the industrialized world, not something worth spending precious international funding on. Luckily, that misperception has changed for tobacco; and you are helping to also set the picture straight for food safety.

WHO estimates that annually 2,1 million people die from diarrhoea, mainly caused by food or water, and that even in developed countries up to one third of the population suffers from food-borne disease every year. Food safety is a global priority, not only because the problems are shared globally, but because these problems have significant influence on both health and development world-wide.

Many countries are reporting significant increases in food-borne disease. This tells us that food safety systems are not keeping up with changes in microbiological and chemical hazards, shifting food consumption patterns and growing urbanization, new production methods and new technology or even the globalization of food trade.

We must reflect on these trends. We must improve our systems and avoid repeating the mistakes of the past. WHO, together with FAO and our Member States are working hard to develop new, evidence-based, preventative strategies to lower risk of disease. This work focuses on the whole food production chain. We promote an open and transparent risk-analysis framework and especially a dialogue with consumers. We encourage interdisciplinary collaboration all the way from farm to table.

But theory is not enough. The national experience in implementing new ways of prevention and response to food hazards will be the yardstick by which to measure success. This is where the Global Forum comes in. We need to share our experiences, good or bad, so that future food safety systems can improve and leap-frog over past mistakes. I am heartened by the broad, global interest for this meeting, both in participation and in the presentation of country reports.

I wish you a successful Forum, and look forward to continue working with you in the future in this critical area of public health.

FAO/WHO GLOBAL FORUM FO FOOD SAFETY REGULATORS

Marrakesh, 28-30 January 2002

INTRODUCTORY REMARKS

by

Mr David HEYMANN

*Executive Director, Communicable Diseases
World Health Organization*

FOOD SAFETY, AN ESSENTIAL PUBLIC HEALTH PRIORITY

INTRODUCTION

Food safety was in the past often but not always addressed as a public health issue. In recent years, because of a chain of events comprising large-scale food related crises of various degrees of severity, the public perception of the safety of our food supply has been shaken. However, the real burden of disease related to food presents an even more important reason why food safety has recently been increasingly identified as an essential public health priority. This is reflected in the acceptance of food safety as priority for WHO in the year 2000.

MICROBIOLOGICAL CONTAMINATION AND SURVEILLANCE

The estimated annual mortality of food and water-borne infectious diseases in developing countries amounts to the sad high of 2.1 million deaths, mainly of infants and children. In industrial countries microbiological food borne illnesses affect up to 30 percent of the population. Every year 20 out of each million inhabitants die from food borne disease. There are a number of examples of increased problems over the last decades. The increase in the incidence of Salmonella enteritidis infections in humans in the years between 1980 and 2000 amounts to a factor of 20 for many of the countries in Europe and North America. Another example of globally emerging problems is antimicrobial resistance. Data from the US show that the percentage of multi-drug resistant Salmonella Typhimurium, type (DT) 104 in cattle has risen from a mere 2 percent in 1982 to 43 percent in 1996, while at the same time the percentage in humans rose from 0 percent to 35 percent. The curves of both human and cattle percentages are almost similar, time-wise; suggesting transmission from cattle to humans through food.

Our chains of food supply are often composed of many steps, and at each stage there are numerous possible occasions for contamination of the food. Many food production methods have been developed without adequate foresight into the possible consequences of the application of non-traditional techniques. This has for instance led to the spread of the BSE epidemic, an epidemic for which we cannot predict the expected course.

Some examples of the economic impact of infectious food borne disease outbreaks show that the consequences of cost reduction measures can be grave. An outbreak of cholera in Peru in 1991 cost 770 million dollars, a similar outbreak in Tanzania in 1998 36 million dollars. The costs, or rather losses, are caused by for instance declining tourist revenues and exports of food commodities. Simple preventive measures and effective surveillance systems at a fraction of these costs might have prevented these outbreaks, or would have definitely reduced the impact thereof.

From the outbreak in Tanzania a valuable lesson in risk analysis was learnt. Immediately after the notification of a human cholera outbreak in January 1998, various importing countries posed a ban on the importation of freshwater and marine fish imports. After a risk assessment undertaken by WHO on the actual transmission of human cholera, the ban was lifted. However, in the interim Tanzania had lost a lot of revenue through the halted export of fish. Had risk analysis been undertaken based on adequate information, the international response would have been more appropriate, and the ban would never have been posed. It is thus in the interest of all trading partners, be they the exporter, often developing countries, as well as developed countries, to have an adequate risk analysis performed.

CHEMICAL CONTAMINATION AND STANDARD SETTING

The human health effects of chemical contaminants of food, such as dioxins, range from various cancers, damage to the nervous system, diseases of the immune system, and reproductive disorders to interference of infant and child development. Various monitoring programmes have taught us that even in countries where the food supply is supposedly safe, chemical contamination

remains a problem. Dietary exposure to dioxin and dioxin like PCB's in various Western countries is higher than the provisional tolerable monthly intake, the average level of DDT in human breast milk in all but one of the WHO Regions is well over the provisional tolerable monthly intake. Various similar or smaller scale studies regrettably complement this picture.

WHO, through a number of food safety activities, has been contributing to food safety on a global level for a number of years. Much has been achieved in the areas of disease surveillance and response, risk assessment and surveillance of chemicals and chemical contamination, capacity strengthening, and standard setting. Most of these activities have been undertaken in collaboration with FAO.

GLOBAL SURVEILLANCE OF INFECTIOUS DISEASE

A network of networks: WHO has, through a network of networks, joined all presently existing networks that are active in the area of infectious disease surveillance. This task is undertaken by using important partners in the area of collection of information on disease incidence and outbreaks, such as the Ministries of Health, the UN sister agencies, NGOs, the media, epidemiology and military training networks. Examples of partners in this network of networks are described in the paragraph below.

The Global Public Health Intelligence Network, GPHIN, is a web-based global network that automatically scans all news publications on the Internet for infectious disease outbreaks. This way, a number of important outbreaks have been identified, that would only have been discovered in a much later stage if the usual surveillance systems would have been the only mechanism of recognition. As an example, over a ten-day period in the year 2000, through screening for human infectious disease outbreaks related to food animals, GPHIN found a total of ten outbreaks. Of these outbreaks 5 affected less than 5 patients, three were in the range between 20 and 50, and two were large-scale. The rapid detection of these outbreaks allows for an early launch of control measures, and thus reduces the eventual size of the outbreaks.

The global surveillance of human influenza, in which 84 countries are involved, through either collaborating laboratories or national networks, has led to the early detection of the Influenza A (H5N1) virus, or Hong Kong virus, which allowed for effective risk management and pandemic planning. The existence of a network, joining all collaborating laboratories and institutions, allowed for start of vaccine production as early as 4 months after the initial detection of the virus.

The global surveillance of salmonella infections, a joint project of WHO, CDC and the Danish Veterinary Institute, which surveys salmonella infections in animals and humans is another global programme in which a network of laboratories has been set up to monitor the global incidence of salmonella infections. The programme is also active in expanding the network through technical assistance to laboratories in sero-typing analysis and quality assurance.

In the area of monitoring and surveillance of chemical contaminants, WHO has been collecting data on chemical food contamination and human exposure for global evaluation through its Global Environment Monitoring System, or GEMS, for a number of years. The focus is on population based dietary exposure to major food contaminants, and presently more than 80 countries are participating in the system.

RISK ASSESSMENT

For many years, chemical risk assessment has been the first focus of activities. Through the work of the Joint FAO/WHO Expert Committee on Food Additives (JECFA) and the Joint FAO/WHO Meeting on Pesticide Residues (JMPR), risk assessments and advice have been provided to Codex Alimentarius and Member States.

In the area of global risk assessment, the studies into potential exposure to Bovine Spongiform Encephalopathy through trade, which focussed on the spread of the actual sources of BSE contamination world wide, animal feed and live bovines, has allowed for the development of scenarios and projections on the incidence of BSE and human variant Creutzfeldt Jacob disease.

Currently FAO and WHO are performing a number of microbiological risk assessments, the first ever to be performed at the international level. The food-pathogen combinations that have been identified through various expert consultations as deserving immediate attention are *Listeria* in ready to eat foods, *Campylobacter* in poultry, *Vibrio cholera* in seafood, and *Salmonella* in eggs and poultry.

THE WHO GLOBAL FOOD SAFETY STRATEGY

Through the adoption of food safety as one of WHO's priorities in the World Health Assembly in 2000, it became imperative for WHO to develop a global strategy on food safety. This strategy has recently been evaluated and approved by the Executive Board, and will serve as the basis for the WHO food safety activities in the medium and long term. In this strategy, technical capacity building and international cooperation are incorporated in the areas of food borne disease surveillance, risk assessment, the safety of new technologies, the public health role in the work of Codex Alimentarius, and risk communication.

CONCLUSION

The opportunities for partnership in food safety are presently good. In industrialised countries the present atmosphere creates wariness in consumers vis-à-vis food safety, and a severely compromised confidence of these consumers in the existing food control systems. This leads to a large willingness to put food safety on the political agenda. The hidden burden of food safety is still not fully understood, but present knowledge already alarms by mere facts. In developing countries the visible and endemic burden is large. Regretfully, mainly due to a lack of awareness both on the side of the consumers and on the side of politicians, there is often a low political will to address the issues adequately.

There is at this precise moment in time a great opportunity to create the necessary partnerships between industrialized and developing countries to benefit from current and past experience in strengthening national and global food safety. Let us grasp that opportunity as strive for safer food for all.

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakesh, Morocco, 28 – 30 January 2002

INTRODUCTORY REMARKS

by

Mr Hartwig DE HAEN

*Assistant Director-General
Economic and Social Department
Food and Agriculture Organization of the United Nations*

Your Excellencies, honoured guests and Forum participants, ladies and gentlemen !

Welcome to this first-ever Global Forum of Food Safety Regulators. This is an opportunity for food safety regulators from every region of the world to sit together and share experiences on what has worked and what has not to improve food safety throughout the food chain.

INTRODUCTION

Ensuring the quality and safety of the food we eat is vitally important. Food safety is everyone's responsibility - those involved in production, processing, marketing, handling, cooking and eating. But, the legal responsibility for food safety rests with governments. The key people in any national program to control food quality and safety are those gathered here today – the national food safety regulators.

I would like to emphasize a few concepts that are fundamental to the issues that you will be discussing over the next few days. First, food safety is a serious matter for all countries and all people. Second, food safety control systems need to be adapted to national needs. Thirdly, we must strive to find the right balance between food safety and other important aspects of food quality. Finally, I want to highlight the importance of three global issues –capacity building, the need for international cooperation and, communication and participation.

FOOD SAFETY IS A SERIOUS MATTER FOR ALL COUNTRIES AND FOR ALL PEOPLE

In many parts of the world, food safety systems desperately need improving. Safer food has many benefits: less human suffering from food borne diseases, lower cost of public health, fewer barriers to world trade, lower loss of labour productivity and better overall food security. Food safety could indeed be considered one of the most important concerns of our time.

Today we know better than ever how to control the safety and quality of foods. We know how to harvest and process foods safely. We have advanced food inspection and analysis technology and we also have sophisticated procedures of risk analysis. I dare say that, at least in developed countries, most of the food we eat has never been safer than it is today. So why are we gathered here to discuss food safety and why is it so important? The answer is simple but sad: because several million suffer from food-borne diseases every year, sometimes even dying from them. This is unacceptable because most of these illnesses are preventable.

The threat to public health from food-borne microbial pathogens occurs in both developed and developing countries, with the greatest impact on children, pregnant women, the poor and the elderly. Chemical hazards are another significant source of food-borne illness. Public concern has been heightened by recent episodes of new microbiological and chemical contamination of foodstuffs. Threats such as salmonella, mycotoxins, BSE, dioxin and residues from antibiotics affect more than one country and in some cases more than one continent.

In developed countries, consumers are constantly raising their expectations with regard to food safety. In developing countries the main problem remains hunger and malnutrition. Almost 800 million people suffer from insufficient dietary intake, but unsafe food is of increasing concern to them as well. Although developed countries have had some widely publicised cases of food contamination recently, the level of food safety is generally much lower in developing countries, with negative implications not only for the well-being of their people, the poor in particular, but also for their access to export markets. This disparity needs to be remedied. Food safety can no longer be the luxury of the rich; it must become a universal right for all.

OUR FOOD SAFETY CONTROL SYSTEMS NEED TO BE ADAPTED

Our food safety control systems need to be better adapted to the needs of the countries and to the state of the art. The gap between our knowledge and the practical reality is too wide.

For example, the traditional way to control the safety of foods has been to examine the finished food product. However, concentrating on just the last link in the chain has sometimes been rather costly

when food was found to be contaminated and had to be rejected or disposed of. The less costly options are often those that prevent contamination at the source and apply production and processing technologies that bear less risk of contamination.

One more appropriate approach is to consider how to enhance the safety of food throughout the entire food chain. The monitoring and control of food safety is a continuum from the original production of the food, through harvest, processing, storage and transport, until its final destination in the hands of the consumer. In this approach, sometimes referred to as “farm to table”, the food producers, processors and handlers are all partners with consumers and the national food control agencies. It promises to be more cost-effective than approaches that concentrate mainly on the sector of food transformation. The most recent food threats have highlighted the vital role of agriculture, animal husbandry and fisheries in ensuring food safety. This is why we call on all regulators to work with farmers and other primary producers in building food safety, in developing as well as developed countries.

We in FAO observe that most of the traditional food control systems have had a sectorial or fragmented structure, with different ministries or agencies being responsible for food control. Even if such a system puts emphasis on the necessary multi-disciplinary approach to food safety, it can face difficulties in co-ordination or uneven regulation. The challenge is to establish more integrated systems, which provide increased consistency in assuring food safety. Such integrated systems could go a long way toward improving the confidence of consumers and foreign buyers. FAO and WHO have just produced guidelines for strengthening national food control systems that include reference to these necessary changes. You will hear more about these Guidelines during this Forum.

A word of caution should be voiced here: establishing and upgrading food safety control systems is often a costly undertaking. Low-income countries have no other choice than to proceed step-by-step and to invest first where there is a pressing need to guarantee compliance of their export products with international standards. Care should be taken, however, that this does not result in dual systems permanently. In the long run, domestic consumers should not be discriminated against having to eat food that is less safe than the food exported from their country. Food safety is the right of people everywhere.

BALANCE FOOD QUALITY AND DIVERSITY WITH SAFETY

Today, the diversity and richness of our global food supply is greater than at any time in the past. However, while some consumers enjoy new and exotic foods in their markets, others do not want to lose their traditional foods - foods identified with particular cultures or production areas. Keeping this in mind, we must seek to maintain a diversity of high quality foods without higher risk. An example is cheese made from unpasteurized milk. Ideally, we must find improved processing, handling and monitoring techniques so as to permit production of a safe product even with traditional methods.

The connection between food safety and quality was also expressed in one of the objectives of the Plan of Action of the World Food Summit, which states the aim to “..ensure that food supplies are safe, physically and economically accessible, appropriate and adequate to meet the energy and nutrient needs of the population”.

CAPACITY BUILDING

For many years now, FAO has worked with developing countries to establish and improve their existing food control systems. FAO is prepared to continue and even intensify this assistance in capacity building, ranging from food legislation to food inspection and risk analysis through training, provision of expert advice and purchase of necessary equipment and supplies.

Many developing countries, the poorer, least developed countries in particular, still have an insufficient capability to control the safety of foods. In this regard, I am glad to recall the Joint Statement by the Heads of FAO, WHO, OIE, WTO and the World Bank at the recent Ministerial Conference of WTO in Qatar, in which they confirm their commitment to support developing countries in their capacity building efforts. Indeed, these agencies are currently working on a major initiative to

establish a common framework to assist developing countries in the three dimensions of biosecurity: food safety, animal and plant health, and, therefore, better compliance with the WTO Agreement on Sanitary and Phytosanitary Measures.

INTERNATIONAL COOPERATION IN EMERGENCIES

It is common to hear references to the “globalization of world trade.” and in fact the number of countries trading in food on the world market has increased dramatically in recent years. For some developing countries the export of foods – notably agricultural products – is key to earn foreign exchange. Because of this, it is no longer sufficient to consider food safety to be mainly a local concern. Today, food safety is a transboundary issue. International cooperation in food safety management, including response to food safety emergencies, is more essential than ever before. FAO calls on all countries, and is itself ready, to support the establishment of a system for better, more rapid and more concerted response to food safety emergencies. This would cover early identification and rapid characterisation of problems and a system of information exchange among affected countries.

Building and strengthening such an international system to respond to transboundary food safety emergencies can also effectively increase preparedness and response to international bioterrorism, which unfortunately is of particular concern today.

COMMUNICATION AND PARTICIPATION

It is said that rumour travels faster than fact. This can also be said of rumour about food-borne disease – it very often travels faster than the disease itself. An informed and active public and a knowledgeable industry are the cornerstones of an effective risk management system. One of the key issues to be discussed at this Forum is communication. Communication and knowledge are the only ways to deal effectively with consumer concerns and fears. Systems and procedures must be established to ensure that consumers, as well as the industry, are properly informed when a food safety emergency occurs. These procedures should involve all stakeholders in the response to such emergencies. This, of course, also applies to the more routine food safety and quality matters, especially when new regulations are issued.

CONCLUSION

Many circumstances and issues interconnect the nations of the world, not the least of which is global food trade and food safety considerations. The time has come for those involved in regulating food safety throughout the world to come together, learn from each other and consider what might be done to improve global food safety and quality. FAO and WHO have jointly convened this Global Forum for exactly that purpose.

I want to thank you in advance for your efforts in addressing the many important issues you will face during the next three days. I wish you all the best in your deliberations and I look forward eagerly to the results of those deliberations. Thank you.

APPENDIX VI
(GF 01/1)

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakesh, Morocco, 28-30 January 2002

AGENDA OF THE GLOBAL FORUM

Agenda Item	Subject matters
<i>OPENING OF THE FORUM</i>	
1	Election of Officers
2	Adoption of the Agenda and Timetable
3	Keynote address: “Improving efficiency and transparency in food safety systems – sharing experiences”
4	Exchange of information
4.1	<i>Regulatory Issues</i>
4.1 a)	<i>National and Transboundary food safety emergencies</i>
4.1 b)	<i>New inspection approaches and techniques – implications for food safety regulations</i>
4.2	<i>Risk Management</i>
4.2 a)	<i>Reduction of food-borne hazards, including microbiological and others, with emphasis on emerging hazards</i>
4.2 b)	<i>Integrated approaches to the management of food safety throughout the food chain</i>
4.3	<i>Capacity Building</i>
4.3 a)	<i>Technical assistance to developing countries: experiences and lessons learned</i>
4.3 b)	<i>New approaches to consider in capacity building and technical assistance – building alliances</i>
4.4	<i>Communication and Participation</i>
4.4 a)	<i>Communicating food safety regulations and risk management – involvement and participation of consumers and other stakeholders</i>
4.4 b)	<i>Ensuring efficient communication and interaction between food safety risk assessors and risk managers</i>
5	Other matters
6	Presentation of the Summary Report of the Global Forum
<i>CLOSING OF THE FORUM</i>	

Working documents will be available on the Internet Global Forum Home Page at the following address: <http://www.foodsafetyforum.org/global>

NOTES TO THE PROVISIONAL AGENDA

OPENING OF THE GLOBAL FORUM: The Global Forum will be opened by a high-level Moroccan official.

- Item 1 Adoption of the Agenda:** The first item on the Provisional Agenda will be the adoption of the Agenda. At this stage, any additional matters to be discussed in plenary may be proposed to be examined under Agenda Item 5.
- Item 2 Election of Officers:** Delegates will proceed to the designation of a Chairperson and a Vice-Chairperson to lead the plenary meeting of the Global Forum.
- Item 3 Keynote address: “Improving efficiency and transparency in food safety systems – sharing experiences”:** The Forum will be presented with a keynote address on the main theme and how the Forum will proceed to the discussions.

Food Safety Regulators from four different regions of the world will introduce the four themes identified for the Forum, *i.e.* Regulatory Issues, Risk Management, Capacity Building, and Communication and Participation.

In order to facilitate exchange of information among Delegates, each theme will be examined within one Discussion Group. The Forum will nominate one Chairperson and one Vice-Chairperson for each Discussion Group. The Forum will receive information on the way in which the debate should be carried out and any other practical aspects, *i.e.* meeting schedule, duration, location and expected nature of output.

Prior to dividing into Discussion Groups, the Forum will receive a brief introduction on the eight topics prepared by several participants. These presentations will be made at the beginning of each Discussion Group’s meeting of the Forum. The written lectures will be distributed as Conference Room Documents.

Item 4 Exchange of information:

The Chair of each Discussion Group will report in plenary the summary records of the different key elements outlined during the exchange of information on food safety sub-topics. Discussions will have been conducted focusing on the following elements:

- 4.1 a) *National and Transboundary food safety emergencies:* Recent history has shown that national food safety emergencies can suddenly become international. Coping with such transboundary regulatory issues becomes a global concern and the exchange of information and views at the Forum will be invaluable.
- 4.1 b) *New inspection approaches and techniques – implications for food safety regulations:* Advances in food inspection techniques and the laboratory sciences can have a profound effect on food safety regulations. How individual governments change or create new regulations to address these advances are of considerable interest.
- 4.2 a) *Reduction of food-borne hazards, including microbiological and others, with emphasis on emerging hazards:* The reduction of food-borne hazards is the ultimate risk management goal of food safety regulators. New hazards are constantly emerging, however, making risk management a continuously changing process. Regulators will be encouraged to discuss the ways in which this process may be improved.

- 4.2 b) *Integrated approaches to the management of food safety throughout the food chain:* The management of food safety is not just of concern at the consumer level, it must also be considered throughout the food chain, from production through processing, distribution and consumption. Food regulators need to consider integrated approaches to such management and what role(s) the food industry and consumers can play.
- 4.3 a) *Technical assistance to developing countries: experiences and lessons learned:* Capacity building is an integral part of assistance offered to developing countries in need of establishing or strengthening their food safety/food control systems. Over the years, many donor countries or agencies, both national and international, have provided technical assistance in the food safety area to developing countries. The Global Forum will share experiences from both developed and developing countries and discuss what lessons can be learned. This can provide valuable guidance on how such assistance should proceed.
- 4.3 b) *New approaches to consider in capacity building and technical assistance – building alliances:* Traditional approaches to technical assistance and capacity building may no longer be sufficient with today's rapidly changing global technology. The Forum will discuss these changes and what new approaches should be considered.
- 4.4 a) *Communicating food safety regulations and risk management – involvement and participation of consumers and other stakeholders:* Information on food safety regulations and routine risk management decisions must be widely disseminated, especially to industry and consumers, if they are to be effective. The Forum will consider what practical approaches can be taken to improve such communications.
- 4.4 b) *Ensuring efficient communication and interaction between food safety risk assessors and risk managers:* Risk assessors and risk managers must be able to effectively and efficiently communicate and interact with each other if the food safety risk analysis process is to be successful. Many of the food regulators attending the Forum will be risk assessors as well as risk managers. The Forum will provide the means to discuss ways to ensure such communication and interaction.
- Item 5 Other matters:** Other matters will be discussed on the basis of the proposals made during the adoption of the Provisional Agenda (Item 1).
- Item 6 Presentation of the Summary Report of the Global Forum:** The Chairperson of the Forum will present the summary report of the discussions drafted by the Secretariat. This summary report will fully reflect the different points of view and approaches expressed during the Forum.

CLOSING OF THE FORUM: The Global Forum will be closed by a high-level Moroccan official.

APPENDIX VII
(GF/CRD 1)

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakesh, Morocco, 28 – 30 January 2002

**KEYNOTE ADDRESS: “IMPROVING EFFICIENCY AND TRANSPARENCY
IN FOOD SAFETY SYSTEMS – SHARING EXPERIENCES”**

Food Safety Issues, An International Concern

by

Mamdouh GABR

M. D., F. R. C. P.

Professor of Pediatrics, Cairo University, Egypt

Former President, International Union of Nutrition Sciences

Former President, International Pediatric Association

INTRODUCTION

Food safety has been of great concern to mankind since early civilization. Fermentation, a primitive method of food safety, still practiced until now, has been known to both Egyptian and Chinese civilizations. Elaborate food storage systems such as grain “silos” were built. It is amazing in the absence of scientific knowledge, ancient Egyptians when building these “silos” attempted to control humidity and avoid human and animal contamination through using an opening in the lower part of the “silos” to allow withdrawal of grains poured in it from above.

In recent history, the discovery of microorganisms, the wide use of pesticides and fertilizers, the advances in food industry and the rapidly expanding world food trade necessitated the establishment of various food safety measures.

The United Nations system recognized the crucial role of food safety with its health and economic consequences. The Codex Alimentarius was established in 1963 with the aim of protecting health of consumers, and to ensure fair practice in food trade. Various committees and subcommittees were formed. International agreements and declarations were announced. Innovative prevention approaches to insure food safety were developed. Foremost among these are the risk analysis framework and the hazard analysis critical control points approach (HACCP). In spite of these efforts, it is estimated that one third of the population in developed countries are affected by food borne illness each year. The situation is even worse in developing countries where reported cases represent the tip of the iceberg. Water borne and food borne diarrheal disease kills approximately three million people each year. Two to three percent of food borne disease leads to long-term ill health.

Several challenging issues exist. More will appear in the future. I shall briefly touch upon some of these challenges.

THE QUANTITATIVE RISK ASSESSMENT APPROACH

Historically food safety evaluation has been qualitative rather than quantitative. Many decisions were based on subjective observations and evaluations. Scientific advances led to efforts to quantify the risk associated with food. In deciding priorities the cost benefit approach is usually adopted. The use of quantitative risk assessment implies a vigorous scientific base, which may be lacking specially in developing countries. A number of the costs and benefits of food safety regulations are intangible and difficult to convert into monetary amounts. It is frequently difficult to compare between risks, which might be expressed in subjective terms to benefits, which can be expressed in economic terms. Can we quantify the quality of life or more dramatically the cost of the human life?

Although the concept of quantitative risk approach has to be maintained it has to include a subjective consideration of non-quantifiable issues as well as the various determinants affecting food safety.

SETTING AND IMPLEMENTING FOOD SAFETY REGULATIONS

Whichever food safety policy is adopted, the barrier is implementing the policy and enforcing the related laws and regulations. There is a need to bridge the gap between policy and practice, between theory and reality. Biases in prioritization are not infrequent, being driven by politicians seeking public support or by competing agencies or scientific institutions. In developing countries the situation is worse. Infrastructure may be lacking. There are many other competing health, social and economic priorities. How can you convince a decision maker in a poor country to spend, from a limited health budget, on the control of a food contaminant with a potential long-term carcinogenic hazard, when the majority of the population will die from other causes before they develop cancer?

International organizations and world scientists have to support developing countries in order to create the will and develop the skill to implement food safety control taking into consideration existing barriers and capabilities. They should assist them to conduct epidemiological studies on the prevalence of food borne disease, up date their food laws and regulations and establish national or regional training centers and appropriate laboratories. United Nations organizations must sensitize policy makers not to give low priority to food safety issues.

PUBLIC AWARENESS

Public opinion is increasingly becoming a driving force influencing government decisions on food safety. In developed countries, the public is pressing on more stringent safety measures, which are often not scientifically justified. Public fear of food environment is an unwanted consequence of increasing knowledge. Media frequently exploit fear than evaluate facts. Occasionally debates within the scientific community may be misinterpreted by the public to represent uncertainties.

It is the responsibility of the scientific community to develop its own dynamic proactive and timely public information system in order to keep the public aware of sound scientific information regarding food safety and alleviate unnecessarily costly concerns.

In many developing countries it is the other way round. Public awareness of the dangers and consequences of unsafe food is low. People react indifferently to safety control measures. Socio-cultural factors, poverty, illiteracy, and resistance to certain endemic food borne pathogens are among many causes that contribute to this indifference. Because of economic or political factors, decision makers may be reluctant to take action to raise public awareness.

The scientific community should develop a public information campaign to overcome these barriers specially since it enjoys greater credibility than the government in developing countries.

COORDINATION

United Nations agencies involved in food safety can play a greater role in overcoming differences at the regional or the national level without jeopardizing the freedom of various partners. The conflicting reaction to mad cow disease (BSE) is an example. The differences in adopting the precautionary principle between Europe and US is another.

United Nations organizations should foster the “regulatory rapprochement approach” to overcome differences in safety regulations between countries through coordination, mutual recognition or harmonization. Because of political, economic and social reasons this is not an easy task it should be set as a goal to be achievable within the next decade.

Interdisciplinary coordination at the national domestic level has to be strengthened. In the US responsibility for regulating the safety of food supply is divided among various agencies (USDA, FDA, EPA, etc.) with occasional unnecessary controversies. In developing countries, a national codex committee should be authorized to coordinate responsibilities of the various ministries involved in food safety control. A prerequisite for risk-based strategies is an interdisciplinary approach involving strong collaboration among all sectors dealing with food borne diseases surveillance and safety.

INTERNATIONAL FOOD TRADE

Food exports represent a major proportion of the income of many food exporting developing countries. It is of crucial economic interest to these countries to achieve quality and safety of their food at the international level. On the other hand, unnecessary food safety restrictions, not based on sound scientific evidence, may impede food exports and consequently their economic development, increasing poverty. The priority for the poor who cannot afford to purchase food is food availability rather than food safety. Combating poverty in food exporting countries in itself will contribute greatly to food

safety control measures both at the domestic and international level. These concerns were specifically addressed in the agreements on Sanitary and Phytosanitary measures (SPS) and the Technical Barriers to Trade (TBT). Countries were allowed to adopt different food safety standards, provided they are justified by current available scientific evidence and will not create unnecessary technical barriers for international trade. How can this balance be achieved? The Codex Alimentarius committees have no authority over its members to oblige them to implement Codex standards. After the SPS agreement, CAC standards were recognized to serve as a yardstick or benchmark for national requirements. There is a need for further international negotiations to render Codex Alimentarius Committee recommendations more binding either on voluntary or mandatory bases.

FOOD COMPANIES

Government food control services are increasingly adopting the approach of industry self-quality control measures. Official monitoring is carried by the concerned governmental authorities in order to insure that it is in compliance with regulations on the national level as well as across multiple countries. The share of multinational food companies in food consumption is increasing. Food companies are keen to keep their reputation through providing high quality safe food. Many of these companies established food processing factories in developing countries where food safety control measures may be less rigid than in developed countries and where the ability of the government to perform proper monitoring may be limited. Multinational companies should maintain the highest standard they adopt wherever their factories are.

Another concern is the patency issue. Under Trade Related aspects of Intellectual Property Rights agreement (TRIPS) most multinational companies hold patency rights on genetically engineered foods or plant varieties. Farmers in developing countries may have to pay fees to the concerned company before reusing their own harvested seeds, adding an economic burden on the farmers, which may be reflected on the national food safety system.

There is a need to strengthen the partnership between governments and the private sector along mutually agreed fair guidelines.

FUTURE TRENDS

Advances in transportation and the rapidly expanding food trade will necessitate stricter regulations on transnationally transported food and food products. A single source of contamination can have global consequences.

Food safety measures will benefit from advances in information and communication technology through timely interchange of information at the scientific and managerial level. Proper public education measures, however, should be taken to insure that the ease of public access to information does not contribute to public uncertainty.

As man made and natural disasters continue safety measures for emergency feeding programs have to be further perfected. The tragic events of 11 September 2001 raised international concern regarding the threat of possible biological chemical or radiological contamination of food. Proper preventive, monitoring and intervention measures have to be established and integrated within the existing food safety control systems.

Preference to fresh and minimally processed foods may challenge the industry to use less harsh processing regimens necessitating greater care in preparation and storage.

RESEARCH NEEDS

Basic research is required to cope with newly recognized food hazards; new pathogens, zoonotic diseases, toxic agents, irradiation hazards, and the possible side effects of genetically engineered food or new food processing techniques. More research will also be needed to judge the potential long term teratogenic, mutagenic or oncogenic effects of certain food contaminants.

Scientific advances during the next few years will hopefully lead to more efficient food safety control measures, which will impose less burden on the food business. There is concern, however, that as we learn more, we develop more costly sophisticated techniques that are beyond the financial capabilities of many countries. Applied research should focus on developing more accurate, scientifically based methodologies; which are feasible, affordable, sensitive and timely responsive to the rapidly advancing scientific knowledge.

We are looking forward for your free and valuable deliberations, which will discuss these and other issues. Your deliberations will enhance international cooperation to safeguard the health of mankind.

APPENDIX VIII

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakech, Morocco, 28 – 30 January 2002

THEME AND TOPIC PAPERS

WITH SUMMARIES OF APPLICABLE CONFERENCE ROOM DOCUMENTS FOR

REGULATORY ISSUES

FOOD SAFETY REGULATORY ISSUES

Mitsuhiro USHIO

Director, International Food Safety Planning,

Policy Planning Division, Department of Food Safety,

Pharmaceutical and Food Safety Bureau, Ministry of Health, Labour and Welfare , Japan

1. INTRODUCTION

First of all, I would like to express my respect for their efforts to the Government of Morocco, the secretariat of the FAO and WHO, and all those who were engaged in preparing for the first Global Forum. Also, I would like to thank the organizer of this Forum for this opportunity to speak to all of you here today about food safety regulation in Japan.

As you know, the Global Forum was established, in response to the Communiqué of the Kyusyu/Okinawa G-8 Summit in 1999. The purpose of the Forum is to encourage FAO and WHO to organize periodic international meetings of the food safety regulators to advance the process of science-based public consultations. The Japanese government strongly hopes that the Forum will be a great success.

Needless to say, it is important to take comprehensive action to keep food safe in all processes covering farm to table. In this sense, the Ministry of Health, Labour and Welfare (MHLW) shares the responsibility of the provision of safe food with the Ministry of Agriculture, Forestry, and Fisheries (MAFF). Both ministries individually regulate food based on related laws. The MAFF is responsible for food production and quality assurance and the MHLW is responsible for stable food distribution and food safety.

As an expert of food safety, I will discuss the current regulatory status of food in Japan.

2. OUTLINE OF FOOD SAFETY REGULATION IN JAPAN

Food safety regulation is carried out based on the Food Sanitation Law. This law was enacted in 1947 and revised several times as circumstances demanded. The law is a comprehensive food law consisting of 36 articles.

Here, I will outline four major points of the law which may help you understand the current regulatory situation in Japan.

First, the law covers a wide range of targets.

The law stipulates that the purpose of the law is to prevent the occurrence of health hazards arising from human consumption of food. The law covers not only foods and drinks, but also additives including natural flavouring agents, and equipment and containers/packages that are used for handling, manufacturing, processing or delivering food. The equipment and containers/packages are limited to products that come into direct contact with foods. The law also covers persons who carry out food-related business such as food manufacturing and food import. The law, however, does not apply to medical drugs and quasi-drugs.

Second, the law gives authority to the Ministry of Health, Labour and Welfare.

This authority enables the MHLW to take legal action toward prior issues smoothly and quickly. If the authority is not given, the MHLW has to revise the law, in order to give legal force to MHLW's actions or to apply penal regulations to offenders. The revision of the law is however time-consuming, due partly to the delay of discussion at Diet resulting from social and political factors.

For example, the law stipulates that the Ministry of Health, Labour and Welfare, from the viewpoint of public health, may establish standards and specifications for food or additives intended for

sale. The law authorizes the MHLW to establish necessary standards and specifications, as needed, without revising the law itself. Lately, genetically modified foods, or GM foods, became the target of regulation under the law. This is also a good example of the provision of authority. The MHLW may regulate GM foods by establishing standards without revising the law. We have prepared a country report on the regulation of GM foods. If you are interested in details, please consult the report.

Third, the law gives important roles to local governments in regulating food and the MHLW shares responsibility with local governments.

From beginning to the present, the purpose of the law has been focused on the prevention of food poisoning. In this viewpoint, the law regulates a wide range of food-related businesses. The number of targeted facilities rises to about 4 million nation-wide. About 2.6 million of them are required to obtain a business license from the Minister of Health, Labour and Welfare. In order to carry out regulatory work for a large number of facilities, many employees are necessary. However, the central government has only 62 employees in the section that is responsible for these businesses. You can easily imagine that the number of employees is not enough to conduct daily inspections for all facilities and give guidance to them. The law authorizes each local government to take necessary measures to businesses in the location under the jurisdiction of the government. The measures include establishing necessary standards for business facilities, giving or revoking licenses, giving guidance, and discontinuing or suspending the business. Also, Japan has another type of administrative organizations that are exclusively responsible for regional health and hygiene. These organizations, called health centres are taking important roles in safety assurance of food in the region concerned.

Fourth, Japan uses a comprehensive sanitary control system based on the Hazard Analysis and Critical Control Points (HACCP) system.

Japan established this comprehensive system in 1995 when the Food Sanitation Law was revised. Under the system, the Ministry of Health, Labour and Welfare gives approval to individual manufacturing or processing facilities, according to food groups, if the Ministry confirms, after due examination, that hygiene is controlled appropriately for these foods. In the system, manufactures or processors establish manufacturing or processing methods of the target foods and sanitary-control methods, based on the HACCP system. Then, the Minister confirms whether these established methods comply with the approval standards. The manufacturing or processing methods approved under the system is considered to meet the standards for manufacturing or processing under the law. This means that the system enables the application of a wide variety of methods to food production without following the uniform standards. Currently, there are six food categories as targets of the system. These categories include milk, dairy products, meat products, fish-paste products, non-alcoholic beverages, and foods, which were packed into a container or package and pasteurized under pressure, such as canned foods and retort foods.

Japan started to implement a new law in 1998 in order to encourage food-related businesses to introduce the HACCP system. This law financially supports businesses. They may receive a long-term, low-interest loan necessary to improve their facilities and equipment and may obtain preferential taxation. This law is under the jurisdiction of the Ministry of Agriculture, Forestry and Fisheries. The MHLW shares the responsibility of the sanitary-control management with the MAFF.

3. ISSUES OF FOOD SAFETY

I briefly explained some important points of Japanese food safety programme, based on the Food Sanitation Law. Unfortunately, health hazards are not completely controlled, despite comprehensive and intensified regulation.

Take food poisoning, which is a long-standing challenge in food safety regulation. The number of incidents has not decreased in the past several years. Some 1,960 incidents and some 40 thousand patients were reported in 1997, some 3 thousand incidents and some 46 thousand patients reported in 1998, and some 2.7 thousand incidents and some 35 thousand patients reported in 1999. Especially, the following two cases drew much attention at home and abroad. One is a case caused by enterohaemorrhagic *Escherichia coli* O-157, or EHEC O-157. The other is a case caused by powdered skim milk contaminated with enterotoxin. The former occurred in 1996, ending up with around 10 thousand patients and eight deaths. The latter occurred in 2000 and the number of incidents rose to 15 thousand.

Also, the hottest current issue is mad cow disease, or BSE. As many of you here already know, Japanese authorities announced September 10 that a suspected case of BSE was found. The news promptly spread in and outside Japan. Now, the case is under investigation to identify the cause and the scope of spread.

The BSE case taught us a lot. One, consistent approaches covering farm to table are necessary for safety assurance of food. Two, when an issue occurs somewhere in the world, we should not overlook the fact that a large quantity of food and feed are globally distributed. Three, we need a certain method or system to trace problems that have occurred, in order to identify the cause and conditions.

4. TOWARD SAFER FOOD

I would like to raise issues to be considered as food safety regulators and discuss with all of you. I hope my talk sparks a great discussion in the forum.

1) “Farm to Table” Food Safety Control System

The objective of reduced risk can be achieved most effectively by the principle of prevention throughout the production, processing and marketing chain. To achieve maximum consumer protection it is essential that safety should be built into food products from production through to consumption. This calls for a comprehensive and integrated *farm-to-table* approach in which the producer, processor, transporter, vendor, and consumer all play a vital role in ensuring food safety and quality.

Conceptually the importance of this approach has been recognized by food safety regulators in Japan. I think the current BSE problem in Japan gave me a feeling of reality. In order to ensure meat safety, at the farm level, farmers and workers must control safety of feed, pesticide and other chemical inputs and recognize potential sources of microbial contaminants from water, soil, animals and humans, while regulators take responsibility for auditing performance of the food system through monitoring and surveillance activities.

It is not difficult to express this concept into words. However, it is extremely difficult to implement this concept in the current real world. For example, I can list some difficulties to be overcome; such as

- 1) there could be several years difference from feed production, farm operation, procession, distribution and consumption
- 2) there could be geographical difference between feed production, farm operation, procession, distribution and consumption
- 3) a lot of experts with different backgrounds must be involved

In order to implement effective, efficient and uniform control measures across the whole food chain throughout the country, it is important to consider the type and size of the organization(s) that are

necessary to implement the food safety strategy. Where it has not been possible to have a single unified structure or an integrated food control system, for various historical and political reasons, it is necessary for this strategy to clearly identify the role of each agency, to avoid duplication of effort, and to bring about a measure of coherence between them. It should also identify areas or segments of the food chain that require special attention and need additional resources for strengthening.

I acknowledged that recently some countries restructured food safety administrative structure into “single food safety agency” and I have heard that the consolidation of all responsibility for protecting public health and food safety into a single food safety agency with clearly defined terms of reference has considerable merit. I would like to hear those experiences and share with all the participants.

2) Safety of Imported Food

With an expanding world economy; liberalization of food trade; growing consumer demand; developments in food science and technology; and improvements in transport and communication, international trade in fresh and processed food is increasing rapidly. Regarding food and feed, I can safely say that borders no longer exist.

It goes without saying that a country like Japan, which relies on imported food for more than 60% of food supply (calorie bases), must consider the safety of imported food. Any countries, which import more or less of food, need to think about how they can enhance the safety of imported food. Meanwhile, access of countries to food export markets will continue to depend on their capacity to meet the regulatory requirements of importing countries.

Now I would like to ask all of the participants how the safety of imported foods are ensured. There are some strategies such as, sampling and testing of imported food at the port of entry, requiring attachments of test results and/or inspection certificate with food, allowing the importation of food only from establishments recognized as compliant with requirements established by importing countries, or visiting exporting countries and educating and training food inspectors and workers in food industries.

Further, in order to examine the safety of imported food, first food safety standards must be established at a national level in accordance with Codex standards, guidelines or based on risk assessment.

In the future, if the Codex standards are widely accepted, and audit methods, procedure and criteria are internationally agreed, then audit results from Country A conducted by country B or an internationally recognized audit Organization could be shared globally, and reduce the cost of audit by different countries.

3) Countermeasures to newly developed food and food derived from modern technologies

Talking of newly developed food; I should start from food derived from biotechnology or GMOs. Because this issue is not only new, but also safety assessment of these food is substantially different from “traditional” food safety assessment, I can say a large number of countries still grope in the dark on how governments can cope with this issue. The Japanese government has submitted a country paper on this issue, so I would like you to read it for your further information. To be short, I think there are political and technical discussions on both safety assessment and labelling.

Because of the increase of allergic diseases and increasing consumer concerns of allergies caused by food consumption in Japan, the mandatory labelling requirement of major allergic food has just implemented in Japan. It's critical for people who have food allergies to identify them and to avoid foods that cause allergic reactions. Some foods can cause severe illness and, in some cases, a life-threatening allergic reaction (anaphylaxis) that can constrict airways in the lungs, severely lower blood pressure, and cause suffocation by the swelling of the tongue or throat. I believe there are some common foods that cause allergies internationally, and some food to cause allergies in specific countries and/or areas. I think we should take some action against at least those foods that may cause a life-threatening allergic reaction.

With the extension of the average life expectancy, the increase in cancer patients and death from cancer, and antipathy against medical treatment, increasing requests have been made for allowing the distribution of vitamins, etc. as foods, which have been used for medical purposes. If the product has a clear labelling of reducing health risk, it will be considered as a medicine and regulated under Pharmaceutical law in Japan. Recently those food with intermediate labelling between medicine and food are becoming popular among those who are interested in health, have a high level of education, have accumulated information through eating experience, and so on. So, at least in Japan, ensuring intermediate food between medicine and food would be one new challenge in the food safety area, and at this occasion I would like to hear some experiences in other countries.

The new issues I raised above could be the tips of an iceberg. In the future we might be faced with difficult brand-new problems. At that occasion how will the national governments in your countries cope with the new problems?

4) Ensuring the effectiveness of food safety system

In order to achieve certain objectives in the regulatory purpose and to encourage/guide people forward in the right direction, generally speaking, the strategies could be; 1) appeal to an individual moral sense and ethics, 2) economical inducements 3) education and communication, and 4) regulatory procedures including guidance, recommendation and legal action with penal regulations.

Government regulatory systems can provide a framework for maintenance of food safety across the food continuum “from farm to table.” Food safety laws, regulations, directives, standards, policies and procedures form a foundation for food control systems. Regulatory requirements establish limits and responsibilities, but are of little value without effective complements by all the stakeholders.

Assurance of food safety is a combined effort. Food producers at all levels of production bear a responsibility for the production of safe foods. At the farm level, farmers and workers must control pesticide and other chemical inputs and recognize potential sources of microbial contaminants from water, soil, animals and humans. The food processing and transportation industries must assess where food safety may be jeopardized at critical points in food production and transport and take appropriate measures to control these potential hazards. Retail establishments, restaurants and other food vendors must also understand how to ensure proper sanitary practices and temperature controls. The consumer’s role may be the most important in that s(he) controls food safety at the point closest to food consumption. The consumer needs the knowledge, understanding and incentive to prepare and store safe foods for family and friends. So each stakeholder must fulfill each responsibility in order to ensure safer food.

In Japan, education for the school children on food safety and voluntary food safety activities by food industries are recognized as extremely important for food safety, therefore these programmes are supported by the government. I would like to know about various programmes in your countries on this aspect.

5. CONCLUSION

Needless to say, foods are essential for our lives and safety should come first.

Food hygiene is a classical area in the public health programme, and today it is still a globally significant issue, as the WHO mentions.

We, those responsible for food safety, are expected to take appropriate measures not only for long-standing issues such as food poisoning but also for newly emerging issues, such as GM foods and BSE. In handling such issues, we have to make a decision based on sound science and provide information in an appropriate and timely manner to related people, especially consumers. It is what is called risk communication. Also, each member country should harmonize its own regulations with international standards and specifications from the viewpoint of smooth food trade. Thus, since Codex Alimentarius Commission’s programme is growing important, I expect the progress of the programme

and your cooperation. Also, we should learn many things from not only positive but also negative instances in member countries through such a forum.

Japan, as the presidency holder, is working to prepare for the third session of the Codex Ad Hoc Intergovernmental Task Force on Foods Derived from Modern Biotechnology scheduled for next March in Yokohama. As the development of GMOs is progressing, the Japanese government would like to complete standards for the safety assessment under international consensus as soon as possible. I expect that many of you here will participate in the session and make a contribution to consensus building.

In closing, on behalf of the participants here, I would like to thank the Government of Morocco again for hosting the forum. Thank you very much.

GF 01/7

BSE AS A NATIONAL AND TRANS-BOUNDARY FOOD SAFETY EMERGENCY*Paper submitted by the United Kingdom***1. OUTLINE AND BACKGROUND**

A new cattle disease, Bovine Spongiform Encephalopathy (BSE) was first identified in 1986. This belongs to a group of diseases known as a Transmissible Spongiform Encephalopathies (TSE). Although initially the infective agent for BSE was not thought to be capable of infecting humans, there is now evidence to suggest that BSE and a variant of the human TSE, Creutzfeldt-Jacob Disease (vCJD), are the same infective agent. These diseases are invariably fatal.

The agent that causes BSE is extremely resistant to the controls that would normally kill infectious agents such as bacteria and viruses, including cooking. Normal food hygiene measures are therefore ineffective against BSE. The only effective control in relation to human health is therefore to remove the infective agent from the food chain.

2. BSE AS A PRION DISEASE

BSE is one of a group of diseases that affect a number of different mammals. These diseases, known as TSEs, or prion diseases, result from the build-up of abnormal prion proteins in the brain and nervous system and eventually cause death. BSE has a long incubation period. This means that it usually takes four to six years for cattle infected with BSE to show signs of the disease.

2.1 CASE NUMBERS OF BSE

By 6 September 2001 there had been a total of 179,950 cases of BSE in cattle in the UK, with the peak number occurring in 1992. (See Figure 1.)

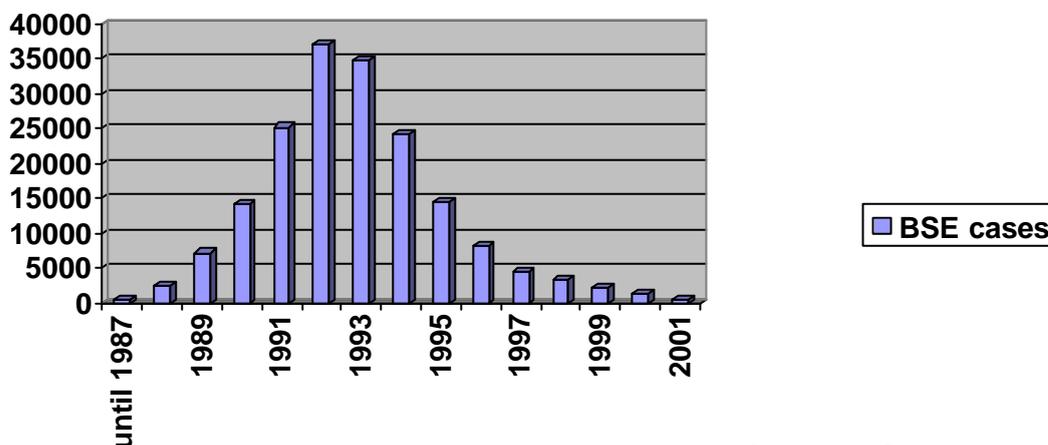


Figure 1: Cases of BSE in the UK

Although the vast majority of BSE cases world-wide have occurred in the UK, other countries have also been affected, mainly within Europe. Including:

Ireland	688 cases by 09/01	Spain	63 cases by 09/01
Portugal	581 cases by 07/01	Belgium	40 cases by 08/01
Switzerland	388 cases by 08/01	Italy	27 cases by 09/01
France	345 cases by 09/01	Netherlands	19 cases by 07/01
Germany	107 cases by 08/01		

Denmark, Greece, Luxembourg, Czech Republic and Liechtenstein have also had a few cases.

2.2 ASSOCIATED HUMAN DISEASE

The most commonly known human prion disease is Creutzfeldt-Jacob Disease (CJD). A new strain of CJD that occurs predominantly in younger people was discovered in 1996. More recent evidence has shown that the protein that accumulates in the brains of individuals with this new form of CJD is similar to the protein found in cattle infected with BSE, rather than that found in classical CJD. The new illness in humans is known as variant CJD, or vCJD.

The occurrence of a new form of CJD in the UK, where there is a high incidence of BSE, suggested that there might be a direct link between the two diseases. There is compelling evidence that the cause of vCJD is consumption of BSE contaminated meat. Researchers concluded that the most likely origin of this new disease was human exposure to the BSE agent.

Like BSE in cattle, vCJD is always fatal in people. As of August 2001 the total number of definite and probable cases of vCJD in the UK was 106. Figure 2 shows the breakdown of numbers by year. (Figures for 2001 up to and including August.)

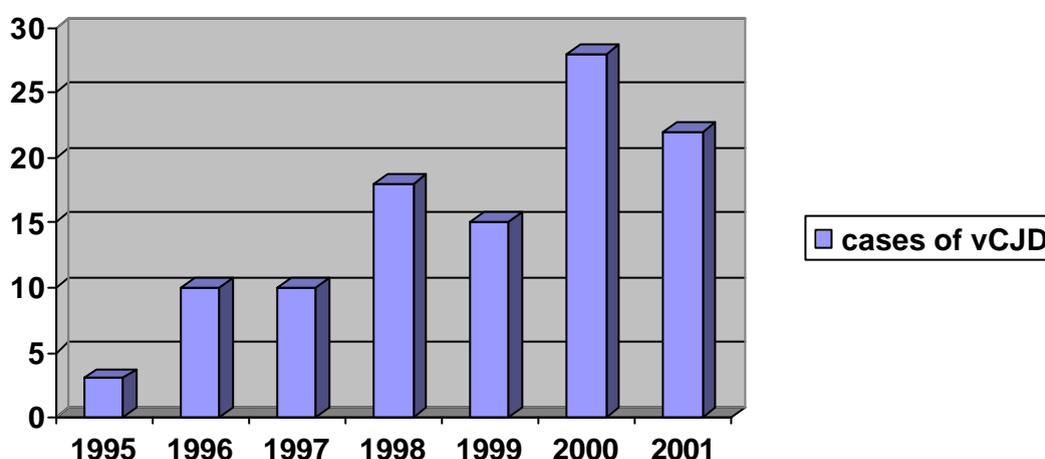


Figure 2: Cases of vCJD in the UK, definite and probable, by year.

2.3 WHERE DOES BSE COME FROM?

BSE was first confirmed in cattle in 1986. Despite much research, however, no-one can say with certainty where BSE came from. It may have been the result of a spontaneous genetic mutation in a cow or other animal during the 1970s. The normal practice in the UK at the time was to recycle animal protein, including cattle offal, back into meat and bone meal incorporated into cattle feed. This could have led to the cycling of BSE within the cattle population and its spread. One of the early theories about why BSE spread within the cattle population was linked to a change in the rendering process to produce meat and bone meal. However, given that no rendering process will effectively destroy the BSE agent it is highly unlikely that this was a key factor.

2.4 RISK AND UNCERTAINTY

Perhaps more than any other area of food safety, BSE is characterised by scientific uncertainty. Even now the precise nature of the causative agent and how it spreads in the host is not known for certain. The scientific uncertainty, which characterises BSE, means that throughout the BSE crisis the risk management options for protecting the health of the public have been precautionary in nature and aimed at risk reduction in the light of current knowledge. Risk can never be completely eliminated and the options have needed to be continually reassessed in light of emerging knowledge.

Throughout the Government has used expert scientific advisory committees to assess scientific evidence. This started with the Southwood Working Party in 1988, which developed into the Tyrrell Committee in 1989. The current committee is the Spongiform Encephalopathy Advisory Committee (SEAC) established in 1990.

2.5 CHRONOLOGY OF EVENTS IN THE UK AND APPLICATION OF FOOD SAFETY CONTROL MEASURES

November 1986 - BSE was identified in cattle.

December 1987 - Initial epidemiological studies in cattle were completed. These concluded that ruminant derived meat and bone meal was the only viable hypothesis for the cause of BSE. This conclusion was crucial in terms of control measures for both animal health and for protection of humans.

June 1988 - The use of ruminant derived meat and bone meal for feeding to ruminants was banned.

August 1988 - A slaughter policy was introduced, including compensation to farmers for slaughtered animals. An animal health measure but it indirectly impacted on human health by helping to reduce potential exposure.

December 1988 - BSE was designated a zoonoses, enabling legal powers to be used to reduce the risk to human health. This was a highly precautionary measure at the time as there was little indication that BSE would affect humans.

November 1989 - Specified bovine offal was banned from human food. The specified offal included those parts of the animal thought to have the highest likelihood of carrying the BSE agent. A crucial human health protection measure, even though it was highly precautionary at the time and exceeded even expert scientific advice.

September 1990 - Following reports that 5 antelopes and a cat had succumbed to a spongiform encephalopathy, and the experimental transmission of BSE to a pig, a ban was placed on specified bovine offal in all animal feed, including pet food. An animal health protection measure, but indirectly provided additional protection for humans.

March 1991 - The first case of BSE in offspring born after the ruminant feed ban (June 1988) was announced. This could have indicated that the feed ban was not being as effectively applied as it should have been. Subsequently many such cases occurred. (See Figure 3.) Of course, the case could also have indicated vertical transmission through cattle. Whilst some cases of vertical transmission are thought to have been possible, most cases in cattle born after the ruminant feed ban are now thought to have been because continued use of banned feed, or cross contamination with other animal feed. The 1990 ban on specified bovine offal in all animal feed was important to control cross contamination.

November 1994 - The ban on the use of specified bovine offal in animal feed was extended. All mammalian protein was banned in ruminant feed.

December 1995 - An additional measure to protect human health was enacted prohibiting the use of bovine vertebral column in the manufacture of all mechanically recovered meat. Spinal cord had already been included in the specified offal ban. However, it had proven difficult to remove the spinal cord completely from all carcasses. It was therefore decided to avoid the problem of fragments of spinal cord remaining by prohibiting the use of the vertebral column altogether.

March 1996 - The first cases of vCJD were announced.

March 1996 - The sale for human consumption of any meat from bovine animals over thirty months old was banned. Very few animals show signs of BSE onset by that age and infectivity is similarly only just emerging in infected animals. The over thirty months rule was therefore designed to prevent BSE infected cattle from entering the food chain.

April 1996 - The feeding of mammalian meat and bone meal to all farmed livestock was prohibited.

June 1996 - A feed recall scheme was launched (completed by October 1996) to collect and dispose of any meat and bone meal and feed containing it. This was to remove this possible source of infection entering the food chain.

January 1997 - Introduction of a selective cull of cattle most at risk of BSE.

December 1997 - Legislation came into force requiring the deboning of all beef derived from cattle, both home-produced and imported, aged over 6 months at slaughter before it is sold to customers. This was to control a very small risk of infectivity in bone marrow and dorsal root ganglia. (Later lifted once the risk was thought to have reduced.)

CONFIRMED CASES OF BSE WITH KNOWN DATES OF BIRTH, PLOTTED BY MONTH OF BIRTH

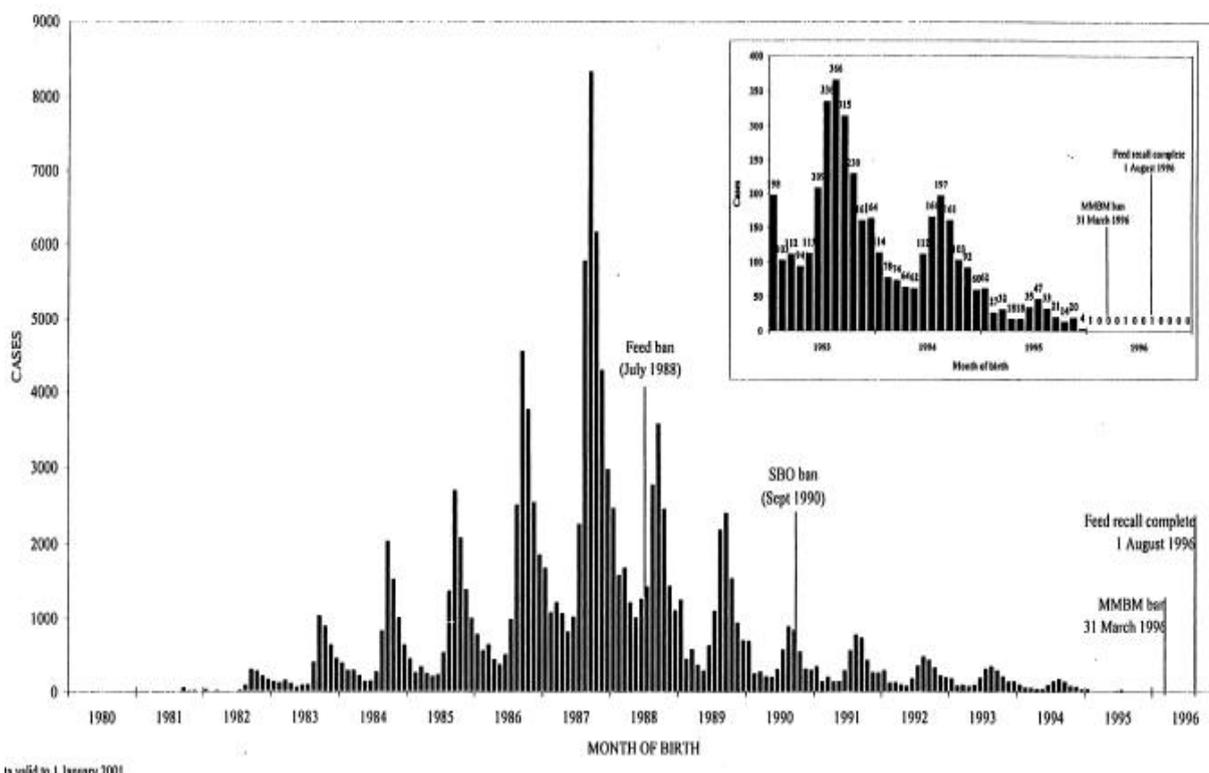


Figure 3: Confirmed cases of BSE with known dates of birth, plotted by month of birth.

The controls outlined above have been very successful in relation to reducing the number of cases of BSE in cattle. As mentioned previously the size and shape of the epidemic on vCJD in humans is impossible to predict at this time with any certainty. However, the control measures taken, especially :

- Removal of specified bovine offal (later Specified Risk Material) from the food chain;
- Banning of mechanically recovered meat from the spinal column, now extended under EU law to all ruminant bones;
- The over thirty months rule.

These measures are thought to mean that risk from consuming UK beef is at a very low level.

3. EUROPEAN AND WIDER PERSPECTIVE

As noted in paragraph 5, the BSE emergency has not affected only the UK. It has also had significant impacts on our trading partners. This is particularly so within Europe, but there have also been wider ramifications throughout the world. About 0.5% of all cases of BSE have occurred outside the UK. Initial spread of the disease to other countries is thought to have been due to export of feed or live animals, but cases now appearing in other countries are probably due to the recycling of the disease in those countries.

Ireland, in 1989, was the first country outside of the UK to have cases of BSE. Cases then followed in Portugal and Switzerland (from 1990), France (1991), and Germany and Denmark (1992). Italy had its first 2 cases in 1994 and Belgium, Luxembourg and The Netherlands had their first cases in 1997. (See table 1.)

	Germany	Belgium	Denmark	Spain	France	Ireland	Italy	Luxembourg	The Netherlands	Portugal	Switzerland
1989	0	0	0	0	0	15	0	0	0	0	0
1990	0	0	0	0	0	14	0	0	0	1	2
1991	0	0	0	0	5	17	0	0	0	1	8
1992	1	0	1	0	0	18	0	0	0	1	15
1993	0	0	0	0	1	16	0	0	0	3	29
1994	3	0	0	0	4	19	2	0	0	12	64
1995	0	0	0	0	3	16	0	0	0	14	68
1996	0	0	0	0	12	74	0	0	0	29	45
1997	2	1	0	0	6	80	0	1	2	30	38
1998	0	6	0	0	18	83	0	0	2	106	14
1999	0	3	0	0	31	95	0	0	2	170	50
2000	7	9	1	2	162	152	0	0	2	136	33
2001 until Summer	94	21	3	58	103	108	25	0	11	72	22

Table 1: Cases of BSE by country. Note that the figures for 1999/ 2000 onwards include those detected through monitoring.

4. EUROPEAN RESPONSE

At the time of the formal identification of BSE in the UK in late 1986 the disease was regarded as an animal health problem. Because of this the UK imposed controls in relation to removing meat and bone meal from ruminant feed in 1988. However, this was followed in the UK in 1989 by the requirement to remove specified bovine offal from human food, as a precautionary measure, despite the fact that there was no evidence for the disease being able to affect humans.

In May 1990 control measures were introduced in other European Community countries. At that time two European countries banned the import of beef from the UK. This ban was lifted in June 1990 following the intervention of the European Commission, which undertook to propose stricter animal health measures.

The next European wide measures were introduced in 1994 when the feeding of mammalian protein to ruminants was banned. They also introduced the first rendering standards to try to minimise BSE in meat and bone meal. Further measures followed in 1996, immediately after the announcement of the first case of vCJD in the UK and the recognition of BSE as a food safety issue. The first action at this

time was taken at a European level with a Europe-wide ban on exports of beef and beef products from the UK.

Some European Member States also took other precautionary measures to protect their consumers from all risks of contamination on an individual state basis between 1996 and 1998. These precautionary measures included the ban on specified risk material in human food and animal feed. These national measures were extended in October 2000 into a Europe-wide ban.

The banning of the export of beef from the UK was clearly a measure to protect consumers in other countries from possible food safety risks. However, the UK was also concerned to ensure that its consumers were protected from possible risks posed by imported beef. Introduction at a European level of the ban on the use of specified risk materials in human food was particularly important in this respect, although there has been, some concern over the effectiveness of its implementation (see paragraphs 28–29 below).

By the time of the European ban on UK beef significant measures had already been in place in the UK to protect human health for some time. These included the banning of specified risk material from human food and animal feed. Immediately following the March 1996 announcement of the first case of vCJD a further measure was introduced, the over thirty months rule.

June 1996 saw the first moves towards lifting the European export ban on UK beef – known as the Florence agreement. This set out 5 conditions for the gradual lifting of the ban. These were:

- Withdrawal of all meat and bone meal from farms or from establishments manufacturing animal feed;
- Stepping-up of checks in slaughterhouses;
- Introduction of a passport system for all cattle and setting-up of a computerised system for the identification and monitoring of animals;
- Removal of cattle aged more than 30 months from the human and animal food chains;
- Application of a selective culling programme.

Compliance with these conditions resulted in export of beef and beef products to Europe being allowed from Northern Ireland from June 1998 under the Export Certified Herd Scheme. This was followed in July 1999 by a decision to allow the export of UK beef produced under a Date Based Export Scheme applying to animals born after August 1996.

5. ACTIONS TAKEN BY NON-EUROPEAN COUNTRIES

BSE has also had implications for countries outside of Europe. One of the earliest controls applied by a third country was in 1989 when the USA banned the import of live cattle or beef and beef products from the UK. This was later extended to any country with confirmed cases of BSE. The stated aim of the USA controls related to protection of their herds from BSE infection. Many other countries followed with their own bans. By 1996 a great many non European countries had also banned UK beef, including Australia, New Zealand and South Africa all of whom were important markets for UK beef.

The European ban on specified risk materials used in human food also applies to third country imports except from countries classified as highly unlikely to present a BSE risk (see paragraph 26). When meat and meat products are imported from third countries they must be accompanied by a certificate to the effect that the specified risk materials have been removed and that the animals have been slaughtered in accordance with required European Union standards. Similarly the UK ban on the sale of cattle over 30 months for human food (in place since 1996) applies to all imported beef except from 14 countries (Argentina, Australia, Botswana, Brazil, Mauritius, Namibia, New Zealand, Paraguay, Poland, South Africa, Swaziland, Uruguay, USA, Zimbabwe).

A further European initiative is the classification of countries into risk categories. In July 2000, the European Union Scientific Steering Committee adopted an opinion on the geographic risk of BSE in all Member States and certain third countries. It determined four categories of risk and allocated countries to one of the four categories as shown below:

- Category I (Highly unlikely to present a BSE risk)
- Category II (Risk of BSE is unlikely but cannot be excluded)
- Category III (Likely to present a BSE risk, even if not confirmed, or presenting a low level of confirmed BSE risk)
- Category IV (Confirmed, at a higher level)

There is provision for the categories to be reassessed. Factors other than confirmed cases that were also taken into account included:

- Imports of contaminated feed;
- Imports of infected animals;
- Possibility of cross contamination of cattle feed with other feeds that contain mammalian meat and bone meal.

6. EFFECTIVENESS OF CONTROLS

Europe has clearly benefited from a European approach to tackling the problem of BSE. While control measures taken in the UK prior to 1996 were significant in reducing levels of BSE in the UK, it was clearly important also to implement controls throughout Europe because of the extent of international trade.

However, to be effective control measures must be rigorously applied and enforced through an effective inspection regime. This was certainly a lesson that the UK learnt in the early to mid 1990s when it was found that practices in slaughter houses had to be very closely monitored if the removal of all specified risk material was to be ensured. Action taken by the Meat Hygiene Service (set up in 1995) led to a great improvement in the UK. It is equally important to monitor imports for compliance. During 2001, up until August, 19 seizures of imported meat had been made because of the presence of prohibited spinal cord.

7. CONCLUSIONS AND LESSONS TO BE LEARNED

BSE was a new hazard. Not only had it not been encountered before but it belonged to a group of diseases, TSEs, that are still poorly understood. This led to unprecedented difficulties in risk assessment. Risk assessments must always be based on the best scientific data available. When key data (for example, the infective dose for animals and humans) are unavailable a great deal of uncertainty is introduced.

Uncertainty also has two important implications. The first is that it is quite likely that different groups of experts may deliver different assessments based on the same evidence, as actually happened between different expert committees in Europe. The second implication is that decisions about areas of considerable uncertainty tend to lead to more precautionary policies, on occasions going further than current expert advice.

BSE has clearly caused considerable trans-national problems in both the trade of live animals and meat. These have been mainly, but not exclusively, in Europe. Within Europe we have had the advantage of a co-ordinated approach to control, underpinned by the advice of the European expert scientific committees. Co-ordination of action has been essential in bringing BSE under control.

Finally, consumer protection continues to depend on both continued efforts to eradicate the disease as well as the controls further down the food chain. Effective enforcement of required controls is obviously essential as well.

GF 01/8

THE DEVELOPMENT AND IMPLEMENTATION OF THE NEW AUSTRALIAN FOOD SAFETY STANDARDSⁱ

Greg Roche

*General Manager, Food Safety, Legal and Evaluation
Australia New Zealand Food Authority*

1. INTRODUCTION – HOW FOOD IS REGULATED IN AUSTRALIA

Australia is a federation, and the separate State public health systems in Australia were developed prior to the formation of the federal government in 1901. The federal government steadily increased its power and influence over most areas of human activity in Australia through the course of the 20th century, not least because of the financial powers granted to it as an emergency measure in World War Two. By 2001 the federal government had become the source of funding for most public health activities in Australia, but most of the administration of public health activities in Australia continues to be carried out by the six State, two Territory and numerous local government authorities.

Until 1990 food regulation was a combination of State and Territory activity and the work of a small national advisory committee that made recommendations on food standards. The committee did not consider food safety issuesⁱⁱ. As a result major differences arose between the States and Territories. This cumbersome state of affairs could not continue, and in 1991 a national body, the National Food Authority (NFA), came into existence. It was a statutory authority established to, amongst other things, prepare food standards, co-ordinate surveillance of the food supply and advise the Australian Quarantine and Inspection Service on imported food issues. It reported to a ministerial council, the Food Standards Council, which had the ultimate say over the content of food standards.

Australia and New Zealand have two of the most closely integrated economies in the world, so it came as no surprise that in 1996 the NFA was recast as the Australia New Zealand Food Authority (ANZFA). ANZFA is the only bi-national food regulator in existence, with two offices: one in Canberra and a smaller office in Wellington. It currently has approximately 130 staff, most of whom have a scientific or technical background, including microbiology, food technology, chemistry, genetics, toxicology and law. The ministerial council was recast as the Australia New Zealand Food Standards Council (ANZFSC), consisting of the Australian and New Zealand Ministers for Health, the 6 State and 2 Territory Ministers for Health. Under the terms of the treaty with New Zealand on joint food standards, issues of food safety were specifically excluded, and New Zealand and Australia continue to have separate food safety systems. The model of food regulation outlined in this paper applied throughout the 1990s, and it is worth noting that it is now in the process of change, however those changes are outside of the scope of this paperⁱⁱⁱ.

It is necessary to note that the model I have described above is only that of a policy and standard-setting framework. Administration of food safety, and in particular inspection of food businesses, is carried out by environmental health officers employed by either a State or Territory or one of the 700 local government bodies. ANZFA consults with relevant State and Territory officials through a Senior Food Officers (SFOs) forum, and at a higher policy level with the Australia New Zealand Food Authority Advisory Committee (ANZFAAC). They can be distinguished by remembering that SFOs know what is happening on the street, and ANZFAAC members know what is happening in the Minister's office. Having the support of both groups has been critical to the successful passage of the food safety reform package.

2. THE PROBLEMS WITH THE EXISTING LEGISLATION

The rest of the *Food Standards Code*, which covers composition and labelling of food, additives and contaminants, residue levels and some microbiological standards, applies uniformly across

Australian food businesses. It appeared illogical that requirements for food safety were not also uniform.

The existing State and Territory laws also created difficulties. Some of the legislation reflected recent developments in regulatory policy, however this was not true for all legislation, the oldest of which dated back to 1928, with its attendant redundancies – for example, one jurisdiction required every place where food was handled to have a manure receptacle for the daily deposit of animal droppings and stable cleanings^{iv}. The legislation could be extremely prescriptive, for example one jurisdiction had a requirement that window sills had to be at least 300 millimetres above any bench on which food was handled^v. This type of legislation tended to focus on process, rather than on the desired outcome, namely a safe food business.

Australia has in the past ten years embraced the concept of ‘minimum effective regulation’ and the area of food safety has not been immune from the trend.

ANZFA was aware that Australian legislation lagged behind that of our trading partners, and did not reflect modern food regulation, particularly in the emphasis on HACCP. In addition, there has been growing awareness of the importance of the ‘paddock – to – plate’ approach to managing food safety, which means managing the whole of the food chain: first class handling and processing requirements are of little use where material with a high pathogenic load enters the food chain. In part for this reason, and as part of the changes to the food regulatory changes mentioned elsewhere, all Australian governments decided in 2000 that ANZFA will assume responsibility for food standards in the area of primary production, with the object of achieving an integrated regulatory approach.

Finally, and of greatest importance, has been the need to reduce the incidence of foodborne illness in Australia. Figures on the level of foodborne illness are notoriously imprecise, due to widespread under-reporting, however ANZFA has estimated that there are approximately 4,000,000 cases of foodborne illness every year in Australia, or one case for every 5 Australians^{vi}. This is slightly lower than reliable estimates of foodborne illness in the United States.

This particular objective was given particular impetus by some widely reported individual outbreaks of foodborne illness which have galvanised public and political opinion on the issue.

In summary, the Food Safety Standards were developed for the following reasons:

- to provide more effective food safety regulations and reduce the level of food-borne illness in Australia;
- to provide nationally uniform food safety standards for Australia so businesses operating in more than one State or Territory have only one set of requirements;
- to replace existing food hygiene regulations that were sometimes significantly out-of-date; and
- to introduce less prescriptive regulations, that are simpler to comply with and give businesses more flexibility to determine the best way for them to comply with the requirements – providing food safety is not compromised.

3. FOOD SAFETY REFORM – EARLY YEARS

Efforts to create a set of uniform, simple and flexible food safety laws have a long genesis. In 1975 Health Ministers endorsed a proposal for a *Model Food Act* and complementary food standards, including on food hygiene. A *Model Food Act* was released in 1980, however its acceptance was limited. Between 1981 and 1986 *Model Food Hygiene Regulations* were drafted, however again there was little acceptance.

ANZFA becomes involved

The current round of food safety reform can be said to have begun in 1994 with the release by the NFA (now ANZFA) of a discussion paper, *Safe Food Handling – Australia*, which advocated a more preventative approach to food safety. It suggested national food hygiene legislation and

supporting codes of practice and guidelines. In particular, it advocated food safety programs based on HACCP principles.

An early issue in framing the food safety standards arose out of the heterogeneous nature of the food industry in Australia. At one end of the spectrum are a small number of large corporate conglomerates who are well aware of the importance of food safety in protecting their brand. They understand the outcomes that must be achieved and have the technology and resources to achieve those outcomes in a variety of ways. At the other end of the spectrum are a very large number of small businesses who prefer a highly prescriptive approach to regulation – ‘just tell us what we have to do’. The obvious dilemma for the policy maker is: which approach to adopt. Eventually ANZFA opted, correctly, for a mix of the two. The standards contain a mix of prescription and a general proviso that, if an alternate method can guarantee the same level of safety, it could be utilised.

Following the release of the discussion paper for public comment, the NFA held consultation meetings in each Australian State capital between October and December 1994.

Fate then intervened. In early 1995 there was an outbreak of *Escherichia coli* 0111 from contaminated mettwurst. One hundred and seventy people became ill, of whom 23 children developed Haemolytic Uraemic Syndrome and one child died. The public demand for something to be done about improving food safety became deafening. In June 1995 the ministerial council, ANZFSC, asked ANZFA to develop, in consultation with the States and Territories, new standards for food safety which would then be implemented in a nationally uniform way. The following year ANZFSC asked ANZFA to draft a new *Model Food Act*, to, amongst other things, ensure uniform application and enforcement of the food safety standards. This eventually bore fruit in a model Bill, divided into a Part A which every jurisdiction had to adopt without amendment, and which contained critical material, such as definitions of food and ‘sell’; and a non-mandatory Part B, which contained desirable but not essential elements. This dual approach was eventually adopted by the jurisdictions in 2000 and the *Model Food Act* is now in the process of enactment in the States and Territories.

In September 1996, having reviewed the results of its previous round of consultation on food safety, and having consulted widely with various stakeholders, ANZFA released an Information Paper, *Proposal to Develop a National Food Hygiene Standard*, and invited comment on the proposals outlined. This was regarded by ANZFA as the commencement of a formal process under the *ANZFA Act* to amend the *Food Standards Code* to, for the first time, explicitly incorporate food safety requirements through separate food safety standards. Again, ANZFA raised the prospect of mandatory food safety programs, which would require all food businesses that could identify one or more potential safety hazards to develop and implement food safety programs based on HACCP principles. The details and scope of the programs would vary according to the size and nature of the business and the level of risk it posed to the community. It was proposed that the standards would be phased in over 6 years.

Responses to the Information Paper indicated that there was support for development of standards on both general food hygiene requirements and for the design and construction of premises, to replace existing regulations in the area. As a result, ANZFA decided to progress work on these two areas (which eventually became Standards 3.2.2 and 3.2.3 of the *Food Standards Code*) as a matter of urgency, as implementation of these two standards was regarded as a necessary precursor to the introduction of a requirement for mandatory food safety programs (which eventually became known as Standard 3.2.1). A preliminary paper on the draft standards was released for public comment in July 1997.

ANZFA formed a Working Group, mainly consisting of officials from the food area of State and Territory Health Departments, to rework the draft standards that had been in the preliminary paper. A further draft of the revised standards was released to a meeting of officials and industry and consumer representatives on 15 October 1997, and following further consideration by the Working Group, a further revised version of the standards was released for public comment in March 1998. Following receipt of 280 formal submissions, ANZFA held 17 workshops across Australia with approximately 600 attendees to discuss the standards. Although ANZFA had intended to only have one formal round of

public consultation, in light of the level of interest a further round of public consultation was held in October 1998, when it released a further revision of the general standards (which had in the interim grown to three, to include a standard on application and interpretation). By now the consultation document had grown to over a hundred pages in length, although the standards themselves remained commendably short. In retrospect, it can be seen that this seemingly endless process of consultation was invaluable in creating a constituency in favour of reform, which understood the issues and became committed to the proposed new approach to regulating food safety.

The three general standards were endorsed by the Board of ANZFA in November 1998 – ANZFA is an independent statutory authority, and at the time major policy and strategic decisions for ANZFA were taken by a ten member Board^{vii}, consisting of a number of academics with a background in public health, food science and public administration, as well as representatives of consumers and industry, together with three New Zealand nominees. The Board approved the revised standards and recommended their adoption together with a food safety program standard, to the ministerial council, ANZFSC.

At its December 1998 meeting, ANZFSC agreed to the standards in principle, subject to the completion of a Regulatory Impact Statement, and further discussions with State and Territory officials on implementation. ANZFA completed a Regulatory Impact Statement and released it for comment in May 1999. The Regulatory Impact Statement estimated that foodborne illness cost Australia \$A2.6 billion a year.

3.1 THE FOOD SAFETY PROGRAM STANDARD IN TROUBLE

By this stage, there was considerable unease in some sectors of the food industry concerning the introduction of mandatory food safety programs, i.e. Standard 3.2.1. Although the major food processors supported the food safety reforms, including food safety programs, and the Australian Food and Grocery Council and major retailers in particular were and remain prominent champions of the reform package, the food service sector in particular grew increasingly strident in its criticism of the proposed food safety program requirement. The Australian Hotels Association and the Restaurant and Catering Association were particularly prominent critics. They claimed that many of their members were small businesses who would have to contend with an expensive and cumbersome bureaucratic system that would not deliver better food safety outcomes. They also claimed that ANZFA's Regulatory Impact Statement had overstated the extent of foodborne illness in the Australian community. There was also concern from the primary industry sector that, despite their current exemption, the requirement for mandatory food safety programs would eventually be imposed 'on farm'. ANZFA only became belatedly aware of the high-level lobbying that had been occurring on this issue.

By October 1999 the food safety program standard was in deep trouble. At its meeting at that time, ANZFSC recommended to the Council of Australian Governments (a committee commonly known as COAG, and which consists of the Australian Prime Minister, the Premiers of the 6 Australian States and the Chief Ministers of the Australian Capital Territory and the Northern Territory) that it defer consideration of the food safety program standard until the federal Department of Health and Aged Care (ANZFA's 'parent' department) had obtained better data on the incidence of foodborne illness, and the cost and impact of the mandatory food safety program standard. The federal government allocated over \$A4 million for this exercise. At the same time, ANZFSC recommended that the other three general standards be endorsed by COAG. The three general standards were endorsed by COAG and ultimately approved by ANZFSC in July 2000. They were gazetted into the *Food Standards Code*, as a new Chapter 3, on 24 August 2000. States and Territories were required to begin the process of incorporating the standards into their own food hygiene laws from February 2001, and New South Wales was the first to do so, in May 2001. A table on implementation dates is attached as Appendix One to this paper.

There has been one further development concerning the food safety program standard. The decision in October 1999 to defer its adoption caught a number of jurisdictions by surprise. One State,

Victoria, had already begun to introduce a food safety programs requirement, following a serious episode of foodborne illness that killed two people. Other jurisdictions were considering the introduction of mandatory food safety programs in high-risk food businesses, such as hospitals and nursing homes. There was a danger that jurisdictions would introduce differing versions of food safety programs, undermining one of the key elements of the reform package, namely uniform legislation. Therefore ANZFA proposed as a compromise approach, and ANZFSC accepted in October 2000, that although the food safety program standard would not be compulsory, if a jurisdiction did choose to introduce food safety programs, it would have to comply with the requirements of Standard 3.2.1. The Department of Health and Aged Care has commissioned external consultants to advise it on the cost and efficacy of food safety programs and has funded, with the co-operation of ANZFA, the creation of Oz Food Net, to improve the epidemiological data on foodborne illness. Consideration of the outcomes of these exercises will be a lengthy process.

Out of that convoluted policy and political process, what emerged? Has it been worth it? To answer that question requires, amongst other things, an examination of the standards themselves.

3.1.1 Standard 3.1.1 Interpretation and Application

This is the introductory standard. It explains the main terms that are used within the Food Safety Standards, such as the meaning of ‘safe and suitable food’. It also applies the standards to all food businesses in Australia, with the exception of primary food production businesses, unless those businesses are also involved in the processing or retail sale of food. It requires food businesses generally to comply with the standards and in addition requires food handlers to comply with those requirements which are relevant to them.

3.1.2 Standard 3.2.1 Food Safety Programs

If a food business is required to have a food safety program, it must examine all of its food handling operations in order to identify those food safety hazards that might reasonably be expected to occur and prepare a written food safety program to control these hazards. The program must include controls for the identified food safety hazards, ways to monitor that the controls are working and steps to be taken when a hazard is not under appropriate control. Records must be kept by businesses to ensure that there is evidence that the business complies with the program requirement. Finally, each food business’s food safety program will be regularly audited by a suitably qualified food safety auditor to ensure compliance. Auditing lies at the heart of the new approach of the food safety program standard. Instead of an occasional inspection by an environmental health officer to determine whether prescriptive requirements are being complied with, the auditor is considered someone who assists a food business to identify possible hazards, controls and monitoring mechanisms. The standard is silent as to whether this auditor is an environmental health officer, i.e. a public servant, or a qualified industry food safety auditor, as approaches to enforcement are likely to differ on this issue. In conjunction with a number of stakeholders, including the Australian Institute of Environmental Health, which represents environmental health officers, ANZFA has developed a national audit system for food safety programs. This sets out the requirements for the approval of auditors, including a three-level auditor system, the audit process and methodology, mechanisms for determining audit frequency and finally the development of policies and procedures to ensure the integrity of the audit system.

To assist in determining audit frequency, ANZFA has also developed a national priority classification system for food business, which classifies businesses into risk categories, based on the type of food, the activity of the business, the method of processing and the customer base. The three levels (high, medium and low) then determine the initial frequency of audit. The system may also be used by government when considering the phased introduction of a food safety program requirement.

One further document which should be considered when considering Standard 3.2.1 is that of ANZFA’s framework for the development of food safety program tools. A frequent criticism of the concept of mandatory food safety programs is the cost involved in having to write an individual plan for each food business. The framework document addresses this criticism by providing a guide for the

production of tools, such as templates, models, software and printed materials which can be utilised to create individual food safety programs.

3.1.3 Standard 3.2.2 Food Safety Practices and General Requirements

This standard sets out specific food handling controls related to the receipt, storage, processing, display, packaging, transportation, disposal and recall of food. Other requirements relate to the skills and knowledge of food handlers and their supervisors, the health and hygiene of food handlers, and the cleaning, sanitising, and maintenance of the food premises and equipment within the premises. There are also requirements to have a thermometer on the premises (a new requirement, so that the food handler can utilize time/temperature controls), controls on single use items, and of pests. If complied with, these requirements should ensure that food does not become unsafe or unsuitable. The standard applies to all food businesses, whether operating from a permanent building, a vehicle, boat or plane or at temporary market premises.

A notable new approach is that the standard permits food businesses to deviate from temperature requirements provided they can demonstrate they have a safe alternate system in place. For example, the standard requires potentially hazardous food to be either 5°C or colder, or 60°C or hotter when it is received, displayed, transported or stored. However, businesses can safely deviate from these temperature requirements by using time to control the safety of the food, provided the total times does not exceed safe limits and records are kept. This would, for example, enable food to be displayed, unrefrigerated, for short periods.

There are two further major changes introduced by this standard that do not formally commence until after February 2002.

Firstly, there is now a requirement on each food business to notify the relevant authority, usually the local government council, of its existence. The notification requirement applies to almost every food business in Australia. A food business is any business or activity that involves the sale of food or the handling of any type of food for sale in Australia, with the exception of some primary food production activities.

This means that the notification requirement applies to activities undertaken for charitable or community reasons, as well as to commercial ventures and once-off projects that involve the handling and sale of food. It includes businesses that may not think of themselves as food businesses, like cinemas, corner stores, petrol stations and swimming pools, if they sell packaged or any other type of food.

The second new requirement is that the owners of food businesses will be responsible for ensuring that people who handle food or food contact surfaces in their business, and the people who supervise this work, have the skills and knowledge they need to handle food safely. The only exception to this requirement is for charitable or community fundraising events, which sell food that is not potentially hazardous or that will be properly cooked and then eaten straightaway.

3.1.4 Standard 3.2.3 Food Premises and Equipment

Standard 3.2.3 specifies requirements for the:

- Overall design and construction of food premises, including water supply, sewerage, garbage, ventilation and lighting
- Floors, walls and ceilings of food premises;
- Fixtures, fittings, and equipment within buildings, including handwashing facilities; and
- Food transport vehicles.

If food businesses comply with these requirements, they will find it easier to meet the food safety requirements of the food practices standard. Again, these requirements apply regardless of which particular structure the businesses is housed in.

4. SUPPORT MATERIAL AND ACTIVITIES

ANZFA has produced a wide variety of material to explain both the intent and the content of the new standards. In particular, it has published two editions of *Safe Food Australia*, a 200-page guide to the three general standards. As the new standards are more outcome – based than the hygiene regulations they replaced, *Safe Food Australia* emphasises the choices available to food businesses, within the overall requirement to produce safe food. There have also been a number of technical and general fact sheets on the new standards and how to apply them. ANZFA staff have been regularly invited to present workshops, particularly to the environmental health officers who are responsible for putting the new standards into effect. Many environmental health officers at the local level are very comfortable with a high level of prescription, and many food businesses (particularly small businesses) likewise. In these circumstances, ANZFA has prepared a wide variety of written material (most of which is on the ANZFA website) in order to ease the transition into amore outcomes-based system. Small business has been a particular focus of ANZFA’s support activities, in view of its limited access to resources. ANZFA has also convened an Implementation Working Group of Senior Food Officers from all jurisdictions, to discuss issues which have arisen from implementation and ensure a common consistent approach. Given that there are usually only 8 staff in the food safety area at ANZFA, and there are other calls on their time, the output has been considerable.

5. LESSONS FOR OTHER COUNTRIES – GOOD AND BAD

The intention of this Forum is to allow us to compare experiences, and there is a wealth of material lessons learned the hard way from ANZFA’s work on the food safety standards. First, it is not a quick process. The idea of creating a single, uniform and simpler system of food safety laws was not a radical one. It had widespread community and political support, and most elements of the food industry supported it. It promised to reduce the regulatory burden on industry while generally raising the standard of care in the industry. Nevertheless, the process took 6 years just to get the least controversial elements introduced, and the future of mandatory food safety programs is still uncertain.

Secondly, if change is to be introduced, lengthy consultation is essential. The consultative process was exhaustive, but certainly succeeded in enlisting critical support in the jurisdictions, in industry and among the community at large. ANZFA’s use of a number of consultation documents, working groups and public forums ensured that there was significant stakeholder support for the standards when they finally reached the approval stage.

Thirdly, advocating the widespread introduction of mandatory food safety programs is a very problematic activity. ANZFA failed to build a strong constituency for HACCP, for food safety programs generally and the approach we were advocating. ANZFA always considered the introduction of food safety programs to be a long-term objective, requiring years of work on implementation of the general food safety standards before moving to food safety programs. This was not understood by those who feared the overnight introduction of a bureaucrat-driven change that would only involve more paperwork for overstretched small business. The timing was not helpful, in that the Australian government was at the time introducing a value added tax which applied to most Australian businesses, which resulted in much higher sensitivity than usual about the introduction of a new regulatory requirement.

Fourthly, the area continues to be bedeviled by a paucity of high- quality data. There is a general scientific consensus on what pathogens are likely to contaminate food. There is much less known about the method and patterns of transmission to humans, and the extent and cost of preventable foodborne illness.

Fifthly, major and well-publicised outbreaks of foodborne illness can transform the climate on the issue of food safety reform. Major outbreaks of foodborne illness, particularly involving fatalities, have driven a large part of the political response to food safety issues in Australia. When polled, Australian consumers have regularly cited foodborne illness as their major food issue, rather than, as some have suggested, genetically modified or irradiated food. The general food safety standards were, in

retrospect, assured of passage because otherwise there would have been an outcry that years of work on new national laws on food safety had achieved nothing.

Finally – the exercise is worth it. Although we are still a long way from full implementation of the entire food safety reform package, Australia now has a single set of food safety laws which are shorter, clearer, more flexible, more fairly allocate responsibility and set a new bench mark for food safety.

APPENDIX 1 TO GF 01/8

Current position in relation to each State and Territory in implementing the Model Food Bill and the Food Safety Standards

State/Territory	Model Food Bill	Standards 3.1.1, 3.2.2 and 3.2.3	Standard 3.2.1 (Food Safety Programs)
Northern Territory	The proposal for a new Food Act will need to be considered by the new Territory Government. Aiming for Autumn 2002 sittings.	The Standards will not be enforceable prior to the introduction of a new Food Act.	Awaiting outcome of Federal government's Department of Health and Aged Care (DHAC) study on costs and benefits of food safety programs.
WA	The new Food Act is likely to be considered during the Autumn session of 2002.	The Standards will become enforceable following the passing of the new Food Act and will operate in conjunction with the existing food hygiene regulations until they are repealed. Consultation with stakeholders groups is currently taking place on the legislative changes.	WA is not opposed to the introduction of mandatory food safety programs and is likely to initially require programs for producers of smallgoods, the dairy sector and food businesses within public hospitals. Stakeholders groups are strongly pushing for the new Food Act to obligate the Minister to consult with industry sectors and obtain substantial agreement prior to requiring food safety programs within a sector.
Qld	Amendments to the Qld Food Act on Annex A are pending. Public consultation on Annex B is expected Feb/Mar 2002.	Came into effect by amendment to existing regulations on 1 July 2001.	Awaiting outcome of DHAC study on costs and benefits of food safety programs, but may be further announcement before that date.
South Australia	A new Food Act has received Royal Assent and proclamation date early 2002.	Will commence on proclamation i.e. early 2002.	Awaiting outcome of DHAC study on costs and benefits of food safety programs.

State/Territory	Model Food Bill	Standards 3.1.1, 3.2.2 and 3.2.3	Standard 3.2.1 (Food Safety Programs)
New South Wales	Amendments to the NSW Food Act are likely to be considered either Spring 2001 or early 2002.	Came into effect by regulation on 16 May 2001 with a modification to exempt funding raising events from the notification requirement.	<p>Proposing to require 3.2.1 for high risk businesses. Comment on this approach is currently being sought through a NSW Information Paper, <i>A new approach to Food Safety in New South Wales</i>, June 2001.</p> <p>NSW Health is also conducting, with DHAC funding, a National Risk Validation project. The project will utilise outbreak data together with data from Food Science Australia and cost/benefit analysis to assess the hazards associated with industries and the potential food safety risks to the consumer.</p>
Tasmania	New Food Act to be considered at the end of 2001 or early 2002.	Came into effect by regulation on 24 Sep 2001.	Awaiting outcome of DHAC study on costs and benefits of food safety programs.
ACT	The new Food Act was gazetted on 10 September but has not yet taken effect. Expected to take effect early 2002 but no later than 10 March 2002	Expected to commence early 2002 but no later than 10 March 2002.	Awaiting outcome of DHAC study on costs and benefits of food safety programs.

State/Territory	Model Food Bill	Standards 3.1.1, 3.2.2 and 3.2.3	Standard 3.2.1 (Food Safety Programs)
Victoria	Amended Food Act passed April 2001. It will take effect from 2 Jan 2002.	Will apply from 2 January 2002.	<p>Has not yet applied Standard 3.2.1 to any food business.</p> <p>All food businesses with the exception of minimal risk businesses are required to have a food safety program by 1 Jan 2003 in accordance with the Vic Food Act.</p> <p>High risk businesses are required to have an independently developed and audited food safety program (referred to as an Independent System).</p> <p>Moderate risk businesses have the choice of an Independent System or a food safety program developed from a DHS registered template and compliance checked by local government.</p>

-
- i I am grateful for the contributions of Ms Tania Martin of the Food Safety Program, ANZFA, towards the preparation of this paper. The views expressed in it are completely the author's own.
- ii For the purposes of this paper 'food safety' covers those activities which deal with food hygiene, and in particular the requirements concerning handling, processing, transport and storage of food in a safe manner.
- iii In short, ANZFSC will, with the addition of Ministers for Agriculture and Industry from all the jurisdictions, become the Food Regulation Ministerial Council, which will set broad policy guidelines in the area of food regulation. Regulations will be made by ANZFA, renamed Food Standards Australia New Zealand. There is also provision for a new policy advisory and implementation framework to support the new structure. The new arrangements, subject to applicable treaty changes between Australia and New Zealand, should come into effect in mid 2002.
- iv ACT Public Health (Sale of Food and Drugs) Regulations 1928 Reg 40.
- v Queensland Food Hygiene Regulations 1989 Reg 9.
- vi Food Safety Standards, Costs and Benefits, ANZFA 1999. p28.
- vii Following the commencement next year of recently approved changes to the food regulatory model in Australia and New Zealand, the Board will be expanded and its role redefined.

SUMMARIES OF CONFERENCE ROOM DOCUMENTS FOR THEME 1**REGULATORY ISSUES****▪ CANADA-1**

Canada's food safety system operates in a multi-jurisdictional setting involving federal, provincial, territorial and municipal authorities. Under such shared jurisdiction, a comprehensive agreement has been established entitled *Food-borne Illness Outbreak Response Protocol* outlining the roles and responsibilities of all governments involved in the investigation of food safety emergencies and detailing an integrated approach in response to national and regional food-borne illness outbreaks. For transboundary situations, Canada endorses and follows the *Codex Guidelines for the Exchange of Information in Food Control Emergency Situations*. As for domestic products, the *Protocol* serves as the guidance document to address a national food safety emergency involving an imported product. New initiatives to improve food safety emergency procedures involve projects to enhance early detection and investigation of a food-borne illness. Health Canada has developed a program entitled "*Skills Enhancement for Health Surveillance*" which is an internet-based training initiative for local and regional public health departments across Canada to increase skills in epidemiology, surveillance and information management. A national reporting system is also being developed entitled "*Outbreak Investigation*" to improve notification of all food-borne illness outbreaks in Canada.

▪ EUROPEAN COMMUNITY-1

On 21st January 2002 the EU Council of Ministers took the last steps towards the adoption of a Parliament and Council Regulation establishing the European Food Safety Authority (EFSA) and laying down a new framework for Food Safety in the European Union. The new Regulation establishes the principles, definitions and requirements on which all future food law in Europe will be based and defines the terms '*food*' for the first time at the European level harmonizing differences that did exist between some of the Member States. It also defines the term '*food law*' which covers a wider range of provisions beyond those relating solely to food (e.g. measures relating to materials and substances in contact with food, measures which may have a direct or indirect impact on food safety). Furthermore, the Regulation establishes the rights of consumers to safe food and to accurate and honest information. Future food law will be based on an integrated approach from the farm to the final consumer, including measures applicable on the farm. The Regulation establishes the principles of risk analysis in relation to food law and establishes the structures and mechanisms relating to the scientific and technical evaluation to be principally undertaken by the European Food Safety Authority. In addition, the Regulation formally establishes the Precautionary Principle as an option open to risk managers where decisions have to be made to protect health but scientific information concerning the risk is inconclusive or incomplete in some way. The new Regulation provides for traceability of all food and feeds as they move between businesses, with information being made available to the competent authorities upon request. The document includes a description of the technical structure of the future European Food Safety Authority.

▪ EUROPEAN COMMUNITY-3

This CRD provides a description of the European Union's rapid alert system put in place since 1978 amongst its Member States. The Member States have a duty to provide as a matter of urgency, information in the case of a serious risk to the health of consumers. It is applicable to all consumer products, food and non-food, insofar as these products are not already covered by specific equivalent provisions in other Community acts. In legal terms, Member States are only obliged to inform the

Commission in cases where the dangerous product could be placed on the market outside the territory of the Member State that has identified the specific risk. But in practice, as the single market becomes ever more integrated, it is becoming increasingly difficult to be sure that a product will not go beyond the borders of a given Member State and therefore, notification is useful in any case. There are currently two networks : the food network and the non-food products network. These networks are supported by the latest available computerised information technology. The document details the procedures for the functioning of the Community Rapid Alert System and describes it's modernization as effectuated through a regulation entered into force during mid-February 2002 and established under a new network linking up the Member States, the Commission and the new European Food Safety Authority.

▪ IACFO-1

This paper discusses new food safety challenges posed by the growth of the international food trade; public health implications of the World Trade Organization's (WTO) Agreement on Sanitary and Phytosanitary Measures (SPS); and the role of the World Health Organization's (WHO) International Health Regulation's (IHR) in promoting food safety. Reviews concerning various shortcomings of the current leading international agreement in the area of food safety and trade (i.e. the WTO SPS Agreement), are addressed and it is stated that the globalization of the food industry necessitates not only reform of an *international trade agreement* that protects business interests, but also an *international food safety agreement* to protect consumer interests. This paper concludes that this need could be served by supporting the revision of the WHO IHRs as they apply to food in international trade and recommends that developed countries should provide the WHO with extra-budgetary resources to promptly complete this effort. Such steps will help restore public confidence in the safety of the food supply and promote further steps towards trade liberalization in the food sector. Such steps will thus benefit producers as well as consumers.

▪ INDONESIA-2

The document summarises food safety regulation in agriculture in Indonesia. The lack of food safety awareness in farmers is stressed as is the consequential result that Indonesian agricultural products are below the standard required by consumers and the international market. The Indonesian National Standard (SNI) is the only authorized standard applied nationally in Indonesia. Issued by the National Standardization Institution, the SNI promotes effective production, increased productivity and quality assurance on safe food production. The HACCP system is adopted nationally under SNI No. 4852-1998 and applied in the agriculture industry as the main tool in establishing food safety in agricultural products. The implementation of the HACCP system in the agricultural sector is recognized by the Ministry of Agriculture Decree No. 303/1996 which acts as a technical regulation on the National Standardization System for the agricultural sector. However, for implementation by small-scale farmers, HACCP requires modification in addressing specific local conditions. Indonesia needs to promote food safety programs within the agriculture industry are in policy development; food safety assurance; food safety promotion; training and education; information dissemination and these programs would need support from developed countries through both bilateral and multilateral cooperation.

▪ ITALY-1

The contamination (*dioxin crisis*) of food of animal origin occurred in Europe during 1999 and represented an opportunity to evaluate the food control system in Italy. The experience of the crisis highlighted deficiencies in the control system and the existence of an efficient traceability system for animal and product consignments from other EU Member State, thereby permitting the tracing of most animal and product consignments coming from Belgium over the period in question. The dioxin crisis urged the European Union to improve the feed control system, through the establishment of an effective traceability system and a strengthening of the rapid alert system of the EU Member States. The

experience of the European Union fosters the creation of a permanent international observatory in charge of alerting all countries worldwide of occurring food emergencies. The management by the FAO or the WHO of a computerized system (through the Codex Alimentarius) for the gathering and circulating of notifications pertaining to food health emergencies, has been suggested.

▪ **LAO'S PDR-1**

The document provides information on national agriculture and food regulation in Lao's PDR-1. The Food Law is enforced primarily by the Ministry of Health. Good manufacturing practices and a number of essential standards (i.e. for drinking water, ice cream, tomato sauce, iodization salt, mineral water and ice) have been issued based on the Codex Alimentarius Commission guidelines. Codex standards are used as a reference for inspection purposes of other food products for which Laos food standards are not available. The Food Control Authority is led by the Food and Drug Administration Commission which was established in 1991 and is managed by the Ministry of Health. Difficulties are highlighted in running the three official laboratories of the country. In the case of food export, the Food and Drug Department and the Food and Drug Quality Control Center under the Ministry of Health, are responsible for controlling and delivering certificates of food analysis and quality assurance of these foods. The control of domestic food products is a multidisciplinary activity which requires the involvement and cooperation of all concerned. The document contains a list of requirements necessary to strengthen national food control systems and capacity building on food safety.

▪ **MOROCCO-1**

Morocco's food inspection is currently conducted under two main laws (adopted in 1977 and 1984) and a series of complementary regulations related to the safety and trade aspects of food products. The basic legal text governing the inspection of exported and imported live animals and of food products of animal origin is the law adopted in 1989 and which explicitly delegates powers to the Ministry of Agriculture in decisions concerning the banning of products which present a risk to human health. Food control in Morocco is carried out by specialised units in several Ministries (Agriculture, Health, Interior, Industry). Their interventions are not always coordinated despite the legal establishment, since 1968, of an Inter-Ministerial Coordinating Commission. The main responsibility for ensuring food safety rests, however, with the Ministry of Agriculture. Following reported delays in responses to inquiries from international organizations (e.g., Codex, OIE, OMC, FIL), it was suggested that guidance be developed to designate appropriate contact points able to provide prompt responses to various enquiries. Further developments in Morocco include: risk management options chosen during two emergency food safety situations (i.e., ESB, Dioxin); proposals towards greater flexibility to publish a decree in cases of food safety emergencies; the examination for future endorsement of a food law and of a draft law to create a Moroccan Food Safety Agency; the extension of a national quality management programme (established primarily for fish and fisheries products) to all food sectors. A national Sanitary Monitoring and Survey Unit and national biosecurity commission have been established. National recommendations have been issued to create a structure in charge of assessing risks in order to establish a functional split between risk assessors and risk managers; establish a rapid alert system; elaborate a coordination system amongst all stakeholders involved in food safety; split processing and development aspects from official food safety control; and lighten procedures to adopt legal texts regarding food safety.

▪ **PERU-1**

This paper presents figures and analysis of the 1991 cholera outbreak that led to 322,562 contaminated people and 2,909 victims and concludes that water (particularly stagnant water), is the main route of transmission of *Vibrio cholerae*. The outbreak of this epidemic raises concerns of environmental health threats and the lack of adequate sanitary measures for the evacuation of waste waters, highlighting the problem of sanitary education and preventive and curative action to control Cholera spread. The need for surrounding countries to coordinate their efforts is imperative since

cholera-like disease has a transboundary infection nature and a multi-sector National Commission to fight against cholera has been established, as has a Coordinating Technical Group by Brazil, Colombia and Peru. Multi-sector collaboration of all bodies involved nationally in food safety is called for. There is a need for the reinforcement of national sanitary legal requirements in the preparation and handling of street-vended food and beverages. This outbreak initiated the education of young women in the administration of treatment against dehydration. Combining health care-education-community is also felt to be a good preventive pre-requisite.

▪ PHILIPPINES-2

The paper discusses the origins and levels of threat regarding mercury exposure by consumers of fish products in the Philippines. It proposes a series of recommendations to address the problem, including: 1] the establishment of a laboratory to undertake comprehensive inorganic and methyl mercury determination in areas “at risk” to provide the necessary guidelines to the community, with particular reference made to high risk groups (e.g. pregnant women and children); 2] provide education of high risk groups; 3] to request local government units to a) continue in health and environmental monitoring activities in the affected areas, b) require establishments to install anti-pollution devices for air pollution and waste treatment recovery/treatment facilities, c) relocate of ballmilling/refining process into an industrial zone, d) undertake remediation/mitigation measures in the environment to ensure that exposure limits to mercury will be kept at a minimum or within permissible limits, e) conduct monitoring of fish especially those with high levels.

▪ DR CONGO-1

Situated in central Africa, the Democratic Republic of Congo is confronted with many food safety emergency situations, augmented by its location in equatorial and sub-tropical areas subject to many communicable diseases transmissible to humans from animals (zoonoses). The current unstable political situation within the Democratic Republic of Congo has resulted in scarce official monitoring, insufficient food quality control and a lack of financial and logistic means required to review and test food. Priorities include the food production chain, imported food control, risks linked to inappropriate transportation and conservation. Common foodborne diseases (enterobacteriae provoked/caused toxoinfection due to enterobacteriae and to vibrios cholerae among others and emerging diseases (Ebola virus, ESB...) and other food contamination are present in the country. Poor living conditions are the main roots of this decrease of public health in the country. Although national expertise exists to identify hazards, logistic resources (e.g., laboratory equipment) as well as training programmes of technical staff are missing. The technical assistance and financial support of the United Nations are required to establish a real capacity building strategy on food control facilities and procedures within the country.

▪ REP. CONGO-1

Presently, the Congo Republic has no legislation related to food safety. Consequently, the plant protection service has proposed a draft food law currently under discussion and promulgation. Services involved in veterinarian and zootechnical inspections were truly operative up to the 90s thanks to the good management of the Veterinarian and Zootechnical Research Center (VZRC) laboratory. These services are currently paralysed due to a lack of financial support and of equipment (chemical reagents). This is also due to the decision taken to stop meat inspection at borders. The Plant Protection and Phytosanitary Control Service focuses its activities on imported products in checking certificates of origin. Congo is a net importer of the majority of its food. Import levels greatly extend available control capacities on imported food. This imbalance is mainly due to the absence of a national food laboratory. In addressing these problems rapid action is required to establish an efficient food control system, to review and adapt current legislation to foster food safety control, to carry out training of staff involved in food control and to increase coordination on food control provisions at sub-regional and regional levels. All provisions have the objective to reduce undue exposure of consumers to foodborne hazards.

The Congo-Brazzaville Republic is a disabled country shocked by several consecutive civil wars and is slowly starting to build up its economy. The drafting of comprehensive food legislation should be urgently undertaken by the national authorities. Thus, the proposed draft food law on zootechnic and zoosanitary regulations is most welcome, its application utilitarian to all operators (including rural areas) involved in food control.

▪ TANZANIA-1

This paper describes the main regulatory framework in place to assure food safety in Tanzania. In particular, the responsibility for carrying out food safety and quality control functions in Tanzania is assumed by Ministries of Health, Agriculture and Food Security, Natural Resources and Tourism, and Ministry of Industries and Trade. Laws empowering these ministries had been considered to be adequate for monitoring and control of transboundary food safety emergencies. These laws include: a Food (Quality) Control Act (establishing the National Food Control Commission (NFCC) and the general mandate of the Ministry of Health); a Plant Protection Act (empowering the Minister for Agriculture and Food Security to regulate the import and export of plant products to and from the country with the view to controlling diseases and pests and also the control of export/import of food products of plant origin in coordination with the NFCC); a Fisheries Act (empowering the Minister for Natural Resources and Tourism to regulate and to ensure safety and quality of all fishery products produced and processed in the country); a Radiation Control Act (establishing a National Radiation Control Commission in charge of controlling the presence of radioactive material including in food trade); a Standards Act (empowering the Minister for Industries and Trade, through the Tanzania Bureau of Standards to promulgate national standards including standards for food products); and a Tropical Pesticides Research Institute Act (1979) (establishing the Tropical Pesticides Research Institute, which is responsible for registration and approval of pesticides for use in the country).

▪ USA-8

This paper presents several cases-studies in food-borne disease outbreaks which occurred in the USA with food contamination particularly through E. Coli O157:H7, Listeria Monocytogenes or Cyclospora. Lessons learned from these outbreaks include the need for interaction of government, industry and academia to address emerging public health issues. Even in the presence of large uncertainties, such collaboration can protect the public's health on an interim basis while targeted research begins to answer the most important questions. As new information becomes available, the collaborative framework facilitates the rapid integration of the new information into the evolving control effort. Response to food safety emergencies requires the ability to recognize unusual health events, to identify the cause with adequate specificity to permit categorization of the agent, to investigate the possible sources of exposure sufficiently well to determine if food is a likely source of the agent, to refine the food exposure data sufficiently well to permit a reasonable reaction, and to effectively and quickly segregate potentially contaminated food to prevent its consumption. For food safety emergencies that involve well-recognized foodborne hazards in characteristic food vehicles (e.g. Salmonella in eggs, Campylobacter in poultry meat, Vibrio in seafood) a rapid effective response generally requires enhancing the public health and regulatory infrastructure and improving interagency interactions and government-industry-consumer cooperation and communications. It is mentioned that the same systems may be used for addressing unintentional foodborne disease and for identifying and addressing intentional contamination of foods (bioterrorism), but this would necessitate adaptation of the existing food safety systems.

▪ WHO-1

The potential for terrorists to deliberately contaminate foods must be taken seriously. On 17 January 2002, the WHO Executive Board adopted a resolution (EB109.R5) which recognized the importance of safeguarding food in a global public response to the deliberate use of biological and chemical agents and radionuclear attacks intending to cause harm. Reducing these threats of sabotage will require an

unprecedented degree of co-operation among health, agriculture, and law enforcement government agencies; the food industry; other private sector bodies and the public. Systems to rapidly and effectively detect and respond to disease outbreaks resulting from contamination and other causes are critical. The potential for contamination and interruption of food supplies as acts of terrorism should be considered in the assessment of food safety assurance systems. Planning must include consideration of communication with the press and the public in order to manage fear and unfounded rumours. Panic and hysteria may result in far more serious consequences to public health, as well as industry and commerce, than the threat itself. Existing systems for public health surveillance and food safety should be strengthened; separate systems for terrorism concerns should not be developed. Allocation of resources should be relative to the nature and likelihood of the threats, whether they are inadvertent or deliberate. FAO and WHO are strengthening their disease surveillance and response operations to include food sabotage and to provide guidance to Member States in the development of their programmes for prevention, detection and response to terrorist threats to food. Appropriate consideration must be given to the possibility that information on threat agents and system vulnerability could be used by terrorists.

▪ CÔTE D'IVOIRE-1

This paper presents a historical summary of the regulatory framework implemented in Côte d'Ivoire from independence to date. The 1990s represent an important period during which there occurred an increased concern in food safety issues due to demographic and development factors and to a major international foodborne disease crisis (BSE). Furthermore, the increased pressure put on national food producers from the exporting market authorities which request higher quality and safety standards in fish products and pesticide residues is stressed including difficulties faced by the government in complying with certain safety management options chosen by countries importing Ivorian food products and the impudent weight of certain sanitary measures on the national economy.

▪ NIGERIA-1

In addition to the presentation of the national regulatory framework in Nigeria, the document recognises that amongst the major contributors to the success of any food safety programme are education and alleviation of poverty. The government has introduced the Universal Basic Education programme, which assures a free and compulsory education up to the secondary school level. The Government has also introduced various programmes for the training of school leavers, to prepare them for employment and to start small-scale industries. As the government continues to strive to improve the basic infrastructure in terms of electricity, potable water, telecommunication, adequate accommodation and environmental sanitation, it also recognises the need for improvement in the implementation of the national food hygiene and safety policy in the following areas: 1) Review, harmonization and effective enforcement of the existing laws relating to food safety; 2) Strengthening infrastructure and managerial capacity in risk analysis; 3) Forging closer inter-ministerial collaboration, cooperation and coordination; 4) Involvement of all stakeholders in policy formulation as a key to the success of the food safety programme; 5) Strengthening the capacity of states and local governments in promoting safe and hygienic practices by street food vendors and catering establishments.

▪ AUSTRALIA-1

This document copies an advertising brochure which presents SAFEMEAT. This is a national system implemented in Australia involving a strong partnership between industry and the federal and regional governments. To date, SAFEMEAT has implemented a national livestock identification scheme to ensure domestic consumer information and international markets requirements on meat products. SAFEMEAT initiates research and development projects particularly in relation to microbiology and foodborne pathogens. It also develops communication linkages and monitors the status of meat products and their conformity to appropriate standards. Future action and development will be carried out in the

following areas: in establishing meat standards and regulation; in promoting research and development in the meat industry; in improving emergency management; in monitoring/reducing residues and pathogens; in implementing further management of national systems; and in planning communication and education programs in order to improve awareness in the general public and amongst operators on all aspects of food safety in meat and meat products.

▪ CANADA-2

National and international awareness of the importance of food safety is increasing as a result of the identification of emerging foodborne pathogens and new hazards from imported and domestically produced foods. New approaches for regulatory inspection and enforcement activities and new technologies are being implemented as part of Canada's integrated approach to enhancing food safety. In Canada, change is being driven by industry-wide adoption of Hazard Analysis Critical Control Point (HACCP) based practices. From a regulatory perspective, HACCP based risk management approaches are providing a basis for the strategic investment of inspection resources to maximize the effectiveness of inspection activities based on a better understanding of food safety risks and the management of those risks by industry. Canada has made considerable progress and the implementation of HACCP programs such as the Quality Management Program, Food Safety Enhancement Program and Meat Inspection Reform have resulted in important lessons learned. Key lessons include: successful implementation of HACCP based inspection programs involves the commitment of regulatory resources from initial program design and consultation through to ongoing program maintenance; the recognition of stakeholder *ownership* essential to the success of HACCP programs; the introduction of HACCP programs through careful planning with implementation staged over a reasonable transition period; and the significant impacts attained through the implementation of the HACCP programs on regulatory strategies, inspection activities and staff, resulting from the substitution of *hands-on* inspection responsibilities to verification activities.

▪ EUROPEAN COMMUNITY-2

This paper presents the roles and functions of the Food and Veterinary Office (FVO) of the European Commission. The main task of the FVO is to carry out on-the-spot inspections to evaluate the food safety control systems operated by national authorities in Member States and third countries, to report its findings **and** conclusions, **to** make recommendations and to follow up the actions taken by these authorities in response to its reports. It also has responsibility for monitoring control activities on animal health, animal welfare and plant health. In addition, the results of the FVO's inspections can contribute to the development of community legislation by identifying areas of existing legislation which may need to be amended or where new legislation is required. The FVO is required to verify that the competent authorities in food exporting countries are capable of ensuring that community requirements are met in respect of all products exported to the EU; in the case of certain products, to inspect individual production establishments, of which there are currently around 15,000 approved for export to the community; and to monitor on a regular basis the operation of around 290 inspection posts that carry out specified checks on all imports of animals, animal products and food of animal origin at the point of entry into the EU including the individual approval of new inspection posts. A new approach for Member States under which the three aspects of control – verifying transposition, receiving reports from Member States, and the carrying out of on-the-spot inspections – will be combined into one integrated control process, involving a food control cycle based on four main stages. The new framework will also apply to third countries.

▪ INDONESIA-1

This document presents the national inspection system for traditional foods in Indonesia. It sets out the basic problems, constraints and difficulties in reducing foodborne illnesses throughout the country and the food chain. Most traditional foods are in general home-made or, if produced industrially,

involve small scale enterprises. It is reported that most traditional food entrepreneurs do not have sufficient skill or knowledge of food processing hygiene. Moreover, the capability of managers is still limited to registering their products. To strengthen their capacity they should be guided by education programmes which, to the benefit of the government, are easy to monitor and control. The quantity of contaminated foods is still described as high and is recognised as a heavy social and economic burden on the nation. In 2000, 30 cases of foodborne diseases were registered including 13 mortalities and 2,762 morbidities. The origins of these diseases were mainly due to chemical contaminants, microbial pathogens, and natural poisoning, but most cases could not be identified due to late information, unrepresentative samples, weak coordination among agencies, difficulties in getting supportive data. Most of the unsafe foods originated in street-vended foods, meals served in restaurants, home industries and household practices.

▪ MONGOLIA-1

Food safety is an emerging issue in Mongolia as its international food trade expands and the numbers of food premises increase. This article aims to introduce the changes in food safety in Mongolia and makes comparisons before and after 1990, when the country made a dramatic socioeconomical change from a centralized economy to a free market economy. The food safety situation in Mongolia is presented from the end users health outcome, or from the end of the food chain till food supply, storage and point of purchase. Some facts are tabulated, having been collected by the local inspection agencies within their current capacity of analysis and monitoring. Positive changes include advances in the legislative environment and technological improvements in small food enterprises over recent years. Reference is made to the objectives of the National Plan of Action on Food Security, Safety and Nutrition (NPAN) for which there exists strong international support. Implementation of the NPAN is principally required for advocacy; the training of different stakeholders; the establishment of training programmes; and the strengthening of laboratory capacity. Changing economic circumstances contribute significantly to the food safety situation in Mongolia. Vulnerability of traders and poor people to the different kinds of inspection penalties is very high, with destroyed foods and the labour of traders contributing to national values. Therefore, inspection agencies must work towards prevention rather than control. Great endeavours must be made towards building national consensus and to consolidate different food safety agencies using more radical approaches by both government and international agencies.

▪ NEW ZEALAND-2

Cattle can be a host to *Taenia saginata* infection which is presented as tapeworm in humans. It is not of large public health significance in New Zealand and is of equally small significance in the Nation's beef production. A range of treatments – including proper cooking – are effective for meat potentially carrying undetected cysts. Medical treatment is also readily available in New Zealand for any human infection. Studies have shown that a (theoretical) suspension of post-mortem inspection for the parasite would make little impact on public health outcomes. Many importing country requirements still require this check to be part of the processing procedures. There are grounds for reassessing the reasons for this inspection in New Zealand's case and for considering better use of scarce resources. Other countries may wish to consider the New Zealand model in ranking their public health priorities. As the Codex Alimentarius Commission considers its work on food safety objectives (and the Codex Committee on Meat and Poultry Hygiene recommences work), there may be lessons with wider relevance than just their application to the New Zealand situation.

▪ RUSSIA-1

This paper describes the regulatory framework established in the Federation of Russia through federal laws and government decrees covering all aspects of food safety (i.e. the epidemiological population survey, food quality, health nutrition policy, food control, food registration, genetically

modified food, analysis and sampling methods). The creation of a computerized accounting system of results of food safety monitoring is also noted. The Russian Federation proposes the establishment of a Joint FAO/WHO Expert Committee at the international level to review and classify the different sources of production and application of genetically modified food and related standard acts. It is suggested that the scope of this Committee be broadened in the future to evaluate all new industrial technologies and biotechnologies applied to raw materials and food products. The Russian Federation has also proposed the creation of an International Center of Analysis of Food Products under the joint responsibility of FAO, WHO and other appropriate international organizations. This Center would also include a “fast-response group” to face food safety emergency situations and collect and publish in a worldwide database all data relating to contamination of food and food rejections in order to prevent trans-boundary food hazards.

▪ **SENEGAL-1**

This document presents the food safety regulatory framework presently in force in Senegal, including the various national competent authorities responsible for the control and inspection of domestic and imported food. A list is presented of national laws and decrees which establish basic principles and structures such as the National Codex Committee. The paper recommends that more resources be allocated to food quality promotion and control; that food safety legislation be reviewed, harmonized and updated; and that food control authorities be evaluated and reinforced. It also raises the need for quality assurance manuals for the control of pesticide residues in food to be established and distributed to official laboratories. The paper calls for improved regional coordination among countries of West Africa in harmonizing their national food legislation in order to share resources and strengthen regional capacity building. The need for staff training in food control services and national laboratories is also stressed.

▪ **TURKEY-1**

In Turkey, responsibility for food safety is shared between the Ministry of Health (MH) and the Ministry of Agriculture (MARA). The MH inspects food production establishments, issues working licenses and conducts inspections of food sold on the market as well as food catering establishments. The MARA inspects food products produced in these establishments and is responsible for food control of imports and exports. The responsibilities of the two ministries are given in the Main Food Law and they are supported by their own regulations. Within the harmonization process of the European Union, the national legislation on food is being revised for certain main topics such as official control of foodstuffs. The regulation of the MARA on Food Production, Consumption and Inspection of Foodstuffs, involved the introduction of HACCP principles and brought a new approach to the food inspection system. Codes of hygiene, in addition to HACCP systems are part of the new plans for the food control systems of the MH permitting greater efficiency and effectiveness in food control through cooperation with the MARA.

▪ **USA-1**

The U.S. Department of Agriculture’s landmark rule, the “Pathogen Reduction; Hazard Analysis and Critical Control Point Systems (PR/HACCP)” (1996) forms the cornerstone for the U.S. food safety strategy for meat and poultry products. However, the PR/HACCP rule did not extend HACCP concepts to slaughter. A new approach to food safety, the HACCP-Based Inspection Models Project (HIMP), was initiated. The new system enables establishments to fully integrate their production processes. Establishment employees conduct sorting activities based on initial anatomical and pathological examination of carcasses, followed by government inspection of each carcass and verification of the establishment HACCP and slaughter process controls. The U.S. Department of Agriculture contracted with an independent private corporation to measure the organoleptic and microbiologic accomplishments of the traditional inspection system in young chickens, market hogs, and young

turkeys. The Department developed new science based organoleptic performance standards from this data collection. Establishments in the HIMP initiative were provided flexibility in how best to meet those performance standards. Data collected in the project to date, by both the independent contractor and in-plant inspectors, show important improvements in both food safety and non-food safety conditions. The Department intends to propose the appropriate regulatory changes that adopt the new inspection system.

▪ **USA-2**

Americans consume an average of 234 eggs per person per year. Some of these eggs will contain *Salmonella enteritis* (SE) bacteria, capable of causing illness if the eggs are eaten raw or are used in foods not thoroughly cooked. Because eggs can become contaminated internally from the hen, many common egg-handling practices, (e.g. holding eggs and egg-containing foods at room temperature instead of under refrigeration, inadequate cooking and the pooling of eggs to prepare a large volume of an egg-containing food that is then subject to temperature abuse or inadequately cooked) are now considered to be unsafe. As a result, in an effort to reduce eggs as a source of SE illnesses in the United States, the Egg Safety Task Force is developing a regulatory plan to eliminate egg-associated SE illnesses. The Task Force is composed of designees of the Federal food safety agencies responsible for egg safety, including the Food Safety and Inspection Service, United States Department of Agriculture, and the Food and Drug Administration, United States Department of Health and Human Services. The plan developed by the Task Force is the basis for the new eggs and egg products inspection approaches and techniques described in this conference room document. After a large outbreak of *Escherichia coli* O157:H7 linked to fresh apple juice products in the western United States, FDA held a public meeting on juice safety that was attended by the Fresh Produce Subcommittee of the National Advisory Committee on Microbiological Criteria for Foods (NACMCF). Following discussions on how best to ensure the safety of juices, the NACMCF recommended the use of HACCP principles in processing juice. On April 24, 1998, FDA issued proposed rules to require (1) the use of HACCP for all juice and juice products, and (2) warning label statements on untreated fresh juice. The warning label statement requirement is currently in effect and the HACCP rule (published in final form on January 18, 2001) will become effective over the next three years, based on the size of the firm.

APPENDIX IX

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakech, Morocco, 28 – 30 January 2002

THEME AND TOPIC PAPERS

WITH SUMMARIES OF APPLICABLE CONFERENCE ROOM DOCUMENTS FOR

RISK MANAGEMENT

GF 01/04

SHARING INFORMATION ON NATIONAL EXPERIENCES IN THE GENERAL FIELD OF RISK MANAGEMENT

Paper submitted by the Delegation of France

It must now be acknowledged that food safety is a priority for consumers. They want safe, healthy food which will keep them healthy.

It is the responsibility of food safety authorities to meet consumers' expectations and to guarantee them a high level of health protection, by adopting the necessary measures.

Risk management is one of the essential tools for setting up food safety systems and it seems appropriate to share experiences in this field so that all the countries have access to information which will allow them to adopt the necessary measures to protect the health of consumers.

The subject of risk management is a broad one; the discussion group on "Sharing information on national experiences in the general field of risk management" is to discuss two specific topics in detail: "Reduction in foodborne hazards, including microbiological and others, with emphasis on emerging hazards" and "Integrated approaches to the management of food safety throughout the food chain". I would like to go beyond that in introducing the discussion group debates by touching on the various aspects of this subject and the ways in which risk managers and policy makers can approach it.

I. Firstly, what is risk management?

It is primarily one of the three aspects of risk analysis, the others being risk evaluation and risk communication. The Codex Alimentarius has adopted the following definition: risk management is the process of weighing up the various possible policies, taking account of the evaluation of risks and other factors involved in the health protection of consumers and the promotion of fair trade practices, and taking decisions accordingly, i.e. choosing and implementing the appropriate prevention and monitoring measures.

The management of food-related risk is therefore a political prerogative which involves balancing the recommendations formulated by the experts commissioned to scientifically evaluate the risks, and the resources of all types that social and commercial groups and manufacturers can set aside for dealing with these risks.

II. How can food safety regulators manage a known or future risk to protect the health of consumers?

1. By basing policies and measures adopted on an evaluation of the risks

This is not merely a recommendation but a duty for member countries of the World Trade Organization (WTO). The WTO Agreement on the Application of Sanitary and Phytosanitary measures (SPS Agreement) states, in fact, that WTO members should base their sanitary and phytosanitary measures on risk evaluation.

It should be noted, in this respect, that risk evaluation is a scientific process consisting of stages of identifying and characterizing the dangers, then evaluating exposure to these dangers in order to characterize the risk (probability that the danger will be expressed in real terms).

Risk evaluation is a particularly important process in the case of new or emerging risks.

Example: 2-3 years ago import controls in France frequently detected germs of the genus *Vibrio parahaemolyticus* on shrimps. Up to that time the discovery of those microbes led to the implementation of protective measures (destruction of batches) owing to the pathogenic nature of *V. parahaemolyticus* (one of the major causes of gastroenteritis from seafood). The discovery of an increase in the appearance of this germ led the risk manager to order a risk evaluation of this specific problem. This evaluation enabled the risk manager to define his position as follows:

only strains of *V. parahaemolyticus* producing a toxin, haemolysin, are pathogenic;

V. parahaemolyticus microbes producing haemolysins can be detected by molecular techniques.

In the light of these conclusions, the risk manager altered his approach to the risk represented by *V. parahaemolyticus* as follows:

destruction of any batch contaminated by a strain of *V. parahaemolyticus* with a gene for haemolysin;

market distribution of other batches (on which non-haemolysin-producing strains of *V. parahaemolyticus* have been detected).

Risk evaluation should also help to achieve a high level of consumer health protection. It is therefore important for risk evaluation which, it should be remembered, is used to draw up food safety regulations, to meet several criteria:

excellence, i.e. a very high level of scientific expertise;

independence, i.e. the greatest possible objectivity, and in particular no interaction with economic lobbies;

transparency;

useful, available scientific and technical information as a basis.

In order to guarantee the independence and transparency of this high-quality scientific and technical information, some countries or regional interest groups have decided to separate risk evaluation from risk management, while considering interaction to be essential only from a pragmatic point of view. This strategy has, moreover, been recognized internationally since according to the Codex Alimentarius, there should be a functional separation between risk evaluation and management.

Example: In France, a scientific body, the “Agence française de sécurité sanitaire des aliments”- the French agency for food safety - (Afssa) was set up by law in 1998, with responsibility for evaluating the health and nutritional risks which could affect food intended for humans and animals, including possible risks from water intended for human consumption. It had the further task of providing the scientific and technical support necessary for drafting regulations.

This body has broad scientific powers applied to food safety, ranging from the production of raw materials (animal and plant products) to distribution to the end consumer.

It is organized around committees of experts specializing in nutrition, microbiology, biotechnology, transmissible subacute spongiform encephalopathies, physical and chemical contaminants and residues, animal feed, contact materials, additives, technological auxiliary substances and flavours, animal health, and water supplies.

The Afssa comes under the supervision of three ministries (agriculture and fishery; economy, finances and industry; and solidarity and employment); it issues independent scientific opinions.

In order to guarantee its independence, the members of its specialized expert committees were appointed after a public call for candidates.

Furthermore, along with 13 national specialized laboratories the Afssa constitutes a centre for research and technical support for French risk managers working in the field of food safety.

Risk managers work closely with the agency. It is compulsory to consult the Afssa on any change in regulations related to food safety, and the Afssa can propose any measure it considers appropriate to protect public health.

The Afssa is also a watchdog body which must be informative and transparent. Its opinions and recommendations are published. It has no powers of inspection.

2. The principle of precautionary measures, in the absence of sufficient scientific proof

There is, however, an exception to the obligation to base sanitary and phytosanitary measures on a risk evaluation. This allows governments to adopt sanitary and phytosanitary measures even when the risk evaluation is incomplete and to use precautionary measures to protect their citizens. The SPS agreement (article 5.7) states that in cases where relevant scientific proof is insufficient, a WTO member country may provisionally adopt sanitary and phytosanitary measures based on the relevant information available. Under such circumstances, the countries should then strive to obtain the additional information necessary for a more objective evaluation of the risk and should re-examine the sanitary and phytosanitary measure accordingly, within a reasonable time-frame.

Scientific uncertainty cannot, therefore, serve as an excuse for a decision-maker to fail to act in response to a food-related risk. Thus when a potentially dangerous and irreversible situation begins to emerge, but the scientific evidence is lacking for a full scientific evaluation, risk managers are legally and politically justified in adopting precautionary measures without waiting for scientific confirmation. It is, in fact, the responsibility of decision-makers to adopt the necessary measures to protect consumers. It should be noted once again in this respect that citizens are more demanding today than formerly as regards food safety. They give priority to health safety over other criteria which might have prevailed in the past, in a context in which the food supply is large enough to offer replacements.

In order to explain the concept of the precautionary approach, I am going to give an example of its use in the risk management of the dioxin crisis in Europe in 1999.

Example: *This crisis began in late May 1999, when the Belgian authorities alerted the European Commission and other Member States to serious dioxin contamination of certain products of animal origin.*

The affair had begun in Belgium a few months earlier, in February, with the appearance of unusual clinical signs in poultry stock. The investigations conducted by the Belgian services found that these symptoms were related to poisoning of the stock by dioxin probably present in feed, and identified the animal feed manufacturer concerned as well as the company which prepared the fat used in the feed, which was the cause of the problem.

The Belgian authorities then carried out traceability tests to determine the extent of the damage, informed the European Commission and other Member States, and decided to destroy all contaminated eggs and poultry.

Bearing in mind the recognized carcinogenic effect of dioxin and the absence of specific information on the extent of the contamination (dioxin concentrations 700 times the limits set by the World Health Organization had been detected by the Belgian authorities in some foods), it was necessary to adopt emergency measures even though the risk evaluation was incomplete in various aspects. Although the danger, namely dioxin contamination, was known,

- *the risk had not been identified precisely since few data were available concerning acceptable levels of dioxin in foodstuffs in cases of acute contamination by this type of contaminant. There was more documentation on chronic contamination, which is more familiar;*
- *the evaluation of exposure to the risk was incomplete. The exact extent of the contamination, based on information received from the Belgian authorities and supplemented by field studies and samples of products of animal origin gathered to determine the dioxin content, was not known. It should be noted in this respect that the analytical method for detecting dioxin residues is one of the most difficult to perform. 5 to 6 weeks are thus required for the analysis of a sample;*

The following precautionary measures were consequently adopted:

- *a ban decided by the European Commission on distribution within the community of products containing milk, eggs, meat and fat originating in Belgium;*
- *withdrawal and destruction of products of Belgian origin on French soil which could be contaminated;*
- *bearing in mind the introduction in France of two batches of fat suspected of originating from the Belgian company which prepared the fat used in the feed which caused the problem, a traceability study was conducted on French soil to detect stock which may have consumed feed likely to have been contaminated. The suspect flocks were subject to restrictive measures;*
- *withdrawal and destruction of products originating from suspect French stock.*

In accordance with the SPS agreement, the community decision to ban the distribution within the community of products containing milk, eggs, meat and fat from Belgium and the protective measures adopted with regard to French production were amended, then progressively lifted as more precise information became available on the identification of the risk and exposure to the risk (analytical results, scientific opinions).

To conclude, although the cost of this crisis was economically very great (384 flocks subject to restrictive measures, more than 9 million tonnes of animals and products of animal origin destroyed), it should be noted that the objective of the measures adopted, namely consumer protection, was understood and accepted by all parties involved. Consumers themselves were constantly kept up to date by decision-makers and did not lose confidence in the policy followed: they did not turn away permanently from the products affected by the crisis. Finally, no harmful effects of this contamination on human health have been identified to date, which tends to prove the effectiveness of the measures implemented.

The example described shows that the principle of precautionary measures is used in very specific cases in the field of food safety. The risk manager, i.e. the decision-maker, applies this principle when there is a major risk to human health and if all the data necessary to evaluate the risk are not available.

This approach, which is part of risk management, is not static, but evolves as additional scientific data become available within the framework of risk evaluation, in accordance with the provisions of the WTO SPS agreement. Although the application of a precautionary measure can temporarily cause commercial restrictions or hindrances, it cannot be described as protectionism since it is a tool which allows risk managers to implement temporary measures which can evolve as the availability of scientific data evolves, and which have as their sole aim the protection of the health of consumers, animals, or plants, a right recognized by the same agreement.

This is indeed the intention of the resolution adopted by the European Council at Nice. Member States of the European Union focused on setting out in this resolution the guidelines for the use of precautionary measures and management of their application by the relevant State authorities. They recognized that when a multi-disciplinary, adversarial, independent, transparent evaluation, based on the available data, has failed to yield a definite conclusion regarding the risk level, risk management measures must be taken based on a political assessment of the level of protection sought. They also stated that these measures must, where a choice is possible, represent the solutions that are least restrictive for trade, respect the principle of proportionality while taking into account the long- and short-term risks, and be re-examined in the light of evolving scientific knowledge. The Council then emphasized the importance of consultation and adequately informing the general public. It should also be noted that when dealing with a public generally reacting emotionally given the lack of scientific data concerning a risk or the uncertainty of the extent of the risk, the precautionary principle also aims to manage expectations as regards additional scientific information.

It should moreover be emphasized that health risks exist all over the world, they are amplified by the globalization of trade and can pose a serious threat to developed as well as developing countries which may be particularly vulnerable in this respect. The implementation of the precautionary principle should not therefore be confined to the most highly developed countries, but should also be perceived as a factor of development allowing the destructive consequences of potential major health incidents to be avoided.

3. The “farm to table” approach

To be sure of the safety of foodstuffs, all aspects of the food production chain in continuity must henceforth be considered, from primary production (including animal protection and health aspects) and the production of animal feed, to the distribution of foodstuffs to the end consumer. Each component may have an impact on food safety.

Examples: In the 1999 dioxin crisis in Belgium, the high levels of dioxin contamination in some products of animal origin were shown to be due to animals ingesting dioxin in their feed.

Elsewhere, the detection of salmonella in food can be caused not only by poor hygiene in agri-food companies, but also by salmonella contamination of the animals from which the foodstuffs are made.

Socio-economic changes over the last 30 years make for an integrated approach to food safety. The following are of particular relevance:

- the modification of production methods, transformation of sales and consumption of agricultural products;
- the increase in intensive methods and industrialization of stockbreeding, crops and the manufacture of animal feed;
- the appearance of new diseases, such as BSE, and the emergence of foodborne diseases (salmonellosis, diseases due to verotoxic *E. coli* strains for example);
- better consumer information and increased consumer demands, as well as the change in lifestyle (in particular the increased consumption of prepared meals);
- the increase in trade in foodstuffs, which has resulted not only in cheaper and more varied foods, but also in complicating the path taken by products from their place of production to the end consumer.

This integrated approach to risk management has a number of advantages.

The following lessons can be learned from the French experience of the subject. This approach facilitates the circulation of information, the implementation of decisions and the application of checks. It allows better coherence and greater effectiveness not only of epidemiosurveillance networks, i.e. the

gathering of information on human and animal diseases, but also of measures to control zoonotic diseases (salmonellosis for example) and food contaminant surveillance plans. This process monitoring approach has proved to be essential in the management of risks related to bovine spongiform encephalopathy: coherent monitoring from the farm (epidemiological surveillance) to distribution (traceability of meat), via the abattoir (withdrawal of specified hazardous material, for example).

Finally, this approach is one way of guaranteeing the traceability of foodstuffs and also of reassuring the consumer, at a time when consumer demands as regards food safety are increasing and confidence is falling (emerging diseases, extensive industrialization of the process, innovations and new technologies).

I will not dwell on this subject; it will be covered in the discussion group.

4. Traceability

Traceability is an essential requirement in guaranteeing food safety. When a danger threatens (for example food poisoning), the risk manager should be able to determine the food responsible, rapidly carry out a precise, targeted withdrawal of dangerous products, inform consumers or agents in charge of monitoring foodstuffs, go back along the whole length of the food chain if necessary to identify the source of the problem, and put it right. Traceability studies thus allow risk managers to limit exposure of consumers to the risk and thus the economic impact of the measures by targeting products at risk.

For it to be effective, the traceability system must involve all stages in the pathway, from the live animal or raw material to the product undergoing final processing, from stock-rearing to food sector companies via companies in the animal feed sector.

Example: All cattle in the European Union are identified. Animal movements within the EU can be followed on a computerized system called the ANIMO network. When the animals are slaughtered, the abattoir keeps a record of the animal's details and has a traceability system which allows it to trace the resulting carcasses to an animal. The carcasses are stamped to identify the abattoir from which they come. Furthermore, when meat is put on the market, it is accompanied by a document stating in particular the source establishment and the destination establishment. This type of system is present at each subsequent level of product processing.

5. Management of health risks in an emergency and in emerging risks

Despite the checks carried out by risk managers, incidents are always possible. To ensure consumer safety, it is important that risk managers are informed as soon as possible of an incident and have access to the most precise possible evaluation of the risk in order to be able to implement the necessary measures and avert the danger.

Health surveillance is thus vital, and within this framework the circulation of information is essential. Sources of alarms can be varied. I could mention monitoring services at departmental* or central level, production or distribution companies, the embassy of another country, or an international organization, or in the particular case of the European Union, the rapid warning network. A Member State which learns of a serious anomaly in the field of food safety can use the rapid warning network to warn all the other Member States and the European Commission so that they can rapidly assess any danger to which they may be exposed.

Scientists, the media, and consumer associations are also sources of warnings.

Furthermore, managing health risks in an emergency or emerging risks requires good cooperation between the monitoring services in charge of food safety and effective procedures for withdrawing suspect products from the market.

* Relating to an administrative region or “département” – Translator’s note

Example: In France, a health surveillance provision was set up by law in 1998. It involved creating the Institute of Health Surveillance (IVS) which relies on interregional epidemiology cells and departmental* directorates of health and social affairs. The IVS has 3 tasks:

- health surveillance and observing the health of the general population;
- issuing warnings and recommending all appropriate measures to risk managers;
- identifying the cause of a change in the health of the general population, in particular in an emergency.

This is the provision whereby, for example, groups of cases of human listeriosis can be identified and action coordinated as rapidly as possible between all the authorities responsible for risk management (the Ministry of social affairs and employment, the Ministry of agriculture and fishery, the Ministry of the economy, finances and industry) to identify the food responsible for the infection.

6. Taking account of socio-economic concerns

The implementation of regulations aimed at protecting consumer health can be effective only if the risk manager is aware of the resources that companies and manufacturers can set aside for managing risks. One recommendation is thus to bring together professionals involved in drafting regulatory texts to hear their opinions. This is what happens in France. Various bodies are involved, from the purely professional (national association for agri-food industries, trade unions, health defence groups) to the multi-disciplinary (National Food Council and National Consumer Council, for example).

It is recognized, in this respect, that in some cases risk evaluation cannot on its own provide all the information on which to base a risk management decision. In response to the expectations of the general public and consumers, other relevant factors should legitimately also be taken into consideration, notably social and economic factors (technical feasibility, economic impact), traditional and ethical factors (animal well-being) and environmental factors, as well as the feasibility of inspections.

III. What is the role of food chain professionals in risk management?

The first responsibility of professionals is the marketing of their products. They can participate in the policy to improve food safety in various ways.

1. Self-monitoring and company laboratory accreditation

Agri-food companies can monitor the health quality of the foodstuffs they produce by carrying out, on their own initiative, laboratory analyses of their products and by appropriate monitoring of the production processes: this is called self-monitoring. They can thus act immediately, where necessary, in advance of official checks, to remedy a health problem (for example, when a hygiene problem is identified).

These companies can use an external laboratory, or have their own analytical laboratory.

To give their analyses the necessary credibility, companies can seek accreditation of their own analytical laboratory. They can thus give guarantees of reliability and transparency recognized by the regulatory authority and by their clients.

2. Guides to good hygiene practice

In France, several production processes have guides to good hygiene practice recommended by the risk manager (French and Community regulations). These guides, produced by professional organizations and validated by the relevant authority on the scientific advice of the Higher Council of public hygiene of France, are based on the implementation of the HACCP system which defines methods for the monitoring and surveillance of specific identified risks.

* Relating to an administrative region or “département” – Translator’s note

3. The development of company certification

This is a voluntary system which involves having the quality management strategy of a company certified. Certification is carried out in France by an independent and accredited organization, such as the French Association for Quality Assurance (AFAQ). More than 1000 French industrial agri-food sites already have a quality assurance certificate resulting from the implementation of ISO 9000 standards. The association suggested by consumers between protecting the environment and the health of the general public has recently led companies to move towards environmental management systems (the ISOI 14000 procedure).

4. Product standardization

Standards signal the will to accept a number of commitments. Many companies are thus setting up technical reference systems which describe the characteristics of products, the manufacturing process or analytical and control methods, as a result of a voluntary strategy. This practice is well established in France; the French Standardization Agency (AFNOR) is coordinating the drafting of these standards.

5. Contribution to product traceability

This involves setting up and keeping up-to-date written procedures concerning information recorded and product or product batch identification, using appropriate methods, in order to trace the origin and determine the production and distribution conditions of these products or product batches.

Traceability is an essential component of product certification or quality assurance certification systems, and increasing numbers of French agri-food sector companies are putting it into practice.

6. Distribution

Self-monitoring and quality management systems can be set up at the distribution stage.

This is not an exhaustive presentation of the subject of risk management. It provides a number of pointers as regards the risk management tools available to food safety regulatory heads and professionals, with a view to meeting consumer concerns and expectations.

GF 01/9

REDUCTION OF FOOD-BORNE HAZARDS, INCLUDING MICROBIOLOGICAL AND OTHERS, WITH EMPHASIS ON EMERGING HAZARDS

Submitted by the United States delegation: Thomas J. Billy, Administrator, Food Safety and Inspection Service, U. S Department of Agriculture; and Dr. Bernard Schwetz, Acting Commissioner, Food and Drug Administration, U.S. Department of Health and Human Services.

1. INTRODUCTION

The ultimate risk management goal of food safety regulators is the control or reduction of food-borne hazards and in turn, reduction in the incidence of food-borne illness. Risk management involves weighing policy alternatives in light of available data and selecting and implementing appropriate control options for protecting the public health. To be effective, risk management strategies must be developed with a continual exchange of information by all interested parties, thus ensuring that the process and the strategies are considered transparent and are trusted. In addition, risk management strategies must continually change as new hazards emerge and as scientific and technological advances occur.

The kinds of measures taken to reduce food-borne hazards may vary from country to country and depend on factors such as the hazards of concern, the country's regulatory system, and food storage, preparation, and consumption practices. However, countries will most likely follow a similar set of basic steps to develop their risk management strategies, including identifying the problem, determining contributing factors, evaluating the risks, and selecting risk management measures that are feasible and should yield the best results. These similarities make it worthwhile for regulators to share experiences in developing risk management strategies and discuss ways in which this process may be improved.

2. RISK MANAGEMENT STRATEGIES

In the United States, a variety of risk management strategies are used by the Food Safety and Inspection Service (FSIS), which has jurisdiction over meat, poultry, and processed eggs, and the Food and Drug Administration (FDA), which has jurisdiction over all other foods at the federal level. Among these are regulatory measures, industry guidance, surveillance systems, and outreach activities such as industry training and consumer education.

Both FSIS and FDA have mandated Hazard Analysis and Critical Control Point Systems—FSIS for meat and poultry products, and FDA for seafood and fruit and vegetable juices. HACCP systems are mandated under regulations that are drafted, published for public review and comment, then finalized, taking into account the comments that have been received. Under HACCP, plants identify critical control points at which hazards can occur during their processes, establish controls to prevent or reduce those hazards, and maintain records documenting that the controls are working as intended. HACCP serves to clarify the respective roles of industry and government. Companies are responsible for implementing an effective HACCP program that ensures their products are safe. Government is responsible for verifying that the regulatory requirements have been met, that the HACCP program is working as intended, and that appropriate actions are taken when the HACCP critical controls have not been met.

The United States also has established performance standards for various food safety hazards and tests products to ensure these standards are met. For example, along with mandatory HACCP in

meat and poultry plants, FSIS has in place pathogen reduction performance standards for *Salmonella* that slaughter plants must meet. Such standards provide a basis for plants to calibrate their process control measures. FSIS also has established a 6.5-log pathogen reduction performance standard for *Salmonella* in cooked roast beef and cooked poultry. As another example, FDA has established a 5-log pathogen reduction performance standard in its juice HACCP regulation. Various pathogens have been involved in foodborne illness outbreaks associated with juices, and the processor determines which pathogen is the target of HACCP critical controls. Among the pathogens involved in foodborne illness outbreaks associated with juices are *E. coli* O157:H7, *Salmonella*, and *Cryptosporidium parvum*.

Regulatory requirements are an important, but not the only, risk management strategy available to food safety officials. Less formal than regulations, guidance to the industry can be effective in reducing foodborne illness risks. An example is the FDA's *Guidance for the Industry: Reducing Microbial Food Safety Hazards for Sprouted Seeds and Sampling and Microbial Testing of Spent Irrigation Water during Sprout Production*. This type of guidance, although not regulatory, is published for public review and comment. As another example, FSIS published guidance to industry on appropriate intervention measures to use to reduce the risk of *Listeria monocytogenes* (LM) from hot dogs and sliced luncheon meats.

Research is another risk management strategy. Research conducted by government, industry and academia on food safety hazards; data gathering; and technology development also are important in filling existing data gaps and in providing practical tools for detecting, controlling, and reducing foodborne hazards. Risk managers benefit from knowing how human pathogens grow, develop, and colonize in animals and how management practices on the farm may reduce the opportunity for these pathogens to contaminate fresh produce, meat, and other foods. They benefit from comprehensive data on the incidence of foodborne illness and what foods are responsible for these illnesses. And they benefit from having available new technologies such as improved diagnostic tests and vaccines that can be used as potential risk management strategies.

Education is another non-regulatory risk management strategy, and the United States has taken a farm-to-table approach to food safety education. Everyone has a responsibility for food safety, so education is aimed at those involved in producing, transporting, preparing, and consuming foods. For example, at the production level, food safety agencies are working with producers to develop and encourage measures to reduce hazards associated with animals presented for slaughter and fresh produce. The FDA has developed a *Guide to Minimize Microbial Risk in Fresh Fruits and Vegetables* that highlights production practices that will enhance the safety of fresh produce. An extensive outreach and education program for both domestic and international producers in these good agricultural practices is underway. Consumer education is an integral component of this risk management strategy and is provided through a variety of techniques. Methods include school-based educational campaigns, web sites, telephone hotlines, and safe handling labels. A consumer campaign, "Fight BAC!™," has emphasized four simple factors to keep food safe from bacteria: Clean, Separate, Cook and Chill, and has promoted these messages through the media and community-based education activities. Physician awareness programs have highlighted the importance of advising patients, particularly vulnerable patients such as pregnant women, the elderly, and individuals with compromised immune systems, about the impact of microbial hazards on their health.

Risk management strategies must continually change as new hazards emerge and new information becomes available. Regulators must be vigilant to trends in their own countries and abroad and must be open to new paradigms regarding pathogens. New pathogens such as *Salmonella typhimurium* DT104 have emerged in the United States. As another example, scientists learned relatively recently—that is, within the past several years—that *E. coli* O157:H7 is acid-tolerant, and the United States has had to adapt its risk management approach to these new findings.

Fortunately, new, effective tools are available to help keep pace with emerging hazards. For example, in the area of foodborne disease surveillance, the Foodborne Diseases Active Surveillance Network (FoodNet), a collaborative project among Federal, state and local governments, has been in existence since 1995. It currently involves 9 sentinel sites around the U.S., representing more than 25.4 million people. FoodNet provides national estimates of the burden and sources of specific foodborne diseases and includes studies designed to help public health officials better understand the epidemiology of foodborne diseases in the United States. In addition, public health officials are now better able to detect and rapidly respond to foodborne outbreaks through PulseNet—a national computer database that analyzes molecular fingerprints of foodborne pathogens. It has been used many times to link specific food products to specific human illnesses and to link what appear to be sporadic, unassociated cases of foodborne illness to a specific, single source. This enables public health officials at the Federal, State, and local levels to minimize the spread of outbreaks.

We are also seeing improved practices in areas such as steam pasteurization and carcass rinses used to remove pathogens from slaughtered carcasses and technologies to improve the safety of plant, seafood, egg, and dairy products. Irradiation has been approved by the FDA for a variety of food products. Government food safety policies encourage innovation by setting new food safety requirements, by guiding and conducting research that addresses the most critical data and technology gaps, and by implementing expedited reviews of new technologies and food-safety related food additives.

Two examples will be used to illustrate how the United States has used risk management strategies to successfully address food-borne hazards on fresh and processed products. The first example is *Listeria monocytogenes* (LM) in ready-to-eat products. The second example is *Salmonella* in raw meat and poultry products.

2.1 LISTERIA MONOCYTOGENES IN READY-TO-EAT PRODUCTS

The U.S. experience with LM is a very dramatic indication of how risk management strategies can have a significant impact on rates of human disease. It has been only in the past two decades that researchers have recognized the association of LM with foodborne illness, and the impact of the pathogen in terms of human health became clear during the 1980's following a series of outbreaks. Of particular concern is that certain subsets of the population—newborns, the elderly, patients with compromised immune systems—are particularly susceptible to *Listeria* infections. Infections also are a major concern in pregnant women. Even though symptoms may be relatively mild in the mother, the illness can be transmitted to the fetus, causing serious illness or fetal death. One outbreak in 1985 in the State of California resulted in 142 cases of listeriosis, including 46 deaths; 85 percent of the cases involved pregnant women. This particular outbreak was traced to LM in soft, fresh Mexican-style cheese, manufactured with contaminated milk. Data collected by the U.S. Centers for Disease Control and Prevention (CDC) in the late 1980's determined that cases of listeriosis were most often associated with soft, fresh cheese; undercooked poultry; hot dogs not thoroughly reheated; and food purchased from delicatessen counters.

2.1.1 How the issue was addressed

Increasing concerns about LM led U.S. food safety regulatory agencies to take several steps. FSIS and FDA stepped up monitoring and surveillance programs for LM. The agencies worked with processing plants to improve their sanitation procedures, and many companies implemented hazard analysis and critical control point (HACCP) systems to minimize contamination. Government agencies also developed and distributed educational materials on food safety for consumers and special populations at increased risk for listeriosis. As a result of these efforts, between 1989 and 1993, the rate of illness from LM declined 44 percent.

LM is a good example of how risk management strategies must be continually reevaluated as scientific and technological developments occur. In the fall of 1998, CDC reported an increased number of cases of illness due to a specific subtype of LM. The illnesses were associated with ready-to-eat meat products, and FSIS announced a number of initiatives to address the immediate problem. For example, FSIS advised meat and poultry establishments to reassess their HACCP plans to ensure they were adequately addressing LM. The agency provided guidance to industry on practices that have been used successfully by other meat and poultry establishments to prevent LM in ready-to-eat products. FSIS also developed an in-depth verification protocol that is carried out by an interdisciplinary team of experts to evaluate whether plants producing ready-to-eat products have reassessed their HACCP plans to adequately address LM.

In addition, FDA, in cooperation with FSIS, conducted a risk assessment of the potential relative risk of listeriosis from eating certain ready-to-eat foods. The risk assessment supported the findings of epidemiological investigations of both sporadic illness and outbreaks of listeriosis in that it identified pâtés, fresh soft cheeses, smoked seafood, frankfurters, and some foods from deli counters, as potential vehicles of listeriosis for susceptible populations.

In response to findings of the risk assessment, HHS and USDA published a joint action plan, which focused on those ready-to-eat foods identified in the risk assessment as warranting additional control measures. Eight action areas were identified: 1) enhance health care provider and consumer information and education efforts; 2) develop guidance for processors identifying post-process contamination controls; 3) conduct regulator and industry training; 4) redirect inspections and surveillance sampling to firms producing at risk products; 5) propose new regulations and revisions to existing regulations concerning LM controls; 6) enhance disease surveillance and outbreak response to detect illness outbreaks more quickly and accurately; 7) initiate projects with retail operations such as delicatessens and salad bars to study behaviors and practices that control the spread and growth of LM; and 8) coordinate research activities to refine the risk assessment, enhance preventive controls, and support regulatory, enforcement and educational activities.

2.1.2 Summary of Findings

Risk management strategies must be evaluated to determine if they are effective. In the case of LM, as mentioned earlier, actions taken in the 1980's did indeed have a positive effect—a 44 percent decline in illnesses between 1989 and 1993. The success of these efforts can also be evaluated in terms of meeting the food safety objectives stated in *Healthy People 2000*. *Healthy People* is an initiative coordinated by the U.S. Department of Health and Human Services that sets goals every 10 years for a variety of health concerns, including targets for the reduction of foodborne illness. The United States met the food safety objectives for infections caused by key food-borne pathogens stated in *Healthy People 2000*. The incidence of LM decreased from 0.7 cases of infection per 100,000 in 1987 to 0.5 cases in 1996. The target for 2010 is 0.25 cases per 100,000—a 50 percent improvement. However, this target date was changed to 2005 by a presidential directive issued in May 2000.

In addition to illness data, prevalence data collected between 1990 and 1999 indicate a downward trend in LM in ready-to-eat meat products, suggesting that industry has made significant improvements in plant sanitation and control of post-process contamination.

2.2 SALMONELLA IN RAW MEAT AND POULTRY PRODUCTS

Controlling pathogens in raw products required a change in the Nation's mindset about food-borne pathogens. The example provided for raw products focuses on meat and poultry products. Before the early 1990's, the pervasive attitude among industry, and even regulators, was that pathogens are a

natural part of the environment and should be reduced primarily by food preparers through cooking. As scientific support emerged for changes that would better address pathogenic microorganisms in both raw and processed products, there was a growing realization that traditional attitudes towards pathogens in raw meat and poultry products had to change. An outbreak of *E. coli* O157:H7 in late 1993, attributed to undercooked hamburgers, provided the impetus for that change.

2.2.1 *How the issue was addressed*

In 1996, FSIS published its rule on Pathogen Reduction and Hazard Analysis and Critical Control Point (HACCP) systems, which required all plants that slaughter and process meat and poultry to implement HACCP systems as a means of preventing contamination from pathogens and other hazards. The rule, like other HACCP regulations, was based on the principle that prevention must be the first line of defense. HACCP did not address any one particular hazard but provided a flexible framework that could be used to address various hazards.

To make sure HACCP systems are working as intended, the rule also set in-plant, pathogen reduction performance standards for *Salmonella*. This was unique because pathogen reduction performance standards had not in the past been applied to raw products. *Salmonella* was selected as the target organism because it was the most common cause of food-borne illness associated with meat and poultry products, it is present to varying degrees in all major species, and interventions targeted at reducing *Salmonella* are expected to be beneficial in reducing contamination by other enteric pathogens.

FSIS based the current performance standards on what it believed was achievable at that time with current science and technology. Specifically, FSIS proposed that the prevalence of *Salmonella* contamination in carcasses of each of the major species and in raw ground products be reduced by each establishment to a level below the current national baseline prevalence. FSIS collects such data for various pathogens through its Nationwide Microbiological Baseline Data Collection Programs. This was done with the expectation that the performance standards would be revised periodically as new baseline prevalence data became available that reflected progress in pathogen reduction. Ideally, FSIS would have preferred to set such performance standards based on quantifiable risk related to human illness. Unfortunately, because such data are limited, The agency decided to rely on prevalence data and industry averages as its starting point. As more microbial and epidemiological data are collected, more precise, risk-based standards can be established.

2.2.2 *Summary of Findings*

Progress in addressing *Salmonella* can be evaluated by looking at both product data and epidemiological data.

In terms of product data, the results of three years of testing—representing aggregate data from all sizes of plants—show that all categories of products showed improvement over baseline studies conducted prior to HACCP implementation. For example, 10.2 percent of young chickens tested were positive for *Salmonella* under HACCP compared to a 20 percent baseline prevalence. Ground chicken averaged 14.4 percent under HACCP, compared to 44.6 percent before HACCP. These were the most dramatic reductions.

In addition, since the implementation of HACCP, the CDC has reported a reduction in the number of food-borne illnesses associated with meat and poultry products, including *Salmonella*. Thus, experience shows that performance standards for *Salmonella*—in concert with other regulatory requirements—have worked extremely well.

As with LM, a variety of risk management approaches have been used to reduce levels of pathogens, such as *Salmonella*, in raw products. The Pathogen Reduction and HACCP rule also mandated standard operating procedures for sanitation and performance criteria for generic *E. coli*—an indicator of fecal contamination. Consumer education programs emphasize the importance of proper food handling in the home, including how to avoid cross contamination between raw and cooked products. And research is ongoing to determine ways to prevent the colonization of pathogens such as *Salmonella* in food animals.

3. CONCLUSION

These examples illustrate the challenges and opportunities presented by risk management. To conclude, some lessons learned over the last decade are provided here.

First, no single technological or procedural solution exists that can solve the problem of food-borne illness. Rather, food safety goals are achieved through continuous efforts to improve hazard identification and prevention throughout the farm-to-table chain. Risk management strategies must be continually re-evaluated to keep pace with technological and scientific advances. We must be flexible enough to accept new paradigms when it comes to reducing hazards.

Second, risk management steps can be taken in the absence of formal, quantitative risk assessments. In the real world, risk management steps must be taken on the basis of incomplete information and qualitative data and adjusted as new and more precise information become available.

Third, risk managers need to evaluate the effectiveness of their risk management strategies. This can range from data on pathogens in foods, such as the data on *Salmonella* in raw meat and poultry products collected over the past several years, to consumer surveys of the adoption of safe food handling practices, to public health outcomes such as reductions in food-borne illnesses. The value of such data is that they represent a baseline against which future efforts to improve food safety can be measured.

Fourth, risk management activities should be carried out through a transparent public process. The public consultation process used in the United States for the development of regulations, and the various educational campaigns for producers, processors and consumers, have been described. Public policy that is made without the input of all interested parties is doomed to fail. This does not mean that everyone gets what he or she wants, but the public process, which includes consideration of a sound scientific basis, ensures that all parties are heard. Making risk management decisions through a transparent process also ensures that public trust in the food safety system continues.

Fifth, and finally, government alone cannot solve food safety problems. Government agencies at the Federal, State and local level must work with each other and through partnerships with industry, academic institutions, and the public to implement strategies to meet intended food safety goals.

GF 01/10

INTEGRATED APPROACHES TO THE MANAGEMENT OF FOOD SAFETY THROUGHOUT THE FOOD CHAIN

*Stuart A. SLORACH, Deputy Director-General
National Food Administration
Uppsala, Sweden*

Introduction

Most countries with systems for recording foodborne disease have reported significant increases in the incidence of diseases caused by pathogenic micro-organisms in food over the past few decades. As many as one person in three in industrialized countries may be affected by foodborne illness each year and the situation in most other countries is probably even worse. Apart from the deaths and human suffering caused by foodborne disease, the economic consequences are enormous, running into billions of dollars in some countries. In Europe bovine spongiform encephalopathy (BSE, “Mad cow disease”) and contamination of food with dioxins led consumers to lose confidence in the safety of foods on the market, with severe economic consequences. In many cases, the origins of food safety problems can be traced back to contamination of animal feed or other factors in the early parts of the food chain, an area which until fairly recently had received scant attention from those responsible for food safety.

Confident customers

It is vital that consumer confidence in the food supply be restored and maintained, not by public relations exercises but by actually increasing food safety. Consumers should be able to assume that all food offered for sale is safe for its intended use. It shouldn't be necessary to ask the butcher if the beef is safe this week or the fishmonger if the oysters are safe today! Furthermore, food should be labelled in such a way that consumers can make an informed choice among the variety of products on the market. At the *Food Chain* conference, organized in Uppsala earlier this year during the Swedish presidency of the European Union, the vision for future food production was summarized as *Safe, sustainable and ethical*. Although much progress has been made in recent decades, all who are involved in trying to ensure the safety of the food supply should recognize that we have a long way to go before we can say we have reached this goal.

Risk analysis

The primary goal of food safety risk management is to protect public health from risks associated with food as effectively as possible through the selection and implementation of appropriate measures. Towards the end of the last century, there was a paradigm shift in the food safety area, with the introduction of a risk-based approach to food safety. In order to stimulate the application of risk analysis principles in food safety work, FAO and WHO jointly organized a series of expert consultations on the different components of risk analysis – risk assessment, risk management and risk communication. The second consultation, held in Rome in 1997, dealt with risk management and the report of that consultation contains recommendations on the elements and principles of food safety risk management (1). These recommendations have been used as the starting point for the introduction of risk analysis principles into the Codex system and they have also been used by many government agencies in developing food safety risk management at the national level.

General principles of food safety risk management

The FAO/WHO Expert Consultation recommended the following eight general principles for food safety risk management.

- Risk management should follow a structured approach.
- Protection of human health should be the primary consideration in risk management decisions.
- Risk management decisions and practices should be transparent.
- Determination of risk assessment policy should be included as a specific component of risk management.
- Risk management should ensure the scientific integrity of the risk assessment process by maintaining the functional separation of risk management and risk assessment. However, it was recognized that risk analysis is an iterative process, and that interactions between risk assessors and risk managers are essential for practical application.
- Risk management should take into account the uncertainty in the output of risk assessment.
- Risk management should include clear, interactive communication with consumers and other interested parties in all aspects of the process.
- Risk management should be a continuing process that takes into account all newly generated data in the evaluation and review of risk management decisions.

Responsibility for food safety

Primary responsibility for food safety lies with *those who produce, process and trade in food* – farmers, fishermen, slaughterhouse operators, food processors, wholesale and retail traders, caterers, etc. It is their duty to ensure that the food they produce and handle is safe and satisfies the relevant requirements of food law and they should verify that such requirements are met.

The main task of the *supervisory authorities* is to lay down food safety standards and to ensure that the internal control systems operated by food producers, processors and traders are appropriate and operated in such a way that these standards are met. In addition, the authorities should carry out certain direct control activities, for example import control, to ensure compliance with legislation and they should also provide information and advice on a wide range of food-related matters which can affect human health. In recent years, the organization of food control at the national level in many countries has been changed and a single agency has been given responsibility for the whole of the food chain from “farm to fork”. Such a system has many advantages and if responsibility is nevertheless divided among two or more agencies at the national level it is vital that there is close co-ordination between them. Similarly, if responsibility for food control is divided between central and local authorities, then it is important that the central authorities have the power to co-ordinate and audit the work of the local authorities.

Consumers are responsible for food hygiene in the home and for ensuring that food storage and preparation recommendations are followed. In addition, it is largely the consumers themselves who decide on the composition of their diet and poor dietary habits are major factor in the causation of food-related disease, especially in industrialized countries. In some cases we are “digging our graves with our teeth” when our intake of certain safe foods is much higher than our needs.

Holistic approach to food safety – the whole food chain and beyond

It is important that care is exercised throughout the whole food production-processing-distribution chain. Previously, food control often concentrated on the examination of end products and on inspection of food processing operations. However, in recent decades there has been a growing awareness of the importance of an integrated, multidisciplinary approach considering the whole of the food chain (and in some cases beyond what is conventionally regarded as the food chain). One result of this change in approach is a much greater awareness of the need for better control on the composition and safety of animal feed. In response to this the Codex Alimentarius Commission established an *ad hoc* Task Force on Animal Feed and in recent years the European Community has introduced much more legislation and control on animal feed. Another result of the paradigm shift is a realization of the need for much closer contact and more interaction between those responsible for food control and those responsible for preventing or reducing environmental pollution. Such pollution, for example with persistent chemicals such as mercury, PCBs and dioxins, can lead to food safety problems. Coupled to this there is now a greater emphasis on source-directed preventive measures. Some examples of this approach are given below.

Hazard Analysis and Critical Control Points (HACCP) approach

Food producers, processors and traders should operate according to the principles of Good Agricultural/Hygienic/Manufacturing Practices. Food production, processing and other handling operations should be analysed with a view to identifying hazards and assessing associated risks. This should lead to the identification of critical control points and the establishment of a system to monitor production at these points (i.e. the Hazard Analysis and Critical Control Point – “HACCP” approach). The introduction of HACCP-based in-house control may be difficult in small and medium-sized enterprises with limited basic knowledge, experience and resources and is probably best achieved by collaboration between the food industry, education and training organizations and the supervisory authorities. The Codex Alimentarius and its parent organizations FAO and WHO have produced useful guidelines and training and information materials on the application of HACCP in food control.

Prevention is better than cure

Different approaches may be used to try to ensure that the levels of contaminants in foods are as low as reasonably achievable and never above the maximum levels considered to be acceptable/tolerable from the health point of view. Essentially, these approaches consist of:

- measures to eliminate or control the source of contamination
- processing to reduce contaminant levels
- measures to identify and separate contaminated food from food fit for human consumption. The contaminated food is then rejected for food use, unless it can be reconditioned and made fit for human consumption.

In some cases, a combination of the above approaches is used, for example when emissions from previously uncontrolled sources have resulted in environmental pollution with persistent chemicals, which have then entered the food chain.

Previously, most systems for regulating food safety were based on legal definitions of unsafe food, enforcement programmes to remove such food from the market and the application of sanctions on those held responsible for contravening the regulations. Such systems have not been successful in dealing with previous or current problems and are unlikely to be able to deal with emerging risks. Control of final products can never be extensive enough to guarantee contaminant levels below established maximum levels and safety and other aspects of food quality cannot be “inspected into” food at the end of the production chain. In most cases, chemical contaminants cannot be removed from foodstuffs and there is no feasible way in which a batch of contaminated foodstuffs can be made fit for human consumption. The advantages of eliminating or controlling food contamination at source, i.e. *a preventive approach*, is that this is usually more effective in reducing or eliminating the risk of untoward health effects, requires smaller resources for food control and avoids the rejection of foodstuffs and resulting economic and other losses. The use of a preventive and integrated approach to the management of food safety throughout the food chain is illustrated in the following examples.

An integrated approach to the control of Salmonella in poultry

The prevalence of *Salmonella* in feed, live animals and animal products produced in Sweden is very low, less than 0.05% in beef and pork and 0.1% in poultry at slaughter. This has been achieved by a national control strategy which was initiated more than 40 years ago, following a severe domestic outbreak of *Salmonella* in 1953, involving more than 9000 people.

This integrated strategy, which is described in detail in a report (2) on zoonoses in Sweden, covers the different parts of the feed-food chain. The overall goal of the control programme is to ensure that animals sent for slaughter are free from *Salmonella*, thereby ensuring that animal products will be free from *Salmonella*. The strategies to reach this goal are as follows:

- To prevent *Salmonella* contamination in all parts of the production chain.
- To monitor the whole production chain: surveillance programmes for feed, live animals, carcasses, meat and other foods of animal origin are in place.
- If *Salmonella* is found, action is taken to eliminate the *Salmonella* infection/contamination. Any food item contaminated with *Salmonella* is deemed to be unfit for human consumption.

All isolations of *Salmonella* in humans, animals and food of animal origin are notifiable. In addition, findings of *Salmonella* in official samples of food of any origin are notifiable. All primary isolates of *Salmonella* are characterized by sero- and phage-typing the strains and isolates of animal origin are also tested for antibiotic resistance. In order to illustrate how the system works, some details of the measures taken in the poultry area are given below.

Since the frequency of *Salmonella* isolation in Swedish poultry flocks is very low, most of the measures in current control programmes are of a preventive nature. Four factors are of major importance to maintain this favourable situation.

- The breeding pyramid is kept free from *Salmonella*. All grandparent animals are imported and are quarantined and repeatedly tested negative for *Salmonella*.
- Feed is maintained free from *Salmonella*. The control consists of three parts: import control of feed raw materials, mandatory heat-treatment of compound feedingstuffs for poultry and an HACCP-based *Salmonella* control in the feed industry.
- High hygiene and biosecurity standards are in place, preventing the introduction of *Salmonella*.
- Measures are always taken in case of *Salmonella* infection in poultry.

An extensive sampling programme continuously monitors the *Salmonella* situation in poultry. In addition to sampling at the flock level, samples are also collected at all poultry slaughterhouses to monitor the end product.

Pesticides and veterinary drugs

Pesticides and veterinary drugs should be subjected to thorough testing and risk assessment prior to approval for use. In order to minimize the risk of high residue levels in food and also to avoid environmental pollution, they should be used according to the principles of Good Agricultural Practice and Good Veterinary Practice and only by persons who have received adequate training. In order to avoid the development of antibiotic-resistant micro-organisms, the use of antimicrobials in food production should be restricted.

Pesticide levels should be monitored in food (including drinking water) and feed to ensure that they do not exceed established maximum limits (MRLs) and the results of such monitoring should be made public. When residue levels above the MRLs are found, this should trigger increased control of products from the same supplier/grower and to remedial action. Likewise, the levels of residues of veterinary drugs in relevant foods of animal origin should be monitored and the results made public. When residue levels exceeding the MRLs are found, this should lead to an intensification of control and remedial action at the source of the problem, usually the primary producer.

Mycotoxins

The problem of contamination of feed and foodstuffs with mycotoxins, such as aflatoxins, ochratoxin A, patulin and trichotecenes, is best tackled by a systematic examination of the whole production, processing and distribution chain in order to discover the points at which contamination is likely to occur, so that appropriate preventive and control measures can be taken. In Sweden, control of aflatoxins in animal feed components and routine monitoring of aflatoxin M1 in milk back to the individual farmer has enabled us to ensure that aflatoxin levels in milk is kept well below our strict maximum limits. Detailed investigations of post-harvest handling methods have shown that in some cases relatively simple changes may lead to marked decreases in mycotoxin levels. Although a considerable amount of work has been done, there is a need for much more research on mycotoxins in order to provide a sound scientific basis for recommendations for both pre- and post-harvest measures. The Codex Committee on Food Additives and Contaminants (CCFAC) has developed and is developing codes of practice to reduce contamination of food and animal feed with mycotoxins, such as aflatoxins, ochratoxin A and patulin.

Persistent environmental pollutants

Previous emissions of persistent chemicals, e.g. PCBs, dioxins, mercury, cadmium, have led to contamination of foodstuffs, especially foods of animal origin, such as fish and a need for monitoring and control of some products to ensure that they do not contain levels above safe limits. In order to protect public health, my agency has also issued recommendations to susceptible population groups, for example women of childbearing age, advising them to restrict their consumption of certain fish species or fish from contaminated waters.

In order to reduce the levels of environmental contaminants, effective measures must be implemented to reduce emissions from industry and other sources. There are several international conventions aimed at reducing environmental pollution with persistent organic compounds. In recent decades such measures have resulted in marked reductions in pollutant levels in some foods and in human exposure to some environmental pollutants. For example, the levels of lead in human blood have dropped quite dramatically in countries where lead is no longer added to petrol. Likewise, measures to control pollution with dioxins and PCBs and a ban on the use of persistent pesticides, such as DDT, has led to a marked reduction in the levels of these substances in food and in human exposure, as measured by the levels in human milk. This is an example of an area where co-operation between the authorities responsible for food safety and environmental protection has borne fruit. The Codex Committee on Food Additives and Contaminants is developing a code of practice to reduce dioxin contamination of food

Revamping meat inspection

Current meat inspection methods are incapable of detecting the symptomless carriage of pathogenic organisms and many of the components of current meat inspection contribute little or nothing to consumer health protection. It is questionable whether it is worth spending limited inspection resources on routine examination for certain parasites in countries where they have not been found in domestic food animals for many years. The need to revamp meat inspection and make it more risk-based was recognized several years ago in, amongst other places, Australia and New Zealand and intensive discussions on this subject are also underway in the European Union. The Codex Alimentarius Commission has decided to start new work in this field and the Codex Committee on Meat and Poultry Hygiene will meet early next year to discuss the modernizing the current Codes of Practice on Meat Hygiene, including poultry hygiene.

Emerging risks – “Looking for trouble”

We live in a world with rapid developments in science and technology, but also of rapid changes in the risks posed by microbiological and chemical hazards. It is therefore important that agencies responsible for food safety have a “reconnaissance” or “intelligence” function with the task of detecting emerging risks. These risks could be due to emerging pathogens, for example pathogens resistant to a wide range of antibiotics, the use of new feed components, new industrial or domestic chemicals, new production, processing and handling methods or to changes in dietary habits. The detection of emerging risks is one of the tasks that will be assigned to the proposed European Food Authority.

Traceability

In order to be able to identify the source of food safety problems, it is necessary to have systems in place be able to trace a food product back through the food chain. Such systems are already in place in the European Union for some foods and legislation currently under preparation in the EU will introduce traceability as a general requirement. A good system for tracing food throughout the production and distribution chain is also valuable for the food industry and trade, since it should mean that recalls of faulty products can be restricted.

Improved monitoring of foodborne disease and risk assessment

A risk-based approach to food safety risk management implies that food control resources should be directed towards problems which pose the largest threats to health and where the potential risk reduction is large in relation to the resources used. In order to make our priorities risk-based, we need much better systems for following-up and reporting outbreaks of foodborne disease and better international co-operation in this area. WHO is making a major effort to improve the current situation. Furthermore, we need to spend more resources, preferably at the international level, to speed up and improve expert risk assessment of both microbiological and chemical hazards in food.

Transparency

One of the recommendations of the Expert Consultation on Risk Management was that the risk management process should be as open and transparent as possible. The work of the supervisory authorities should be carried out in a transparent manner, with open communication with consumers, producers, traders and other interested parties. One effective way of increasing compliance with food legislation is to make the results of food control activities public. This applies of course to inspection reports and results of control analyses carried out by the supervisory authorities. In countries where responsibility for food control is divided between different authorities, e.g. central and local authorities, it should also apply to audits carried out by national authorities on the food control work carried out by local authorities. In the European Union the European Commission's Food and Veterinary Office audits of the food control activities carried out in the Member States are available on the Internet and we welcome this approach.

Improving food hygiene in commercial catering and in the home

Hitherto I have dealt mainly with the early parts of the food chain: we must not underestimate the importance of the last part. In Sweden there are indications that a large proportion of the cases of foodborne disease are due to poor hygienic practices in restaurants and other commercial catering establishments and in the home. The food control authorities should ensure that those responsible for the operation of catering establishments train their personnel in food hygiene and that they operate in such a way as to be able to guarantee the safety of the food they serve.

The supervisory authorities also have a duty to try to improve consumers' knowledge about domestic food hygiene and to provide them with information to help them to make their dietary habits consistent with good health.

Recommendations

In summary, I would like to make the following recommendations aimed at increasing food safety:

1. Food safety strategies should be risk-based, giving priority to measures that have the potential to result in the greatest reductions in foodborne disease.
2. The follow-up and reporting of foodborne disease outbreaks should be improved and intensified in order to provide a better base for risk-based food control priorities and remedial measures.
3. An integrated, multidisciplinary approach to food safety should be adopted, covering the whole of the food production, processing and distribution chain. This implies increased control of animal feed and other aspects of primary production.
4. Food producers, processors and distributors should have in-house control systems based on the HACCP approach.
5. In order to decrease the risk of food contamination, a preventive approach should be adopted, tackling problems at source where possible.
6. Meat inspection should be modernized to make it more risk-based.
7. The results of food inspections and other food control activities should be made public.
8. The training of catering personnel and the education of consumers in food hygiene should be improved.
9. Improve contacts at the local, national and international levels between those responsible for food safety and those responsible for environmental protection and pollution control.
10. In order to decrease the risk of future acute food safety problems, food control authorities should assign resources to the detection of emerging risks.

References

1. Risk management and food safety. Report of a Joint FAO/WHO Expert Consultation, Rome, Italy, 27-31 January 1997. FAO Food and Nutrition Paper 65, FAO, Rome, 1997.
2. Zoonoses in Sweden, up to and including 1999. Ed. H. Wahlström. National Veterinary Institute, Uppsala, Sweden, 2001.

SUMMARIES OF CONFERENCE ROOM DOCUMENTS FOR THEME 2**RISK MANAGEMENT****▪ ARGENTINA-1**

The paper describes the 2001 Plan for the Control of Residues and Hygiene. This covers those chemical residues, additives, toxins and microorganisms that represent the highest risk for the consumer. Risks are classified according to two criteria: the hazard nature of a determined chemical in different food items and the consumption patterns of the population of those food items. It also describes the procedure for taking corrective action when a predetermined action level in an identified chemical has been exceeded and led to an excessive exposure of the population to risk. Corrective actions are taken throughout the food chain after having identified the critical entry points of the chemicals into the food.

▪ BURKINA FASO-1

The paper describes the food quality and safety objectives and experiences relating to management of food safety risks under specific projects. These projects include production and quality control of locally produced infant food and developing a food safety programme and quality control system. Results obtained show a reduction in cases of infant diarrhoea and adoption of codes of good hygienic practice. Difficulties relate to the low educational level of the mothers and indicate the need for increased awareness raising on the direct link between food safety and foodborne diseases. The paper identifies several specific actions that needed to be taken to improve the situation, including consumer education; review of food control system and of food safety regulations; implementation of food handlers education programmes; review and updating of food legislation and regulation; food legislation enforcement and monitoring programmes.

▪ BURKINA FASO-2

The paper describes a project to produce nutritious and safe infant food and follow-up formula by applying good hygienic practices, quality criteria by traditional and semi-traditional production units (woman/mother driven). Formulas are composed of cereal-based flours and enriched flours that are locally produced. Enriched flours lead to a reduction in cases of diarrhoea and showed an improvement in the nutritional status of infants and under-nourished children.

▪ CHINA-1

A fatal case of food poisoning caused by altered sugarcane was discovered in the 1970s in the northern part of China. Because of its unknown aetiology and the very high fatality rate, particularly among children, the case was considered one of the major food safety concerns in the country. The Ministry of Health in collaboration with academia conducted a series of field surveys, laboratory tests and clinical studies which led to the elucidation of the aetiology of this specific food poisoning. Based on the findings, specific control measures (i.e. to control the duration and condition of sugarcane storage) were promulgated at the central level and implemented by local health institutions: This resulted in a quick and efficient control of the food poisoning. China's experience in this case demonstrated that: 1) when food poisoning of unknown causes occurs, it is crucial to take proper action quickly and find out its etiology, followed by the development of specific control measures to be implemented by local health workers. This will result in a quick and efficient control of the food poisoning; 2) close collaboration between government food safety officials (risk managers) and

academic food safety experts (risk assessors), as well as between central government agencies and local government agencies is critical in solving food safety emergencies.

▪ CHINA-2

Avian influenza (AI) uniquely occurred in the Hong Kong Special Administrative Region (HKSAR) of the People's Republic of China via cross species transmission from live chickens to man. Twenty cases (1997 -1999) resulted for the first time, in six human mortalities. Mass depopulation of poultry from farms, wholesale and retail markets followed to prevent further AI infection in man and to avert a recombination between AI and human influenza strains. Consequently, the SAR government decreed mandatory the testing for H5-AI virus antibodies in all imported and local poultry prior to their release for retail; an end to overcrowding of animals in stalls; segregation at all levels of ducks, geese and quails from all other poultry; an improvement in levels of sanitation and the disinfection of poultry works and stalls. Long term considerations include the centralisation of slaughtering with a suspension on the supply of live chickens.

▪ ICELAND-1

The incidence of human campylobacteriosis in Iceland reached epidemic proportions between June 1998 and March 2000. The epidemic was almost exclusively due to an increase in domestically acquired infections, mostly traced to the consumption of fresh chicken. Prior to 1996 it was only permitted to sell frozen poultry in food stores, but with the change of regulations, fresh poultry was allowed and sales increased significantly. Interventions consisting of an educational programme for farmers; an extensive surveillance programme for *Campylobacter* in poultry; freezing all known *Campylobacter*-positive broiler flocks before they go to retail and extensive consumers education were implemented in the beginning of 2000. These measures have resulted in a reduction of domestic and total number of cases of campylobacteriosis between 1999 and 2001.

▪ IRAN-1

The development of food safety standards is handled by governmental bodies (e.g. Ministries of Agriculture, Health, Hygiene and Medical Education; Institute of Standards and Industrial Research) through a national food safety programme. National maximum residue limits have been developed (according to Codex norms) and applied during the investigation and monitoring of pesticides and heavy metal residues. A Mycotoxin Unit has recently been established and draft national mycotoxin standards have been developed and are at the final stages of approval. The current 4-year plan at the Iran Veterinary Organization (I.V.O) includes the establishment of a reference laboratory and the application of HACCP system in the production of foods of animal origin. This follows the successful introduction of HACCP in fish processing plants. On the other hand, FAO is assisting the Iran government in the management and control of veterinary drugs and pesticides residues in foods.

▪ JAPAN-1

Hydroponically grown radish (*Raphanus sativus*) sprouts served in school lunches were epidemiologically implicated as the causative vehicle of *Escherichia coli* O157:H7 in the largest outbreak which occurred in Sakai City, Japan, in 1996. Laboratory experiments suggested the possibility that *E. coli* O157:H7 had grown during the production of radish sprouts. In order to improve the sanitation level in radish sprout production, the Japanese Ministry of Agriculture, Forestry and Fisheries, in cooperation with the Ministry of Health and Welfare, developed a hygienic practice manual for radish sprouts production in October 1996, most recently revised in March 1998. The manual has adopted the concept of HACCP and identifies supplied water and seeds as critical control points (CCP).

▪ JAPAN-2

Japan has prepared an epidemiological investigation and reporting system for foodborne outbreaks at the national level in accordance with the Food Sanitation Law. After the experience of large outbreaks of *E. coli* O157:H7 in 1996, new measures were taken in various field to further improve the hygiene status of foods in Japan. Laws were amended, and new notices have been released. Strict hygiene practices have been introduced to abattoirs and meat processing plants, and long-term food saving program has been applied to institutional cooking facilities. Once enterohemorrhagic *E. coli* or *Salmonella* is isolated, they are subjected to genetic or serological typing, which also helps epidemiological investigations. Development of treatment and diagnostic agents has also been encouraged.

▪ MALAYSIA-1

Over a 35-week period (September 1998 to May 1999), 265 cases of viral encephalitis were reported to the Ministry of Health, Malaysia. The cases occurred in four localities, originating in the Kinta district of Perak and spread rapidly with the movement of infected pigs, causing 105 human fatalities. The infection, contracted through 'live' contact with body secretions, was initially treated as an outbreak of Japanese encephalitis, but proved positive for a new virus named 'Nipah' of the Paramyxovirus group of enveloped RNA viruses. Local and international controls of the outbreak followed. Evacuation and quarantine of infected farms, including the extensive culling of pigs, was implemented alongside institutionalised protocols regarding disease prevention and management. With the financial implications to the Malaysian Government and pig rearing industry including a ban in the export of live pigs to Singapore (since March 1999), the establishment of Bio-security level 4 has been approved by the Cabinet in the 8th Malaysia Plan.

▪ MYANMAR-1

Presently, Myanmar uses agro-chemicals on 80% of national food crops while maintaining significantly low pesticide residue levels (relative to MRLs established by the WHO/FAO Codex Alimentarius Commission). However, this is expected to increase with changes in the pattern of cropping for high rice production and with the extension of food crops. In the early 1990s Myanmar experienced food trade problems, having violated MRLs (national and codex) of Organo Chlorines (OCs), contained in insecticides used on national food crops. Bans and restrictions on the use and import of various OC insecticides followed, causing a decrease in levels, though present use is still high (10% of food crops). Furthermore, the use of Pyrethroids is increasing, while Aflatoxin (*Aspergillus Flavus*) contamination represents another serious food safety concern (present in Peanut, Chilli and Maize crops). Myanmar Agricultural Services aim to improve levels of food safety through the establishment of national MRLs, staff training, the upgrading of food safety facilities and through development of the residue and market surveys.

▪ PHILIPPINES-1

Alarmed by the emergence of food borne disease incidence, in 1998 the national government created the National Food Security Council through an Executive Order. Under this, a National Food Safety Committee was organized to formulate a National Food Safety Policy Program. Together with partner agencies, a consultative meeting was convened to discuss and formulate a framework for a National Food Safety initiative. Several issues were raised in the consultative meetings with the committee establishing the following recommendations: 1. the formulation and issuance of a national policy on food safety; 2. the review of critical areas within the food chain, unprotected by laws or regulations and standards; 3. the development of a comprehensive Food Disease Surveillance System; 4. the development of detection methodologies and assessment in the emergence of GMOs. Action plans are formulated to develop strategies for implementation in 3 phases, namely Phase I (2002-2004), Phase II (2005-2007) and Phase III (2005-2007).

▪ CENTRAL AFRICAN REPUBLIC-1

Brochure showing the very low nutritional status of the population in the country.

▪ SWEDEN-1

Sweden has achieved efficient control of Salmonella, despite the industrialisation of animal production. The prevalence of Salmonella in feed, live animals and animal products produced in Sweden is very low. In beef and pork it is less than 0.05% and less than 0.1% in poultry at slaughter. This unique position has been achieved by a national control strategy from feed to food, which was initiated more than 40 years ago. A severe domestic Salmonella epidemic during 1953, involving more than 9000 people of which a few died, demonstrated the need for a more comprehensive control programme.

▪ SWITZERLAND-1

The rate of Listeriosis incidents stabilised in Switzerland in the 1990s due to an endemic level similar to that of other industrialised countries. Between 1990 and 1993, 3 to 6 cases per one million inhabitants were declared yearly, however no grouped cases were noted. In most cases, persons suffering from an immuno compromised system with a severe underlying pathology, generally of the neoplastic type, pregnant women, neonates and the elderly were the most affected. The most onset symptoms were meningitis or encephalo-meningitis, septicaemia and pneumonia. The case-fatality rate among the declared cases was 20%.

▪ TANZANIA-2

An outbreak of cholera (vibrio cholera) around Lake Victoria (1997) led to an EU market ban imposed on all respective fish (Nileperch) exports. Opposed by Tanzania, Kenya and Uganda, the ban was justified on the grounds of the 'precautionary principle'. WHO risk analysis revealed that fish from the Lake did not pose a risk of cholera outbreak in Europe and a massive hygiene programme followed (under Recommended Codex Codes for fishery establishments and EU Directives), HACCP systems installed, resulting in a lifting of the EU ban. A second EU ban on Victoria Lake Fish imports (1999) regarded pesticide residues above tolerable levels, yet HACCP systems effectively ensured the safety and quality of fish products with multi-level awareness campaigns implemented. No Lake Victoria fish samples demonstrated the presence of pesticides residues, but over one year passed before the ban was lifted resulting in unrecoverable national economic losses. Consequently, compensation for retrospective economic loss and diligence in applications of the 'precautionary principle' are required at the international level.

▪ THAILAND-2

In Thailand, restaurants and street vendors can easily be found in not only the tourist areas but also in other communities in Bangkok and all other provinces. One reason is that there has been a decrease in the number of Thai citizens cooking at home possibly due to smaller families (comprising of two or three family members) and the increasingly fast-pace of city life with street vendors ready at their stalls by four or five in the evening with varieties of ready cooked foods for selection. Consumption of restaurant/street food is also made by thousands of tourists to Thailand each year. Since 1989, the Department of Health of the Ministry of Public Health together with the Tourism Authority of Thailand and the Ministry of Interior who is responsible for all local governments in provinces around the country, have joined forces in a project aimed at assuring the good sanitation of all restaurants and street vendors in Thailand. The "Clean Food Good Taste" Project directly benefits the people of Thailand while also reassuring tourists of Thai food safety. Until now, 5,377 restaurants (of 11,731 applied) and 3,045 vendors (of 6,843 applied) have passed the criteria and been awarded the Clean Food Good Taste logo to be displayed at their businesses. Thirty percent of the awardees are randomly chosen and

assessed twice a year. If good sanitation is not found, the award and logo will be revoked. The success of the Clean Food Good Taste Project is due to the application of four strategies: partnerships and co-ownership; quality assurance; sustainability and public awareness and involvement.

▪ UNITED KINGDOM-1

An outbreak of *Escherichia coli* (*E. coli*) O157:H7 infectious intestinal disease occurred in Central Scotland in late November 1996. A total of 496 cases were linked to the outbreak. In all there were 21 deaths of infected persons, although some were not as a direct result of the infection. All of those who died were elderly. The cause of the outbreak was traced to contamination of cooked meat at the butchers. Investigations revealed very poor food hygiene practices that allowed cross contamination between raw and cooked meat. This outbreak illustrates the importance of: a) Hazard analysis and implementation of control measures; b) Good management and staff training; c) Effective enforcement.

▪ VANUATU-1

The Republic of Vanuatu has delegated specific government agencies responsible for addressing consumer food safety (e.g. Department of Public Health, Vanuatu Quarantine & Inspection Services), who are authorised to implement necessary procedures through a series of current food legislative acts (e.g. the Food Control Act No. 21 of 1993, Meat Industry Act No.5 of 1991). These government agencies collectively form the Vanuatu National Codex Committee (est.2000), introducing Codex Alimentarius Standards as a guideline to overseeing national food safety issues. Financial difficulties, a lack of qualified human resources and inadequate testing facilities, have been identified as obstacles to the achievement of food safety contributing to a lack of available data on food-borne illnesses in Vanuatu. Further assistance from developed countries and donor agencies (e.g. FAO, WHO) in developing food safety legislation, capacity building etc. is required.

▪ WHO-2

Foodborne disease takes a major toll on health. Thousands of millions of people fall ill and many die as a result of eating unsafe food. Foodborne disease have implications both on health and development. Numerous outbreaks of foodborne disease have attracted media attention and raised consumer concern. However, the major problems are hidden among huge amounts of sporadic cases and smaller outbreaks. Most countries do not have good reporting systems, and a realistic estimation of the true burden of disease is difficult. WHO estimates 2.1 million deaths from diarrhoea worldwide, mainly caused by contaminated food and/or water. It is estimated that annually up to one third of the population, even in developed countries, suffer from foodborne disease. WHO initiatives to develop better methods to evaluate the foodborne disease burden, including strengthening foodborne disease surveillance, will serve to address this issue in the future.

▪ CÔTE D'IVOIRE-2

The paper describes the national approach of the Côte d'Ivoire in the risk management of foodborne diseases and sets out basic needs (e.g. participation in the international standardization committee, WTO committees etc.) and orientations taken at the national level to ensure safer food, both for the domestic market and for foods for export. Assuming that the position of the international community is to implement an international risk management approach in accordance with orientations taken by international standard bodies (i.e. Codex Alimentarius Commission) and to improve the health of all consumers (the majority of which reside in developing countries or LDCs), the following crucial facts must be considered : a) the adoption of a risk-based approach requires a good knowledge of risk analysis and its components; b) implementing these policies requires voluntary, co-ordinated actions and follow-up technical assistance; c) effective participation of representatives from LDCs and developing countries in international standardization bodies is necessary in order to express their specific concerns;

d) elaboration of international standards (e.g. Codex, OIE) should, without prejudice to the level of food safety, have immediate applicability for the majority of countries.

▪ **LIBERIA-1**

The designated national authority on food safety in Liberia, aims to increase public awareness of the risks of food poisoning and of preventive measures practicable throughout the food chain, in order to protect consumer health during consumption of Liberian food both nationally and internationally, whilst helping to maintain and enhance the reputation of Liberian food related industries. Liberia is constricted in its endeavours towards food safety by the absence of a national food analytical laboratory for food quality control, due to the war. Food safety and health protection of consumers have become international issues, forcing most developed countries to examine how they ensure the safety of their food supply. Liberia's integrated approach towards the management of food safety throughout the food chain involves: a) the education of consumers and of risk communication; b) the convincing of industry of its responsibility to produce and provide safe food; c) the development of an effective inspection service from farm to table; d) the aim that every Liberian food business recognizes the importance of food safety and makes it an integral part of their business.

▪ **MAURITANIA-1**

The paper describes national institutions involved in food inspection in Mauritania. As Mauritania is an important meat producing and consuming country in the sub-region, priority was given very early to pre-mortem inspection and post-mortem inspection. Having a large coast on the Atlantic, production of fish and fish products is important and directed to export markets. Inspection is carried out solely on fish intended for export. A national centre for hygiene is responsible for inspections of all foodstuffs intended for sale in Mauritania of animal and vegetable origin. Another body is in charge of the control of cereals and cereal products at entry points determined by law. The paper stresses that despite a significant lack of means, Mauritania is on the way to fostering food safety as a means to reducing food insecurity.

▪ **CANADA-3**

The food safety system in Canada operates in a multi-jurisdictional setting. At the federal level, the system is integrated by Health Canada and the Canadian Food Inspection Agency (CFIA). Within the government, co-operative federal/provincial/territorial structures are in place including targeted funding support from Agriculture and Agri-Food Canada (AAFC). Two major integrated food safety initiatives are described by the Canadian Food Safety Adaptation Program (CFSAP) and the Canadian On-Farm Food Safety Program (COFFSP). Canada is committed to implementing an integrated and science-based approach to enhance food safety. The overall strategy is based on shared responsibility, the use of Hazard Analysis Critical Control Point (HACCP) principles/practices and the introduction of leading technologies and detection methods within government and across the food industry. The goal is to enhance food safety in Canada and to maintain domestic and international recognition of the safety of Canadian products. Implementation of an integrated approach to enhance food safety has resulted in important lessons learned with respect to: the importance of the participation of partners/stakeholders from across the food continuum and the potential benefits such as improved lines of communication, the development of better regulatory policy and interventions and the efficient use of government resources; the practical challenges in working closely with partners/stakeholders to design and implement significant regulatory changes; the level of effort required by industry and other stakeholders to successfully implement changes; and the need for ongoing consultation with regulating staff as new skills and training may be required to meet emerging regulatory changes and the requirements of new science and technologies.

- **CI-1**

Consumers International supports the development of comprehensive "working principles for risk analysis," to support transparent food safety decision-making processes at both the international and national levels. Consistent, harmonized principles offer the promise of ensuring a high standard of health protection and food safety for consumers in all parts of the world, while avoiding creating unjustified trade barriers. The Codex Alimentarius Commission and several of its subsidiary bodies are currently developing consensus principles for risk analysis, and completion of that work is an urgent priority. Many opportunities for further progress in advancing risk management through sound principles are identified in this paper. They include spelling out more detailed principles for risk management of specific food safety problems, and expanding the Codex principles to make them useful as guidelines for national governments. A broader consensus is needed on clear principles for the application of precaution and on the roles of science and non-scientific other factors in food safety risk management. And the scientific advisory system on which Codex and many national governments rely for risk assessments needs to be expanded and improved, to increase the quantity and quality of risk assessments to keep pace with demand.

- **DENMARK-2**

Since the late 1980s Denmark has implemented three separate pre-harvest programmes to control salmonella in broilers, pigs and layers of table eggs respectively. The programmes differ in the methods employed and to a minor extent in their goals. However, in many important aspects they are very similar. First, they are all based on the credo that if at all possible, foodborne zoonoses should be controlled at source (i.e. on the farm). Their successful implementation has relied to a large extent on co-operation between the authorities and the industry and on the ability to make use of the industry infrastructure, including the ability to unequivocally identify farms of origin. The authorities have delegated responsibility for technical co-ordination of the programmes to committees with representatives from science, government bodies and industry. Secondly, there has been a close involvement of microbiologists and epidemiologists in the planning and implementation of programmes. The parties involved in the undertaking have shown willingness to accept recommendations for the use of novel techniques in routine monitoring, for example, the serological examination of meat juice or egg yolks for salmonella antibodies. Finally, the hallmark of the Danish salmonella programmes has been a very close collaboration between medical and veterinary epidemiologists and microbiologists in monitoring the effect of the programmes on the incidence of human infection.

- **EGYPT-1**

In Egypt food control functions are multisectoral. The Ministry of Health and Population administers food control through the Food Safety and Control Administration, the Institute of Nutrition and the Public Health Laboratories. These bodies act through ministerial laws and regulations; food inspectors; the Institute of Nutrition and public health laboratories (technically supervised by the Central Public Health Laboratories-CPHL). The Agricultural Department includes the Reference Laboratory for Safety Analysis of Food of Animal Origin; the Central Laboratory for Food & Feed; the General Organization for Veterinary Services and Egypt's Biosafety system and committee. The Ministry of Industry concerns itself with food safety through the standardization of food commodities; the Ministry of External Trade with food control activities for import and export and the Ministry of Supply with food inspections at local market level. The passing of one basic food law for Egypt is currently under review.

- **FAO-1**

In consideration of the complexity of food production; marketing and distribution systems, the multidisciplinary nature of problems of food safety and quality are best addressed at the multi-jurisdictional government levels, and at the international level through the intergovernmental fora of the Codex Alimentarius Commission (Codex) and its committees. At national levels, the administration of

'integrated' food control systems is considered to be the best structure to meet challenges related to food safety, operating as the interface between Government and the various stakeholders. In consideration of the limited function of traditional food systems, developing countries are encouraged to increase their level of participation in Codex work to benefit from the interaction with other countries on issues related to food safety and consumer protection. The FAO/WHO publication, *Assuring Food Safety and Quality: Guidelines for Strengthening National Food Control Systems* which presents these views will shortly become available.

▪ IIR-1

The International Institute of Refrigeration (IIR) supports sustainable development through its involvement in risk management and capacity building involving all refrigeration stakeholders. The establishment of reliable cold chains is recommended with the introduction of Maximum Recommended Temperatures (for food storage and distribution), the use of air-temperature measuring instruments in the improvement of cold chains and implementation of temperature traceability. Stricter monitoring of interfaces between links in the cold chains and of measures governing foods prone to contamination with psychrotrophic bacteria are also recommended, as is incorporation of the HACCP approach for training food safety regulators in good refrigeration practice (and vice versa). The IIR is currently revising the Code of Practice for the Processing and Handling of Quick Frozen Foods of the Codex Alimentarius (Joint FAO/WHO Food Standards Programme) as requested by FAO.

▪ MALI-1

The paper describes the national food control and inspection system and its objectives. This control programme is focused on all imported foods. Conformity assessments are carried out not only on aspects relating to importation/exportation documentation, standard requirements but also on sanitary characteristics (food safety) of foodstuffs (microbiological quality, chemical and biochemical safety etc.). Food industries within the country are subject to regular inspection. In practice, frequency is highly variable and often less than the legal provision of once a year. In 2001, a National Health Laboratory Study showed that 80% of samples taken in small-sized food industries and restaurants did not conform to microbiological standards. However, approximately 10% of all food samples and 23% of water samples were not satisfactory in terms of physico-chemical or bacteriological standards. The paper stressed the importance of educational programmes of food handlers and consumers, through the national network of NGOs and radio-television programmes. Human resources involved in food control and inspection are few, relative to the national area requiring coverage, thereby resulting in insufficient controls of food imports. It is also noted that food contamination is reported from street-vended foods delivery points (gargotes) that are under the decentralized hygienic supervision of municipalities.

▪ NEW ZEALAND-1

This paper outlines the application in New Zealand of a risk-based approach to food safety. It focuses on four key areas within the overall system in place in New Zealand: the roles within the government's regulatory model, the risk management framework, legislation, and measuring the regulatory system's performance. The New Zealand government has taken a partnership approach with food operators, assisting sectors to develop the tools they need to meet the mandatory outcome standards. These include templates and codes of practice to assist operators to implement HACCP-based systems and risk management programmes. The approach has proven successful in contributing to the overarching goal of the food safety regulatory system by ensuring that food reaching the consumers is safe and fit for consumption. The challenges for the future are to further expand application of this approach across the entire food sector and to measure performance of the system.

▪ **SENEGAL-2**

The paper describes the national Codex Alimentarius structure in place in Senegal since 1983. The national food standardization policy is implemented within the Standardization Institute of Senegal (SIN) soon to be replaced by the Senegalese Association of Standardization (ASN). The focus of the new agency is to promote quality and develop quality marks for national products to be exported through certification. It will also implement anti-dumping measures and carry out the control of those standards which are being elaborated of mandatory application by law. The industry and private sectors are to be closely associated to ASN activities as well as consumer associations. The paper gives details regarding national bodies involved in quality management in Senegal. It is recommended that there be a) a standard harmonization be initiated taking those of the Codex Alimentarius as a reference in terms of food quality control; b) reinforcement of capacity building of national institutions (human and material resources), a laboratory network at national, regional and international levels; c) usage of harmonized methods of analysis and sampling; d) consumer information and education programmes; e) interaction and partnerships between public administration and private sector to establish a national quality cultural identity; f) creation of national food safety monitoring committees; g) support for the participation of national food safety regulators to international fora sessions, including Codex Alimentarius; h) focus prioritised on food import control in order to better ensure consumer protection in Senegal.

▪ **SLOVAK REPUBLIC-1**

Slovakian food legislation consists of the Food Act (No. 152/1995) on the basis of which individual directives of Slovakian Food Codex (approved by the Ministries of Agriculture and of Public Health) have been adopted. The Food Act controls food products through the Slovakian Veterinary and Food Administration which functions in cooperation with the Food Research Institute. The National Environment Monitoring Programme (launched 1992) includes the Partial Information System on Food Contaminants (PIS FC) which receives data from the Monitoring of Contaminants in the Food Chain (MCFC), with reliable analytical results guaranteed by the Center for Analytical Quality Insurance (AQA). PIS FC, MCFC and AQA are localised at the Food Research Institute which is responsible for their management and performance. The Slovak Republic bases its approach to risk management on the principles of the EU rapid alert system. A total harmonization of food legislation in line with EU food legislation is expected by the end of 2002.

▪ **SWEDEN-2**

In Sweden the use of antibiotics as growth promoters in animal feed has been prohibited since 1986. Anti-microbials may only be added to feed for veterinary purposes, and always subject to veterinary prescription. When antibiotics were withdrawn from animal feed in 1986 there were no noticeable effects on calves and fattening pigs. There were, however, initially effects on piglet and chicken health, resulting in an increased therapeutic use of antibiotics. Through various measures the health problems in pig and chicken production were largely solved within a few years and the therapeutic use of antibiotics decreased. Since 1988 animal health has constantly improved and the use of antibiotics for animals has decreased. The total use during 2001 was 34 percent of use during 1984.

▪ **UNITED KINGDOM-2**

Enter-net is the international network for the surveillance of human gastrointestinal infections, which monitors salmonellosis and Verocytotoxin producing *Escherichia coli* (VTEC) O157. It involves all 15 countries of the European Union, plus Switzerland and Norway and is funded by the European Commission. International travel and international trade in food play an important role in the occurrence of foodborne infections. Events in one country now have the potential to affect many others. A co-ordinated international response is required to control this threat. Through recognition of outbreaks and investigation, timely exchange of information between experts in different countries can lead to

effective international public health action. Exchange of data internationally can help eliminate potential vehicles of infection allowing authorities to concentrate their resources more effectively. For instance, if a rise in infection occurs only in one country it is likely that the source is in that country and not a result of imported goods.

▪ **USA-3**

The existing US scheme of food safety responsibilities, involving the Food and Drug Administration, US Department of Agriculture, Environmental Protection Agency and other government agencies, is based on laws and regulations that place responsibility for safety on those that produce, process, transport and store the food. In 1997, a new initiative to revamp the regulatory approach extended its scope throughout the food chain entitled, "From Farm to Table." The initiative was needed to address significant outbreaks of foodborne illness and increasing international trade, and was based on extensive consultation with all stakeholders. Actions that were taken to prevent and respond to foodborne illness involved improved recognition of foodborne illnesses and outbreaks; establishment of an outbreak response team; research on new technologies; development of good agricultural practices; food safety education; and increased federal-state partnerships. As a result, food safety is now seen as a shared responsibility between consumers, industry, and government at all levels with better-understood roles for each. Increased transparency and visibility have brought more resources, higher priority and incentives to implement the initiative.

▪ **ZIMBABWE-1**

Agriculture forms the base of the Zimbabwean economy, contributing 45% of export earnings and providing livelihood to over 70% of the population. Food safety is a problem of public health concern and is indicated by recurrent outbreaks of food related diseases. Food control is the responsibility of various government ministries and local authorities. Food control administration is weak due to fragmentation, inadequate resources and limited skills for food inspection. This paper highlights the major food safety challenges faced by Zimbabwe and the contributions through technical co-operation towards the establishment of a comprehensive food control system in Zimbabwe. The technical co-operation project funded by the Food and Agriculture Organization laid the foundation for the establishment of a National Food Control Authority, established policies and procedures for food import inspection and improved quality systems at the Government Analyst Laboratory which is in effect the National Food Control Laboratory.

APPENDIX X

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakech, Morocco, 28 – 30 January 2002

THEME AND TOPIC PAPERS

WITH SUMMARIES OF APPLICABLE CONFERENCE ROOM DOCUMENTS FOR

CAPACITY BUILDING

FOOD SAFETY CAPACITY BUILDING

G.D. Orriss
Director, Bureau of Food Safety and Consumer Protection
Canadian Food Inspection Agency

I. Introduction

Need and challenge stand out as the two driving forces associated with capacity building and technical assistance: the need for developing countries to improve food safety and quality measures and the challenges of meeting this need. This paper discusses the need for improvement of food quality and safety systems in developing countries in the context of food security, public health protection and international trade and examines means of addressing the associated challenges through new approaches in capacity building and technical assistance.

II. Food Security

It is important to place food safety and quality in the context of food security. In 2020, the world population will most likely reach 7.6 billion, an increase of 31% over the mid-1996 population of 5.8 billion¹. Approximately 98% of the projected population growth over this period will take place in developing countries. It has also been estimated that between the years 1995 and 2020 the developing world's urban population will double, reaching 3.4 billion². This overall increase in population and in the urban areas in particular, poses great challenges to food systems. Intensification of agriculture and animal husbandry practices; more efficient food handling, processing and distribution systems; and introduction of new technologies may all have to be exploited to increase food availability to meet the needs of growing populations. Some of these practices and technologies may also pose potential problems of food safety and nutritional quality and call for special attention in order to ensure consumer protection.

Rapid urbanization has led urban services to be stretched beyond their limits, resulting in inadequate supplies of potable water, sewage disposal and other necessary services in many countries. This scenario further stresses food distribution systems as greatly increased quantities of food must be transported from rural to urban locations in an environment that is not conducive to hygiene and sanitation. More than 800 million people are today hungry and malnourished with serious impact on growth and learning capacity of children and the ability of adults to lead fully productive lives. Moreover, most of these people are to be found in those parts of the world where such food as they have is often contaminated or adulterated, thus increasing the risk of foodborne illness.

The World Food Summit which took place from 13 to 17 November 1996 brought together close to 10,000 participants, and provided a forum for debate by world leaders on one of the most important issues facing world leaders in the new millennium - food security. The resulting Rome Declaration on World Food Security and the World Food Summit Plan of Action laid the foundations for diverse paths to a common objective - food security, at the individual, household, national, regional and global levels.

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and

¹ United Nations Population Division 1998. *World Population Prospects: The 1996 Revision*. New York.

² United Nations Population Division 1998. *World Urbanization Prospects - The 1996 Revision*. New York.

healthy life. In this regard, concerted action at all levels is required. It is important that each nation adopt a strategy consistent with its resources and capacities to achieve its individual goals and, at the same time, cooperate regionally and internationally in order to organize collective solutions to global issues of food security. In a world of increasingly interlinked institutions, societies and economies, coordinated efforts and shared responsibilities are essential.

Coupled with the need to increase the food supply is the need to provide safe food. Food safety is receiving more attention worldwide with the increasing incidence of foodborne illness, concern over known and emerging hazards, and an increase in the international trade in food. Unsafe food is a significant contributor to the burden of disease, particularly in developing countries. Approaches to ensure safety and quality of food therefore form an integral part of food security.

III. Public Health Considerations

Food safety issues vary from country to country, from developed to developing countries, and within these groups of countries as well. Many of the reasons why food safety is becoming a more important issue worldwide are most compelling in developing countries. Increases in population, the growth in the number of immune compromised individuals, increased urbanization, poor sanitation and inadequate potable water supplies generally pose greater challenges in developing countries than in developed ones.

Food-borne diseases are a worldwide problem of great magnitude, both in terms of human suffering and economic costs. The task of estimating with any accuracy the occurrence of food-borne diseases globally is truly formidable as in many countries surveillance systems are inadequate and occurrences are poorly recorded. It is estimated that almost 70% of the estimated 1.5 billion episodes of diarrhoea that occur in the world annually are directly caused by biological or chemical contamination in foods.³ Even when such diseases are not fatal, they severely increase the effects of poor diet owing to reduced intake, nutrient losses and mal-absorption, which may lead to mental retardation and physical disabilities.⁴

Estimation of the economic consequences of unsafe or poor quality food is complex. It involves consideration of the value of crops and animal products lost as a result of such contamination, value of rejections in the export trade, medical treatment costs, and the loss of output or earnings resulting from morbidity, disability or premature death.

Some studies have been carried out to assess the total costs incurred by society as a consequence of food-borne illnesses. In the USA alone, costs for loss in productivity due to seven specific pathogens have been estimated to range between US\$ 6.5 billion to US\$ 13.3 billion annually.⁵

Developing an effective strategy to reduce foodborne disease requires accurate reporting, epidemiological surveillance and information related to the potential hazards in the food supply. The absence of this information inhibits the implementation of effective food safety control measures and contributes to the failure of governments to commit the necessary resources to address the problems.

Food is also a good indicator of the state of the environment in which it is produced. Monitoring of environmental contaminants in food therefore not only assists in establishing appropriate food safety

³ WHO, 1998. Food Safety- A world-wide public health issue. Internet WHO Homepage <http://www.who.ch/>.

⁴ FAO/WHO 1984. "The role of food safety in health and development"- A Report of a Joint FAO/WHO Expert Committee on Food Safety.

⁵ Buzby J.C.,and Roberts T. 1996. ERS Updates US Foodborne Disease Costs for Seven Pathogens. *Food Review*, 19:3 20-25.

control measures, but can also give early warnings about the state of the environment, such as level of heavy metal contamination, to enable appropriate action for maintaining its productivity.

Food supply systems in developing countries are often fragmented involving a multitude of middlemen. This exposes it to various types of contamination and fraudulent practices. Besides the public health implications, adulteration and fraud are of significant concern. Considering that in developing countries, people spend almost 50% of their earnings on food, and among lower-income households this figure may rise to above 70%, the impact of such fraudulent practices can be quite devastating.⁶

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 foodborne 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 foodborne illness.⁷

IV. International Food Trade Considerations

The value of the world food trade in 1997 was about \$ 458 billion⁸, and is increasing every year, thanks to the expanding world economy, liberalization in food trade, growing consumer demand and developments in food science, technology, transport and communication sectors. International trade in food is also playing an increasingly important role in achieving food security for many countries. The benefits of international trade include the introduction of a wider variety of foods into markets thereby contributing to the availability of a broader choice of nutritious foods. It also provides food exporting countries with foreign exchange contributing to the economic development of those countries, and thus an improvement in the standard of living.

Access by developing countries to food export markets in general, and of the developed world in particular, will depend on their capacity to meet the regulatory requirements of importing countries. The long-term solution for developing countries to sustain or expand the demand for their products in world markets lies in building up the trust and confidence of importing countries in the quality and safety of the exported foods.

An examination of the recent food detentions of imported foods by the U.S. Food and Drug Administration indicates that many of the problems faced by developing countries are not related to highly technical or sophisticated requirements. At the top of the list are food hygiene problems represented by contamination of food with insects and rodent filth. Microbiological contamination comes next, followed by failure to comply with US low acid canned food registration requirements, and then labelling. Over 50% of the rejections are attributable to lack of basic food hygiene, and failure to meet labelling requirements. Dealing with these is well within the means of most developing countries and would go a long way in promoting export trade.

V. World Trade Organization

The Uruguay Round of Multilateral Trade Negotiations was concluded in April 1994 by the signing of the Marrakesh Agreement and it gave birth to a number of multilateral trade agreements to which all Members of the World Trade Organization, established in 1995, are committed. The Uruguay Round has been described as a turning point in the evolution of agricultural policy. For the first time, a

⁶ Malik R.K. 1981. "Food a priority for consumer protection in Asia and the Pacific region." *Food and Nutrition*, 7:2.

⁷ "A Global WHO Food Safety Strategy: Safer food for better health"

⁸ WTO 1998. WTO Annual Report 1998.

large majority of countries agreed to a set of principles and disciplines that will help to harmonize both national and international agricultural policies. The Uruguay Round achievement is contained in a series of agreements and ministerial decisions and declarations annexed to the Marrakesh Agreement, which established the World Trade Organization (WTO).

Two WTO Agreements are of particular interest from the perspective of food quality and safety as they introduce a measure of discipline to these areas in international trade. These are the Agreement on Application of Sanitary and Phytosanitary Measures (SPS Agreement) and the Agreement on Technical Barriers to Trade (TBT Agreement).

The SPS Agreement reaffirms that no Member should be prevented from adopting or enforcing measures necessary to protect human, animal or plant life or health, subject to the requirements that these measures are applied only to the extent necessary, are based on scientific principles and are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between Members where the same conditions prevail or as a disguised restriction on international trade. The SPS Agreement encourages Members to base their sanitary and phytosanitary measures on international standards, guidelines and recommendations, where they exist.

The TBT Agreement also recognizes international standards where they exist. It requires that technical regulations on traditional quality factors, fraudulent practices, packaging, labelling etc. (other than standards covered by the SPS Agreement) imposed by countries will not be more restrictive on imported products than they are on products produced domestically. Technical measures applied should not create unnecessary barriers in international trade, should have a legitimate purpose and the cost of their implementation should be proportional to the purpose of the measure. If the proposed measure is considered to violate the provisions of any of the two Agreements, it can be challenged and brought before the WTO dispute settlement mechanism.

There are significant challenges for developing countries related to the implementation of the SPS and TBT Agreements. To fully benefit from the Agreements, developing countries must improve their understanding of the Agreements and develop the necessary capacities to maintain their rights and meet their obligations .

The following is an overview of considerations related to capacity and technical assistance needs of developing countries related to their implementation of specific articles of the SPS Agreement:

Article 2 - Basic Rights and Obligations

Many developing countries face resource and capacity challenges to meet their rights and obligations under the SPS Agreement. The right to protect human, animal, or plant life or health goes beyond the potential trade benefits associated with adherence to the SPS Agreement. This right is consistent with the Rome Declaration on World Food Security which reaffirms the right of everyone to have access to safe and nutritious food and the fundamental right of everyone to be free from hunger.

Article 3 - Harmonization

Article 3(1) encourages WTO Members to harmonize sanitary and phytosanitary measures on as wide a basis as possible with international standards, guidelines or recommendations developed by international organizations, where they exist. These organizations include for food safety, the FAO/WHO Codex Alimentarius Commission; for animal health, the Office International des Epizooties; and for plant health, the International Plant Protection Convention.

Article 3(2) states that sanitary or phytosanitary measures which conform to international standards, guidelines and recommendations are deemed to be necessary to protect human, animal, or

plant life or health and are presumed to be consistent with the relevant provisions of this Agreement. However, even when developing countries base their standards and legislation on international standards, they frequently do not have the necessary capacities to ensure adherence to these requirements. They may, therefore, be unable to meet the sanitary measures and level of protection required by developed Member countries.

Article 3(3) allows Members to introduce or maintain sanitary or phytosanitary measures which result in a higher level of protection than would be achieved by measures based on relevant international standards, guidelines or recommendations if there is scientific justification, or as a consequence of the level of sanitary or phytosanitary protection that a Member determines to be appropriate in accordance with the relevant provisions of Article 5 (Assessment of Risk and Determination of the Appropriate Level of Sanitary or Phytosanitary Protection).

The lack of scientific and technical expertise in some developing countries, particularly least developed countries, however sometimes limit their ability to justify their measures based on an assessment of risk and to fully understand or challenge sanitary requirements introduced by other Members.

Article 3.4 instructs Members to play a full part, within the limits of their resources, in the relevant international organizations and their subsidiary bodies, in particular the Codex Alimentarius Commission, the International Office of Epizootics, and the international and regional organizations operating within the framework of the International Plant Protection Convention.

Again, developing countries may be at a disadvantage in that they often lack the resources and/or expertise necessary to participate effectively in the work of the international organizations. This can result in their limited input into the development of standards and a lack of ownership in the process. It can also inhibit harmonization with and implementation of the adopted standards, guidelines and recommendations in these countries.

Article 4 - Equivalence

Article 4(1) directs Members to accept the sanitary and phytosanitary measures of other Members as equivalent, even if these measures differ from their own or from those used by other Members trading in the same product, if the exporting Member objectively demonstrates to the importing Member that its measures achieve the importing Member's appropriate level of sanitary or phytosanitary protection.

Article 4(2) directs Members to, upon request, enter into consultations with the aim of achieving bilateral and multilateral agreements on the recognition of the equivalence of the specified sanitary or phytosanitary measures.

The development of equivalence agreements is facilitated where countries have the technical expertise, technical infrastructure and resources necessary to establish, implement and evaluate sanitary measures. This generally favours developed countries where such conditions exist and may result in less restriction for trade between these countries. Although limited in number, where such agreements have been developed, they can result in a shift of countries' import controls to foods from those developing countries that are unable to demonstrate equivalence. These situations may result in further marginalization of developing countries.

Article 5 - Assessment of Risk and Determination of the Appropriate Level of Sanitary or Phytosanitary Protection

Article 5 (1) directs Members to ensure that their sanitary and phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.

Many developing countries lack the technical expertise and/or resources to carry out an adequate assessment of risks. However, if their sanitary or phytosanitary measures are based on international standards, guidelines or recommendations, a risk assessment may not be necessary (Article 3.2). The inability to conduct risk assessments, however, prevents many developing countries from benefitting from the provisions of Article 3(3) and may impair their ability to challenge measures imposed by other countries or the consistency requirements related to those measures.

It is important that developing countries develop the capacity to assess risks and have access to the information on risk assessments of countries that impose sanitary or phytosanitary measures which are not covered by, or are more stringent than, international standards, guidelines or recommendations.

Article 7 - Transparency

Article 7 requires that Members notify changes in their sanitary or phytosanitary measures and shall provide information on their sanitary or phytosanitary measures in accordance with the provisions of Annex B to the Agreement.

For transparency, Members are required to notify SPS enquiry points and national notification authorities. However, many Members have still not notified any SPS or TBT measures, and have not identified enquiry points. In addition, Members who notify do not always provide all the information necessary to judge whether the measure in question could affect other Members' exports. Enquiry points need to be able to follow the activities of all the government agencies involved in SPS or TBT measures, and provide information to Members upon request. They can also serve as important sources of information for their domestic industry on changes in the regulations of important export markets.

Developing countries frequently face challenges in meeting their obligations related to the publication of regulations, the establishment of enquiry points, and the notification procedures required. Again, this relates to inadequate infrastructures, resource constraints and the lack of modern information technologies.

Article 9 - Technical Assistance

Under Article 9 (1), Members have agreed to facilitate the provision of technical assistance to other Members, especially developing country Members, either bilaterally or through the appropriate international organizations. Such assistance may be, *inter alia*, in the areas of processing technologies, research and infrastructure, including in the establishment of regulatory bodies. This assistance may take the form of advice, credits, donations, and grants, including for the purpose of seeking technical expertise, training and equipment to all such countries to adjust to, and comply with sanitary or phytosanitary measures necessary to achieve the appropriate level of sanitary or phytosanitary protection in their export markets.

Article 9(2) states that where substantial investments are required in order for an exporting developing country Member to fulfil the sanitary or phytosanitary requirements of an importing

Member, the latter shall consider providing such technical assistance as will permit the developing country Member to maintain and expand its market access opportunities for the product involved.

A number of problems exist with respect to the implementation of technical assistance to developing countries. The first is that many developing countries are not fully aware of the agreement of Members to provide technical assistance under the SPS Agreement and therefore do not request the assistance. The second is that many developed country Members do not take adequate initiatives in providing the necessary technical assistance.

Technical assistance provided to date has in many cases been inadequate to permit developing country Members to meet their obligations and accrue the benefits of the SPS Agreement. Substantial investment and a coordinated and concerted effort among developed country Members and the appropriate international organizations, international banks and other potential partners is needed if the real challenges faced by developing countries are to be addressed.

Article 10 - Special and Differential Treatment

As with other agreements from the Uruguay Round, the SPS Agreement contains provisions for special and differential treatment of developing country Members. Article 10(1) directs Members in the preparation and application of sanitary or phytosanitary measures, to take into account the special needs of developing country Members, and in particular of the least-developed country Members.

Article 10(2) provides for phased introduction of new sanitary or phytosanitary measures with longer time-frames for compliance by developing country Members so as to maintain opportunities for their exports.

Article 10(3) enables the SPS Committee upon request to grant developing member countries specified, time-limited exceptions in whole or in part from obligations under the Agreement, taking into account their financial trade and development needs.

Article 10(4) states that Members should encourage and facilitate the active participation of developing country Members in the relevant international organizations. While some support has been provided in the past, substantial financial commitments are necessary if developing country Members are to be able to fully prepare for and participate in the work of the relevant international organizations.

While many developing countries have successfully used international trade as a vehicle for development, many others have been left behind. The WTO Ministerial Declarations of 1996 and 1998 expressed concern over the marginalization of least-developed countries and certain small economies and asked the international community to make a particular effort to help them to take advantage of the opportunities offered by the international trading system.

For a number of countries, food safety considerations continue to be a top public concern to be addressed at the upcoming WTO Ministerial Conference in Doha this November.

VI. Capacity and Technical Assistance Needs

The food quality and safety systems and institutions of many developing and least developed countries suffer from a number of weaknesses which make them vulnerable in addressing food safety and quality issues. The weaknesses include all the basic elements of an effective national food control system including: basic infrastructure; national food safety and quality strategies and policies; food legislation; food inspection services; food control laboratories; effective participation in the work of international standard setting and trade related organizations; implementing quality and safety assurance

systems throughout the food chain; collaboration and cooperation of national and sub-national agencies; and scientific and technical expertise.

Improving the food safety and quality systems in developing countries requires a well coordinated and integrated set of actions. Capacity building and technical assistance needs include *inter alia* the following:

- ***Basic Infrastructure***

Strengthening food control systems requires considerable development in infrastructure. The setting up, equipping and maintaining of food control services, administration and laboratories requires investment. In many developing and least developed countries, investment in basic infrastructure including sanitation, potable water supplies and power supplies may be a prerequisite for addressing food safety and quality problems. In addition, substantial investment in information technologies is important to improve communication and access to relevant information.

- ***National Food Control Strategy***

Food control is by essence a multi-disciplinary activity that involves a number of government agencies as well as the food industry, consumers and academic/research institutions. It requires a method of close collaboration among all these participants with clearly defined responsibilities for each in order to make effective use of all existing resources. It should have clear objectives with a well designed plan and with operational responsibilities defined for all components of the system. It should have a monitoring provision that enables the evaluation of the effectiveness of the strategy on a continuing basis so that adjustments can be made as necessary.

Quality and safety of food have to be addressed throughout the food production, processing, storage and distribution chain. This is a multi-sectorial activity and its objectives cannot be reached without the active cooperation of producers, traders, industry and government and also the involvement of the scientific community. This can be achieved through a well-conceived national food control strategy developed with the support of the various participants. The strategy clearly lays down the role of governmental agencies, the food industry, and consumers and establishes mechanisms for cooperation and the means of dealing with existing or emerging food safety and quality challenges. It also ensures that available manpower and financial resources are utilized in a co-ordinated manner to achieve optimal results.

Leadership is essential to promote the development of a comprehensive food safety policy. Leaders must be able to convince government, industry at all segments of the food chain, and consumers of the need for support and the benefits that will accrue from improvements to food safety and quality systems.

- ***Food Legislation***

In many developing countries adequate food legislation does not exist. The establishment or updating of food laws and regulations is a necessary first step in establishing an effective food control system. This work should be carried out by a competent team of experts in food legislation and food regulatory requirements and should take into account, in particular, the obligations under the WTO, SPS and TBT Agreements. Attempts should be made, where possible, to base food safety and quality requirements on the standards, guidelines and recommendations adopted by the Codex Alimentarius Commission. There are further, specific needs of consumers and food producers, local sanitary constraints, cultural habits and other considerations, which should also be considered. Legislation

should be flexible enough to allow it to deal with developments in technology, emerging hazards, changing consumer demands, and new requirements for trade.

- ***Food Inspection Services***

Even when adequate food safety and quality legislation exists, the shortage of trained and adequately equipped inspection officials may compromise effective enforcement of the legislation. In order to be effective, food inspection officials should have well planned food inspection programmes, should understand their duties and responsibilities, and should maintain close collaboration with other food control services. This requires adequate management, training and equipment.

- ***Food Control Laboratories***

A sufficient number of adequately equipped food control laboratories, and trained analysts using acceptable analytical methodologies are required to support the monitoring, compliance and enforcement activities of the food inspection services. The overall quality of the work of the laboratory should be addressed by implementation of an analytical quality assurance system that meets international standards.

- ***Participation in the work of international organizations***

In order to input to and benefit from the work of international organizations such as the Codex Alimentarius Commission, many developing countries must strengthen their ability to participate effectively in these organizations. This frequently requires capacity building in the public, private and consumer sectors and may also involve coalitions around issues of mutual regional interest. This can be accomplished by establishing national Codex committees that are able to prepare national positions related to the work of the Commission and that can consult regionally.

- ***Implementing Quality and Safety Assurance Systems in the food industry***

In all countries the food industry bears the responsibility of meeting food quality and safety regulatory requirements and all segments of the food chain have responsibility for establishing food safety and quality controls. The industry needs to be trained on the application of good agricultural, hygienic and manufacturing practices and the use of the Hazard Analysis Critical Control Point System. There is a concurrent need to train official food control inspectors in these approaches and in systems of inspection and audit. Interaction and cooperation between industry and government on food control matters frequently needs to be strengthened to address food safety and quality throughout the food chain.

As a first step in addressing food safety and quality issues, there is a need to develop good agricultural and on farm food safety practices. Establishing controls for production practices, the application of pesticides and veterinary drugs at the production level, and prevention of contamination of crops by contaminated water or environmental contaminants should be included in these practices.

- ***Collaboration and Cooperation of Control Agencies***

Frequently, a number of different agencies have responsibilities for aspects of food safety and quality. It is important that all agencies involved in food safety and quality, including all national and sub-national government agencies, work in an integrated and coordinated manner to ensure adequate control of all aspects of food safety and quality throughout the food chain and to maximize the impact of limited resources.

Food safety systems may differ in focus from that of animal and plant health systems; however, there are important opportunities for cooperation as there are strong linkages among the three systems. First, some animal diseases are zoonotic and can be transmitted to humans, so improving animal health is frequently linked to food safety. In addition, the use of veterinary drugs, if not adequately controlled, can have implications for food safety as the residues may be present in food. Similarly, some plant diseases or inadequate control measures involving the regulation and application of pesticides may result in unacceptable residues in food. Second, similar regulatory approaches may be used to reduce risks in all three areas, so developing food control systems to address all three has some economies of scope. Third, improvement in all three areas may be a prerequisite for entering international trade, and thus need to occur simultaneously. Fourth, all three areas fall under the SPS Agreement and thus are addressed in the same way in terms of the requirements for measures, dispute settlement, notifications, and enquiry points.

Developing an effective strategy to reduce foodborne disease is also facilitated through accurate reporting of foodborne illness, epidemiological surveillance and information related to the potential hazards in the food supply. This frequently requires investment of resources and strengthening of collaboration between health and agriculture ministries at both the national and sub-national levels.

Lack of coherence among different governmental activities concerning agriculture, food, fish, trade, industry and health does not achieve optimal results. Significant opportunities may exist for sharing of expertise, inspection resources, laboratory facilities and administrative support. This is important from the perspective of optimal utilization of limited expertise and resources.

- ***Scientific and Technical Expertise***

There is a need to develop capacity in most developing countries related to scientific and technical expertise. The development of risk analysis capacity is needed to meet the obligations of the SPS Agreement and to identify and prioritize food safety issues within these countries. Food safety measures introduced should be based on an assessment of risk and managed based on priorities both from a human health and economic perspective.

The need for scientific and technical expertise is particularly relevant with respect to the assessment of agricultural products derived through modern biotechnology. All new living modified organisms and their products should be subjected to a rigorous environmental, livestock feed and food safety assessment before they move into the marketplace. In addition, other obligations related to ratification of the Cartagena Biosafety Protocol will need to be addressed.

VII. New or Strengthened Approaches to Capacity Building and Technical Assistance

- ***Building Alliances***

Recognizing the need to assist developing countries in improving their food safety and quality systems, many international organizations, national governments, international and regional banks, and NGOs have undertaken various capacity building and technical assistance activities. While many of these activities have contributed to strengthening specific elements of food safety and quality systems, they frequently have not been coordinated or placed in the context of an overall food safety and quality strategy or development plan. As a result, many of these activities have been ineffective or inadequate in achieving optimal or sustainable results. In addition, many of the specific needs have yet to be addressed.

It is apparent that there is a need to improve the collaboration and coordination among various agencies involved in capacity building and technical assistance activities and where possible to develop alliances among the organizations to provide such assistance.

A number of collaboration and coordination efforts are presently underway at the international level. One such effort is the WTO Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries. This Framework is aimed at improving the overall capacity of least-developed countries to respond to the challenges and opportunities offered by the trading system. The WTO, UNCTAD, ITC IMF, World Bank and UNDP have established an Integrated Framework for the provision of trade-related technical assistance, including human and institutional capacity-building, for supporting trade and trade-related activities of the least-developed countries.

The Framework is intended to enable each agency involved to increase its efficiency and effectiveness in the delivery of trade-related technical assistance activities. The Framework will permit each agency to design and tailor its individual efforts to meet the needs of least-developed countries in the light of full information about the specific needs of each country and about current and projected activities being undertaken by other agencies in the area of trade-related technical assistance. It will allow the trade-related technical assistance activities of all the agencies to be properly coordinated, sequenced and synchronized.

This Framework could serve as a valuable model to consider in building more specific alliances related to capacity building and technical assistance in the area of food safety and quality systems.

The World Bank has a very important role in capacity building and technical assistance as it has expertise and experience in project design and management and thus is an obvious complement to the specific technical assistance expertise and experience of the international community. The Bank already has under way substantial programs to support developing country participation in upcoming WTO negotiations and has initiated a program to build implementation of WTO standards into regular development projects. Bank projects supporting SPS systems have typically placed these measures in a general development context of ensuring food security, increasing agricultural productivity and protecting health, rather than focusing on the narrower objective of meeting stringent requirements in export markets.

The Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) have extensive specific expertise and experience regarding the development of international standards through the Codex Alimentarius Commission and in providing technical assistance related to various food safety and quality measures. They also provide expert advice on food safety and quality matters through the Joint Expert Committee on Food Additives and the Joint Meeting on Pesticide Residues and through expert consultations on other related food safety and quality matters. Both FAO and WHO have also produced manuals on numerous elements of food safety and quality and have developed and delivered associated training programmes. Other international organizations and national governments involved in capacity building and technical assistance activities would benefit through closer cooperation and collaboration with both FAO and WHO in the planning and implementation of these activities.

FAO has recently proposed the establishment of a “Food Safety and Quality Facility for LDCs” to address food safety and quality concerns and to improve the competitiveness of their products in international markets. The Facility will require the establishment of a trust fund to support the rapid and sustainable upgrading of the food safety and quality assurance capabilities of LDCs. The trust fund would support projects to develop, rehabilitate, upgrade and sustain national food safety and quality assurance systems in the 49 LDCs, their compliance with international food safety and quality requirements and their participation in the international standard setting bodies. The resources of the Facility would consist of voluntary contributions from interested bilateral and multilateral donors. It is

estimated that the implementation of projects to achieve the objective of the Facility within three to five years would require, on average US\$ 2 million per country, or US\$ 98 million for the 49 LDCs.

Another interesting approach to capacity building is the Inter-American Institute on the Cooperation on Agriculture (IICA)/Ceres Executive Leadership Seminar in Food Safety: A Programme Designed to Promote Leadership for the Development of Comprehensive Food Safety Policy. This two year seminar program recognizes that leadership is essential to promote development of comprehensive food safety policy. The programme is designed to develop professionals in agriculture, health, and food safety systems (both public and private) into food safety leaders by providing critical information and expertise. The objective is to provide more effective management and improved food safety policies in the countries involved.

Numerous other capacity building and technical assistance initiatives continue to be undertaken by other international and regional organizations and bilaterally by individual countries and NGOs. Unfortunately, very often information available is not shared and activities are not coordinated. It is clearly apparent that improved coordination and collaboration is necessary in order to bring the resources, approaches and collections of expertise together in a way that maximizes the positive impact of the resources applied.

Capacity building and technical assistance related to food safety and quality are costly and therefore would benefit from the coordinated investment and collaboration of all agencies involved. To enable each agency to increase its efficiency and effectiveness in the delivery of technical assistance activities, specific mechanisms should be developed to improve communication, coordination and cooperation among these agencies. These mechanisms are needed to permit each agency to design and tailor its individual efforts to meet the needs of developing countries in the light of full information about the specific needs of each country and about current and projected activities being undertaken by other agencies. This could result in more focused assistance, improved coordination and sequencing, and synergism of activities.

There is a need for a regular review and evaluation of the technical assistance provided to individual developing countries. This review should involve all of the agencies involved and officials of the developing countries concerned. The purpose is to evaluate the effectiveness of the assistance provided in meeting its objectives and, if needed, to make any necessary adjustments in the approach.

- ***Communication and Exchange of Information***

One of the first steps in building alliance is the establishment of clear lines of communication between interested agencies to provide for the regular exchange of information related to technical assistance activities provided or under consideration. This communication would enable the agencies to avoid overlap and duplication and allow them to properly sequence and synchronize technical assistance in specific countries. This communication could take the form of regular meetings of involved agencies, an inventory of technical assistance needed, an inventory of technical assistance provided, a rosters of experts in various subject areas, compilation of resource or reference materials, information on training, workshops, seminars etc. Each agency involved could contribute to the information by establishing and maintaining a database, by country, of the technical assistance activities they undertake.

International organizations such as FAO and WHO would be well placed to coordinate this work and to develop the appropriate data bases to which each agency could input and access. The technical cooperation programs of all organizations involved could benefit from the information provided. The information would also be useful to the SPS Committee in reviewing the technical assistance needs and related activities of Member countries and international organizations.

- ***Needs Assessment and Country Profiles***

Capacity building should start with an assessment to identify the specific needs and to develop an optimal approach to meeting these needs. To enhance ownership and to ensure that the overall process is properly demand-driven, the needs assessment should be carried out by developing countries themselves. However, frequently developing countries may require assistance in completing their needs assessment and this could be provided by the appropriate international organizations. When preparing its needs assessment a developing country should actively involve all appropriate government departments, its private sector and appropriate non-governmental organizations.

The needs assessment process is facilitated by the development of a country profile that includes a review of existing legislation and regulations, food inspection activities and agencies involved, laboratory capacities, public health concerns, priorities for export access etc. The objective of the country profile is to obtain an overall appreciation of the needs for capacity building and technical cooperation broadly defined to include technical assistance and human and institutional capacity building, both in the immediate and longer term.

The results of this needs assessment would provide useful information on which to design a coherent and integrated approach for internal actions and external assistance to meet the specific needs of individual countries. Capacity building and technical assistance activities could then be based on the needs assessment and these activities could be prioritized, designed and sequenced to meet the specific needs most efficiently and effectively. The specific assistance provided should be coordinated by the international agencies and all other parties involved, taking into consideration the agencies' respective mandates, resources and expertise.

- ***Financing***

Each of the agencies involved should finance from its existing resources - or, as necessary, should seek additional finance from the international and regional development banks and donors with the active support of the developing country concerned, to implement the capacity building and technical assistance activities. Where resources additional to those currently available for technical assistance activities are required, they may be mobilized through bilateral and multilateral channels, including from both traditional and non-traditional sources. Where needs are broader in nature than the specific technical assistance activity, these could be submitted collectively for financing to the development banks and donor community.

- ***Technical Cooperation Between Countries***

Specific bilateral technical assistance has been provided by developed countries to developing countries in response to the technical assistance provisions of the SPS Agreement or in response to specific market access or developmental needs. Also many developed countries have specific agencies and programs for capacity building and technical assistance.

There have also been successes where the strength of one developing country has been matched with the needs of another with mutual benefit for both. The UN system has been encouraging this approach of Technical Cooperation among Developing Countries (TCDC). Food control can benefit from this approach, particularly in manpower development and capacity building. Emergence of a number of regional economic groupings, growing food security needs, and trading interests of many developing countries, have improved the scope for TCDC.

Such assistance, however, should be considered in terms of the broader framework of the developing country's overall needs. This assistance would also benefit by interaction and coordination with capacity building and technical assistance activities provided by other organizations.

Opportunities may exist to further develop this type of assistance through institutional cooperation programs between specific agencies, inspection services, laboratory networks, research centers, universities and other appropriate institutions of developed and developing countries. Under this arrangement, the institution of a developed country would be coupled with the institution in a developing country to assist in strengthening their capacities.

- ***Regional Approaches***

Whenever needs common to developing countries in a particular region can be identified, interested agencies should collaborate in providing appropriate technical assistance activities to meet these needs.

Opportunities for regional cooperation could include the establishment of regional training centers and programs, laboratories networks, risk analysis units, regional food safety and quality information repositories etc.

VIII. Conclusions

Many developing countries, especially the least developed, presently have neither the capacity nor the resources to fully face the challenges or take advantage of the opportunities flowing from the Uruguay Round. Strengthening the food safety and quality capacities of these countries is urgently needed in terms of improving food security, public health and international trade opportunities.

A concerted effort is required to meet the capacity building and technical assistance needs of developing countries. Action is required to improve cooperation and collaboration between the various organizations involved and to build alliances so that the available resources are optimally applied. International organizations such as FAO and WHO are well positioned to take leadership in building alliances, establishing frameworks for exchange of information, and coordinating capacity building and technical assistance activities related to food safety and quality.

GF 01/11

SUPPORT OF THE NETHERLANDS TO CAPACITY BUILDING IN DEVELOPING COUNTRIES

*Dr L.F. Hagedoorn
Ministry of Agriculture,
The Hague, the Netherlands*

1. Introduction

I would like to put the support of the Netherlands to capacity building in developing countries in the context of globalization and liberalization.

To start with globalization: especially during the last decade of the 20th century, consumer preferences have markedly shifted in the direction of higher quality products that are safe, authentic and produced under acceptable health, environmental and social conditions. This shift towards experience and credence attributes not only implies higher product standards, but also more emphasis on process characteristics. Markets have therefore changed from primarily bulk supply to differentiated products for a variety of consumers. Private business has responded quickly and introduced stricter standards in processing and more extensive labelling to communicate non-observable product attributes effectively to consumers. Since the Marrakesh agreement this process of globalization takes place in the context of rules established by the WTO. Although considerable progress has been made since the Second World War through various rounds of GATT negotiations in lowering explicit barriers to trade such as tariffs, only since the WTO trade in agricultural products came for the first time under the discipline of the multilateral trade rules. The most recent Uruguay round in particular resulted in significant commitments to liberalize trade. In particular, significant reductions in tariffs were achieved for tropical agricultural products that are of the greatest interest to developing countries.

Liberalization of agricultural markets has been on the agenda of policy makers and international organizations since the beginning of the 1980's. To a large extent this reflected the growing recognition that widespread government intervention in markets was much less effective than previously expected, while negative side effects resulted in misallocation of resources, reduced economic growth and often adverse impact on equity and environment. Gradually, policies in the industrialized world became increasingly oriented towards less government interference, and were characterized by a simultaneous shift from national to supranational regulations. Developments in Eastern Europe, the former Soviet Union and China took a dramatic change towards more freedom for individual and communal market participants. In much of the developing world, policy reforms under structural adjustment programs led to a redefinition of the government in relation to agricultural markets. As a result of these national and international developments, agricultural markets world-wide entered a long-term process of liberalization. As tariff barriers have declined, however, the emphasis placed on non-tariff barriers has increased, both due to the global proliferation of non-tariff measures and because of wider recognition of the impact non-tariff barriers can have on trade. There is now concern that such technical measures can act, either explicitly or implicitly, as a barrier to trade in a similar manner to tariffs and quantitative restrictions. This is a particular issue for developing countries in view of their lower technical capabilities and the importance of agricultural exports. Attempts have been made to overcome the trade distortive effects of sanitary and phytosanitary measures and technical requirements through the WTO's SPS and TBT Agreements.

It is evident that developing countries are constrained in their ability to export agricultural products to developed countries by SPS requirements. Indeed, a number of developing countries consider SPS requirements to be one of the greatest impediments to trade in agricultural products. This reflects the fact that developed countries typically apply stricter SPS measures than developing countries and that SPS controls in many developing countries are weak and overly fragmented. Furthermore, in

certain circumstances SPS are incompatible with prevailing systems of production and marketing in developing countries. As a consequence, wholesale structural and organizational change may be required in order to comply, and the associated costs can act to restrict trade in a similar manner to tariffs. The problems developing countries have in complying with SPS requirements reflect their wide resource and infrastructure constraints that limit not only their ability to demonstrate compliance. A particularly acute problem is access to appropriate scientific and technical expertise. Indeed, in many developing countries knowledge of SPS issues is poor, both within government and the food supply chain, and the skills required to assess SPS measures applied by developed countries is lacking.

This paper intends to show the efforts of the Netherlands to support capacity building in developing countries in order to overcome these institutional constraints.

2. Efforts of international organizations

Before giving this information I would like to give a short overview of efforts of international organizations to support developing countries to capacity building on food safety in order to put the efforts of the Netherlands in a proper international perspective. The Netherlands supports these efforts of international organizations.

To start with the FAO, the FAO assists efforts to strengthen the physical and institutional trade-related capacities of developing countries. Examples of such support include establishing or adapting legislation, regulations and systems to comply with the WTO agreements relating to agriculture; upgrading domestic SPS/TBT mechanisms to strengthen capacity to meet the standards and norms of the international market place. In particular the FAO assists in:

- the strengthening of national veterinary services to provide them with the capacity and skills to adopt and apply risk analysis techniques effectively;
- the development of national food legislation, taking into account the SPS and TBT Agreements;
- the establishment and strengthening of national food control systems for both imports and exports;
- the updating of national plant and animal quarantine programmes.

WTO, UNCTAD and ITC Secretariats, in collaboration with the staff of the IMF, the World Bank and the UNDP, have an Integrated Framework for trade related technical assistance, including human and institutional capacity-building, to support least developed countries in their trade and trade-related activities. The aim is to assist the least developed countries to enhance their trade opportunities, to respond to market demands, and to integrate into the multilateral trading system. Trade-related technical assistance activities may encompass institution building to handle trade policy issues, including enhancing capacities to make and implement trade policy consistently with WTO obligations.

Also the World Bank seeks to assist developing countries to find solutions to trade-related food safety problems. The World Bank can assist developing countries to formulate the necessary policy, regulatory framework, and establish institutions and national capacities to meet and implement their WTO commitments. The goal is capacity and institution building that will lead to effective action with shared benefits. A public/private collaboration can result in the formulation of interest groups and associations, possibly on a regional basis, that will influence regulators to adopt systems that will facilitate production and trade. A regional approach can be cost-saving solution for countries to cooperate as a region to fund research, laboratories and certification systems.

3. Technical assistance of the European Union

As the Netherlands is a Member State of the European Union (EU) I would like to give some information on the technical assistance of the EU to developing countries.

External assistance programmes managed by the European Commission have tripled over the last 10 years to reach 12.3 billion Euro in 2000. The European Commission currently delivers more than 10 per cent of total development assistance world-wide. External aid programmes are managed by it directly and constitute 62 per cent of all its accounts. EC grant aid exceeds concessional loans granted by the World Bank. Examples of this assistance are the following:

- a Pan African Programme for the Control of Animal Diseases for the ACP countries except the Southern African Region. The target group consists of all actors involved in the livestock-farming sector. The aim is to establish lower-cost national and continental epidemiological surveillance networks for the main animal diseases, provide the countries with the capacities needed to organize economically and technically justified control programmes and develop effective and sustainable distribution of veterinary products and services.
- a Special Framework of assistance for traditional ACP suppliers of bananas. The target group consists of certified banana farmers and related people in rural areas, growers associations, public authorities and private sector companies. The aim is to assist in the development of sustainable and viable banana industry, which can withstand competition from other ACP banana producing states and Latin American producers; to assist former banana growers in switching towards other activities.
- a Pesticides Initiative Programme for all ACP-countries. The target group consists of producers and exporters of fruits and vegetables in the ACP countries. The aim is to assist the target group to comply with EU sanitary and phytosanitary rules.
- a Southern Africa Animal Disease Control for the SADC countries. The target group consists of national and regional animal health authorities. The aim is to reinforce the capacities of the countries in the region to control animal diseases, to monitor the circulation of animals and animal products and to exchange epidemiological information at national, regional and international level.
- a Regional Animal Health Programme for Egypt, Israel, Jordan and West Bank Gaza. The target group consists of veterinary services. The aim is to promote a closer co-operation of the national veterinary services in the region in order to improve the animal health situation and make the control of animal diseases more cost efficient.
- Four seminars on SPS and trade related issues organized by FAO and financed by the European Commission for Jamaica, Cameroon, Zambia and Ethiopia.

To illustrate the technical assistance of the EU to developing countries I will elaborate on one example. The example is a project to strengthen the capacity in ACP countries for fishery product health conditions. The specific purpose is to improve the access of ACP fisheries products to the world market, by strengthening the capacity for sustainable export health controls and improving production conditions in an estimated 17 ACP countries, 10 of which are situated in sub-Saharan Africa. Particular attention is to be paid to ensuring that products from small-scale fisheries are not excluded from the global market, and to strengthening regional networks of veterinary and health professionals in the sector. The focal point is the loss of access to international markets for fishery products through a lack

of capacity to respond to requirements for strengthened health controls. Many ACP countries lack the legal, technical, financial and organizational resources to meet the import health conditions required by these developed country markets. In addition to lack of adequate official control, industry itself is often unable to respond to the higher level requirements due to the lack of technical skills, capital for investment in upgraded establishments and weak or non-existent infrastructure in productive regions. The activities of the project will therefore support ACP countries in institutional strengthening of competent authorities through training and technical assistance for improved organizational structure, legislation and financial sustainability. Supporting technical institutes will also be strengthened, as well the inspection and control agencies. The analytical capacity of official testing laboratories will be developed with the supply of new equipment, training and the introduction of suitable systems of quality assurance. Appropriate residue monitoring plans for fishery products will also be introduced.

4. Efforts of the Netherlands: the Center for the Promotion of imports from Developing countries (CBI)

Firstly I would like to give information on the results of a study on technical non-tariff barriers affecting trade opportunities for developing countries, the case of fresh fruit and vegetables. This study has been prepared by the Center for the Promotion of Imports from developing countries (CBI) in the Netherlands.

Increased demands of European consumers with respect to food quality and safety have resulted in more strict regulations and standards, reflected in the framework of “Good Agricultural Practice”. This framework requires companies to have a good management system in place to deal with quality, hygiene and environmental matters. It puts forward demands on the company’s registration system, stock material used, soil treatment, pesticides and fertilizers used, post-harvest treatment, processing and packaging, waste management, environmental management and workers’ health and safety.

As first impact studies of new European regulations on pesticides have pointed out, the horticultural sector of developing countries is likely to be seriously affected, as responsibility in food safety matters is increasingly weighing heavily on the companies. European buyers ask suppliers for increased guarantees on pesticide levels.

Producers of fresh fruit and vegetables mentioned the following problems:

- not being familiar with the regulations and the interpretation thereof;
- the administrative burden and the lack of technical assistance to identify and implement necessary measures;
- difficulties in complying with environmental and health regulations, such as MRLs. These producers find it hard to avoid using pesticides. In some countries products are still fumigated for decontamination, a treatment not allowed for products entering the EU. Alternative treatments are often not available.
- variations in product definitions and specifications.
- increasingly, labelling requirements for consumer products in the EU are partly passed on to producers and exporters in developing countries. Importers and food manufacturers require thorough product specifications for application, instructions for storage and processing, and information on quality assurance (HACCP or ISO-certification).

As regulations on residues of pesticides and heavy metals are becoming more and more strict, it is crucial for producers and Trade Promotion Organizations in developing countries to have up-to-date information on the regulations and solutions in terms of improved techniques and treatments. Although the Center for the Promotion of Imports from Developing countries and other organizations are

providing assistance in this respect, much more (international) effort is needed to help developing countries to adopt and implement food safety control systems, such as HACCP.

One of the important bottlenecks for the export of organic food by developing countries is the high costs of mandatory certification for producers to enter the international market. When a producer or a group of producers applies for certification, several inspection missions follow in which the production system is judged and recommendations are made for improvement. Since very few developing countries have an accredited local certified, the inspectors often come from Europe or the USA.

Payments have to be made directly after an inspection mission. These initial investments only start to pay back after the first harvests have been sold as organic. After certification, at least one inspection mission is conducted annually. Certification by international certifiers is relatively expensive, since European fees and travel costs have to be paid. For many producers the costs of certification are a major threshold for venturing into the international market. International certification costs a maximum of 5 percent of sales value, but where local certification bodies exist it reduces to 2 percent of sales value.

Conversion from conventional farming to organic farming takes about two to three years. During this period a farmer may not sell his production under the organic label and cannot take advantage of the higher prices normally associated with organic products. The transition is even more difficult for developing country producers as they, generally, do not benefit from specific State aid as is the case for farmers in developed countries.

Developing countries face an additional difficulty. As emphasized by the certification body Ecocert International, the European Union regulation corresponds to the European situation, but the African reality is far different. A clear definition of the production unit is not always easy. It is, for example, sometimes difficult to make developing country operators aware of the differences between traditional farming and organic farming using specific farming techniques. Finally, developing countries' lack of infrastructure results in slowing down organic production because of the limited shelf life of the products.

The Center for the Promotion of Imports from developing countries initiated a new programme, which aims to enhance the fresh fruit and vegetable sector in selected African countries through technical assistance in the field of farm and export management. Aim of the programme is to address some of the critical Technical Non-Tariff Barriers and to build up local institutional capacity. The programme is expected to benefit a great deal from the experience obtained through a similar farm and export management programme for cut flowers that is currently implemented in eastern and southern Africa.

Key elements of the initiative are:

- Identification of national and international organizations (public and private) offering assistance in the field of fresh fruit and vegetables;
- Preliminary assessment of strengths and weaknesses of eligible and qualifying African countries, opportunities and threats, qualifying countries' policies towards the sector, current export markets, analysis of main competitors for the selected countries;
- Comparison of qualifying African countries and interesting product/product mix; interest of European importers, auctions and supermarket chains in the products of these countries based on interviews regarding attitudes, experienced problems and bottlenecks, continuity, requirements and preconditions, business practice and terms of the trade;

- Further elaboration of regional and country-specific strategies for the selected developing countries, on the basis of feasibility studies, identification missions and needs assessments. These strategies entail close consultation with other actors, for integrated approaches are required to overcome bottlenecks and problems related to exports of the selected products: tariffs and quota; certification and labeling; quality and grading standards, health, safety and environmental issues;
- Elaboration of GAP/EurepGap; seeds and propagation material; cultivation; harvest; primary processing; packaging; storage and transport; equipment and technology; personnel and facilities; documentation; education and training ; knowledge/training centres, experimental farms; quality guarantees, testing and laboratories;
- Elaboration of solutions: institutional capacity for exporting fresh fruit and vegetables; assistance by other organizations and possibilities for assistance in farm and export management; opportunities for partnerships and business-to-business arrangements; regulations and assistance for getting access to EU markets, including buying/selling missions and/or trade fairs.

5. Efforts of the Netherlands: the EUROPE SADC INITIATIVE

Secondly I would like to give information on the EUROPE Southern African Development Community (SADC) INITIATIVE. This initiative has been taken within the context of the trade liberalization objectives of SADC Member States. These objectives are enshrined in the Protocol on Trade that entered into application on 1 September 2000. The coming into implementation of the Trade Protocol underscores the urgent need of Member States to harmonize SPS measures required to increase trade in agriculture and agro related products and for development of improved food safety standards. While SADC has made substantial efforts in recent years in setting standards of trade in non-agricultural products, especially manufactured goods and textiles, standards and grades required for trade in agricultural commodities need to be put into place to guide both intra-SADC and/or external trade in agriculture for the economic benefits of a wide range of regional stakeholders, especially smallholders who depend on agriculture for their livelihood.

With globalization and increased trade both within SADC and with the outside world, issues of food safety have also taken on renewed prominence. In many developing countries, a major cause of child mortality is unsafe food caused by poor sanitation and lack of clean water. Food safety issues are not only of importance for the consumers of the developed nations, where SADEC products are sent, but also for exporters of SADC Member States who are required to meet quality and safety standards in a more competitive global market place. Within SADC itself, food safety is now clearly a critical factor in domestic nutrition and health of the citizens of Member States. Given the limited resources and low technology base of some SADC Member States, special efforts must be made to guarantee and certify the safety of export products, in an efficient manner, while ensuring that food products available for the consumption of citizens of the Member States also meet improved safety standards.

The SADC Trade Protocol specifies that Member States shall base SPS measures on science, in accordance with the WTO Agreement. They should also harmonize such measures, so that food safety and SPS concerns are mitigated for the implementation of the Protocol. However, there is little information on the extent to which individual Member States are in compliance with international standards or whether the steps that must be taken to meet these standards have been taken. In many countries these efforts are hampered by technological and capacity constraints, the lack of clear information and data for undertaking such assessments and monitoring their outcomes, and the lack of trained staff and modern laboratories to scientifically confirm compliance with required standards.

The EUROPE/SADC INITIATIVE is a Dutch initiative aimed at achieving further regional co-operation in the area of agriculture between countries in the EU and SADC. This has become necessary

as a result of current agricultural developments. The Netherlands have co-operated with the United Kingdom and Portugal. At this moment also the European Commission, Sweden and Belgium are included in the cooperation.

This initiative also contributes to international agreements on food security and sustainable agriculture made at the World Food Summit in 1996, Agenda 21 and the Maastricht Conference ‘Cultivating our Futures’ (September 1999) and the 8th session of the Commission on Sustainable Development (April-May 2000). The emphasis was among others on the following elements: international regional co-operation in the area of agriculture can contribute to the implementation of the “World Food Summit Plan of Action”; regional and international co-operation through private and public partnerships between developed and developing countries must be strengthened. In this way a contribution can be made to the realization of food security at the individual, household, national, regional and international levels. A Dutch NGO helped to get this initiative off the ground and is still acting as a focal point for cooperation with farmer’s organizations and NGOs. In the coming decades the challenge will be to achieve food security for a growing world population. Studies have shown that within the next thirty years food production should be doubled. Key words here are sustainability, production increase and equal access.

In many developing countries agriculture is the driving force for the economy and rural development. In these countries 60 to 70% of the working population is employed in the agricultural sector. Agriculture is therefore of crucial importance for the achievement of food security and the fight against poverty. And it helps to achieve stability in these countries and regions. Food shortage and over-exploitation of natural resources can be a source of conflict. Agricultural developments are closely linked to international nature policy. Thus, for example, the global problem of deforestation can only be resolved when alternatives can be found in agriculture.

The issue of capacity-building and institution-building is in this respect of utmost importance. Capacity-building and institution-building not only have to serve as the base for a strong development of the agricultural sector and rural development, but can also contribute to a strengthening of market-access of products of developing countries.

The regional approach of the initiative is very important: a strengthening of the co-operation in the field of agriculture between developing countries in various regions is essential for further agricultural development and a strong position on the global market. The initiative aims at a political dialogue and institutional co-operation in the field of agriculture between the ministers of agriculture in the Countries of the Southern African Development Community (SADC) and the EU in the field of a number of concrete themes. This means co-operation directed to furthering sustainable agriculture and food security. An integrated approach of governments, farmers’ organizations and non-governmental organizations is used. This co-operation could be realized under the umbrella of annual structural consultations between the ministers of agriculture of the EU and the SADC. The co-operation will in first instance be focused on the political dialogue in the field of agriculture and a work-plan in the field of co-operation and assistance, focused on capacity-building and institution-building.

The following four topics are identified: Food Security; Food Safety; Trade in agricultural products and Sustainable agriculture. Considering the results of the international meetings on sustainable agriculture and food security mentioned above these topics cover most of the ground on which fruitful consultations between ministers of Agriculture from EU- and SADC-member states could take place. However, these are very broad areas and there is a certain risk that the results of the cooperation just do reflect the intentions and commitments agreed upon in the conferences mentioned above. On top of that there is a need to formulate some action-oriented items on which the two regions can cooperate in a concrete manner.

In the framework of the initiative a conference will be organized, hosted by the Government of Namibia and financially assisted by the Netherlands. That conference would take place in Windhoek, Namibia, from October 14th till October 17th, 2001. Ministers of Agriculture from both regions would participate. Unfortunately this conference has been delayed for different reasons. The four topics mentioned above will be discussed in an general way, but also with a view of identifying the necessary action-oriented items for concrete cooperation. One of that items could be the development of necessary capacity and institutional frameworks in developing countries to comply with the requirements of developed countries and thereby enhancing the market access of developing countries. Interregional cooperation is of the utmost importance in these matters. The goal of the conference is to have an initial exchange of ideas on policy aimed at institutional co-operation which promotes sustainable agriculture and food security and to work these ideas out in some detail. The results of the conference should include apart from the intentions to continue the political dialogue some action-oriented items on which the two regions could cooperate in an concrete manner. This co-operation will involve governments, agricultural organizations and NGOs.

6. Efforts of the Netherlands: ASEM seminars on quarantine/SPS

Thirdly, I would like to give some information on the ASEM seminar on quarantine/SPS in The Hague in September 2000.

The central theme of seminar was the use of Risk Analysis to underpin SPS measures. This seminar covered veterinary matters, phytosanitary matters and food safety. During the last seminar it has been decided that the general exchange of information in the general seminars had been completed and that what was needed subsequently was an analysis in depth which could be done more appropriately in specific workshops. Therefore this workshop in Bangkok is limited only to food safety. Subsequently a workshop on veterinary matters will be held in the Netherlands and a workshop on phytosanitary matters will be held in China. Lastly a wrap up workshop on all three subjects will be held in the Netherlands. All three will be held in 2002. Representatives of seven Asian countries, six countries of the European Union and the European Commission and of four International organizations attended the ASEM seminar in The Hague. Moreover, representatives of the business sector participated in a special session, focused on impediments to trade caused by SPS measures.

The seminar was opened by the Minister of Agriculture, Nature management and Fisheries of the Netherlands, the Chief Administrator of the State Administration of Entry-Exit Inspection and Quarantine of the People's Republic of China and the Director of the Agricultural Regulatory Division from the Ministry of Agriculture and Co-operatives of Thailand. The seminar was divided into 3 parts: the first part consisted of a plenary session, the second part consisted of workshops in the different fields (veterinary matters, phytosanitary matters and food safety) and the third part consisted of a plenary session to draw recommendations.

In the first plenary session representatives of the Codex Alimentarius, IPPC and OIE gave presentations on the use of Risk Analysis in their respective fields of work. An official of the WTO secretariat gave a presentation on the benefits to trade of the WTO/SPS agreement. In the second part of the seminar presentations were given and discussions were held on specific items. This was done in working groups on veterinary matters, phytosanitary matters and food safety. In the Food Safety Working Group, presentations were given by France, China, Thailand, the European Commission and Belgium. France gave a presentation "Specific Risk Analysis case: vibrio in seafood, China on "Risk Analysis and HACCP", Thailand on "Application of Risk Analysis: stevia", the European Commission on the dioxin crisis and Belgium on "CONSUM, the post Belgian dioxin era: a new approach for feed and food control". In addition to the representatives who gave a presentation the meeting of this group has been attended by Denmark, Finland, Italy, the Netherlands, the Philippines, Singapore, South Korea, Spain, the United Kingdom, the European Commission, the Codex Alimentarius and the WTO.

As regards Risk Analysis in general it has been stressed that, although Risk Analysis is a relatively new concept, the principles of Risk Analysis have been used in regulatory processes of several ASEM partners for many years. ASEM partners were of the opinion that the Risk Analysis approach is a very useful tool for the protection of the health of consumers and improving transparency. However, concerns were made on the implementation of the three elements of Risk Analysis.

As regards Risk Assessment, this was considered the most difficult element. Problems in carrying out risk assessments arise from lack of quantified data, lack of relevant research and lack of statistical validity in published research. Also accurate exposure assessment was considered highly difficult. It was suggested that Risk Assessment be carried out by international expert bodies of FAO and WHO such as JECFA and JMPR in order to save resources and acquire overall acceptance.

As regards Risk Management, even though according to the proposed draft Codex working principles for Risk Analysis there should be a functional separation of Risk Assessment and Risk Management in order to ensure the integrity of Risk Assessment and reduce any conflict of interest between Risk Assessment and Risk Management, it was agreed that the Risk Managers should communicate with the Risk Assessors in order to explore management options, as may also be suggested by the Risk Assessors. It was reported by several ASEM partners that the infrastructure of their regulatory system has been restructured towards an integrated management system incorporating all related institutions covering the whole food chain.

As regards Risk Communication, the ASEM partners expressed concerns over the quality and the timing of Risk Communication.

Subsequently the Food Safety Working Group discussed the recommendations of the past two seminars in order to determine progress. It was concluded that the ASEM process has led to closer consultation between ASEM partners in the works of SPS in the WTO. Co-ordination meetings were held prior to the SPS-meetings. Most ASEM partners attended these meetings and considered this exercise useful and worthwhile to continue. It has been useful to build understanding, to exchange information and to have further discussions. Closer consultations have also been held between ASEM partners in the work of the Codex Alimentarius. ASEM partners considered this too to be useful.

Let me just recall shortly the recommendations of the Food Safety working group: The Food Safety Working Group recommends that a workshop to enhance capacity building on practical application of the Risk Analysis concept be held in the coming year. This workshop should concentrate on Risk Assessment (exposure assessment) and Risk Communication. Also a workshop on the principles of equivalence should be conducted. The Food Safety Working Group recommends the ASEM partners to participate actively in the discussions on the Precautionary Principle in the Codex Committee on General Principles, especially in the electronic drafting group. And also to assist Japan in its work on Risk Analysis on foods derived from biotechnology in the Codex ad hoc Task Force on Foods derived from Biotechnology.

What have been the results of these recommendations? I think three conclusions can be drawn:

1. All ASEM partners have been actively involved in the work of the Codex Task Force on Biotechnology in March in Chiba. Thanks to our host Japan, substantial progress has been made. All ASEM partners have been actively involved in the discussions on the Precautionary Principle in the Codex Committee on General Principles in Paris and the Codex Alimentarius Commission in July in Geneva. During the meeting of the Codex Alimentarius Commission in July in Geneva a co-ordination meeting of ASEM partners has been held. Information has been exchanged on items important for the respective partners.
2. A workshop on the principles of equivalence is not yet be planned.

3. Last but not least: thanks to our host Thailand, the first recommendation of the seminar of The Hague has been realized: a workshop on the practical application of the Risk Analysis concept, in particular on Risk Assessment. It has been decided not to include in this workshop Risk Communication. This topic deserves eventually separate attention.

7. Lessons and conclusions

This paper started with analysis of the context of globalization and liberalization. I have worked on the assumption that globalization is a irreversible process and consequently support to capacity building should take account of this fact. This assumption applies equally to liberalization. In 1995, agriculture was included in the international trade agreements for the first time since the signing of the General Agreement on Tariffs and Trade (GATT) after the Second World War. The WTO agreements contain a system on trade in agricultural products. All sorts of quantitative border control measures have been translated into tariffs and subsequently a political decision has been taken to decrease the tariff level globally. There is consensus world-wide that this system is an achievement and should therefore not be abandoned. However, attention will be given to qualitative border measures. And it is precisely here that support to capacity building comes into the picture.

Following the examples of support to capacity building in developing countries by international organizations, the European Union and the Netherlands, we can draw the following lessons and conclusions:

- support should be given for a longer period;
- support should concentrate on regions made up of different countries;
- support of international organizations should be integrated;
- support of the EU should complement the individual programmes of EU Member States;
- support of individual developed countries should continue, as this support is based on the expertise in those countries and special historical relations.

GF 01/12

**CAPACITY BUILDING AND TECHNICAL ASSISTANCE
– NEW APPROACHES AND BUILDING ALLIANCES**

*Dr Deepak GUPTA
Ministry of Health and Family Welfare
Government of India*

The inclusion of Capacity Building as one of the major themes of this Global Forum Meeting reflects both the recognition of the urgent need for Capacity Building in the area of food safety as well as the concern of multilateral institutions and, hopefully, of developed countries, that serious attempts should be put into place for this purpose. Most of the problems and issues were highlighted in the excellent paper presented by Dr. Rios at the Melbourne Conference in October, 1999. Although much progress has been made, the basic problems remain. This paper would, therefore, seek to reiterate many of the things mentioned therein and also try to re-emphasize the context, constraints and the ground realities within which Capacity Building efforts have to be made and thereby try to introduce pragmatic and feasible possibilities in this direction.

An attempt has been made to address three issues separately, although necessarily there will be an overlap: national food safety systems (which is the most important area); Codex matters, and bilateral technical assistance (SPS or otherwise).

I. Background and Context

1. Developed vs. developing countries – Differing scenarios

In the developed world, the increasing introduction of intensive agriculture and animal husbandry technologies has made food another industrial product. Extensive distribution systems allow for rapid and widespread distribution of potentially contaminated food products. The introduction of preventive techniques such as HACCP is increasing and becomes more and more mandatory. Recall and market reputation become the deterrents rather than legislated punishment. Preference for fresh and minimally processed foods, the increasingly longer interval between processing and consumption of foods, the rising trend of consuming food prepared outside the home, and substantial sourcing of raw materials and products from diverse areas all contribute to the increased prevalence of food borne illnesses ascribed to microbiological organisms. Actual outbreaks in the recent past has led to heightened consumer demand for safer food. In a situation where most critical traditional diseases have been kept under control, it is no surprise that this consumer outcry helps make food safety a political priority. The market compulsions of the private manufacturer and the Government's priority coincide to provide both attention and resources to this area. In totality, therefore, the environment stimulates development of food safety systems.

Contrast this scenario with most developing countries. No doubt, most have pockets, varying in degrees, of similar developing systems, but the much larger picture is totally different. Producers are mostly small, whether in agriculture or processing, and in huge numbers. Distribution and consumption is largely localised though large volumes of fresh food is traded in traditional markets. Food habits largely ensure eating of cooked food, particularly in our part of the world. Food borne illness is a serious but often unnoticed problem. Diarrhoeal diseases are a major cause of morbidity or mortality. For the rural poor the most important question is of food security with malnourishment and micronutrient deficiency being the critical issues. Rapid urbanization has led to more and more people living in slums in conditions of poverty, often substantive, overcrowding, and poor sanitation. Here there is an increasing emphasis on purchase and consumption of food outside the family home through street food vendors and food services premises. Further, development at its initial stages without full ameliorative steps, brings in its wake many industrial and environmental health hazards. And most important of all there is lack of awareness of food safety and hygiene.

2. Priority to food safety in developing countries

It has been repeatedly said, with some justification, that food safety has not been a priority for developing countries. But this has to be seen in context. These countries are facing a plethora of problems and fiscal crises. Attention has been largely focussed in the last decade on economic reforms and liberalization. Social sector development has suffered. Education has always been seen as an economic investment and has been relatively high on the agenda of countries. Health has not. WHO has sponsored a Commission to examine health issues and their relationship to economic development under Prof. Jeffrey Sachs of Harvard University whose report will be published in December 2001. The Commission is likely to recommend a minimum of US \$30-40 per capita investment in health. Current expenditure averages US \$4. Most of the increase must come through external assistance, because (a) national incomes cannot provide these amounts and (b) competing critical requirements can allow only limited increases in health investment. While developing countries must raise their public health expenditures to a minimum of 2% of GDP, substantial external assistance to the health sector has also to be committed. Priorities likely to be set out by the Commission for developing countries are communicable diseases, in particular HIV-AIDS, TB and malaria; dealing with problems of anaemia and malnourishment; decreasing infant mortality rates through improved immunization; and improving the quality of water. Where is the priority for food safety? Priority first to health, and then, later to food safety, is thus going to be a long journey in developing countries. We also have to create an environment which stresses the public health importance of food safety. WHO has designated Food Safety as one of its priority areas and this should be reflected in the proportion of funds it spends for food safety vis-à-vis other communicable diseases. This helps in priority setting at national level too.

3. Food Safety – A multi-dimensional problem

Unlike many other areas in health, the work related to food safety is multi-dimensional and is simply enormous. Sporadic efforts in different sectors do not create the critical mass. There has been lack of an integrated or holistic approach or a long-term view. Therefore, WHO/FAO assistance over the years has not always yielded sustainable benefits or created the multiplier effect, nor created the institutional network. Clearly governments have also not been able to make the most appropriate use of these resources. International consultants who have been periodically visiting this area have been largely prescriptive after diagnosing the problems. This is easily done. Few have prepared a country based specific plan. This is the hard task.

4. Emphasis on export sector

In the economy of a particular country, because of the compulsion necessitated by the demands of the importing countries, most efforts of developing countries in capacity building in the area of food safety, both in public and private sector, tend to get narrowly focussed to the export sector. Multilateral, and particularly bilateral, technical assistance also tends to move in this direction. Therefore, capacity building across the nation has suffered.

5. Progress

In terms of Capacity Building, therefore, little appears to have changed over the years. Much has been done but the visible impact is not there notable, there will be inter-country variations. This is reflected in the decade reviews of WHO. A WHO 136 country survey in 1989 had stated that:

“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 inter-sectoral 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.”

The current WHO draft document on Global Food Safety strategy now states that:

“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.”

It is about time, therefore, that the issue of Capacity Building is seriously, separately and comprehensively addressed. The background gives the scenario in which food control systems have to be designed and implemented. Efforts towards capacity building and the nature/extent of technical assistance must also be seen in this context.

II. Strategy for Action

1. National Action Plan

It is now being generally recognized, therefore, that the first necessary step is preparation of a National Action Plan based on an objective needs assessment. This assessment would provide data to be used by member governments, and Capacity Building agencies to set priorities, make decisions about programme activities, and allocate resources. Very varied situations may be found in different countries which require different kinds of responses. This would also provide a census of what exists in a country in terms of institutions, their work and capacity and availability of experts and their expertise. This is also important in view of the need to follow an inter-sectoral approach since many departments would be involved. This will also help in prioritization because, given the magnitude of the food safety agenda, not all activities can either be undertaken or supported. Once the plan is prepared elements of it could be posed for bilateral assistance. But there would be an essential homogeneity in terms of institutions taking this task forward; common pool of trained professionals; commonality in manuals/training materials; avoidance of duplications of funds/activities/target groups etc. It will also ensure collaboration between funding agencies who otherwise proceed independently leading to disparate systems and disjointed end products, and ensure there are no piecemeal or ad-hoc contributions. It will allow various activities to be undertaken by different agencies as per comparative advantage. It will also provide opportunities for support where alliances can be built. This would provide both tangible evidence of the commitment of a member state as well as a road map.

2. Strengthening of National Offices

Preparation of this Plan will be a mammoth exercise, especially for the larger countries. We must recognize that there is a dearth of technical personnel available in the National Secretariats which will be implementing and co-ordinating a plethora of simultaneous activities, many of them difficult and new. At a time when divestment and downsizing is the mantra of the day, it is not going to be easy to strengthen these Secretariats with more staff. Therefore, it is necessary to strengthen the Cell by deputation of a few short-term experts for a suitable length of time, and for sustainability, to identify institutions and to strengthen them. These will provide dedicated attention. Once the hardware and software required is put into place and some cycle of activities completed, these will acquire a momentum of their own. It has been recommended that WHO Regional Offices and FAO Regional Offices should have a strong permanent food safety team. We cannot agree more. This is an absolute minimum and these requirements are immediate.

3. Collaborative Projects

India has asked for World Bank assistance for Capacity Building in this area. The Project will provide some funds. Technical expertise and assistance would, however, still be needed. It is understood that in Vietnam, WHO is involved in a major initiative designed to strengthen the Food Administration (Ministry of Health). WHO will oversee and staff a collaborative project, funded by the Asian Development Bank, involving the finalization of a national plan of action, formalization of food legislation, enhancing laboratory quality assurance, developing standardized food inspection procedures, and establishing a system of food borne disease surveillance. This type of project may serve as a model for future joint projects.

4. Networking

For the preparation and implementation of the National Plan it is necessary to network various institutions and bodies. A proposed National Alliance for Food Safety Promotion in India is given below.

The list is not exhaustive :

Scientific Institutions	Professional Association and their Chapter	Trade Bodies
National Institute of Nutrition (NIN)	Nutrition Society	FICCI/CII
Central Food Technology Research Institute, CFTRI	Association of Food Scientists & Technologists	CIFTI
Indian Toxicology Research Centre, ITRC	Indian Dietetic Association	Hotel Associations
Home Science College Catering Institutions Hotel Management Centres	Association of Catering Professionals	Sectoral Bodies Eg. Halwais Association.

5. Funding Imperatives

There is certainly a much greater recognition now in developing countries of the importance of food safety. The initiation stage appears to have begun, if both individual countries and international agencies commit more funds and proper and systematic planning is done. But it is clear that our discussion in this Global Forum on Capacity Building will become meaningful only if there is an external commitment to pledge sufficient resources. We suggest the setting up of a Global Food Safety Fund which will have a much wider agenda and provide the wherewithal to WHO/FAO to provide that kind of assistance which will make a difference.

III. Specific Areas for Action

We now come to some priority specific areas for action based on the WHO draft Global Strategy for Food Safety Document and the ten-point Regional strategy for the South-East Asian Region.

1. Foodborne disease surveillance

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. Structures and systems must therefore be developed at Sub-national and national (and regional and international) levels to survey food borne disease and at national level to conduct risk assessments and implementation of risk management strategies. This is a new area requiring assistance. WHO should help in the preparation of a project for selected countries on a regional basis and for the setting up of regional sentinel sites. India already has institutions looking into disease surveillance. We are also approaching the World Bank for a Disease Surveillance Project. Therefore, additional assistance in India would be minimal. Countries could be assisted bilaterally too. Successful Projects could be replicated elsewhere.

2. Laboratory infrastructure

For an effective foodborne disease surveillance system and, as a necessary foundation for good regulatory systems, it is essential to have a good laboratory structure. Unfortunately, this is a weak area in most developing countries. The Regional Strategy Document has identified the causes thus;

- Inadequately resourced in terms of funding, equipment and personnel.

- Lack of recurrent expenditure effecting repair of equipment and available replaceable materials such as consumables, columns etc
- Much stronger in chemical analysis – Poor in microbiological
- Inadequate quality assurance procedures.

Over the years, WHO, FAO and other agencies have provided a lot of assistance in this area in India by way of supply of equipment to labs and training public analysts and chemists. In many labs these have been well utilized. In many not.

Here also the problem is multi-dimensional and needs to be accordingly addressed. One view is that there has been un co-ordinated external assistance for selective labs largely in the export sector. However, instruments supplied are too sophisticated, difficult to work and maintain in local conditions and require expensive external help. Therefore, it has been suggested that a needs analysis is required covering the appropriateness of the type of instruments, models, post-purchase maintenance, consumable use pattern etc. One way forward is to strengthen a few laboratories which are of international standard at minimal cost and use them as Regional Resource Centres for upgrading the quality of laboratories within a country or countries of a Region. They would also supply equipment, help in its maintenance, provide reference standards, consumables etc. to a selected network of labs. These centres could be both domestically funded and multilaterally assisted. They could also be used for Analytical Quality Assurance Programmes, as well as training programmes in analytical methods including GLP. A good example of optimum resource utilization through building networks of existing labs in the country, region and international level is the recent initiative of the IAEA, Vienna, (jointly funded by FAO and WHO) for various environmental contaminants.

At a more prosaic level, we are preparing to upgrade infrastructure in our labs through the Capacity Building Project. We are also trying to audit selected labs and prepare a plan for upgrades to lead to accreditation by our National Board. This programme could be assisted by donors and applied in many countries. Further, in times when instrumentation cycles are getting shorter, assistance for replacements must be considered, as well as introducing services for a fee principles.

Finally, special help is required for the upgrade of entire systems of certain labs for microbiological analysis in each country.

Another view is that developed importing countries increasingly require more sophisticated instruments and test methods. Therefore, there is a need to identify test methods which are practical and acceptable and do not require great sophistication in instrumentation. Once this is done, appropriate commodity assistance in kind could be given, apart from required software assistance in calibration, QA systems, SOPs, etc.

3. Good Practices

Traditionally, food safety has been checked through end product testing and culprits punished. This has numerous difficulties as the number of personnel available simply cannot police the market and punishment through complicated and time taking judicial procedures often comes to nothing. Increasingly, therefore, emphasis is on the preventive approach and to adopt HACCP principles and GMP, GHP etc. But for most developing countries these have been new concepts.

WHO/FAO have been generously providing technical assistance for training under HACCP. Both have carried out the training for trainers programme. This conceptually has much more sustainability. Consultants have also held HACCP Seminars during their visits. This appears to be an ad hoc exercise without much lasting benefit. Some countries like US/EU have also supported HACCP training activities, largely addressed to export areas. The EU is currently starting a programme with the Quality Forum of an important Industry Association. This will provide trained quality professionals but work is going to be restricted, to 20-25 SME's. They have built an institutional relationship with a well known HACCP training organization in UK. These partnerships through bilateral means is the kind of 'alliance building' which needs to be encouraged. Many Indian organizations both in private and public

and export sector have also followed through, particularly the dairy, marine products, fruit and vegetable processing sectors. The problem is the huge and dispersed small and medium business sector and the larger unorganized tiny sector.

The approach has been seminar driven. Training has been the basic activity. We really do not know how much we have covered across and within sectors and with what success and depth. Clearly also activities are not integrated. We are convinced, therefore, that a National HACCP Training and Implementation Plan be formulated. This would involve survey of needs of different sectors; identification of the current status of trainers, trained personnel. Sectors of industry/units already having undergone training, evaluation of implementation and an analysis of feedback; preparation of a series of Manuals, Industry wise on HACCP principles; revision of course/training materials etc. Simultaneously, basic GMP GAP and GHP norms need to be prepared for all sectors (big, medium, small and tiny) and they need to be incorporated in some form as guidelines in the National Food legislation. Preparation of these generic, and later more specific, norms are of great priority.

4. Communication and training

This brings us to the problem of dissemination. One of the ways we are planning to do this is to develop a network of Institutes to adopt street food projects, as well as innovative ways of local dissemination of information through meetings of representatives of retailers and consumers etc. Further, all this should enter the course design of all academic and vocational institutes, teaching/training food service providers. This will immediately make this much more accessible and spread knowledge down stream. A recent analysis concluded that Universities having regular teaching programmes could play an active role in speeding HACCP in the country. On the fisheries side alone there are 8 Agricultural Universities/Fisheries colleges in the country.

Whether it is addressing HACCP or training requirements of regulatory officials, or teachers and students in the network mentioned above, there are huge communication needs as there are thousands of widely varying recipients. To ensure standardization, quality and easy reach, it is time that modern communication technology is utilized. How many Seminars will take place? Therefore, we must organize distance education courses, both through the traditional way and through the Web. This is a promising new area for future work of FAO/WHO. I am sure India can play an important role in helping prepare such courses.

5. Investigational surveys

A necessary simultaneous activity would be conducting regular investigational surveys to monitor levels and nature of contaminants in food products. These have been largely laboratory based in the past and used for standard formulation. They now need to be more market-based and results utilized for all the activities mentioned above. Further, not only food inspectors but students of the institutions mentioned could be involved in this exercise. We are working on preparation of a plan of action in this direction. This could be easily supported.

6. Institutional strengthening

In many countries many excellent institutions exist who individually, and together, have a huge store of human, technical and financial resources available. These need to be brought into the system. It is not easy to build an all embracing food agency. Therefore, we have to strengthen these existing institutions so that each can play an important role in an identified sector or nature of activity. The only exercise required when the National Plan is prepared is to identify what strengthening is actually required. Assistance required may not be very substantial. This would also lead to development of intra and inter-country institutional networks. In fact, there is great potential for South-South co-operation in this area, which can obtain much greater value from a given amount of assistance. People in government departments come and go. These institutions as resource centres will remain. Institutional strengthening is crucial for sustainability. They will also then play an important role in Codex matters too.

IV. Codex Issues

1. Codex standards

The last decade has seen rapidly increasing global food trade and increased exports from developing countries. SPS measures have enabled many to access exacting markets and helped retain market access when entry requirements have changed. However, perhaps there is cause for concern. Lowering of tariffs and other barriers in developing countries are being accompanied by high standards and stringent requirements for food products in developed countries. So while their exports are threatened, those of developed countries are facilitated.

Since Codex standards are now benchmarks for international food trade, the standard setting process becomes critically important, particularly for developing countries. Most standards are being set based on requirements and information provided by developed countries. Technological developments are leading to detection of progressively lesser amounts of a contaminant. There is pressure to lower standards to those levels. Sometimes, these have no relationship with epidemiological impact and risk. Exposure assessment data is not always fully taken account of. Most importantly, such data from developing countries is rarely considered, yet standards become Global Standards. Doubts arise further when developed countries are seeking 'highest levels of protection' casting away the traditional concept of 'appropriate levels of protection'. This leads to the feeling that they are becoming non-tariff barriers and are adding great costs to developing country exports. The UN Secretary General had publicly referred to the cost to African exports of nuts to Europe because of the totally unrealistic existence of levels of aflatoxin of the EU.

Necessarily then questions arise whether developing countries are having their due say in the setting of standards and how can this be ensured. The other issue which arises is what is required to be done to ensure that these countries are able to meet standards where already set. This becomes the other context in which issues of capacity building and technical assistance have to be seen.

2. Participation of developing countries

Over the last few years there has been talk of increasing participation of developing countries in the Codex process, but almost wholly restricted to increasing their physical participation in Codex meetings. India has been arguing that while this is important, though largely symbolic, much more important is to address their ability to take part fully in the standard setting process, the greatest constraint to which is lack of effective infrastructure at national levels for evaluation of draft standards. No doubt the extent, manner and quality of developing country participation has greatly increased, but much more needs to be done. A recurring contradiction in the approach of developed countries is that while the problems of effective participation are being recognized, and only partially addressed or remedied, the agenda is growing every day with increased sophistication and simultaneously attempted to push through on fast track basis. This is an important aspect of Capacity Building which requires assistance.

3. Involvement in standard-setting – Data collection and risk assessment

If countries are to be involved in the standard setting, data from developing countries and different regions has to be collected and incorporated. India has been repeatedly arguing this stand and Codex has accepted this in principle. The World Health Assembly had resolved in its 53rd Session in May 2000 that WHO make the largest possible use of information from developing countries in risk assessment for international standard setting. We, therefore, strongly welcome the statement incorporated in the draft WHO Global Food Safety Document which says:

“WHO will improve the methods of 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.”

This action brooks no delay. FAO/WHO’s ‘call for Data’ or ‘call for Experts’ will not suffice. Data has to be collected if available somewhere in the system or otherwise generated. Assistance would also be required in identifying types of data, collection mechanism and documentation of data bases of both national and international standards formulation. This whole exercise, along with the risk assessment process, would itself be a capacity building exercise apart from generating the data.

We urge WHO/FAO to set up a Working Group of experts and representatives of some developing countries to explore what efforts at Capacity Building and financial assistance for generation of such data are required. The ideal mechanism is to identify Institutions in different regions, which will act as collaborating Institutions and become nodal points. These will be the same which we are proposing to strengthen in relation to domestic food safety systems. And it is experts of these Institutions which should be represented in the Group of Experts such as JECFA/JMPR etc. Transparency of experts lies in their being independent of any manufacturing interest not in involvement with generation of national-level data.

A necessary part of this exercise, as we collect the data, is a good hands on training on both qualitative and quantitative risk assessment covering chemical and microbiological hazards. Risk analysis remains an area of urgent assistance for Capacity Building. More seminars is not the answer. Dr. Rios had mentioned establishment of risk analysis units. We say put these in identified institutions. In addition Universities could be utilized. Training methodologies would need to change too – expert-supported practical applications.

4. Strengthening National Codex Infrastructure

This becomes an obvious area of action. India is currently implementing an FAO sponsored Project. This has the following elements:

1. Strengthening National Codex point and networking between all points which could be involved in Codex matters.
2. Developing information systems to access information of all Codex matters, Committees and countries views etc.
3. Harmonization of standards,/guidelines made in Rules under our PFA Act with Codex where possible.
4. Exposure to HACCP principles and preparation of training materials.

This project is well designed and is expected to lead to measurable outcomes; strengthen Capacity and capability to respond to Codex issues; identify collaborative institutes; identify and address needs /gaps in this area; and draw up a long-term HACCP education Plan. This Project is expected to give sustainable benefits. It is hoped evaluation of its successes could lead to introduction of more Projects in other countries. In so far as South Asia is concerned, these local experts and expertise gained could be used to help other countries too.

V. SPS Agreement and Technical Assistance

1. Sensitization to SPS/TBT Agreements

The SPS and TBT Agreements have completely changed the environment of international food trade. The first requirement is for developing countries to fully understand their provisions and implications. Over the years, WTO has held many seminars and training programmes helping in substantial improvement in this understanding. However, not many know the nuances of how it is operating in practice in different areas, or in what manner advantages can accrue to developing countries. Therefore, there continues to be a case for more detailed dissemination of the Agreements and their working. It is also to be recognized that there is a continuous turnover of personnel dealing with this subject in different countries. Therefore, this training must be institutionalized at National and

Regional levels. Secondly, training methodology needs to change to include hands on exercises based on actual examples and prepared case studies. If developing countries are not taking recourse to this assistance then there seems to be some fundamental lack in communication. Explicit possibilities with some specificity of issues of different kinds need to be developed by some experts. Perhaps a consumer friendly Web based course for these Agreements such as the WIPO Patents course, would be of great use. A large number of people in bureaucracy, in institutions and in the industry and elsewhere can directly access and become familiar with this subject. We recommend action on this immediately.

2. Assistance under Clause 8 of SPS Agreement

Capacity of countries to respond effectively could also improve by collection and dissemination of information of the kind of technical assistance which has or has not been provided by developed countries under Clause 9 of the SPS agreement. There is too little information, or perhaps too little assistance. In this regard, it is a general perception that this Clause has remained at best an endeavor clause without being fully operationalised. India spent about US\$ 25m in adjusting to a country's requirements on marine products without any assistance. The experience of India's Export Inspection Council of trying to incorporate such provisions in Equivalence Agreements has not elicited much positive response. We are also told that there are many cases of rejections even when processing units follow GHP/HACCP and inspections and certifications are done. This area needs to be separately studied and required assistance identified.

3. Information on Import requirements

Data is essential regarding individual import requirements for different products or sectors, or of individual importing countries, or specific international standards which are creating problems for developing countries. Data on standards; methods of sampling, inspections and tests; appeal procedures etc, could be readily made available on computerized databases. Further studies could suggest:

- (a) whether these requirements or standards are justified;
- (b) what would be the cost for developing countries to meet those requirements.
- (c) What assistance SPS agreement would oblige that particular importing country to provide to the developing countries.

There are many experts or Institutions in many developing countries which can do this individually or in collaboration.

4. Equivalence Agreements

Another area is assistance in getting Equivalence Agreements on board. There is a serious difficulty in this area and little progress is being made in the direction of signing Equivalence Agreements. Equivalence determination is of great importance to trade facilitation. Therefore, some detailed attention has to be paid as to who can give what kind of assistance in this area. This is also desirable as it will directly link concerned institutions in both countries.

5. Bilateral Assistance

It is not easy to comment because of absence of information. The US/EU have provided a list of activities supported in different countries. They mostly relate to seminars by experts and some training. The EU has also indicated some activities which seem to go beyond workshops and actually are involved with introduction of SPS measures in different sectors. In both cases it appears that the primary emphasis is on seafood and fisheries and there are fruits and vegetables areas also. Therefore, these efforts perhaps directly relate to import of items of concern to these countries.

6. Approach

Discussions in the SPS Committee have shown that assistance:

- (a) has been dominated by 'Soft infrastructure' like seminars.

- (b) is fragmented rather than there being a holistic approach covering institutional, technical and economic aspects.
- (c) is not co-ordinated.
- (d) must be 'demand driven'.

The first step, therefore, must be diagnosis of the national situation to identify existing capacities and problems thereby identifying the best forms and medium of technical assistance which could be given by different agencies in a co-ordinated manner. This brings us back to the need for a National Action Plan whose part any Aid Project would then necessarily become.

VI. Conclusion:

The discussion in this paper leads us to the following conclusions:

1. While recognizing that ultimately each nation must take action itself to upgrade its food control systems, it must also be recognized that substantial financial assistance apart from technical assistance is required for Capacity Building by developing countries, though the nature and extent may vary with different countries. A Global Food Safety Fund be set up.
2. A national plan of action be prepared. This preparation would itself require assistance. This will be both diagnostic and programmatic and prioritize needs and activities. This will include a National HACCP training and implementation Plan.
3. WHO/FAO should become the coordinator at country level for all assistance and coordinate assistance, bilateral or otherwise, with the recipient country channeling this assistance on the basis of the comparative advantage of the donor.
4. Some continuous technical support in the form of experts is necessary at the national food safety control point to help in the above activities. Regional offices of WHO and FAO must be considerably strengthened by technical capacity in this area.
5. All proposed activities must eventually create Capacity Building by virtue of strengthening of institutions in a country which will provide the sustainability. The nature of strengthening be specified.
6. WHO/FAO facilitate data generation from developing countries for Codex standard setting.
7. Data bases of import requirements of developed countries be prepared.
8. For various areas Web based training and sensitization programmes be prepared.

SUMMARIES OF CONFERENCE ROOM DOCUMENTS FOR THEME 3***CAPACITY BUILDING*****▪ CANADA-4**

Officials from Health Canada and the Canadian Food Inspection Agency (CFIA) have participated in and contributed to numerous bilateral or multilateral meetings, workshops and projects in efforts to provide training and capacity building to developing countries. Recent training seminars and workshops were conducted by Health Canada and CFIA officials on procedures in conducting food safety and environmental assessments of foods derived from biotechnology. This led to the development and conducting of a number of hands-on workshops using actual case studies of the assessment of a genetically modified food as the next step in improving the capacity building process. This hands-on approach was used at a number of international workshops sponsored by different international organizations. Future joint sessions are now under consideration and a working group, headed by Canada with the participation of other countries, was established to develop an outline for a pilot training session involving food safety assessment. Canadian lessons which were learned during these recent training initiatives include some of the following aspects: hands-on practical training provides the best opportunity in advancing training on food safety and environmental assessment; attendance at the training sessions will be facilitated with good coordination between the different food control agencies of developing countries; countries or organizations sponsoring the right individuals with the right qualifications will increase the transfer of training skills to their sponsoring countries; standardized train-the-trainer courses will ensure consistency and uniformity in application of training methods and international standards; joint training initiatives involving other developed countries will enhance the coordination and delivery of international training courses and workshops; and capacity building will be enhanced if the recipient countries take ownership in the training activities and invest in long-term infrastructure development.

▪ CHINA-3

Over the recent two decades, food safety in China has improved greatly overall. These achievements are the results of capacity building in government control agencies and also industries, including technical assistance from international organizations. This paper describes the implementation of two programmes on street food control by the Ministry of Health, China. FAO sponsored a pilot programme on improving the safety of street food in cities and WHO sponsored a programme on the improvement of street food safety through the application of HACCP principles, as examples to demonstrate the contribution of technical assistance provided by international organizations to the progress of food safety control in developing countries. The implementation of the above two international technical assistance programmes combined the advanced measures of food safety control with Chinese traditional control methods and proved to be very effective in improving the hygienic status of street foods. These two programmes could serve as model examples of successful international technical assistance. The following experiences were learned from the implementation of these two programmes. The programme selected for technical assistance will be the prioritized food safety issue of that country or area. The local government or authority should be aware of the importance of the problems to be solved. This is critical for the success of the programme as only in this case will strong resources and manpower support to the programme be provided by the local government or authority. The implementation of the programme will have a detailed plan and design. The preparation of programme plan and design per se is a process of personnel training and technical support. In the above two programmes, programme experts not only conducted plan preparation, training and guidance, but also carried out field visits and provided assistance in the preparation of summary report. The selected programme should be able to

sustain and fit to the economy and social development of the specific country. The street food programme conducted in China is in line with the plan of hygiene city and hygiene town in China, which is an important prerequisite for the success of these programmes.

▪ HAITI-1

The paper gives a list of recently provided technical assistance by international organisations on food control systems and food quality/safety. In particular, the participation of FAO and UNIDO is highlighted. The paper describes an on-going FAO project on “Strengthening the National Food Control Structure”. This project led to the establishment of the national **Inter-Ministerial Committee** in charge of the implementation of official food control programmes. Future actions are to undertake a communication campaign on education in food safety and social mobilisation to related issues; to continue improvements in prioritised sectors; to organise seminars or courses for food handlers (GHP, GMP and HACCP); to improve the sanitary environment; to create a national Codex Committee as suggested by the inter-ministerial committee; to set up a documentation center (technical and scientific publications, international standards); to develop a support programme to food industries in order to promote or reinforce quality assurance systems and their recognition through officially recognized certification, to support consumer associations in their activities.

▪ MONGOLIA-2

The paper describes the efforts of the Mongolian government over the last ten years to introduce capacity building and HACCP development. However, to date no food industry has introduced HACCP to assure food safety apart from the meat industry. Collaboration with national authorities to promote food safety education in schools and universities should be one of the important strategies to improve food safety in developing countries. It is also essential to strengthen coordination and collaboration between food control agencies and facilitate a multisectoral approach for food safety through the establishment of a national intersectoral coordinating committee. The paper recommends that both government and international agencies seek and support an effective mechanism of cooperation to improve the effectiveness of technical assistance on food safety.

▪ USA-4

The United States supports food safety technical cooperation and assistance to developing countries, directly or coordinated with relevant international organizations, to enhance the safety of foods available to all consumers and to contribute to economic development by strengthening sustainable production systems and export markets. Technical cooperation activities that have been undertaken by the United States include technical training, programs and consultations in such areas as national regulatory and enforcement frameworks, and consumer education. Lessons learned include: a) Consideration should be given to how desired outcomes can be sustained; b) Criteria should be developed to ensure resources are used appropriately and effectively; c) Food safety education strategies should be multi-layered and prioritized; and d) Strengthening food safety systems requires self-assessment, the involvement of donor organizations, and improved coordination of technical assistance activities.

▪ VIETNAM-1

The Vietnam Food Administration is responsible for managing food hygiene, safety, and quality and has made significant progress since its establishment in 1999. Food safety remains a high priority in Vietnam with the growth of export markets and increasing food imports raising the need to rapidly build capacity of the Food Administration in order to reduce threats of foodborne disease. The Food Administration has demonstrated commitment to the food safety challenges it faces, and has embarked on an innovative capacity building activity with technical assistance from the World Health Organization.

▪ MOROCCO-2

The document describes food legislation and food control in Morocco and then gives a list of examples of technical assistance/cooperation (bilateral with France, Canada and Germany and with FAO). It proposes the development of tools to facilitate the capacity building and technical assistance effort and through new approaches such as partnerships in the field of food safety and food control. The document recommends a) the creation of an independent scientific body responsible for food safety and risk assessment; b) the development of the food control system throughout the food chain; c) the implementation of a traceability system so as to guarantee the effective retrieval and removal from the market of unsafe food; d) the need for prompt FAO study on the feasibility of establishing a unique Food Inspection and Control Agency; e) the improvement of national laboratory facilities and capabilities; f) capacity building of the food testing laboratories to face evolution in technology and food control requirements (Dioxins, PCBs, GMOs, HAP,...) including training and human resource development programmes; g) the need to set up a national coordinated training programme for food inspectors; h) long-standing education, information and sensitization actions towards consumers regarding food safety concerns; i) the support given to consumer associations; j) the increase of government assistance to small and medium size food industries in their challenge to produce safer food and to ensure quality of Moroccan food products; k) the awareness raising among food retailers about their role and responsibility over the safety of their products; l) the scientific evaluation of sanitary (safety) and nutritional quality of traditional foods and spring, river and well waters used in particular in rural areas and the status of sewage treatment infrastructures and domestic wastes and other waste facilities and economic impacts of pollution from cities; and m) the need for more integrated approach in FAO technical assistance projects.

▪ BURUNDI-1

The document explains how food safety has become a new and understood concept since Burundi has been facing a regular decrease of its domestic production in relation to the political troubles that have been rocking the country since 1993, forcing the import of more products and the control of their quality and safety. Prior to 1993, the majority of food was consumed as fresh and/or raw although the food availability had not been satisfactory since 1969. The absence of any sensitization programme for food handlers and consumers is highlighted. Farmers are using intensively chemicals without any specific training and/or control to ensure the application of good agricultural practices and good practice in the use of veterinary drugs in Burundi. It is recommended that technical assistance and capacity in Burundi be focused on laboratory facilities and related human resources and expertise; training and education of official staff (inspectors) involved in food quality control.

▪ CI-2

The role consumer organizations can play in strengthening the capacity and effectiveness of food safety and control systems in developing countries cannot be underestimated. From the standards setting process to the monitoring of foods in the marketplace, consumer organisations provide a critical yet neutral voice in supporting government efforts to improve the safety that consumers demand in the market place. Their involvement furthers consumer confidence in government systems and processes. However for them to play their full role, more work is needed to build the capacity of these organizations and also to ensure that their voice is heard within policy making processes. Consumers International has been successful in strengthening consumer organizations ability to contribute to food safety issues. However, these efforts need support directly from the Codex Alimentarius. Consumers International acknowledges the trust fund proposed by both FAO and WHO and are hopeful that some of the proceeds from this fund will be used to address the issues on capacity building of consumer organizations raised by this paper.

▪ CÔTE D'IVOIRE-3

New approaches in technical assistance are strongly required due to the entry into force of the WTO Agreement for the Application of SPS Measures (SPS Agreement) which implies binding consequences regarding rights and obligations of every single country willing to put food on the international market in terms quality and safety. The technical fields which would require an immediate technical assistance in Côte d'Ivoire are: a) training needs of personnel involved in food control (only 20 official veterinary inspectors and 200 technicians for the whole country); b) capacity building in infrastructures and equipment (logistics, supplies, computer/IT, and supporting structures) to ensure safety for exported food and domestic produced/consumed food; c) needs for demonstrating the equivalence of Ivorian food inspection and certification systems (by mutual recognition); d) training needs of food handlers (especially in small/medium sized food industry to GHP, GMP and HACCP principles) and consumers (pedagogic educational tools to non visible food contamination). Innovative and specific suggestions are made to donors and to the three international standardization bodies ("three sisters" of the SPS Agreement, i.e., Codex Alimentarius Commission, OIE and IPPC) to take fully into consideration the needs expressed by developing countries, including the least developed ones.

▪ ERITREA-1

This document describes Eritrea's attempts to reconstruct their food control infrastructures and their efforts in capacity building in the field of disease prevention and eradication and in upgrading their inspection and laboratory techniques. Rural development is a high priority in Eritrea and one of the main objectives is to achieve greater food security and raise farming incomes. The introduction of technical aid, mechanized farming and proper land use has resulted in economic growth for the country. Eritrea's available resources are limited and depend to a large extent on agreements with external funding sources and donor agencies, (principally the African Development Bank, the National Livestock Development Programme, DANIDA through their Agricultural Sector Support Programme and the EU through the Pan-African Control of Epizootic Diseases Programme) . The Government has undertaken the responsibility for controlling nationally important diseases and is encouraging private veterinary practices and community-based animal health care in order to provide farmers ready access to both animal health and production services. The document stresses Eritrea's need for financial and technical support in order to strengthen their food control systems, especially for export oriented food products. There are currently no systematic food quality control measures as these activities are spread over different ministries, but only basic food control measures and inspections are being practised.

▪ TRINIDAD AND TOBAGO-1

According to recent statistics, Trinidad and Tobago is an emerging country which has considerable environmental problems. Like most countries, the Government is concerned about food safety, food security and achieving HACCP standards. The document summarizes the responsibilities assumed by the different units of the Ministries of Health and Agriculture, Land and Marine Resources. In recognition of the number of institutions involved in food control matters, the government realises that a multi-ministerial, multi-disciplinary approach needs to be taken with the full backing of the political leadership. Steps have already been taken in this direction, but much more needs to be done.

▪ UGANDA-1

The document gives an overview of the food safety control system in Uganda and highlights some of the urgent issues which require attention, such as foodborne illness resulting from sanitation failures in food production, processing, retailing and handling; basic food hygiene due to lack of necessary sanitation infrastructure; import of processed foods; obsolete food laws and lack of resources which hamper the current food control system. Details are provided on the EU inspection mission to Uganda and the problems that local inspectors are encountering in carrying out their duties due to lack of clear guidelines and standard operating practices and out of date laws and regulations. The document presents

Uganda's achievements in the area of food safety and health, due in part to support from donor agencies, and describes current endeavours towards the development of an effective national food safety control system.

▪ **USA-5**

This document provides a brief summary of new approaches being implemented by US regulatory agencies in capacity building and technical assistance around the world, with emphasis in the Americas. Aims of the work are: protecting public health; enhancing regional/national regulatory systems; and, developing structures and processes. The three projects described (the Caribbean Food Safety Initiative, the University of Puerto Rico Project and the Food Laboratories Network) all seek to capitalize on the unique strengths of participating organizations. The difficulties of participant and donor coordination, financial and technical needs, and sustainability of action are key lessons that have been learned from these projects.

APPENDIX XI

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakech, Morocco, 28 – 30 January 2002

THEME AND TOPIC PAPERS

WITH SUMMARIES OF APPLICABLE CONFERENCE ROOM DOCUMENTS FOR

COMMUNICATION AND PARTICIPATION

GF 01/6

COMMUNICATION AND PARTICIPATION – THE EXPERIENCE IN MEXICO

*José Luis Flores LUNA,
Ministry of Health*

*Amada Vélez M ÉNDEZ,
Ministry of Agriculture, Livestock, Rural Development, Fishery and Food*

Introduction

Food safety is increasingly becoming a more relevant issue. In Mexico, the General Act for Health considers food safety and food hygiene within the concept of sanitary quality and this, in turn, within the concept of general health.

The relevance of food safety lays in that food may cause illness which impairs the individual's ability and his/her possibilities of development; it may affect the community and unbalance the organizations in which individuals participate. From the economy and social point of view, sanitary quality of food –suitable for human consumption as well as safe- is becoming increasingly important for the development of the nation, it has an influence on the expected rise in employment, on the income of capital, and on the resources available for development. The sectors of agriculture and fishery, manufacturing industry, trade, tourism services related to production, processing and provision of food, all contribute significantly to the gross national product and to capital inflow, apart from being the most important employers of the country.

There are several relevant actors involved in the production of safe food: individuals who offer products and services; the consumer; governmental organization which encourage and support individuals in their function or protect or educate the consumer, the challenge here is to get them involved and make them co-responsible for the achievement of food safety.

Relevance for Public Health

Foodborne diseases, although difficult to quantify, are considered relevant for the health of the Mexican population. Acute infectious diseases transmitted by bacteria, parasites, and viruses through one of the possible routes, food, are a relevant cause of morbidity. Furthermore, with the increased life expectancy, chronic diseases in which toxins accumulate in the body through prolonged ingestion of contaminated food are a risk factor since, they occur in adulthood affecting the quality of life, the productive performance, and causing death.

One of the most important achievements in the health sector of Mexico is a decrease in the mortality rate. Life expectancy of the Mexican population at birth was 74 years in 1999, partly due to the decreased mortality rate for intestinal infectious diseases. In 1999, these diseases were in the 15th place among the main causes of mortality since they only caused 5,622 deaths out of 443,950 deaths that year.

Acute gastrointestinal disease statistics reported by the Single Information System for Epidemiological Surveillance include some potential FBDs such as intestinal amoebiasis, hepatic amoebiasis, cholera, typhoid fever, giardiasis, food poisoning (bacterial), paratyphoid fever and other Salmonellosis, taeniasis –cysticercosis and shigellosis, intestinal infections and wrongly defined infections, and other infections due to protozoans, brucellosis and viral hepatitis. In 1999, total reported cases of potential FBD's were 6,864,686 (See Chart I).

On the other hand, in 1999, malignant tumors, cirrhosis, and other chronic hepatic diseases and kidney failure ranked 2nd, 5th, and 14th among the main causes of death with 53,662, 27,040 and 7,807 casualties, respectively, being toxin-contaminated food a risk factor in these diseases.

Relevance for International Trade

For international food trade, food quality, specifically food safety, is increasingly becoming the key factor for success. The new rules of the game are specified in the Agreement on Sanitary and Phytosanitary Measures (ASPM) and in the Agreement on Technical Barriers for Trade (TBT).

According to these rules, the government of the country establishing them needs resources to show that the sanitary measures applied are legitimate and that national products are compliant, and so they are not biased against foreign products. The importing party or foreign exporting company demands compliance, ensuring also compliance of the suppliers in the previous steps of the productive chain and receiving decisive support from the government to show that the requirements are met and the implementation is equivalent or has a scientific base.

Globally, in the year 2000, exports in Mexico were 7.8 billion dollars and food imports were 7.6 billion dollars. The safety of exported food, particularly fresh fruit and vegetables, fish, crustaceans, and mollusks, among others, is crucial to maintain and increase Mexican exports. If the industry is not able to improve processing and self-controls, and the government does not implement the required measures for the governments of the importing countries to be confident that requirements are met, then exports will encounter difficulties to remain the same or increase, and the impact on the capital inflow, the employment rate, and the possibilities of development will be severely affected.

The safety of imported food requires increased control, free from unnecessary barriers to commodities, as well as the appropriate infrastructure in order to better identify the food which does not meet national requirements, in the same way as Mexico commercial partners monitor Mexican exports. Deficiencies in imported food control, whether actual or not, are identified by national producers as unfair trade which negatively affects the confidence of the society in the Mexican government.

At the same time, the foreign exchange revenues for international tourism in 1998 was 7,987 million dollars. Travellers' diarrhea due to food consumption may represent a barrier for international tourism incomes in Mexico. The endemic characteristic of the disease is caused by inadequate hygiene and the relatively high incidence of asymptomatic carriers, especially among caterers, as well as by the poor conditions of food storage.

Socioeconomic Relevance

The contribution of the sectors involving production, industry, distribution, sales and preparation of food and beverages to the gross national product is really significant. The important agriculture, forestry and fishery sector represented a 6% of GNP in 1998; food products, beverages and tobacco from the manufacturing industry represented 5% of the GNP, and the sector of commerce, restaurants and hotels, accounted for 21%.

Any process which may modify the way in which food producers, food processors and handlers, food vendors, or food service providers, requires to take into account the social extent of the population involved in the food chains as well as consumers, that is, the whole population in Mexico.

An estimated 36% of the total working population was involved in activities related to food productive chains, representing one of the most important employers in Mexico.

The practices for food elaboration and preparation, at any level, require to keep a balance between the changes to improve hygiene and safety control from food providers while preserving the consumers' taste and the dish aspect. For that reason, modification of hygiene practices of food providers should be influenced from the very early stages of their learning in order that the changes bring about solid and complete improvement of food safety in Mexican people's culture.

Consumers spend a high percentage of their income in food, which is one of the most important satisfaction in their life, not only to satisfy a need but as an important part of their individual and community cultural life.

Food is the result of an operational chain which begins in the field, in the farm, in the pond or in the sea, when food is not yet food; the transformation of food continues during the primary stages, sometimes they are subject to industrial transformation, sometimes when sold to the consumers, and it ends when after being prepared at households or at establishments they are finally eaten.

The number of working places where activities related to food are carried out is really big. Analysis of INEGI surveys allowed to determine that the number of food production, processing, distribution or sales units is 5.3 millions of “working places” (Chart II). Possibly due to the easy accessibility to consumers and few requirements of technology and investment in working capital and fixed assets prevailing in Mexico, there are huge numbers of micro-businesses (with 15 employees or less) which represent: 99% of those involved in agricultural activities, forestry, and fishery; 95% of those involved in transformation of food products, beverages, and tobacco; 91% of those involved in wholesale trade of food; 99% of those involved in retail sales of food; 94% of those involved in preparation and sales services of food and beverages in establishments, and, 100% of the ones involved in the preparation and sales of food in the street and at households.

Micro-businesses have the highest limitations, the most important needs, even in hygiene education, they are numerous and the consumers are limited in number. Medium- and big-size companies, i.e. those with more than 51 employees, represent only 0.6% total working places. They generally have the highest number of consumers, they have increased administrative and technical capacity to solve problems to reach and keep their competitive position. They are more aware of the quality and safety of their products. And they generally have better possibilities of exporting their products and they can monitor their quality control systems. Besides, they require certification of their products, processes or systems to meet the requirements of the importing country apart from exerting stronger pressure for the government to assign resources to satisfy their needs and, paradoxically, they are thought to represent a lower risk.

To provide safe food, employees working in the productive food chain need to follow the good sanitary practices in a systematic fashion. Training, development of skills, and generation of a positive attitude to attain this may be acquired in the working place, but the possibilities are reduced for very small companies. So, the possibilities for a worker to receive education on hygienic handling seem to be reduced to primary education. The use of primary education to expose a student to information and training on how to change food selection, preparation and storage habits is a viable way for the country to build sanitary education capable of deeply changing the current situation of food safety in Mexico.

Current Sanitary Regulation, Control and Development

In Mexico, sanitary regulation, control and development of products, establishments and services is a set of preventive actions carried out by the sanitary authority in order to control, based on sanitary regulation, the conditions of the environment of humans, establishments, activities, processes, and products which may represent risks to human health, and, at the same time, to support appropriate attitudes, values, and behavior of the people and companies to encourage their responsible participation for the benefit of individual and public health.

The legal base of the Mexican food regulatory system is the General Act for Health, issued in 1984. From that time, the regulations have allowed to steadily fill in the gaps which made instrumentation of sanitary control difficult. The process of decentralization of public health services terminated in 1999 have allowed to better satisfy local health requirements.

As of 1992 an efficient model of elaboration of official Mexican standards was developed with the active participation of the industry, the commerce, the consumers, the academy, and all the governmental agencies involved. Moreover, the participation of this same actors in the Sub-committees of the Codex Alimentarius has substantially improved resulting in an increasingly proactive performance of the Mexican delegations in the International Codex Committees.

The regulatory system developed since 1991 to implement a consistent, steady, free-from-deviations sanitary control has improved to fight historical deficiencies of sanitary regulations such as lack of administration and improvisation, deficient regulations, dissociation from epidemiological needs, insufficient trained and motivated personnel, absence of adequate and sufficient equipment and few laboratories to support the activity. Pre-market authorizations were abruptly eliminated and the technology for quality management was adapted to the function of the government and to the improvement in information technology to foster permanent progress. Sanitary control was organized to avoid discretionary application of sanitary authority, improved management of resources, and to expand its coverage. Salaries were improved, and a system for learning, training and supervision was implemented.

The system was designed for random surveillance based upon the empiric risk of establishments and products, offering representative information about surveyed establishments and products, concurrently giving attention to sanitary contingencies and emergencies, reports and claims of individuals by means of the guided program. The implementation of the product and service sanitary control system at national level has been gradual.

Up to the present, sanitary control is a governmental exclusive, but not limiting, function of the Secretary of Health (SH). In its operation, federal, state, and jurisdictional actions are coordinated and complemented at their respective levels of competence. Sanitary control and development is performed mainly for the manufacture, import, distribution, commercialization and provision of food, raw material and commodities. Nevertheless, little has been done regarding primary production, specifically for the food consumed fresh or under-processed.

Mexico, as other countries, has not had an integrated program to achieve food safety, which have resulted in some unattended sectors such as the agricultural production, where systems to reduce microbiological, chemical, and physical risk had not been implemented.

Historical Participation of other Governmental Agencies

Additionally, there are other federal government agencies which can legally promote and encourage the development of different sectors of the economy relating to food. The Secretary of Agriculture, Livestock, Rural Development, Fishery and Food (SALRDFF) established in 1951 zoosanitary control of slaughter houses and meat processing establishments by means of Type Federal Inspection system (TFI), especially for the promotion of exports. Since 1988, by agreement with the SH, SALRDFF assumed the responsibility for the control of imported meat and meat products. Later, in 1993, through the Federal Act of Animal Hygiene it was given the authority to carry out the sanitary regulation of other animal products through private monitor agencies accredited by the SALRDFF.

As of 1997, when the United States announced the development of sanitary measures to limit the entry of food not meeting the safety requirements, SALRDFF developed an aggressive development program called Integral Program of Technological Development for Food Quality (IPTDFQ) directed to fostering the importance of food safety and the application of good agricultural-sanitary practices among producers and packaging personnel, especially for fresh fruit and vegetables.

It was also in 1990 that the National Institute of Fishery started a program with the cooperation of the Food and Agriculture Organization (FAO) to train trainers to promote the

establishment of HACCP systems. The Secretary of Economy, previously called Secretary of Commerce and Industrial Development, based upon the Federal Act on Metrology and Normalization issued in 1992, promoted a practical mechanism for the development of mandatory standards (NOM) and voluntary standards (NMX) for the Mexican Accreditation Entities (MAE) and private third parties such as units for the verification of commercial and sanitary labeling, which support fair trade component of sanitary control.

Building the National System for Food Safety

Due to the strategic nature of food safety, the Federal Government agreed on the establishment of an integrated National System for Food Safety, with the joint efforts of the Secretaries of Health and Agriculture, with the aim of assuring sanitary quality of food while enhancing and maintaining national and foreign markets of agricultural, livestock and fishery products to ensure safe food for the national and international population.

On the one hand, only in July 2001, SH set up the Federal Commission for Sanitary Risk Protection in order to integrate all the functions of sanitary control, that is, drugs, medical equipment and other health supplies, environmental and occupational health and food, beverages and cosmetics, in only one organism which should merge and harmonize SH policy to define and have technical, administrative and operative autonomy which allow more efficient and flexible and faster decision making based upon the best technical and scientific evidence available. This change made also possible that other federal government agencies, such as SALRDFF, could participate as sanitary authority in the process of regulation.

On the other hand, the current legislation should be modified, especial the General Act for Health, in order that SALRDFF be identified as the sanitary authority in Mexico through the National Service for Agriculture and Food Health, Safety and Quality. This will allow to establish regulations and control activities in the primary production sectors such as agricultural, livestock and fishery production units as well as in packaging, stores, transport and trade establishments.

Although this agreement exists at the level of the Secretaries of State, modifications to the legislation require to be passed by the Congress which in turn will survey the different sectors involved in production, handling and commercialization of food, the academy and consumers for their opinion on the legislative changes proposed.

Once the legislation has been modified, the respective regulations will be elaborated for the Agencies of the Secretary of Health and the Secretary of Agriculture which will be responsible for food safety; furthermore, to make this cooperation effort between the two Secretaries formal, a Cooperation Agreement for Food Safety will be made.

In Mexico, every modification to the law and regulations, as well as every new legislation, require public comments to attain transparency and the possibility for all the population to give their opinion on the legislation proposed.

The National Service for Agriculture and Food Hygiene, Safety and Quality (NSAFHSQ) is aware that no legislation is completely effective if it is not communicated to the consumers and general public in a simple way. For that reason, a General Office for Consumers' Communication has been established with the aim to inform the general public, especially users of the office's services, about the legislation and regulations in force, for a more effective compliance, and in order that the general public be confident about the work performed by the federal government.

Recently, in February this year a National Forum on Food Safety was carried out with the participation of consumers, industry, academy and farmers, producers, traders, and state governments, in order to hear proposals on the strategy the federal government should develop to attain safety food production. All agreed that food safety should be a priority issue for the federal government and that it was necessary to have an agency exclusively aimed at performing this task

and they also agreed on the need to issue regulations or a specific law to regulate food production from the farm to the table.

This regulating agency has been established as the National System for Food Safety, which will have a Technical Council where the different involved sectors will participate and which will function as a guide to define the policy on this issue and actions taken on this matter will be presented to it.

Currently, a Master Plan on Food Safety is being elaborated including different activities for different sectors, among which the following can be mentioned: promotion of the establishment of Good Agricultural Practices; Good Production Practices; Standard Sanitization Procedures; Risk Analysis and Critical Control Points. This promotion is intended for agricultural, livestock and fishery producers and will be mainly focused to primary production.

Moreover, a promotion program will be carried out to the consumers' sector to direct their preferences towards products having safety quality brands. It is worth mentioning that we presently have a similar system for meat, sausages, and chicken, especially for export products.

It is also deemed necessary to establish a training program for housewives to foster hygiene practices and handling of food at households, since a high percentage of foodborne diseases occur due to inadequate food handling in the household.

Besides, training courses for professionals and producers are being planned for the application of systems to minimize risks and make the process of their establishment in production units easier.

In order to gain the consumers' confidence on the work performed by the federal government in food control, bulletins or reports on the NSAFHSQ activities will be published or issued in order to counteract distorted information, lacking scientific support, disseminated through certain media.

In order to attain effective activities from the Federal Government, cooperation agreements with the States will be signed to delegate some control and follow-up activities of the State Programs for Food Safety.

Also, awareness programs will be established with producers' associations to facilitate the process of establishing risk reduction systems.

This initiative implies several interaction activities with different sectors; nevertheless, we consider that the opinions given at the Global Forum for Food Safety Regulators will allow the establishment of new communication and participation strategies of the different sectors.

Conclusion

Food safety is crucial for Mexico's development because it has an impact on the health of the population, job creation, investments inflow, fair trade of food, and, globally, on the efficiency and productivity of the nation. While contaminated food is a concern involving the functions and responsibilities of different sectors, coordination, an integrating strategy, an explicit definition of responsibilities to achieve food safety from the farm to the table; and the design of models which allow to measure the contribution of food safety to the objectives of the policy of each participating organization are needed.

Chart I. Reported Cases of Potentially Foodborne Diseases

Diagnosis	1998	1999
Cholera	71	9
Typhoid Fever	11,546	8,893
Intestinal Amoebiasis	1,613,215	1,516,845
Giardiasis	78,475	63,056
Intestinal and wrongly defined infections	5,023,427	4,862,618
Other protozoan intestinal infections	109,876	124,303
Paratyphoid and other Salmonellosis	215,155	181,239
Bacterial food poisoning	35,081	42,661
Shigellosis	45,372	39,029
Taeniasis	3,061	3,195
Brucellosis	3,550	2,719
Cysticercosis	1,061	920
Viral hepatitis A	18,695	19,199
Total	7,158,585	6,864,686

Source: Single system of information for epidemiological surveillance, 2000, 2001, Secretary of Health

Chart II. Working place by number of employees (thousands)							
Activity	Total	1 person	2 to 5 people	6 to 10 people	11 to 15 people	16 to 50 people	51 or more people
Agricultural activities, forestry, and fishery	3,538	1,625	1,798	83	12	13	7
Transformation of food products, beverages and tobacco	347	201	113	14	3	6	10
Food wholesaler establishment	59	29	17	5	2	3	3
Food retailer establishment	914	606	279	16	3	4	6
Preparation and sale services of food and beverages in establishments.	196	53	107	19	6	7	4
Preparation and sale of food and beverages on the street and in households	273	198	74	1	0	0	0
Total	5,327	2,712	2,388	138	26	33	29

Source: Own elaboration based on INEGI, 2000

Note: Average of each size of working place, according to number of employees, was obtained and then the average by activity was calculated.

GF 01/13

BRAZIL INSTITUTIONAL EXPERIENCE FOR THE IMPLEMENTATION OF RISK ANALYSIS

*Antonia Maria DE AQUINO
Ministry of Health, Brazil*

I. General Considerations

The National Agency for Sanitary Surveillance (NASS) of the Ministry of Health (MH) was established in January, 1999. The mission of the Agency is “to protect and promote health ensuring sanitary safety of products and services”, especially for food and their corresponding manufacturing units. It is worth noting that the actions for food sanitary control in Brazil are shared by the health and agriculture sectors.

Both experiences, which will be discussed here, were managed by the NASS.

The initiatives of the food sector of the Agency to set risk analyses in motion have been directed towards the improvement of control and sanitary inspection systems for certain products.

The Risk Analysis process seeks to estimate the risk for human health associated with the presented scenario as well as to select and implement the appropriate measures to control such risks with the aim to ensure safe food for the population. The impact on human health is the main concern of the risk analysis process.

Considering the three components interacting to integrate the risk analysis process, NASS has proceeded as follows:

- Risk evaluation is based upon existing official epidemiological data, upon analytical results of the specific product, and upon the analysis of the food manufacturing process with a view towards identifying the critical stage, which requires systematic control;
- Risk management involves the updating of sanitary norms, technical training for inspectors, and the implementation of national programs for sanitary inspection and monitoring of food sanitary quality;
- Risk communication is achieved by disseminating in the media information on the foodborne risks posed by a given product; by warnings in product labels; and by delivering instructive material to raise public awareness of the risks coming from a certain food.

The risk analysis process is achieved through the participation of the different parties involved –as recommended by the Codex Alimentarius directives- including health and agriculture official institutions, representative entities from the productive sector, teaching and investigation institutions, and consumers’ protection organizations, all of them essential to ensure the transparency of the whole process as well as of decision-making.

Issues to deal with following the risk analysis process have mainly emerged from epidemiological data and food control program outcomes which indicate a risk situation coming from the combination food-agent.

II. Institutional Experiences

Botulism in Canned Palm Heart

Since the occurrence of three cases of canned palm heart-associated botulism in 1997, 1998 and 1999, risk analysis was started and the Technical Group was established, formed by different interested parties or *stakeholders*, such as the scientific community, e.g., the Food Technology Institute (FTI) and the Adolfo Lutz Institute (ALI); members of representative entities of the

productive sector – Brazilian Association of Food Industries (BAFI), members of the Brazilian Environment Institute (BEI), members of Sanitary Surveillance from the States, the National Agency for Sanitary Surveillance (NASS), Epidemiological Surveillance, and consumers' representatives –Consumers' Protection Institute (CPI).

As described above, the warning label was an emergency measure adopted provisionally, since after the results from the National Program for Sanitary Inspection of Canned Palm Heart Industry, the companies approved were exempted from wearing the warning label in their products. The registration of the products from companies which did not meet the requirements was cancelled, and the authorization to process such products was withdrawn.

Due to the emergency nature of the situation and the remarkable virulence of the toxin *Clostridium botulinum*, a Warning to the Population was published in the most popular newspapers of the country; also, an official release was made to the Sanitary Surveillance Bodies of the States, recalling the brands which have caused the outbreak and it was decided to carry out laboratory analyses to monitor if the pH, considered the Critical Control Point of the product, was within the 4.5 limit in all the batches available in the market.

Following the Warning to the Population, the official press published the resolution that canned palm hearts should be labeled in a clear and readable way for the consumers, with the following warning: "For safety, this product should only be consumed after being boiled either in the can fluid or in freshwater for 15 minutes". This warning was elaborated from scientific studies developed by the Food Technology Institute (FTI).

The Consumers' Protection Institute played a crucial role in communication since it carried out a market research collecting samples from 15 (fifteen) separate brands of canned palm heart. The outcome of this study was made known through an interview about canned palm heart-associated botulism in the most important television network during prime time. Brands were prohibited and their batches released only after an additional laboratory analysis was performed.

As the hazard has been clearly identified and characterized, risk evaluation was based upon the study of the productive process, specifically upon identification of the canned palm heart processing stages considered critical for *Clostridium botulinum* control. As a result of the study, the stages of product acidification and thermal treatment were identified.

Based upon the studies carried out, Resolutions RDC NASS Nbr. 17 and 18/1999 for Canned Palm Heart Standard and Good Manufacturing Practices, respectively, were endorsed. According to the information emerging from the Regulations, the Technical Group elaborated directives for the National Program of Sanitary Inspection for the Canned Palm Heart Industry. The resolutions established a term of 180 (one hundred and eighty) days for the companies to implement Good Manufacturing Practices (GMP) and monitoring of Critical Control Points of the productive process. To meet these requirements, companies should also train a specialist in GMP.

NASS asked the Brazilian Supermarket Association to buy only canned palm hearts having the warning label while this provision was still in effect –29 April, 1999 to 19 February, 2000. After February 2000, the companies could not continue marketing the canned palm heart with the warning label, they should buy and distribute only products with registration and brand authorized by Sanitary Surveillance.

By that time, the population was informed through the media they could consume canned palm heart without the warning label, since the products commercially available had been authorized at the sanitary inspection. NASS offered a site in the Internet including all the brands, industries, and numbers of approved registrations after they have been gazetted (Boletín Oficial de la Unión).

Due to the occurrence of cases of canned palm heart-associated botulism, risk communication showed the need to re-organize the Sanitary and Epidemiological Surveillance Systems in Brazil. To pay better attention to cases, epidemiological surveillance of the major State of the country, São Paulo, established a Reference Center for Botulism. This national-scope center is in operation 24 hours a day, available through a toll-free line (0800) telephone line and has a technical team trained in giving orientation and advice to health professionals regarding diagnosis, treatment, and research on the different signs and symptoms of the disease. The Reference Center for Botulism comprises the Institute Butantan, also located in São Paulo, which has the technical conditions to produce and have the anti-botulinic serum for the whole country and for Latin America.

The setting up of the inspection program within industries was the responsibility of sanitary surveillance bodies of the states, jointly with NASS, and was achieved by sensitizing sanitary inspectors on the importance of product control, and training of 62 (sixty two) inspectors regarding Good Manufacturing Practices for canned palm heart, the productive process safety evaluation, and harmonization of technical-legal procedures.

Only industries (including new industries, in-operation industries, and industries exporting palm heart to Brazil) controlling the critical points of the productive process defined by risk assessors, and meeting other requirements established by the aforementioned Resolutions, were approved during sanitary inspection. There were nearly 519 (five hundred and nineteen) industries when the Program was started; this figure dropped to 120 authorized industries in September 2001. Also, 267 (two hundred and sixty seven) product registrations were cancelled.

Since the implementation of the Program, routine sanitary inspection was established as well as the commitment of the productive sector regarding the product safety.

Although risk communication was, in principle, an experience which had an effect on the productive sector and decreased product consumption in the country, communication was found to be extremely positive, considering the following aspects:

- training of 62 inspectors from NASS and the 27 surveillance agencies from the States regarding GMP for canned palm heart;
- enhancement of sanitary inspection at producing premises and stores;
- organization of the productive sector in associated entities;
- mandatory implementation for industries to have a trained technician in GMP in canned palm heart;
- creation and availability in the internet of a data base on brands, registrations and industries authorized by sanitary surveillance and those whose registrations had been cancelled;
- encouragement for the creation of a Reference Center for Botulism, what allowed for the re-organization of the flow of notification and sanitary, epidemiological, and laboratory investigation of the disease

Since the risk communication as of April 1999, no other case of canned palm heart-associated botulism was observed in Brazil.

Iodine Deficiency Disorders in salt for human consumption

Risk analysis was developed after the establishment of an inter-institutional commission in November, 1999, which gathered all interested parties, *stakeholders*. The commission was formed by the Ministry of Health, represented by the Department of Health Policy, Sanitary Surveillance, Epidemiological Surveillance; the Ministry of Agriculture, the United Nations Children's Fund

(UNICEF) and representative associations and consortiums of the productive sector. This Committee gathered periodically ensuring exchange of information among the involved parties.

The committee decided that the Department of Health Policy would take part in the Thyromobil Project, developed by the *International Council for the Control of Iodine Deficiency Disorders (ICCIDD)*, to evaluate goiter prevalence among 1,977 school children (6-12 years old) from 06 units of the Federation, as well as the level of iodine in the salt consumed in the children's homes. The result of the project showed the prevalence of goiter to be approximately 2%, that is, a value lower than 5%, the normal limit established by the World Health Organization. Regarding iodine content in the salt consumed in the children's homes, the total average obtained was 48.3 ppm, this value being within the limits legally established in the country (40-100 ppm). The outcomes showed a high standard deviation among samples, more precisely, a 29 ppm. average. The analysis of samples of salt intended for human consumption carried out routinely by the sanitary surveillance services confirm the standard deviation obtained by the Thyromobil Project.

Based on the Thyromobil Project results, more specifically, considering iodine high standard deviation in salt samples collected from the children's homes, the inter-institutional commission verified the need to adopt measures to ensure the standard deviation control during the processing of salt for human consumption.

In that sense, the National Agency for Sanitary Surveillance elaborated Technical Regulations, Resolution NASS RDC Nbr. 28/2000, defining Good Manufacturing Practices for salt for human consumption, highlighting which controls should be carried out by each establishment to ensure appropriate iodine levels in the end product. At the same time, with the publication of such technical regulations, NASS established the "National Program for Sanitary Inspection of Establishments Producing Salt for Human Consumption" with the purpose of inspecting 100% of national companies. According to the directives of the Program, salt establishments go through a first inspection step during which salt processing conditions are evaluated. When the Program identifies an establishment which does not meet all the requirements of the technical regulations, it is given a term of 180 days to proceed to adaptation.

After the expiration of this term, establishments will be re-inspected, and only those which fully meet the requirements of the Technical Regulations will be authorized. It was also stated that only establishments approved in the National Program will be authorized for the commercialization of salt for human consumption. With the aim to ensure risk communication to the productive sector, the National Service for Industrial Learning (NSIL) was included in the National Program in order to disseminate in the sector the control measures regulated by NASS, and the reasons for their adoption, and also to provide companies with technical assistance to put these measures into effect.

This National Program is at the end of its initial stage of sanitary inspection, with 122 establishments inspected up to the present.

Apart from the need to establish measures to manage the high deviation of iodine content in salt for human consumption, as revealed by the Thyromobil Project, the inter-institutional commission highlighted the need to inform the consumers about the risks from iodine deficient consumption as well as the importance of iodine salt for the control of Iodine Deficiency Disorders (IDD). Therefore, advertising campaigns were elaborated for television and radio, apart from the informative material delivered to schools, and urban and rural areas.

During the risk communication process, we highlight the importance of the health community agent. This agent is a community member trained by the Ministry of Health in basic health measures, forming a network of 144,000 members all over the Federative Units of Brazil. According to the Control Program of Iodine Deficiency Disorders, these agents took part in the risk communication to the population through house calls explaining the importance of the consumption of iodine salt and the appropriate conditions of product storage.

Among the results obtained through the exchange among involved entities, it is worth mentioning the re-evaluation of analytical methodology used by official laboratories after the account of the productive sector experiences, the recognition of the need to establish an expiration date for iodine salt, and the learning about salt consumption habits in low-income rural populations.

GF 01/14

ENSURING EFFICIENT COMMUNICATION AND INTERACTION BETWEEN FOOD SAFETY RISK ASSESSORS AND RISK MANAGERS

Discussion-Paper prepared by Germany

on the basis of the report of the WHO Expert Consultation
“*The Interaction between Assessors and Managers of Microbiological Hazards in Food*”,
21-23 March 2000, Kiel, Germany

1. INTRODUCTION

The experts of the WHO Expert Consultation submitted the following principal comments:

- Food Safety Authorities in Member Countries should structure their food safety system(s) on a risk-based approach that includes appropriate communication and interaction between risk assessors, risk managers, and stakeholders.
- The functional separation of risk assessment and risk management is essential to the conduct of risk analysis activities.
- Independence, transparency, and robustness of the scientific analyses and advice are essential determinants of their credibility. Nonetheless, effective dialogue among risk assessors, risk managers, and other stakeholders is essential to maximize the utility of the assessment findings and to ensure that both scientific and societal goals are met.

Concerning the interactions between risk managers and risk assessors, the terminology adopted or under discussion of the FAO/WHO Codex Alimentarius Commission is used. The same applies to the description of risk analysis.

2. RISK ANALYSIS

Risk analysis is composed of three components, i.e. risk assessment, risk communication and risk management. The definitions for those three components are described in Codex terminology as follows:

- Risk Assessment is defined in the Codex “Principles and Guidelines for the Conduct of Microbiological Risk Assessment” as a scientifically based process consisting of the following steps: i) hazard identification, ii) hazard characterization, iii) exposure assessment, and iv) risk characterization.
- Risk communication is defined in the Codex as: the interactive exchange of information and opinions throughout the risk analysis process concerning risk-related factors and risk perceptions, among assessors, risk managers, consumers, industry, the academic community and other interested parties, including the explanation of risk assessment findings and the basis of risk management decisions.

- Risk management is defined in the Codex as: the process, distinct from risk assessment, of weighing policy alternative in consultation with all interested parties, considering risk assessment and other factors relevant for the health protection of consumers and for the promotion of fair trade practices, and, if needed, selecting appropriate prevention and control options.

The following steps of the procedure are within the mandate of risk assessors and risk managers:

Risk assessors:

- hazard identification,
- hazard characterization,
- assessment of the exposure,
- risk characterization
- risk communication with regard to the aforementioned tasks.

Risk managers:

- identification of the problem,
- definition of a risk profile,
- goal description,
- identification and definition of the tolerable risk,
- risk communication with regard to the aforementioned tasks.

3. FUNCTIONAL SEPARATION OF RISK ASSESSMENT AND RISK MANAGEMENT

The draft Working Principles of Risk Analysis and the Principles and Guidelines for the Conduct of Microbiological Risk Assessment refer to the functional separation of Risk Assessment and Risk Management. Individual(s) who prepare the risk assessment should not normally be the same individual(s) who are responsible for the management of the risk. The tasks of risk assessment and risk management are best performed by different people or functional groups. However, it is recognized that in many countries an individual may act as both a risk manager and an assessor. In all cases it is paramount that the activities of the risk analysis process are transparent and appropriately documented. This applies to all interactions between risk assessors and risk managers, or to the separation of the activities by an individual.

Functional separation is essential for the conduct of risk analysis activities in order to maintain the scientific integrity of the risk assessment process and to avoid political pressures that would undermine the objectivity and the credibility of the conclusions. Separation of risk management and risk assessment helps to ensure that assessments are not biased by pre-conceived opinions related to management solutions. However, there is a need for frequent interaction between risk managers and risk assessors in order to arrive at effective risk management decisions. Active interaction is necessary to ensure that the assessment will meet the needs and answer the concerns of the risk manager. The assessors must understand the manager's questions and both parties must acknowledge any constraints, which may impact on the risk assessment. The strengths and limitations of the assessment must be properly communicated so that people using the risk assessments can properly understand the results. Interactions between assessors and managers do not end with the completion of the risk assessment. There will often be exchanges of information and input from assessors during subsequent risk management activities, for example, during the option assessment stage and in communication of results to interested parties.

The nature of the interaction between risk assessors and risk managers may differ according to the way national or international organizations are structured. For example, organizational as well as functional separation between risk managers and risk assessors is currently envisaged in the Codex system for microbiological food safety. Nevertheless, interaction and communication are essential for effective risk management, while maintaining the scientific integrity of risk assessment, and should include active steps such as open review.

There are constraints, and inefficiencies in the risk management procedures as carried out by the Codex Committee on Food Hygiene, and improved interaction between risk assessors and risk managers is needed. With this in mind, it is suggested that FAO and WHO give strong consideration on how experts in risk management procedures can feed into the work of the ad hoc FAO/WHO risk assessment consultations, while at all times clearly maintaining risk assessment and risk management as separate functions.

4. INTERACTION BETWEEN RISK ASSESSORS AND RISK MANAGERS

Risk assessment and risk management interactions may be subject to time constraints, especially in situations where a food safety problem requires rapid deployment of interim or emergency measures. Effective risk management in emergency situations depends on an urgent dialogue between assessors and managers. However, even in such situations managers should strive for open communications in order that the need for transparency is satisfied to the greatest possible extent.

The interaction between managers and assessors depends on the scope of the risk assessment. Often the risk assessment is designed to identify the stage in the food chain where interventions will most effectively reduce the public health burden attributable to the specific food and pathogen in question. A risk assessment may also be initiated to examine the cost effectiveness of current controls or to evaluate a new technology for control. In this case a list of options for consideration will be included in the scope. In an emergency situation with an emerging pathogen where the etiology of disease is not well understood the options comparison will be abbreviated.

5. TRANSPARENCY

Transparency is a key objective of the risk analysis approach and its importance cannot be overemphasized. This is reflected in the Codex Statement of Principles relating to Food Safety Risk Assessment, the Codex Committee on Food Hygiene (CCFH) Guidelines for Microbiological Risk Assessment, and the CCFH draft Guidelines for Microbiological Risk Management. Transparency in risk assessment means that all assumptions, data, inferences, and conclusions are explicitly documented and made available for open review and discussion. Transparency in risk management means that the process is open and available for scrutiny by interested parties including stakeholders and consumers who may be affected by the outcome of the risk analysis and risk management activity.

6. RECOMMENDATIONS

The following recommendations of the Expert Consultation held in Kiel 2000 should be discussed:

- Food Safety Authorities in Member Countries should structure their food safety system(s) on a risk-based approach that includes appropriate communication and interaction between risk assessors, risk managers, and stakeholders.
- FAO and WHO should actively seek opportunities to promote collaborative international risk assessment and risk management activities among Member Countries.
- FAO and WHO should encourage the implementation of relevant studies to obtain new and needed information required to support international risk assessment and risk management activities in the area of food safety. This may be best achieved through the FAO and/or WHO collaborative centres, and would involve establishing protocols, providing training, and design of appropriate sampling plans for investigating food-borne risks to human health.
- FAO and WHO should emphasize that communication has to occur frequently and iteratively while striving to ensure scientific integrity and achieve freedom from bias in risk assessments.
- FAO and WHO should invite the CCFH to take account of the output from this consultation in its work to develop “Principles and Guidelines for the Conduct of Microbiological Risk Management”.
- FAO and WHO should give strong consideration to how experts in risk management procedures can interact with risk assessors involved in the ad hoc FAO/WHO Consultation on Microbiological Risk Assessment. This interaction is particularly important when deciding on the scope of a particular risk assessment, developing risk assessment policy appropriate to that risk assessment, and ensuring the results of the risk assessment are of maximum utility for risk management.
- FAO/WHO and national authorities should consider carefully the training needs of risk assessors and managers so that they are able to undertake the full range of their responsibilities efficiently and effectively.
- FAO and WHO should facilitate discussions of the nature and value of food safety objectives especially in the microbiological field. In the light of the report of the Director General of the WHO (EB 105/10 para 10), WHO is requested to expedite consideration of this matter in coordination with FAO.
- National governments should acknowledge the importance of functional separation between risk assessment and risk management while ensuring transparent and appropriate interaction between them.

SUMMARIES OF CONFERENCE ROOM DOCUMENTS FOR THEME 4***COMMUNICATION AND PARTICIPATION*****▪ MEXICO-1 (GF 01/6-REV. 1)**

Food safety is becoming increasingly addressed in Mexico, with the General Act for Health considering food safety and food hygiene within the concept of sanitary quality and this, in turn, within the concept of general health. The relevance of food safety lies in the fact that food may cause illness which impairs the individual's ability and possibility of development, as well as affecting the community and imbalancing organizations in which individuals participate. From an economic and social perspective, the sanitary quality of food is becoming increasingly important for the development of the nation, influencing the expected rise in employment, in capital income and in resources available for development. The sectors of agriculture and fisheries; of the manufacturing industry; trade and tourism services; as related to the production, processing and provision of food, all contribute significantly to the gross national product and to capital inflow, while representing the most important national employers. There are several relevant actors involved in the production of safe food: individuals who offer products and services; the consumers; governmental organizations which encourage and support individuals in their function or protect or educate the consumer, the challenge being to establish collective involvement and co-responsibility for the achievement of food safety.

▪ CANADA-5

Government, food regulatory agencies and industry stakeholders have a fundamental responsibility to communicate best practices for enhanced food safety as well as potential food safety risks. Clear, concise and timely communication on food safety issues is an essential element of Canada's integrated approach to food safety. The communication objective is to provide individuals and organizations with appropriate information that contributes to improved food safety practices at all levels of the food continuum (i.e.: inputs, production, processing and consumption). Canada has made significant investments in communications to inform, educate and advise consumers and other stakeholders. In addition to more traditional communication tools, increasing use of the Internet by Canadians is providing a new, practical and economic mechanism for governments to reach consumers and other stakeholders. Working with stakeholders, innovative programs such as the Canadian *Fight BAC!*[™] Campaign are making important contributions to enhancing food safety and minimizing the occurrence of foodborne illness resulting from improper food handling and preparation by the consumer. Implementation of an integrated approach to enhance food safety has resulted in important lessons learned with respect to: food safety communication as an ongoing regulatory responsibility; the need to identify clear communication objectives and to consult with stakeholders as part of ensuring the timely availability of appropriate food safety messages to the right audiences.

▪ CHINA-4

The Chinese government is convinced that enabling the consumers, food industry and other stakeholders to learn about the current situation of food safety and to participate in food safety control activities is the most efficient way of strengthening the national food safety control system and of improving the confidence of consumers in the safety of the food supply. Based on this understanding, the Chinese government has adopted various measures to promote the participation of all stakeholders, in particular the consumers. These may include: participation of food industry associations and representatives in food standard and regulation drafting; the increasing of attention by governmental agencies at different levels to consumer complaints and to responding to communications with industry in respect of these complaints; release and dissemination of food safety information through different

mediums; implementing the education programme- "Food Hygiene Law Education Week" annually (since 1996); and establishing close cooperation with the consumer organization. The participation of Chinese consumers in food safety control is still relatively inadequate, particularly regarding consumers from rural areas. Most of the food industries in China are small and medium sized businesses, there being a need to explore better ways to communicate with these food industries. China is a large and diverse country, with significant differences in economic development, education levels, cultural background and dietary habits amongst its different regions and consequently requires an efficient ways in establishing participation and risk communication towards food safety.

▪ **CI-3**

Consumers International has participated in Codex work as an observer for three decades, and notes the importance of ongoing efforts by the Codex Commission to improve the participation of consumers in its activities. Sound goals have been established, but the details of implementation have yet to be worked out. Data need to be collected at regular intervals on objective measures to track progress in consumer participation at the national and international level. Some governments are more advanced than others in terms of the extent and mechanisms through which they facilitate consumer participation in their food safety risk analysis. Through fora such as this one and Codex Regional Coordinating Committees, successful experiences can be shared and perhaps, more widely adopted. In order to improve the quality of consumer participation, consumer NGOs should be given opportunities to take part in risk analysis training and similar workshops carried out by international agencies and national governments. The risk assessment process, which has traditionally been closed to observers, should also be more open and transparent, bringing invited consumer participants into that process could both improve the results and add to the credibility of risk assessments.

▪ **GERMANY-1**

Presently, the Federal Institute for Risk Assessment advises the Federal Office and its governing body- the Federal Ministry of Consumer Protection, Food and Agriculture (BMVEL), besides cooperating with governmental research departments. With deficits in risk assessment (no central assessment agency, capacity shortages) and risk management (fragmentation of Federal and Ministerial responsibilities, unsatisfactory EU-Federal Government-Laender coordination), Germany aims to consolidate responsibilities of the BMVEL; disunite the administration of risk assessment, risk communication and risk management; establishing an independent scientific agency for the assessment of health risks. The foundations of a new administrative structure for consumer health protection and food safety, require the pooling of resources from various ministerial institutions, permitting an increment in personnel and capital investment.

▪ **MOROCCO-3**

A few years ago Morocco initiated the development of a truly integrated approach with all stakeholders of the food chain, to assure a greater understanding and participative process when managing and communicating on food safety and quality related issues. The main objectives of this new approach is to a) increase information circulation among all partners (administration, food chain professionals, and consumers); b) increase the responsible role and behaviour of professionals through voluntary programmes (code of good practices, technical regulations, knowledge of mandatory obligations); c) consumer information and education programmes; d) support to consumers associations. A special food safety inter-ministerial Mission has been established. Food industry operators are organised in branch associations. Six consumers associations are currently active in Morocco. Through different examples, it is shown that communication among the three above components improves the level of reliability of the food safety system. It is suggested that appropriate actions should be taken in the following areas: insufficient coordination among the different ministerial components (on occasion

within a ministry itself); a lack of consumer information and sensitisation policies; a lack of consultation with professionals.

▪ PHILIPPINES-3

Food safety has emerged as the major consumer concern in both developed and developing countries. Foodborne diseases do not only pose tremendous threats to consumer health, but they can also cause serious economic damage. In this regard, risk analysis has become an integral part of ensuring food safety. In the Philippines, the government continues to encourage the involvement and participation of stakeholders and members of the academic, scientific community and consumer groups through the use of effective risk communication and feedback mechanisms. With consideration to factors that serve as an obstacle to risk communication, other popular media channels are utilized in order to gather comments, opinions and suggestions from the stakeholders. The conduct of consultation meetings for the drafting of country position papers regarding food safety concerns is a very good example of effective feedback mechanism as exemplified by the Bureau of Agriculture and Fisheries Product Standards, which operates as a government unit mandated to protect the welfare of the consuming public through the formulation, harmonization and adoption of safety and quality standards for foods. However, given the efficient feedback mechanism to ensure the involvement of stakeholders, more efforts remain to be made in facing new challenges posed by the occurrence of trans-national food safety emergencies. This can only be done if the country continues to strive to strengthen the commitment of the stakeholders because ensuring safe food from farm to plate is a shared responsibility not only of the government and industry sector but also of the consuming public.

▪ SYRIA-1

The paper gives an overview of the food safety programme in Syria with its components: food legislation; quality assurance; prevention and control; compliance and training. In the food legislation field, Syria does not have a single unified food law but several legal texts implemented by various governmental agencies. There are over 440 Syrian food standards issues by the Syrian Standards and Metrology Organization and some 259 decisions issued by the Ministry of supply to enforce these standards and other food regulations. The application of HACCP is limited to a few modern factories and is done on a voluntary basis. The paper describes the case of imported oranges that were found to be contaminated with excessive amounts of carbamate residues. The imported oranges were recalled from the market through a collaborative effort that involved all concerned authorities and stakeholders including the vendors themselves. The paper draws lessons from this contamination case and makes proposals for a risk-based control of all imported foods. The paper gives a tabular overview of the country's national plan in food safety which focuses on 11 priority areas of intervention ranging from the safety of baby foods to training and gives progress made so far and further actions required. It also identifies, for each type of intervention, the agency responsible for follow up.

▪ UNITED KINGDOM-3

The Food Standards Agency recognises the importance and value in involving consumers and other stakeholders effectively in the decision-making process. The involvement of key stakeholders at an early stage has helped the Agency to develop effective policies. The Agency recognises that it can be difficult for consumers to contribute effectively **and** has implemented a number of initiatives targeted specifically at helping consumers. In addition the Agency recognises that being open and accessible has helped build trust in the decision-making process and helped to stimulate a wider debate on food issues.

▪ USA-6

The United States uses the information generated from food safety risk assessments to evaluate options and select strategies for managing identified risks. Risk management strategies often include

new regulatory requirements, but also can include or consist of non-regulatory actions, such as voluntary efforts on the part of industry or consumer education initiatives. The US encourages and facilitates consumer and stakeholder participation in the development of risk management strategies. Further, in the development of new regulations, consumer and stakeholder participation is guaranteed by U.S. law. Food safety risks are communicated to the public through a variety of means, including public meetings, publications in the *Federal Register*, mailings to consumers and other stakeholders, and the Internet. The development of recently proposed regulations concerning the control of *Listeria monocytogenes* in ready-to-eat meat and poultry products provides a good example of how the US Department of Agriculture's Food Safety and Inspection Service facilitates public participation in risk management and rule making.

▪ CANADA-6

Food safety policy in Canada is based on the risk analysis process using risk assessment, risk management and risk communication as its basic tenets. This responsibility is shared by Health Canada and the Canadian Food Inspection Agency (CFIA) and, depending on the issue, other levels of government may be involved. Health Canada's risk analysis process, referred to as a Decision-Making Framework (DMF), provides the basis for a systematic, comprehensive and coordinated approach in the policy development process. Similarly, the CFIA has developed a Risk Analysis Framework to guide its enforcement, compliance and control processes. Both frameworks call for the establishment of separate risk assessment and a risk management teams. It is critical, however, for each team to have a leader who provides direction while maintaining a linkage with the other team. Canada has found that a team approach is necessary for the successful management of risks. In addition, there needs to be an overall risk manager responsible for guiding and integrating the work of the two teams, moving the process forward, and dealing with the various process-related issues. Along with the establishment of the teams, the assignment of roles, responsibilities and accountabilities is critically important. Canada has used the decision making process across a number of food safety files. Health Canada undertook a review of its DMF through a pilot study on prion diseases. The study concluded that the DMF significantly enhanced Health Canada's ability to deal with prion diseases and other potentially hazardous threats to the health of Canadians. Some lessons learned confirmed that the commitment, leadership and involvement of senior management is critical to implementing a systematic approach; that all decisions must be evidenced-based and pulled together in an issue identification document; that barriers must be overcome to ensure that the different teams effectively share information; and that all participants must work through teams. Access to the best available science and the right people for building consensus; developing horizontal relationships through collaboration, partnerships and team work; and documenting all aspects of the decision-making process are some of the key challenges in achieving effective communication and interaction.

▪ DENMARK-1

In Denmark, the concept of risk analysis has been used in the control of *Campylobacter* in chickens. The risk management procedure was initiated by a risk profile on *Campylobacter*, which was elaborated in cooperation with risk managers, risk assessors, and stakeholders representing both the consumers and the industry. Following the preparation of the risk profile the risk managers decided to order a formal risk assessment. The responsibility for the risk assessment was placed in the research institute under the Danish Veterinary and Food Administration, and the work was closely followed by the stakeholders. The results were communicated to the risk managers, who subsequently initiated the process identifying possible management options and their efficiency in reducing the number of human *Campylobacter* cases. This process was carried out in close collaboration with the Consumer Board, the Danish Veterinary Laboratory, the Danish Zoonosis Centre, the broiler industry and the trade organisation. At present (January 2002), the management part of the process is not yet concluded. Throughout the risk analysis procedure there has been a good and intimate collaboration between risk managers, risk

assessors, and involved stakeholders. The procedure has been a very successful and instructive process for all the parts involved.

▪ **USA-7**

The mission of the United States food safety regulatory agencies is to safeguard public health by ensuring the safety of food products in the United States. To accomplish this goal, these agencies are increasingly relying on a risk analysis approach to address complex food safety problems. This document will discuss how US regulatory agencies balance the need to ensure the independence of risk assessors and risk managers, while yet maintaining essential frequent and transparent communication between the two groups. Two illustrative cases of coordinated risk assessment and management are included; these address Salmonella Enteritidis in shell eggs and Listeria monocytogenes in ready-to-eat foods.

APPENDIX XII
(GF/LIM 2-REV.5)

FAO/WHO GLOBAL FORUM OF FOOD SAFETY REGULATORS

Marrakesh, Morocco, 28-30 January 2002

LIST OF CONFERENCE ROOM DOCUMENTS SUBMITTED BY COUNTRIES
(Sorted by Agenda Item)

▪ **AGENDA ITEM 4.1**

CRD REFERENCE	ORIGIN	AGENDA ITEM 4.1	AVAILABLE IN
GF/CRD Canada-1	Canada	a	English
GF/CRD EC-1	European Community	a	English
GF/CRD EC-3	European Community	a	English
GF/CRD IACFO-1	International Association of Consumer Food Organizations	a	English
GF/CRD Indonesia-2	Indonesia	a	English
GF/CRD Italy-1	Italy	a	English
GF/CRD Lao-1	Lao's PDR	a	English
GF/CRD Morocco-1	Morocco	a	French
GF/CRD Peru-1	Peru	a	Spanish
GF/CRD Philippines-2	Philippines	a	English
GF/CRD RDCongo-1	Democratic Republic of Congo	a	French
GF/CRD Rep. Congo-1	Republic of Congo-Brazzaville	a	French
GF/CRD Tanzania-1	Tanzania	a	English
GF/CRD USA-8	United States	a	English
GF/CRD WHO-1	World Health Organization	a	English
GF/CRD Côte d'Ivoire-1	Côte d'Ivoire	a and b	French
GF/CRD Nigeria-1	Nigeria	a and b	English
GF/CRD Australia-1	Australia	b	English
GF/CRD Canada-2	Canada	b	English
GF/CRD EC-2	European Community	b	English
GF/CRD Indonesia-1	Indonesia	b	English
GF/CRD Mongolia-1	Mongolia	b	English
GF/CRD New Zealand-2	New Zealand	b	English
GF/CRD Russia-1	Russian Federation	b	Russian, English
GF/CRD Senegal-1	Senegal	b	French
GF/CRD Turkey-1	Turkey	b	English
GF/CRD USA-1	United States	b	English
GF/CRD USA-2	United States	b	English

▪ **AGENDA ITEM 4.2**

CRD REFERENCE	ORIGIN	AGENDA ITEM 4.2	AVAILABLE IN
GF/CRD Argentina-1	Argentina	a	Spanish
GF/CRD BurkinaFaso-1	Burkina Faso	a	French
GF/CRD BurkinaFaso-2	Burkina Faso	a	French
GF/CRD China-1	China	a	English, Chinese
GF/CRD China-2	China	a	English, Chinese
GF/CRD Germany-1	Germany	a	English
GF/CRD Iceland-1	Iceland	a	English
GF/CRD Iran-1	Iran	a	English
GF/CRD Japan-1	Japan	a	English
GF/CRD Japan-2	Japan	a	English
GF/CRD Malaysia-1	Malaysia	a	English
GF/CRD Myanmar-1	Myanmar	a	English
GF/CRD Philippines-1	Philippines	a	English
GF/CRD Rep.Centrafr.-1	République Centrafricaine	a	French
GF/CRD Sweden-1	Sweden	a	English
GF/CRD Switzerland-1	Switzerland	a	French
GF/CRD Tanzania-2	Tanzania	a	English
GF/CRD Thailand-1	Thailand	a	English
GF/CRD United Kingdom-1	United Kingdom	a	English
GF/CRD Vanuatu-1	Vanuatu	a	English
GF/CRD WHO-2	World Health Organization	a	English
GF/CRD Côte d'Ivoire-2	Côte d'Ivoire	a and b	French
GF/CRD Indonesia-3	Indonesia	a and b	English
GF/CRD Liberia-1	Liberia	a and b	English
GF/CRD Mauritania-1	Mauritania	a and b	French
GF/CRD Canada-3	Canada	b	English
GF/CRD CI-1	Consumers International	b	English
GF/CRD Denmark-2	Denmark	b	English
GF/CRD Egypt-1	Egypt	b	English
GF/CRD FAO-1	Food and Agriculture Organization of the United Nations	b	English
GF/CRD IIR-1	International Institute of Refrigeration / Institut International du Froid	b	English, French
GF/CRD Mali-1	Mali	b	French
GF/CRD New Zealand-1	New Zealand	b	English
GF/CRD Senegal-2	Senegal	b	French
GF/CRD Slovak Republic-1	Slovak Republic	b	English
GF/CRD Sweden-2	Sweden	b	English
GF/CRD United Kingdom-2	United Kingdom	b	English
GF/CRD USA-3	United States	b	English
GF/CRD Zimbabwe-1	Zimbabwe	b	English

▪ **AGENDA ITEM 4.3**

CRD REFERENCE	ORIGIN	AGENDA ITEM 4.3	AVAILABLE IN
GF/CRD Canada-4	Canada	a	English
GF/CRD China-3	China	a	English, Chinese
GF/CRD Haïti-1	Haïti	a	French
GF/CRD Mongolia-2	Mongolia	a	French
GF/CRD USA-4	United States	a	English
GF/CRD Vietnam-1	Vietnam	a	English
GF/CRD Morocco-2	Morocco	a and b	French
GF/CRD Burundi-1	Burundi	b	French
GF/CRD CI-2	Consumers International	b	English
GF/CRD Côte d'Ivoire-3	Côte d'Ivoire	b	French
GF/CRD Eritrea-1	Eritrea	b	English
GF/CRD TrinidadTobago-1	Trinidad & Tobago	b	English
GF/CRD Uganda-1	Uganda	b	English
GF/CRD USA-5	United States	b	English

▪ **AGENDA ITEM 4.4**

CRD REFERENCE	ORIGIN	AGENDA ITEM 4.4	AVAILABLE IN
GF/CRD Mexico-1 GF 01/6 - Rev.1	Mexico	a	Spanish
GF/CRD Canada-5	Canada	a	English
GF/CRD China-4	China	a	English, Chinese
GF/CRD CI-3	Consumers International	a	English
GF/CRD Morocco-3	Morocco	a	French
GF/CRD Philippines-3	Philippines	a	English
GF/CRD Syria-1	Syria	a	Arabic
GF/CRD United Kingdom-3	United Kingdom	a	English
GF/CRD USA-6	United States	a	English
GF/CRD Canada-6	Canada	b	English
GF/CRD Denmark-1	Denmark	b	English
GF/CRD USA-7	United States	b	English

