



The complexities of worldwide food production systems plus the presence of new hazards associated with changes in production systems and consumption patterns have increased the need for science-based advice to support global food control systems.

**THROUGH THE FAO/WHO SCIENTIFIC ADVICE PROGRAMME,** we offer support to guide the preparation and implementation of effective food safety policies, regulations and control programmes. We also assist countries in meeting WTO obligations for scientifically based food standards.

The work we do supports the food safety community in keeping pace with:

- globalization of food production systems
- expansion of food trade
- greater consumer dependence on processed foods
- innovations in the food industry
- new food technologies

#### WE WORK WITH:

Member Governments • Codex Alimentarius Commission • Food producers • Food processors • Industry • Consumers • Researchers • Academia • NGOs



For more information on the FAO/WHO Scientific Advice Programme  
Contact the Nutrition and Consumer Protection Division of FAO  
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#### MULTI-DISCIPLINARY APPROACHES

Each year, we convene 8 to 10 expert meetings, each one bringing 15 to 25 world renowned experts to share their knowledge and experience. They can be microbiologists, toxicologists, food technologists, nutritionists, virologists, veterinarians, epidemiologists, statisticians, food production and processing specialists, pharmacologists – even ethnologists and philosophers. Whatever it takes, the correct combination of expertise is selected for the given topic, ensuring the appropriate range of disciplines and scientific opinion are represented. Perspectives from consumers and industry are also included as required through selection of experts experienced in these fields.

For example, when the Codex Committee on Food Hygiene requested scientific advice to support the development of commodity-specific annexes to the Codex of Hygienic Practice for Fresh Fruits and Vegetables, we brought together 20 experts from 13 countries for a meeting on Microbiological Hazards in Fresh Leafy Vegetables and Herbs. The group of experts selected in their individual professional capacities represented perspectives from government agencies, scientific institutions, academia and the food industry.

They assessed the risk throughout the production cycle, but also looked at emerging contamination risks such as those that could result from modern packaging. Subsequently, the advice was provided to the Codex Committee on Food Hygiene to facilitate its decisions on this issue.

#### GLOBAL INITIATIVE FOR FOOD-RELATED SCIENTIFIC ADVICE

**GIFSA** – a dynamic fund to mobilize technical, financial and human resources to support the FAO/WHO Scientific Advice Programme. Established to meet the growing demand for scientific advice, GIFSA funding will enable us to broaden our reach and continue to serve member countries and Codex with relevant, transparent and timely advice on food safety and nutrition issues. Efforts to strengthen capacity of experts and data generation in all regions are integrated. Under its charter, GIFSA can receive funds from governments as well as non-governmental sources such as organizations and foundations.

If you would like to contribute to GIFSA contact: [GIFSA@fao.org](mailto:GIFSA@fao.org)



#### BALANCING RISKS AND BENEFITS

##### Assessment of different types of risks in the same food

In addition to performing classical risk assessments of food safety issues, FAO and WHO have started to consider risk-benefit assessments. This is an evolving area brought about by the need for food safety regulators to weigh both negative and positive health effects associated with consumption of a specific food.

For example, a risk-benefit evaluation was recently conducted on the use of disinfectants that contain chlorine in food production and processing. A clear benefit of the use of chlorine in the disinfection process is the reduction of microbial food-borne disease risk. However, there are concerns that residues of the chemicals used may remain in food. Thus, a systematic and step-wise approach was used to compare the potential health risk from chemical exposure to the potential health benefits of decreased pathogen exposure.



#### FAO/WHO SCIENTIFIC ADVICE PROGRAMME

# Science for safe food

Responding to the food safety questions of member governments, food producers and consumers



A joint programme of FAO and WHO



## Supporting risk analysis framework through a step-by-step approach

Changing and expanding risks in the food chain have increased the pressure on governments and regulatory agencies to protect consumers. At the same time, advent of mass communication has increased consumer awareness of food safety risks and may result in increased consumer concerns and altered food purchasing habits, which can impact and cause shocks to food markets well beyond the original point of production.

For more than 50 years, the FAO/WHO Scientific Advice Programme has responded to requests to assess such risks. We gather and analyse up-to-date scientific information needed to underpin national and international food safety and nutrition programmes, and pass on our findings in the form of advice to member countries directly, or through the Codex Alimentarius Commission. This brochure gives a step-by-step look at the process we follow – a process designed with specific emphasis on inclusion and transparency as well as scientific excellence.

### RISK ANALYSIS FRAMEWORK: ASSESS, MANAGE AND COMMUNICATE

As food production demand has increased, so has the role of the FAO/WHO Scientific Advice Programme. We provide the baseline information required within the established risk analysis framework that combines scientific risk assessment with risk management and risk communication.

**Risk assessment** – We convene international expert meetings to assess scientific data and compile scientific information and then offer the conclusions to the countries that requested it or to the Codex Alimentarius Commission.

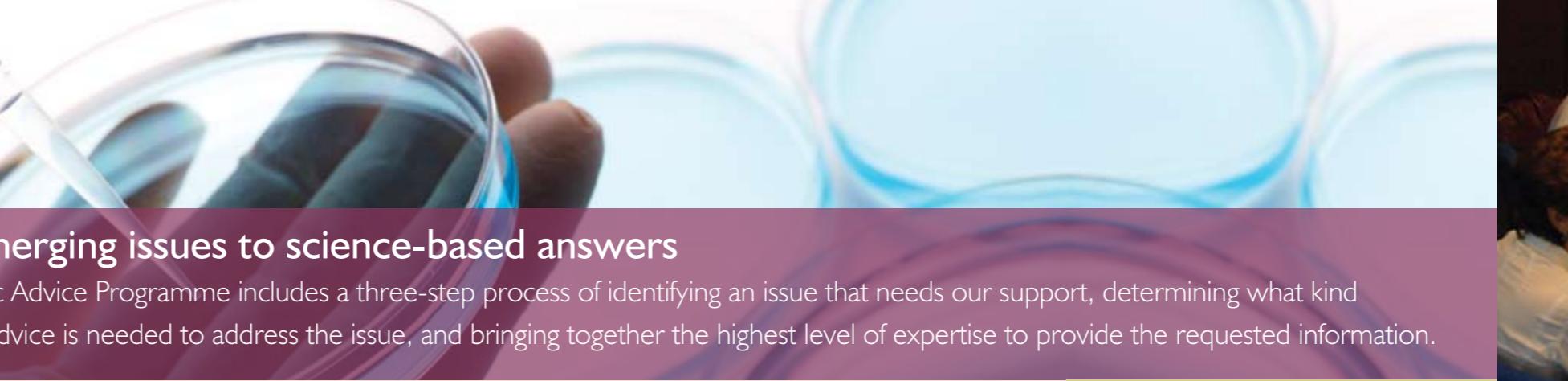
**Risk management** – Member countries and Codex use the scientific advice offered by our expert meetings as the base for developing food standards, guidelines and codes of practice. However, they also factor in other

### GLOBAL INPUT FOR GLOBAL ANSWERS

Analysing food safety risks requires input of expertise and data from the broadest range of countries possible. Our goal is to access relevant data from all regions and to benefit from countries' technical expertise, including information from food industries and scientific studies.

Data generation activities do require a laboratory capacity and expertise capable of providing reliable data which can be used in the Scientific Advice Programme. Prior to each expert meeting, a call is widely advertised to ensure the global scientific community and providers of data are aware that FAO and WHO are interested to receive all relevant data and information on the topic at hand.

Recognizing that certain countries face challenges in conducting studies, we support building national capacity to produce data and assess food safety risks. First and foremost, this data would be for use in their own countries with the added advantage of feeding into the risk analysis process.



## From emerging issues to science-based answers

The Scientific Advice Programme includes a three-step process of identifying an issue that needs our support, determining what kind of scientific advice is needed to address the issue, and bringing together the highest level of expertise to provide the requested information.

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### STEP 1 Identifying an issue

Imagine the number of individual food products available through local and international food trade. Now, consider the nutritional and safety issues that need to be addressed to guide decisions of national authorities in safeguarding the appropriate production of these products. Scientific advice is a useful tool for enabling informed actions aimed at improving food safety and quality in both developed and developing countries.

When Codex requests advice, the relevant Codex committee often will include the specific questions it needs answered and provide details of the advice it is seeking. Several Codex committees, including those that deal with food additives, contaminants, veterinary drugs and microbiological hazards in food, have developed methodologies for prioritizing their requests for scientific advice.

**Request** – member countries request the Codex Alimentarius Commission to develop standards on, for example, products or issues that have importance in food

### TAPPING EXPERTISE

We have close working relationships with representatives of governments, research institutions, academia and the private sector who have expertise in food safety. We maintain rosters of experts in, for example, food additives, biological agents, processing technologies, nutrition, residues of pesticides – whatever might be needed to enable immediate response to requests by the Codex Alimentarius Commission or a member country for an assessment of the risk involved in a specific aspect of food. When we receive a request, we have several avenues open for providing support.

**Permanent:** We host several standing joint expert bodies that monitor food safety areas.

#### CHEMICAL

- JECFA – Joint Expert Committee on Food Additives
- JMPR – Joint Meetings on Pesticide Residues

#### MICROBIOLOGICAL

- JEMRA – Joint Expert Meetings on Microbiological Risk Assessment

**Ad hoc:** We respond to emerging or unique issues, answering requests to assess risk involved

### MELAMINE INCIDENT

In September 2008, alarm was raised when melamine in food was found responsible for consumer illness. Member countries asked us to assess the food safety situation. Within three months, we convened an expert meeting, bringing together 23 scientists from 11 countries. Although the presence of melamine was due to fraud and should not be present in food, the expert meeting recommended establishing a tolerable daily intake (TDI). We reported the experts' findings to member countries through published materials (fact sheets, reports) available online and through the Codex Committee for Asia and the Codex Committee on Contaminants.



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### STEP 2 Asking for support

Once the Codex Alimentarius Commission or member countries determine what kind of scientific advice they need, our work in the Scientific Advice Programme begins. They ask us to assist by:

- providing comprehensive risk assessments,
- answering the specific questions posed by the drafting team,
- providing guidelines and resource documents useful for developing the standard,
- introducing various risk assessment methodologies.

A selection committee is formed, usually consisting of one representative from FAO, one from WHO and one external evaluator. They review applications independently according to a strict scoring system that guarantees the expertise required. At the same time, they also seek geographical, cultural and gender balance among the experts.

- Experts at the meeting discuss and consider the topic at hand, including the analysis of data and information that has been gathered through a host of sources and relevant data providers, including government and the food industry.
- Meeting conclusions are reported to the requesting bodies such as Codex and member countries. In the case of Codex, FAO and WHO representatives attend the relevant Codex committee meetings to report the findings and answer members' questions.