PRINCIPLES AND STRUCTURES OF THE INTERNATIONAL RISK ASSESSMENT AND THE ROLES OF FAO/WHO PROVISION OF SCIENTIFIC ADVICE

Annamaria Bruno

CONTENT

FAO/WHO provision of scientific advice (principles and procedures)

FAO/WHO provision of scientific advice to Codex (JECFA, JEMRA, JMPR, JEMNU and ad hoc expert meetings)

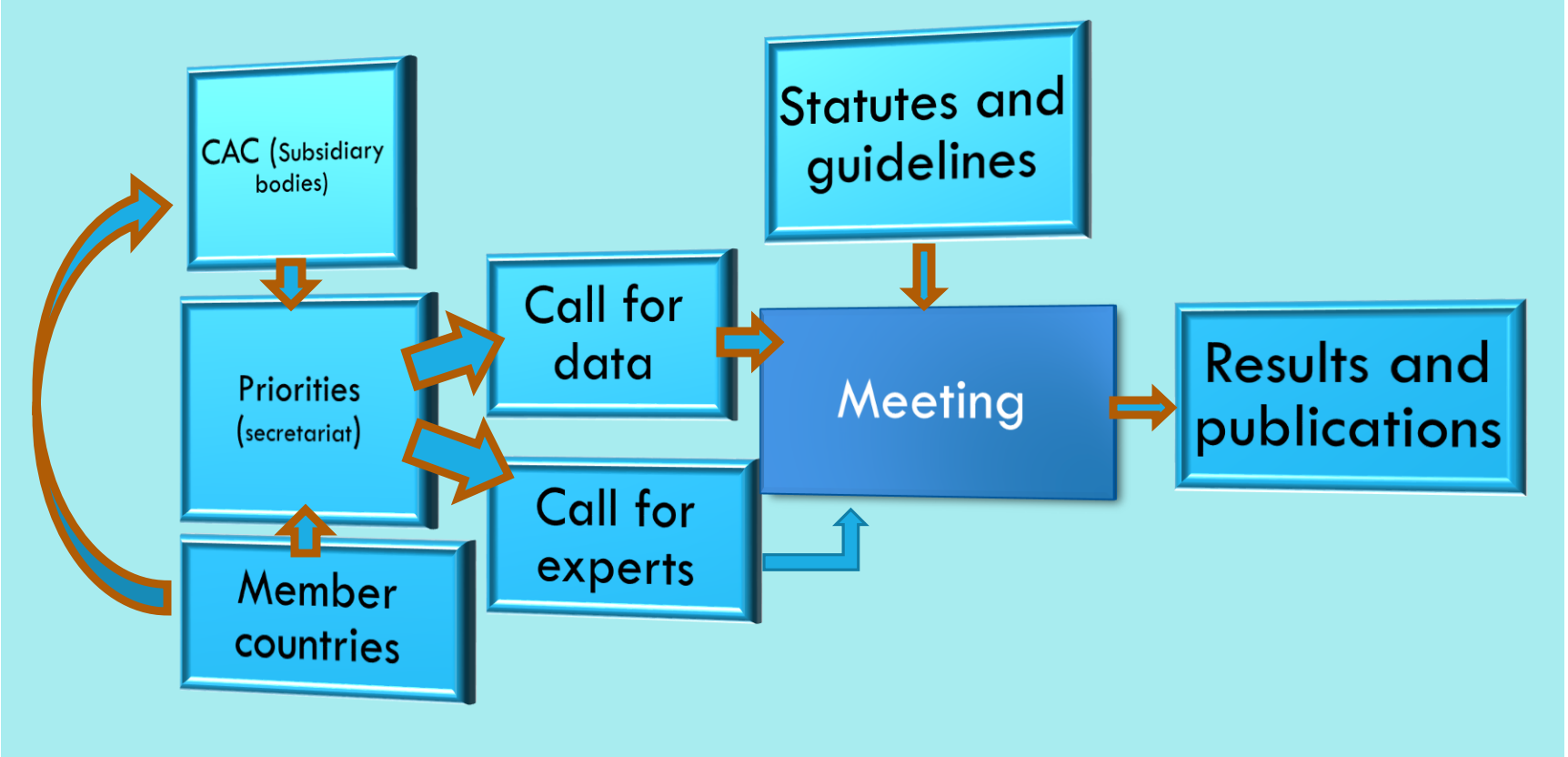
Integration of risk analysis in Codex work

Advantages/benefits and challenges

PROVISION OF SCIENTIFIC ADVICE

- FAO and WHO have a long history of providing scientific advice on food safety issues to the *Codex Alimentarius Commission* and its subsidiary bodies and to Member Countries
- The purpose is to help risk managers, policy makers and others in decision making by providing sound scientific assessments
- The advice assists in identification and choice of points for most effective measures
- The need for scientific advice is constantly increasing, also because food safety has emerged as a priority issue in many countries

FAO/WHO SCIENTIFIC ADVICE A TRANSPARENT PROCESS



FRAMEWORK PROVISION OF SCIENTIFIC ADVICE - CORE PRINCIPLES

Soundness - experts and process

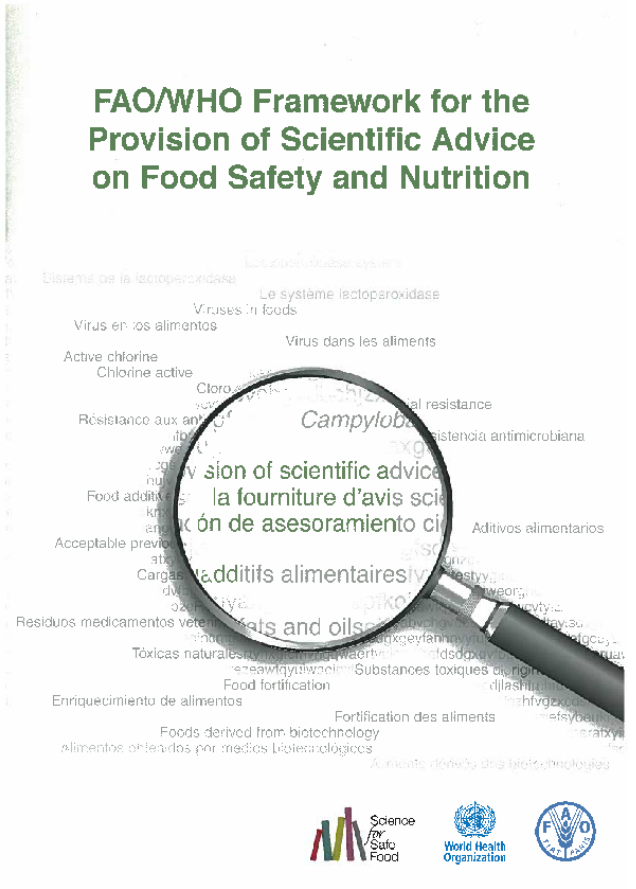
Responsibility - accountability

Objectivity - neutrality

Fairness – respect of all views

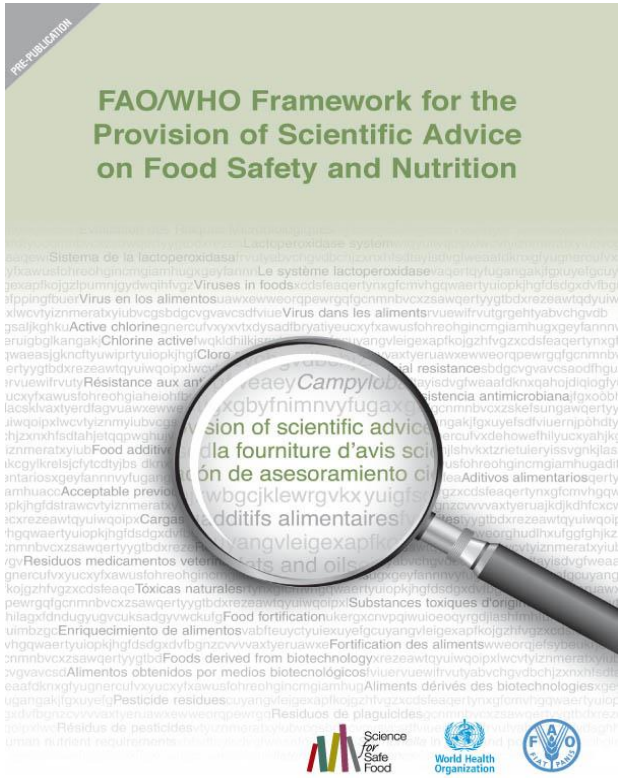
Transparency – comprehensive and understandable process

Inclusiveness - minority scientific opinion and balance of skills and expertise



STANDARD PROCEDURES ARE FOLLOWED

- Identification and prioritisation of issues
- Call for data
- Selection of experts
- Distribution and subsequent use of the expert advice
- Meetings coordinated by FAO/WHO Secretariat
- Final reports adopted at end of each session



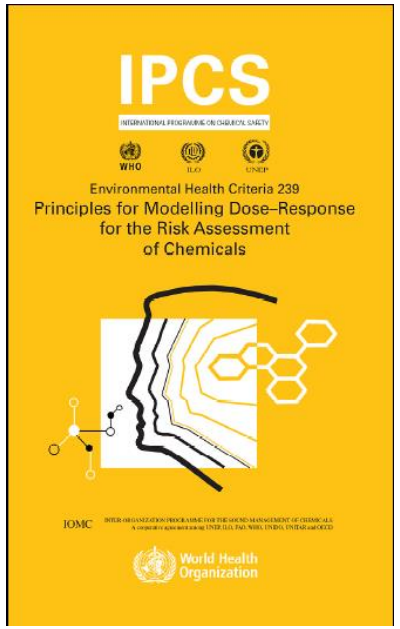
FAO/WHO Framework for the Provision of Scientific Advice on Food Safety and Nutrition
ftp://ftp.fao.org/docrep/fao/010/a1296e/a1296e00.pdf

PRINCIPLES AND GUIDELINES FOR RISK ASSESSMENT

Principles and methods for the risk assessment of chemicals in food (Environmental Health Criteria 240)

Principles for modelling dose-response for the risk assessment of chemicals (Environmental Health Criteria 239)

Guidelines for risk assessment of microbiological hazards in food and water



CRITERIA FOR THE ESTABLISHMENT OF PRIORITIES FOR RISK ASSESSMENT

- Clear definition of **scope** of the risk assessment requested
- Indication of how advice is to **be used** by Codex and Member Countries
- **Significance and urgency** of the work
- **Availability** of scientific knowledge and data
- **Availability** of resources to perform the work

FAO/WHO SCIENTIFIC ADVICE TO CODEX

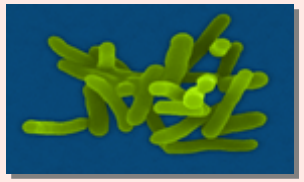
Science for Safe Food

SCIENTIFIC ADVICE TO CODEX

International Risk Assessment

- **JECFA**
  (food additives, veterinary drug residues, contaminants in food

- **JMPR**
  (pesticide residues in food)



- **JEMRA (microbiological hazards in food)**

- **JEMNU (nutrition), ad hoc expert consultations**
  emerging issues (e.g. Nanotechnologies in agri-food sector)

Requests for advice, risk assessment

Scientific advice

International Risk Management

CODEX ALIMENTARIUS COMMISION

ROLE OF JECFA

Established in 1956

Risk assessment/safety evaluation of:

- Food Additives (including flavouring agents)
- Contaminants (including natural toxins)
- Residues of Veterinary Drugs in animal products

Specifications and analytical methods

Residue definition, MRL proposals (veterinary drugs)

Development and improvement of general principles of Risk Assessment

JECFA ACTIVITIES

Food additives, processing aids, flavourings, contaminants and natural toxins in food

- Elaborates **principles** for their assessment
- Conducts **toxicological evaluations** and establishes Acceptable Daily Intakes (ADI) (numerical or not specified) or tolerable intakes
- Assesses **exposure** from the diet to the substances
- Prepares **specifications** of identity and purity for food additives processing aids, nutrients to ensure that the product in commerce is (i) of appropriate quality; (ii) can be manufactured consistently, and (iii) is equivalent to the material that was subjected to toxicological testing

JECFA ACTIVITIES

Residues of veterinary drugs in food

- Elaborates **principles** for evaluating their safety
- Establishes **ADIs** and recommends **Maximum Residue Limits (MRLs)** when products are administered to food-producing animals in accordance with good veterinary practices
- Determines criteria for the appropriate **methods of analysis** for detecting and/or quantifying residues in food

JECFA OUTPUTS

Summary Report:

Electronic summary containing only key conclusions

Report:

Concise summary of relevant information for evaluation and conclusion, including intake estimates

Monographs:

Detailed description and evaluation of all available data used in evaluation

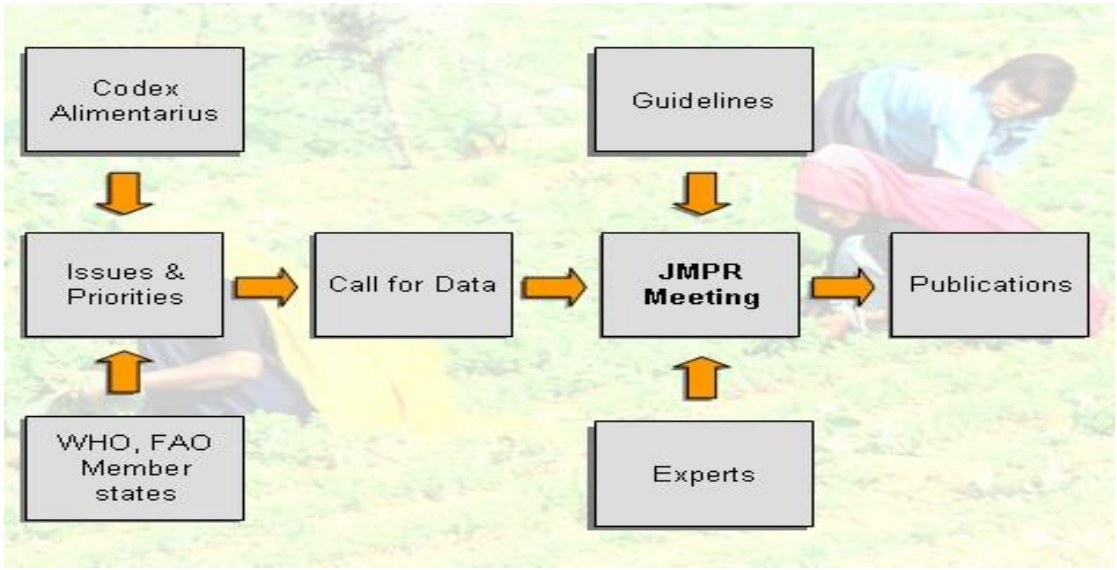
(1) Toxicological Monographs

(2) Specifications, residues etc.

ROLE OF JMPR

First JMPR convened in 1963 to perform toxicological assessments of pesticide residues in food.

Since 1966 residue evaluations also performed to recommended MRLs for compounds when used in accordance with good agricultural practice.



JMPR OUTPUTS

Summary Report:

Electronic summary containing only key conclusions

Report:

Concise summary of relevant information for evaluation and conclusion, including intake estimates

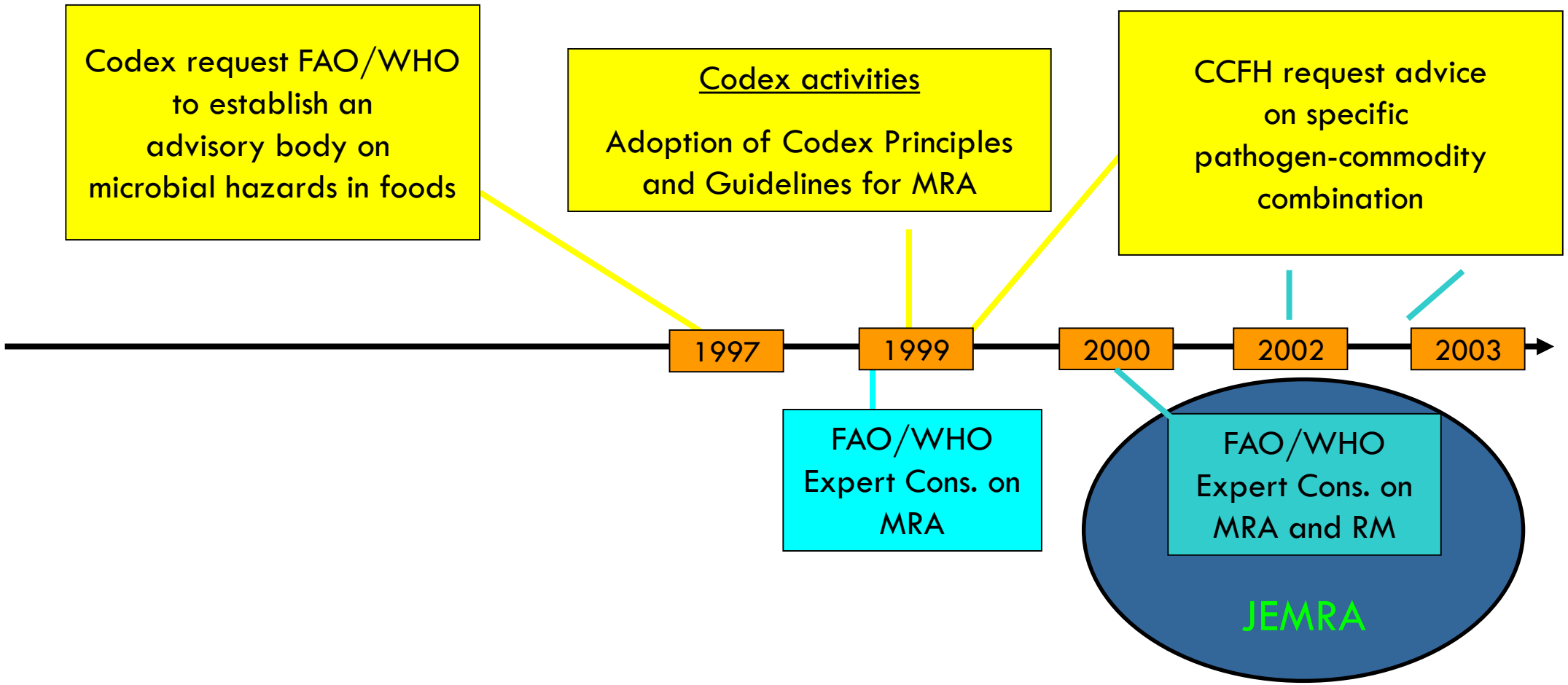
Monographs:

Detailed description and evaluation of all available data used in evaluation

(1) Toxicological evaluations

(2) Residues and analytical aspects

ROLE OF JEMRA



JEMRA ACTIVITIES

Generation of scientific information through risk assessment on **specific pathogen commodity combinations**

Development of **risk assessment tools**

Elaboration of **guideline documents**

Data **collection and generation**

Recommendations on use of risk assessments within a risk management framework

JEMRA OUTPUTS

Shiga toxin-producing *Escherichia coli* (STEC) and food: attribution, characterization, and monitoring

Microbiological safety of foods for malnourished populations

Microbiological hazards associated with fresh produce

Viruses in foods

Enterohaemorrhagic *Escherichia coli* (EHEC) in meat and meat products

Salmonella in eggs and broiler chickens

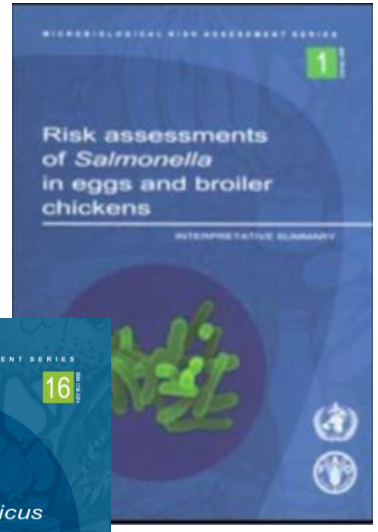
Listeria monoctogenes in ready-to-eat foods

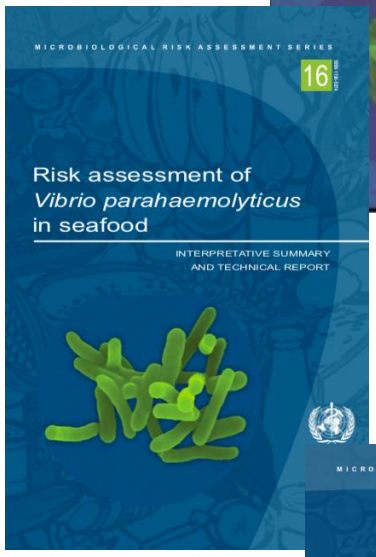
Vibrio spp. in seafoods

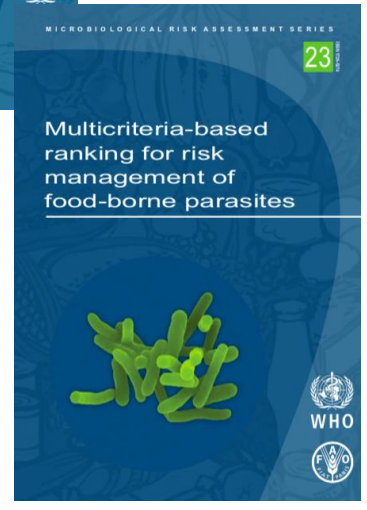
Campylobacter spp. in broiler chickens

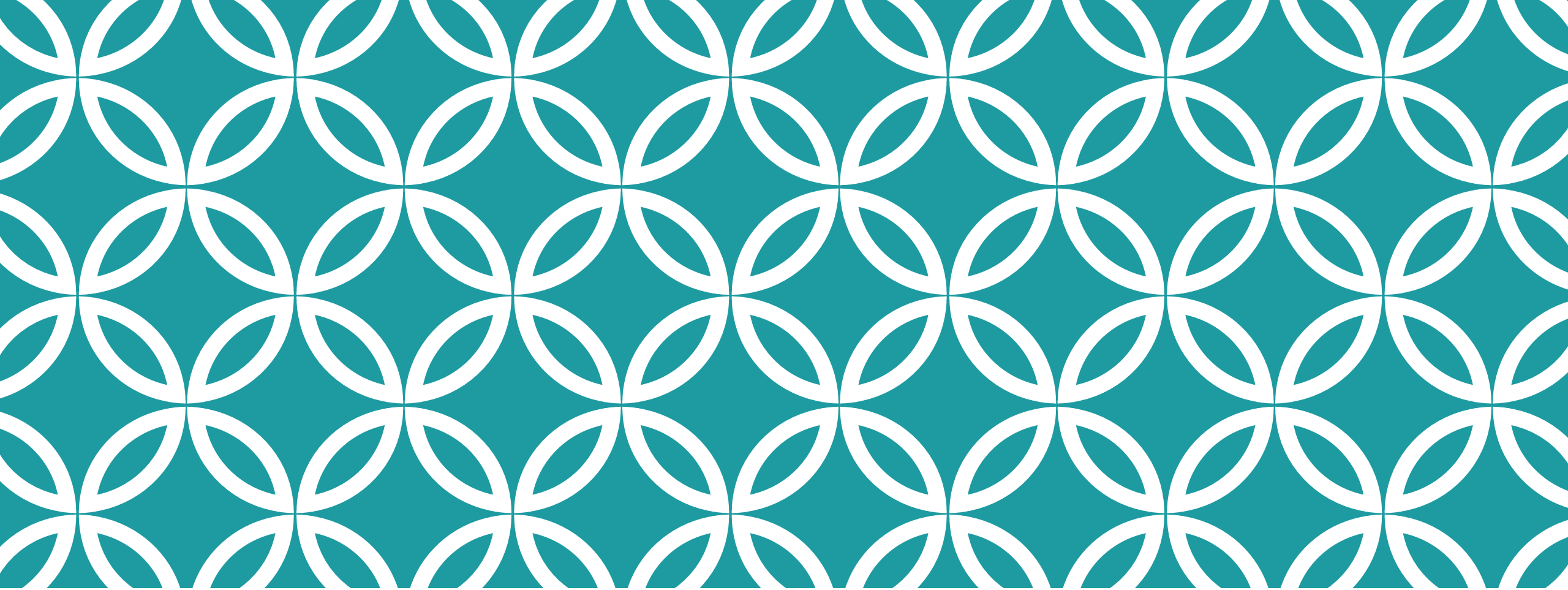
Enterobacter sakazakii and other micro-organisms in powdered infant formula

Foodborne parasites

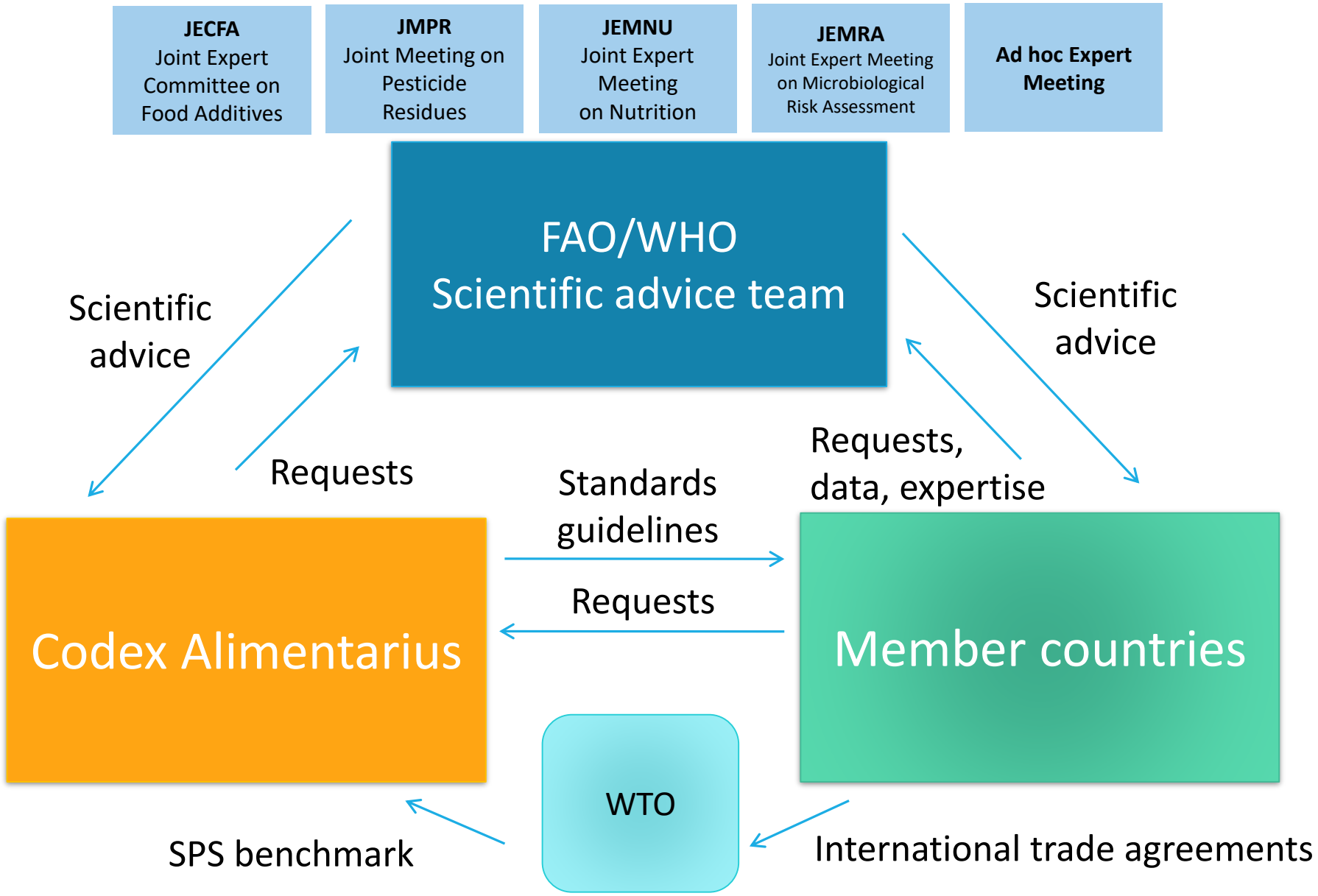




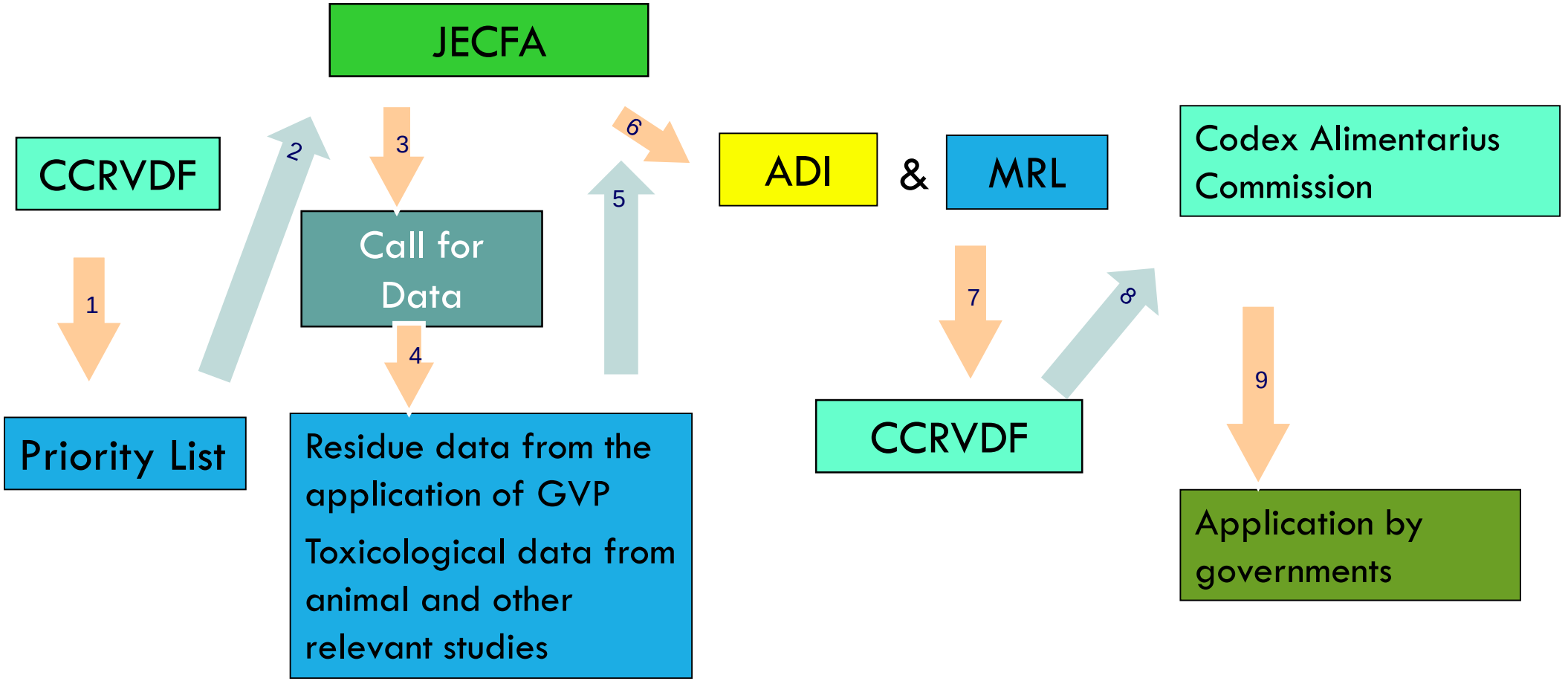




INTEGRATION OF RISK ANALYSIS IN CODEX WORK


JECFA
Joint Expert Committee on Food Additives
JMPR
Joint Meeting on Pesticide Residues
JEMNU
Joint Expert Meeting on Nutrition
JEMRA
Joint Expert Meeting on Microbiological Risk Assessment
Ad hoc Expert Meeting
FAO/WHO
Scientific advice team
Scientific advice
Requests
Scientific advice
Requests, data, expertise
Standards guidelines
Requests
Codex Alimentarius
Member countries
WTO
SPS benchmark
International trade agreements

DEVELOPMENT OF MRLS FOR VETERINARY DRUGS



MAIN CODEX DOCUMENTS ON RISK ANALYSIS

- Role of science and other factors in the Codex process (1995)
- Role of food safety risk assessment (1997)
- Risk analysis terms related to food safety (1997)
- Criteria for the consideration of “other factors” (2001)
- Working principles for risk analysis for application in the framework of the Codex Alimentarius (2003)

<u>Specific risk analysis principles/policies:</u>

- Food additives
- Contaminants
- Residues of veterinary drugs in foods
- Pesticide residues
- Nutrition
- Hygiene

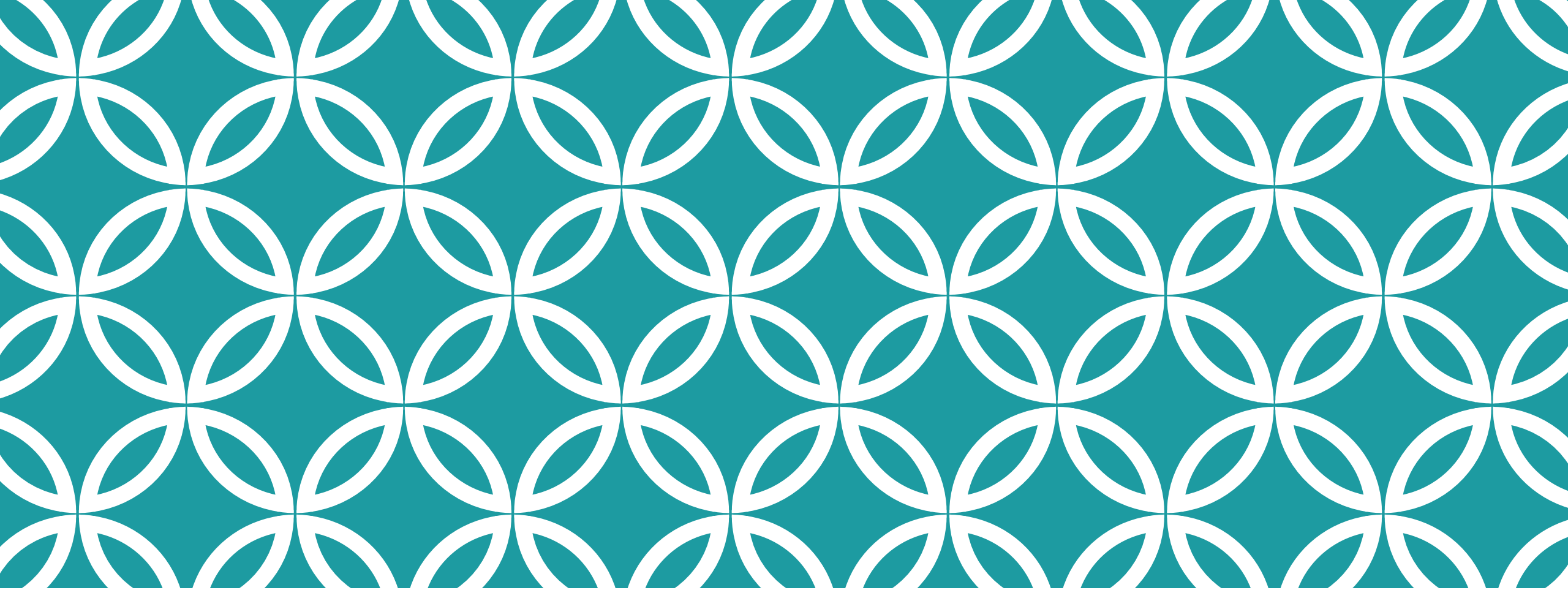
OTHER DOCUMENTS OF RISK ANALYSIS

- Principles for the Risk Analysis of Foods Derived from Modern Biotechnology
- Guidelines for Risk Analysis of Foodborne Antimicrobial Resistance
- Principles and Guidelines for the Conduct of Microbiological Risk Management (MRM)
- Principles and Guidelines for the Conduct of Microbiological Risk Assessment
- Guidelines on the Application of Risk Assessment for Feed

CURRENT REQUESTS FROM CODEX

Safety evaluation of:

- Food additives (CCFA)
- Contaminants (CCCF)
- Pesticide residues (CCPR)
- Veterinary drug residues (CCRVDF)
- Ciguatoxins (CCCF)
- Shiga toxigenic *E. coli* (CCFH)
- Use of clean water (CCFH)
- Nitrogen factors for fishery products (CCFFP)
- Acceptable cargoes (review of the list) (CCFO)
- Bivalve molluscan sanitation programmes (CCFFP)
- Histamine and scombroid fish poisoning in salmonidae (CCFH)
- Nitrogen to protein conversion factors for soy and milk protein (CCNFSDU)
- Antimicrobial resistance (AMR) (TFAMR)
- Carry-over of residues of veterinary drugs in feed (CCRVDF)
- …..



ADVANTAGES/BENEFITS AND CHALLENGES

ADVANTAGES /BENEFITS

- Focus on issues of **international concern**
- **Globally** applicable information and tools are used
- Facilitates **wide distribution** of the technology and use of results by countries
- **Identify areas** where knowledge and data are lacking
- Involves **internationally recognised experts** in the field
- **Cost effective** - facilitates optimal use of limited resources

CHALLENGES

- To identify **priorities at international level**
- Definition of possible **scope of the work** and use to be given to results
- Harmonization of **risk assessment methodologies** based on the Codex principles for risk analysis
- **Availability and quality of data**
- **Resources**

Thank you for your attention

Now it’s your turn for making comments and asking questions