



World Health
Organization

JECFA, JMPR and feed risk assessment

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Food and Agriculture Organization of the United Nations – *for a world without hunger*



Outline

1. Overview of the provision of scientific advice by the FAO and WHO
2. The work of the JECFA and JMPR
3. Feed risk assessments at international level



1. Overview of the provision of scientific advice

Soundness - experts and process

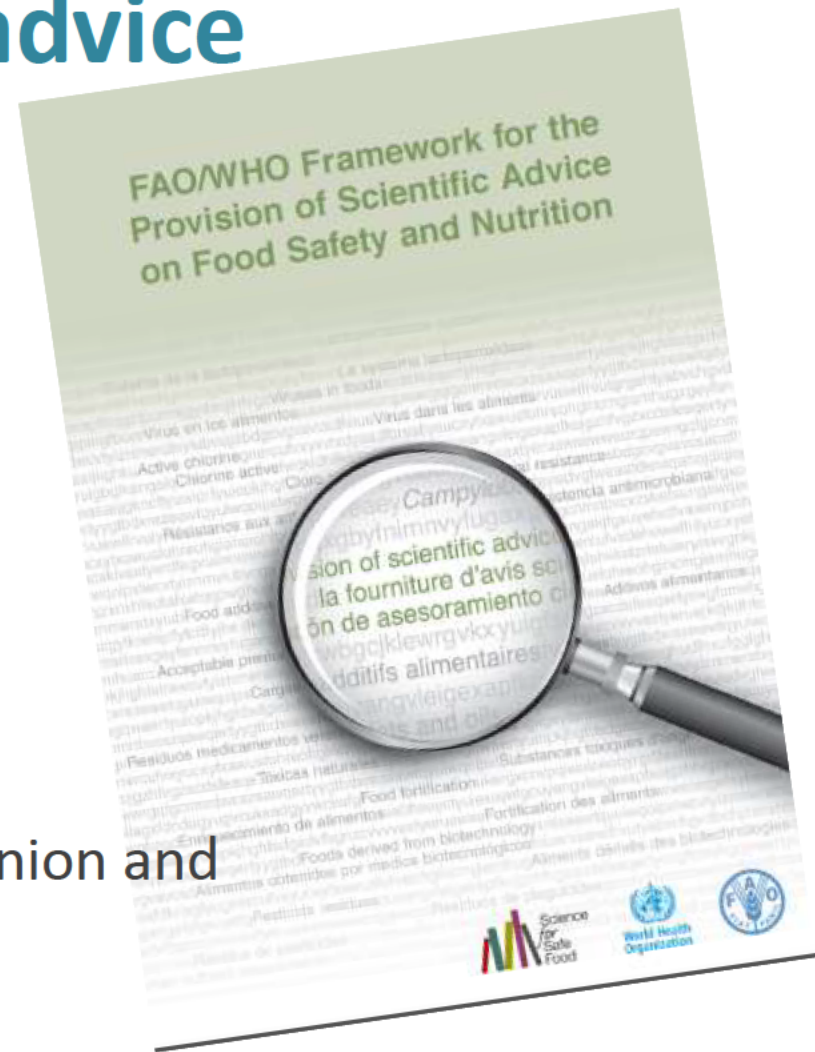
Responsibility - accountability

Objectivity - neutrality

Fairness – respect of all views

Transparency – comprehensive and understandable process

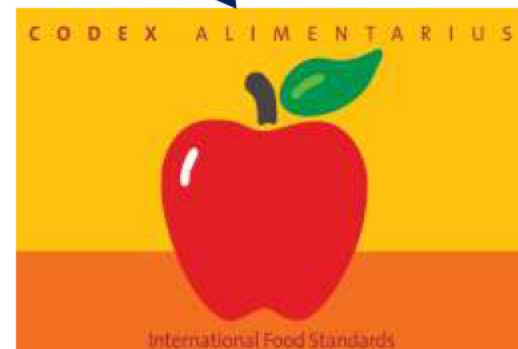
Inclusiveness - minority scientific opinion and balance of skills and expertise



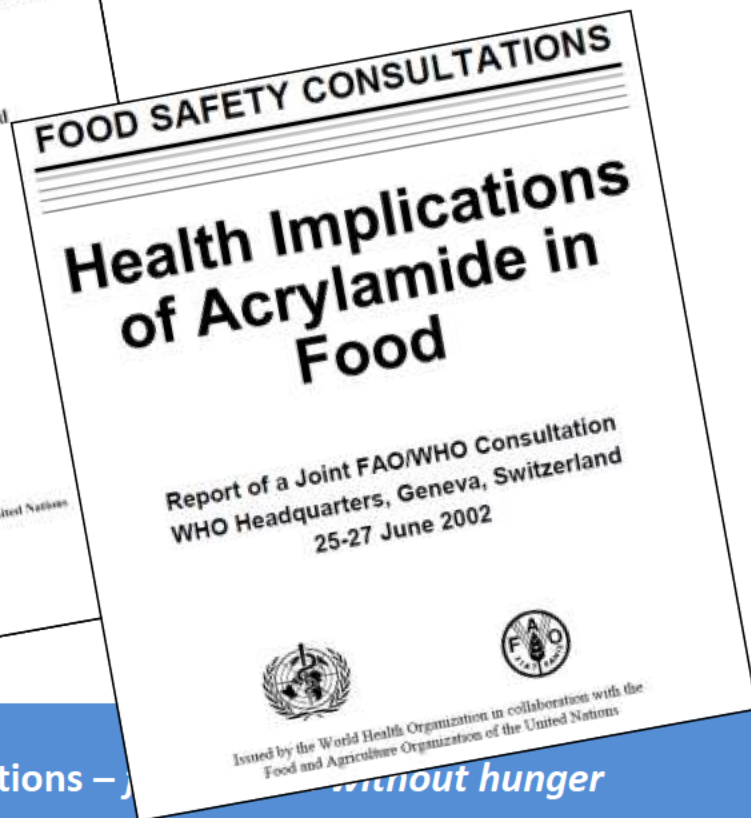
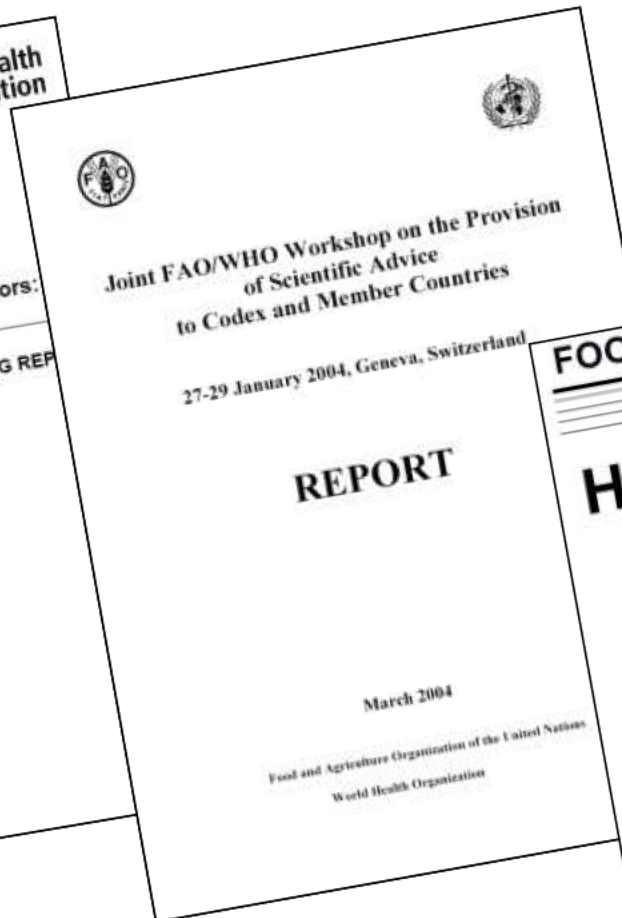
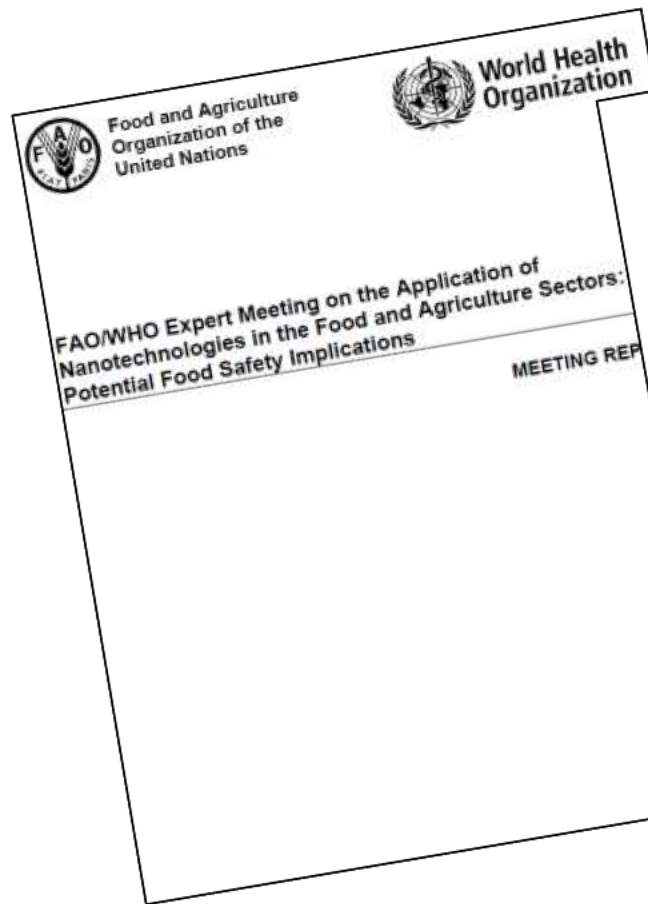


Scientific Advice

- Independent joint FAO/WHO meetings to provide scientific advice
- Ad-hoc expert consultations & workshops



FAO/WHO Expert consultations, meetings and workshops





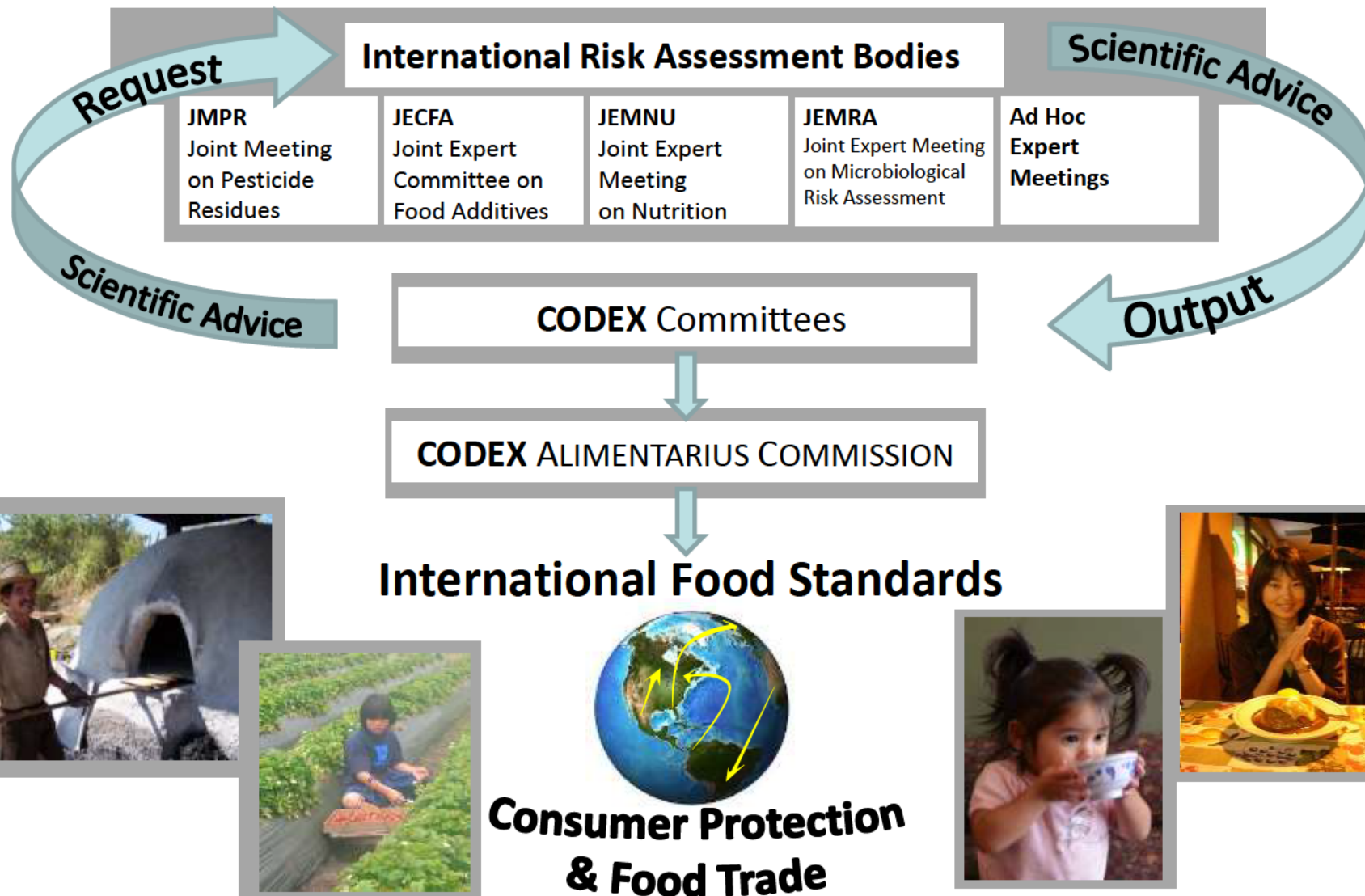
Scientific Advice





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THE SCIENTIFIC BASIS OF CODEX





Food and Agriculture
Organization of
the United Nations

FAO/WHO Expert bodies



World Health
Organization

JECFA: Joint FAO/WHO Expert Committee on Food Additives

since 1956: 2600 food additives, 40 contaminants, 90 veterinary drugs

JMPR: Joint FAO/WHO Meeting on Pesticide residues

since 1963: 240 pesticides, several thousand MRLs in food

JEMRA: Joint FAO/WHO Expert meeting on Microbiological Risk Assessment

since 2000: Salmonella, Campylobacter, Listeria, Vibrio, Enterobacter

JEMNU

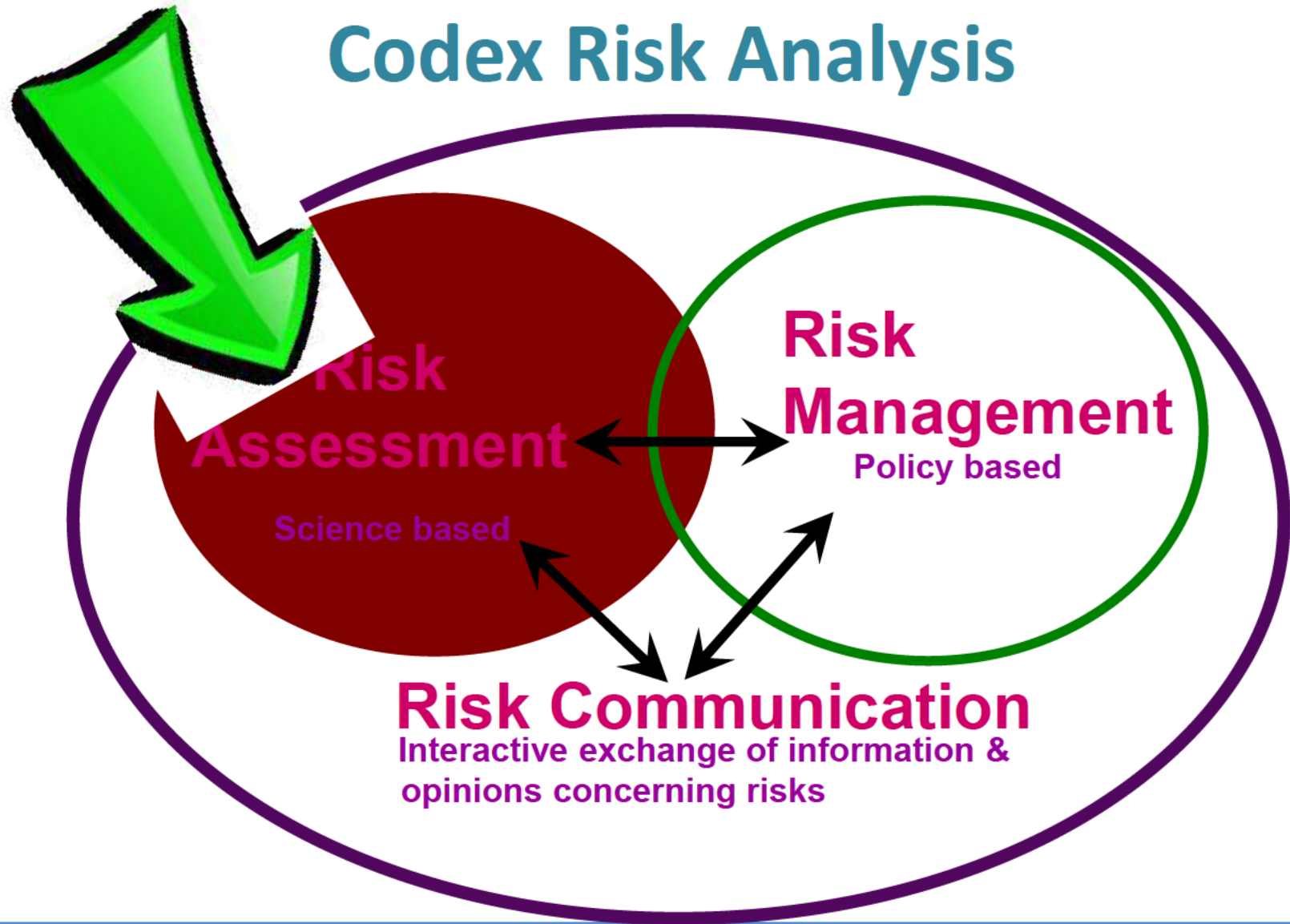
Joint Expert Meeting on Nutrition. 2010.

Ad-hoc Expert Consultations:

e.g. Risk Benefit of Fish, AMR, Bisphenol A, Melamine



JECFA, JMPR, JEMRA & JEMNU's role in Codex Risk Analysis



Ad-hoc Intergovernmental Taskforce on Animal Feeding

- Meetings – seven in 2000-2013
- Draft Guidelines on Application of Risk Assessment for Feed
 - guidelines are applicable to all hazards in the feed of food-producing animals, which may adversely affect human health.
- Proposed draft Guidance on Prioritizing Hazards in Feed





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Expert Committees/Meetings

- Experts selected from expert roster
- Experts attending *in a personal expert capacity*
- FAO and WHO working groups/panels & plenary
- About two week duration



- Reports, monographs, specifications published



Joint FAO/WHO

JECFA/JMPR

- WHO is responsible for selecting members to deal with toxicological aspects
- FAO - selecting members for 'chemical aspects', eg. analytical methodology, residues or specs.

Reports reflect agreed view of full committee





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

- Risk Assessment of:
 - Food Additives (intentionally added)
 - Processing aids (considered as food additives)
 - Flavouring agents (by functional groups)
 - Residues of Veterinary Drugs in animal products -- > MRLs, ADIs etc.
 - Contaminants
 - Natural toxins
- But what about feed items?

But not for: pesticide residues, novel foods, incl. GM, nutrients



Milestones

1957: Procedures for the testing of food additives...

1958: Specifications for Identity and Purity of Food Additives

1961: First ADI for antioxidants and preservatives

1967: **First Meeting to deal with contaminants**

1978: Guide to specifications (revised 1983, 1991)

1987: Principles for the Safety Assessment of Food Additives and Contaminants

1987: **First meeting dedicated to veterinary drug residues**

1992: **Compendium of Food Additive Specifications**

1995: Start of systematic assessment of **flavouring agents**

2001: First meeting dedicated to **mycotoxins**

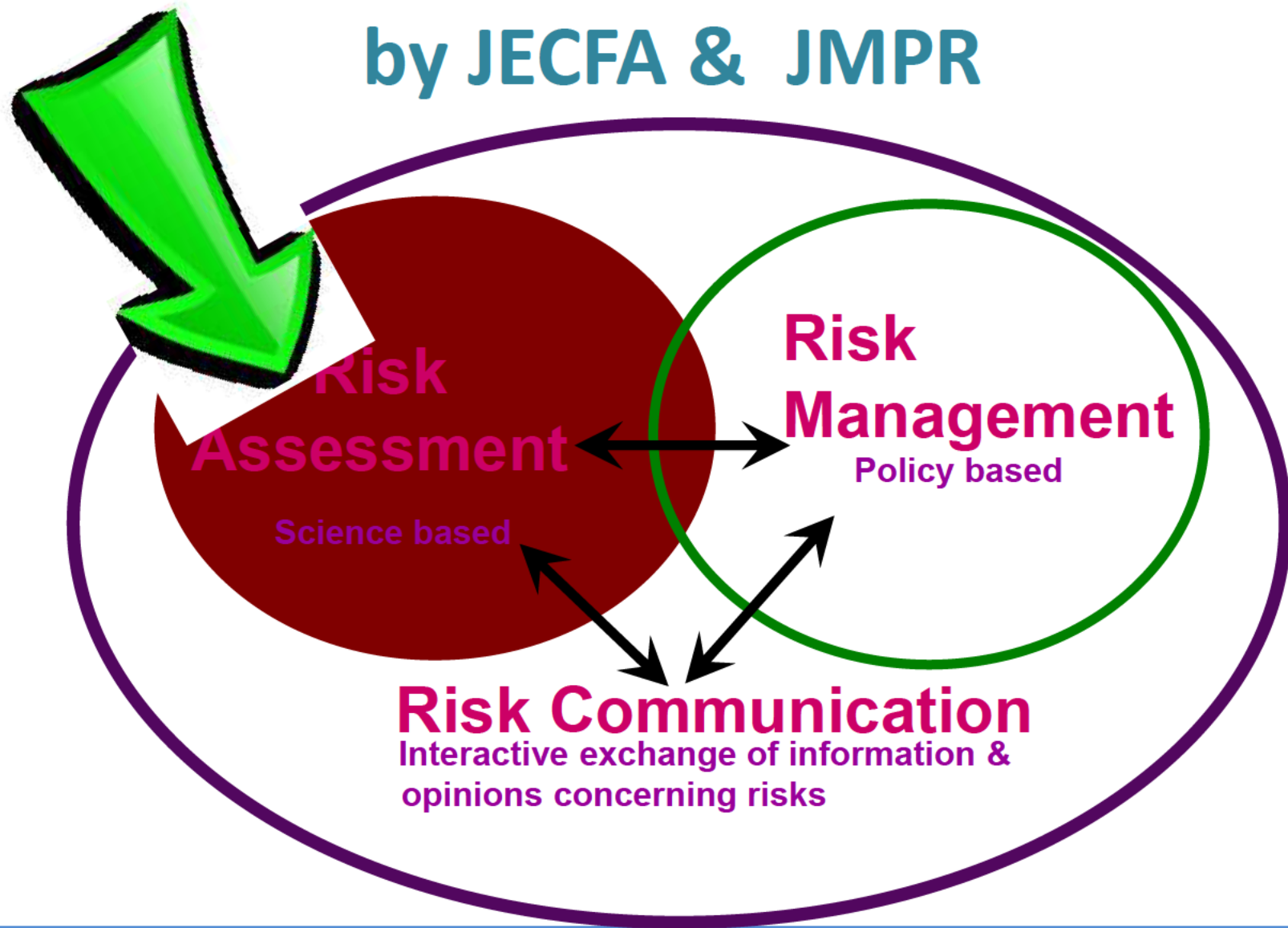


Joint FAO/WHO Expert Meeting on Pesticide Residues (JMPR)

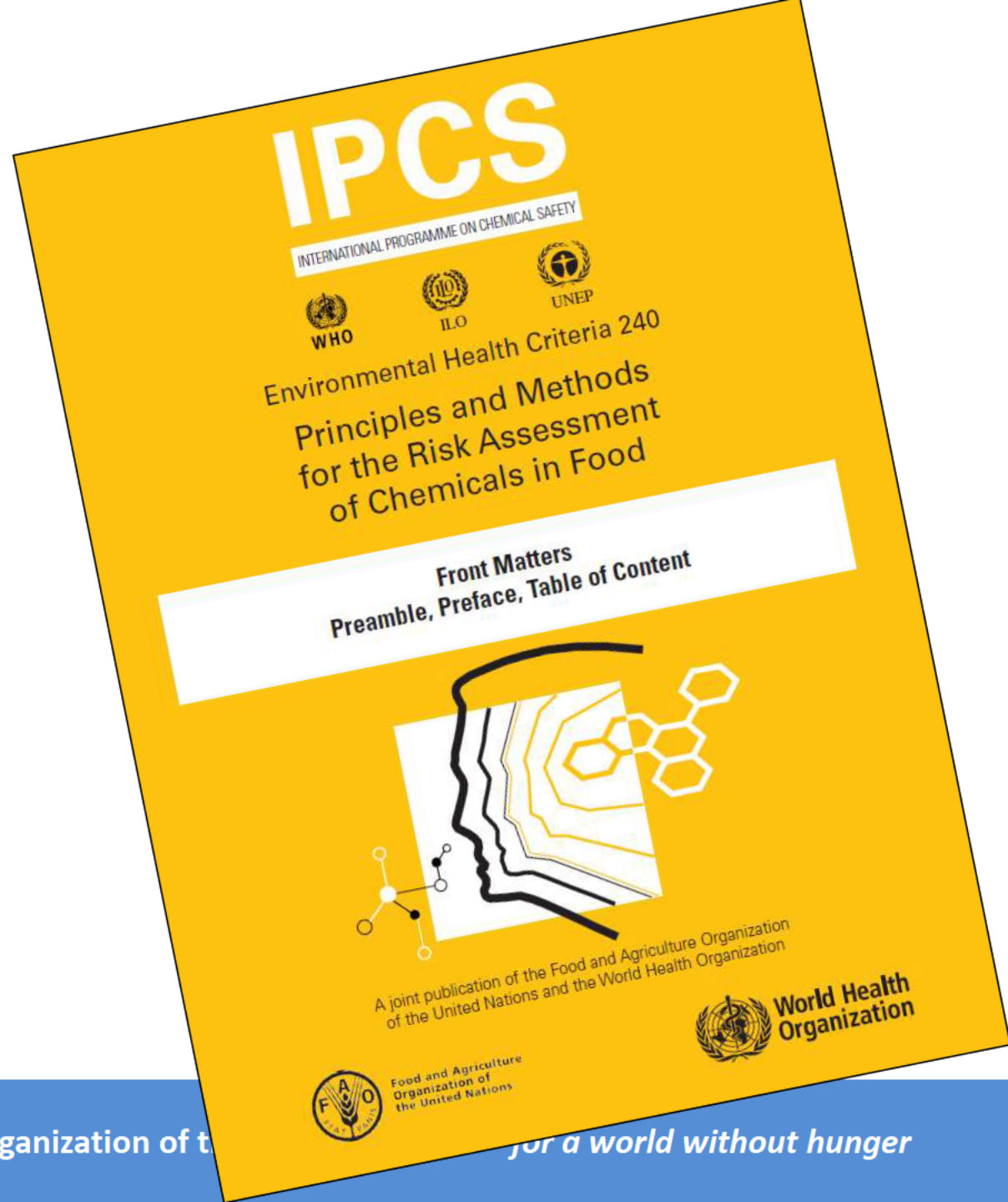
- Data on residues, metabolism, fate in the environment, and pesticide use patterns (GAP)
- Estimate the maximum residue levels that might occur from GAP. Codex consider using as limits (MRLs).
- Dietary exposure assessment – chronic (IEDI) and acute (IESTI)
- Toxicological assessment → ADI, ARfD



Chemical Risk Assessment by JECFA & JMPR



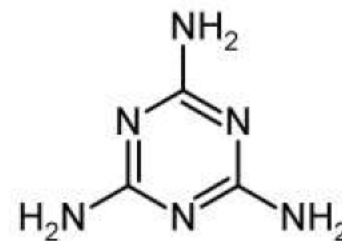
- Food not feed



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Chemical Risk Assessment



Hazard Identification

Adverse effects

Dietary Exposure Assessment

Population and/or consumer exposure

Hazard Characterisation

Dose-response relationship

Risk Characterisation

Probability of an adverse health effect





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3. Feed Assessments at the International Level

- Codex only considers feed with respect to the feed standards required for human health
- Food producing animals.
- Feed for other animals (eg. pets) are outside the Codex mandate.



Contaminants in feed & Codex

- Example; Lead MLs developed by CCCF for food *and feed*.
- CCCF's risk management recommendations involving safety aspects of food and feed “shall be based on JECFA's risk assessments”



Pesticide residues in feed & Codex

- JMPR estimates levels for foods, feed items and products of animal origin – transfer studies

Maximum Residue Limits for Fodder beet	
Pesticide	MRL
Dimethenamid-P	0.01 mg/Kg
Methamidophos	0.02 mg/Kg
Clethodim	0.1 mg/Kg
Haloxypop	0.4 mg/Kg

Maximum Residue Limits for Cattle liver	
Pesticide	MRL
Fenpyroximate	0.01 mg/Kg
Chlorpyrifos	0.01 mg/Kg
Fenarimol	0.05 mg/Kg
Diphenylamine	0.05 mg/Kg
Fenbuconazole	0.05 mg/Kg
Fipronil	0.1 mg/Kg
Abamectin	0.1 mg/Kg
Thiabendazole	0.3 mg/Kg
Piperonyl Butoxide	1 mg/Kg
Spinozad	2 mg/Kg

- Example CCPR
Maximum residue limits

Veterinary Drugs in feed & Codex

- MRLs in food, arising from veterinary drugs in feed is considered by JECFA in a limited number of cases.
- CCRVDF mandate/national authorities
- Guidelines for the design and implementation of national regulatory food safety assurance programme associated with the use of veterinary drugs in food producing animals (CAC/GL 71-2009) – national measures

Additives in feed & Codex

Ethoxyquin Case Study

- Ethoxyquin - anti-oxidant in fish/shrimp feeds & also used as post-harvest pesticide treatment in pears
- JECFA evaluates additives... but *not* normally additives in feed.
- 1st reviewed by JMPR in 1969. Re-evaluated for toxicology in 2005 - ADI and ARfD.
- Residue review for pears 2008 – CXL of 3mg/kg.



Additives in feed & Codex

Ethoxyquin Case Study (cont)

- Recent trade disruption - prawns
- CCCRVDF - Philippines request for MRL in prawns.
- 37th CAC to be asked which Committee – CCFA, CCCRVDF or CCPR
- JECFA or JMPR?
- Levels of only 3mg/kg allowed in pears but higher levels in feed as anti-oxidant.



Conclusions

- FAO and WHO have a long history to providing scientific advice, particularly for Codex
- JECFA, JMPR, JEMRA and JEMNU risk assessments underpin the Codex standards
- Joint expert meetings/committees risk assessments of feed only from human health perspective.
- Standards setting for feed additives - unclear





For more information



- FAO – Food Safety and Quality website: www.fao.org/food/food-safety-quality/en/
- Pesticides management website. www.fao.org/agriculture/pesticides/en/
- Nutrition website: www.fao.org/food/en/
- At the WHO – see www.who.int/foodsafety/en/



Discussion points

- Role of FAO and WHO in the provision of scientific advice
- Standards Setting for feed items – are there gaps?
- What are the animal health considerations associated with feed items
- What additional work is required associated with feed risk assessment?

