



## JOINT FAO/WHO FOOD STANDARDS PROGRAMME

### CODEX COMMITTEE ON CONTAMINANTS IN FOODS

#### 9<sup>th</sup> Session

New Delhi, India, 16 – 20 March 2015

#### MATTERS OF INTEREST ARISING FROM OTHER INTERNATIONAL ORGANIZATIONS

#### ACTIVITIES OF THE JOINT FAO/IAEA DIVISION OF NUCLEAR TECHNIQUES IN FOOD AND AGRICULTURE RELEVANT TO CODEX WORK<sup>1</sup>

(Prepared by the Joint FAO/IAE Division of Nuclear Techniques in Food and Agriculture)

1. The Joint Food and Agriculture Organization of the United Nations (FAO) and International Atomic Energy Agency (IAEA) Division of Nuclear Techniques in Food and Agriculture (the “Joint Division”) supports and implements specific activities related to the Codex Alimentarius and the work of the Codex Committee on Contaminants in Foods (CCCF) through its Food and Environmental Protection Section and the FAO/IAEA Agriculture and Biotechnology Laboratories. These include activities related to the analysis and control of various chemical residues and food contaminants; food traceability and authenticity; response to, and management of, nuclear and radiological emergencies affecting food and agricultural production; and food irradiation. Resources and support are delivered to Member States through technical cooperation and coordinated research projects as well as additional extrabudgetary programmes, interregional workshops and research and technology adaptation and transfer initiatives.
2. The Joint Division hosted an International Symposium on Food Safety and Quality: Applications of Nuclear and Related Techniques in Vienna, Austria, from 10 to 13 November 2014, which included many presentations addressing radionuclides, mycotoxins and elemental analysis.<sup>2</sup> Associated with the symposium, a Workshop on Food Control Systems and the Role of the Different Stakeholders in the Food Supply Chain was held in Vienna on 14 November 2014, and a practical laboratory based FAO/IAEA training workshop on the application of laboratory quality assurance and control to address food safety and quality was also conducted at the FAO/IAEA Agriculture and Biotechnology Laboratories in Seibersdorf from 10 to 21 November 2014.

#### Radionuclides in Food and Guideline Levels in CODEX STAN 193-1995

3. The Joint Division and the IAEA provided technical support to the CCCF’s electronic working group (EWG) chaired by the Netherlands, with Japan as co-chair, that was re-established by the CCCF at its eighth session. The EWG has produced a paper on the interpretation and implementation of the Guideline Levels (GLs) for radionuclides in food traded internationally and contained in the Codex General Standard for Contaminants and Toxins in Food and Feed (GSCTFF) [CODEX STAN 193-1995], as was requested at the eighth session of the CCCF.<sup>3</sup>
4. An Inter-Agency Working Group (IAWG) has reviewed standards related to food and drinking water contaminated with radionuclides and reported their findings to the CCCF and the IAEA Radiation Safety Standards Committee.

<sup>1</sup> Document prepared by and under the responsibility of the Joint FAO/IAEA Division on Nuclear Techniques in Food and Agriculture, IAEA Headquarters, Vienna, Austria (please see <http://www-naweb.iaea.org/naifa/index.html> for additional details).

<sup>2</sup> See the symposium web page: <http://www-pub.iaea.org/iaea meetings/46092/Food-Safety-and-Quality>.

<sup>3</sup> See the *Report of the Eighth Session of the Codex Committee on Contaminants in Foods, The Hague, The Netherlands, 31 March–4 April 2014* (Codex Alimentarius Commission document REP14/CF), paragraphs 17–18.

5. As regards the four questions considered by the EWG, (i) the Joint Division considers that Codex GLs relate to food in international trade and that when comparing the GLs to radionuclide concentrations in food, it is necessary to take into account any change in radionuclide concentrations when the food is ready to eat (e.g. what the radionuclide concentrations would be in the food after reconstitution or as otherwise prepared for consumption); (ii) the Joint Division also does not consider that it is possible to define a fixed time frame for the application of the GLs, and a practical approach is needed, for example, until the underlying assumptions contained in the GSCTFF (e.g. fraction of contaminated food, and minor crops) are no longer valid; (iii) it is also considered that the identification of internationally validated methods of analysis for radionuclides in foods would be useful to include in Codex Standards, especially as different analytical methodologies are necessary for different types of radionuclide (i.e. alpha-, beta- and gamma-emitters), and, (iv) it is agreed that the General Guidelines on Sampling (CAC/GL 50-2004) are sufficient for radionuclide testing and allow users enough flexibility.

6 As detailed in the EWG report<sup>4</sup> to this Committee, it is recommended that the ninth session of the CCCF consider: (a) discussing the responses from members of the group to the questions raised by the IAWG; (b) discussing whether the responses suggest changes to the GSCTFF or clarifying current text in the GSCTFF; and (c) whether, depending on the outcome of these discussions, new work is needed regarding changes of the GLs for radionuclides in food as described in the GSCTFF.

### **Practical Criteria for the Control of Food and Drinking Water Containing Radionuclides**

7 The Joint Division, FAO, the IAEA and the WHO also contributed to the preparation of an IAEA Technical Document (TECDOC) on the development of practical criteria for the control of food and drinking water containing radionuclides. The document aims to assist food control officials, and others who may not be specialists in radiation protection, by providing information on the different international standards relating to radionuclides in food and water and how they are intended to be used in different circumstances. It will also provide a framework for calculating food control levels (activity concentrations, Bq/kg) based on recommended dose criteria (Sv/year) for the consumption of radionuclides in food and drinking water, with an emphasis on controls to be applied after a nuclear emergency is declared to have ended.

8. A Technical Meeting at the IAEA provided input and guidance on the development of this publication and it was noted that the Codex Alimentarius approach to calculating GLs for radionuclide concentrations in food destined for international trade would also be helpful for calculating radionuclide reference levels in other scenarios.

9. A copy of the meeting report can be made available on request; the TECDOC is being produced for publication in 2015.

### **Cadmium in Cocoa**

10. The Joint Division also participated in the EWG that developed the discussion paper on the establishment of maximum levels for cadmium in chocolate and cocoa products<sup>5</sup>, which was prepared to support deliberations on the proposed draft maximum levels for cadmium in chocolate and cocoa-derived products during the ninth CCCF session<sup>6</sup>.

### **Coordinated Research Projects**

11. The Joint Division provides support to FAO and IAEA Member States for the implementation of holistic food safety and control systems through coordinated research activities. International collaborative research currently includes the following projects:

- “Response to Nuclear Emergencies Affecting Food and Agriculture” (2014–2019). This project aims to develop/assess innovative systems of data collection, data management and geovisualization platforms that can be used both in routine monitoring and for emergency response to nuclear and radiological incidents affecting food and agriculture.
- “Development and Strengthening of Radioanalytical and Complementary Techniques to Control Residues of Veterinary Drugs and Related Chemicals in Aquaculture Products” (2015–2020).
- “Implementation of Nuclear Techniques to Improve Food Traceability” (2011–2016).
- “Accessible Technologies for the Verification of Origin of Dairy Products as an Example Control System to Enhance Global Trade and Food Safety” (2013–2018).

<sup>4</sup> See Codex Alimentarius Commission document CX/CF 15/9/14.

<sup>5</sup> See Codex Alimentarius Commission document CX/CF 15/9/8.

<sup>6</sup> See Codex Alimentarius Commission document REP14/CF, paragraphs 141, 142.

**Technical Cooperation Projects**

12. The Joint Division continues to provide technical input and support to a large number of national and regional capacity building projects for food contaminant control and food traceability to help ensure a safe food supply and enhanced trade. For ease of reference, these projects are listed in Tables 1 and 2.

**Building Laboratory and Food Safety Networks**

13. The Joint Division continues to promote the formation of regional laboratory/food safety networks, for example the Latin American and Caribbean Analytical Network (RALACA)<sup>7</sup> and the African Food Safety Network (AFoSaN)<sup>8</sup>.

14. A project has been proposed to help establish another food safety laboratory network in Asia and the Pacific. This project, entitled "Establishing a Food Safety Laboratory Network in Asia to Control Veterinary Drug Residues and Related Chemical Contaminants", may include up to 16 interested countries.

15. An interregional project has also been proposed to the IAEA that would provide a platform for a group of Member States to jointly address food safety concerns and opportunities across regions by sharing experiences and resources. If approved, an estimated 40 participant countries could be involved. Activities in the project would include collecting and sharing exposure data relevant to Codex Committees such as the CCCF.

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<sup>7</sup> See: <http://red-ralaca.net>.

<sup>8</sup> See: <http://www.africanfoodsafetynetwork.org/>.

**Table 1. Ongoing/recent IAEA technical cooperation projects relevant to the CCCF's work**

Number	Country/Region	Project No.	Title
1	Africa	RAF/5/067	Establishing a Food Safety Network through the Application of Nuclear and Related Technologies
2	Asia	RAS/5/057	Implementing Best Practices of Food Irradiation for Sanitary and Phytosanitary Purposes
3	Asia	RAS/5/062	Building Technological Capacity for Food Traceability and Food Safety Control Systems through the Use of Nuclear Analytical Techniques
4	Azerbaijan	AZB/5/001	Establishing a Spectrometry Laboratory at the State Metrology Service under the State Committee for Standardization, Metrology and Patents
5	Belize	BZE/5/007	Supporting Sustainable Capacity Building through Distance Learning for Laboratory Personnel of the National Agricultural Health Authority
6	Benin	BEN/5/009	Monitoring Safe Food Supply through Total Diet Studies and the Application of Nuclear and Complementary Analytical Techniques
7	Central African Republic	CAF/5/007	Enhancing Laboratory Capacity to Control Chemical and Bacteriological Hazards in Foodstuffs of Animal Origin
8	Ecuador	ECU/5/027	Improving Food Security and Environmental Sustainability by Monitoring Wetlands as Indicators of Good Agricultural Practice in Palm Oil Production
9	Ecuador	ECU/5/028	Consolidating Food Security and Environmental Sustainability in Palm Oil Production Using Nuclear Applications
10	El Salvador	ELS/7/006	Building Capacities to Minimize Environmental Contamination and to Protect the Health of the Rural Population by Strengthening Research Capabilities and Laboratory Infrastructure
11	Guatemala	GUA/7/004	Developing Capabilities to Evaluate the Transfer and Fate of Water Pollutants to Improve the Management of Major Basins and the Safety of Agricultural Products
12	Latin America	RLA/7/019	Developing Indicators to Determine the Effect of Pesticides, Heavy Metals and Emerging Contaminants on Continental Aquatic Ecosystems Important to Agriculture and Agroindustry (ARCAL CXXXIX)
13	Mongolia	MON/5/019	Enhancing Analytical Equipment for Animal Disease Prevention, Diagnosis and Surveillance
14	Namibia	NAM/5/013	Assessing the Spatial Distribution of Lead, Cadmium and Selected Pesticide Residues in Livestock Farming
15	Oman	OMA/5/003	Strengthening National Capabilities in Food Safety and Food Traceability
16	Panama	PAN/5/022	Determining Pesticides and Inorganic Pollutants in Vegetables and Studying the Adsorption and Migration Through Nuclear Technologies in Zones of High Pollution Incidents to Guarantee Safe Food for Consumers
17	Paraguay	PAR/5/010	Strengthening the National Network of Laboratories Involved in Chemical Risk Analysis to Ensure Food Safety Through the Use of Nuclear and Complementary Non-Nuclear Techniques
18	Qatar	QAT/5/004	Upgrading the Central Food Laboratory
19	Uruguay	URU/5/029	Implementing a System for Traceability and Authenticity to Ensure Food Safety of Cheeses and Wines

**Table 2. New (prospective) IAEA technical cooperation projects (2016–2017) relevant to the CCCF's work**

Num ber	Country/Re gion	Project Concept No.	Title
1	Bahrain	BAH2014007	Establishing of a National Quality Control Standard for Foodstuffs and Fishery Products
2	Bosnia and Herzegovina	BOH2014006	Mycotoxin Assessment in Food Chain in Bosnia and Herzegovina
3	Botswana	BOT2014002	Enhancing the Use of Nuclear and Isotopic Analytical Techniques in Monitoring Chemical Food Contaminants in Botswana
4	China	CPR2014002	Implementing the Stable Isotope Technique for High Quality Agro-product Traceability and Authenticity
5	China	CPR2014009	Construction of a Chinese National Food Safety Standard System for Irradiated Food and Improvement of Risk Management Ability
6	Egypt	EGY2014004	Establishing a National Reference Laboratory for Analysis of Food Contaminants through Application of Nuclear and Related Techniques
7	Interregional	INT2014004	Promoting Interregional Partnerships for Use of Nuclear and Complimentary Analytical Techniques for the Monitoring and Control of Chemical Residues and Contaminants in Food
8	Iraq	IRQ2014005	Developing Food Safety and Assurance System Using Nuclear and Other Related Technologies with Developing Technique for DNA Damage Detection in Illegal Irradiated Foods Using the Comet Assay and other Technologies
9	Malaysia	MAL2014005	Strengthening National Technical Capability in Food Traceability through Application of Nuclear and Related Technologies
10	Mauritius	MAR2014002	Strengthening National Capacity to Test/Monitor Drug Residues and Related Chemical Contaminants in Animal Products and Feeds
11	Mozambique	MOZ2014002	Food Safety Capacity Building on Food-borne Microorganisms and Chemical Contaminations Laboratory Assessment Using Nuclear Related Techniques
12	Niger	NER2014002	Laboratory Capacity Building for Control of the Food Products of Animal Origin at the Central Laboratory for Livestock (LABOCEL) Niamey
13	Nigeria	NIR2014005	Dietary Exposure Assessment of Chemicals in Food
14	Panama	PAN2014004	Development of Analytical Capabilities for the Detection of Chemical Contaminants in Food (Irradiated or Not) and for Assessment of the Quality of the Fertilizer Used in Agriculture
15	Africa	RAF2014006	Establishing a Food Safety Network through the Application of Nuclear and Related Technologies — Phase II
16	Asia and the Pacific	RAS2014018	Establishing an Asia and the Pacific Laboratory Network That Uses Nuclear and Complimentary Analytical Techniques to Control Veterinary Drug Residues and Related Chemical Food Contaminants
17	Asia and the Pacific	RAS2014031	Monitoring of Cereals and Pulses Yield Sustainability under Radionuclide Contaminated Biosphere (Nuclear Power Plant Disaster)
18	Latin America	RLA2014011	Improving the Management of Pollution by Persistent Organic Pollutants to Reduce the Impact on People and the Environment in Latin America and the Caribbean
19	Sierra Leone	SIL2014007	Using Nuclear Techniques for Evaluating the Occurrence and Control of Mycotoxins and Heavy Metal Contamination of Foods in Sierra Leone
20	Uganda	UGA2014002	Enhancing National Residue Monitoring of Veterinary Drugs and Related Chemical/Natural Food Contaminants in Uganda
21	Zambia	ZAM2014008	Application of Nuclear Techniques in the Management of the Risk to Human and Animal Health, and Trade Posed by Multi-Mycotoxin Contamination of Agricultural Crops in Zambia