



**Food and Agriculture  
Organization of  
the United Nations**



**World Health  
Organization**

Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - Fax: (+39) 06 5705 4593 - E-mail: [codex@fao.org](mailto:codex@fao.org) - [www.codexalimentarius.org](http://www.codexalimentarius.org)

**Agenda Item 4(b)**

**CX/PR 15/47/4-Add.1  
April 2015**

## **JOINT FAO/WHO FOOD STANDARDS PROGRAMME**

### **CODEX COMMITTEE ON PESTICIDE RESIDUES**

**47<sup>th</sup> Session**

**Beijing, P.R. China, 13 - 18 April 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 CCPR WORK<sup>1</sup>**

1. For over fifty years, the Food and Agriculture Organization of the United Nations (FAO) and the International Atomic Energy Agency (IAEA), through the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture (the Joint Division), have worked together to champion the goals of both the IAEA, to accelerate and expand the peaceful contribution of nuclear technologies to promote global health and prosperity, and the FAO, to eliminate world hunger and reduce poverty through improved food security and sustainable agricultural development.
2. The Joint Division consists of five thematic sections working in the areas of food and environmental protection, soil and water management, plant breeding and genetics, animal production and health, and insect pest control, each with associated laboratory facilities at the FAO/IAEA Agriculture & Biotechnology Laboratories. The Joint FAO/IAEA Programme provides support to farmers by contributing new varieties of crops, controlling pests, diagnosing livestock disease, increasing animal production, improving soil and water management, and increasing food safety. The work supports member countries in adapting, developing and transferring nuclear and related techniques for food and agriculture and on promoting good agricultural practices to ensure food security and sustainable agricultural development. Efforts focus on food production, protection and safety to combat food insecurity.
3. The activities of the Food and Environmental Protection sub-programme of the Joint Division are most closely related to the work of CCPR and include nuclear and isotopic analytical methods for (i) monitoring agrochemical residues and contaminants in foods and (ii) tracing and authenticating food products. As part of its subprogramme on food traceability, safety and quality to enhance international trade, the Joint Division continues to support and educate member countries in Codex food safety standards and encourages and supports the adoption of Codex MRLs as part of national and regional food control systems. In addition, the subprogramme also includes food irradiation for the control of microbial contaminants in foods (sanitary), maintenance of food quality, and the control of exotic insect pest problems reducing the need to use chemical fumigants (phytosanitary irradiation) in food products in international trade. The subprogramme is also intimately involved in activities related to preparedness and response to nuclear and radiological incidents that could affect food and agriculture.
4. One of the ways in which the Food and Environmental Protection sub-programme aims to improve food safety and food control systems and enhance trade is through forging sustainable networks of food control laboratories. Networks can leverage the expertise and competencies of national and regional food control laboratories in a world where food trade is increasingly complex and globalized. For example, the Red Analítica de Latino América y el Caribe (RALACA) network comprising 49 laboratories in 19 Latin America & Caribbean countries in 2014. Over the past two years, 12 national chemical residue monitoring programmes have been developed and coordinated under RALACA; 15 laboratories worked together to monitor veterinary residues in foods and feeds; more than 125 analytical methods were developed and validated or re-validated; and over 206 laboratory staff were trained.

<sup>1</sup> Document prepared by and under responsibility of the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, IAEA, Vienna, Austria.

**Performance Criteria Specific for Methods of Analysis for Pesticide Residues**

5. The Joint Division continues to provide technical support to the electronic working group (EWG) on Performance Criteria Specific for Methods of Analysis for the Determination of Pesticide Residues that was re-established by the CCPR at its 46<sup>th</sup> session and chaired by the United States of America and co-chaired by China and India. Through the establishment of these performance standards, member countries who are involved in developing their own food safety programs will have a clearer understanding of the method requirements when monitoring for compliance with international food safety standards. The draft document is currently undergoing final review through an electronic working group of which the Joint Division is an active participant and is to be presented at the 47<sup>th</sup> session of the CCPR.

**A WEB APPLICATION ON FOOD CONTAMINANTS<sup>2</sup>**

6. At the request of CCPR and member countries, the joint division continues to support the Food Contaminant and Residue Information System (FCRIS) database <http://nucleus.iaea.org/fcris/> that contains information on analytical techniques for the detection of food contaminants such as pesticide and veterinary drug residues as well as mycotoxins and other toxic residues. The database also contains useful links to national and international food safety standards and guidelines.

**JOINT DIVISION COORDINATED RESEARCH AND TECHNICAL COOPERATION PROJECTS – PESTICIDE RESIDUES IN FOODS**

7. The Joint Division encourages and assists member countries with research and development on the uses of nuclear and related techniques and fosters the exchange of scientific and technical information. Activities designed to stimulate and coordinate research by scientists in both developing and developed countries in selected fields related to nuclear techniques are normally implemented through Coordinated Research Projects (CRPs). The objective of the research is to produce strategic outputs that can be applied downstream through capacity building Technical Cooperation Projects (TCP) in member countries. For example, CRP D52039 is currently being initiated for the next five years and aims to develop and strengthen radio-analytical and complementary techniques to control residues (veterinary drugs and chemicals) in aquaculture products. More information, including application forms for those who would like to participate, are available online<sup>3</sup>.
8. The Food and Environmental Protection sub-programme continues to provide scientific and technical support for over 40 TCPs at national, regional and interregional levels. A large number of these TCPs are associated with pesticides and related chemical contaminants. Table 1 provides a list of IAEA TCPs supported by the Joint Division and relevant to CCPR's work. Table 2 provides a list of potential future TCPs currently under development and of interest to the CCPR.
9. The Joint Division provides technical support to TCPs, including training activities at its laboratory in Seibersdorf, Austria; the provision of scientific visits and fellowships to assist in the development of human resources in developing countries; and through expert missions. Through these TCPs, member countries can also receive assistance with procurement of analytical instruments, supplies and pesticide standards, including stable isotope internal standards / radio-labelled standards. For example, recently completed TCP COS/5/029 in Costa Rica assisted the Centro de Investigación en Contaminación Ambiental (CICA) and helped improve capacities to monitor environmental pollutants in soil and river water. An important accomplishment was the design and adaptation of a bio-purification system (BPS) to rapidly degrade pesticide-containing wastewater retained in pesticide application equipment. The BPS was prepared with local and low cost materials and significant improvements in water quality and the environment are expected as a direct result of the project. A follow-up TCP plans to apply the principle successfully tested under COS/5/029 to a much wider scope aiming to reduce the health and environmental impact of pesticide residues and potentially mitigate their impact on climate change.

<sup>2</sup> This section is presented in relation to discussions held at the 36<sup>th</sup> Session of the Joint FAO/WHO Codex Alimentarius Commission (REP13/CAC, paragraphs 138-141) concerning the Recommended Methods of Analysis for Pesticide Residues (CODEX STAN 229-1993).

<sup>3</sup> <http://cra.iaea.org/cra/stories/2014-12-10-D52039-VetDrugs-Aquaculture.html>

10. An International Symposium on Food Safety and Quality was held in November 2014 at the IAEA Headquarters in Vienna, Austria. The symposium was attended by more than 300 scientists from more than 85 countries. Some 63 speakers from both developed and developing countries presented on issues related to nuclear techniques in food traceability, contaminant control and quality, including the analysis of pesticides, mycotoxins, heavy metals and other contaminants. One of the satellite events associated with the symposium was a Workshop on Food Control Systems and the Role of the Different Stakeholders in the Food Supply Chain. In addition, 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 & Biotechnology Laboratories in Seibersdorf.

**Table 1. Some ongoing IAEA TCPs supported by the Joint Division and relevant to CCPR'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 TCPs (2016–2017) relevant to CCPR's work**

Number	Country/ Region	Project Concept No.	Title
1	Bahrain	BAH20140 04	Determination of Pesticide and Mycotoxin Residues in water and food
2	Botswana	BOT20140 02	Enhancing the Use of Nuclear and Isotopic Analytical Techniques in Monitoring Chemical Food Contaminants in Botswana
4	China	CPR20140 02	Implementing the Stable Isotope Technique for High Quality Agro-product Traceability and Authenticity
5	China	CPR20140 09	Construction of a Chinese National Food Safety Standard System for Irradiated Food and Improvement of Risk Management Ability
3	Colombia	COL20140 01	Diagnosis of residual pesticides and other contaminants in exotic tropical fruits to make Colombia's foods exports more acceptable on the international market
4	Costa Rica	COS20140 04	Assessing and implementing biochar use in climate smart and environmentally friendly pineapple production using isotopic techniques
5	Cuba	CUB20140 03	Strengthening national capabilities for the certification of soil quality and innocuousness control of agricultural products using nuclear and related techniques
6	Dominica	DMI20140 04	Enhancing Dominica's capacity to test, monitor and control agrochemicals residues in foods and the environment (soil and water) through the application of nuclear technology
7	Egypt	EGY20140 04	Establishing a National Reference Laboratory for Analysis of Food Contaminants through Application of Nuclear and Related Techniques
8	Haiti	HAI201400 1	Implementing a Diagnosis System to Assess the Impact of Pesticides in Food and the Environment
10	Iraq	IRQ20140 05	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
11	Libya	LIB201400 4	Use of Nuclear and Complimentary Techniques for Monitoring Agrochemical Residues in Food Products and the Environment in Libya
12	Malaysia	MAL20140 05	Strengthening National Technical Capability in Food Traceability through Application of Nuclear and Related Technologies
13	Mauritius	MAR20140 02	Strengthening National Capacity to Test/Monitor Drug Residues and Related Chemical Contaminants in Animal Products and Feeds
14	Mozambique	MOZ20140 02	Food Safety Capacity Building on Food-borne Microorganisms and Chemical Contaminations Laboratory Assessment Using Nuclear Related Techniques
15	Niger	NER20140 02	Laboratory Capacity Building for Control of the Food Products of Animal Origin at the Central Laboratory for Livestock (LABOCEL) Niamey
16	Nigeria	NIR201400 5	Dietary Exposure Assessment of Chemicals in Food
17	Panama	PAN20140 04	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
18	Sierra Leone	SIL201400 7	Using Nuclear Techniques for Evaluating the Occurrence and Control of Mycotoxins and Heavy Metal Contamination of Foods in Sierra Leone
19	Uganda	UGA20140 02	Enhancing National Residue Monitoring of Veterinary Drugs and Related Chemical/Natural Food Contaminants in Uganda

<b>Number</b>	<b>Country/ Region</b>	<b>Project Concept No.</b>	<b>Title</b>
20	Zambia	ZAM20140 08	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
21	Africa	RAF20140 06	Establishing a Food Safety Network through the Application of Nuclear and Related Technologies — Phase II
22	Asia and the Pacific	RAS20140 18	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
23	Asia and the Pacific	RAS20140 31	Monitoring of Cereals and Pulses Yield Sustainability under Radionuclide Contaminated Biosphere (Nuclear Power Plant Disaster)
24	Interregion al	INT201400 4	Promoting Interregional Partnerships for Use of Nuclear and Complimentary Analytical Techniques for the Monitoring and Control of Chemical Residues and Contaminants in Food
25	Latin America	RLA20140 11	Improving the Management of Pollution by Persistent Organic Pollutants to Reduce the Impact on People and the Environment in Latin America and the Caribbean