CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON PESTICIDE RESIDUES

Fifty-fifth Session
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3-8 June 2024

MATTERS ARISING FROM OTHER INTERNATIONAL ORGANIZATIONS

ACTIVITIES OF THE JOINT FAO/IAEA CENTRE OF NUCLEAR TECHNIQUES IN FOOD AND AGRICULTURE RELEVANT TO CCPR WORK

(Prepared by the Joint FAO/IAEA Centre[1])

1. The Food and Agriculture Organization of the United Nations (FAO) and International Atomic Energy Agency (IAEA), through the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture (Joint FAO/IAEA Centre), support and implement activities relevant to the Codex Committee on Pesticide Residues (CCPR). This year marks the 60th anniversary of the Centre which continues to render services to Member Countries of both organizations through mechanisms such as technical cooperation projects (TCPs), coordinated research projects (CRPs), extra-budgetary projects and laboratory-led applied research and technology adaptation, to promote food safety, consumer protection and facilitate trade. This goal is achieved, in collaboration with sister FAO Divisions in Rome and the regions, through the Food Safety and Control Section and its laboratory, the Food Safety and Control Laboratory (FSCL) located in Seibersdorf, Austria.

2. Member Countries of the two organizations continue to seek assistance from the Joint FAO/IAEA Centre on the use of nuclear and isotopic analytical techniques to test and monitor pesticide residues and related hazards in food. Past and current activities relevant to CCPR and those of future relevance are highlighted below.

COORDINATED RESEARCH ACTIVITIES

3. There are activities implemented through CRPs involving up to twenty institutions in both developing and developed countries that work on a common theme for each project. Examples include projects on: 'Depletion of Veterinary Pharmaceuticals and Radiometric Analysis of their Residues in Animal Matrices'; and on "Nuclear techniques to support risk assessment of biotoxins and pathogen detection in food and related matrices". Products of such projects support routine laboratory testing and facilitate standards-setting or implementation.

4. The CRP 'Depletion of Veterinary Pharmaceuticals and Radiometric Analysis of their Residues in Animal Matrices', under implementation from 2021 to 2026, aims at supporting the establishment of maximum residue levels (MRLs) for certain veterinary drugs including dual-use compounds of relevance to CCPR and the Codex Committee on Residues of Veterinary Drugs. Some of the research findings could also benefit interests and discussions on residues in offal. Seventeen research and regulatory institutions from Bangladesh, Burkina Faso, Brazil, Canada, Chile, China P.R, Costa Rica, Korea (Republic of), Morocco, North Macedonia, Pakistan, Sudan, Uganda, Uruguay and USA are involved. The CRP's 3rd RCM was held 21–25 August 2023 in North Macedonia. This project continues to explore opportunities for collaboration and partnerships in critical areas such as in the synthesis or donation of radiolabelled compounds to support relevant experiments.

5. An example of relevant research under the depletion-CRP involved the insecticide diflubenzuron (diflubenzuron C-14) used to investigate bioaccumulation and depletion in Lambari fish (*Astyanax bimaculatus*) and shrimps.

1 https://www.iaea.org/topics/food-and-agriculture

TECHNICAL COOPERATION PROJECTS, CAPACITY BUILDING, NETWORKS, DATA GENERATION, MEETING

6. The Joint FAO/IAEA Centre currently provides technical support to more than 80 IAEA TCPs in food safety and control[2] (*see Table 1 for selected active TCPs*). At least 417 food safety scientists received relevant training in 2023.

7. ***Networking:*** The Joint FAO/IAEA Centre continues to support and promote regional laboratory/food safety networks a to enhance capacity building. These include the Latin American and Caribbean Analytical Network (RALACA)[3], the African Food Safety Network (AFoSaN)[4] and a food safety network in Asia[5]. These networks provide a platform for sharing knowledge and experiences and carry out a wide range of activities, including transfer of analytical methods, proficiency testing, interlaboratory comparisons and benchmarking. More than 200 institutes from approximately 90 countries are currently involved in the networks. The networks will continue to benefit from a number of capacity building projects some of which are listed in table 1 below.

8. To further enhance AFoSaN, an African food safety workshop will be organized on 7-11 October 2024 in Marrakech, Morocco and is expected to attract more than 100 participants from Africa and other countries. Additional information will be provided in due course through the Joint Centre's and AFoSaN websites.

9. ***Supporting analytical laboratories*****:** The Joint FAO/IAEA Centre continues to meet requests from Member Countries for analytical methods, standard operating procedures and technical guidance. The methods developed or adapted and validated in the FSCL and collaborating institutions are made available to member countries through various mechanisms, including training workshops, publications in the scientific literature and public outreach events, as well as the platform, 'Food Contaminant and Residue Information System'[6]. The database contains approximately 300 analytical methods and associated material to support the control of contaminants and residues in foods.

10. ***Laboratory work on pesticide residues analysis and technology transfer:*** The FSCL optimised and validated a liquid chromatography tandem mass spectrometry method for the determination of selected pesticides and selected contaminants in maize and related products. This is being transferred to Belize under a food safety TCP supported by the Joint FAO/IAEA Centre. During 2023, declared as the International Year of millets, the FSCL worked on the development and optimization of an alternative chromatographic method using supercritical fluid chromatography coupled to tandem mass spectrometry for the determination of pesticides and aflatoxins in millet. Samples of millet were evaluated for levels of residues and contaminants, and a risk assessment exercise is planned for millets harvested in Ghana.

11. ***Supporting data-generation for MRLs including minor species/use:*** A new regional project for the African region has been initiatedIt aims at addressing a critical gap in Africa's food safety system, the need to establish or contribute to the setting of national, regional and international (Codex) standards and guidelines, required to safeguard consumers, ensure responsible food production practices and facilitate fair trade in agricultural products. Member countries will receive support to build capacity required to generate reliable scientific data that will be used for setting maximum residue limits (MRLs) and/or maximum limits for a range of chemical hazards including veterinary and pesticide residues, mycotoxins and toxic metals etc for a broad scope of foodstuffs. Beneficiaries will include routine testing as well as research laboratories and regulators with a clear role to play in standards setting, risk assessment and risk management. The expected outcome is enhanced regional capacity of the food safety stakeholders to safeguard consumer health and increased compliance with the standards that facilitate trade. The project deliverables will include, among others, strengthened human/technical resource needed to conduct radiolabelled, associated non-radiolabelled and stable isotope activities including supervised field trials; regional laboratories/institutions with enhanced capability needed to conduct radiolabelled and non-radiolabelled activities for standards setting; and strengthened regional and national capacity to effectively report or present scientific data needed to establish MRLs/MLs. Efforts will also be made to support improvement of food safety policy and regulatory framework (s) and enhancing surveillance programmes. These efforts are expected to contribute to implementation of the continental food safety strategy.

12. ***International food safety meeting:*** By the time CCPR 55 meets, the Joint FAO/IAEA Centre would have hosted the International Symposium on Food Safety and Control at the IAEA Headquarters in Vienna, Austria, 27–31 May 2024. Several CCPR members and Codex family have made significant contributions to the meeting.

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2 Additional information is available in the FAO/IAEA Newsletter: https://www.iaea.org/publications/15625/food-safety-and-control-newsletter-vol-03-no-1-january-2024

3 See: http://red-ralaca.net

4 See: http://www.africanfoodsafetynetwork.org/

5 See: http://www.foodsafetyasia.org/

6 See: http://nucleus.iaea.org/fcris/

Table 1. Overview of selected CCPR-relevant projects supported by the Joint FAO/IAEA Centre

Number	Country/ Region	Project No.	Title
1	Bahamas	BHA5003	Strengthening Laboratory Capacity for Testing Microbial and Related Chemical Contaminants in Food Products
2	Bangladesh	BGD5034	Enhancing Competence in Nuclear and Complementary Capabilities for Testing/Monitoring Veterinary Drug Residues and Other Contaminants in Foods
3	Barbados	BAR5001	Enhancing Capability for Food Safety and Surveillance through the Development of Nuclear, Isotopic and Complimentary Analytical Methods
4	Cameroon	CMR5028	Improving the Capacity for Food Safety Testing Using Nuclear and Complementary Techniques
5	Comoros	COI5001	Building a Food Safety Laboratory Capacity in Comoros — Phase I
6	Cote d'Ivoire	IVC5045	Strengthening National Analytical Capacities for Food Safety Testing and Assessing Micronutrient Bioavailability in Local Diets
7	Democratic Republic of the Congo	COD5013	Using Nuclear Techniques to Improve Crop Productivity for Maize, Soybeans and Beans, as well as Food Safety Testing Capabilities
8	Djibouti	DJI5001	Developing Nuclear/Isotopic and Complementary Food Safety Testing Capabilities
9	Dominica	DMI5004	Establishing a National Food Safety Monitoring Surveillance Programme
10	Ecuador	ECU5033	Strengthening Laboratory Capacities for Monitoring Residues of Neonicotinoid Pesticides in Honeybees and Honey
11	Eritrea	ERI5016	Enhancing Food Safety Analytical and Monitoring Capabilities
12	Fiji	FIJ5005	Establishing a Food Safety Laboratory for Analysis of Pesticide Residues in Fresh Fruits, Vegetables and Root Crops — Phase II
13	Fiji	FIJ5008	Improving the Capabilities of the Food Safety Laboratory for Analysis and Control of Biological Contaminants
14	Georgia	GEO5001	Enhancing National Programmes for Testing and Monitoring Food Contaminants and Residues
15	Honduras	HON5012	Strengthening Analytical Capabilities for the Detection of Residues, Contaminants and Microbiological Hazards in Food and Feed
16	Kyrgyzstan	KIG5001	Establishing Effective Testing and Systematic Monitoring of Residues and Food Contaminants and of Transboundary Animal Diseases
17	Lesotho	LES5011	Strengthening Nuclear and Related Food Safety Laboratory Capabilities to Control Veterinary Drug Residues and Related Contaminants
18	Marshall Islands	MHL5004	Strengthening Capacities for the Detection and Control of Contaminants and Residues in Food

Number	Country/ Region	Project No.	Title
19	Mauritania	MAU5011	Enhancing Intersectoral Food Safety Testing and Surveillance of Chemical and Biological Hazards
20	Mozambique	MOZ5012	Enhancing Food Safety testing and Monitoring of Hazards Using Nuclear and Related Techniques
21	Namibia	NAM5021	Enhancing National Food Safety and Aquatic Contaminant Monitoring Programmes
22	Niger	NER5026	Enhancing Food Production, Preservation, Safety and Quality
23	Pakistan	PAK5053	Strengthening and Enhancing National Capabilities for the Development of Climate Smart Crops, Improvement in Animal Productivity and Management of Soil, Water, and Nutrient Resources Using Nuclear and Related Technique
24	Palau	PWL5005	Building Core Capacities to Control Contaminants and Other Residues in Food — Phase I
25	Panama	PAN5032	Strengthening Monitoring Capabilities for Chemical Residues and Contaminants in Aquaculture using Nuclear and Isotopic Techniques
26	Qatar	QAT5009	Enhancing National Food Safety Capacity to Test and Monitor Residues/Contaminants Using Nuclear and Related Isotopic Techniques
27	Samoa	WSM5001	Building Core Laboratory Capacities to Control Chemical Contaminants and Residues in Food
28	Senegal	SEN5043	Developing Capacity to Conduct an Assessment of Exposure to Chemical Hazards in Food, and to Evaluate the Nutritional Composition of Local Dishes
29	Seychelles	SEY5014	Developing Toxicological Analytical Capability for Monitoring and Biomonitoring Exposure to Toxic Agents in Biological and Environmental, as well as Food and Water Matrices
30	South Africa	SAF5018	Establishing National Capacities for Monitoring and Control of Pesticide Residues in Agricultural Produce
31	St Lucia	STL0001	Strengthening Institutional Capacities in the Application of Nuclear Technology
32	Togo	TOG5007	Developing Laboratory Capacities for the Quality Control of Food and Pharmaceutical Products
33	Vanuatu	NHE5005	Strengthening Agro-Food Laboratory Quality Infrastructure – Phase III
34	Zambia	ZAM5034	Expanding the Scope of Food Safety Testing and Surveillance of Hazards in Foods and Related Matrices
35	Regional - Asia and the Pacific	RAS5096	Strengthening Multi-stakeholder Food safety Monitoring Programmes for Chemical Contaminants and Residues in Plant and Animal Products Using Nuclear/Isotopic Techniques

Number	Country/ Region	Project No.	Title
36	Regional - Asia and the Pacific	RAS5099	Developing Climate Smart Crop Production including Improvement and Enhancement of Crop Productivity, Soil and Irrigation Management, and Food Safety Using Nuclear Techniques (ARASIA)
37	Regional - Latin America and the Caribbean	RLA5091	Strengthening the Monitoring Programmes of Pesticide Residues and Mycotoxins in Food Through the Establishment of a Proficiency Test Programme in Official Laboratories (ARCAL CXCV)
38	Regional - Africa	RAF5091	Enhancing Human and Analytical Capacities for Food Safety Standards (AFRA)