CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

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Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: codex@fao.org - www.codexalimentarius.org

Agenda Item 4(b)

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON PESTICIDE RESIDUES

54th Session
Beijing, P.R. China,
26 June–1 July 2023

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 is achieved through the Food Safety and Control Section and its laboratory, the Food Safety and Control Laboratory (FSCL) located in Seibersdorf, Austria. In collaboration with sister FAO Divisions in Rome, the support is delivered to member countries through technical cooperation projects (TCPs), coordinated research projects (CRPs) and additional extra-budgetary projects, as well as laboratory-led applied research and technology adaptation, all to promote food safety, consumer protection and facilitate trade.

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. These 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. Three such projects are on: 'Integrated Radiometric and Complementary Techniques for Mixed Contaminants and Resides in Foods'; 'Depletion of Veterinary Pharmaceuticals and Radiometric Analysis of their Residues in Animal Matrices'; and an upcoming project on 'Rapid Screening for Safe Food'. Products of such projects support routine laboratory testing and facilitate standards-setting or implementation.

4. The final research coordination meeting (RCM) for the CRP on 'Integrated Radiometric and Complementary Techniques for Mixed Contaminants and Residues in Foods' was held in Vienna, Austria, 8–12 May 2023. The project involved researchers and regulatory institutions in Benin, Botswana, Chile, China P.R, Colombia, Ecuador, Italy, Netherlands, Nicaragua, North Macedonia, Pakistan, Papua New Guinea, Peru, Spain, South Africa, Uganda and the United States of America (USA). Research work focused on the development, validation and application of multi-class/category laboratory methods for analysis of pesticide residues, veterinary drug residues and mycotoxins, among others, simultaneously. More than 25 methods have been established for the testing of a wide scope of the analytes in a range of food commodities of plant and animal origin.

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

5. 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 2nd RCM was held virtually from 28 February to 4 March 2022 while the next meeting is planned for 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.

6. The new CRP on 'Rapid Screening for Safe Food' was recently approved and the process of securing extrabudgetary funding is underway. The objective of this CRP is to develop or adapt and test transferable, reliable, rapid, cost-effective, affordable, sensitive, field-deployable and high-throughput targeted and untargeted nuclear and complementary techniques to support analytical food control programmes in member countries. The focus is mainly on the control of contaminants and residues of pesticides and veterinary drugs. The deadlines for submission of research proposals by interested participants will be announced on the IAEA web site in due course.

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

7. 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*). The process of designing new TCPs for the 2024-2025 cycle will soon be concluded.

8. ***Networking:*** The Joint FAO/IAEA Centre continues to support and promote the formation of regional laboratory/food safety networks as a mechanism to enhance capacity building, including 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.

9. A dedicated regional TCP, 'Strengthening the Regional Collaboration of Official Laboratories to Address Emerging Challenges for Food Safety' for Latin America and the Caribbean, has enabled an initiative of 19 countries in the region, belonging to the RALACA network, to promote the use and sharing of analytical data needed to strengthen risk analysis and promote science-based decision-making in food safety.

10. Further, the RALACA network officially launched a Data Sharing Committee for RALACA (RALACA–DSC) on 25 May 2023, in Panama during a regional meeting on Data-Driven Innovation in Food Safety, from 25 to 26 May. The event targets members of the official food safety laboratories of Latin American and Caribbean region and member countries of the RALACA network. Several regional and international intergovernmental organizations with expertise in the subject matter, including FAO and WHO, will participate. The meeting will promote the use of analytical data on food contaminants as well as pesticide and veterinary drug residues, to strengthen food safety, protect consumers and facilitate trade by strengthening risk-based monitoring. The committee will present an example of a legal framework established to facilitate the collection, storage/hosting and sharing of data on these hazards at the regional level.

11. To further enhance AFoSaN, an African food safety workshop was organized from 27 June to 01 July 2022 in Johannesburg, South Africa attracting more than 280 participants from 43 countries. The event, implemented in partnership with the National Metrology Institute of South Africa, addressed various food safety topics including chemical (pesticide) and microbiological hazards among others. Forty-six oral presentations and 77 posters were presented.

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[2] Additional information is available in the FAO/IAEA Newsletter: https://www.iaea.org/publications/15074/food-and-environmental-protection-newsletter-vol-25-no-1-january-2022

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

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

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

12. ***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].

13. ***Laboratory work on neonicotinoids and technology transfer:*** The FSCL developed, optimised and validated a stable isotope dilution assay using liquid chromatography tandem mass spectrometry for the determination of the neonicotinoids, 6-chloronicotinic acid, acetamiprid, clothianidin, dinotefuran, imidacloprid, thiacloprid and thiamethoxam in honey. This is being transferred to Ecuador and South Africa under food safety TCPs supported by the Joint FAO/IAEA Centre. Neonicotinoids have been alleged to be one of the factors associated with development of the honeybee colony collapse disorder syndrome, and loss of beehives. The global decline in bee populations has economic implications and poses a threat to food production and security.

14. ***Training on monitoring pesticide residues in food*:** Nineteen scientists from Jordan, Kuwait, Lebanon, Oman and Saudi Arabia were trained on pesticide residue testing and monitoring in a training course held in Jordan, 13–17 November 2022. This training was organized in cooperation with the Jordan Food and Drug Administration. The course included lecturers, discussions and hands-on exercises on: a comprehensive framework for residue monitoring including legal aspects and inter-institutional participation; planning and implementing a pesticide surveillance/monitoring programme; and design of monitoring plans and acceptable sampling in the programmes. The trainees also addressed the need for a robust audit trail for all samples and keeping track of results of a programme to facilitate further action (where necessary), as well as robust and accurate analytical methods for pesticide residues and the critical role of quality management in residue monitoring laboratories. Each country shared their experiences and status of pesticide residue monitoring including operational and analytical challenges. Participants were then guided on the application of Codex standards and guidelines to national monitoring programmes and how to use national residue monitoring data to support Codex standards/guidelines. Case studies, including a national network of institutions involved in pesticide residue monitoring such as in India, were reviewed. The participants also addressed opportunities and challenges associated with use of extended-storage reference material.

15. ***Results of regional training on pesticides in okra shared:*** During the 53rd CCPR in July 2022, the Joint FAO/IAEA Centre reported on an Africa regional training course in Uganda to build capacity on generation of data needed for setting MRLs. The training focused on a decline-study supervised field trial for selected pesticides in okra. Following the CCPR meeting, the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) and the Codex Secretariat requested the Joint FAO/IAEA Centre to share data arising. This information was provided to JMPR and was included in the discussions held on 13–22 September 2022. The JMPR summary report of October 2022 considered inclusion of the results submitted by the Joint FAO/IAEA Centre and Uganda, in the database of information previously reported by the JMPR, and according to the procedure described in the 2018 JMPR report. More of such capacity building initiatives are encouraged for more developing countries to meaningfully contribute to data generation and Codex work.

16. ***International food safety meeting:*** The Joint FAO/IAEA Centre will host an International Symposium on Food Safety and Control at the IAEA Headquarters in Vienna, Austria 27–31 May 2024. The CCPR members and Codex family in general are invited.

[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	BHA5001	Developing laboratory capacity for testing contaminants in animal and related products including fish in Bahamas
2	Bangladesh	BGD5034	Enhancing Competence in Nuclear and Complementary Capabilities for Testing/Monitoring Veterinary Drug Residues and Other Contaminants in Foods
3	Benin	BEN5013	Expanding Analytical Capabilities for Systematic Control of Veterinary Drug Residues and Related Contaminants in Foodstuff
4	Botswana	BOT5023	Enhancing Control of Food Hazards in Poultry Production and Products
5	Burundi	BDI5004	Enhancing Control of Chemical Residues and Related Contaminants in Food
6	Cambodia	KAM5004	Strengthening National Capacity for Food and Feed Safety
7	Cameroon	CMR5025	Improving Laboratory Testing Capabilities to Enhance the Safety and Competitiveness of Agricultural Products - Phase I
8	Costa Rica	COS5037	Strengthening Capabilities to Analyse and Monitor Toxic Metals in Animal Products
9	Cote d'Ivoire	IVC5042	Improving Testing and Monitoring of Food Hazards Using Nuclear and Isotopic Techniques
10	Democratic Republic of the Congo	ZAI5028	Controlling Food and Feed Contaminants in Fish Production
11	Djibouti	DJI5001	Developing Nuclear/Isotopic and Complementary Food Safety Testing Capabilities
12	Dominica	DMI5002	Enhancing Capacity to Monitor Agrochemical Residues in Foods and Related Matrices
13	Dominica	DMI5003	Strengthening a Nuclear Isotopic Laboratory and Complimentary Field Food Safety Surveillance Capabilities
14	Eritrea	ERI5012	Developing Analytical Capabilities for Food Safety
15	Eritrea	ERI5014	Enhancing Food Safety Analytical and Monitoring Capabilities
16	Georgia	GEO5001	Enhancing National Programmes for Testing and Monitoring Food Contaminants and Residues
17	Haiti	HAI5009	Strengthening Laboratory Capacity to Test and Monitor Food Contaminants
18	Kyrgyzstan	KIG5001	Establishing Effective Testing and Systematic Monitoring of Residues and Food Contaminants and of Transboundary Animal Diseases

Number	Country/ Region	Project No.	Title
19	Lebanon	LEB5016	Strengthening Capacity for Exposure Assessment of Residues and Contaminants in the National Diet
20	Lesotho	LES5011	Strengthening Nuclear and Related Food Safety Laboratory Capabilities to Control Veterinary Drug Residues and Related Contaminants
21	Madagascar	MAG5028	Developing Food Safety Laboratory Capabilities
22	Malaysia	MAL5033	Strengthening Analytical Capabilities for Food Safety and Food Security
23	Marshall Islands	MHL5002	Building Core Capacities to Control Contaminants and Other Residues in Food - Phase I
24	Mauritania	MAU5008	Strengthening Laboratory Capacity to Analyse and Monitor Residues and Contaminants in Foods
25	Mauritius	MAR5027	Strengthening Multi-Institutional Laboratory Capabilities to Control Veterinary Drug Residues and Associated Food Contaminants
26	Mozambique	MOZ5012	Enhancing Food Safety testing and Monitoring of Hazards Using Nuclear and Related Techniques
27	Namibia	NAM5018	Strengthening Animal Health and Food Safety Control Systems
28	Nicaragua	NIC5012	Strengthening the Monitoring and Control System for Food Contaminants
29	Niger	NER5023	Strengthening Capacity of the Public Health Laboratory to Monitor Food Contaminants
30	Palestine	PAL5010	Strengthening Capability to Monitor Contaminants in Food and Related Matrices through Nuclear and Complementary Analytical Techniques
31	Panama	PAN5027	Strengthening Analytical Capabilities for Risk-based Monitoring of Agricultural Products for Internal Consumption
32	Philippines	PHI5035	Advancing Laboratory Capabilities to Monitor Veterinary Drug Residues and Related Contaminants in Foods
33	Qatar	QAT5009	Enhancing National Food Safety Capacity to Test and Monitor Residues/Contaminants Using Nuclear and Related Isotopic Techniques
34	Rwanda	RWA5003	Strengthening Laboratory Capacity of the Standards Board to Analyse and Monitor Chemicals in Foods – Phase II
35	St Lucia	STL0001	Strengthening Institutional Capacities in the Application of Nuclear Technology
36	Sudan	SUD5040	Strengthening the Evaluation of Quality, Monitoring and Control Programmes for Food Contaminants
37	Uganda	UGA5042	Strengthening Capabilities of Two Central Food Safety Laboratories and Selected Regional Veterinary Centres of Public Health

Number	Country/ Region	Project No.	Title
38	Vanuatu	NHE5004	Strengthening Agro-Food Laboratory Quality Infrastructure – Phase II
39	Zambia	ZAM5034	Expanding the Scope of Food Safety Testing and Surveillance of Hazards in Foods and Related Matrices
40	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
41	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)
42	Regional - Latin America and the Caribbean	RLA5079	Applying Radio-Analytical and Complementary Techniques to Monitor Contaminants in Aquaculture (ARCAL CLXXI)
43	Regional - Latin America and the Caribbean	RLA5080	Strengthening the Regional Collaboration of Official Laboratories to Address Emerging Challenges for Food Safety (ARCAL CLXV)
44	Regional - Latin America and the Caribbean	RLA5081	Improving Regional Testing Capabilities and Monitoring Programmes for Residues/Contaminants in Foods Using Nuclear/Isotopic and Complementary Techniques (ARC AL CLXX)
45	Regional - Africa	RAF5084	Strengthening Food Contaminant Monitoring and Control Systems and Enhancing Competitiveness of Agricultural Exports using Nuclear and Isotopic Techniques (AFRA)