CODEX ALIMENTARIUS COMMISSION

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Food and Agriculture Organization of the United Nations

World Health Organization

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON CONTAMINANTS IN FOODS

12th Session
Utrecht, The Netherlands, 12 - 16 March 2018

MATTERS OF INTEREST ARRISING FROM OTHER INTERNATIONAL ORGANISATIONS

(Prepared by the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture[1])

1. 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 FAO/IAEA Division"), supports and implements activities related food safety, quality and control systems. The activities of the Joint FAO/IAEA Division are therefore closely related to the standards of the Codex Alimentarius Commission and its committees, including the Codex Committee on Contaminants in Foods (CCCF). In relation to food and food trade, the Joint FAO/IAEA Division assists member countries of both FAO and IAEA in their peaceful application of nuclear techniques and related technologies through its Food and Environmental Protection Section and its associated Laboratory.

2. Joint FAO/IAEA Division activities of interest to the CCCF include the analysis and control of various chemical residues and food contaminants; food traceability and authenticity; food related radiation safety standards; food irradiation and activities concerning food and agriculture and nuclear emergency preparedness and response. Activities in these areas involve coordinating and supporting research worldwide; providing technical and advisory services for projects and training activities; and providing applied research, laboratory support and training through the FAO/IAEA Agriculture and Biotechnology Laboratories situated at Seibersdorf, Austria. The programme of work involves collecting, analysing and disseminating information for the effective transfer of skills and technology related to the nuclear sciences in food and agriculture. The Joint FAO/IAEA Division also provides technical support for national, regional and interregional development work through technical cooperation projects.

Coordinated Research Initiatives

3. In the period covered by this report the Joint FAO/IAEA Division has been implementing seven coordinated research projects (CRPs) in the field of food and environmental protection. Of particular interest to the CCCF is the CRP entitled "Integrated Radiometric and Complementary Techniques for Mixed Contaminants and Residues in Foods" (CRP D52041). This project was designed and approved for implementation in 2016 and commenced in 2017, with the first Research Coordination Meeting at the IAEA's Headquarters in Vienna, Austria, from 19 to 23 June. An international network of participating laboratories and institutions are developing systematic programmes for measuring mixtures of contaminants and residues; research outputs will also include multi-class analytical methods. New multi-class analytical methods will be developed, validated and transferred to control laboratories. It is envisaged that the research could also yield data on contaminants that would be of interest to the CCCF. The overall aim of the CRP is to leverage the advantages of nuclear, isotopic and complementary techniques to strengthen the capacity of member country analytical laboratories in contaminant and residue monitoring.

Technical Guidance on Radionuclides in Food and Drinking Water

4. In its report to this Committee in 2017, the Joint FAO/IAEA Division mentioned the importance of a new IAEA Technical Document (TECDOC) entitled *Criteria for Radionuclide Activity Concentrations for Food and Drinking Water* (IAEA-TECDOC-1788)[2]. This TECDOC resulted from a detailed examination of the different international standards that relate to radionuclides in food and drinking water. It is a reference source for the current standards in this area that also offers technical advice. A side event was provided at CCCF11 on "Radionuclides in Food: Standards, National Guidance and Recent Developments". The side event also highlighted the need for guidance at the national level to help authorities develop reference levels for radionuclide concentrations in food in 'existing exposure situations' (non-emergency situations).

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

[2] http://www-pub.iaea.org/books/IAEABooks/11061/Criteria-for-Radionuclide-Activity-Concentrations-for-Food-and-Drinking-Water

5. The TECDOC and side-event at CCCF11 are part of an FAO/IAEA initiative to meet its member countries' request "to develop principles for harmonized guidance on radionuclide activity concentration values in food and drinking water, in continued cooperation with relevant international organizations and national authorities"[3]. The FAO, IAEA and the World Health Organization (WHO) have agreed to fully co-operate in implementing this project. IAEA radiation safety standards specify an annual dose of 'about one millisievert' for the ingestion of food and 'about one millisievert' for drinking water in non-emergency situations. These doses cannot be measured directly and competent authorities in member countries are required to set reference levels, i.e. radionuclide concentrations (becquerels per kilogram), that are equivalent to these annual doses. The WHO Drinking Water Guidelines provide guidance to national authorities in the case of drinking water, but there is no equivalent international guidance for food. Two consultants' meetings were held in 2017: the first considered the special case of natural radionuclides in food while the purpose of the second consultants' meeting was to initiate the development of basic principles underpinning future guidance. A Steering Group of experts, with representation from international organizations and national authorities, was established. An approach to developing harmonized guidance on radionuclide activity concentration values in food and drinking water in non-emergency situations was agreed. The approach will focus on radionuclides in food in non-emergency situations and, to the extent possible, will follow the approach in the WHO Guidelines for Drinking Water Quality (i.e. address both naturally-occurring and artificially-produced radionuclides). The scope of this project is different to that of CODEX STAN 193-1995, where the Codex Guideline Levels apply to radionuclides contained in foods destined for human consumption and traded internationally, and which have been contaminated following a nuclear or radiological emergency. Therefore, as this project develops it will be of interest to this Committee and member organizations.

Technical Cooperation

6. This year marks a new biennium for the programme and budget of the IAEA. The Joint FAO/IAEA Division is providing technical support to a number of new IAEA technical cooperation projects in the area of food safety and control. There are 59 IAEA technical cooperation projects (47 national, 11 regional and one inter-regional), of which several are to close this year, and an additional 26 projects (25 national and one regional) are to commence this year. The Joint FAO/IAEA Division is particularly pleased that the interregional project will be able to support participation of experts from developing countries at Codex meetings, including this CCCF12. Further details of these capacity building projects can be found online, including a full listing[4].

Networking Activities and Training

7. In addition to the CCCF, the Joint FAO/IAEA Division participates and provides input to the Codex Alimentarius Commission, the Codex Committee on Pesticide Residues and the Codex Committee on Residues of Veterinary Drugs in Foods. The Joint FAO/IAEA Division has been involved in providing data to the Codex Alimentarius Commission and helping develop many Codex standards, a recent example being participation in the electronic working group (eWG) on maximum levels for cadmium in chocolate and cocoa products. Joint FAO/IAEA Division counterparts and members of the networks have also contributed to the eWG and discussion paper on maximum level(s) for hydrocyanic acid and mycotoxin contamination in cassava and cassava-based products.

8. In 2017, assistance, technical meetings and workshops were requested by several of our member countries. For example, in cooperation with colleagues at FAO Headquarters in Italy and the FAO National Office in Ghana, as well the Indian Export Inspection Council, the Joint FAO/IAEA Division has provided support to the Ghana Standards Authority (GSA) to help facilitate and build laboratory capacity for collecting occurrence data on methyl mercury in fish and inorganic arsenic in rice under the Codex Trust Fund (CTF2). Technical meetings and workshops included regional Latin American training workshops in Montevideo and Paysandú, Uruguay, in February on 'Analytical methods for residues of selected pesticides' and in San José, Costa Rica, in May, on 'Data Quality for Decision Making'. Others include an Interregional training course on radionuclides in food: sampling, analysis, standards and regulations, and its relevance to international trade, Singapore, October, and a regional African training course on method development and validation for the analysis of mycotoxins in food and feed, Lusaka, Zambia, July. These were in additional to several nationally tailored capacity building activities and services to help enhance analytical instrumentation in Asia, Africa and Latin America, further details of which are published in our newsletter[4].

[3] IAEA General Conference resolution GC(61)/RES/8 (paragraph 79): https://www.iaea.org/About/Policy/GC/GC61/Resolutions/index.html

[4] A full list is available in the latest issue of the Joint FAO/IAEA Division's Food and Environmental Protection Newsletter (Vol. 21, No. 1), pages 19-25: http://www-pub.iaea.org/MTCD/Publications/PDF/Newsletters/FEP21-1.pdf

9. The Joint FAO/IAEA Division was also invited to participate at a full range of technical conferences and meetings. These have included activities with regional food safety networks and the transfer of nuclear related analytical techniques to laboratories in member countries. Regional food safety networks include the Red Analitica de Latino America y el Caribe (RALACA) of at least 54 laboratories in 21 countries of Latin America and the Caribbean; the African Food Safety Network (AFoSAN) of 66 laboratories in 33 countries, and a relatively newly established Food Safety Asia (FSA) network of laboratories involving 18 countries in the Asia / Pacific region. A new regional technical cooperation project aims to enhance and expand the FSA network over the next few years. Working with these networks has facilitated technology transfer and enabled group training on techniques such as radioreceptor assays. In addition, inter-laboratory comparisons and proficiency trials have also been supported. Another example of the effectiveness of working with these networks is that it enabled the Joint FAO/IAEA Division to provide training to 1217 food specialists in 2017, with the help of our counterparts in member countries and various technical cooperation projects.

10. The Joint FAO/IAEA Division is working with the National Metrology Institute of South Africa and other stakeholders to deliver an Africa Food Safety Workshop to Promote Standards, Reliable Methods of Analysis and Inter-Institutional Cooperation. It will cover contaminants, including the analysis of mycotoxins. This workshop will be held in Pretoria, South Africa, 4–8 June 2018. The event has attracted substantial interest from outside of Africa and participants from countries represented at this CCCF12 are welcome to register[5], attend and contribute. Other planned capacity building opportunities in 2018 include: Interregional training on the analysis of mycotoxins and of toxic metals in Chile and Ecuador, respectively, and arrangements are being made for training in an African country on the analysis of toxic metals (possibly to be hosted in Cameroon).

Nuclear and Radiological Emergency Preparedness and an International Emergency Exercise

11. An international emergency exercise took place in June 2017. Organized by the authorities in Hungary and colleagues at the IAEA, this exercise had the largest number of participants of any nuclear emergency exercise to date, with organizations in 82 different countries and the involvement of 11 different international organizations. The overall aim was to test responses to a simulated accident at a nuclear power plant. The scenario simulated a significant release of radioactive material into the atmosphere and was based at the Paks Nuclear Power Plant in Hungary. It was a Conventions Exercise at Level 3 (ConvEx-3); these are large-scale events that are held every three to five years to thoroughly test arrangements for fulfilling obligations under the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. They are IAEA's highest level and most complex emergency exercise. Events like this are important in that they help participating organizations test and identify improvements needed to their systems and cooperative arrangements at local, national and international levels. The exercise was exceptionally well planned and very well "played" by the participants. According to agreed procedures, the Joint FAO/IAEA Division represented FAO at the Incident and Emergency Centre in Vienna, Austria, and our main channels of information were to Hungary, colleagues in the IAEA, WHO, World Meteorological Organization and European Commission (Hungary being a European Union member country). Liaison with WHO was particularly important so that both organizations could coordinate public communications on food and agricultural products.

12. An IAEA Emergency Preparedness and Response Series publication on *Operational Intervention Levels for Reactor Emergencies and Methodology for Their Derivation* was published as document EPR – NPP – OILs 2017[6] by the IAEA in March 2017. This publication elaborates the methodology for deriving values for operational intervention levels (OILs). In general, OILs give specific values of measured quantities that indicate the need to implement predetermined emergency response actions, including food restrictions. The use of OILs as part of the protection strategy for nuclear and radiological emergencies is required by IAEA Safety Standards[7] and addressed by IAEA general safety guides[8,9]. Several OILs relate to food, milk and drinking water; for example, should OIL3 be exceeded in an emergency, IAEA safety standards call for immediate restrictions on the consumption of leaf vegetables, milk from grazing animals and rainwater collected for drinking. In addition, this new publication derives values (OIL7) for activity concentrations of marker radionuclides (i.e. ^{137}Cs and ^{131}I) to facilitate prompt decision-making on food, milk and drinking water restrictions in the aftermath of reactor emergencies involving significant releases of radioactive material into the environment.

[5] https://confsa.eventsair.com/QuickEventWebsitePortal/africa-food-safety-workshop/afsw
[6] https://www-pub.iaea.org/MTCD/publications/PDF/EPR_NPP_OILs_2017_web.pdf
[7] https://www-pub.iaea.org/books/iaeabooks/10905/preparedness-and-response-for-a-nuclear-or-radiological-emergency
[8] https://www-pub.iaea.org/MTCD/publications/PDF/Pub1467_web.pdf
[9] https://www-pub.iaea.org/MTCD/publications/PDF/Pub1265web.pdf

13. In November 2017, a new Safety Guide on Arrangements for the Termination of a Nuclear or Radiological Emergency was endorsed for publishing as IAEA Safety Guide Series No. GSG-11, with the joint sponsorship of 10 international organizations, including FAO and WHO. This publication provides detailed guidance on lifting and adapting protective measures and other response actions during a nuclear or radiological emergency, including guidance and criteria for adapting and lifting food, milk and drinking water restrictions as an emergency evolves.