



Joint FAO/IAEA Programme
Nuclear Techniques in Food and Agriculture

Activities in Food and Agriculture Following the Fukushima Daiichi Accident

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Joint FAO/IAEA Division
of Nuclear Techniques in Food and Agriculture

50 years, 1964–2014



Overview

- The Joint FAO/IAEA Division
- Nuclear Emergency Preparedness and Response
- Activities Following the Fukushima Daiichi Accident
 - Missions
 - Radionuclides in foods
 - Collating monitoring data
 - Database on food monitoring data
 - International Standards (Codex and RASSC)
 - Recent initiatives

Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture

Celebrating 50 years of assisting Member Countries of FAO and IAEA to use nuclear techniques and related biotechnologies for developing improved strategies for sustainable food security and safety.

Comprises 5 sections in the broad thematic areas of;

- Soil and Water Management and Crop Nutrition
- Food and Environmental Protection
- Plant Breeding and Genetics
- Animal Production and Health
- Insect Pest Control



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Delivery of Products and Services

Activities are implemented through

- Coordinated Research Projects (CRPs)
- Technical Cooperation Projects (TCPs)
- Meetings
- Training Courses & “eLearning”
- Publications



Joint FAO/IAEA Division Mandate

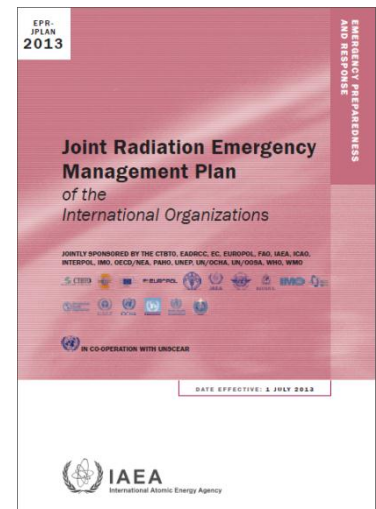
in Preparedness and Response to Nuclear and Radiological Emergencies Affecting Food and Agriculture

To promote the management of intra- and interagency emergency preparedness and response to nuclear accidents and radiological events affecting food and agriculture, including in the application of agricultural countermeasures

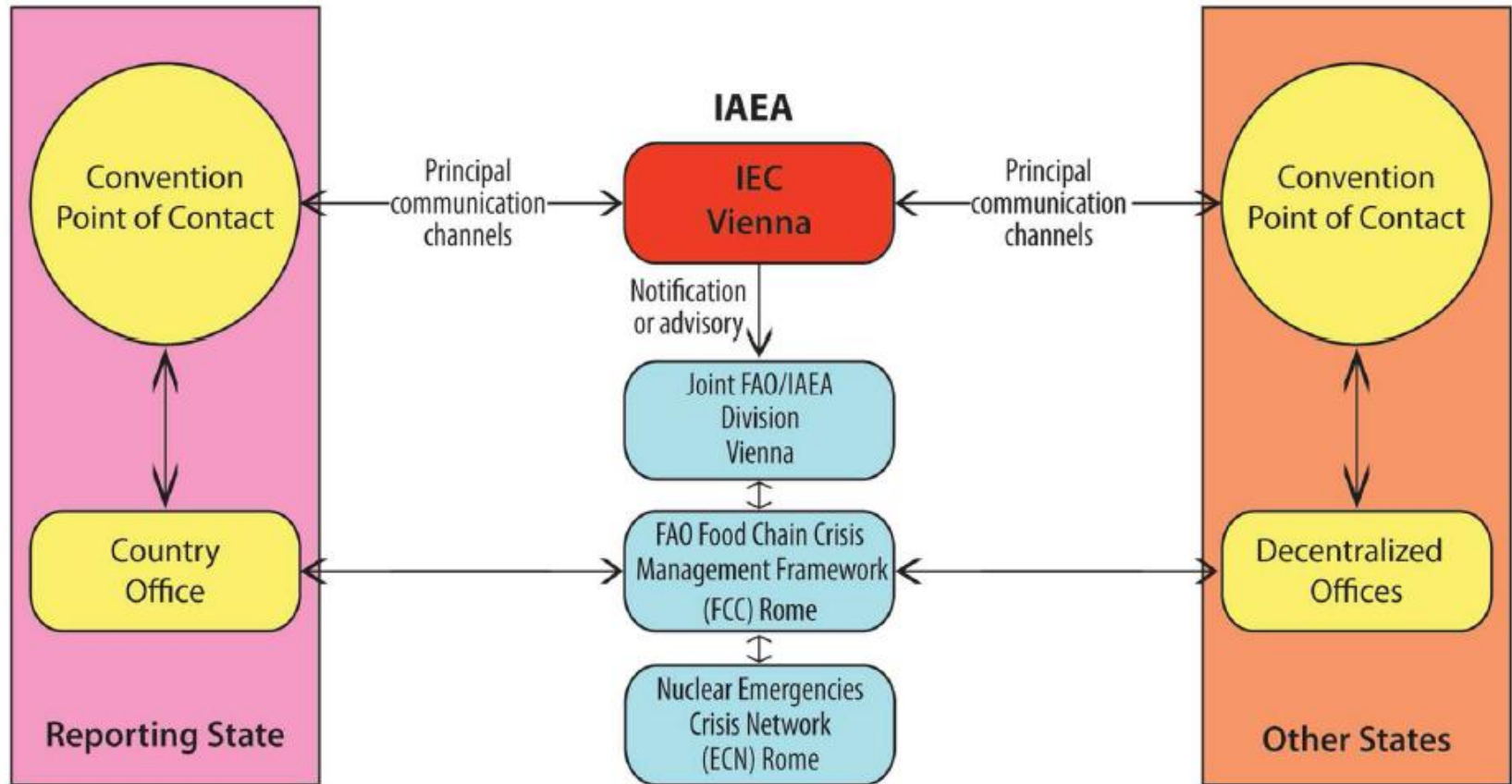
Nuclear and Radiological Emergency Preparedness and Response

Legal framework for intra- and interagency cooperation

- Convention on Early Notification of a Nuclear Accident
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Joint Radiation Emergency Management Plan of the International Organizations (JPLAN)
- FAO/IAEA Cooperative Arrangements
- Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE)
- International Exercises



IAEA/FAO Cooperation During an Emergency



Initial Activities - 2011

- Focal point - FAO Headquarters and IAEA and IEC in Vienna.
- Participate in meetings (IGOs/INGOs) - information related to food production and safety.
- Represent FAO and IAEA at Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE) meetings
- Staffing the FAO Desk in the IAEA/IEC
- Activities to support briefing on food contamination and monitoring data to MS Board meetings, press conferences and FAO, WHO & IAEA websites.
- Representing FAO on the Radiological Consequences Team (RCT) at meetings of Fukushima Accident Coordination Team (FACT).
- Joint FAO/IAEA International Missions and subsequent work.
- Addressing requests (governments, organizations and individuals) and providing technical advice and support.
- Facilitating information exchange, (e.g. initiating web-based Q&A briefings with others).
- Promoting knowledge and information sharing (radioactive contamination of food and agriculture, including the mechanisms and persistence of such contamination, radionuclide transfer rates and international standards).

Time Line of Activities

- FAO Food Safety Mission (Japan, March 2011)
- Food safety monitoring (IEC + MS briefings, 2011-2013)
- International Mission - Remediation of Large Contaminated Areas off-site F1 NPP (Japan, October 2011)
- FAO Technical Meeting on Nuclear Emergency Response in Food and Agriculture (Italy, November 2011)
- Contributing - WHO Report, Preliminary Dose Estimation (February 2012)
- Contributing to the UNSCEAR report (Foodstuff database, 2012-2013)
- Contributing to IAEA Fukushima Report and International Technical Advisory Group (2013-2014)
- Follow-up International Mission - Remediation of Large Contaminated Areas off-site F1 NPP (Japan, October 2013)
- Coordinated Research Activities (2013 -2014)

International Missions

FAO Food Safety Assessment Team Mission (Japan, March 2011)

26 March 2011: Joint FAO/IAEA Food Safety Assessment Team.

Objective - advice and assistance on technical issues

- food safety and agricultural countermeasures,
- sampling and analytical strategies
- interpretation of monitoring data
- Possible future countermeasures

End of Mission (31 March 2011): Report presented to the Cabinet Office, Ministry of Foreign Affairs, Ministry of Health, Labour and Welfare and Ministry of Agriculture, Fisheries and Forestry.

International Missions

International Mission on Remediation of Large Contaminated Areas off-site Fukushima Daiichi NPP (Japan, October 2011)



E.g. visit to the site of a verification study on remediation technologies for agriculture, village of Iitate.

International Missions

International Mission on Remediation of Large Contaminated Areas off-site Fukushima Daiichi NPP (Japan, October 2011)



Presentation of the Preliminary Mission Findings to Japan's Minister of Environment, Goshi Hosono. Tokyo, 14 October 2011

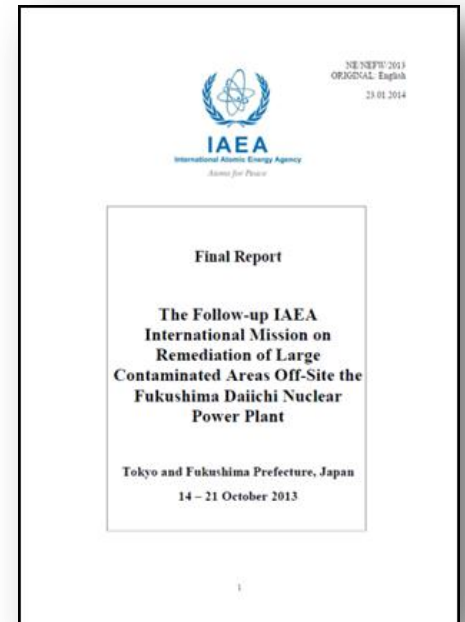
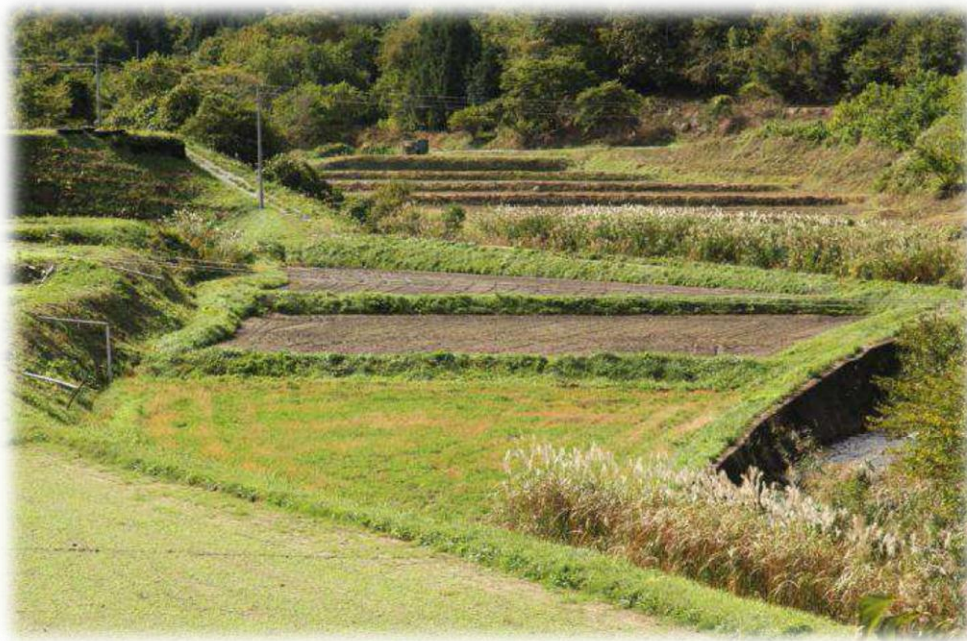
Objectives:

- (a) provide assistance to Japan in the plans to manage the remediation of large contaminated areas resulting from the accident
- (b) review remediation-related strategies, plans and works; and
- (c) share findings with the international community as lessons learned.

http://www.iaea.org/newscenter/focus/fukushima/pre_report.pdf

International Missions

Follow-up International Mission on Remediation of Large Contaminated Areas off-site Fukushima Daiichi NPP (Japan, October 2013)



About 18,200 hectares of farmland have been remediated in the Intensive Contamination Survey Area. It is expected that remediation of over 26,500 hectares will be carried out by the end of 2014.

http://www.iaea.org/newscenter/focus/fukushima/final_report230114.pdf

Radionuclides in Food

Database on Radionuclides Concentrations in Foodstuffs affected by the Fukushima Dai-ichi NPP Accident

- 1st years data available as a database
- To date almost three quarters of a million data entries

Data:

- Published by Ministry of Health, Labour and Welfare
- Provided by FAO/WHO International Food Safety Authorities Network (INFOSAN)
- Compiled by Joint FAO/IAEA Division

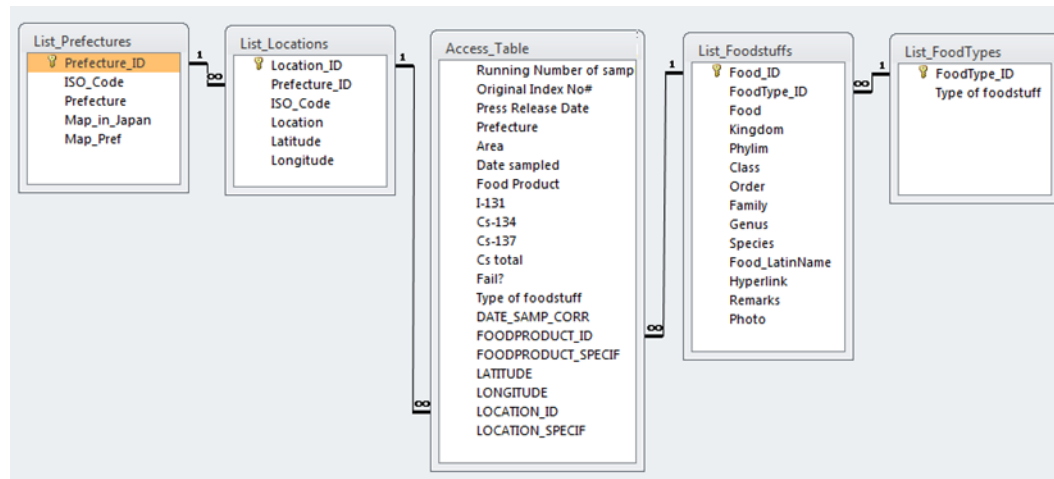
Monitoring Data Compiled by Joint FAO/IAEA Division

	A	B	C	D	E	F	G	H	I	J	K	L
10	Running Number of sample	Original Index No	Press Release Date	Prefecture	Area	Date sampled	Food Product	I-131	Cs-134	Cs-137	Cs total	Fail?
11	1	1	19-Mar-11	Fukushima	Date-gun,Kawamata-cho	16-Mar-11	raw milk	1190	ND	18.4	18.4	i
12	2	2	19-Mar-11	Fukushima	Date-gun,Kawamata-cho	17-Mar-11	raw milk	1510	ND	ND	ND	i
13	3	3	19-Mar-11	Fukushima	Date-gun,Kawamata-cho	18-Mar-11	raw milk	932	ND	ND	ND	i
14	4	4	19-Mar-11	Ibaragi	Takahagi-shi	18-Mar-11	leek	201	0	7	7	
15	5	5	19-Mar-11	Ibaraki	Takahagi-shi	18-Mar-11	spinach	15020	0	524	524	ci
16	6	6	19-Mar-11	Ibaraki	Hitachi-shi	18-Mar-11	leek	497	0	8	8	
17	7	7	19-Mar-11	Ibaraki	Hitachi-shi	18-Mar-11	spinach	14500	0	359	359	i
18	8	8	19-Mar-11	Ibaraki	Hitachiota-shi	18-Mar-11	leek	114	0	8	8	
19	9	9	19-Mar-11	Ibaraki	Hitachiota-shi	18-Mar-11	spinach	8830	0	374	374	i
20	10	10	19-Mar-11	Ibaraki	Hitachiomiya-shi	18-Mar-11	leek	601	0	5	5	
21	11	11	19-Mar-11	Ibaraki	Daigo-cho	18-Mar-11	spinach	6100	0	478	478	i
22	12	12	19-Mar-11	Ibaraki	Tokai-mura	18-Mar-11	leek	686	0	5	5	
23	13	13	19-Mar-11	Ibaraki	Tokai-mura	18-Mar-11	spinach	9840	0	233	233	i
24	14	14	19-Mar-11	Ibaraki	Hitachinaka-shi	18-Mar-11	leek	578	0	8	8	
25	15	15	19-Mar-11	Ibaraki	Hitachinaka-shi	18-Mar-11	spinach	8420	0	140	140	i

Original MHLW data compiled in advanced MS Excel worksheets

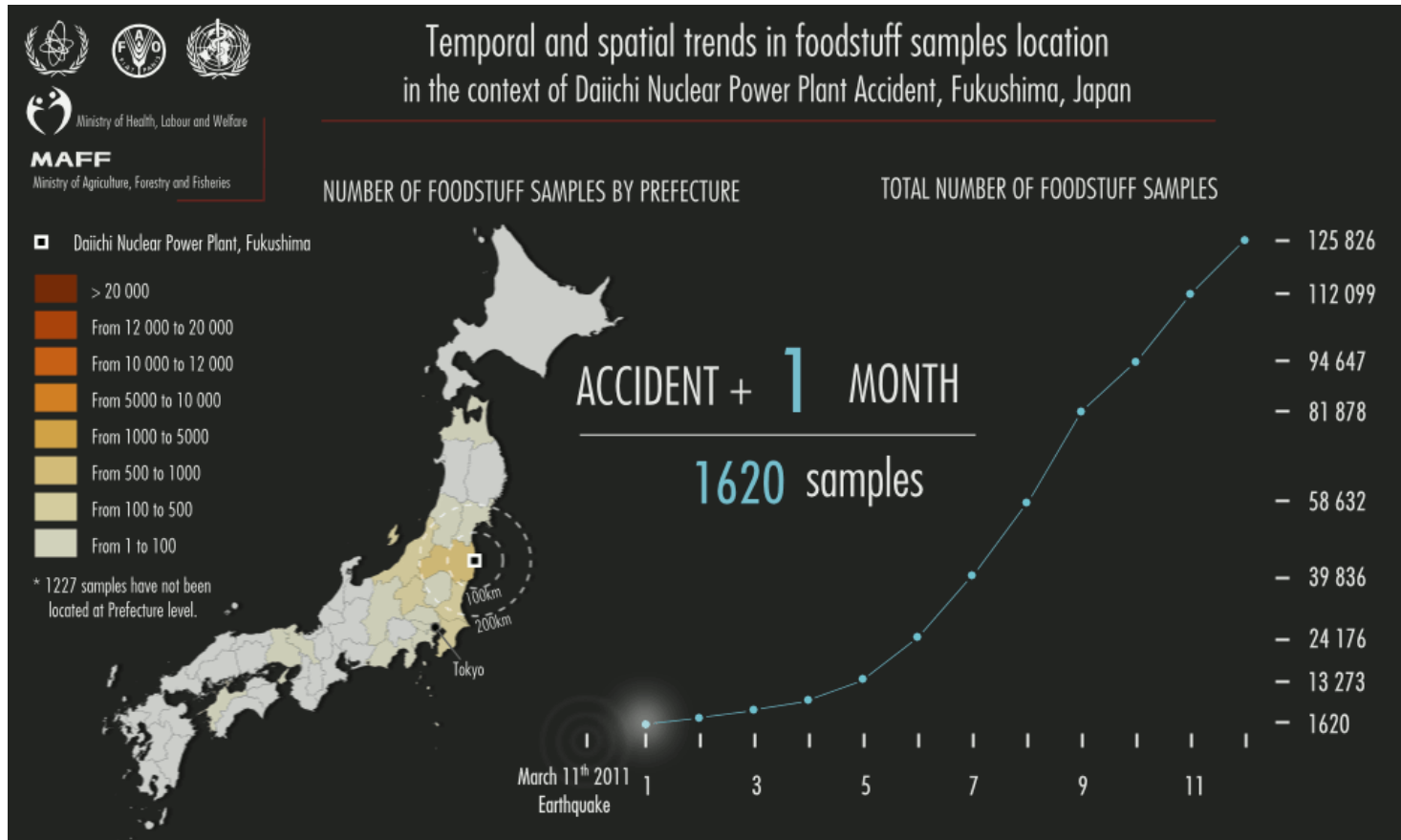
Almost 3 years of data from 2011 onwards

Relational Database – 1st Year Data



- Transferred into a relational database
- Quality checked and validated with assistance from authorities in Japan
 - Spellings (e.g. foodstuffs and location names)
 - Check foodstuff names / description
 - Format of cells (e.g. Numeric – text – date)
 - Data entry checks (spaces between characters)
 - Foodstuff classification – agreed format
 - Expressed in Japanese, English and Latin names

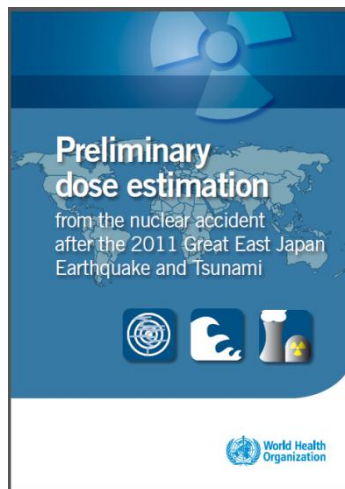
Relational Database – 1st Year Data



Monitoring Data Compiled and Managed by Joint FAO/IAEA Division

Data set used in international assessments & reviews

- WHO – preliminary dose estimation
- UNSCEAR – major study / dose assessment
- IAEA Fukushima Report



http://www.who.int/ionizing_radiation/pub_meet/fukushima_dose_assessment/en/index.html

International Standards

Guideline Levels for radionuclides provided in the General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193-1995)

Product Name	Representative radionuclides	Dose per unit intake factor in Sv/Bq	Level in Bq/kg	Type
Infant foods*	^{238}Pu , ^{239}Pu , ^{240}Pu , ^{241}Am		1	GL
Infant foods *	^{90}Sr , ^{106}Ru , ^{129}I , ^{131}I , ^{235}U		100	GL
Infant foods *	$^{35}\text{S}^{**}$, ^{60}Co , ^{89}Sr , ^{103}Ru , ^{134}Cs , ^{137}Cs , ^{144}Ce , ^{192}Ir		1,000	GL
Infant foods *	$^3\text{H}^{***}$, ^{14}C , ^{99}Tc		1,000	GL
Foods other than infant foods	^{238}Pu , ^{239}Pu , ^{240}Pu , ^{241}Am		10	GL
Foods other than infant foods	^{90}Sr , ^{106}Ru , ^{129}I , ^{131}I , ^{235}U		100	GL
Foods other than infant foods	$^{35}\text{S}^{**}$, ^{60}Co , ^{89}Sr , ^{103}Ru , ^{134}Cs , ^{137}Cs , ^{144}Ce , ^{192}Ir		1,000	GL
Foods other than infant foods	$^3\text{H}^{***}$, ^{14}C , ^{99}Tc		10,000	GL

International Standards

- FAO/WHO Codex Alimentarius Commission, Committee on Contaminants in Food (CCCF/CAC)
- IAEA Radiation Safety Standards Committee (RASSC)
- Inter Agency Committee for Radiation Safety (IACRS)

International Working Group considering activity concentrations relating to food and water in the different international standards including the CODEX Guideline Levels.

First step - developed an information paper on the different standards

Next steps include producing a TECDOC

- Radionuclide concentrations in different international standards
- Framework to assist in developing maximum activity concentrations for use at national level.

On-going!

Recent Initiatives

1. Coordinated Research Project

- Response to Nuclear Emergencies Affecting Food and Agriculture
- To develop and assess systems of data collection, management and visualization for both routine monitoring and emergency response,
- 1st Coordination Meeting held December 2013 (CPR, IND, JPNx2, CPR, MOR, RUS, UKR, FRA, MAK)

2. Guidance for Responding to Nuclear and Radiological Emergencies Affecting Food and Agriculture

- Requests from Member States – agricultural sector
- A publication targeted at agricultural departments
- To be initiated 2014



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