WHO role in response to Fukushima nuclear accident

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World Health Organization

WHO Structure

More than 8000 people from more than 150 countries work for the WHO in 147 country offices, six regional offices and at the headquarters in Geneva, Switzerland

193 Member States
Ministries of Health

Headquarters
Geneva

6 Regional Offices

147 Country Offices

IARC, Lyon

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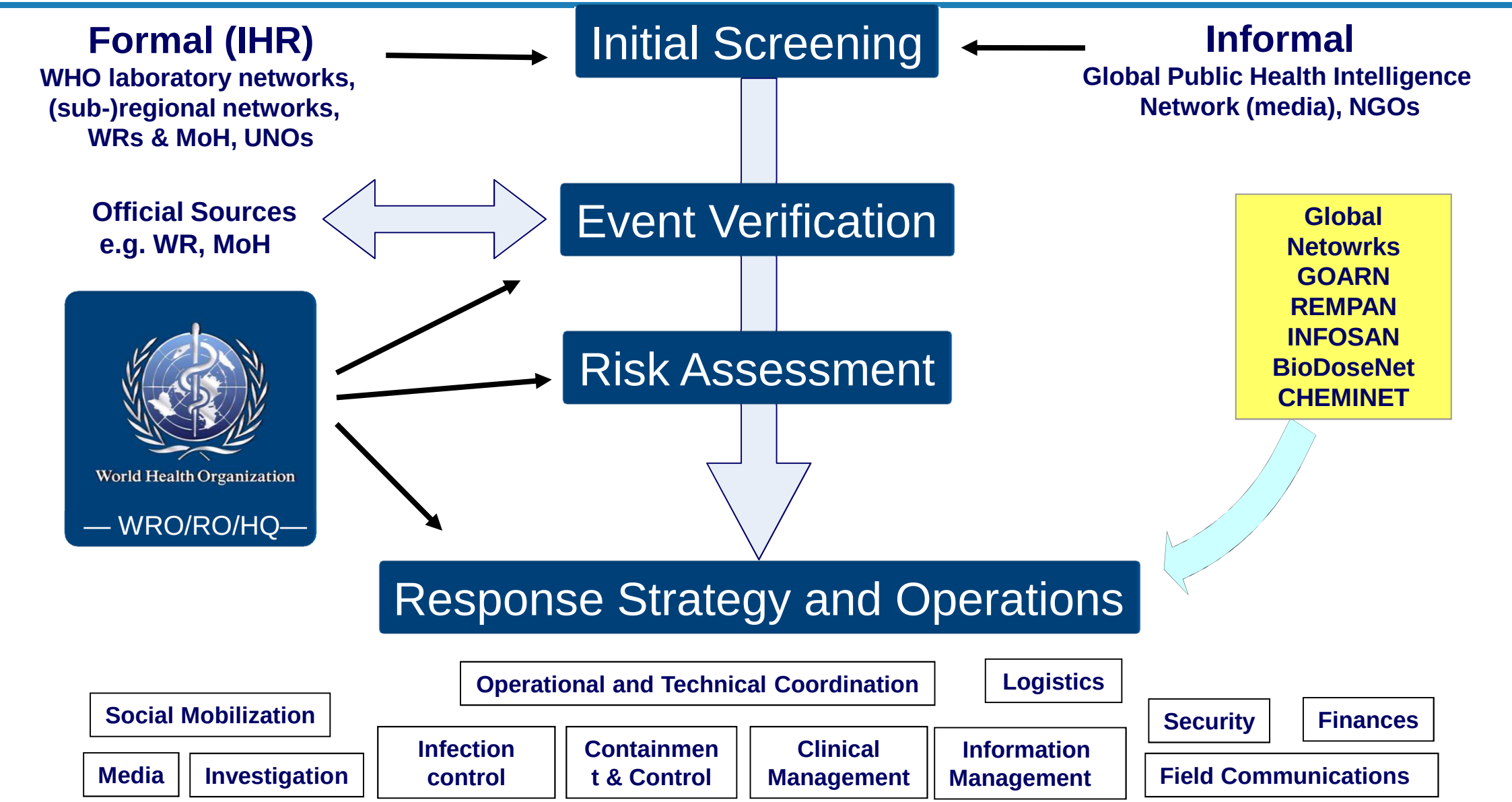
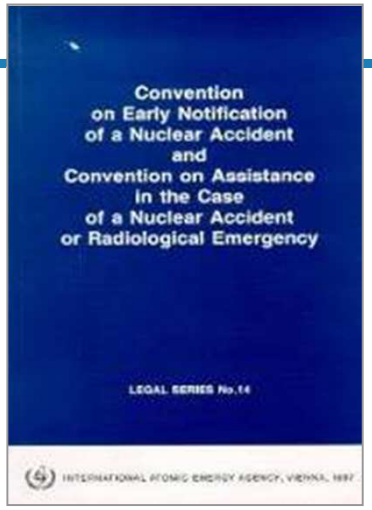
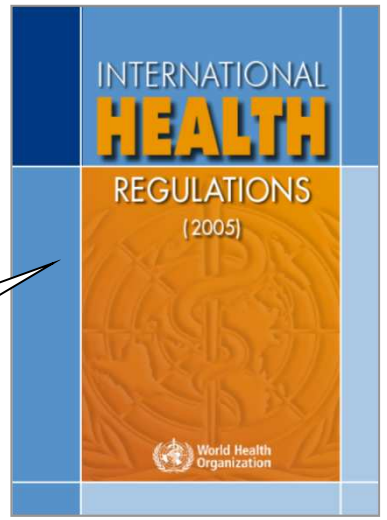
WHO Response to Public Health Emergencies

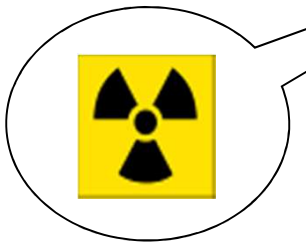


Framework for WHO role in Radiation Emergency Response

- **WHO Constitution Article 2 (d): "…to furnish appropriate technical assistance and, in emergencies, necessary aid upon requests of Government."**
- **WHA Resolution 55.16: Global public health response to natural occurrence, accidental release or deliberate use of biological and chemical agents or radionuclear material that affect health"**
- **Emergency Conventions - Early Notification and Assistance (1986)**
- **International Health Regulations (2005)**







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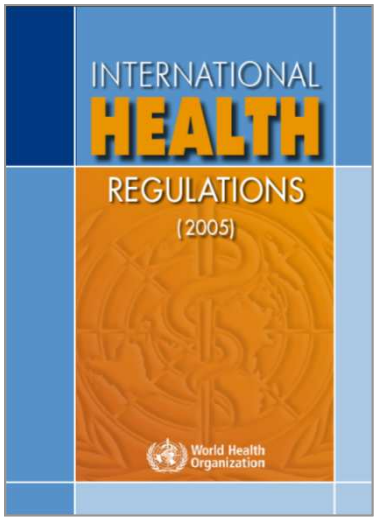
IHR-2005 and Radiation Emergencies

- **IHR: complementary notification to the Emergency Conventions**
  - **health surveillance (e.g. unknown origin outbreaks) in addition to radiological monitoring**
  - **reporting through National Focal Points in 191 State Parties**
  - **Updated information on Event Information Site (EIS)**
  - **Ongoing monitoring of travel and trade measures**
- **IHR Expert Roster includes radiation emergency management experts**
- **Preparedness and response capacity of Member States**



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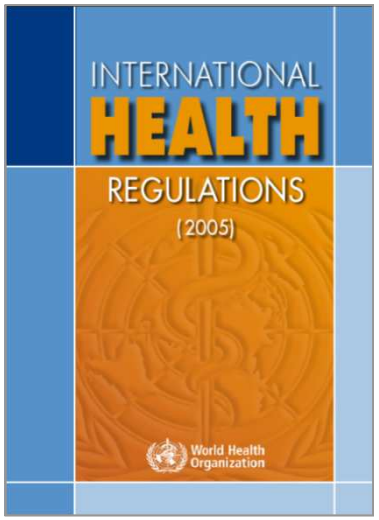
IHR communication

- The Ministry of Health, Labour and Warfare notified the explosion event in Fukushima Daiichi Nuclear Power Plant through the National IHR Focal Point within a few hours after the event occurred



- WHO immediately communicated the event to all the Member States in the region through our National IHR Focal Points

厚生労働省
Ministry of Health, Labour and Welfare

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Request from Member States and other international community

- **Travel Advisory**
  - Safety of travel to Japan, China, nearby areas
  - Border control measures
  - Screening of passengers; aircraft; cargo; ships
- **Technical advice on interventions**
  - Evacuation, sheltering, KI use, and precautionary measures
  - Interpretation of monitoring data and radiation protection limits/values
- **Food and drinking water safety**
  - Management of imported foods from Japan
  - Information on the likelihood of seafood contamination
  - Information on the controls put in place in Japan to prevent the sale of contaminated foods
  - Information on the Codex guideline level for radionuclides in food

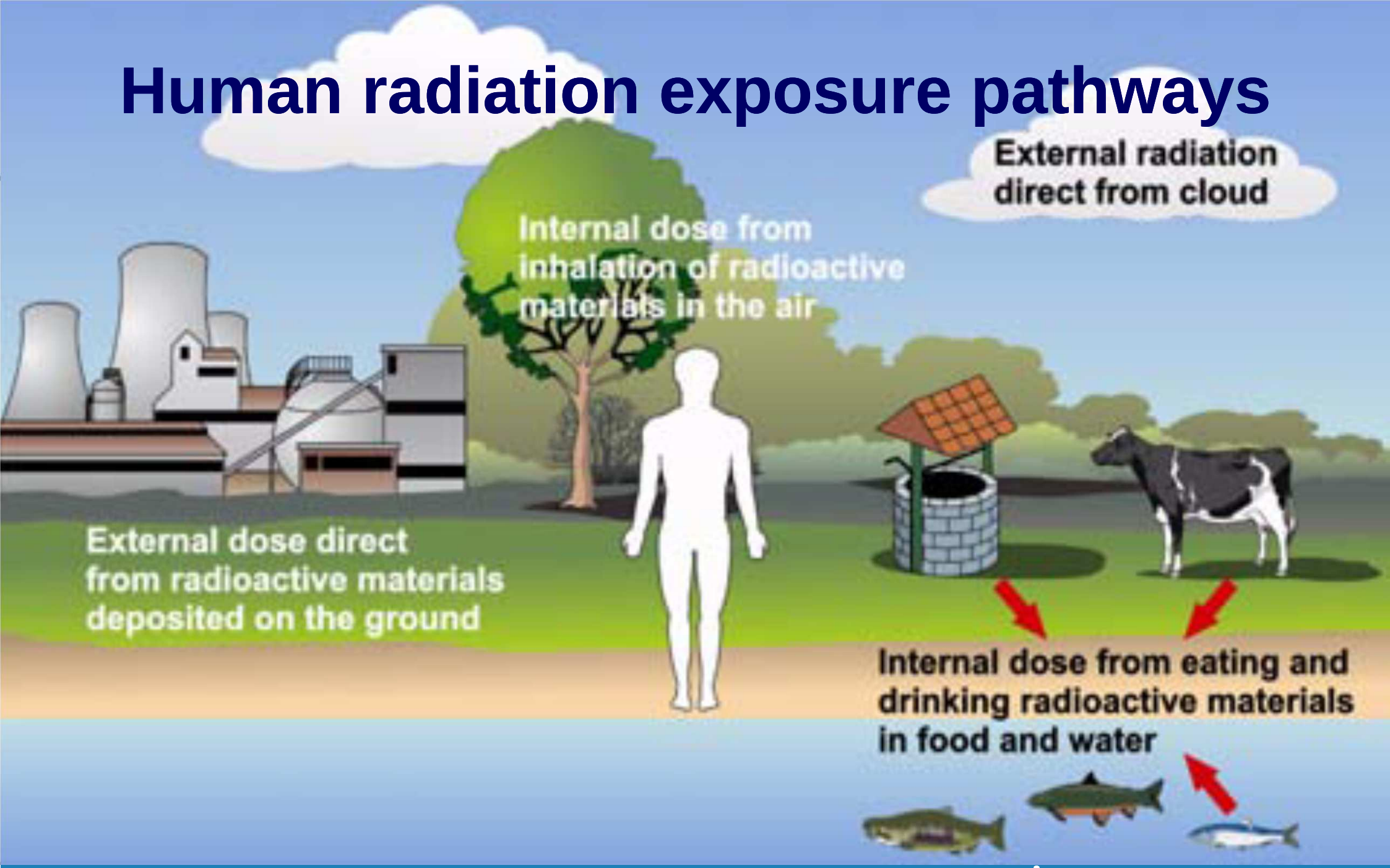
Key components of Public Health Risk Assessment after Nuclear Emergency

- Hazard
  - Type of radioactive material released (radionuclide composition)
  - Amount released
- Exposure pathways and scenarios (duration, fractionation)
  - external (irradiation or contamination?)
  - internal (inhalation or ingestion?)
- Context
  - Distance from the reactor/a contaminated plume
  - Weather conditions
  - Individual factors (age, sex, diet, etc).

Radiation Monitoring

- Purpose to rapidly facilitate appropriate protective measures when specific levels exceeded
- Examples of monitoring
  - Environment
  - Individuals after direct exposure
  - Food, milk and water
- Levels for operational interventions agreed upon by IAEA, WHO, FAO and other international agencies
- Levels of radiation contamination for imported food are set by Codex Alimentarius – a joint FAO-WHO recommendations
- Each country sets it national standards optimizing the internationally recommended ones

Human radiation exposure pathways



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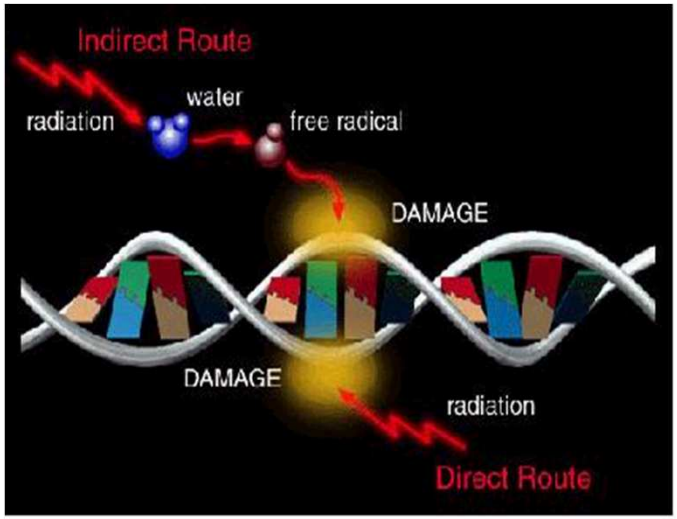
Health effects of ionizing radiation

- Acute effects (e.g. skin burns, acute radiation syndrome) if radiation dose exceeds certain threshold levels.
  - In nuclear accidents, the general population is not likely to be exposed to such high radiation dose levels. Acute effects might be observed in emergency workers.

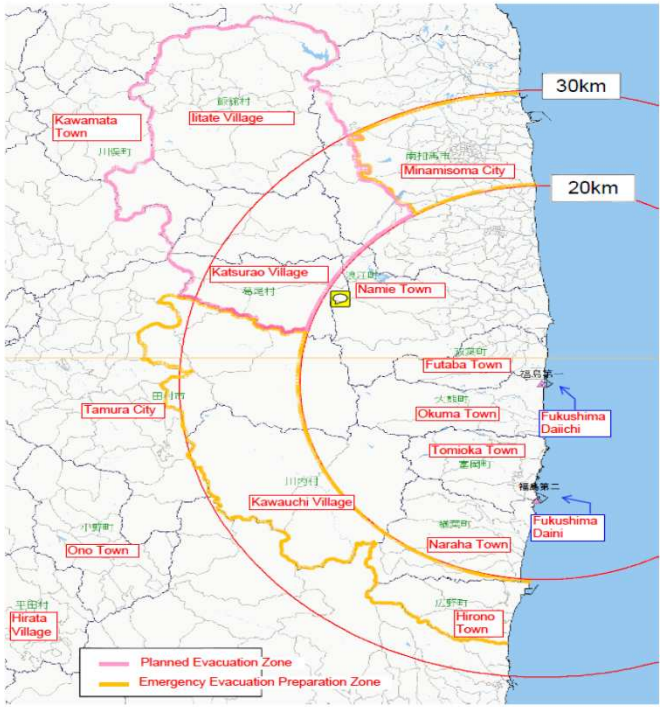


- Increased risk of developing cancer years/decades after exposure.
  - The level of risk depends on the organ dose.
  - The risk is higher in children and young adults.
  - Exposure to radioactive iodine increases the risk of thyroid cancer.

Response to Fukushima

Public Health Measures

- Inside Japan (by GoJ)
  - Evacuation < 20 km
  - Sheltering indoors 20-30 km
  - Provision of potassium iodide (thyroid blocking)
  - Food and water control
  - Exit screening (ships and cargo)
  - Relocation 20-30 km zone, and some surrounding areas beyond the 30km zone (taking place)



- Outside Japan
  - No restrictions on travel
  - Monitoring of passengers, crew and cargo considered unnecessary
  - Standards applied for food control (Codex, EU standards)
  - National policies applied at country level

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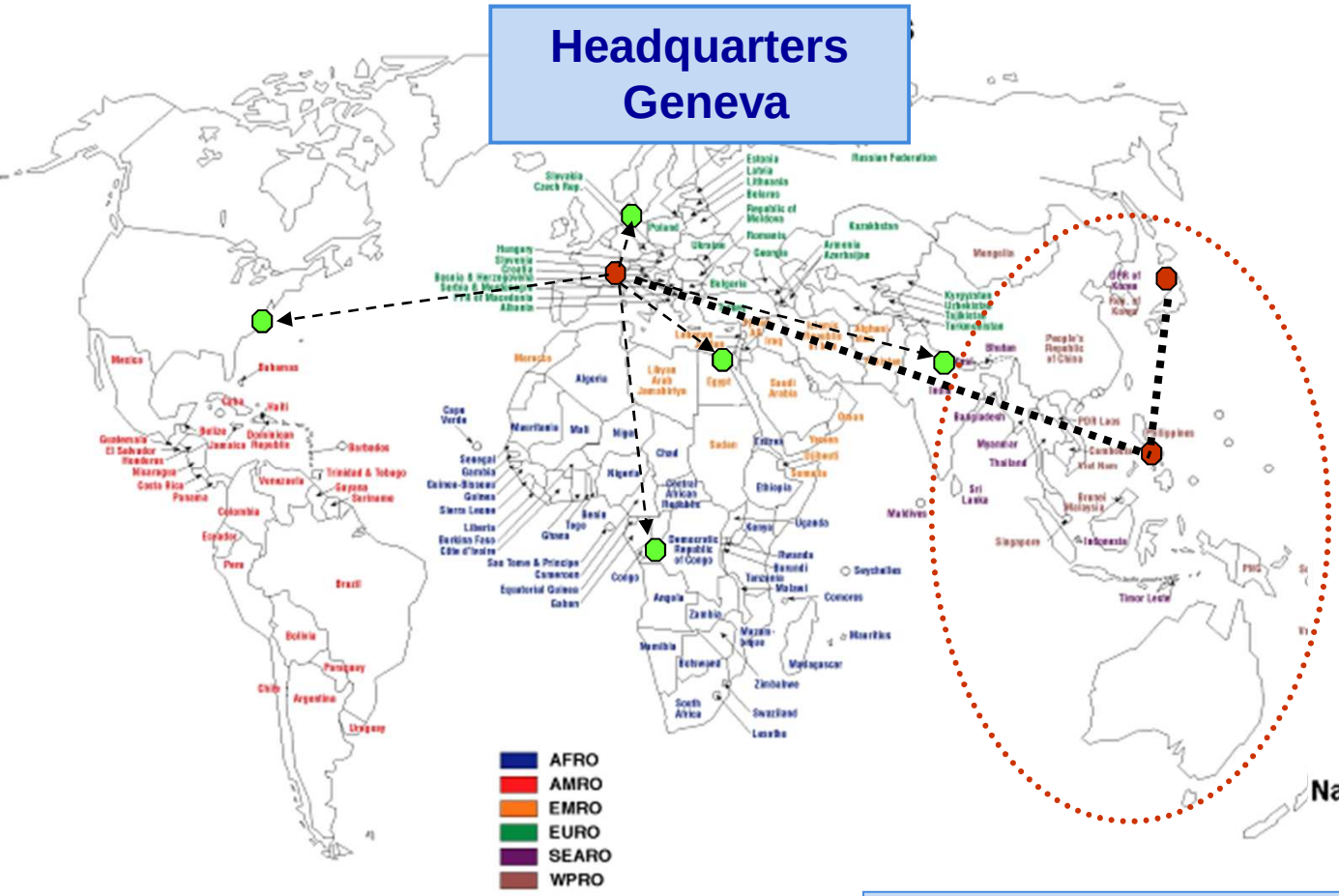
WHO Response to Fukushima accident



Western Pacific Regional Office (WPRO, Manila)

Kobe Centre

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Current Arrangements for Radiation Emergencies Response

- WHO is a member of IACRNE – Inter-Agency Committee for Response to Nuclear Emergencies – a platform for coordination of response
- PHE is a focal point for coordination of WHO global actions related to public health preparedness/response (capacity building, surveillance, risk assessment, interventions, etc)
- IHR (2005) provides a mechanism and a legal basis for notification, verification, assistance, monitoring, and core capacity building in the member states
- Alert and Response Operations department (ARO) manages response operations at HQ in health emergencies of all types
- Technical assistance to MS implemented through specialized networks (REMPAN, BioDoseNet, INFOSAN)
- HQ works in close relation with Regional and Country Offices providing technical support and advice

WHO's Relevant Emergency Networks

- WHO REMPAN network (1987)
  - **R**adiation **E**mergency **M**edical **P**reparedness and **A**ssistance **N**etwork (**REMPAN**)

- WHO **BioDoseNet** (2007)
  - Global Network of Biodosimetry Laboratories
- WHO/FAO INFOSAN network (2004)
  - **I**nternational **Fo**od **S**afety **A**uthorities **N**etwork (**INFOSAN**)

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WHO REMPAN

A WHO technical arm and an expert pool for providing to MS assistance on health interventions in radiation emergencies.

44 centers world wide specialized in relevant areas of medicine and PH

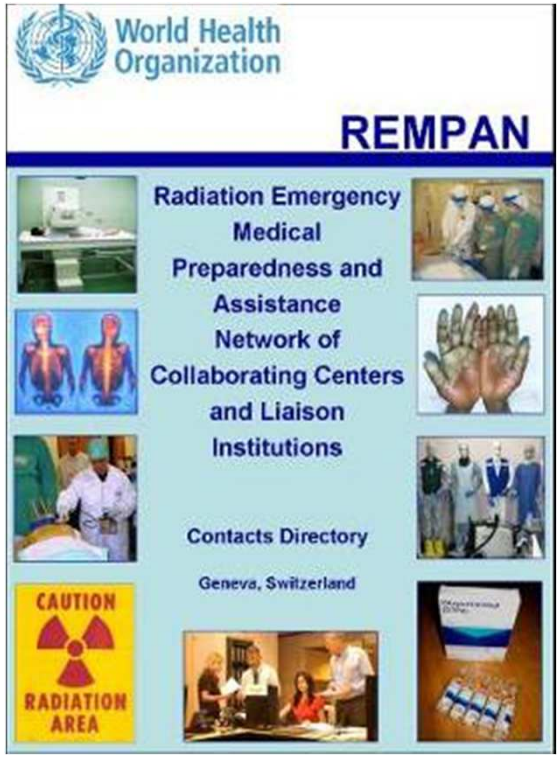
Functions

In emergency:

- Public health risk assessment, monitoring and management
- Treatment of victims Risk communication, psychological impact management
- Consequence management, epidemiological surveillance
- Mitigation, long-term follow-up, recovery

In stand-by mode:

- Capacity building (technical guidance, training, exercise)
- Research, advocacy for international cooperation
- Information platform to professionals and general public



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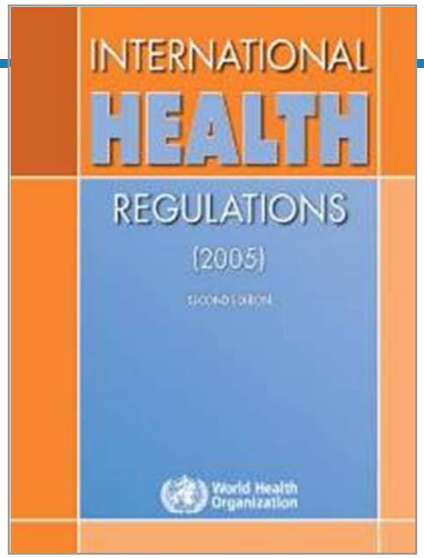
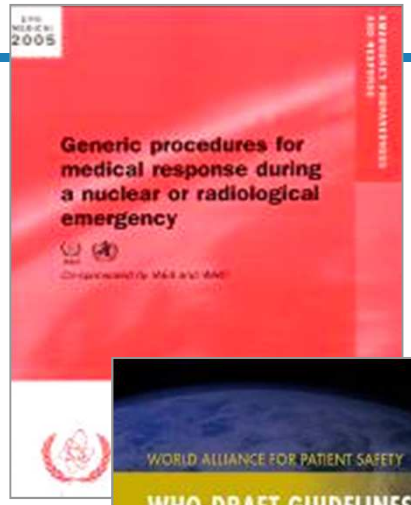
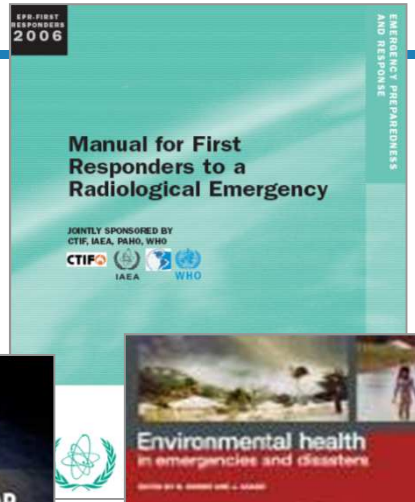
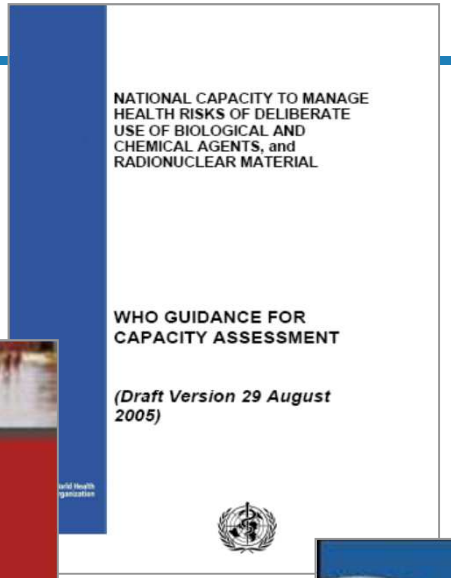
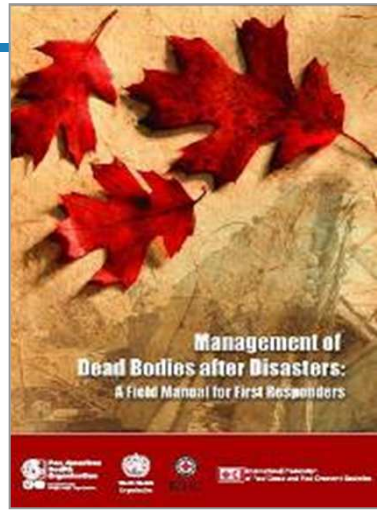
Building Capacity in MS: technical guidance

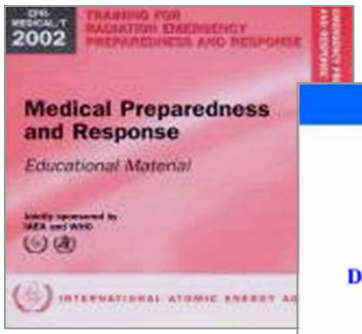


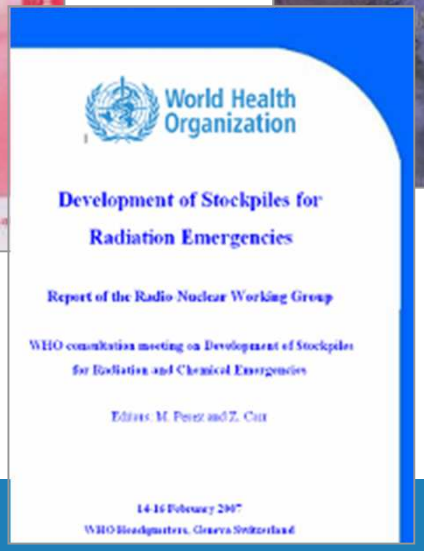


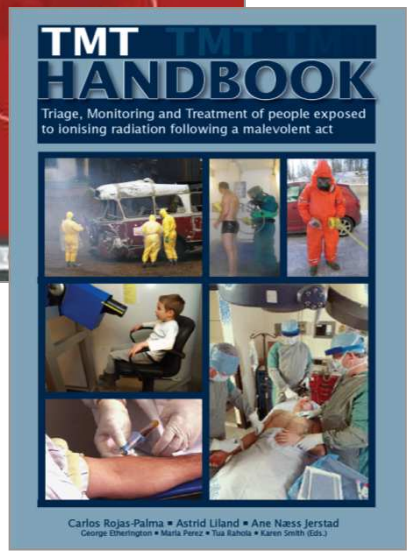


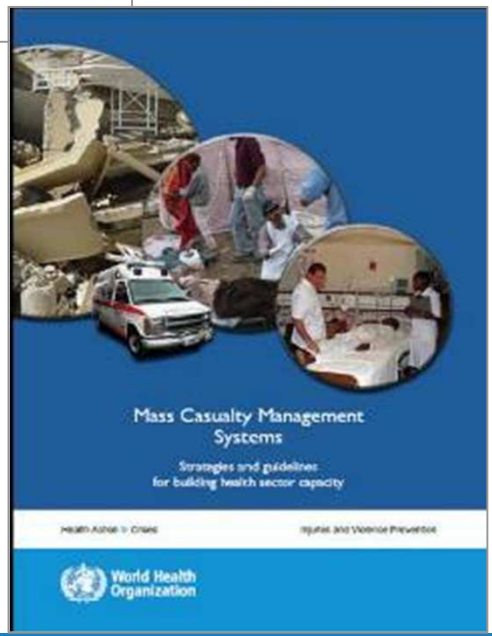












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BioDoseNet – WHO network for biodosimetry

- a global platform for capacity building and supporting response to radiation emergencies
- Includes some 60 labs world-wide
- Informal commitment based on the spirit of international cooperation, transparency, mutual support and scientific collaboration
- Launched in 2008 and developing rapidly

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Radiation Contamination of Food

- Can be on surface of food or incorporated in food
  - e.g. uptake from soil to crops, feed for animals, contaminated seawater contaminating seafood
- Consumption increases exposure and can increase health risk
- Geographic area in which food can be contaminated can be much larger than area where people are at risk from direct radiation exposure
  - Radioactive materials can accumulate in foods over time
- Contamination has been reported in some milk, vegetables and fishery products from 9 prefectures. Measures have been implemented to prevent distribution

特集

食が危な

60% of spinach in central market in Tokyo is subject to radio nuclear regulation

Production facilities in affected areas make up for 60% of national share of processed fish

15% of milk for 13 prefectures in east Japan come from Ibaraki and Fukushima

で一時出荷停止

60% decline in fermented soybean production

Egg prices increased by 40%

41% of the national share of mackerel pike come affected areas

25% of Japan's rice production is from 6 prefectures in east Japan

80% of the national wakame share comes from Sanriku region (affected by tsumani)

香り立つ味噌汁をすすり、
サンマの塩焼きを箸でほぐしつつ、ご飯を口に運ぶ。
3月11日以降、ありふれた食卓の光景が脅かされている。
飽食の時代に突きつけられた「食の危機」。
ニッポンの食を次世代につなぐために、残された時間は少ない。

[illegible]

Source: Nikkei Business (18 Apr 2011)

Food Safety Monitoring after Fukushima

- **WHO is still receiving updates from Japan through INFOSAN (International Food Safety Authorities Network) for distribution to network members**
  - **Through 15 June: 5202 food samples were tested, of which 363 (7%) had radionuclide contamination in excess of the action levels set by the Japanese Ministry of Health, Labour and Welfare (MHLW) and were withdrawn from markets**
- **WHO monitoring of media and government websites for food control measures implemented by other countries**
  - **20 countries plus EU implemented a variety of control measures on Japanese foods being imported into their countries**

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Tap (Drinking) Water

- Reports of radioactivity in tap water in some locations
- So far, most reported levels fall below WHO guidelines for long-term exposure
- Japanese restrictions on drinking water in some areas, especially for infants, for residents near areas where Japanese limits have been exceeded.
- Situation under close monitoring. Today, there are no drinking water restrictions in Japan.

WHO's medium and longer term actions

- Assess health risk on populations inside and outside Japan
- Set research priorities with IARC, UNSCEAR, others
- Advice on the establishment of long-term follow up programs
- Strengthen capacities of Member States to respond to radiation emergencies
- Set norms and standards, promote and monitor their implementation
- Promote appropriate use of radiation, especially in the health sector

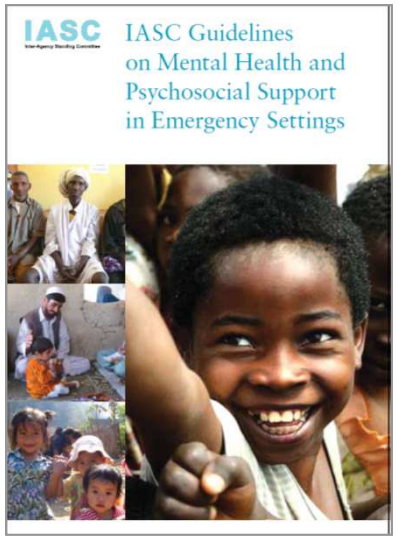
WHO's short-term actions

- Monitor situation (WPRO, Kobe, ENAC, social media,…).
- Assess health risks (IHR, PHE, FOS, other programs, relevant experts).
- Articulate health risk assessments and evidence-based recommendations.
- Provide advice on public health measures (REMPAN, INFOSAN).
- Engage in partnerships (WMO, IAEA, FAO, UNSCEAR, EC, CTBTO, …).
- Provide technical support to national authorities (food, water, travel, transport, trade, mental health, public information…)

Inter-agency coordination on public information

Risk Communication and Mental Health

- The experience from past accidents, e.g. Chernobyl, proved psychological impact is substantial
- Lack of clear, consistent information creates fears, anxiety, and aggravated psychological impact of nuclear accidents.
- People may misattribute physical symptoms of fear and stress (muscle tension, palpitations, hyperventilation, vomiting, sweating, tremors) as evidence of radiation illness.



- Communicating risk to public and conveying clear and reassuring messages is a key intervention to prevent negative mental health impact of a radiation emergency
- WHO recommends improving availability and access to normal community mental health services in the disaster-affected areas of Japan.

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From the JPlan (2010): 3.4. Public information

- …Media releases will be factual and based on the role, responsibilities, and actions taken by the issuing organization.
- Where the subject matter of the media release involves the competence of more than one organization, the relevant organizations coordinate with each other and agree on the content of any media releases. Should this not be possible, the organizations should limit their media releases to their own area of competence.
- Any assisting organization will make every effort to obtain clearance with a requesting State or organization before releasing information to the media/public on the assistance provided in connection with a radiation incident or emergency.
- Copies of any releases should be provided to the IAEA for posting on IAEA's emergency web site, or for establishing a hyperlink in IAEA's emergency web site to the relevant organization's web site.
- The IACRNE maintains a list of public information officers in the participating organizations.

WHO-FAO-IAEA coordination on public information

- WHO Food Safety Department worked closely with FAO & joint FAO/IAEA programme in Vienna to monitor situation and develop technical information products for Member States and the public

- A joint WHO-FAO Fact Sheet was developed and posted on the web

- **A joint FAO-IAEA-WHO statement was issued to demonstrate the multiagency commitment to support Japan and Member States**

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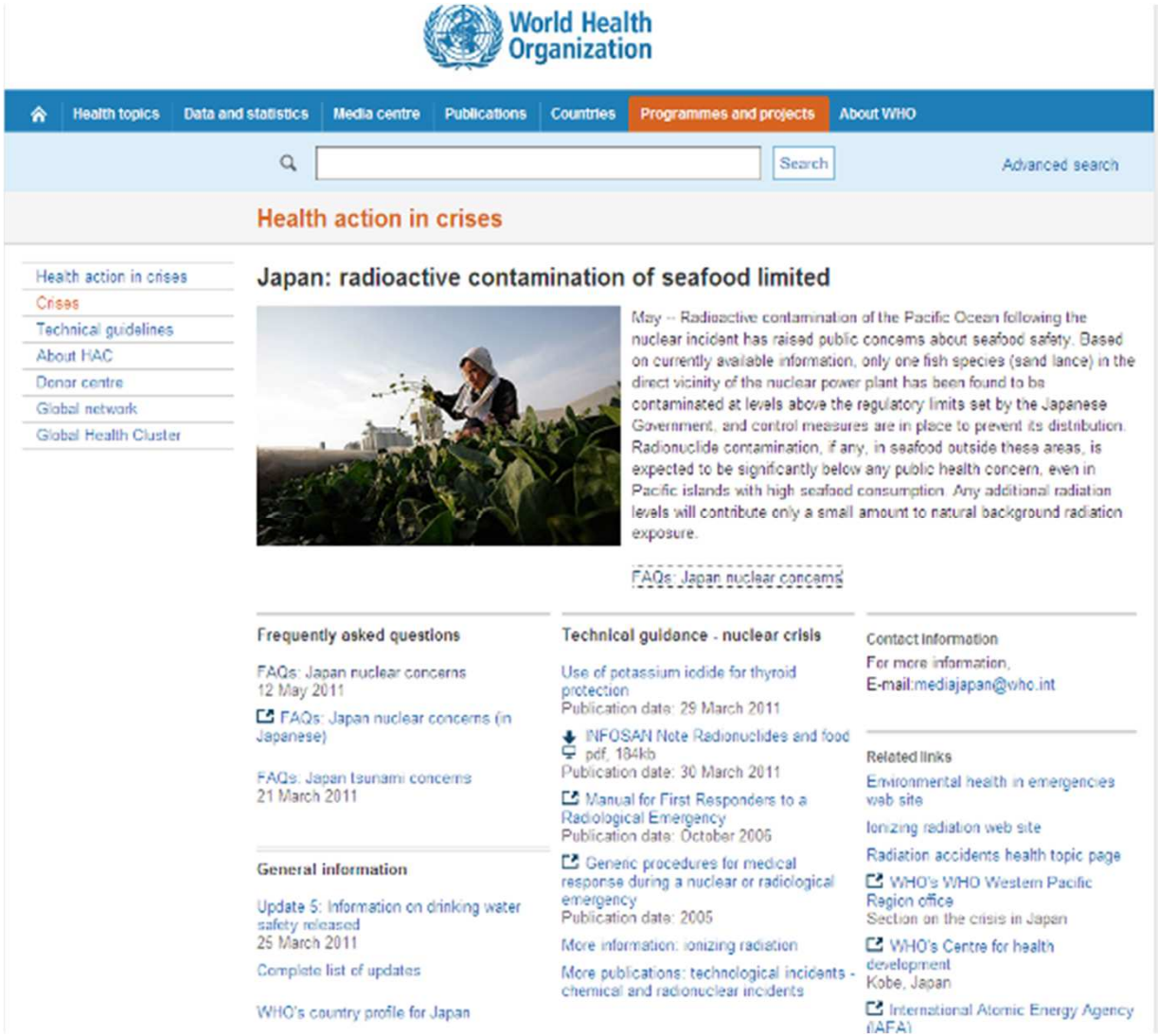
Lessons learnt … so far

- Radiation emergencies require inter-sectoral response and coordination
  - health authorities, + competent authority for radiation, food, water, environment, transport, …
- Existing international arrangements proved useful for coordination with partners inside and outside the UN system
  - bilateral cooperation (e.g. CTBTO, WMO) was an added value
- Ensuring maximum level of independence and transparency in assessing, managing and communicating radiation risks is crucial
- Existing international networks
  - Access to technical expertise (REMPAN, CCs) is crucial for timely reaction and advice.
  - Established communication networks (INFOSAN) are important for rapid dissemination of information.

Lessons learnt … so far (cont'd)

- Importance of providing timely and accurate information
  - To inform decision-making *(e.g. travel, trade)*
  - To prevent risky reactions *(e.g. potassium iodide)*
  - To allay unnecessary fears *(e.g. travel, breastfeeding)*
  - To promote healthy behaviours *(e.g. pregnancy)*



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Thank You