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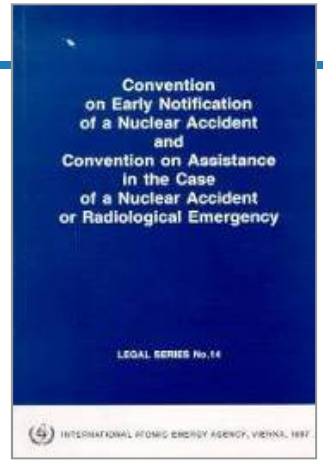
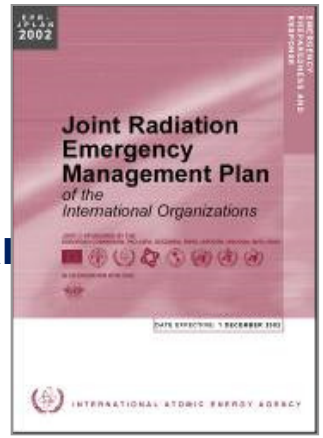
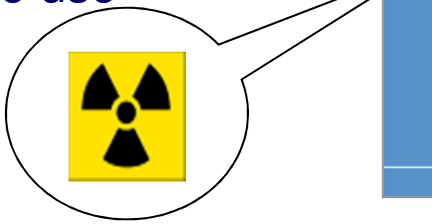
WHO's response to the Fukushima Daiichi NPP accident (2012)

WHO's role in Radiation Emergency Response

- **WHO Constitution (1948)**
  - Article 2 (d): "…to furnish appropriate technical assistance and, in emergencies, necessary aid upon requests of Government."
- **Emergency Conventions (1986)**
  - "Early Notification" and "Assistance"
- **Joint Radiation Emergency Management Plan (since 2000)**
  - currently in its 6th edition
- **WHA Resolution 55.16 (2002)**
  - "Global public health response to natural occurrence, accidental release or deliberate use of biological and chemical agents or radionuclear material that affect health"
- **International Health Regulations (2005)**







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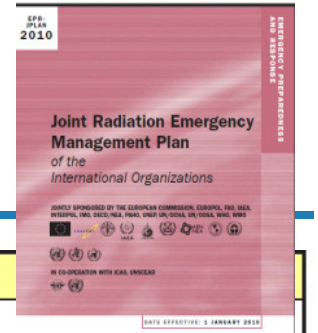
WHO's role (cont'd)

Joint Radiation Emergency Management Plan



Advice or assistance (on request directly from a State or through international organization)	
To offer good offices	
To send request for advice or assistance to relevant international organizations	IAEA International Atomic Energy Agency
To arrange for advice or assistance on	
- potential radiological hazards, assessment of facility conditions and accident mitigation	IAEA
- weather information (observations, forecasts, and warnings)	WMO
- atmospheric transport and dispersion predictions	WMO
- physical dosimetric measurement services	IAEA
- radiological assessment and application of international standards	IAEA
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- re-establishing disrupted police services	INTERPOL
- radiation protection support, personnel and equipment for operations in affected areas	IAEA
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- agricultural countermeasures	FAO
- environmental monitoring and sampling programmes for interventions related to food	IAEA, FAO
- implementation and enforcement of control measures for imported and exported food/feed	FAO
-	
- investigating crimes and seeking international suspects	INTERPOL
- environmental monitoring and sampling programmes and assessment of long term impact	IAEA, UNEP, FAO
- relocation, resettlement	IAEA, UNEP
- decontamination, waste management	IAEA
- response on a vessel at sea or in port	IMO

WHO's Relevant Emergency Networks

- WHO REMPAN network
  - **R**adiation **E**mergency **M**edical **P**reparedness and **A**ssistance **N**etwork (**REMPAN**), 40+ centers world wide
    http://www.who.int/ionizing_radiation/a_e/rempan/en/

- WHO BioDoseNet
  - Global network of 60+ biodosimetry laboratories
    http://www.who.int/ionizing_radiation/a_e/biodosenet/en/

- WHO/FAO INFOSAN network
  - **I**nternational **Fo**od **S**afety **A**uthorities **N**etwork (**INFOSAN**)
    http://www.who.int/foodsafety/fs_management/infosan/en/

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IHR communication

- On March 11 2011, the Ministry of Health, Labour and Welfare of Japan notified about 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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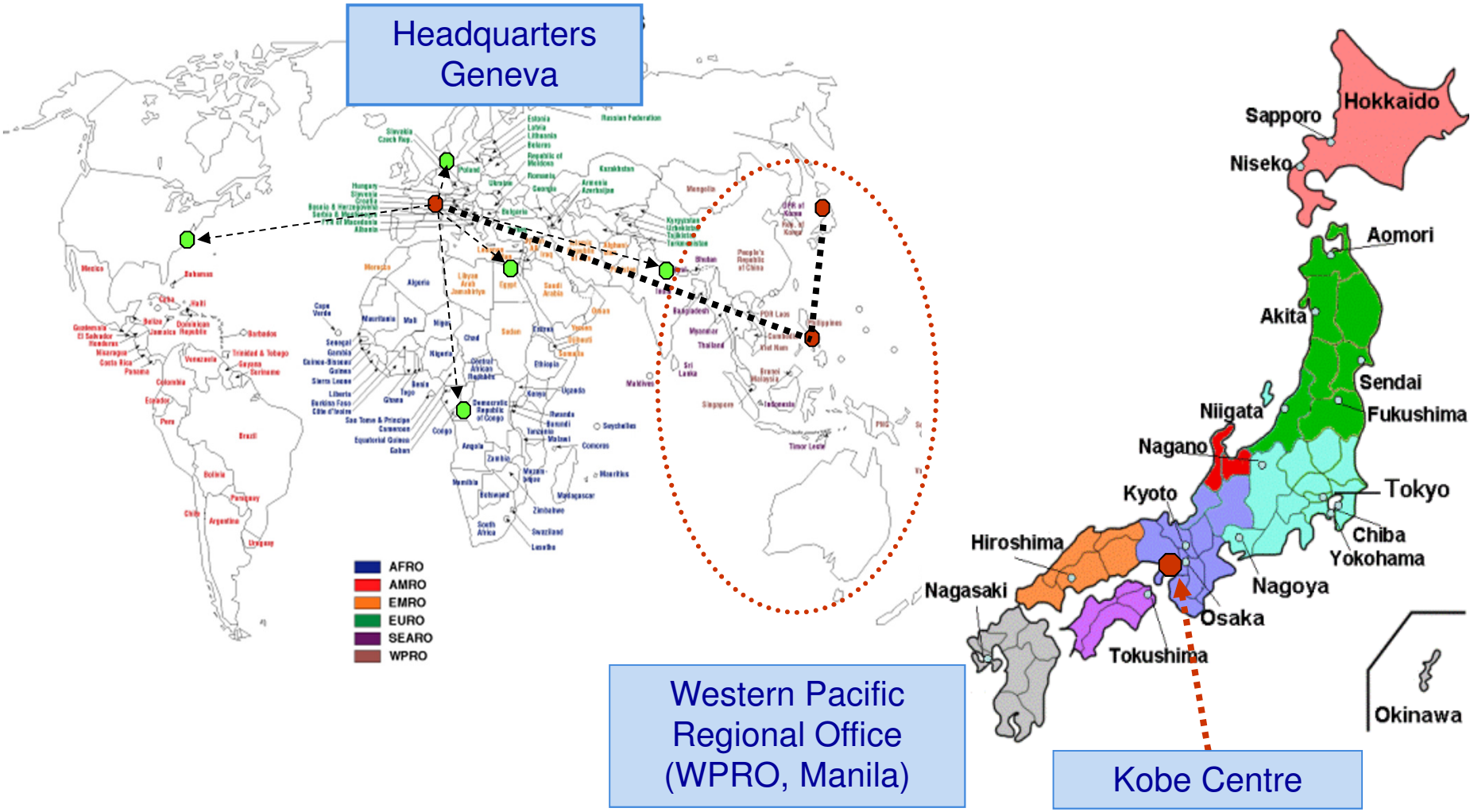
WHO Response to Fukushima accident



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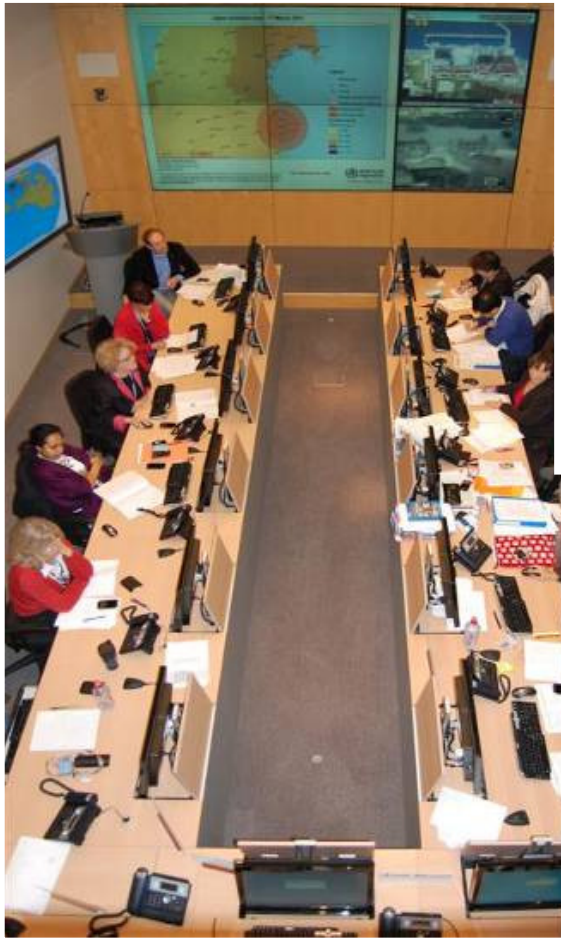
WHO Strategic Health Operations Center



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WHO short-term response actions to Daiichi NPP crisis

- Immediately activated WHO Emergency Response Plan
- Monitored situation: IAEA's and other agencies emergency communication channels, WHO WPRO and Kobe Center in Japan, media reports
- Assessed potential health risks due to radiation exposure and non-radiation risks
- Engaged expert networks and provided advice on public health measures (REMPAN, INFOSAN networks)
- Worked in partnerships under IACRNE inter-agency coordination (IAEA, WMO, FAO, CTBTO, ICAO, EC, etc.)
- Provided technical support to the concerned national authorities on food, water, travel, transport, trade, mental health, public information, etc.
- Public messaging (a dedicated website, media statements, press conferences, Fact Sheets and Q&As, social media - Facebook, Twitter, etc.)

Requests from 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 and risk assessment
  - 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

Partnerships

- IACRNE platform proved efficient for inter-agency information sharing and coordination
- Bilateral cooperation on specific technical areas:
  - WHO Liaison officer dispatched to IAEA for two weeks in April 2011
  - with WMO and CTBTO on exposure monitoring and forecast
  - with FAO on food safety issues
  - with ICAO and IAEA on travel and transport safety
- Interactions within UN MDs Group and with UN DSS on the issue of UN staff stationed in Japan and KI acquisition and shipping to Japan
- European Commission – regular teleconferencing with DG SANCO
- Interactions with GHSAG Working Group on radio-nuclear risks

IACRNE Ad-Hoc Working Group on Transport/Travel

- Formed within IACRNE platform with participation of ICAO, WHO and IAEA
- Held weekly phone conferences helped to respond to concerns and over-reaction by balancing the risk perception
- Sending and receiving information through the PAGNet – WHO network of Health Authorities of ports and airports
- A challenge was to translate different standards and their applicability to assess health risks for travelers in short time
- 140 measures related to travel or trade were identified in relation to Fukushima. None appeared to reach the threshold of significance under IHRs additional measures criteria (i.e. no delay of international movement by more that 24 hrs)

Tap (Drinking) Water

- Reports of radioactivity in tap water in some locations at earlier stage
- Most reported levels fall below international guideline levels for long-term exposure
- Drinking water restrictions applied in some areas, especially for infants, where Japanese national limits have been exceeded
- Today, there are no drinking water restrictions in Japan.

Guidance Levels for Radionuclides in Drinking Water in 2011

(Bq/kg)	Japan		EU
radioactive iodine(I131)	(for babies)	300 100	500
radioactive cesium		200	1,000

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Food Safety Monitoring after Fukushima

WHO received 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 MHLW Japan and were withdrawn from markets**

- **WHO monitored information sources 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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WHO-FAO-IAEA coordination

- 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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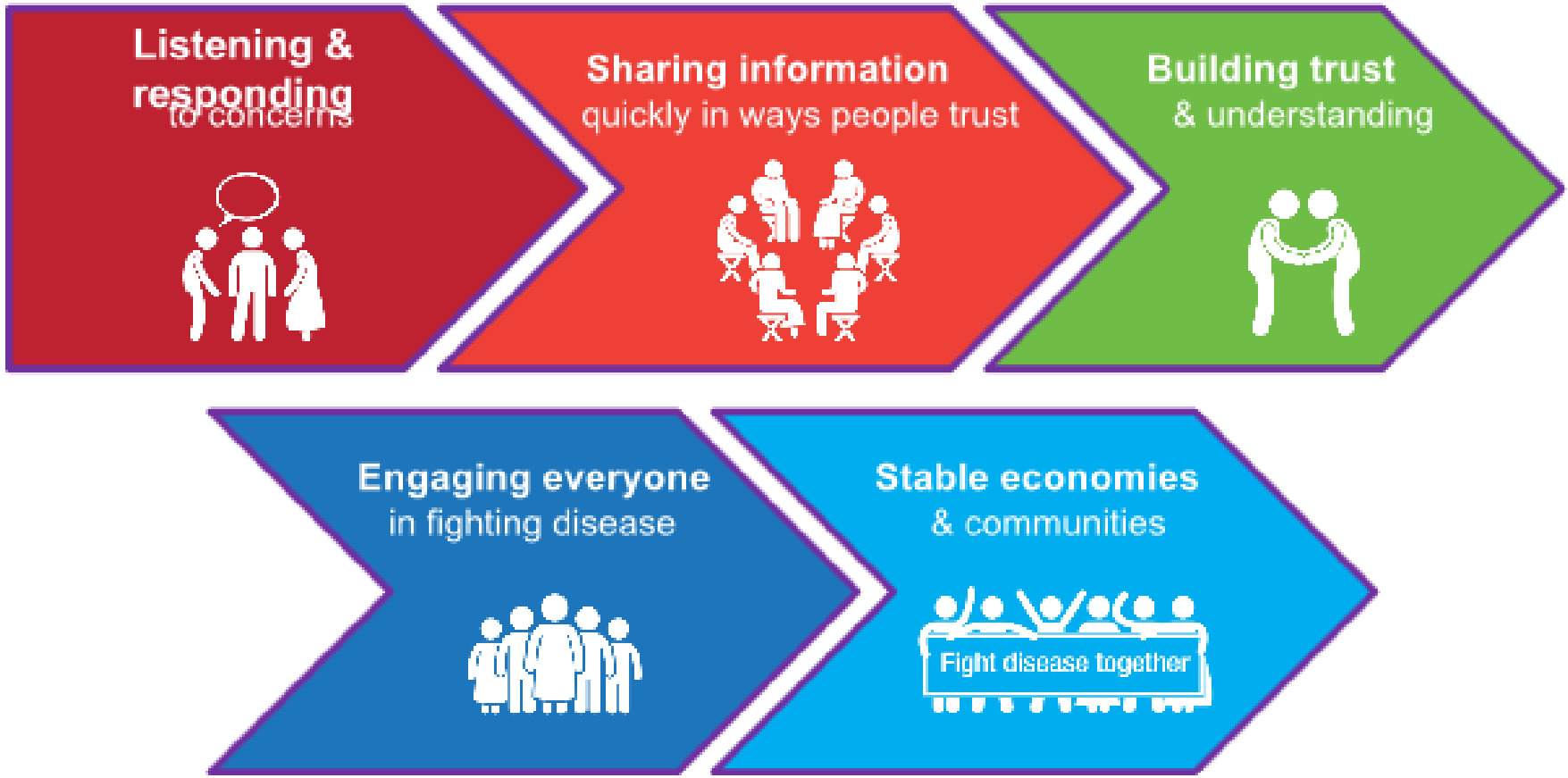
Psychological impact

- The psychological impact can outweigh direct radiological consequences (lesson from Chernobyl)
- Soon after the accident, WHO recommended improving availability and access to community mental health services in the affected areas of Japan
- This remains a challenge today, and may require special considerations for planning the response to nuclear accidents
- WHO developed guidance for managing mental health in emergencies

Risk Communication and Mental Health

- The experience from Chernobyl, proved psychological impact of the accident was significant
- Lack of clear, consistent information creates fears anxiety, and aggravated psychological impact of nuclear accidents.
- Public may attribute physical symptoms of fear and stress (muscle tension, palpitations, hyperventilation, vomiting, sweating, tremors) as evidence of radiation illness
- Communicating risk to the affected target groups, such as emergency workers, evacuees, parents, etc. and conveying clear and reassuring messages is a key intervention to prevent negative mental health impact of a radiation emergency

Risk communication is a dynamic process of sharing & responding to information about a public health threat.



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Some Lessons Learnt

- **Clear protocols are needed for rapid health risk assessment basis and for making decisions on urgent protective public health actions before and after a release**
  - **a need to clarify the use of the exposure monitoring data, plant conditions data and how that relates to the concept of dose limits, constrains and reference levels for protection of the public**
  - **a need for practical recommendations public health interventions and for decision making on control of contaminated foodstuffs and water**
  - **A need for practical guidance on protecting health of evacuees and relocated people in shelters and temporary housings**
- **There is a need for a guidance on public information and risk communication strategy, taking into consideration necessary adjustments for cultural differences**
  - **Clear evidence-based information is needed not only for interventions, but also for avoiding unjustified actions**
  - **Social networks is increasingly important communication tool**

Fukushima long-term follow-up

- Health survey for 2 million population of Fukushima prefecture began in Sept 2011, lead by Fukushima Medical University
- Detailed questionnaire collects data on individual's whereabouts after the accident (to be used for dose reconstruction)
- Ultrasound thyroid examinations being carried out for all under 18 years old at the time of the accident
- Psychological and socio-economic impacts are the largest issues at the moment
- Having a correct risk communication strategy and tools for psychological support are very important

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Conclusions of the international expert meeting in Fukushima – Sept 2011

• Countermeasures including sheltering, evacuation and controlled food chain appeared to have been implemented in a timely manner. To date there have been no acute radiation injuries from the nuclear accident. Stable iodine was not generally administered to the public and it appears from the reported monitoring result that thyroid doses were low.

•Taking these factors into account, together with the magnitude of the reported levels of radioactive substances in the environment resulting from releases to the atmosphere and to the ocean, the physical health impact of the radiation on the general public is likely to be limited and lower than that from Chernobyl, where the only validated cancers were thyroid.

•However, the social, psychological, and economic impact of the nuclear accident and their continued effects are expected to be considerable. Continued monitoring and characterization of the levels of radioactivity in the environment is necessary so that informed decisions can be taken about various issues such as the extent to which populations can return to their homes.

WHO Longer-Term Actions: what is next?

- Advice and support international cooperation on Fukushima long-term follow-up study
  - to ensure credibility and transparency of the national study
  - to engage global network of relevant subject matter experts world-wide
  - to use experience based on lessons of Chernobyl and experience on mitigation of mental health impact of major disasters in the past
- Strengthen capacities of Member States to respond to radiation emergencies
  - Development of new technical tools and guidelines (WHO guidelines for public health response to radiation emergencies)
  - Support national and regional training and exercise programs
- Promote international norms and standards, and monitor their implementation to support safe use of radiation, especially in the health sector