

# IAEA ACTION PLAN ON NUCLEAR SAFETY REGARDING RADIATION PROTECTION AFTER FUKUSHIMA DAIICHI ACCIDENT

Hidenori Yonehara

Former consultant, Nuclear Safety Action Team,  
IAEA

Kazuo Sakai

Consultant, Nuclear Safety Action Team, IAEA



# Immediate Response to the accident by IAEA

- The Incident and Emergency Centre (IEC) was immediately activated, established communication and verified information
- The IAEA Laboratories reviewed environmental data provided by the Japanese authorities on monitoring of the marine environment and received terrestrial environment samples for independent analysis
- The IAEA Director General visited Tokyo in March for high level consultations, to express the solidarity of the international community and its full support to Japan in dealing with the consequences of the earthquake, tsunami and nuclear accident, and to convey offers of assistance from more than a dozen countries

# Immediate Response to the accident by IAEA

- At the request of Japan, the IAEA sent radiological monitoring teams to help validate the results of the more extensive measurements taken by the Japanese authorities
- Advice was provided on sampling and analytical strategies and interpretation of monitoring data to ensure that reliable, continuous updates could be provided on the extent of food contamination in the affected areas
- The IAEA posted daily briefings for Member States and the public on its public website

# 1st IAEA Fact Finding Mission to Japan (May/June)

- Assessment of the safety issues linked with the Fukushima Daiichi NPP accident following the Great East Japan Earthquake and Tsunami
- Objective was to identify lessons learned from the accident
- Deliberations with Japanese nuclear - related agencies and visits to the nuclear sites

## Preliminary findings in the Report:

- Japan's response has been exemplary, considering the exceptional circumstances
- Evacuation was well - organized; a suitable and timely follow - up program on public and worker exposure and health monitoring would be beneficial
- The tsunami hazard was underestimated; designers and operators should appropriately evaluate and protect against risks of all natural hazards
- Extreme events should be addressed adequately, including periodic review
- The accident demonstrated the need for on - site Emergency Response Centres

# IAEA Ministerial Conference on Nuclear Safety

Took place in Vienna on 24 June 2011

Conference called to identify lessons learned from the accident at the Fukushima Daiichi NPP in Japan,

## **Technical Topics:**

“Lessons Learned from the accident at TEPCO’s Fukushima Nuclear Power Stations”

“Strengthening nuclear safety, including emergency preparedness and response, in the light of the accident at TEPCO’s Fukushima Nuclear Power Stations”

“Protection of people and the environment from ionizing radiation”

## **Ministerial Declaration was adopted:**

- called for improvements in global nuclear safety
- the IAEA Director General developed a draft Action Plan on Nuclear Safety covering all relevant aspects relating to nuclear safety, emergency preparedness and response and radiation protection of people and the environment, as well as the international legal framework

## **Nuclear Safety Action Plan (NSAP):**

Defines a programme of work to strengthen the global nuclear safety framework

## **IAEA Fukushima Report:**

Assessment of the accident that is technically comprehensive, factual and balanced, addressing the causes and consequences as well as lessons learned.



# NSAP Programme of Work

## 12 Actions



**Safety Assessments**



**IAEA Peer Reviews**



**Emergency Preparedness and Response**



**National Regulatory Bodies**



**Operating Organizations**



**IAEA Safety Standards**



**International Legal Framework**



**Member States Embarking on Nuclear Power**



**Capacity Building**



**Protection from Ionizing Radiation**



**Communication**



**Research & Development**

# ACTION 2

## Peer Review Services - Overview

- **OSART** – Operational Safety Review Team
- **IRRS** – Integrated Regulatory Review Service
- **EPREV** – Emergency Preparedness Review
- **DSARS** – Design and Safety Assessment Review Service
- **SALTO** – Safety Aspects of Long Term Operation
- **SEED** – Site and External Events Design Review Service
- **ARTEMIS** – Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation



# Action 6: IAEA Safety Standards

*Review and strengthen IAEA Safety Standards and improve their Implementation*

## **Safety Standards Review Task Force established**

Systematic review of Safety Standards in light of Fukushima Accident:

- *Safety Assessment for Facilities and Activities (GSR Part 4);*
- *Governmental, Legal and Regulatory Framework for Safety (GSR Part 1);*
- *Site Evaluation for Nuclear Installations (NS - R - 3);*
- *Safety of NPP: Design (SSR - 2/1); and*
- *Safety of NPP: Commissioning and Operation (SSR - 2/2).*

## **Chair of the Commission on Safety Standards Reported on the review (Nov 2012)**

- No significant areas of weakness had been identified.
- Revisions were proposed to strengthen Requirements (through addenda)

Draft addenda approved by Safety Standards Committees (June - July 2013) Final review in June 2014, review and approval by CSS in November 2014. Revisions **submitted to the Board of Governors in**

**March 2015**

**NSAP**

# Action 10 Protection from Ionizing Radiation

- **Fact finding mission** on remediation of contaminated land outside the Fukushima Daiichi NPP areas – incorporate lessons learned
- Facilitate the **use of available information, expertise and techniques** for monitoring, decontamination and remediation both on and off nuclear sites, etc
- Strategies and programmes to **improve knowledge and strengthen capabilities**
- **Share information** regarding the assessment of radiation doses and any associated impacts on people and the environment
- **Cooperation** between IAEA, FAO and other relevant organizations

# THE REPORT ON THE FUKUSHIMA DAIICHI ACCIDENT



# *The Report on the Fukushima Daiichi Accident*



- The report should form the basis for the future programme of work for the IAEA;
- The IAEA to take leading role in building on the findings of the report to shape a safer nuclear future;
- Formal publication of the report is planned for the 59th IAEA General Conference in September 2015

## The report consist of

- **Report by the IAEA Director General:**
  - Executive Summary;
  - Summary Report;
- **5 Technical Volumes:**
  1. Description and context of the accident;
  2. Safety assessment;
  3. Emergency preparedness and response;
  4. Radiological consequences;
  5. Post-accident recovery.



# *The Report on the Fukushima Daiichi Accident*

The IAEA plays the leading role in producing a technically comprehensive report based on the understanding of the facts and IAEA's assessment of the accident.

## **The Report by the Director General:**

- informative and easily understandable for decision makers and general public;
- draws on five detailed technical volumes prepared by international experts.

## **5 Technical Volumes:**

- include in an understandable balanced manner, nuclear safety and radiological aspects focusing on scientific/technical data;
- provide a description of the accident, its causes and consequences and address relevant key issues;
- will be an authoritative, factual and balanced assessment, addressing the causes and consequences of the accident, as well as observations and lessons.

# Structure of the report

<b>Section 1: Introduction</b>	The IAEA Report on the Fukushima Daichi Accident					
<b>Section 2: The accident and its assessment</b>	Description of the accident	Nuclear safety considerations	<b>Technical Volumes 1 &amp; 2</b>			
<b>Section 3: Emergency preparedness and response</b>	Initial response in Japan to the accident	Protecting emergency workers				Protective actions and other response actions for protection of the public
<b>Section 4: Radiological consequences</b>	Radioactivity in the environment	Protecting people against radiation exposure	Radiation exposure	Health effects	Radiological consequences for non-human biota	<b>Technical Volume 4</b>
<b>Section 5: Post-accident recovery</b>	Off-site remediation of areas affected by the accident	On-site stabilization and preparations for de- commissioning	Management of contaminated material and radioactive waste	Community revitalization and stakeholder engagement	<b>Technical Volume 5</b>	
<b>Section 6: The IAEA's response to the accident</b>	IAEA activities	Meetings of the Contracting Parties to the Convention on Nuclear Safety	<b>Technical Volumes 1 &amp; 3</b>			

# *Observations and lessons*

- 46 key observations and lessons were highlighted by the Fukushima accident;
- The main lesson to be learned is that lessons about nuclear safety, which had already been identified, need to be implemented, particularly those reflected in the Safety Standards;
- Effective international cooperation is an essential prerequisite for nuclear safety and the assistance of international organizations is vital to support national responsibilities;
- Greater transparency is needed to support the confidence in nuclear facilities. This can be achieved through the review processes associated with the international safety conventions and the IAEA safety services.

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Thank you for your attention!

