



Международное Агентство по Атомной Энергии

**Arrangements for and Initial Results of
Implementation of the IAEA Action Plan on Nuclear
Safety Related to Operational Safety and Operating
Organizations**

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Moscow 23-25 May 2012**

Introduction

Ministerial conference on Nuclear safety 20-24 June 2011:

- **The IAEA DG to prepare and present to the Board of Governors and the General Conference a report on the Ministerial Conference and a draft Action Plan, building on the Ministerial Declaration, the conclusions and recommendations of working sessions of the Ministerial Conference.**
- **Action plan approved by BoG and endorsed by GC in September 2011**



Nuclear Safety Action Plan

1. Undertake assessment of the safety vulnerabilities of NPPs
2. Strengthen IAEA peer reviews
3. Strengthen emergency preparedness and response
4. Strengthen the effectiveness of national regulatory bodies
5. Strengthen the effectiveness of operating organizations
6. Review and strengthen IAEA SS and improve their implementation
7. Improve the effectiveness of the international legal framework
8. Facilitate the development of the infrastructure for MSs
9. Strengthen and maintain capacity building
10. Ensure the on-going protection of people and the environment from ionizing radiation following a nuclear emergency
11. Enhance transparency and effectiveness of communication
12. Effectively utilize research and development



ASSESSMENT OF SAFETY VULNERABILITIES

- IAEA Methodology to assess safety vulnerabilities of NPPs against site specific extreme natural hazards
- Support and Advice to Member States



ASSESSMENT OF SAFETY VULNERABILITIES

International Expert Mission to Japan, January 2012

The mission was divided into four areas:

- **Regulatory Review and Assessment Process;**
- **External Hazards and Evaluation of Safety Margins;**
- **Plant Vulnerabilities against Station Blackout and Loss of Ultimate Heat Sink; and**
- **Severe Accident Management**



STRENGTHEN IAEA PEER REVIEWS

- **Member States to be strongly encouraged to voluntarily host IAEA peer reviews, including follow-up reviews, on a regular basis; the IAEA to respond in a timely manner to requests for such reviews.**
- **The IAEA to assess, and enhance as necessary, the effectiveness of the IAEA peer reviews**



STRENGTHEN IAEA PEER REVIEWS

- **IRRS + EPREV**
 - **Dedicated 'Fukushima' Modules**
- **OSART**
 - **Severe Accident Management module, Corporate organization module, New methodology, TM meeting**
- **Increase in Demand for Peer Reviews**



STRENGTHEN EMERGENCY PREPAREDNESS AND RESPONSE

- **IAEA Response Assistance Network (RANET)**
 - Assistance should continue based on existing framework by the A. Convention and agreements;
 - RANET assistance versus State responsibility;
 - States should establish and maintain arrangements for providing and receiving international assistance;
 - Fully RANET utilization and expansion of functional areas (assessment and advice to competent authorities for on-site mitigation) and to ensure and maintain RANET rapid response capabilities.



STRENGTHEN THE EFFECTIVENESS OF NATIONAL REGULATORY BODIES

- **International Workshop on Nuclear Safety Regulation, 19 January 2012 in Japan**
- **IRRS - more systematic and comprehensive assessment of national regulations and guidance**
- **January 2012, the Secretariat produced a Report highlights of the results of the IRRS missions for the period 2006-2010.**
- **Since November 2011, IRRS missions have been carried out in Sweden, Switzerland and the United Arab Emirates (UAE) and follow up missions have been conducted to Australia and Canada.**



STRENGTHEN EFFECTIVENESS OF OPERATING ORGANIZATIONS

- **MSs to ensure improvement of management systems, safety culture, human resources, and scientific and technical capacity in operating org.; the IAEA to provide assistance**
- **Each MS with NPPs to voluntarily host at least one IAEA OSART during the coming three years, with the initial focus on older NPPs. Thereafter, OSART missions to be voluntarily hosted on a regular basis.**
- **The IAEA to strengthen cooperation with WANO to enhance information exchange on operating experience and on other relevant safety and engineering areas.**



STRENGTHEN EFFECTIVENESS OF OPERATING ORGANIZATIONS

- **Cooperation with World Association of Nuclear Operators (WANO)**
 - Coordinate Peer Reviews
 - Safety Standards
 - Embarking Countries
 - New MoU June 2012.
- **OSART missions have been carried out to the Nuclear Power Plants at Smolensk Russian Federation, Hongyanhe, China; Cattenom, France; along with follow-up missions to South Ukraine, Ukraine and Ringhals, Sweden.**



STRENGTHEN EFFECTIVENESS OF OPERATING ORGANIZATIONS

- **2012 OSART missions:**
 - **China, Brazil, Mexico, India, Switzerland, France, Bulgaria, Czech Republic**
- **Practical arrangements between the IAEA and:**
 - **China Nuclear Industry 23 Construction Co.**
 - **INPO (under preparation)**
 - **JANTI (under preparation)**
 - **RINPO (under preparation)**



STRENGTHEN EFFECTIVENESS OF OPERATING ORGANIZATIONS

- **Nuclear Power Industry Cooperation Forum GC 2012**
- **OSART seminars during preparatory visit**
- **Support to Kola and Novovoronezh NPPs for OSART preparation**
- **Support to Hungarian Power Company MVM**
- **Preparation for Corporate review;**
 - **CEZ Czech Republic 2013**
 - **EDF France 2014**

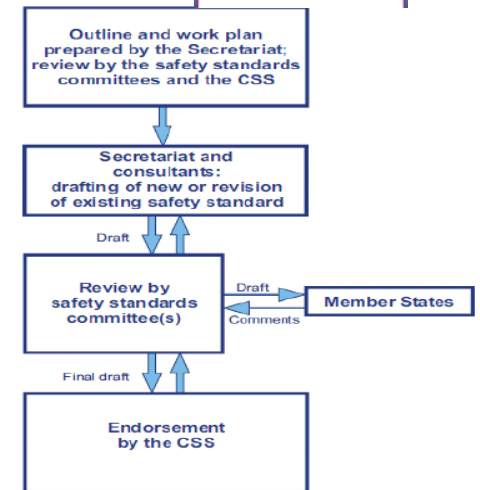


REVIEW AND STRENGTHEN IAEA SAFETY STANDARDS

- **Systematic Review of IAEA Safety Standards**
 - Requirements for NPPs
 - Gaps Review
- **Streamline Review Process**
- **Report to IAEA Director General**
 - June 2012



Development Process for the Standards



IMPROVE EFFECTIVENESS OF INTERNATIONAL LEGAL FRAMEWORK

- **International Expert Group on Nuclear Liability (INLEX) meeting**
 - **May 2012, regular meeting**
- **Convention on Nuclear Safety**
 - **Extraordinary Meeting Aug 2012**



MEMBER STATES EMBARKING ON NUCLEAR POWER PROGRAMME

- **Infrastructure Workshop**
 - **January 2012**
- **INIR Mission**
 - **Embarking Countries**
- **Safety Infrastructure Guide SSG-16**



STRENGTHEN AND MAINTAIN CAPACITY BUILDING

- **Guidance on capacity building**
- **Self-assessment, including**
 - **Human resources,**
 - **Education and training,**
 - **Knowledge management and networks**



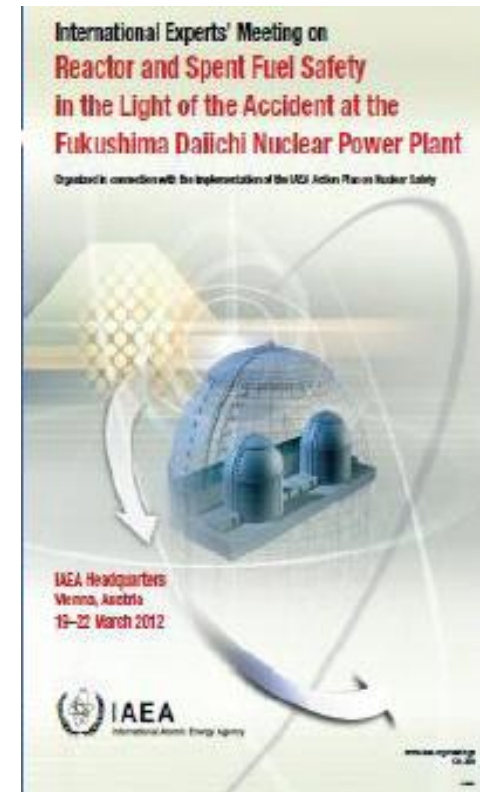
PROTECTION OF PEOPLE + ENVIRONMENT FROM IONIZING RADIATION

- Preparations for an International Experts' Meeting (IEM) on “Decommissioning and Remediation after a nuclear accident” 1st Q 2013
- Establish an international programme “Models and Data for Radiological Impact Assessment”



COMMUNICATION AND DISSEMINATION OF INFORMATION

- **International Experts' Meetings IEMs**
 - Enhancing Transparency and Communication Effectiveness of Communication, **June 2012**
 - Remediation and Decommissioning, **March 2013**
- **Workshop on Seismic and Tsunami Hazards, August 2012**
- **Ministerial Conference on Nuclear Safety**
 - Fukushima Prefecture, **December 2012**
- **Effective Regulatory Systems Conference, Canada, April 2013**



RESEARCH AND DEVELOPMENT

- **Technical and Scientific Support Organization (TSO) Forum**
- **Strengthen scientific and technical coordination and collaboration among Member States**
- **Steering Committee January 2012**



International Experts' Meeting on Reactor and Spent Fuel Safety in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant

Organized in connection with the implementation of the IAEA Action Plan on Nuclear Safety

IAEA Headquarters
Vienna, Austria
19–22 March 2012



www.iaea.org/meetings
021_2012



IEM "Reactor and Spent Fuel Safety in the Light of the Accident at Fukushima Daiichi NPP"

- **Combination of hazards and multiple-units**
- **Several proposals to explore new IAEA guidance and documents**
- **More attention on accidents mitigation**
- **Severe accident management**
- **Key systems for safe state**
- **I&C systems for monitoring**
- **On-site / off-site mobile equipment and facilities**
- **Embarking countries**
- **Defence in depth philosophy and strategies**
- **Probabilistic and deterministic aspects**
- **Safety spent fuel: Loss of cooling; Loss of water; Re-criticality; Hydrogen production; Zirconium fires; damage and release of radioactivity.**



IEM "Reactor and Spent Fuel Safety in the Light of the Accident at Fukushima Daiichi NPP"

- **"The IAEA should make available the information from the experts' meeting to the Safety Standards Committees and the Commission of Safety Standards (CSS)."**
- **"The lessons that were discussed at the meeting should be considered in the response to the Action Plan and evaluated for incorporation into IAEA SS."**





***...Thank you for your
attention***

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