

Implementation of the Nuclear Safety Action Plan

Gustavo Caruso

Special Coordinator for the Implementation of the Action Plan

Office of the Deputy Director General

Department of Nuclear Safety and Security



IAEA

International Atomic Energy Agency

Process

- IAEA Ministerial Conference
- September Board of Governors
- Action Plan on Nuclear Safety
- 55th General Conference
- Action Plan Implementation
- IAEA Activities – November 2011

Action Plan is based on:

- IAEA Ministerial Conference
- WS Conclusions and recommendations
- Fact-Finding Mission to Japan
- INSAG Letter Report
- Member States consultations
- Exchanges of views with MS and stakeholders

Nuclear Safety Action Team



- The Director General announced, on 26 September 2011, the formation of a Nuclear Safety Action Team in the Department of nuclear safety and security to ensure proper coordination among all stakeholders and to oversee the prompt implementation of the Action Plan

Nuclear Safety Action Team (NSAT)

- General approach with DDG NS and DGO and to agree on the staff to be made responsible for each action/sub action.
- NSAT will serve as focal point with all activities associated with the implementation of the action plan.
- Definition of the “core group” from NS, NE NA (TC)
- To elicit the relevance of sub actions to be undertaken by MS and their impact on the implementation of the sub actions under IAEA scope of work. This includes determining the scope and contents of the information to be requested from MS.

IAEA Action Plan on Nuclear Safety

- Plan focuses on initial lessons learned covering 12 areas for action with numerous sub-actions
 - National safety assessments
 - IAEA peer reviews
 - Emergency preparedness and response (EPREV)
 - National regulatory bodies (IRRS)
 - Operating organizations (OSART)
 - IAEA Safety Standards
 - International legal framework
 - MS planning to embark on nuclear power programme
 - Capacity building
 - Protection of people and the environment from ionizing radiation
 - Communication and information dissemination
 - Research and development

Safety assessments in the light of the accident at TEPCO's Fukushima Daiichi Nuclear Power Station

Undertake assessment of the safety vulnerabilities of nuclear power plants in the light of lessons learned to date from the accident

- **Member States to promptly undertake a national assessment** of the design of nuclear power plants against site specific extreme natural hazards and to implement the necessary corrective actions in a timely manner.
- The IAEA Secretariat, taking into account existing experiences, to develop a methodology and make it available for Member States that may wish to use it in carrying out their national assessments.
- **The IAEA Secretariat, upon request**, to provide assistance and support to Member States in the implementation of a national assessment of the design of nuclear power plants against site specific extreme natural hazards.
- The IAEA Secretariat, upon request, to undertake peer reviews of national assessments and to provide additional support to Member States.

Safety assessments in the light of the accident at TEPCO's Fukushima Daiichi Nuclear Power Station

IAEA Activities - November 2011

- The Secretariat has developed a methodology for assessing the safety vulnerabilities of a nuclear power plant against extreme natural hazards.
- The methodology is available to Member States.
- The Secretariat is extending its design review service to include modules for the peer review of national assessments that have been carried out by Member States.

IAEA peer reviews

Strengthen IAEA peer reviews in order to maximize the benefits to Member States

- The IAEA Secretariat to strengthen existing IAEA peer reviews by incorporating lessons learned and by ensuring that these reviews appropriately address regulatory effectiveness, operational safety, design safety, and emergency preparedness and response; Member States to provide experts for peer review missions.
- The IAEA Secretariat, in order to enhance transparency, to provide summary information on where and when IAEA peer reviews have taken place, and to make publicly available in a timely manner the results of such reviews with the consent of the State concerned.
- **Member States to be strongly encouraged to voluntarily host IAEA peer reviews**, including follow-up reviews, on a regular basis; the IAEA Secretariat to respond in a timely manner to requests for such reviews.
- The IAEA Secretariat to assess, and enhance as necessary, the effectiveness of the IAEA peer reviews.

IAEA peer reviews

IAEA Activities - November 2011

- The Secretariat has compiled summary information on:
 - Operational Safety Review Team (OSART) missions;
 - Integrated Regulatory Review Service (IRRS);
 - Emergency Preparedness Review (EPREV);
 - Safety Review Services on design, assessment and site evaluation.
- The Information will be made available on the Nuclear safety Action Plan web site.
- The Secretariat has initiated a review of the Safety Review Services for design, assessment and site evaluation to provide a single, consolidated and comprehensive review service.

Emergency preparedness and response

Strengthen emergency preparedness and response

- **Member States to conduct a prompt national review and thereafter regular reviews of their emergency preparedness and response arrangements and capabilities**, with the IAEA Secretariat providing support and assistance through Emergency Preparedness Review (EPREV) missions, as requested.
- **The IAEA Secretariat, Member States and relevant international organizations to review and strengthen the international emergency preparedness and response framework**
- **The IAEA Secretariat, Member States and relevant international organizations to strengthen the assistance mechanisms to ensure that necessary assistance is made available promptly.** Consideration to be given to enhancing and fully utilizing the IAEA Response and Assistance Network (RANET), including expanding its rapid response capabilities.
- **Member States to consider, on a voluntary basis, establishing national rapid response teams that could also be made available internationally through RANET.**
- The IAEA Secretariat, in case of a nuclear emergency and with the consent of the State concerned, to conduct timely fact-finding missions and to make the results publicly available.

Emergency preparedness and response

IAEA Activities - November 2011

- A Response and Assistance Network (RANET) meeting to discuss extension of assistance capabilities is planned for early 2012.
- The development of arrangements for deployment of fact-finding missions has been initiated.
- The Secretariat has initiated a review of its capabilities and arrangements in the event of a nuclear or radiological emergency.
- Workshop to develop arrangements for IAEA Response Assistance Network Field Assistance Teams was held on 17-21 October 2011;
- A meeting of the Inter-Agency Committee on Radiological and Nuclear Emergencies will take place on 8-9 December 2011

National regulatory bodies

Strengthen the effectiveness of national regulatory bodies

- **Member States to conduct a prompt national review and thereafter regular reviews of their regulatory bodies, including an assessment of their effective independence, adequacy of human and financial resources and the need for appropriate technical and scientific support, to fulfil their responsibilities.**
- The IAEA Secretariat to enhance the Integrated Regulatory Review Service (IRRS) for peer review of regulatory effectiveness through a more comprehensive assessment of national regulations against IAEA Safety Standards.
- **Each Member State with nuclear power plants to voluntarily host, on a regular basis, an IAEA IRRS mission to assess its national regulatory framework.** In addition, a follow-up mission to be conducted within three years of the main IRRS mission.

National regulatory bodies

IAEA Activities - November 2011

- A workshop on the lessons learned from the IAEA IRRS Missions 2006 – 2010, was held in Washington, D.C. on 26 - 28 October 2011.
- Workshop Conclusions:
 - Member States support for IRRS programme;
 - Welcomed the inclusion of a specific Fukushima module into the scope of IRRS missions;
 - Stressed the importance to convey the recommendations of IRRS to Government and Parliament;
 - Identified the need for the IAEA to increase its resources and for Member States to continue supporting the IRRS by providing high quality experts.

Operating organizations

Strengthen the effectiveness of operating organizations with respect to nuclear safety

- **Member States to ensure improvement, as necessary, of management systems, safety culture, human resources management, and scientific and technical capacity in operating organizations;** the IAEA Secretariat to provide assistance to Member States upon request.
- **Each Member State with nuclear power plants to voluntarily host at least one IAEA Operational Safety Review Team (OSART) mission during the coming three years, with the initial focus on older nuclear power plants.** Thereafter, OSART missions to be voluntarily hosted on a regular basis.
- The IAEA Secretariat to strengthen cooperation with WANO by amending their Memorandum of Understanding to enhance information exchange on operating experience and on other relevant safety and engineering areas and, in consultation with other relevant stakeholders, to explore mechanisms to enhance communication and interaction among operating organizations.

Operating organizations

- Director General Amano attended the WANO Biennial General Meeting in Shenzhen China - October 2011.
 - DG Welcomed greater WANO participation in Agency activities;
 - IAEA/WANO to continue to exchange information on results of peer review activities;
 - Improve the coordination to avoid scheduling WANO Peer Reviews and IAEA OSART missions too close together.
- A senior level meeting to discuss the IAEA-WANO Memorandum of Understanding is scheduled for 12 December 2011.

IAEA Safety Standards

Review and strengthen IAEA Safety Standards and improve their implementation

- **The Commission on Safety Standards and the IAEA Secretariat to review, and revise as necessary** using the existing process in a more efficient manner, the relevant IAEA Safety Standards in a prioritised sequence.
- **Member States to utilize as broadly and effectively as possible the IAEA Safety Standards in an open, timely and transparent manner.**
The IAEA Secretariat to continue providing support and assistance in the implementation of IAEA Safety Standards.

IAEA Safety Standards

- Safety Standards Review Task Force (SSRTF).
- Draft Safety Standards Action Plan:
 - First priority the Safety Requirements applicable to nuclear power plants and storage of spent fuel;
 - 77 topical areas for review;
 - Addressing lessons learned identified in IAEA Fact Finding mission and Japanese report;
 - Options for IAEA Safety Standards revision process;
 - Draft Safety Standards action plan submitted to the Committees and Commission in September 2011;
 - Draft Safety Standards action plan well received and adopted by CSS in November 2011.

International legal framework

Improve the effectiveness of the international legal framework

- **States parties to explore mechanisms to enhance the effective implementation of the Convention on Nuclear Safety, the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management, the Convention on the Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, and to consider proposals made to amend the Convention on Nuclear Safety and the Convention on the Early Notification of a Nuclear Accident.**
- **Member States to be encouraged to join and effectively implement these Conventions.**
- **Member States to work towards establishing a global nuclear liability regime that addresses the concerns of all States that might be affected by a nuclear accident with a view to providing appropriate compensation for nuclear damage.** The IAEA International Expert Group on Nuclear Liability (INLEX) to recommend actions to facilitate achievement of such a global regime. Member States to give due consideration to the possibility of joining the international nuclear liability instruments as a step toward achieving such a global regime.

International legal framework

- Convention on Nuclear Safety Extraordinary Meeting - August 2012 .
- Joint Convention Review Meeting - May 2012.
- Meeting of Competent Authorities under Convention on Early Notification of a Nuclear Accident and Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency - April 2012.
- Review of International Expert Group on Nuclear Liability (INLEX) membership and activities.
- Member States activities since the adoption of the Action Plan.
- The first annual session of the Nuclear Law Institute (NLI) is being held from 19 November to 3 December 2011.
 - Meets the demand for legislative assistance by Member States.
 - Approximately 60 representatives from Member States.
 - Address all areas of nuclear law, including the conventions identified in the Action Plan, and those on nuclear security and liability.

Member States planning to embark on a nuclear power programme

Facilitate the development of the infrastructure necessary for Member States embarking on a nuclear power programme

- **Member States to create an appropriate nuclear infrastructure based on IAEA Safety Standards** and other relevant guidance, and the IAEA Secretariat to provide assistance as may be requested.
- **Member States to voluntarily host Integrated Nuclear Infrastructure Reviews (INIR) and relevant peer review missions**, including site and design safety reviews, prior to commissioning the first nuclear power plant.

Member States planning to embark on a nuclear power programme

- The Secretariat has initiated an update of the nuclear power national-infrastructure evaluation methodology which is applied in Integrated Nuclear Infrastructure Review (INIR) missions.
- An annual workshop on nuclear power infrastructure is planned for 24-27 January 2012, to consider the lessons learned for countries embarking on nuclear power.
- Several Member States have indicated their interest in requesting INIR missions in 2012, and formal requests are expected by the end of 2011.

Capacity Building

Strengthen and maintain capacity building

- Member States with nuclear power programmes and those planning to embark on such a programme to strengthen, **develop, maintain and implement their capacity building programs, including education, training and exercises** at the national, regional and international levels; to continuously ensure sufficient and competent human resources necessary to assume their responsibility for **safe, responsible and sustainable use of nuclear technologies**; the IAEA Secretariat to assist as requested. Such programmes to cover all the nuclear safety related areas, including safe operation, emergency preparedness and response and regulatory effectiveness and to build upon existing capacity building infrastructures.
- **Member States with nuclear power programmes and those planning to embark on such a programme, to incorporate lessons learned from the accident into their nuclear power programme infrastructure**; the IAEA Secretariat to assist as requested.

Capacity Building

- The Secretariat is developing assistance for Member States to strengthen education and training, human resources, knowledge management and knowledge networks.
- The Secretariat is developing a self-assessment methodology for capacity building programmes.

Protection of people and the environment from ionizing radiation

Ensure the on-going protection of people and the environment from ionizing radiation following a nuclear emergency

- **Member States, the IAEA Secretariat and other relevant stakeholders to facilitate the use of available information, expertise and techniques for monitoring, decontamination and remediation both on and off nuclear sites and the IAEA Secretariat to consider strategies and programmes to improve knowledge and strengthen capabilities in these areas.** Member States, the IAEA Secretariat and other relevant stakeholders to facilitate the use of available information, expertise and techniques regarding the removal of damaged nuclear fuel and the management and disposal of radioactive waste resulting from a nuclear emergency.
- **Member States, the IAEA Secretariat and other relevant stakeholders to share information regarding the assessment of radiation doses and any associated impacts on people and the environment.**

Protection of people and the environment from ionizing radiation

- IAEA Expert Mission to Japan on remediation, 7 - 14 October 2011.
- The mission objectives were to:
 - i. Provide assistance to Japan in the plans to manage the remediation of large contaminated areas resulting from the accident;
 - ii. Review remediation related strategies, plans and work currently being undertaken by Japan; and
 - iii. Share findings and lessons learned with the international community.
- Preliminary Summary Report available on 14 October 2011; contains 9 Acknowledgements and 12 Advices.
- Final report available in November 2011 : report will be shared with Member States and the public.

Communication and information dissemination

Enhance transparency and effectiveness of communication and improve dissemination of information

- **Member States, with the assistance of the IAEA Secretariat, to strengthen the emergency notification system**, and reporting and information sharing arrangements and capabilities.
- **Member States, with the assistance of the IAEA Secretariat, to enhance the transparency and effectiveness of communication among operators, regulators and various international organizations**, and strengthen the IAEA's coordinating role in this regard, underlining that the freest possible flow and wide dissemination of safety related technical and technological information enhances nuclear safety.
- **The IAEA Secretariat and Member States, in consultation with the OECD/NEA and the IAEA International Nuclear and Radiological Event Scale (INES) Advisory Committee to review the application of the INES scale as a communication tool.**

Communication and information dissemination

- A new edition of the Emergency Notification and Assistance Technical Operations Manual (ENATOM) is being prepared.
- The Secretariat has initiated a review of the application of the International Nuclear and Radiological Event Scale (INES) as a communication tool.
- The development of additional guidance on the application of INES will begin in February 2012.
- Development of the Nuclear Safety Action Plan Website

Communication and information dissemination

IAEA Action Plan on Nuclear Safety: International Experts Meeting on “Reactor and Nuclear Fuel Safety in the Light of the Accident TEPCO’s Fukushima Daiichi Nuclear Power Station” Vienna, March 19 to 22 - 2012

- **Plenary session:** Updated lessons from the Fukushima accident
- **Parallel Sessions:** Re-evaluation of current design basis accidents, approaches to prevention and mitigation of consequences from severe accident initiating events and Severe accident management and analysis

Research and development

Effectively utilize research and development

- Relevant stakeholders, with assistance provided by the IAEA Secretariat as appropriate, to **conduct necessary research and development in nuclear safety, technology and engineering³, including that related to existing and new design-specific aspects.**
- Relevant stakeholders and the IAEA Secretariat to **utilize the results of research and development and to share them, as appropriate, to the benefit of all Member States.**

Research and development

- The Secretariat is developing a strategy to:
 - Identify existing research and development activities;
 - Involvement of NEA
 - Establishment of Technical Safety/Support Organisations Forum
 - Identify any gaps in these activities;
 - Define, in consultation with Member States, future research and development needs; and,
 - Facilitate information sharing on research and development.

Action Plan: Next Steps

- November 2011 Board of Governors;
- Develop a process for gathering activities of MS and other stakeholders in the frame of the NSAP, for further sharing with MS;
- March 2012 Board of Governors;
- The extraordinary meeting of the Contracting Parties to the Convention on Nuclear Safety (CNS) in 2012 will provide an opportunity to consider further measures to strengthen nuclear safety;
- Progress on the implementation of the Action Plan will be reported to the September 2012 Board of Governors;
- 56th General Conference 2012;
- Subsequently on an annual basis.

CONCLUSION

- The purpose of the Action Plan is to define a programme of work to strengthen the global nuclear safety framework
- The success of this Action Plan in strengthening nuclear safety is dependent on its implementation through the full cooperation and participation of Member States and will require also the involvement of many other stakeholders.



Thank you

