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Stress Tests Worldwide
IAEA Nuclear Safety Action Plan
Background

- IAEA Response to Accident
  - Fukushima Accident Coordination Team
  - IAEA Assessment and Monitoring Teams
  - IAEA International Fact Finding Expert Mission

- Ministerial Conference on Nuclear Safety
  - June 20 - 24, 2011
  - Report from the Government of Japan
  - Report from International Fact Finding Expert Mission
  - INSAG letter report recommendations

- IAEA General Conference
  - September 19 - 23, 2011
  - Supplemental report from the Government of Japan
  - IAEA Nuclear Safety Action Plan

- Nuclear Safety Action Team
IAEA Action Plan on Nuclear Safety

- Safety Assessments
- IAEA Peer Reviews
- Emergency Preparedness and Response
- National Regulatory Bodies
- Operating Organizations
- IAEA Safety Standards
- International Legal Framework
- Member States Planning to Embark on a Nuclear Power Program
- Capacity Building
- Protection of People and the Environment
- Communication and Information Dissemination
- Research and Development
In considering the Action Plan

- Responsibility for nuclear safety and response to nuclear emergencies lies with each Member State and operating organization.
- IAEA Safety Standards provide the basis for a high level of safety.
- Transparency in all aspects of nuclear safety, including information on nuclear emergencies and their radiological consequences is needed.
- Additional understanding of the accident will lead to updating the Action Plan.
Safety Assessments in Light of the Accident at TEPCO’s Fukushima Daiichi NPP

- Member States to undertake assessment
- IAEA Secretariat to develop a methodology for carrying out national assessments of the design of nuclear power plants against site specific extreme natural hazards
- IAEA Secretariat, upon request, to provide assistance and support in the implementation of a national assessment
- IAEA Secretariat, upon request, to undertake peer reviews of national assessments
Scope of Safety Assessments (Stress Tests)

- **Initiating events**
  - Earthquake
  - Flooding
  - Other extreme external events

- **Consequences of loss of safety functions**
  - Loss of electrical power, including SBO
  - Loss of ultimate heat sink
  - Combination of both

- **Severe accident management issues**
  - Protection and management of loss of core cooling
  - Protection and management of loss of spent fuel pool cooling
  - Protection and management of loss of containment integrity
IAEA Peer Reviews

- Strengthen existing IAEA peer reviews by incorporating lessons learned (IRRS, OSART, Design, EPREV)
- Member States to provide experts for peer review missions
- Enhance transparency by providing summary information on where and when IAEA peer reviews have taken place
- Make the results of such reviews publicly available 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
- IAEA Secretariat to assess, and enhance as necessary, the effectiveness of the IAEA peer reviews
Emergency Preparedness and Response

- Member States to conduct a prompt national review of their emergency preparedness and response arrangements and capabilities
- IAEA to provide support and assistance through Emergency Preparedness Review (EPREV) missions, as requested
- Review and strengthen the international emergency preparedness and response framework
- Strengthen the assistance mechanisms to ensure that necessary assistance is made available promptly
- Enhancing and fully utilizing the IAEA Response and Assistance Network (RANET), including expanding its rapid response capabilities
- Consider, on a voluntary basis, establishing national rapid response teams that could also be made available internationally through RANET
- IAEA, 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
National Regulatory Bodies

- Member States to conduct a prompt national review 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.

- IAEA Secretariat to enhance the Integrated Regulatory Review Service (IRRS) 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 IRRS mission to assess its national regulatory framework with a follow-up mission within three years of the IRRS mission.
Operating Organizations

- 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.

- 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.
IAEA Safety Standards

- 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

- IAEA Secretariat to continue providing support and assistance in the implementation of IAEA Safety Standards
International Legal Framework

- States parties to explore mechanisms to enhance the effective implementation of relevant conventions
  - Convention on Nuclear Safety
  - Convention on the Early Notification of a Nuclear Accident
  - Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- 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
Member States Planning to Embark on a Nuclear Power Programme

- Member States to create an appropriate nuclear infrastructure based on IAEA Safety Standards and other relevant guidance
- 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
Capacity Building

Member States with nuclear power programmes and those planning to embark on a nuclear power programme to strengthen, develop, maintain and implement their capacity building programs, with IAEA Secretariat assistance as requested

- Education, training and exercises at the national, regional and international levels
- Continuously ensure sufficient and competent human resources necessary to assume their responsibility for safe, responsible and sustainable use of nuclear technologies.
- 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
Protection of People and the Environment from Ionizing Radiation

- Member States, the IAEA Secretariat and other relevant stakeholders facilitate the use of available information, expertise and techniques
  - For monitoring, decontamination and remediation both on and off nuclear sites
  - For the removal of damaged nuclear fuel and the management and disposal of radioactive waste resulting from a nuclear emergency
  - To share information regarding the assessment of radiation doses and any associated impacts on people and the environment

- IAEA Secretariat to consider strategies and programmes to improve knowledge and strengthen capabilities in these areas
Communication and Information Dissemination

- Member States, with the assistance of the IAEA Secretariat
  - Strengthen the emergency notification system, and reporting and information sharing arrangements and capabilities
  - Enhance the transparency and effectiveness of communication among operators, regulators and various international organizations
  - Strengthen the IAEA’s coordinating role in this regard

- IAEA Secretariat to provide Member States, international organizations and the general public with information during a nuclear emergency on its potential consequences, including analysis of available information and prognosis of possible scenarios
Communication and Information Dissemination (continued)

● The IAEA Secretariat
  - To organize international experts meetings to analyse all relevant technical aspects and learn the lessons from the Fukushima Daiichi nuclear power station accident
  - To facilitate and to continue sharing with Member States a fully transparent assessment of the accident at TEPCO’s Fukushima Daiichi Nuclear Power Station, in cooperation with Japan

● 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
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 engineering, 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.
...Thank you for your attention

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