

# Board of Governors

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# Initial Progress in the Implementation of the IAEA Action Plan on Nuclear Safety

*Report by the Director General*

## **Introduction**

The purpose of this document is to inform the Board of Governors of the activities carried out by the Secretariat following the endorsement of the Action Plan on Nuclear Safety by the Agency's 55<sup>th</sup> General Conference in September 2011, and the announcement by the Director General, on 26 September 2011, of the formation of a Nuclear Safety Action Team to oversee the prompt implementation of the 'IAEA Action Plan on Nuclear Safety' (the Action Plan). The document covers the progress made so far in the implementation of activities arising from the actions in the Action Plan, namely:

- Safety assessments in the light of the accident at TEPCO's Fukushima Dai-ichi Nuclear Power Station;
- 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 programme;
- Capacity Building;
- Protection of people and the environment from ionizing radiation;
- Communication and information dissemination;
- Research and development.

Implementation of the Action Plan will require the full cooperation and participation of Member States and the involvement of many other stakeholders, each of which must play its part to ensure that the measures agreed in the Action Plan are implemented fully and quickly.

- The Secretariat will continue to keep the Board of Governors informed of the progress being made in the implementation of the Action Plan.



# Initial Progress in the Implementation of the IAEA Action Plan on Nuclear Safety

*Report by the Director General*

## **A. Background**

1. At the June 2011 IAEA Ministerial Conference on Nuclear Safety, a Ministerial Declaration was adopted which requested the Director General, inter alia, to prepare a draft Action Plan on Nuclear Safety. The draft Action Plan built on the Declaration by the IAEA Ministerial Conference, the conclusions and recommendations of the three conference working sessions, the IAEA Fact Finding Mission to Japan and the 2011 INSAG Letter Report to the Director General. Member States were engaged in two rounds of formal open ended consultations on the draft Action Plan, which took place on 18 and 25 August 2011; these consultations were followed by further intensive exchanges of views with Member States and other stakeholders.
2. The draft Action Plan was submitted to and adopted by the Board of Governors at its September 2011 meeting. The Action Plan was presented to the 2011 General Conference, where it was endorsed by all 151 Member States. The ultimate goal of the Action Plan is to strengthen nuclear safety worldwide.
3. While nuclear safety remains the responsibility of individual countries, the Agency will play a leading role in shaping a safer nuclear future throughout the world. The Director General announced, on 26 September 2011, the formation of a dedicated Nuclear Safety Action Team to ensure proper coordination among all stakeholders and to oversee the prompt implementation of the Action Plan.
4. The Nuclear Safety Action Team is developing an overall strategy to implement the activities within the scope of the Action Plan. These activities take into account the involvement of Member States, the Secretariat and stakeholders. A 'Core Group' for the Action Plan has been assembled, with representatives from all relevant Departments and Offices of the Secretariat.
5. The Secretariat will brief the Board of Governors on the initial progress on the Action Plan at the November 2011 and March 2012 meetings. A more comprehensive report will be presented to the Board of Governors at the June 2012 meeting, which takes place one year after the Ministerial Conference was held, and to the Board of Governors at the September 2012 meeting, one year after the Action Plan was adopted.
6. The Secretariat is developing a Nuclear Safety Action Plan web site to report on the status of the actions and their associated activities. Updates on the accident at TEPCO's Fukushima Dai-ichi Nuclear Power Station will be part of this web site, as well as information relating to emergency preparedness, legal instruments and access to other pertinent documents. The web site will provide information to the public as well as access to more detailed information for Member States, and is due to be completed in November 2011.

## **B. Initial Progress in Implementation of the IAEA Action Plan on Nuclear Safety**

### **B.1. Safety assessments in the light of the accident at TEPCO's Fukushima Dai-ichi Nuclear Power Station**

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

7. The Secretariat, taking into account existing experience, has developed a methodology for assessing the safety vulnerabilities of a nuclear power plant based on the IAEA Safety Standards. The methodology is now available for Member States, which may wish to use it in carrying out their national assessments. The methodology provides Member States with a step-wise approach to completing a systematic analysis of the impact of extreme natural hazards at a nuclear power plant. It has as its starting point the identification of extreme natural hazards that may have an impact on the safety of the nuclear power plant and the consequent hazards that may result from these events. The methodology focuses on the assessment of the plant response to these extreme natural hazards and provides practical methods to assess whether the structures, systems and components and operator actions required to fulfil the necessary safety functions are resilient to the extreme events under consideration. The methodology allows Member States to consider options to enhance the robustness of the plant. It will be available on the Nuclear Safety Action Plan web site as of November 2011.

8. The Agency is in the process of extending its design review service to include modules for the peer review of national assessments that have been carried out by Member States. This service uses the Safety Requirements and Guides of the IAEA Safety Standards Series to focus on the design and safety assessment aspects of protection against extreme events, including defence in depth, safety margins, robustness, cliff edge effects, multiple failures, the prolonged loss of essential systems and recovery actions carried out by the plant operators.

### **B.2. IAEA peer reviews**

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

9. The Secretariat has compiled information on where and when IAEA peer reviews have taken place in the past and those peer reviews planned for the near future. This information will be available on the Nuclear Safety Action Plan website in November 2011.

10. The following information summarizes the IAEA peer review activities:

- Operational Safety Review Team (OSART) missions have been performed since 1983, with over 160 missions to date. In recent years, there have been typically 5–6 OSART missions per year, including follow-up missions.
- The Integrated Regulatory Review Service (IRRS) was set up in 2006. There have been 31 missions to date, with between 3 and 6 missions typically conducted per year, including follow-up missions.
- Emergency Preparedness Review (EPREV) missions were established in 2004; there have been 20 missions to date, with 4–6 missions typically conducted per year, including follow-up missions.
- Safety Review Services involving design, assessment and site evaluations are arranged through several different types of mission. The Agency has initiated a review of these missions, using a modular approach, to provide a single, consolidated and comprehensive service.

### **B.3. Emergency preparedness and response**

*Strengthen emergency preparedness and response*

11. A meeting to discuss the extension of assistance capabilities under the IAEA Response Assistance Network (RANET) is planned for early in 2012. The effectiveness of the Response and Assistance Network and the Emergency Notification and Assistance Technical Operations Manual

(ENATOM) will also be discussed at this meeting. The development of operational arrangements for the deployment of fact-finding missions in the event of a nuclear emergency with the consent of the State concerned has been initiated.

12. The Secretariat has initiated a review of its capabilities and arrangements in the event of a nuclear or radiological emergency.

13. The following planned activities have been either rescheduled or modified following the adoption of the Action Plan:

- A workshop on developing operational arrangements and reporting processes for the Agency's Response Assistance Network Field Assistance Teams was brought forward, taking place on 17–21 October 2011.
- A meeting of the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE) will be held from 8 to 9 December 2011. Several intergovernmental organizations, which are currently not members of the IACRNE, have been invited and encouraged to become participating organizations. The meeting will provide, inter alia, an opportunity to discuss the effectiveness of the Joint Radiation Emergency Management Plan of the International Organizations (JPlan) and other areas of inter-agency cooperation.

#### **B.4. National regulatory bodies**

##### *Strengthen the effectiveness of national regulatory bodies*

14. As a means of enhancing the Integrated Regulatory Review Service (IRRS), the United States Nuclear Regulatory Commission (NRC), in cooperation with the Secretariat, hosted a workshop on the lessons learned from the IRRS missions carried out during the past four years. The workshop was held in Washington, D.C., from 26 to 28 October 2011, and was attended by about 60 senior regulators from 22 Member States.

15. The workshop provided a platform for the exchange of information, experience and lessons learned from the IRRS missions, as well as expectations for the IRRS programme for the near future. Further improvements in the planning and implementation of IRRS missions in the longer term were discussed. A strong commitment of all relevant national authorities to the IRRS programme was identified as a key element of an effective regulatory framework.

16. Representatives of Member States expressed their full support for the continuation of the IRRS programme. The benefits of the service, including the self-assessment phase and the peer review itself, were recognized. It was concluded that IRRS missions are a powerful tool for regulatory improvement, disseminating good practices, increasing public confidence and initiating international exchange of experience. It was also noted that all IRRS reports have been made available to the public and that they will continue to be accessible through the Action Plan website.

17. A specific Fukushima module was incorporated into the scope of IRRS missions to take account of the initial regulatory implications of the accident. It was commended by participants. This module is part of the IRRS policy discussions and will be updated as further lessons will be learned. Considering the current demand for IRRS missions, it was concluded that there is a need for an increase in Agency resources to deal with the current and future demand for these missions and for continued Member State support in this regard.

#### **B.5. Operating organizations**

##### *Strengthen the effectiveness of operating organizations with respect to nuclear safety*

18. The World Association of Nuclear Operators (WANO) and the Agency share the goal of maximizing the safety and reliability of nuclear power plants worldwide. The level of interaction and cooperation between the two organizations is set out in a Memorandum of Understanding (MoU) that

has, until now, focused on: sharing information of mutual interest; attending each other's workshops and technical and consultancy meetings; and participating in some expert missions together. A senior level meeting between the Agency and WANO on the amendment to the MoU is scheduled for December 2011.

19. The Director General attended the WANO Biennial General Meeting on 'WANO after Fukushima: Strengthening Global Nuclear Safety', held in Shenzhen, China, in October 2011. He welcomed greater WANO participation in Agency activities, particularly in the area of the development of the IAEA Safety Standards, where WANO, as a representative of the operating organizations, is in a position to provide valuable input. The Director General stated that, in the future, WANO representatives should attend meetings of the Agency's Nuclear Safety Standards Committee as an observer. He also stated that the two organizations should continue to exchange information regarding the results of their respective peer review activities, where confidentiality constraints permit, and improve the coordination of these missions to avoid scheduling WANO Peer Reviews and Agency OSART missions too close together.

#### **B.6. IAEA Safety Standards**

*Review and strengthen the IAEA Safety Standards and improve their implementation*

20. The Secretariat has established a Safety Standards Review Task Force (SSRTF), which has developed a draft Safety Standards Action Plan specifically to review the IAEA Safety Standards. The review will cover, as a first priority, the set of Safety Requirements, particularly those applicable to nuclear power plants and the storage of spent fuel. This will include the set of General Safety Requirements and the Specific Safety Requirements relating to site evaluation for nuclear installations and design, commissioning and operation of nuclear power plants. The draft Safety Standards Action Plan also includes options for a more efficient process for revising IAEA Safety Standards.

21. The draft Safety Standards Action Plan was submitted for review to the four Safety Standards Committees and the Commission on Safety Standards in September 2011. At the Commission on Safety Standards meeting in November 2011, the draft proposed by the Secretariat was well received and adopted by CSS, while noting that this Safety Standards Action Plan will be a 'living' document. The plan will be continuously updated to reflect new lessons learned from the accident at TEPCO's Fukushima Dai-ichi Nuclear Power Station, relevant conclusions from the Extraordinary Meeting of the Contracting Parties to the Convention on Nuclear Safety and initiatives taken by other international organizations in this regard.

22. For structuring the review of the safety standards, 77 topical areas have been selected and included in the draft Safety Standards Action Plan. The Secretariat has prepared proposals for the review of the following Safety Requirements: GSR Part 1 — Governmental, Legal and Regulatory Framework for Safety; GS-R-2 — Emergency Preparedness and Response for a Nuclear or Radiological Emergency; GSR Part 3 — Radiation Protection and Safety of Radiation Sources (International BSS); GS-R-3 — Management System for Facilities and Activities; NS-R-3 — Site Evaluation for Nuclear Installations; SSR-2/2 — Safety of Nuclear Power Plants: Commissioning and Operation; GSR Part 4 — Safety Assessment for Facilities and Activities; and SSR-2/1 — Safety of Nuclear Power Plants: Design. A draft report on the review of the IAEA Safety Standards will be prepared and submitted to the Commission on Safety Standards in March 2012, after prior consideration by the Safety Standards Committees.

#### **B.7. International legal framework**

*Improve the effectiveness of the international legal framework*

23. Contracting Parties to the Convention on Nuclear Safety agreed at the fifth Review Meeting of the Convention to hold a five day Extraordinary Meeting from 27 to 31 August 2012 "...to enhance safety through reviewing and sharing lessons learned and actions taken by Contracting Parties in response to events at Fukushima and to review the effectiveness and, if necessary, the continued suitability of the provisions of the Convention on Nuclear Safety". In preparation for the Extraordinary

Meeting, the General Committee of the fifth Review Meeting met on 20 September 2011. The Committee agreed, inter alia, on the structure of, and topics for, the Extraordinary Meeting, which will also provide an opportunity for the Contracting Parties to consider formal proposal(s) to amend the Convention (to date the only formal proposals to amend the Convention are those proposed by the Russian Federation and circulated to the Contracting Parties by the Director General as depositary for the Convention on 2 August 2011). The proposal for the structure of the Extraordinary Meeting was circulated to the Contracting Parties by the President of the fifth Review Meeting on 31 October 2011.

24. The General Committee of the fourth Review Meeting of the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management will consider, at its next meeting, in March 2012, the effectiveness of this convention with a view to recommending proposals to be considered at the fourth Review Meeting, to be held in May 2012.

25. The Sixth Meeting of Representatives of the Competent Authorities identified under the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency is planned for April 2012. The meeting will provide, inter alia, an opportunity to discuss the effectiveness of these conventions.

26. The Secretariat, together with the Chairman of the International Expert Group on Nuclear Liability (INLEX), recently undertook an initial review of its current membership, as well as its past and on-going activities. This initial review identified a number of key areas and related actions which will provide a basis for developing a future IAEA-INLEX strategy for the period from November 2011 to July 2012.

27. Since the adoption of the Action Plan, the following actions were undertaken by Member States with respect to the nuclear safety and liability conventions:

- Three Member States deposited their respective instruments to join the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management;
- Two Member States deposited their respective instruments to join the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency;
- One Member State deposited its instrument to join the Convention on Early Notification of a Nuclear Accident;
- One Member State signed the Convention on Supplementary Compensation for Nuclear Damage.

The actions of two of the Member States were carried out during the first ever 'IAEA Treaty Event', organized by the Secretariat on the sidelines of the 55<sup>th</sup> Regular Session of the General Conference. The event, which is also expected to take place on the sidelines of next year's Regular Session, was designed to promote the universal adoption of international treaties related to nuclear safety, security and liability for nuclear damage for which the Director General is depositary.

The first annual session of the Nuclear Law Institute (NLI) is being organised by the Office of Legal Affairs in Vienna from 19 November to 3 December 2011. The two week course was established in order to meet the increasing demand for legislative assistance by Member States. Approximately 60 representatives from Member States are expected to participate. Utilising modern teaching methods based on interaction and practice, the training course will address all areas of nuclear law, including, the conventions identified in the Action Plan, as well as those on nuclear security and liability.

## **B.8. 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*

28. The Secretariat has initiated an update of the existing nuclear power national infrastructure evaluation methodology, which is described in the Integrated Nuclear Infrastructure Review (INIR) guidelines available to Member States. The update will incorporate lessons learned from the previous missions as well as from the accident at TEPCO's Fukushima Dai-ichi Nuclear Power Station. An annual workshop on nuclear power infrastructure is planned for 24–27 January 2012 for countries embarking on a nuclear power programme.

29. The Secretariat has compiled the information on where and when Integrated Nuclear Infrastructure Review (INIR) missions have taken place in the past and those missions planned for the near future. This information will be available on the Nuclear Safety Action Plan web site in November 2011.

## **B.9. Capacity Building**

*Strengthen and maintain capacity building*

30. The Secretariat has created a working group to assist Member States in strengthening and maintaining their capacity building programmes considering the main issues in the areas of education and training, human resources, knowledge management and knowledge networks. It is also undertaking the development of self-assessment methodology for capacity building programmes.

## **B.10. 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*

31. Upon the request of the Japanese Government, the Agency dispatched an International Expert Mission on remediation of large contaminated areas around TEPCO's Fukushima Dai-ichi Nuclear Power Station. The mission, a follow-up of the fact finding mission held earlier in the year, comprised 12 international and Agency experts from several countries, who were in Japan from 7 to 14 October 2011.

The main objectives of the Mission were to:

- (a) Provide assistance to Japan in the plans to manage the remediation of large contaminated areas resulting from the accident at TEPCO's Fukushima Dai-ichi Nuclear Power Station;
- (b) Review remediation related strategies, plans and work, including contamination mapping, currently being undertaken by Japan;
- (c) Share findings and lessons learned with the international community.

32. The team conducted meetings in Tokyo and at the Fukushima Prefecture, with Japanese officials from several Ministries and institutions, to discuss issues on regulatory arrangements, on remediation techniques and strategies for settlements and agricultural land, on food safety, and on waste management. The team had the opportunity to visit demonstration projects where the technical feasibility and effectiveness of remediation actions are being tested under field conditions. In this Mission, the team focused on the remediation activities in the affected areas outside the 20 km Fukushima restricted area.

33. The team appreciated that Japan has made rapid progress with the allocation of the necessary resources to develop an efficient programme for remediation, and that the Japanese Government has already started to implement stakeholder involvement arrangements that will be included in planned future regulatory requirements.

34. A preliminary summary report was submitted to the Japanese authorities on 14 October 2011. The report presents an overview of the main results and conclusions of the Mission, including 12 points of advice and 9 acknowledgements, considering strategic plans and specific techniques for remediation, taking into account both the international standards and the experience from remediation programmes in other countries. The final report will be provided to the Japanese authorities in November 2011 and will subsequently be shared with Member States and the public.

#### **B.11. Communication and information dissemination**

##### *Enhance transparency and effectiveness of communication and improve dissemination of information*

35. A new edition of the Emergency Notification and Assistance Technical Operations Manual (ENATOM) is being prepared to reflect the Unified System for Information Exchange in Incidents and Emergencies (USIE), a new streamlined, web based tool for communication that has been in operation since June 2011. Until now, only half of all national contact points use registered USIE user accounts.

36. The Secretariat has initiated a review of the application of the International Nuclear and Radiological Event Scale (INES) as a communication tool during the accident at TEPCO's Dai-ichi Nuclear Power Station; the INES Advisory Committee provided input to the review during a meeting held on 10 October 2011. The Committee suggested the need to develop additional guidance on the application of INES; it also suggested that a compilation of frequently asked questions that arose from those Member States applying INES following the accident would provide a sound basis for the revision of the application of INES. The need to discuss the rating of aquatic releases was also identified by the INES Advisory Committee. The development of the additional guidance on the application of INES will begin in February 2012.

#### **B.12. Research and development**

37. The Secretariat is developing a strategy to identify those Member States and other relevant stakeholders who are carrying out research in connection with nuclear safety, technology and engineering, and new design specific aspects. The aim of this strategy is to allow the Secretariat to identify existing research and development activities that have arisen from the accident at TEPCO's Fukushima Dai-ichi Nuclear Power Station, to facilitate information sharing, to identify any gaps in these activities, and to define, in consultation with Member States, future research and development needs.