IAEA Action Plan on Nuclear Safety[1]

In June 2011 a Ministerial Conference on Nuclear Safety was convened to direct, under the leading role of the IAEA, the process of learning and acting upon lessons following the accident at TEPCO's Fukushima Daiichi Nuclear Power Station in order to strengthen nuclear safety, emergency preparedness and radiation protection of people and the environment worldwide. At the conference a Ministerial Declaration was adopted which inter alia:

- "Requested the IAEA Director General to prepare a Report on the June 2011 IAEA Ministerial Conference on Nuclear Safety and a draft Action Plan, building on the Declaration of the Ministerial Conference and the conclusions and recommendations of the three Working Sessions, and the expertise and knowledge available therein, and to promote coordination and cooperation, as appropriate, with other relevant international organizations to follow up on the outcomes of the Conference, as well as facilitate consultations among Member States on the draft Action Plan";
- "Requested the IAEA Director General to present the Report and the draft Action Plan covering all the relevant aspects relating to nuclear safety, emergency preparedness and response, and radiation protection of people and the environment, as well as the relevant international legal framework, to the IAEA Board of Governors and the General Conference at their forthcoming meetings in 2011";
- "Called upon the IAEA Board of Governors and the General Conference to reflect the outcome of the Ministerial Conference in their decisions and to support the effective, prompt and adequately resourced implementation of the Action Plan".

In considering this Action Plan, it is important to note that:

- The responsibility for ensuring the application of the highest standards of nuclear safety and for providing a timely, transparent and adequate response to nuclear emergencies, including addressing vulnerabilities revealed by accidents, lies with each Member State and operating organization.
- The IAEA Safety Standards provide the basis for what constitutes a high level of safety for protecting people and the environment from harmful effects of ionizing radiation, and will continue to be objective, transparent and technologically neutral.
- Transparency in all aspects of nuclear safety through timely and continuous sharing and dissemination of objective information, including information on nuclear emergencies and their radiological consequences, is of particular importance to improve safety and to meet the high level of public expectation. Nuclear accidents may have transboundary effects; therefore it is important to provide adequate responses based on scientific knowledge and full transparency.

---

[1] The Action Plan was approved by the IAEA Board of Governors on 13 September 2011, as endorsed by the IAEA General Conference during its 55th regular session on 22 September 2011.

- As understanding of the accident develops, additional analysis of the root causes will be carried out. Further lessons may be learned and, as appropriate, be incorporated into the proposed actions by updating the Action Plan. The High Level Conference to be organized by Japan and the IAEA in 2012 will provide an opportunity for learning further lessons and for enhancing transparency.
- The Agency's prompt and effective implementation of activities under the Action Plan will be funded through prioritization and continuing efficient use of resources from the regular budget, and through voluntary contributions of extrabudgetary resources.

The purpose of the Action Plan is to define a programme of work to strengthen the global nuclear safety framework. The plan consists of actions building on the Ministerial Declaration, the conclusions and recommendations of the Working Sessions, and the experience and knowledge therein, including the INSAG letter report (GOVINF/2011/11), and the facilitation of consultations among Member States.

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[2]. They are therefore encouraged to work cooperatively to implement the Action Plan to maximize the benefit of the lessons learned from the accident and to produce concrete results as soon as possible. Progress on the implementation of the Action Plan will be reported to the September 2012 meeting of the Board of Governors and the 2012 General Conference and subsequently on an annual basis as may be necessary. In addition, 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.

Strengthening nuclear safety in light of the accident is addressed through a number of measures proposed in this Action Plan including 12 main actions, each with corresponding sub-actions, focusing on: safety assessments in the light of the accident at TEPCO's Fukushima Daiichi 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; and 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.

---

[2] Stakeholders include, amongst others, governments, relevant international organizations and associations, regulatory bodies, operating organizations, nuclear industry, radioactive waste management organizations, technical support and safety organizations, research organizations, education and training institutions and other relevant bodies.

- The IAEA Secretariat, upon request, to undertake peer reviews of national assessments and to provide additional support to 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.

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, taking into account recommendations given in the final report of the International Action Plan for Strengthening the International Preparedness and Response System for Nuclear and Radiological Emergencies, and encouraging greater involvement of the relevant international organizations in the Joint Radiation Emergency Management Plan of the International Organizations.
- 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.

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.

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.

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[3] 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.

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.

---

[3] This review could include, inter alia, regulatory structure, emergency preparedness and response, nuclear safety and engineering (site selection and evaluation, assessment of extreme natural hazards including their combined effects, management of severe accidents, station blackout, loss of heat sink, accumulation of explosive gases, nuclear fuel behaviour and ways to ensure the safety of spent fuel storage).

- 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.

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.

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.

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.

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 to provide Member States, international organizations and the general public with timely, clear, factually correct, objective and easily understandable information during a nuclear emergency on its potential consequences, including analysis of available information and prognosis of possible scenarios based on evidence, scientific knowledge and the capabilities of Member States.

- 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.

- The IAEA Secretariat 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.

- 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.

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 engineering[4], 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.

---

[4] For example, extreme natural hazards, management of severe accidents, station blackout, loss of heat sink, feed and bleed system, containment venting system, structural integrity of containment building and spent fuel pool structure and behaviour of fuel assembly, and post-accident monitoring system under extreme harsh environment