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Measures to Strengthen International Cooperation in Nuclear, Radiation, Transport and Waste Safety

Building on the Action Plan on Nuclear Safety

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General Conference Resolutions GC(59)/RES/9 and GC(60)/RES/9



IAEA General Conference Resolutions 2015 and 2016 requested the Agency to **continue to build upon**

- The 2011 Action Plan on Nuclear Safety;
- The experience of States in implementing the Action Plan;
- The observations and lessons contained in the IAEA Fukushima Report;
- The principles of the Vienna Declaration;

and **use them for defining its nuclear safety strategy and its programme of work.**

The Agency's Response

The Agency issued **GOV/INF/2016/10** in response to the 2015 Resolution.

GOC/INF/2016/10 states that the Agency will consider how to strengthen nuclear, radiation, transport and waste safety in a **more comprehensive manner** including aspects related to:

- Extending the operating life of NPPs;
- Decommissioning of facilities;
- Disposal of high level radioactive waste;
- Innovative technologies e.g. fast reactors and small and medium sized or modular reactors; and
- The safety of radiation sources used in non-power applications.

The Agency will work to foster a **strong safety culture**.

The Agency's Response - Continued



GOV/INF/2016/10 describes a methodology developed by the Agency for:

- Systematic analysis of observations and lessons **to identify priority safety aspects**;
- **Assessment** of safety aspects across nuclear, radiation, transport and waste safety;
- Determination of the extent to which these safety aspects are covered by current activities;
- **Identification of priorities for the Agency's nuclear safety strategy and programme of work**;
- Implementation.

Implementation of this methodology involves **cross-Departmental cooperation** that will be coordinated by the Department of Nuclear Safety and Security.

Identification of Observations and Lessons

The Agency assessed observations and lessons identified through:

- The implementation of the Action Plan;
- The IAEA Fukushima Report;

The Agency will also identify and assess lessons from the international framework for safety, including the Vienna Declaration. It has also initiated the identification of lessons from the **full range of its activities** related to nuclear, radiation, transport and waste safety.

Lessons Learned from the Implementation of the Action Plan

- IAEA Activities carried out under 12 main actions:
 - 9 International Experts' Meetings (IEMs) and related reports;
 - Missions to Japan;
 - Completed the systematic review of the relevant Safety Requirements publications;
 - Assessed and enhanced the effectiveness of the Agency peer reviews.
- Member States reported on:
 - National assessments of vulnerabilities of NPPs;
 - Activities to review and strengthen EPR, use of Agency safety standards and enhancements and expansion of their environmental radiation monitoring and measuring capabilities;
 - Detailed information on implementation of Action Plan.
- Director General's final report on the Action Plan
 - September 2015;
 - Summary of progress presented in the Supplementary Information.

Observations and Lessons from the IAEA Fukushima Report



- The report by the Director General and the five technical volumes provide
 - A description of the accident and its causes, evolution and consequences.
- The report
 - Considered the vulnerability of the Fukushima Daiichi NPP to external events, including accident management, regulatory effectiveness, and human and organizational factors, including safety culture;
 - Considered the EPR arrangements of Japan and the international response to the accident, including that of the Agency and other relevant international organizations;
 - Analysed and addressed the consequences associated with the release of radioactive materials and the post-accident recovery, including the remediation of contaminated areas and on-site stabilization and preparation for decommissioning.
- The report and the technical volumes identify more than **100 observations and lessons** in all the areas above, which provides a solid knowledge base to support strengthening nuclear safety throughout the world.

Lessons from the International Framework for Safety, Including the Vienna Declaration

- The Convention on Nuclear Safety;
 - The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management;
 - The Code of Conduct on the Safety and Security of Radioactive Sources;
 - The Guidance on the Import and Export of Radioactive Sources; and
 - The Code of Conduct on the Safety of Research Reactors.
- The Agency is considering the **Vienna Declaration on Nuclear Safety**, which includes **principles** to guide the Contracting Parties, as appropriate, in the implementation of the third objective of the Convention on Nuclear Safety, which is:
 - To prevent accidents with radiological consequences and to mitigate such consequences should they occur.

Lessons from the Agency's Activities in Nuclear, Radiation, Transport and Waste Safety

- In addition to the request of the Resolution the Agency has started the identification of lessons from its activities on **nuclear, radiation, transport and waste safety**. This includes the following:
 - Peer review and advisory services;
 - Expert missions;
 - The work of advisory groups;
 - Sources of expertise such as major international and regional; conferences, meetings and workshops.

Lessons from the Agency's Activities in Nuclear, Radiation, Transport and Waste Safety - Continued



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The Agency has started the identification of lessons from its activities in relation to:

- Safety of extending the operating life of NPPs;
- Decommissioning of facilities and environmental remediation;
- Disposal of high level radioactive waste;
- Research reactor utilization;
- Safety of nuclear fuel cycle facilities;
- Radiation protection of workers;
- Wider use of new technologies using sealed radioactive sources;
- Transport of sources within and across national borders;

The Agency is also identifying lessons to enhance its work to foster a strong safety culture for the full range of its activities to strengthen nuclear, radiation, transport and waste safety.

The Agency's Comprehensive Response

- Following the Fukushima Daiichi accident the initial focus was on NPP safety
 - Identification and implementation of lessons.
- Consider strengthening nuclear, radiation, transport and waste safety in a **more comprehensive** manner by:
 - Identifying observations and lessons that are **not limited** to the Fukushima Daiichi Accident;
 - Assessment of observations and lessons across Agency activities in **nuclear, radiation, transport and waste safety**.

Methodology for Systematic Analysis and Prioritization

- Systematic analysis **to identify priority safety areas** from all observations and lessons including:
 - Action Plan;
 - The IAEA Fukushima Report;
 - International framework for safety, including the Vienna Declaration;
 - Lessons from the full range of Agency activities in nuclear, radiation, transport and waste safety.
- Analysing the extent to which these aspects are covered by current activities **to identify priorities** to respond to the request by the General Conference to define the Agency's nuclear safety strategy and its programme of work.

Methodology for Systematic Analysis and Prioritization - Continued

- The prioritization of Agency activities will recognize:
 - Member States' needs;
 - Challenges identified in the Nuclear Safety Review;
 - Insights from the international legal and non-binding instruments;
 - Guidance and recommendations from relevant advisory bodies on nuclear safety, as well as insights from Technical Meetings organized by the Agency.

Implementation

- **Safety Standards and Their Application**
 - The analysis will be used to further strengthen the Agency's safety standards;
 - Support will continue to be provided to Member States in their application.
- **Peer Review and Advisory Services**
 - The Agency will continue to provide peer reviews for Member States emphasizing the importance of self-assessment, timely follow-up missions, completion of related action plans, and open and transparent reporting;
 - The analysis will be used to continue to enhance the effectiveness and efficiency of the peer review and advisory services.
- **International Cooperation**
 - The Agency will organize and conduct Technical Meetings and conferences to address the identified safety aspects, as appropriate, in order to share experiences and information amongst Member States.

Implementation - Continued

- **Capacity Building**

- The Agency will use the results of the analysis to prioritize its work aimed at improving support for capacity building on nuclear, radiation, transport and waste safety.

- **Research and Development in Nuclear Safety and Technology**

- The Agency will continue to promote, summarize, collect and disseminate R&D information to Member States to support the enhancement of their technical capabilities and will strengthen its interaction with Member States and with other international organizations.

Application of the Methodology

- **Statement of the lesson/observation;**
- **Consideration of applicability to nuclear, radiation, transport and waste safety;**
- **Determination of priority safety aspects;**
- **Assessment of the extent of coverage:**
 - Full
 - Partial
 - None
- **Identification of further activities;**
- **Identification of the means of implementation.**

Progress

- The Secretariat is applying the methodology to systematically analyse all observations and lessons **in order to identify priority safety aspects.**
- The methodology is being applied to the **full range** of Agency activities in nuclear, radiation, transport and waste safety to identify additional priority safety aspects.
- The extent to which all these safety aspects are covered by current activities is being analysed to identify priority areas to respond to the request by the General Conference to define the Agency's nuclear safety strategy and its programme of work.

Priority safety areas

- Improving radiation, transport and waste safety
 - Radiation protection of patients, workers and the public
 - Control of radiation sources
 - Safe transport of radioactive material
 - Decommissioning, spent fuel management and waste management trends
 - Radiation protection of the environment and remediation
- Strengthening safety in nuclear installations
 - Nuclear power plant safety, including site and design safety; operating experience; long term operation; severe accident prevention and mitigation
 - Small and medium sized reactor safety
 - Research reactor safety
 - Fuel cycle facility safety
 - Safety infrastructure for embarking countries, including nuclear power programmes and research reactor programmes
- Strengthening emergency preparedness and response
 - Arrangements for information exchange, communication and assistance
 - Harmonization of arrangements for preparedness and response
 - Testing readiness for response
- Improving management of the safety and security interface
- Strengthening civil liability for nuclear damage

Priority safety areas - Continued

- Cross-cutting topics:
 - Capacity Building: Education and Training and Human Resources Development
 - Safety Culture, Leadership and Management for Safety
 - Communication on Safety
 - Regulatory Effectiveness
 - Agency Safety Standards, Peer Reviews and Advisory Services
 - Promotion of Research and Development for Safety
 - Promoting the International Conventions
 - International Cooperation

Reporting

The Secretariat will report progress **annually**:

- To the Board of Governors in March
- To the Board of Governors and the General Conference in September

Reporting will commence **in March 2017**.

Reporting - Continued

- The *Nuclear Safety Review 2017* surveys the dominant safety trends around the world in 2016;
- It also presents the results of the Agency's efforts to define its nuclear safety priorities to strengthen the global nuclear safety framework;
- Structure:
 - Trends;
 - Activities in 2016;
 - Priorities and related activities.
- The *Nuclear Safety Review 2017* will be submitted to the March BOG for discussion and provided as an information document at the 61st regular session of the General Conference.



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Thank you!