

International Conference on Effective Nuclear Regulatory Systems

-Transforming Experience into Regulatory Improvements-

Ottawa, Canada
8–12 April 2013

Opening Plenary

This International Conference on Effective Nuclear Regulatory Systems continues the tradition established by the two preceding conferences on this subject, held in Cape Town in 2009 and in Moscow in 2006. This type of conference plays a vital role in global efforts undertaken by senior nuclear safety and security regulators to review issues and lessons learned, and to transform experience into regulatory improvements, focusing on the key role of regulators in ensuring safety and security. This is the first conference dealing with regulatory aspects of nuclear safety and lessons learned following the accident at the Fukushima Daiichi nuclear power plant (hereinafter referred to as the Fukushima Daiichi accident) on 11 March 2011.

The opening session included addresses by Y. Amano, IAEA Director General (by video message); S. Dupont, Deputy Minister of Natural Resources Canada, on behalf of the host country; and T. Varjoranta, Conference President and Director General of the Radiation and Nuclear Safety Authority (STUK) of Finland. Opening presentations were delivered by D. Flory, IAEA Deputy Director General and Head of the Department of Nuclear Safety and Security, and by V. Bezzubtsev, Deputy Head of the Federal Service for Environmental, Technological and Nuclear Supervision of the Russian Federation.

The opening addresses and presentations covered broad areas of safety regulation from national and international perspectives, including lessons learned from the Fukushima Daiichi accident and regulatory activities carried out as part of the IAEA Action Plan on Nuclear Safety (hereinafter referred to as the Action Plan).

Reference was made to the contribution of the Action Plan to regulatory aspects of nuclear safety; the contribution of the IAEA international experts meetings (IEMs) to the analysis, broadly used by regulators, of all technical aspects of the Fukushima Daiichi accident; and the importance of providing assistance to Member States embarking on a nuclear programme and establishing a regulatory framework. Regulators were encouraged to elaborate a National Action Plan along the lines of the IAEA Action Plan, and to share it with the international nuclear community, in order to contribute to a more transparent and effective regulatory system.

The Fukushima Daiichi accident demonstrated the importance of establishing an effective nuclear safety regulatory framework, including a regulatory body that is independent, effective, credible, trusted, competent and adequately resourced. IAEA Integrated Regulatory Review Service (IRRS) peer reviews

are a key contributor to enhanced regulatory effectiveness, as demonstrated by the many IAEA Member States providing key recommendations on national regulatory systems and sharing good practices.

Actions involving substantial efforts and resources are being taken to understand what happened, and why, during the Fukushima Daiichi accident. ‘Stress tests’ with a variety of scopes have been carried out in all nuclear power plants in the world. Key technical areas important to strengthening reactor and spent fuel safety have been addressed. A large amount of solid, professional analysis has been done, is under way or is planned. Such effort is an ongoing process: a lot has been done, and much still remains to be done

The Fukushima Daiichi accident changed the nuclear safety paradigm and demonstrated to the world that major lapses in the nuclear safety regime can have catastrophic impacts, displacing people from their homes and livelihoods, and impacting the international economy and global economic and political stability. It demonstrated that nuclear accidents do not recognize borders. It increased public concerns about the safety of nuclear activities. It also provided clear evidence that all accountability gaps in the international nuclear framework must be addressed. The IAEA, nuclear regulatory bodies and nuclear operators must continue to respond aggressively in implementing lessons learned from the Fukushima Daiichi accident.

The experience during and after the Fukushima Daiichi accident reinforced the need for communication among regulators, operators, the nuclear community and the general public. New information technologies provide both opportunities and challenges. With new forms of social media, for example, information — and misinformation — spreads fast and wide, and the people using these media control and generate most of the content, and thus have an impact on its quantity and quality. Even if the health effects of radiation from an accident are low, previous accidents have shown that the psychological effects can be severe and can persist long after the acute accident phase has passed. Communicating with all stakeholders, in particular with the public, should be a strategic priority.

There was a general consensus on the need to ensure that recommendations from this and previous conferences are tracked and ultimately fully carried out. In this regard, there was recognition of the success of the implementation of the Regulatory Cooperation Forum under the auspices of the IAEA since the previous conference on regulatory effectiveness in 2009. The recommendations from the 2009 conference were being implemented and followed up on when the Fukushima Daiichi nuclear accident occurred in March 2011. Participants agreed that recommendations and actions from this conference will ideally be integrated into the IAEA Action Plan on Nuclear Safety and be subject to follow-up measures.

Following the opening remarks and plenary presentations, several discussions were held in a keynote panel on “Awareness of Safety at a National Level”. One of the most difficult challenges is how to address the issue of national regulatory sovereignty versus the international community’s collective responsibility to ensure that there are no other nuclear accidents. It is incumbent on Governments, regulatory bodies, international organizations and the private sector to demonstrate collective responsibility and leadership in ensuring that nuclear safety continues to be strengthened and that follow-up actions continue to be robust, effective and transparent.

Some countries have committed to, adopted and published a National Action Plan to improve safety after the Fukushima Daiichi accident. Such plans include principles and goals, tasks, and implementation measures for safety improvements in the short and long term.

Independent of the political decision to start, continue or abandon nuclear power in the long term, there is a strong need for continued commitment to ensuring the highest safety standards for nuclear power plants throughout their operating life. This underscores the importance of early preparation of the fundamental building blocks of a nuclear regulatory system, including legislation, competence, authority, management systems, and integration of safety, safeguards and security. Greater international cooperation is vital, including closer collaboration among regulators and regional and international organizations. The importance of joining relevant international nuclear conventions and treaties concerning safety, security, and safeguards and non-proliferation should be clearly emphasized.

While recognizing that safety is a national responsibility, regional arrangements are important in helping to establish the conditions for continuous improvement of safety. Such arrangements are aimed at furthering a common approach where this could add value to the safety of nuclear installations and the safety of the management of spent fuel and radioactive waste, and at financing the decommissioning of nuclear installations.

Recognizing that operators have primary responsibility for safety, the World Association of Nuclear Operators (WANO), and thereby operators, have a role in preventing and mitigating accidents. A strong safety culture is required by operators. There was also a suggestion to create a repository of safety culture practices. The WANO Post-Fukushima Commission's five recommendations for enhancing nuclear safety expand the scope of WANO's activities to include programmes in: emergency preparedness basics; severe accident management; and fuel pool and fuel storage contingencies. This expansion in scope is aimed at improving WANO's credibility and includes important changes to WANO's peer review process. The nuclear industry in general considered that prevention and mitigation are paramount for protecting people and the environment. The World Nuclear Association (WNA) reiterated that a nuclear accident, and therefore nuclear safety, is a global issue. The consequences of the Fukushima Daiichi accident have broad impacts that affect all players in the nuclear sector, and there is a continuing need to examine roles and possible new or strengthened oversight mechanisms.

Accountability and the role of peer reviews, particularly IRRS missions, were discussed, and Member States were strongly encouraged to address the recommendations of such reviews, to host follow-up missions and to share the reports and results with the international community. It is important to ensure that recipient countries of peer reviews commit to a transparent action plan and follow-up missions, track closure of action plans and focus on essential recommendations from the mission. Enhancement of peer pressure in IRRS missions and in the review processes of the Convention on Nuclear Safety (CNS) was also discussed. Regarding the CNS process, it was noted that, at times, Country Reports under the CNS are in conflict with IRRS findings. These discrepancies need to be addressed to ensure that any safety gaps are avoided, in particular during peer reviews of the Contracting Parties.

On knowledge management and lessons learned, there was consensus that the IAEA and the Action Plan remain the primary vehicle for sharing lessons learned from the Fukushima Daiichi accident. Reference was made to the forthcoming IAEA Fukushima Comprehensive Report, due to be completed next year.

This report will review, analyse, clarify and explain all safety issues concerning the Fukushima Daiichi accident.

There was a suggestion that the results of CNS and IRRS peer review processes be used to develop a process for identifying lessons learned and taking corrective actions on regulatory issues. Both regulatory bodies and operators effectively utilize operating experience to improve nuclear facility safety on an ongoing basis. Additionally, regulatory bodies perform detailed assessments of regulatory requirements, systems and processes following significant operational events such as the accidents at Three Mile Island, Chernobyl and Fukushima Daiichi. However, regulatory bodies do not routinely assess less significant events and issues, which could contribute to the continuous improvement of the regulatory process. It was proposed to evaluate the need for a 'regulatory' operating experience programme directed at improving regulations and regulatory systems and processes. This programme would be based on the current operating experience programme and would have as input those issues internal to the regulatory body that currently are not reported.

Finally, on the issue of public communication, while some countries did not suffer great losses in public confidence after the Fukushima Daiichi accident, many countries did. In this regard, the panellists indicated that it was more important than ever to engage the public and decision makers, including politicians, especially while there is still a great focus on enhancing nuclear safety in the aftermath of the Fukushima Daiichi accident.

While many issues were discussed, the Chairperson offered three recommendations from the opening session:

- Peer reviews, especially IRRS missions for regulators, must include National Action Plans and follow-up missions, with the IAEA working to ensure commitment. The development of National Action Plans mirroring the IAEA Action Plan on Nuclear Safety is a key aspect of a more transparent and effective regulatory system.
- Regulators must increase peer pressure, especially at the next Review Meeting of the Convention on Nuclear Safety (CNS), using all aspects of, and information from, peer reviews and the Action Plan — with the addition of the following two questions for the next Review Meeting of the CNS: (i) has the Contracting Party conducted an IRRS mission and a follow-up mission?; and (ii) has the Contracting Party published a National Action Plan, and are the Government and the public aware of the results of the IRRS mission and closure of the associated action plan?
- Regulators, industry and international organizations must continue to engage the public and decision makers, including politicians, if necessary, to ensure awareness of safety at the national level and to remain steadfast in the collective responsibility to address any safety gaps.

Two specific recommendations were also offered for consideration by the IAEA Secretariat:

- Review service missions (e.g. IRRS, Operational Safety Review Team (OSART) and International Physical Protection Advisory Service (IPPAS) missions) are resource intensive activities for the IAEA and participating Member States. Therefore, before execution of such activities, there must be an explicit commitment from the receiving country to publish the final reports along with an action plan and to perform a follow-up mission in due course;

- The IAEA is encouraged to continue to report to the Board of Governors on implementation of the Action Plan on Nuclear Safety, especially with respect to implementation of IRRS missions.