Keynote Speech

The Fukushima Ministerial Conference on Nuclear Safety

Strengthening nuclear safety including through the implementation of the IAEA Action Plan

Fukushima, Japan

15 - 17 December 2012

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Welcome and Introduction

Mr Chairman, Excellencies, Ladies and Gentlemen Good afternoon.

It is my distinct pleasure to be able to participate in this session along with distinguished guests representing the international nuclear community.

Nuclear Safety: a work in progress

I was recruited in the French Atomic Energy Commission one year before the Three Miles Island Accident.

I was a young French nuclear Attaché in Moscow, Soviet Union, in 1986 when the Chernobyl accident shook the world.

I joined the International Atomic Energy Agency as Head of the Nuclear Safety and Security Department 6 months and 2 weeks before the March 2011 accident at TEPCO's Fukushima Daiichi Nuclear Power Plant.

This accident was a terrible experience for Fukushima prefecture, for Japan and its people, and a wake-up call for many. It reminded us that nuclear accidents can happen, they do happen. As DG Amano said yesterday, it reminded us that safety can never be taken for granted. Nuclear safety is a work in progress and not a status reached once and forever.

The IAEA Action Plan on Nuclear Safety

Following the Fukushima accident, enhancing nuclear safety has become one of the high priorities in the world. This is a collateral benefit of the crisis. September last year, the Agency's 152 Member States approved the IAEA Action Plan on Nuclear Safety to guide both our actions and Member States' actions. It is aimed at strengthening the safety of NPPs through strengthened actions with operators and regulators; it is aimed at learning lessons from the accident, it is also aimed at strengthening Emergency Preparedness and Response. In short, it is aimed at strengthening the global nuclear safety framework. Since the adoption of the Action Plan, we, at the Agency have been working diligently with Member States, with Regulators and Policymakers, with Operators and Support organisations and with International Experts and key members of the nuclear community on implementing this Action Plan.

Much has been done already and progress has been made in many areas of Nuclear Safety such as assessment of safety vulnerabilities of nuclear power plants, strengthening the Agency's peer review services, improving emergency preparedness and response capabilities, strengthening and maintaining capacity building, and widening the scope and enhancing communication and information sharing with Member States, international organizations and the public. These have contributed to the enhancement of nuclear safety at a global level.

Significant progress has also been made in reviewing the Agency's safety standards, which continue to be widely applied by regulators, operators and the nuclear industry in general, with increased attention and focus on vitally important areas such as accident prevention, in particular severe accidents, and emergency preparedness and response.

But a considerable amount of work still remains to be done.

The Global nuclear safety framework

Our best tool in the Agency to strengthen nuclear safety worldwide is to use, strengthen, and support all of the components of the global nuclear safety framework. Its basis is built from Member States' national safety infrastructure including the operator, the regulatory body, research and development institutions and the scientific fabric in the country. This is complemented by regional infrastructure and networks.

The top tier of the framework is constituted by the international instruments, while, as a link between the basement and the top, the Agency produces safety standards and security guidance, and provides for their application through peer reviews, advisory services and education and training.

Yes, regulating safety is a national responsibility. This is strongly stated in our standards. But today nobody could argue that this national responsibility can be defined and assumed in an international vacuum, without considering the international community. Nuclear safety today is a global concern, and a global concept. It can progress only through a greater effort aimed at reaching a high level of safety everywhere, with the same level of confidence. I will surprise nobody in stating that indeed the IAEA safety standards reflect an international consensus on what constitutes a high level of safety for protecting people and the environment against ionising radiation.

However, standards are only effective inasmuch as they are implemented in practice. To assist Member States in applying these standards and enable valuable experience and insights to be shared, the Agency provides Advisory Services and Peer Review missions with our safety standards as the benchmark.

We continuously improve these standards, we gather feedback from Member States on their implementation and incorporate this information into revisions of the standards, thus, ensuring that they continue to meet Member States' needs. This is an illustration of safety as a work in progress.

One essential element of the global nuclear safety framework indeed is the Convention on Nuclear Safety. At its second Extraordinary Meeting last August, its Contracting Parties agreed, "*that nuclear power plants should be designed, constructed and operated with the objectives of preventing accidents and, should an accident occur, mitigating its effects and avoiding off-site contamination. The Contracting Parties also noted that regulatory authorities should ensure that these objectives are applied in order to identify and implement appropriate safety improvements at existing plants*."

Ladies and Gentlemen,

I would like now to address some concrete results of the implementation of the Action Plan.

Since March 2011, all those involved in nuclear energy have been undertaking activities to assess their weaknesses, be they at the material, human or organizational level, with a view to drawing out the lessons from the accident and implementing their results in order to further strengthen nuclear safety.

Safety Assessments

As of today assessments of the design of nuclear power plants against site specific extreme natural hazards have been conducted at virtually all nuclear power plants in the world. In addition the Secretariat has strengthened its capability to provide support to Member States that are undertaking these assessments including through peer reviews.

IAEA Peer Reviews

The IAEA peer review services provide an assessment of all safety aspects in Member States, with the benefit of providing Member States with independent, objective and expert opinions and advice consistent with IAEA Safety Standards and international good practices.

Since the accident, the Agency has strengthened its peer review services in the areas of the regulatory framework, operational safety, emergency preparedness and response, design safety and site evaluation. In particular enhancements have been introduced in the most relevant services following the accident: the Integrated Regulatory Review Service (IRRS), the Emergency Preparedness Review (EPREV), the Operational Safety Review Team (OSART), the Design Safety Review Service (DSRS), and the Site and External Events Design review service (SEED).

Transparency of the evaluations performed by peers is a key element of the Action Plan and is a powerful tool to create incentives to drive improvements in nuclear safety. To improve the transparency of the peer review services, we have made available peer review reports and summaries on the Agency's website with the agreement of MSs. In addition we have made available information on where and when these peer reviews have been carried out. An increase in demand for Agency peer review services over previous years is thus clearly visible. However in many relevant safety areas some Member States are yet to request peer reviews as explicitly and strongly encouraged by the Action Plan.

When, today I am asked about the safety of NPPs in Ruritania, I can answer that this plant has (or has not) hosted so many OSART missions which gives us inter alia an understanding of the safety culture at the plant. I can also add that we were able (or we were not able) to identify strengths and weaknesses of the regulatory body, through international peer reviews, against the benchmark of our safety standards.

In particular, this year marked the thirtieth anniversary of the OSART service, and this Friday we completed the 174th OSART mission. But while some MS request OSART missions on a regular basis, others have not hosted such missions since the mid-nineties.

Emergency Preparedness and Response

The Fukushima accident reinforced the importance of careful attention to sound preparedness and response to accidents and emergencies. The Action Plan requests Member States to conduct a prompt national review and thereafter regular reviews of their emergency preparedness and response arrangements and capabilities. To support these activities, Emergency Preparedness Review (EPREV) missions are available to Member States. In 2012 we carried out 8 EPREV missions, the largest number of missions in a single year since the programme began.

Important improvements to the Agency's Response and Assistance Network (RANET) have been identified to broaden the assistance capabilities and expand the functional areas, in particular the assessment and advice to competent authorities for on-site mitigation activities and for ensuring and maintaining rapid response capabilities under RANET.

We have also taken a further step toward strengthening and sustaining international preparedness and response for nuclear and radiological incidents and emergencies with the establishment of the Emergency Preparedness and Response Expert Group (EPREG) to provide advice to the Agency.

International Experts' Meetings (IEMs)

The Action Plan requests us to "*organize international experts meetings (IEM's) to analyse all relevant technical aspects and learn the lessons from the Fukushima Daiichi nuclear power station accident.*" The IEMs bring together leading experts from areas such as research, industry, regulatory control and safety assessment. The meetings make it possible for these experts to share the lessons learned from the accident and identify relevant best practices, and to ensure that both are widely disseminated.

To date, the IAEA has organized and conducted three IEMs: on Reactor and spent fuel safety, on Enhancing transparency and communication effectiveness, and on Protection against extreme earthquakes and tsunamis.

Further meetings are planned for 2013. Let me share with you some of the outcomes of these meetings

IEM 1: Reactor and spent fuel safety

The IEM on **Reactor and spent fuel safety** showed that significant efforts and actions have been undertaken by Member States and relevant organizations with the common goal of improving safety, ensuring protection against extreme events and enhancing mitigation of severe accidents. Despite differences in approaches, priorities and schedule of implementation, the studies performed by Member States and the areas identified for improvement appeared to converge, with similar conclusions and corresponding actions being identified to strengthen the overall safety framework.

The IEM emphasized additional efforts necessary not only to prevent accidents, but also to mitigate their consequences, with a priority on preserving the integrity of containment. Moreover, several efforts from Member States were identified to strengthen severe accident management and to improve emergency response capability. These efforts will greatly strengthen defence in depth as future lessons may be learned.

IEM 2: Enhancing transparency and communication effectiveness in the event of a nuclear or radiological emergency

The IEM on **Enhancing transparency and communication effectiveness in the event of a nuclear or radiological emergency** analysed the relevant aspects of enhancing transparency and effectiveness in communication during a nuclear or radiological emergency as well as identified lessons and best practices for improving information dissemination in light of the Fukushima accident.

The importance of ensuring early, frequent and transparent communication and using plain language for effective, public communications, understandable to non-technical audiences, was emphasized. Public trust is the basis for organizational credibility. The communicators involved in response to a nuclear emergency need to focus on building, strengthening, maintaining and, when necessary, rebuilding this trust. The trust and credibility that are achieved before an emergency can be instrumental in facilitating management of response actions during and after an event.

IEM 3: Protection against extreme earthquakes and tsunamis

The last IEM to date, on **Protection against extreme earthquakes and tsunamis,** confirmed that appropriate safety margins should be available in the design of nuclear power plants, taking natural hazards into account in overall plant safety. Many Member States proposed to consider beyond design basis measures and procedures for extreme natural hazards at their nuclear power plants. A proper balance between all these measures and procedures should be considered. The experts highlighted the importance of the use of probabilistic assessments in the evaluation of safety margins associated with the protection against natural hazards.

The experts highlighted also the need to have a high level of confidence in the hazard assessments for each site in order to effectively manage the risk to nuclear power plants from extreme natural hazards. The importance of periodic re-evaluation of such hazards and of plant responses to them was also highlighted.

And finally experts highlighted the need to ensure that the siting and design of nuclear power plants include sufficient protection against complex combinations of extreme natural hazards and the effects of these hazards on multi-unit nuclear power plant sites.

All IEMs held so far, analysed at expert level the relevant technical aspects, drew lessons from the Fukushima accident, and their conclusions have been widely shared with Member States and the public through the Agency's website. I am glad to mention that the three reports containing all information shared and the lessons learned, including the Secretariat views and INSAG perspectives for each IEM, are now published and are available at this Conference.

Protection of people and the environment

In the area of protection of people and the environment – the ultimate goal of nuclear safety - we provided assistance and support to Japan on the remediation of the large areas of land contaminated as a result of the Fukushima accident. We have also established an international programme to compare methodologies for the assessment of public exposures and radiological impacts for a wide range of exposure situations

To facilitate decision-making on countermeasures and remediation after nuclear or radiological emergencies, together with relevant International Organisations, we have decided to review and update the current strategies for monitoring the environment, food and people. The review will identify ways to clarify, harmonize and update, if appropriate, the existing guidance on contamination levels in food, animal feed and drinking water.

The IAEA comprehensive report on the Fukushima Daiichi accident

To be complete, I want to mention here that, as stated by DG Amano at the IAEA 56th General Conference, we have started work on an IAEA 'comprehensive' report on the Fukushima Daiichi accident to be published in 2014. It will be based on knowledge and understanding of the Fukushima Daiichi accident and will include the Agency's assessment. Experts and representatives from relevant International Organizations will be invited to take part in this endeavour.

Concluding Remarks

Mr Chairman,

A constant questioning attitude is a necessity if we are to strengthen nuclear safety.

I have said that nuclear safety is a work in progress, and in a job like ours, even when it seems to be finished, there is always one more thing to do.

Standards, guides and codes are necessary for the safe operation of nuclear facilities, they are vital, but they are not enough. Their implementation and mechanisms for experience feedback are also indispensable.

The prime responsibility of operators needs to be implemented fully, in a proactive way, with a permanent vigilance to the safety culture of staff, from top to bottom.

But this is not enough. Without a strong, competent, independent and knowledgeable national control, there is a risk that safety will stop being an overall priority.

But this is not enough. A strong involvement of the international community is necessary to ensure that the national safety infrastructure answers the expectations of the international community, of the public. We are ready to continue playing our central role in this endeavour.

In conclusion, the strong commitment of all stakeholders to safety should meet the continuously dedicated work of the IAEA in strengthening the global nuclear safety framework.

Thank you for your attention.