



2374-12

Joint ICTP-IAEA School of Nuclear Energy Management

5 - 23 November 2012

CURRENT AND FUTURE DIRECTIONS IN NUCLEAR SAFETY AND SECURITY

FLORY Denis International Atomic Energy Agency, IAEA Wagramer Strasse 5, P.O. Box 100 Vienna AUSTRIA

CURRENT AND FUTURE DIRECTIONS IN NUCLEAR SAFETY AND SECURITY

Denis Flory Deputy Director General Department of Nuclear Safety and Security International Atomic Energy Agency



IAEA International Atomic Energy Agency

IAEA Mission and Activities: Three Pillars

Safety & Security

The IAEA works to protect people and the environment from harmful radiation exposure

Safeguards & Verification

The IAEA works to prevent the further spread of nuclear weapons

Science & Technology

The IAEA works to mobilize peaceful applications of nuclear science and technology to developing countries.





Safety History: Chernobyl

- Nuclear Safety lessons learned from the accident focused on identifying the weaknesses in and improving the design safety of VVER and RBMK reactors
- Acceleration in development of safety standards, guidelines and services to assist countries affected
- Department of Nuclear Safety was created a decade later



• 25 years later: Fukushima



"...Radioactivity does not respect national boundaries, or national sovereignties. Rules ensuring the safe use of large-scale nuclear activities should therefore be worked out internationally and accepted to apply everywhere...." Hans Blix, former IAEA Director General

Security History: 9/11

September 11, 2001 aftermath of terrorist attack:

- Security risks from outside groups or insider threats became of paramount concern surrounding the critical infrastructure of nuclear power plants
- Questionable whether reactors would withstand such attacks
- Apart from radioactive sources, reactors and other parts of the nuclear fuel cycle are vulnerable to attack, e.g., reprocessing facilities and transport between sites
- 2003 Office of Security







Status of the IAEA Safety Standards

Safety Standards are:

- Non binding on Member States but may be adopted by them
- Binding for IAEA's own activities
- Binding on States in relation to operations assisted by the IAEA or States wishing to enter into project agreements with IAEA
- Voluntarily binding for States that have imbedded IAEA Safety Standards in their National Regulations



IAEA International Atomic Energy Agency

Collection Safety Standards and Security Guidelines



	Peer Reviews and Advisory Services						
	hudeat Se	Let Radiation	Hotection & Safety Padroactiv	ewiste Management	Incident?	streegency Nuclear Se	Suiter
Regulators	IRRS, SCEA, INSARR, SSRS, Advisory mission for source safety, RP Fact Finding Mission	IRRS, EduTA, SSRS, RP Fact Finding Mission, Advisory mission for source safety	IRRS, NSRW waste management missions	IRRS, TranSAS	EPREV, SSRS, IRRS	IRRS, SCEA, IPPAS, INSServ, SSRS	
Operating organizations	OSART, SCEA, INSARR, SEDO, SSRS	ORPAS. OSART, SEDO, SSRS, INSARR	SEDO, NSRW waste management missions, INSARR	TranSAS	EPREV, SEDO, OSART, SSRS, INSARR	IPPAS, SSRS	
Vendors	SCEA					SCEA	
Educators	SCEA, SEDO, OSART	ORPAS, EduTA			EPREV (EPR)	IPPAS, INSServ	
Law Enforcement		ORPAS		IPPAS, INSServ	EPREV	INSServ	
State officials / Governments							
Health sector		ORPAS, RPoPAS			EPREV		
TSOs							



The IAEA Nuclear Safety Action Plan

IAEA Ministerial Conference, including

- WS Conclusions and recommendations
- Fact-Finding Mission to Japan
- INSAG Letter Report
- Consultations with MS and stakeholders
- September Board of Governors
- General Conference
- Action Plan Implementation



Major themes for strengthening nuclear safety

- The Safety of NPPs
- Peer review mechanisms
- The IAEA Safety Standards
- EPR Framework
- International cooperation
- Global nuclear safety framework



The IAEA Nuclear Safety Action Plan

- Adopted by GC55 on 22nd September : 12 key Actions for strengthening nuclear safety worldwide;
 - Undertake assessment of the safety vulnerabilities of nuclear power plants in the light of lessons learned to date from the accident;
 - Strengthen IAEA peer reviews in order to maximize the benefits to Member States;
 - Strengthen emergency preparedness and response;
 - Strengthen the effectiveness of national regulatory bodies;
 - Strengthen the effectiveness of operating organizations with respect to nuclear safety;
 - Review and strengthen IAEA Safety Standards and improve their implementation;
 - Improve the effectiveness of the international legal framework;
 - Facilitate the development of the infrastructure necessary for Member States embarking on a nuclear power programme;
 - Strengthen and maintain capacity building;
 - Ensure the on-going protection of people and the environment from ionizing radiation following a nuclear emergency;
 - Enhance transparency and effectiveness of communication and improve dissemination of information;



Effectively utilize research and development. $\mathbf{A} = \mathbf{A}$

Implementation of the NSAP



- The purpose of the Action Plan is to define a programme of work to strengthen the global nuclear safety framework
- 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.





Safety of Nuclear Installations

- Building capacity for emerging, embarking, expanding Nuclear Power Programmes
- Assessing safety issues with ageing of nuclear power plants and research reactors
- Safety Goals for the 21st century and beyond
- Harmonizing national and international regulatory practices
- Assisting Member States in external hazard assessment





Safety of Nuclear Installations: Seismic Centre: Site Safety Review Services Ma Close 🗙 intai 日本 Distance: 300 Near the East Coast of Honsh 2011-03-11 05:46:23 lagnitude: 9 epth: 24.4 Kingway, Mapabe, SK M&C, ZENRIN Imag () IAEA INTERNATIONAL SEISMIC SAFETY CENTRI 2011-03-17 14:20 AEA

Incident and Emergency Preparedness and Response (EPR)

- Promoting effective national and global preparedness and response to nuclear and radiological incidents and emergencies
- Many Member States are currently not adequately prepared to respond to such emergency situations
- Without standard procedures or common approaches, protective actions can differ between countries resulting in confusion







Radiation and Transport Safety

- Wider use of radioactive sources and ionizing radiation globally
- Increased annual per capita dose due to increasing medical exposure
- Denials and delays of shipment of radioactive materials continue to occur in all parts of the world







Management of Radioactive Waste

- Assessing and managing radioactive discharges to the environment
- Assessing radiation protection measures in work involving minerals and raw materials
- Supporting safe and cost effective decommissioning
- Rapid re-development of the uranium production cycle industry, and current remediation of legacy sites
- Fukushima remediation
- Unresolved concerns on waste and spent fuel management and protection of the environment







Nuclear Security

- INSSP Integrated Nuclear Security Support Plans
- Illicit Trafficking Data Base & INTERPOL
- Promoting and assisting countries in setting up Nuclear Security Support Centres
- Provide nuclear security measures at major public events (Pan-American Games -Brazil and Summer Olympic Games -China)
- Develop a security infrastructure in Newcomer countries
- Forensics



Questions & Answers

Thank you for your time.



