# *Nuclear Safety and Security in Brief*

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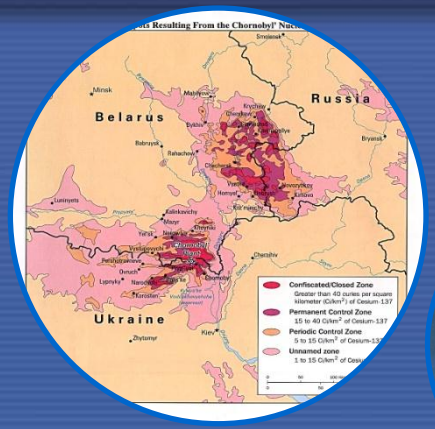
# Safety History: Chernobyl

- 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**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# Security History: 9/11

- September 11, 2001 aftermath of terrorist  attack:
- Security risks from outside groups or insider threats became of paramount concern surrounding nuclear power plant critical infrastructure
- Questionable whether reactors would withstand such attacks
- Apart from radioactive sources, reactors and other parts of the nuclear fuel cycle vulnerable to attack, e.g., reprocessing facilities and transport between sites
- 2003 Office of Security

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# Safety Post Fukushima

- March 2011, accident at TEPCO Fukushima Daiichi nuclear plant.
- June 2011, adoption of the Ministerial Declaration at the Vienna Conference on nuclear safety
- September 2011, the IAEA Action Plan on Nuclear Safety was adopted by the IAEA's Board of Governors and subsequently unanimously endorsed by the IAEA General Conference. This is the first time in the life of the Agency that all Member States gather, in a comprehensive program, all nuclear safety tools to strengthen the global nuclear safety framework


***"…It is essential that all of us - Member States, the IAEA and other key stakeholders - maintain our sense of urgency and our commitment to implementing the Action Plan in full. …."***

**Yukiya Amano,**
**IAEA Director General**

# IAEA Action Plan on Nuclear Safety

## 12 Point Plan

1. Safety Vulnerabilities
2. Peer Reviews
3. Emergency Preparedness and Response
4. Regulatory Bodies,
5. Operating Organisations
6. IAEA Safety Standards
7. Legal Framework
8. Embarking countries
9. Capacity Building
10. Protection of People and Environment
11. Communication
12. Research and Development

✓ ***Strengthen*** ✓ ***Enhance Effectiveness***


***Actions for:***

*IAEA Secretariat*

*Member States*

*Other Relevant Stakeholders*

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# Global Nuclear Safety and Security Framework

Conventions: NSC,JC, CPPNM, UNSCR 1540…etc

International Instruments

CoCs: RRs & S&S of RSs

IAEA Safety Standards & Security Guidance

IAEA Safety & Security Peer Reviews & Advisory Services

Global Knowledge Network

Regulations & enforcements

National & Regional Nuclear Safety & Security Infrastructure

Research, Education & Training

Operation & use

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# 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

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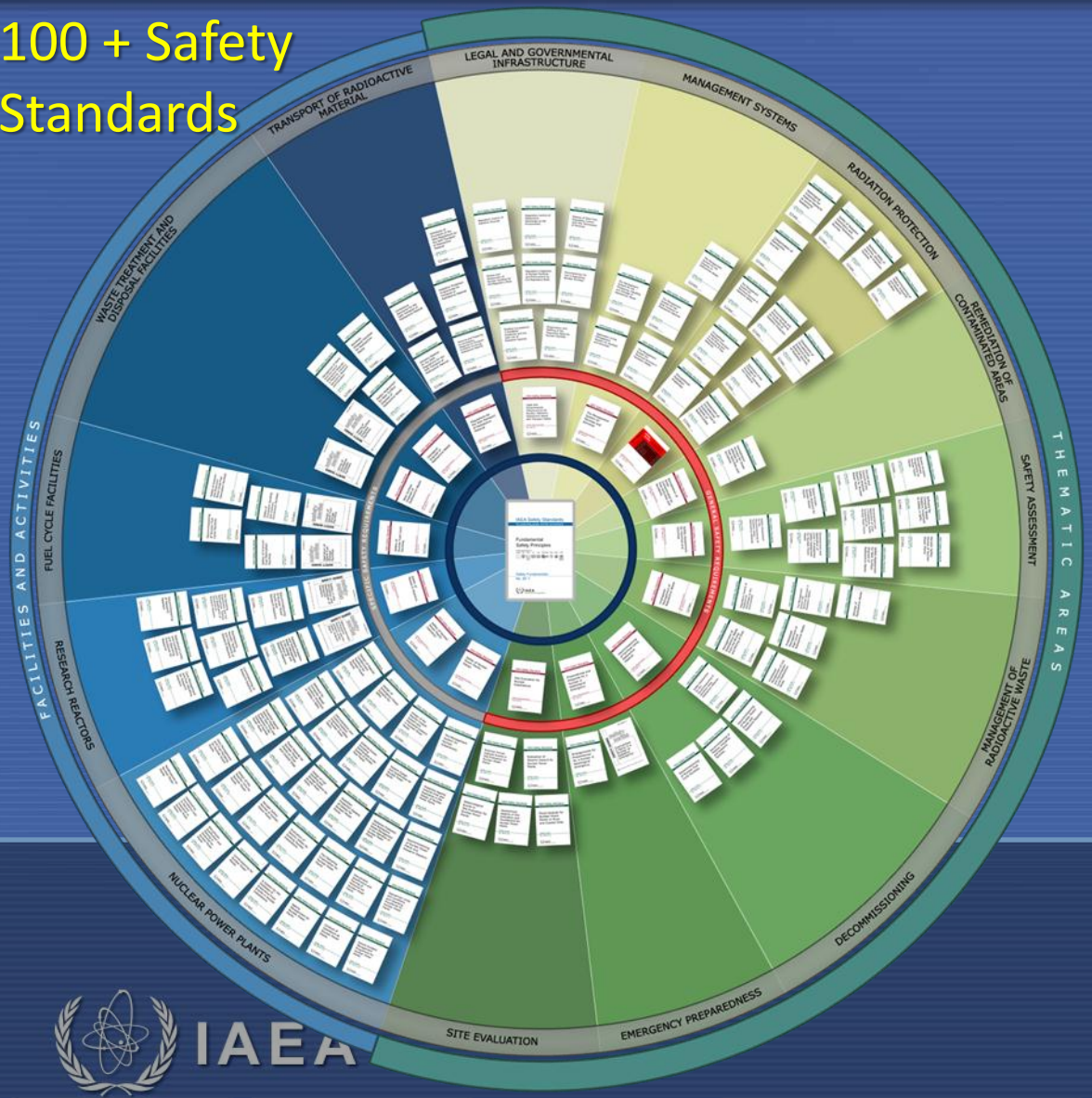
# Collection Safety Standards and Security Guidelines

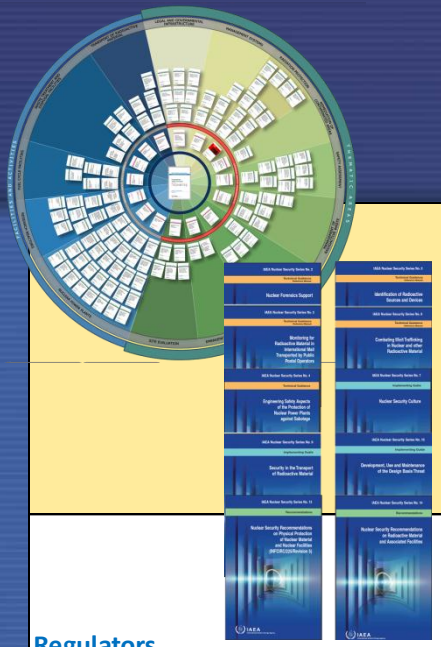
100 + Safety Standards





15 Security Guidelines

# Peer Reviews and Advisory Services



| | Nuclear Safety | Radiation Protection & Safety | Radioactive Waste Management | Transport | Incident & Emergency | Nuclear Security |
|---|---|---|---|---|---|---|
| **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** | | | | | | |

# Programme Directions: Emergency Preparedness and Response

- EPREV/RANET provides 24/7 Response
- ConvEx Exercises
- 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

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# Programme Directions: Safety of Nuclear Installations

- OSART, IRRS, INSARR, SEDO, SCEA…and more
- Building capacity for emerging, embarking, expanding Nuclear Power Programmes
- Assessing safety issues with ageing of nuclear power plants and research reactors
- Harmonizing national and international regulatory practices
- Assist Member States in external hazard assessment

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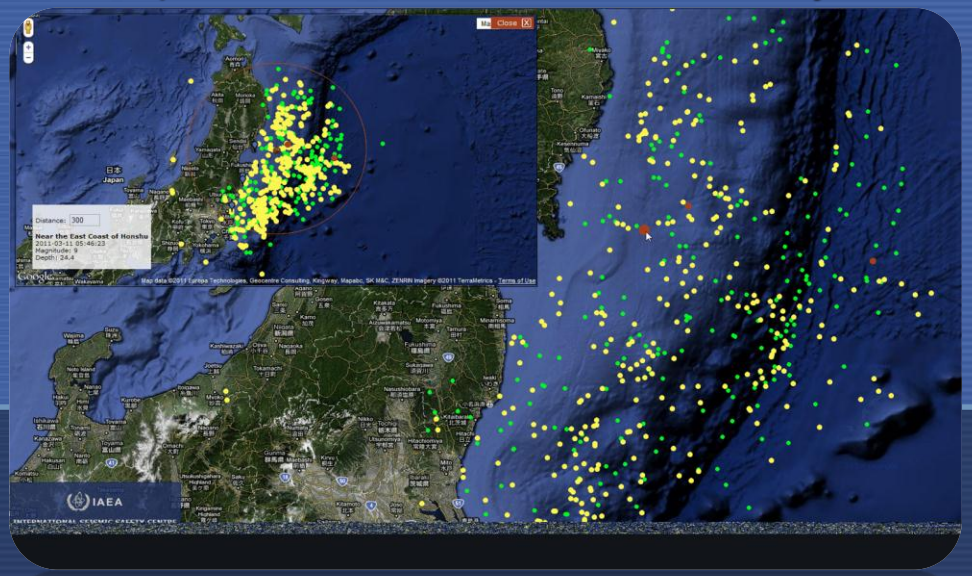
# Programme Directions: Seismic Centre

- Provides Site and External Event Design Review Services for new and existing NPP sites
- Provides Safety Review of SSC's against external and internal hazards
- Develops guidance for the implementation of IAEA site safety

ISSC created as a global focal point for assimilation and dissemination of NPP safety against external hazards

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# Nuclear Security : IAEA's Vision

Achieving worldwide, effective security wherever nuclear or other radioactive material is in use, storage and/or transport, and of associated facilities.


A global threat demands a global response.

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# Programme Directions: Nuclear Security

The IAEA:

- Supports States in their efforts to establish and maintain effective nuclear security through assistance in capacity building, guidance or standards, human resource development and risk reduction;
- Facilitates adherence to implementation of international legal instruments related to nuclear security

and through

- Security Advisory Missions
- Integrated Nuclear Security Support Plans (INSSP)
- Illicit Trafficking Data Base & INTERPOL
- Promoting and assisting countries in setting up Nuclear Security Support Centres
- Providing nuclear security measures at major public events
- Forensics

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# Programme Directions: Radiation and Transport Safety

- ORPAS, RPoPAS, TransSAS
- 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


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# Programme Directions: Management of Radioactive Waste

- Peer review services as requested
- 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
- Unresolved concerns on waste and spent fuel management and protection of the environment

# Nuclear Safety and Security

*Thank you!*


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