

International Atomic Energy Agency

Human Resource Management in Nuclear Safety

**Christer Viktorsson
Nuclear Installations Safety**

Role of the International Atomic Energy Agency (IAEA)

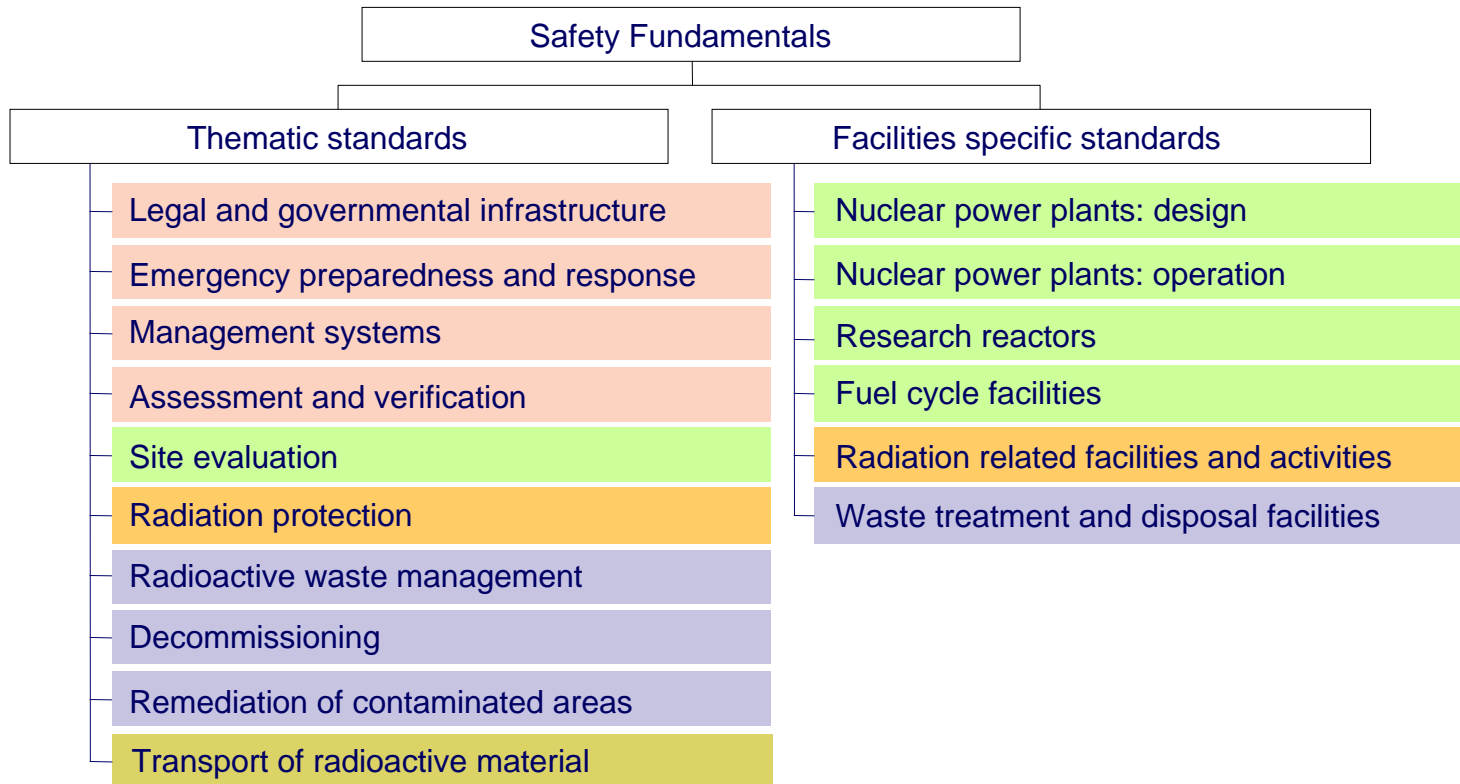
- **Established in 1957**
- **143 Member States**
- **2,200 staff**
- **Three Pillars:**
 - Safeguards
 - Nuclear Technology
 - Safety and Security
 - Safety standards
 - Safety review services
 - Training
 - Serving Conventions



Safety Standards

- **Rigorous process of development and approval**
- **Comprehensive suite of standards published**
- **Safety standards recognized internationally as a reference point for the high safety level required for nuclear activities**
- **Available on www.iaea.org**

STRUCTURE OF THE STANDARDS




- General safety (cross-cutting themes)
- Safety of nuclear facilities
- Radiation protection and safety of radiation sources
- Safe management of radioactive waste
- Safe transport of radioactive material

IAEA Safety Standards


IAEA Safety Standards
for protecting people and the environment

Fundamental Safety Principles

Jointly sponsored by
Euratom FAO IAEA ILO IMO OECD/NEA PAHO UNEP WHO




Safety Fundamentals
No. SF-1

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for protecting people and the environment

The Management System for Facilities and Activities


Safety Requirements
No. GS-R-3

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Application of the Management System for Facilities and Activities

Safety Guide
No. GS-G-3.1

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The importance of “human factors” are recognized in internationally agreed safety principles

- **Convention on Nuclear Safety:**
 - **“Each Contracting Party shall take the appropriate steps to ensure that the capabilities and limitations of human performance are taken into account throughout the life of a nuclear installation.”**
- **Safety Fundamentals:**
 - **“To prevent human and organizational failures, human factors have to be taken into account and good performance and good practices have to be supported”**

IAEA Safety Standards address human resource management and safety culture

- **The Management System Standards:**
 - **A robust and effective integrated management system should support safety culture and high levels of safety performance. It should be designed with this in mind and implemented in a way that it is known, understood and followed by all individuals.**
 - **The management system should cover human factor issues. It should establish a working environment in which staff can carry out the work safely and be able to raise safety issues without fear of harassment, intimidation, or discrimination.**
 - **Technological developments have radically altered the interactions between humans and systems**
 - **Includes entire Chapter on Resource Management incl. Human Resources (organizational goals) and Working Environment (positive influence on individuals)**

IAEA Safety Standards address human resource management and safety culture

The Management System shall promote and support a strong safety culture by:

- **Assuring a common understanding of the key aspects of safety culture within the organization**
- **Providing the means by which the organization supports individuals and teams to carry out their tasks safely and successfully, taking into account the interaction between individuals, technology and the organization**
- **Reinforcing a learning and questioning attitude at all levels of the organization**
- **Providing the means by which the organization continually seeks to develop and improve its safety culture**

IAEA Safety Standards address human resource management and safety culture

- **Legal and Governmental Infrastructure Standards**
 - **The Regulatory Body shall acquire and maintain the competence to judge the safety of the nuclear facilities and to make the necessary decisions. The expertise of RB should have a wide range of expertise including in human factors**
 - **It shall maintain a well defined training program to make staff aware of technological developments and new safety principles**

IAEA Safety Standards address human resource management and safety culture

- **Nuclear Power Plants**
 - **Design requirements: qualified personnel and the importance of safety culture during the design**
 - **Operations Requirements:**
 - **The operating organization shall be staffed with competent managers and sufficiently qualified personnel having a proper awareness of safety requirements and motivated to be safety conscious.**
 - **“The attitude towards safety shall be a criterion for the hiring or promotion of managers”**
- **Publication next year of the Safety Guide on**
 - ***Application of the Management Systems for Nuclear Facilities***
 - **Revision of other important Standards continues.**

IAEA Safety Review Services address human performance, safety culture and training

- **OSART for operating plants**
- **IRRS for regulatory bodies**
- **INSARR for research reactors**
- **SCART for safety culture of design, and operating organizations**

OSART PROGRAMME 1983- September 2007

141 OSART missions:

Western Europe	45
Central Europe	23
Eastern Europe	26
Asia	26
North America	12
South America	6
Africa	3



OSART PROGRAMME - Purpose

- To assist Member States in enhancing the operational safety of individual nuclear power plants
- To promote the continuous development of operational safety within all Member States by the dissemination of information on good practices
- Recommendations are made in relation to IAEA Safety Standards

OSART PROGRAMME - Structure and Scope

1MOA Management and Organization

2TQ Training and qualification

3OPS Operations (2 reviewers)

4MA Maintenance

5TS Technical support

6OE Operating Experience

7RP Radiation protection

8CH Chemistry

9EPP Emergency planning and preparedness

Safety culture review is included in all areas.

Management, Organization and Administration

- **Some findings from OSART:**
 - **Mechanisms not yet established to adequately resolve:**
 - **loss of corporate knowledge**
 - **recruitment/retention of critical/key/specialist skills**
 - **Failing to fully consider all aspects of human performance in plant's safety programs**
 - **Management of some internal and external interfaces are not adequately controlled**
 - **Performance Indicators exist normally, however they are not always used to effectively support improved performance**

Training and Qualifications

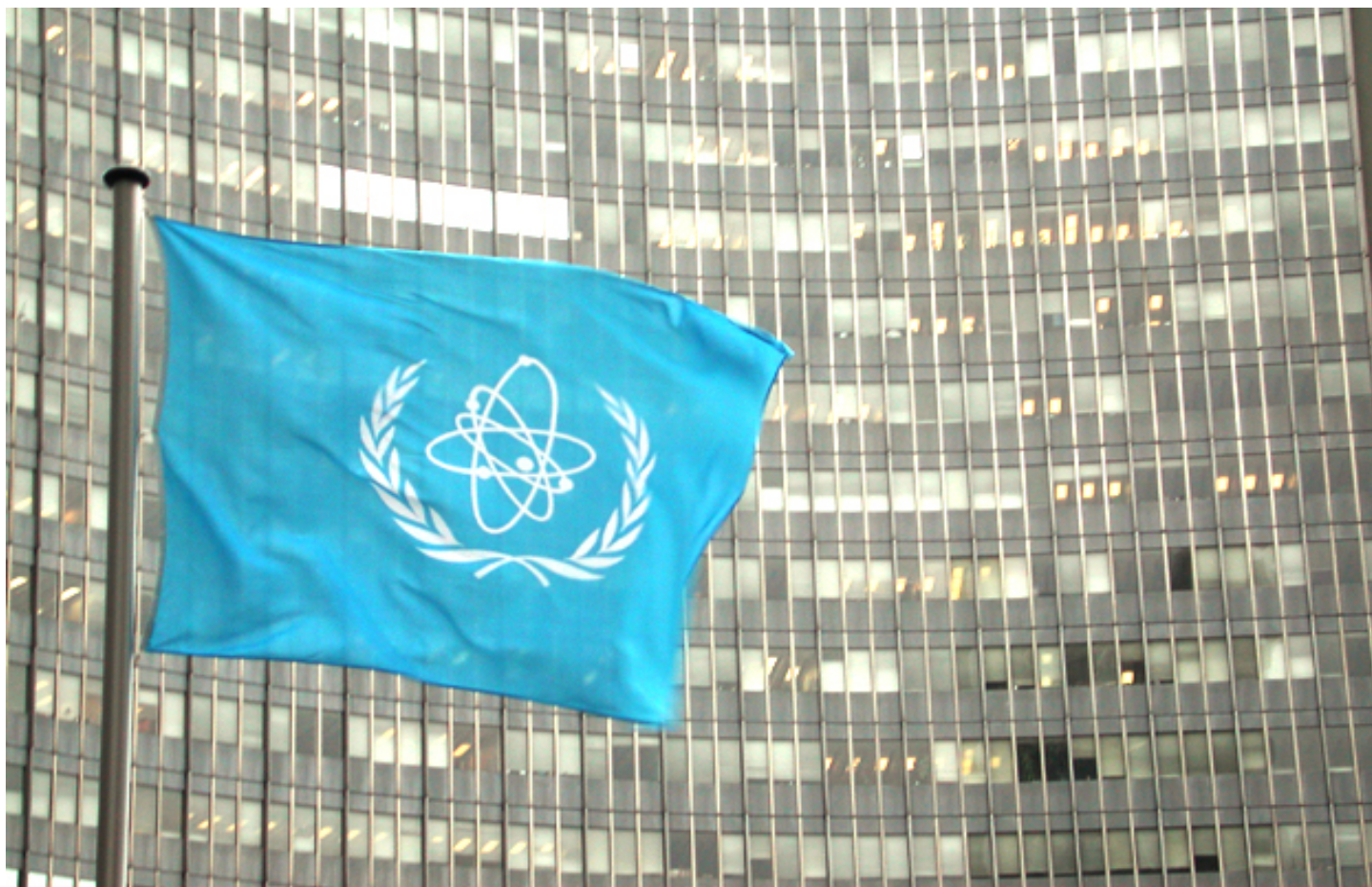
- **Training evaluation is not formalized or not implemented sufficiently for effective control and maintaining of staff training**
- **Training of the permanent and occasional instructors is not sufficiently comprehensive**
- **Training facilities and materials are not sufficient or being properly maintained**

Training and Qualifications 2

- **Training and coaching need improvement for field operators, control room operators and shift supervisors**
- **SAT not fully implemented**
 - **lack of allocated resources**
 - **no clear procedures for SAT implementation**

Concluding Remark

- **The International safety standards address the topics of the discussions. The safety services assess compliance with the standards.**
- **Training is supported, material and courses provided.**
- **Based on operating experience, standards are reviewed and revised if needed.**
 - **In particular, experience is needed in the application of the new standards on integrated management systems (Nov Workshop)**
- **IAEA continues to support feedback of the experience from operation, results of research for the benefit of worldwide nuclear safety.**



...Thank you for your attention
International Atomic Energy Agency

