

INTERNATIONAL CONFERENCE ON TOPICAL ISSUES IN NUCLEAR INSTALLATION SAFETY

Topical Issue # 3

**Regulatory Management Systems
Adapting to Changes in the Environment**



IAEA
International Atomic Energy Agency

Topical Issue 3: Regulatory Management Systems – Adapting to Changes in the Environment

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Topical Issue 3: Regulatory Management Systems – Adapting to Changes in the Environment

PURPOSE OF THE PAPER

- to identify the main current regulatory challenges and describe the present status of these issues;
- to propose priorities for future regulatory work;
- to propose areas for international co-operation;
and
- to suggest for discussion possible future IAEA activities.

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PRESENT STATUS OF THE ISSUES

1. Regulatory staffing issues;
2. New technical competences and regulatory approaches needed;
3. Need for harmonization of regulatory requirements;
4. Effectiveness of the operational experience feedback mechanisms; and
5. Use of safety performance indicators and regulatory performance indicators.

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PRESENT STATUS OF THE ISSUES

1. Regulatory staffing issues

- One of the most common challenge among the regulators;
- Ageing staff;
- Difficulties in recruitment (attractiveness issues);
- Limited education infrastructure;
- Need to recruit young people and to train them;
- Establishment of a sustainable self-training programme and a knowledge management system.

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PRESENT STATUS OF THE ISSUES

2. New technical competences and regulatory approaches needed

Not only maintenance of present competence but also need to improve competence and establish approaches to be prepared to deal with:

- Lifetime extension of NPPs;
- Safety upgradings and modifications;
- Review of ageing management programmes;

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PRESENT STATUS OF THE ISSUES

2. New technical competences and regulatory approaches needed (Con't)

- Integrated regulatory decision making using both deterministic and probabilistic approaches;
- Decommissioning and waste management issues in case of early closure of NPPs;
- Licensing of new NPPs with new design features;
- Process between exporting and importing countries.

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PRESENT STATUS OF THE ISSUES

3. Need for harmonization of regulatory requirements

- Regulatory approaches and requirements vary from countries to countries;
- Globalization of the energy market;
- Effort currently being done, mainly in regional frameworks like WENRA;
- International effort toward harmonization of future regulatory requirements. Role of the IAEA Safety Standards to build a common nuclear safety regime.



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PRESENT STATUS OF THE ISSUES

4. Effectiveness of the operational experience feedback mechanisms

- Collecting, sharing and analysing operational experience are vital elements of safety management;
- Regulatory bodies and nuclear organizations have to face challenges such as maintaining operational safety at the highest level and cost effective;
- Joint IAEA Incident Reporting System as an international mechanism;

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PRESENT STATUS OF THE ISSUES

4. Effectiveness of the operational experience feedback mechanisms (Con't)

- IRS has proven its usefulness;
- The safety and performance of NPPs has also improved; BUT :
- Recurring events challenge both the national and international effectiveness of the current mechanisms;
- Discovery of unexpected phenomena;
- Difficulties to address organizational and human related factors.

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PRESENT STATUS OF THE ISSUES

4. Effectiveness of the operational experience feedback mechanisms (Con't)

- Need to promote
 - An increasing sharing of lessons learned into international databases (like the IRS);
 - The sharing of good practices;
 - Exchanges on lessons learned in terms of safety management and safety culture.

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PRESENT STATUS OF THE ISSUES

5. Use of safety performance indicators (SPI) and regulatory performance indicators (RPI)

SPIs

- Addressed in the TIC in 2001;
- IAEA framework and on-going work;
- Usefulness – but must be used with other insights such as safety culture and human performance evaluation, inspections and audits, risk analyses, feedback of operational experience and other self-assessment and external reviews

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PRESENT STATUS OF THE ISSUES

5. Use of safety performance indicators (SPI) and regulatory performance indicators (RPI) (con't)

RPIs

- Addressed in the NEA MACRE Forum in 2004;
- Views vary considerably. Incorrect indicators or incorrect use may lead to inaccurate decision-making;
- Direct indicators are however useful if they are established as one part of an overall quality management system

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PRIORITIES FOR FUTURE REGULATORY WORK

1. Establishing a sustainable training capability and a sustainable knowledge management system
2. Development of regulatory approaches and regulatory requirements to deal with the new challenges
3. Providing incentives toward improvement of the national operational experience feedback exchange mechanisms

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AREAS FOR INTERNATIONAL CO-OPERATION

1. Exchange on regulatory self-assessment practices and tools
2. Exchange/development of regulatory performance indicators as part of a Quality Management System
3. Improving the International operational experience feedback exchange mechanisms

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POTENTIAL AREAS FOR FUTURE IAEA ACTIVITIES

1. Safety Standards: to review and revise as necessary the set of IAEA Safety Standards, taking into account the feedback from the users;
2. Develop an advanced IRRT service as an international peer-review of self-assessment. The objective is to review less the way the regulator performs its functions and more the effectiveness of the continuous improvement process
3. IAEA support to priorities and international co-operation previously addressed.

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Do we have the legal basis for a nuclear safety regime ? **Pre-IRRT**

Is the regulatory established in such a way that it can perform its functions? **IRRT
Reduced scope**

CURRENT

How does the regulatory body perform its functions ?
What can be improved ? **IRRT
Full scope**

FUTURE:

How does the regulatory body continuously improve ? **Advanced
IRRT
Peer-review
of self-assessment**



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Self-assessment (IRRT questionnaires and additional tools)

Establishment of an action plan and criteria/indicators for measurement

Implementation

Self-assessment

A
(what ?)

B
How ?

Initial IRRT concept

Future IRRT
Part 1 (option A or B)

Future IRRT
Part 2
(follow-up)

How efficient is the whole improvement process ?



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QUESTIONS

- 1. How far should the regulatory requirements be harmonized?**
- 2. Should there be an international process and related requirements/criteria for the certification of new design?**
- 3. Shall the IAEA develop documents on licensing issues and regulatory approaches?**
- 4. What incentives can the RB establish in order to improve both the national and international exchange on lessons learned from events ?**
- 5. How can the RB compensate for the declining infrastructure (staffing/competence/research)?**
- 6. What self-assessment tools shall develop the IAEA ? and what target year for the international peer-review of the RB of countries with Nuclear Power Programs (2012?)**



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