

Strengthening Resources and Expertise in Regulatory Body

Indian Nuclear Society's Annual Conference (INSAC-2024)
Regulatory Framework for Nuclear Renaissance
November 19, 2024 DAE Convention Centre, Anushakti Nagar, Mumbai

S A Bhardwaj

Objectivity is treating or dealing with facts without distortion by personal feelings or biases and ability to evaluate information and arrive at decisions taking all relevant points of view into account.

We, the AERB professionals shall:

- Respond carefully to all opinions recognising that there is no single right or wrong answers in many cases.
- Consider all reasonable options and associated risks in the safety review process leading to issuing of authorisations.
- Ensure that regulatory decisions are not influenced by personal preferences and biases.

The mission of the AERB is to ensure that the use of ionising radiation and nuclear energy in India does not cause undue risk to the health of people and the environment.

The vision of the AERB is to be a knowledge organisation of high international standards with state of the art scientific capabilities and to maintain high level of professionalism , credibility, transparency and accountability in the domain of its regulatory responsibilities.

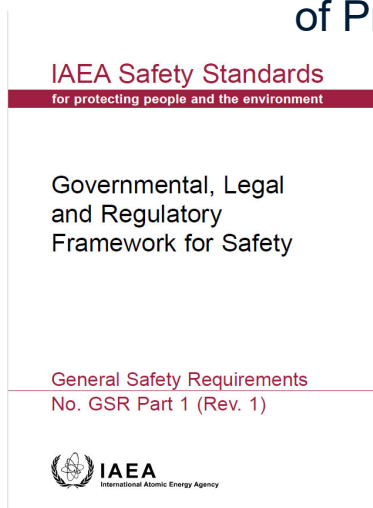
3

Competence means having the requisite knowledge, abilities and skills to effectively discharge the assigned duties. The diversity of scientific disciplines involved and the evolving nature of the nuclear regulatory profession necessitates commitment to an appropriate level of knowledge that is to be achieved through formal education , work experience, professional training and a continual learning process.

We, the AERB professionals shall:

- Seek to remain informed and knowledgeable about the latest developments and emerging trends in all areas relevant to our work.
- Encourage and support opportunities for professional growth and development among peers and subordinates.

IAEA's Integrated Regulatory Review Service (IRRS) Review of Practices at AERB year 2015



- India has established a unique training system at national level that supports competence building for its nuclear programme, including the regulatory body.
- The scope and depth of the AERB recruitment and training programme is effective in maintaining a knowledgeable technical staff.

5

IRRS AERB 2015

IAEA GSR Part 1 states:

4.11. The regulatory body has to have appropriately qualified and competent staff. A human resources plan shall be developed that states the number of staff necessary and the essential knowledge, skills and abilities for them to perform all the necessary regulatory functions.

4.13. A process shall be established to develop and maintain the necessary competence and skills of staff of the regulatory body, as an element of knowledge management.”

Recommendation: The AERB should fully develop its recently initiated process to analyse its competence needs to secure the essential knowledge, skills and abilities needed to regulate NPPs.

Observation: The AERB does not have competences in the area of human and organizational factors and in the area of public communications.

Suggestion: The AERB should consider ensuring that a sufficient number of staff with specialised competence, knowledge, skills and abilities in the area of human and organizational factors (HOF) and communications are available.

6

IAEA's Integrated Regulatory Review Service (IRRS) Review of Practices at AERB

- After the IRRS mission **Follow up Mission year 2022**, AERB completed the competency mapping exercise. AERB competence mapping assessment was based on IAEA guidelines and the organisational structure of the time. In 2016, the AERB management acted on the gap analysis and initiated training activities for the existing staff according to the identified training needs. Training activities are ongoing to fill the previously identified gaps.
- However, the competency mapping should be periodically reviewed in order to be updated, if the case may be.
- Based on the identified competency, AERB developed and implemented a Technical Authorization programme in order to qualify the employee to participate in safety review and regulatory inspection activities

7

IAEA's Integrated Regulatory Review Service (IRRS) Review of Practices at AERB

Follow up Mission year 2022

In follow up mission AERB also offered regulation of Radiation Facilities work to the IRRS team.

IRRS identified a Good Practice in relation to the integration of regulatory processes within e-LORA, an online platform used by the applicants, authorized parties and AERB. e-LORA significantly improved the efficiency of managing the information to be submitted by an applicant / authorized party, based on a graded approach.

8

Regulation of Radiation Application Facilities

- Major activity of AERB in terms of volume of applications and variety of technologies from medical and industrial users of radiation.
 - Pressing and committed schedules for licencing etc.
 - High Type Approvals, inspection load and resolution of observations.
 - Need for number and variety of Awareness programmes
-
- The growth in the application of ionising radiation technology is a tremendous challenge to the AERB to ensure safety and security of radiation facilities.
 - A state of art e-Governance system, eLORA (e-Licensing of Radiation Applications) through automation of regulatory processes associated with the use of ionising radiation is deployed for providing timely and convenient service to the licensees.

9

- The safety regulatory processes in India has been existing right from inception of DAE.
- Many a stalwarts carefully established the safety and regulatory processes.
- As the formal regulatory processes converged to create AERB, these stalwarts some indirectly and others directly as full time participants brought up, supported and catalysed the development of AERB organisation as it stands now.

10

- AERB, in this mode of development, has over the time issued Regulatory Safety Documents like Codes of practice which lay down safety requirements to be met for nuclear and radiation facilities along with guidance for utilities to meet the requirements in Safety Guides.
- AERB over the years has consistently demonstrated its capability of regulating full spectrum of activities from site evaluation onwards to full life of operation including at times analysing some events of the unpredictable nature challenging safety posed at operating facilities.
- AERB has demonstrated experience of regulating new technologies of variety for all the sectors it regulates like for nuclear power, fuel cycle and for applications of radiations in medical or industrial field.

11

- Entering the realm of life after 40 for an individual person is often accompanied by a sense of introspection and contemplation.
- It applies to AERB too and marks a significant milestone where experiences, wisdom, and self-discovery converge to induce AERB to demonstrate that the organization has come of age.

12

AERB in the last 40 years has competent staff with required knowledge, skills and abilities (and attitudes) for all nuclear and regulatory work.

The academic qualifications mix in science and technology (and some additional persons in Law also) is of high order. The skills, abilities and attitudes acquired by them from their many years of close observations and interactions with experts are of high order - with desired breadth and depth required for day to day regulatory work. The participation of experts including from Technical Support Organisations for specialty domains is, however, indispensable.

13

Question posed is:

Where to Strengthen Resources and Expertise in Regulatory Body ?

I think the question has been posed in the context of expected rapid increase of the capacity of nuclear power to minimize carbon foot print.

In doing so at an enlarged scale certain organizational or business model changes at the utilities may be a complex challenging environment for the regulator. (The arrangement of established collective responsibility for safety between AERB and present Utilities may require to be reestablished with new set ups).

Net Zero by 2070 and Viksit Bharat by 2047

Net zero by 2070 and VIKSIT Bharat by 2047 has necessitated possibly rapid growing expectations from nuclear industry.

Looking ahead on implementation of this, following seem to be on the horizon :

1. Additional Fleets of 700MWe units, PWRs from France and US, upcoming designs of BSMR, BSR, and possibly other types of SMRs, FBRs, Metallic Fueled FBRs,.....
2. Induction of Joint Venture Companies, Private investors in existing utility arrangements...

15

The areas to Strengthen Resources and Expertise
in AERB for these expectations
(Concluding)

16

1. Fleets of 700MWe units, PWRs from France, Russia and US, upcoming designs of BSMR, BSR, and possibly other types of SMRs, FBRs, Metallic Fueled FBRs,.....

This will need adding manpower at various levels and expertise, training and requisite professional development.

AERB along with its TSOs is prepared for this transformative scenario.

IRRS AERB 2015

The scope and depth of the AERB recruitment and training programme is worthy of the attention of other regulatory bodies.

17

1. Fleets of 700MWe units, PWRs from France, Russia and US, upcoming designs of BSMR, BSR, and possibly other types of SMRs, FBRs, Metallic Fueled FBRs,.....

The approach at AERB to safety and its regulation has never been stagnant. Continuous assessment and improvement to be a knowledge organisation of high international standards with state of the art capabilities and to maintain high level of professionalism in the domain of its regulatory responsibilities is a priority with AERB.

AERB along with its TSOs is generally prepared and is strengthening its desired practices further in a proactive manner for this transformative scenario involving new technologies.

18

1. Fleets of 700MWe units, PWRs from France, Russia and US, upcoming designs of BSMR, BSR, and possibly other types of SMRs, FBRs, Metallic Fueled FBRs,.....

IRRS AERB 2015

The AERB should establish guidance for individual staff members for the implementation of the graded approach in all its regulatory processes.

19

2. Induction of Joint Venture Companies, Private investors in existing utility arrangements...

IRRS AERB 2015

The AERB should review organizational changes of NPPs and develop internal procedures to assess whether the licensees' organizational changes are planned, categorized, implemented and monitored in a manner that does not compromise safety.

20

2. Induction of Joint Venture Companies, Private investors in existing utility arrangements...

IRRS AERB 2015

The AERB should consider implementing its safety culture review process throughout the organization, including the consultation of staff on the safety culture action plan before its implementation.

The AERB should consider ensuring that a sufficient number of staff with specialised competence, knowledge, skills and abilities in the area of human and organizational factors (HOF) and communications are available

21

2. Induction of Joint Venture Companies, Private investors in existing utility arrangements...

IRRS AERB 2022

The AERB should consider continuing reviewing and, when appropriate, revising regulations and guides to ensure consistency with the IAEA safety standards. When doing so, the AERB should appropriately consider the hierarchy of the regulatory documents, including those setting the regulatory requirements.

22

2. Induction of Joint Venture Companies, Private investors in existing utility arrangements...

Scope of INSPECTIONS and functions to be covered during inspections may need review.

23

Thank you

24