



60 Years

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Atoms for Peace and Development

Methodology for Capacity Building in nuclear safety

Yassine Chaari

Office of Safety and Security Coordination

Department of Nuclear Safety and Security



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Background

This methodology aims to:

- analyse capacity building programmes of Member States (MS) at the national as well as organisational/institutional level
- identify actual or potential gaps in MS capacity building endeavours
- develop systematic and structured plan for addressing these gaps in order to ensure the availability of sufficient and competent capacities for the safe, secure and sustainable use of nuclear science and technology.

IAEA Contributions:

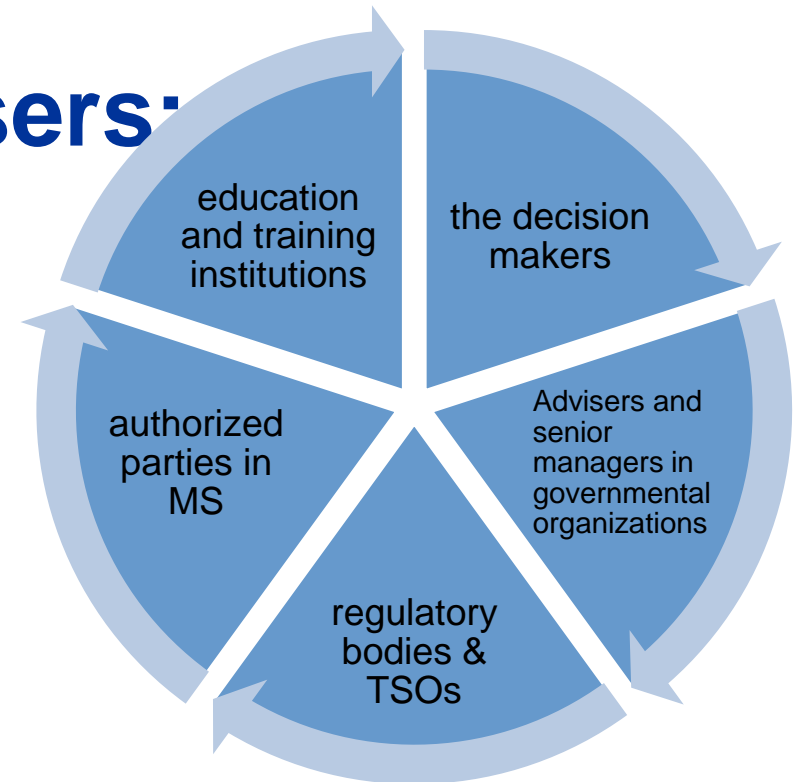
- IAEA Secretariat and partner organizations will be in a better position to provide assistance to Member States for establishment and / or support of capacity building programmes by following an Integrated CB plan after assigning priority to different support activities.

Objectives of document:

- Describe the methodological concept and the associated elements of capacity building
- provide a mechanism/tool for Member States to analyze their capacity building programmes / arrangements

Capacity Building Users:

- The primary users of this publication are:





Introduction to Capacity Building: 60 Years Atoms for Peace and Development

- **The IAEA defines capacity building as:**

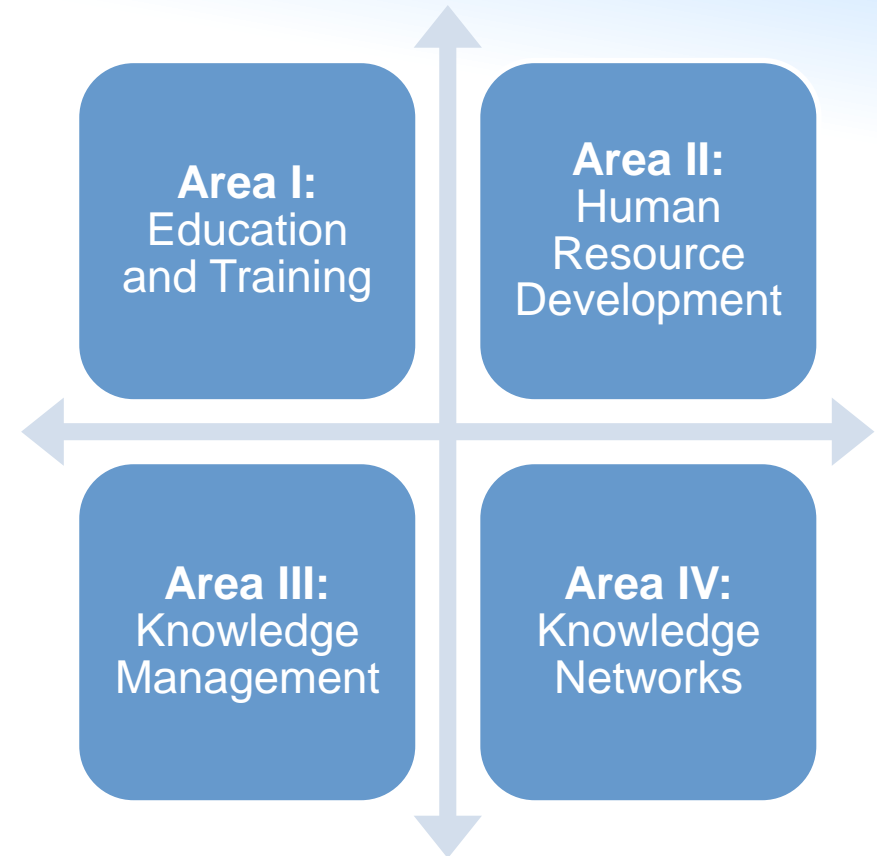
a systematic and integrated approach that includes education and training, human resource development, knowledge management and knowledge networks to develop and continuously improve the governmental, organizational and individual competencies and capabilities necessary for achieving a safe, secure and sustainable use of nuclear science and technology.

- **The goal of this capacity building methodology** is to overcome a complex array of challenges in developing the required human resources and competence in the field of nuclear safety and security.
- **Capacity building** is multidisciplinary and multi-institutional, is a continuous activity to address current and future challenges for States embarking on or expanding existing programmes.

In order to enhance radiation and nuclear safety infrastructure, the following are the four strategic objectives adopted to address the aforementioned objectives:

- Support the development of a national enabling environment for capacity building ensuring robust national nuclear safety systems  national policy or strategy
- Enhance organizational capacity  staffing, procedures, processes, etc.
- Develop suitably qualified, experienced, competent and committed professionals for ensuring safety

Capacity Building Umbrella: (4 Areas)



Area I: Education and Training

Objectives:

- Provide a structured knowledge base for individuals involved in the utilization, control and regulating nuclear technologies to develop their individual capacity.

Regulatory Body:

- Competence shall be built, in the context of the regulatory framework for safety, by such means as:
 - Technical training
 - Learning through academic institutions
 - learning centers
 - Research and development work.

(In cases where the training programmes available in the State are insufficient, arrangements for training shall be made with other States or with international organizations.)

Objectives:

- Develop an effective workforce at both the national and the organizational levels
- Provide a structured approach to enable a MS to
 - estimate the human resource needs for its national programme
 - assess its existing capability
 - identify competency gaps
 - plan and implement activities to fill these gaps according to the nature and scope of its national program for nuclear and radiation facilities and activities.

Regulatory Body:

- Employ a sufficient number of qualified and competent staff, commensurate with the nature and the number of facilities and activities to be regulated, to perform its functions and to discharge its responsibilities.
- Develop a human resources plan that:
 - states the number of staff necessary and the essential knowledge, skills and abilities for them to perform all the necessary regulatory functions.
 - covers recruitment and, where relevant, rotation of staff in order to obtain staff with appropriate competence and skills, and shall include a strategy to compensate for the departure of authorized staff.
 - Facilitates performance of activities safely in accordance with the legal requirements and establish a procedural process to identify and maintain the necessary competence and resources needed for safe operation of the facilities

Area II: Knowledge management

Objectives:

- Deals with capturing, structuring and transmitting this knowledge.
- Develop a process to maintain the necessary competence and skills of staff of the regulatory body, as an element of knowledge management.

Regulatory Body

- Develop a Knowledge Management Programme as part of the Integrated Management System. The Knowledge Management Programme should address processes and procedures for documentation of the management system.

Area IV: Knowledge networks

Objectives:

- Promote the pooling, analysis and sharing of nuclear technical, safety and security knowledge and experiences at the national level.
- Facilitate stakeholder engagement, consultation and communication with interested parties.
- Enhance stakeholders' capacity in contributing and supporting the implementation of the Capacity Building strategies and programmes.

Regulatory Body:

- fulfil its respective international obligations towards the global safety regime.
- ensure that bilateral and multilateral arrangements are in place for benefiting from international cooperation and, as appropriate, from the provision of assistance in connection with a nuclear or radiological emergency.
- Make arrangements to analyze, identify and share lessons learned from operating and regulatory **experience**. (As per the IAEA Safety Standards and INSAG recommendations)
- Engage the public and national stakeholders in decision-making and formal consultations processes.

Levels of Capacity Building

- In a capacity building programme for enhancing safety and strengthening the national framework for radiation and nuclear safety, there is need to address the three safety subsystems as recommended by INSAG27: Ensuring Robust National Safety Systems- Institutional Strength in Depth: strong nuclear regulators, strong nuclear industry and a strong set of stakeholders.
- To do so, it is important to address the capacity building programme at governmental level, organizational level and at individual level.
- The analysis should be carried out in line with the capacity building elements (i.e. human resource development, education and training, knowledge management and knowledge networks).

Levels of Capacity Building Analysis:

Government Level

- Ensure a safe, secure and sustainable development and operation of nuclear and radiation facilities and activities.
- Have a clear policy and strategy for capacity building along with effective coordination and allocation of appropriate resources for implementation of national capacity building program.

Organizational / Institutional Level

- Communicate to the government their overall human resource requirements
- Help to identify the necessary infrastructure to ensure that the appropriate capacity is available to support a national policy and strategy for safety
- Make effective use of the available infrastructure to ensure the capacity and competency of their personnel

Individual Level

- Forms the foundation for organizational capacity
- It is reflected in the knowledge, skills, competence, behavior, commitment, experience, attitude and values demonstrated by staff
- It is enhanced through education, work readiness, staff profiling, performance agreements, recognition and reward, learning frameworks, skills programmes, etc.
- The implementation of individual capacity building is considered to be part of the organizations' responsibility in this process and is not considered separately in this document.

Analysis Mechanism

The Analysis Mechanism of the government and each relevant organization should address the following four fundamental questions:

- What is needed? (Need)
- What is available and adequate to meet the needs? (Availability)
- What actions country needs to take for developing and implementing capacity building programme?
- What support from IAEA is available to country for developing and implementing capacity building program?

Objectives of Analysis Mechanism:

- The Analysis Mechanism will identify the actions for meeting the intent of safety standards and provision of IAEA support against certain actions
- Consider government and relevant bodies responsible for:
 - nuclear policy and strategy for safety at the national level
 - authorized parties, the regulatory body, technical and scientific support organizations, relevant academic (education and training) organizations, universities and technical institutes
- The questionnaire for self-assessment is given in Appendix I.



**Phase I:
Coordination**

**Phase II:
Documentation of
the Analysis
Mechanism
Results**

**Phase III:
Development of
Integrated National
Capacity Building
Plan for Safety**

Benefits

- Analysis of existing Capacity building with the 4 elements in MS is a critical step in the development and/or strengthening of a sustainable supply of competent human resources capable of applying nuclear technologies in a safe, responsible and sustainable manner.
- The self assessment results will identify the shortcomings and weaknesses to be addressed by Member States with the support of the Agency
- The establishment of an Integrated National Capacity Building Plan identifying all parties with responsibilities for the safety of nuclear and radiation facilities and activities, is a prerequisite for ensuring nuclear safety in MS in accordance with IAEA SS.
- These Plans will ensure an optimized use of the Agency's resources, as well as those of other partners and a more efficient, effective and coordinated assistance to Member States