



60 Years

IAEA

Atoms for Peace and Development

The Global Nuclear Safety and Security Network-GNSSN

IAEA Support programme to ANNuR

Role of the IAEA

- **IAEA statute Article III, A.1:** supports Member States in the peaceful uses of atomic energy throughout the world
- **IAEA statute Article III, A.6:** focuses on the creation, promotion and application of safety standards for protection of health and minimization of danger to life and property
- The Agency is further authorized and encouraged to foster scientific and technical information exchange and training in the field of peaceful uses of atomic energy



Facts about ANNuR

- ANNuR is composed of 22 countries, 5 of which have expressed interest in embarking on a nuclear power programme.
- One country (i.e. the UAE) is constructing the first nuclear power plant.
- 9 operational research reactors and two under construction within the membership.
- the Agency and ANNuR have also signed a practical arrangement in May 2014 with the objective to strengthen the safety and security framework.
- In March 2015, ANNuR member countries requested that the IAEA to act as a secretariat for the thematic working groups under ANNuR

Challenges

- The complexity and diversity of the various regulatory infrastructures within ANNuR countries
- Vast socioeconomic diversity leading to challenges for regional programme implementation
- technical challenges are related to radiation safety infrastructure development and implementation as well as of the development of adequate safety infrastructure for nuclear power projects.
- Adherence to international legally binding and non-binding legal instruments (conventions and code of conducts etc.)
- Use of IAEA safety peer reviews and advisory missions

IAEA Support for Building Capacity

Review Services & Tools

**Review
Services**

**Competence
Needs
Assessment
Tools**

Courses & Practical Learning

**Specialized
Training
Curriculum
and Courses**

**Post-
graduate &
Basic
Professional
Courses**

**On the Job
Training
Fellowship
Technical
Visits**

Sustainabili ty

**Train the
Trainers**

**Distance
Learning**

E-Learning

Steering Committees & Networks

**Member
States
Steering
Committees**

**Knowledge
and Technical
Networks**

**Support and
Capacity
Building
Centres**

Regular Budget, Extra Budgetary, TC Projects, Regional Networks



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Project : Regulatory Supervision of Research Reactors in ANNuR Member States

Overview of the status of research reactors

Member State	Facility Name	Facility Type	Power (kW _{th})	Status	Vendor Country	Commissioned in
Algeria	NUR	Pool	1000	Operational	Argentina	1989
	Es-Salam	Heavy water	15000	Operational	China	1992
Egypt	ETRR-1	Tank WWR	2000	Operational	Russia	1961
	ETRR-2	Pool	22000	Operational	Argentina	1997
Iraq	IRT-5000	Pool, IRT	5000	Extended shut down	Russia	1968
	TAMMUZ-2	Pool	500	Extended shut down	France	1980
Jordan	JSA	Sub-critical	0	Operational	China	2014
	JRTR	Tank in pool	5000	Under commissioning	Korea	2016
Lebanon	-	-	-	Considering	-	-
Libya	TNRC	Critical assembly	0.1	Operational	Russia	1981
	IRT-1	Pool, IRT	10000	Operational	Russia	1981
Morocco	MA-R1	Triga Mark II	2000	Operational	USA	2006
Saudi Arabia	RR-1	Pool	30	Under construction	Argentina	-
	-	-	TBD	Planning	TBD	-
Sudan	-	-	-	Considering	-	-
Syria	SRR-1	MNSR	30	Operational	China	1996
Tunisia	-	Sub-critical	0	Planning	TBD	-

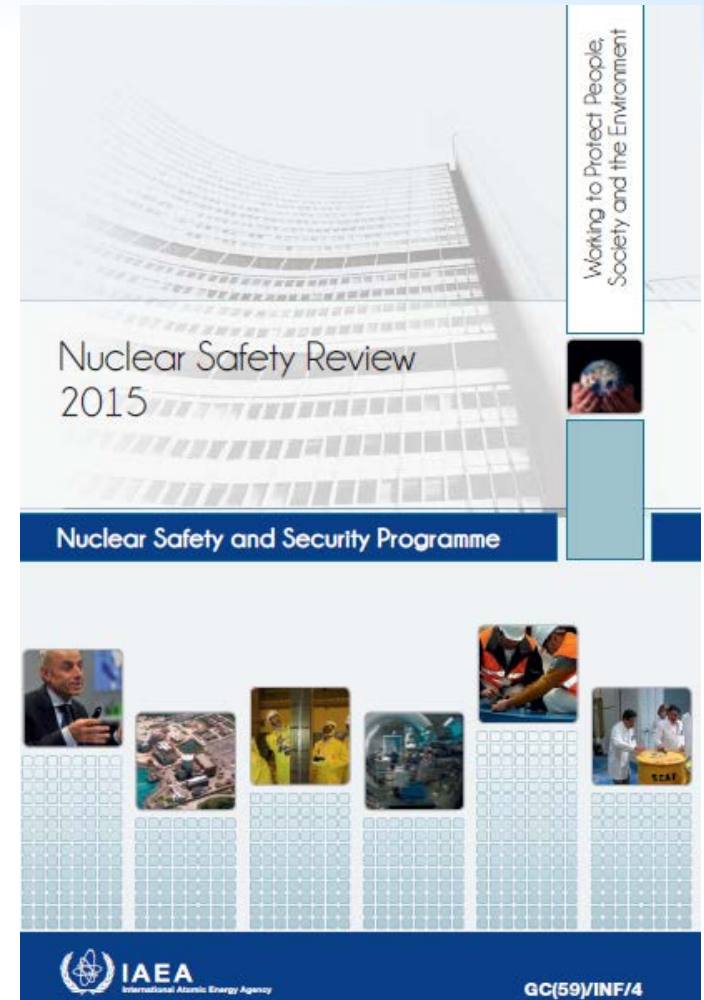
9 operational, 2 under construction/commissioning, 4 under consideration

Overview of the status of research reactors

- Different reactor types (Open pool, Heavy water, TRIGA, and MNSR);
- Reactor power ranges from 0 to 22 MW;
- Differences in the utilization programmes; and sizes and resources of the operators and regulatory bodies;
- Reactors operating for long periods with some for more than 30 years; and others are under commissioning/construction. Some countries considering their first nuclear facility.
- The issues and challenges for research reactors in ANNuR Member States are the same for research reactors worldwide.

Safety issues and challenges – Nuclear Safety Reviews

- Regulatory effectiveness;
- Ageing of facilities and continued safe operation;
- Ability to perform safety assessment;
- Operational radiation protection, emergency preparedness, and decommissioning plans;
- Infrastructure for establishment of the first research reactor;
- Interface between safety and security.



- **Sources of information:**

- Self-assessments submitted to the International/Regional Meetings on Application of the Code of Conduct;
 - Safety reviews at research reactors in ANNuR countries;
 - Technical meeting on assessment of the needs in regulatory supervision for research reactors in ANNuR countries (Vienna, April 2015).
- Actions were identified (and under implementation jointly by AAEA, IAEA, and other partners) to address the identified needs.
 - The activities associated with these actions are complementary to those planned at the national level and under other IAEA programmes such as Technical Cooperation.

The activities aim at supporting ANNuR members in:

- Developing competence and human resources to ensure independency in regulatory decision making;
- Establishing licensing process for research reactors, and enhancing the ability to perform regulatory review and assessment of safety submittals;
- Establishing effective regulatory inspection programmes for all stages and activities of a research reactor lifetime;
- Establishing regulatory infrastructure for countries establishing their first nuclear installation.

Concluding remarks

- Feedback from the IAEA and AAEA activities showed the need for enhancing regulatory supervision of research reactors in the ANNuR countries, including in regulatory independence, and capacity for licensing and inspection.
- In complementary to the efforts at the national level, the activities being implemented under the GNSSN address these challenges.
- To maximize the benefits from these activities and ensuring effective exchanges on issues of common interest, ANNuR members are encouraged to allocate resources to these activities, including ensuring effective participation and conduct of follow-up on their outputs.



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Thank you!

