IAEA
International Atomic Energy Agency

IAEA Support to Radiation Sciences & Applications

Danas Ridikas

Physics Section
Division of Physical and Chemical Sciences
Department of Nuclear Sciences and Applications

Three Pillars - Main Areas of Activity

Safeguards & Verification

Safety & Security

Science & Technology

Science and Technology

Food & Agriculture

Promoting food security and sustainable agricultural development

Human Health

Improving the diagnosis and treatment of diseases and nutrition

Science & Industry

Providing knowledge & expertise for science & industry

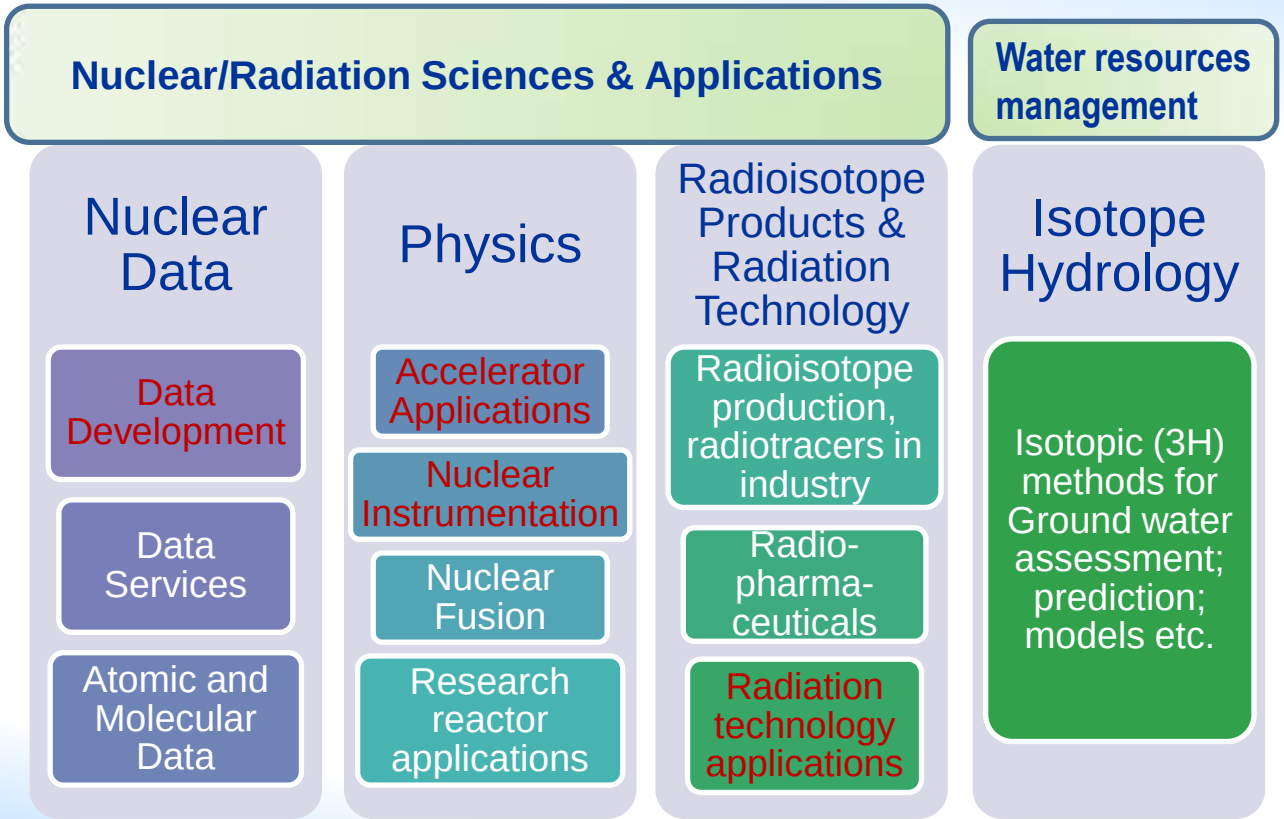
Water Resources

Making more, and cleaner water available to more people

Environment

Understanding and protecting the environment

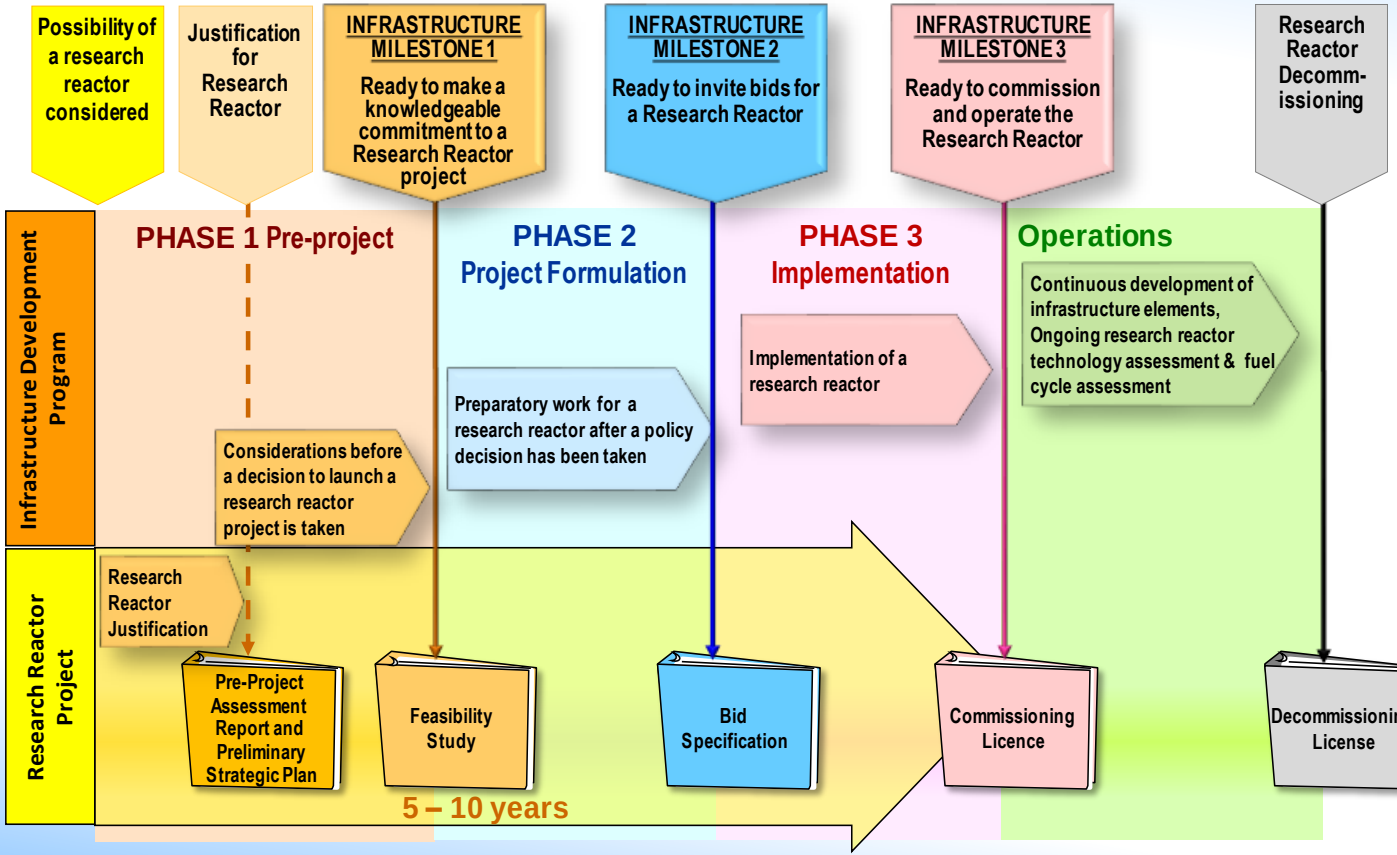
Division of Physical & Chemical Sciences

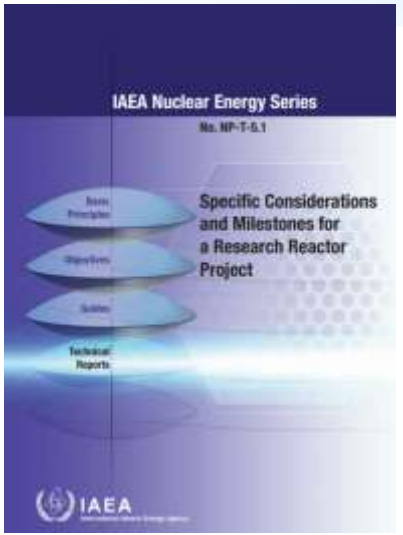


Contact: Ms Meera VENKATESH, DIR-NAPC, M.Venkatesh@iaea.org

Considerations for a New Facility

Decide, Prepare, Construct, Operate: phases/milestones





Infrastructure issues and milestones

ISSUES	Phase 1	Phase 2	Phase 3
1. National position			
2. Nuclear safety			
3. Management			
4. Funding and financing			
5. Legislative framework			
6. Regulatory framework			
~~*7. Safeguards*~~			
8. Radiation protection			
9. Utilization			
10. Human resources development			
11. Stakeholder involvement			
12. Site survey, site selection and evaluation			
13. Environmental protection			
14. Emergency planning			
15. Nuclear security			
~~*16. Nuclear fuel management*~~			
17. Radioactive waste			
18. Industrial involvement			
19. Procurement			

CONDITIONS

CONDITIONS

CONDITIONS

Phase 1: pre-project

Establish the Assessment, Marketing & Project Team

Identify Potential Stakeholders and Quantify Stakeholder Needs

Determine whether a research reactor can be justified

Develop the Outline Facility Specification

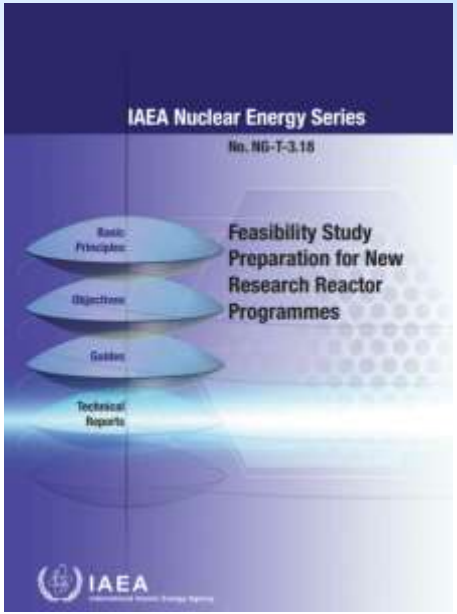
Identify Long-Term Government Commitments and Policy Issues

Consider Organizational Issues

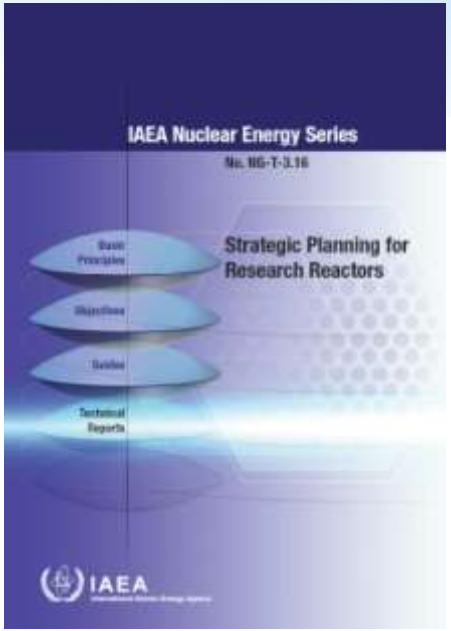
Feasibility study

Compile the Pre-Project Assessment Report

Prepare a Strategic Plan



Considerations for Strategic Planning



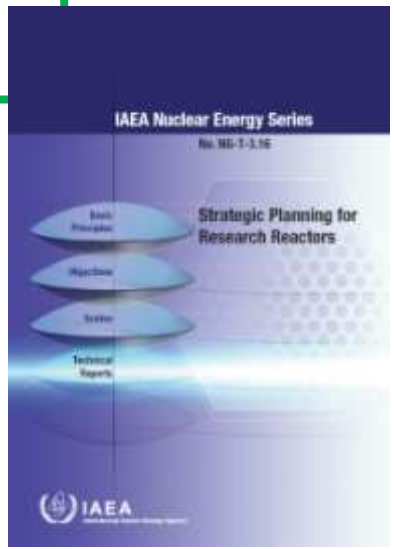
8

Basic approach for Strategic Planning

Facility Status
Capabilities
What can I do?

Current Stakeholder
Requirements/Needs
What should I do?

Production of a strategic plan ensures and supports an increase in utilization by increasing capabilities and creating new requirements

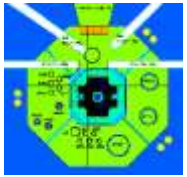


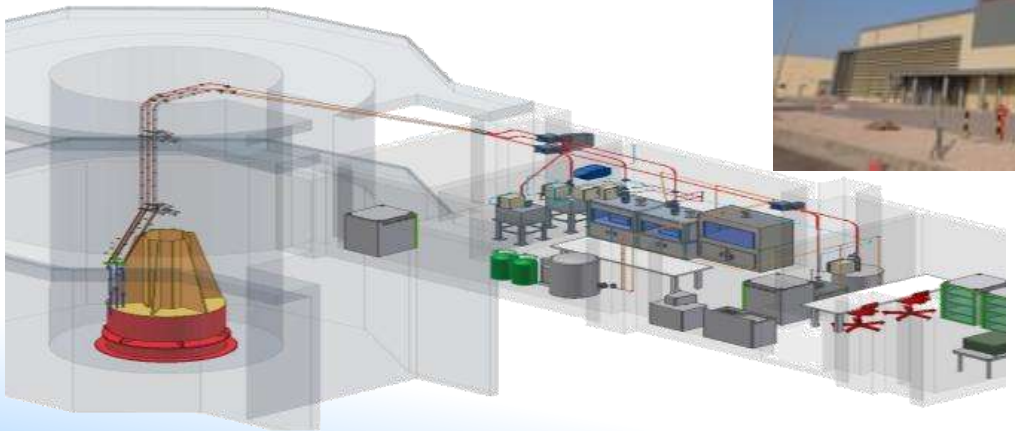
Support/assistance from the IAEA is dependent on having a demonstrated need, i.e. … a strategic plan

Jordanian case: new research reactor

Jordan Research & Training Reactor (JRTR), ***with support and assistance from the IAEA***
Designed and constructed by KAERI-Daewoo Consortium, **1st criticality in April 2016**

5 MW (upgradable to 10MW), neutron flux ~1.5*10^{14} n/(s cm^2)
Fuel: ~19.75 % U-235, U_3Si_2-Al, Coolant & Moderator: H_2O, Reflector: Be
Multipurpose RR: radioisotope production, Si doping, neutron beams, NAA, E&T, etc.
1st step to the national NPP programme





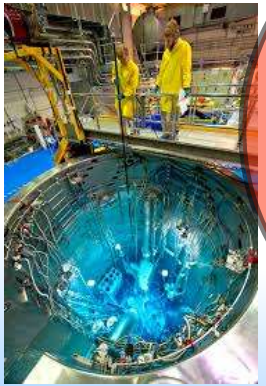
Other examples of IAEA's support

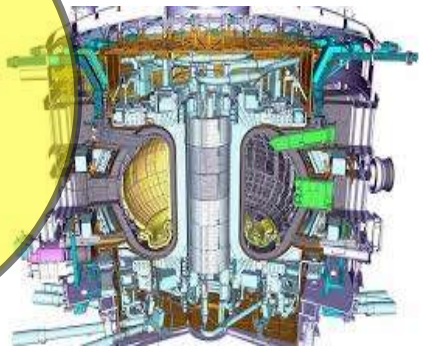
Country	Setting-up, steering and supporting projects related to ion-beam accelerators, including hands-on-training in operation and maintenance; assistance in refurbishment and upgrades of beam lines and instrumentation
Algeria	Feasibility study; strategy development for setting up a network of accelerators
Bangladesh	Support to develop an irradiation beamline for mutation breeding; support in faults finding and repair of the accelerator.
Croatia	Support in the procurement of the 1 MV Tandetron accelerator, including many accelerator components such as ion source, end-stations, etc. during last 20 years.
Ghana	Technical support to establish an accelerator facility including: site preparation, installation of the accelerator and a multi-purpose beamline, training of personnel and development of strategies for the utilization of the facility.
Lebanon	Technical assistance in: procurement of the 1.7 MV accelerator, starting up the accelerator laboratory, the development of a beamline for the a micro-beam additional upgrades of the accelerator and training of personnel in IBA techniques.
Mexico	Development of the new accelerator control system and related software.
Nigeria	Procurement of the 1.7 MV Pelletron accelerator and of IBA and external PIXE beamlines for environmental and biomedical investigations training of personnel in accelerator technology and ion beam analysis.
Slovakia	Support in the establishment of an ion beam accelerator facility including IBA setups, training on IBA methods and accelerator mass spectrometry.
Slovenia	Procurement of the 1.7 MV Tandetron accelerator and of the (micro)beamline
South Africa	Technical support to upgrade the facility with an accelerator mass spectrometer and corresponding training on its usage.

IAEA
International Atomic Energy Agency

Thanks for your attention!

Physics Section: Areas of Technical Expertise





Accelerators

Instrumentation

Research Reactors

(Applications)

Fusion

Contact: Mr Danas RIDIKAS, SH-Physics/NAPC, D.Ridikas@iaea.org