Capacity building supporting long-range sustainable nuclear energy system planning

THE CHALLENGE

A key challenge in the 21st century, as countries expanding their nuclear programmes are joined by those embarking on new nuclear programmes, will be to ensure that the global nuclear energy system continues to progress towards sustainability.

IAEA RESPONSE

The path to sustainable global nuclear energy systems requires innovative approaches in institutional arrangements and nuclear technology. Such approaches will be based on national, regional and global scientific technical analysis and will use broadly recognized metrics of sustainability. They will be jointly developed by today's and tomorrow's nuclear energy users and technology developers.

Multiple resolutions of the IAEA General Conference and the direction of the International Project on Innovative Nuclear Reactors and Fuel Cycles Steering Committee are shaping the IAEA's response to this challenge. The primary objective is to continue assisting embarking and developing Member States in building capacity to conduct long-range nuclear energy system planning in a manner that promotes increasing nuclear sustainability.

PROJECT ACTIVITIES

- **International Project on Innovative Nuclear Reactors and Fuel Cycles Dialogue Forums.** These will be organized to help advance broad communication on innovations and topics related to global nuclear energy system sustainability.
- **Regional capacity building workshops and training.** These will be held regionally, by distance learning or in Vienna.
- **Distance learning.** To be provided to Member States' education and technical institutions at the request of the Member State.
- **Long term planning assistance.** Assistance will be provided to Member States in the application of the methodology assessment and analysis tools of the International Project on Innovative Nuclear Reactors and Fuel Cycles, to support long term planning efforts.
- **Publication.** A new edition of the International Project on Innovative Nuclear Reactors and Fuel Cycles methodology will be published.

DURATION

Five years

BENEFICIARY COUNTRIES

IAEA Member States embarking on or developing nuclear energy programmes

EXPECTED RESULTS

The project is expected to improve communication between experts from embarking and expanding nuclear countries and experienced counterparts from technology holding countries. It will also improve resources and capacity in energy system planning in embarking and expanding countries.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	489 000
2017	489 000
2018	489 000
2019	414 100
2020	344 500
Total	**2 225 600**

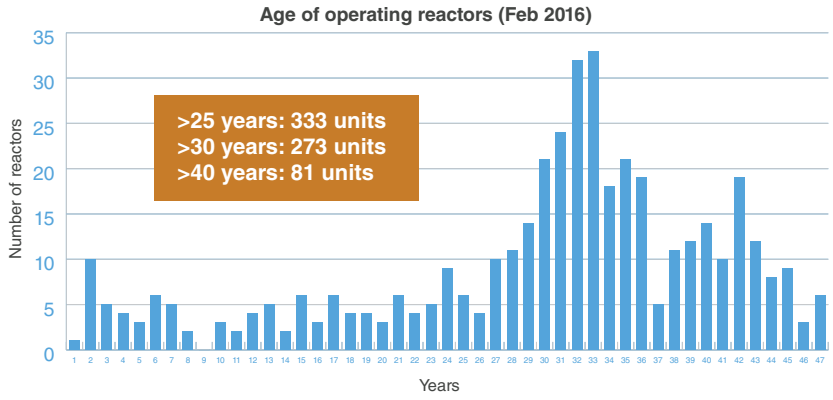
Plant life management in transition from operation to decommissioning of nuclear power plants

THE CHALLENGE

For nuclear power plants, the period of transition from operation to decommissioning is a critical one. Plant structures and components need to remain sound during this phase in order to safely contain residual radioactivity, and ageing management activities such as maintenance and inspections must be in place. At the same time, technical and organizational modifications are needed to adapt the plant to meet new objectives. It is essential to provide owner operators, contractors and regulators with guidelines for nuclear plant life management in the transition period, particularly in light of recently announced decisions in some countries to permanently shut down operating reactors before their licenses expire.

IAEA RESPONSE

Although various publications focus on management for the long-term operation of nuclear power plants, none deal specifically with the transition period from operation to decommissioning. This project aims to address that deficiency by highlighting the technical, management and organizational issues arising during transition and providing guidance to minimize delays and undue costs. It also aims to provide guidance for optimizing personnel and other resources, and initiating preparatory activities for decommissioning in a planned, timely and cost effective manner.



PROJECT ACTIVITIES

- **Analysis of programme requirements.** Three consultancy meetings and a technical meeting will be held to develop a new Nuclear Energy Series publication.
- **Design and Development of new Nuclear Energy Series publication.** This will focus on plant life management for the transition from operation to decommissioning of nuclear power plants.
- **Workshop/training course.** This will promote the dissemination of information and knowledge related to the transition period.

DURATION

Four years

BENEFICIARY COUNTRIES

IAEA Member States expected to transition from operation to decommissioning of nuclear power reactors in the near future

EXPECTED RESULTS

This project will raise Member States' awareness of good practices and lessons learned in the transition from operation to decommissioning.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	21 400
2017	107 000
2018	117 700
2019	53 500
Total	**299 600**

Quality and management system aspects of nuclear procurement engineering and supply chains

THE CHALLENGE

The nuclear supply chain has experienced a number of significant changes in recent years. Increased globalization and a reduction in the number of traditional nuclear suppliers have made sourcing of nuclear components more complex. Procurement-related issues have impacted nuclear power plant construction and operation, making procurement engineering an increasingly important function.

There is a need to disseminate good practices and lessons learned in respect of procurement and supply chain challenges to owner operators, regulators, suppliers, auditors and other supply chain participants throughout the nuclear industry.

IAEA RESPONSE

This project aims to inform Member States of good practices for the management of procurement and supply chain activities related to the construction, operation and maintenance of nuclear facilities. They include aspects such as needs identification, requirements development, value analysis, supplier research, negotiation, buying activities, establishing acceptance criteria, contract administration, inventory control, transportation, receiving, warehousing, among others.

PROJECT ACTIVITIES

- **Online learning module** on procurement and supply chain issues for nuclear facilities. To be published on the IAEA web site.
- **Technical guidance document.** This will focus on good practices for the management of supply chain vendors.
- **Technical Meetings or international workshops.** These will give Member States the opportunity to provide related feedback and experience for incorporation into IAEA guidance documents.

DURATION

Three years

BENEFICIARY COUNTRIES

IAEA Member States operating, expanding or constructing nuclear power plants

EXPECTED RESULTS

Newcomer Member States will be able to train and develop their staff using the online learning module on procurement engineering. The project will also enable Member States to develop or improve their procurement practices using the guidance documents on procurement.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	58 850
2017	90 950
2018	90 950
Total	**240 750**

Risk management of nuclear power plant construction

THE CHALLENGE

For countries expanding or constructing nuclear power plants, there is a need to identify and prioritize all relevant risks and to direct management strategies accordingly. The licensing preparation of nuclear power plants is driven primarily by upfront activities associated with construction, and each Member State has a different mechanism for permission for construction and operation.

IAEA RESPONSE

An integrated risk assessment approach is based on the understanding that all health and environmental risks should be systematically identified, analysed and assessed, and appropriately mitigated for nuclear power plant construction.

The project aims to develop a new practical guidance and reference framework for undertaking such integrated health and environmental risk assessment studies for nuclear power plant construction. It will include the licensing process, standardization, allocation of advanced technology progress and lessons learned. The integrated risk management approach also necessitates the formulation of overall coordinated strategies involving multi-dimensional elements.

PROJECT ACTIVITIES

- **Analysis of programme requirements.** This will be the focus of three consultancy meetings and a technical meeting.
- **New Nuclear Energy Series publication.** This will formulate integrated risk management strategies, including the prioritization of implementation measures and resources, and an overview of organizational risk tolerance, capabilities, competencies and tools to manage identified risks and licensing risks.
- **Workshops and training.** These will promote the dissemination of technical content and lessons learned.

DURATION

Three years

BENEFICIARY COUNTRIES

IAEA Member States with new and expanding nuclear programmes

EXPECTED RESULTS

The project is expected to enhance knowledge of the effective and safe management of nuclear power plant projects from pre-project to the operation stage. It will help improve the quality of preparation and supervision of nuclear power plants, including licensing processes, standardization, technology progress and lessons learned.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	21 400
2017	80 250
2018	101 650
Total	**203 300**

Supporting the development of management systems and nuclear safety culture in countries introducing nuclear power programmes

THE CHALLENGE

Leadership and management are key ingredients for a safe, secure, peaceful and sustainable nuclear power programme. Major organizations involved in nuclear power development are expected to have management systems in place to ensure that they can define and implement the requirements for the safe and secure operation of a nuclear power plant.

During the past five years, Integrated Nuclear Infrastructure Review missions and other relevant missions consistently identified the need to further develop leadership and management skills and competencies in newcomer countries. As a result, many of these countries have asked for additional assistance in these areas, as well as in establishing the safety culture necessary for the operating organizations and regulatory bodies.

IAEA RESPONSE

This project aims to support the development of integrated management systems in newcomer countries in order to foster effective relationships between regulatory bodies and operating organizations. It will also promote greater access to the IAEA's Safety Culture Continuous Improvement Process.

PROJECT ACTIVITIES

- **Expert missions**, upon the request of Member States, to introduce integrated management systems.
- **Expert missions**, upon the request of Member States, to assess organizational needs and develop an action plan for implementation.
- **Six-week workshop programme.** Three in-depth modular workshops will help train experts in newcomer countries on how to implement an integrated management system within their organizations.
- **Nuclear safety culture** continuous improvement process.

DURATION

Five years

BENEFICIARY COUNTRIES

IAEA Member States building nuclear power infrastructures

IAEA Member States exploring the nuclear power option

EXPECTED RESULTS

The development of integrated management systems in newcomer countries will help build stronger leadership and management skills in the senior executives of future operating organizations and regulatory bodies. It will also promote a more sustainable and thorough organizational basis for the continuous improvement of safety culture in future operating organizations and regulatory bodies.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	513 600
2017	567 100
2018	567 100
2019	567 100
2020	567 100
Total	**2 782 000**

Strengthening excellence in nuclear plant operations

THE CHALLENGE

Member States expanding or introducing nuclear power programmes need to strengthen the operational knowledge of personnel moving into middle management roles at nuclear power plants. This is especially true for countries with smaller existing programmes and limited resources and expertise. In particular, there is often a lack of operations management education and training for middle managers with significant safety responsibilities in the day-to-day operation of nuclear power plants.

The IAEA already facilitates a wide variety of programmes targeted at various management levels. Most of these activities, however, focus on general management and on programme and project responsibilities, but not on operations management.

IAEA RESPONSE

The objective of this project is to assist Member States in developing the competence of the next generation of nuclear power plant managers by providing them with training related to concepts and practices, plus the tools to improve their knowledge, skills, attitude and behaviour as it relates to operational excellence.

PROJECT ACTIVITIES

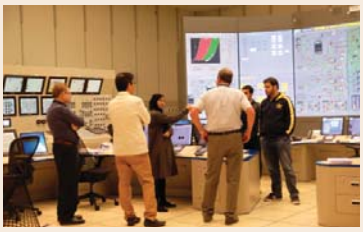
- **Detailed analysis** of programme requirements. Two consultancy meetings will be held to facilitate planning of the course content.
- **Design and develop** training materials.
- **Upgrades and acquisition** of basic principle simulators.
- **Optional e-learning** preparatory training.
- **Three four-week-long training courses.** These will take place with various host organizations in three different regions: Europe, Asia and the Americas.

DURATION

Five years

BENEFICIARY COUNTRIES

IAEA Member States planning, constructing or operating nuclear power plants



EXPECTED RESULTS

The main outcomes of this project will be increased competence in safe nuclear power plant operations management and in future operating organizations, with longer term impact on the operational excellence of nuclear power plants. The project will also serve to build capacity in the area of operations management for participating countries.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	40 000
2017	360 000
2018	250 000
2019	200 000
2020	200 000
Total	**1 050 000**

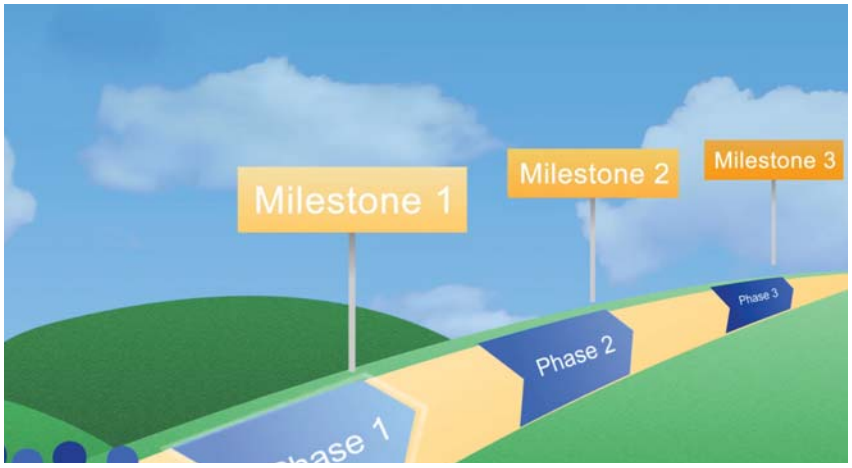
Strengthening nuclear power infrastructure development in Member States

THE CHALLENGE

Currently more than 30 countries are considering, planning or constructing a first nuclear power plant. The IAEA is often the first point of contact for these countries, and the document Milestones in the Development of a National Nuclear Power Programme and the Integrated Nuclear Infrastructure Review missions, along with other IAEA services, are widely used by these Member States.

IAEA RESPONSE

This project aims to strengthen IAEA guidance to countries introducing nuclear power by incorporating the most recent international experience and lessons learned into the guidance. It will help encourage information sharing through workshops, conferences and other events. At the same time, the project will assist countries planning nuclear power to benefit from the Integrated Nuclear Infrastructure Review programme and receive recommendations and suggestions to identify and fill gaps in their national infrastructure to support nuclear power.



PROJECT ACTIVITIES

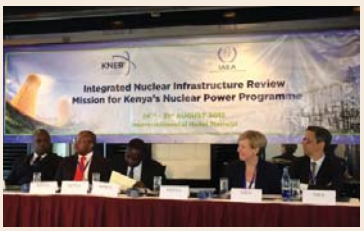
- **Strengthening the Milestones approach.** This includes updating and developing IAEA guidance documents and case studies in topical areas of nuclear infrastructure development.
- **Integrated Nuclear Infrastructure Review mission implementation.** This includes self-evaluation support missions and Integrated Nuclear Infrastructure Review missions and pre-missions. The missions will be conducted upon the request of Member States.
- **Workshops, conferences and other events.** These aim to promote information sharing on nuclear power development.
- **Guidance to newcomer countries.** Guidance will be provided according to the development of their programme through Milestones Workshops and Integrated Work Plans.

DURATION

Five years

BENEFICIARY COUNTRIES

IAEA Member States planning or constructing nuclear power plants



EXPECTED RESULTS

The project is expected to result in the continuous improvement of IAEA guidance by gathering and distributing up-to-date international experience and views on infrastructure development. Results will also include a standardized Integrated Nuclear Infrastructure Review programme, conducted effectively and with adequate follow-up. In addition, there will be increased awareness of the integrated and comprehensive nature of nuclear infrastructure development, as well as better-informed decision making and planning by governments and other stakeholders through sharing of experience and lessons learned.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	470 800
2017	567 100
2018	492 200
2019	449 400
2020	331 700
Total	**2 311 200**

Supporting the development of safety infrastructure for site selection and evaluation in Member States

THE CHALLENGE

Site selection and evaluation for nuclear power plants is a fundamental step in infrastructure development for Member States embarking on new nuclear power programmes. An appropriate process of site selection and evaluation can substantially impact public acceptance and the safety of the nuclear power plant over its operating lifetime.

IAEA RESPONSE

The IAEA works with Member States to strengthen capacity with respect to site safety aspects, supporting informed decisions on future activities related to a first nuclear power plant.

The objectives of this project are to enhance technical competences on site selection and evaluation through capacity building services. For Member States embarking on a nuclear power plant programme, it will provide Site and External Events Evaluation missions, as well as advisory services to assist Member States in selecting and evaluating suitable sites in accordance with international standards and updated methodologies, criteria and engineering practices. In addition, the project aims to increase the dissemination of lessons learned from past external events and best international practices on site selection and evaluation.

PROJECT ACTIVITIES

- **Developing online training modules** on capacity building for siting nuclear power plants.
- **Site and External Events Evaluation missions.** These will be implemented in countries embarking on nuclear power plant programmes and upon the Member States request.
- **Advisory services.** Available for embarking countries to confirm achievement of conditions for Phases 1 and/or 2, in accordance with the publication Milestones in Development of a National Infrastructure for Nuclear Power.

DURATION

Five years

BENEFICIARY COUNTRIES

IAEA Member States developing nuclear power infrastructures or exploring the nuclear power option

EXPECTED RESULTS

The development of a set of online learning modules and the implementation of awareness workshops will complement capacity building services on site selection and site evaluation. Advisory services will enhance the technical capabilities of Member State stakeholders in the review of site permit license applications.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	361 125
2017	361 125
2018	321 000
2019	294 250
2020	294 250
Total	**1 631 750**

Enhancing understanding of reactor physics and technology through the use of basic principle simulators to support capacity building

THE CHALLENGE

There is increasing interest in training aids for nuclear newcomer countries as they prepare to tackle the significant challenges associated with assessing reactor technologies, planning for their first nuclear power plant and educating their nuclear professionals. Basic reactor simulators provide insight and understanding into the design, operational characteristics, key safety systems, and transient/accident behaviour of various types of reactors. The IAEA provides a suite of eight simulators to Member States, but there is a need to upgrade five of them, so that they can run properly on an advanced operating system.

IAEA RESPONSE

This project aims to develop and upgrade five simulators to allow their migration into current Windows operating systems. It will also develop a train the trainer course for understanding reactor plant fundamentals through the use of simulators and host several such training courses.

PROJECT ACTIVITIES

- **Develop and upgrade** five simulators representing different reactor technologies. This includes revising and updating software packages and migrating the updated simulators into Windows 10 operating system.
- **Develop a train the trainer course.** A consultancy meeting will be organized to plan and develop a new training course curriculum.
- **Conduct three train the trainer courses.** At least one training course will be organized each year of the three-year project. Lessons learned from the first training course will be incorporated into subsequent courses.

DURATION

Three years

BENEFICIARY COUNTRIES

IAEA Member States introducing or interested in expanding their nuclear power programmes

EXPECTED RESULTS

The continuing functionality of five basic principle simulators will support human capacity building by Member States. The development of a train the trainer programme for use of the simulators to teach the fundamentals of water-cooled reactor physics and technology will primarily benefit newcomer countries.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	299 600
2017	85 600
2018	85 600
Total	**470 800**

Advances in the uranium production cycle

THE CHALLENGE

Demand for uranium remains strong, driving exploration for and identification of new resources across the globe. With this ongoing activity comes a renewed need for technological advancement and responsible mining, as well as prudent management of facilities.

IAEA RESPONSE

Two priority areas have been identified in which Member States need support. The Advanced Technologies for Uranium Production activity includes support in business case development, scoping and pre-feasibility studies, planning and design, operations, mine closure and end of life. The Essential Environmental and Social Aspects of the Full Uranium Production Cycle activity involves technical or training meetings in Member States with past, current or planned activities in the uranium production cycle.

PROJECT ACTIVITIES

- **Develop and deliver.** Innovative technology development training and associated materials to be developed and delivered for sustainable uranium project development and management.
- **Deliver a project feasibility study template and guidelines.** These are to be applicable for "smart" comprehensive extraction projects.
- **Disseminate information.** Promote the dissemination of current and practical information on the essential environmental and social aspects of the full uranium production cycle.
- **Publish.** Collected written papers with an expert-written overview of the project activities and applicability for the instruction of newcomer countries' personnel to be prepared for publication.

DURATION

Four years

BENEFICIARY COUNTRIES

IAEA Member States currently active in uranium mining, those planning to start uranium mining and those who have legacy uranium mining sites

EXPECTED RESULTS

The project will facilitate and support transition from the current traditional uranium mining and processing approach to a transformative "smart" model, in line with the UN Sustainable Development Goals. It will also contribute to improving the environmental and social performance of uranium production cycle facilities and reducing the risk of future legacy sites.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	124 120
2017	124 120
2018	124 120
2019	140 170
Total	**512 530**

Support to the IAEA Service of Integrated Research Reactor Infrastructure Assessment (IRRIA) missions

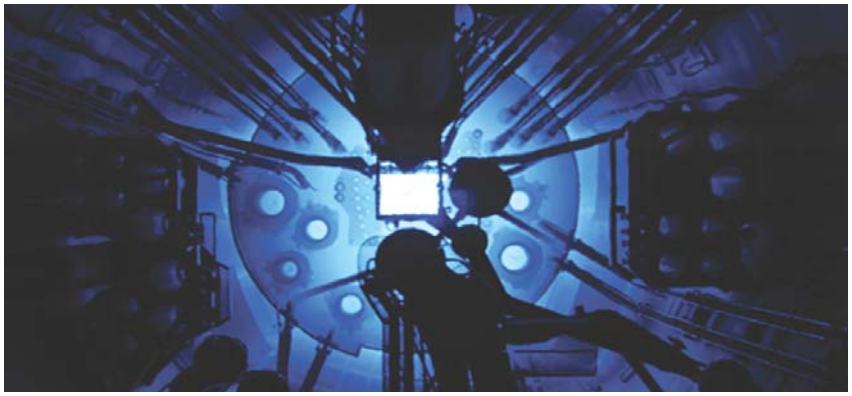
THE CHALLENGE

Interest in developing research reactor programmes has grown significantly in recent years, with several Member States currently at different stages of new projects. The majority of these countries are building their first research reactor as a key national installation for the development of their nuclear science and technology programmes.

IAEA RESPONSE

The IAEA supports Members States in such efforts. To continue facilitating the successful development of new research reactors, IAEA Integrated Research Reactor Infrastructure Assessment (IRRIA) missions help Member States to determine their nuclear infrastructure status and identify gaps and development needs.

Such a mission is intended to build upon Member States' self-evaluation to determine areas where additional work would be beneficial and to identify further actions and assistance, including from the IAEA.



PROJECT ACTIVITIES

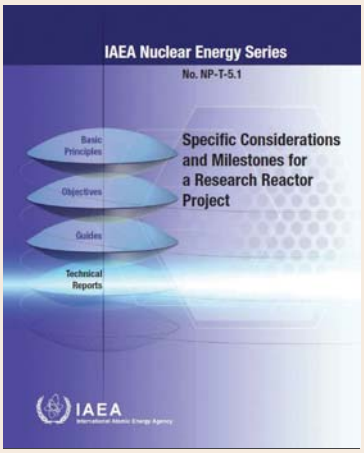
- **Initial mission.** Following a Member State's self-assessment, an initial mission will review the overall situation in the country regarding infrastructure development activities, as described in the publication Research Reactor Milestones. All the missions are conducted upon the Member States' request.
- **Follow-up mission.** This will focus on the response to the previous mission's recommendations and suggestions, as well as on the activities accomplished.
- **Prior to invitation for bids for the first/new research reactor.** This mission is implemented when the Member State is ready to invite bids for the research reactor.

DURATION

Four years

BENEFICIARY COUNTRIES

IAEA Member States considering and implementing new research reactor projects



EXPECTED RESULTS

The main output of an Integrated Research Reactor Infrastructure Assessment mission is a final report that summarizes its results, including a description of the mission's objectives and scope, areas reviewed and activities conducted, identified strengths and areas for improvement. Other observations that the team feels need to be highlighted to the requesting Member State, recommendations and suggestions for planning future activities are also included.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	117 700
2017	117 700
2018	117 700
2019	117 700
Total	**470 800**

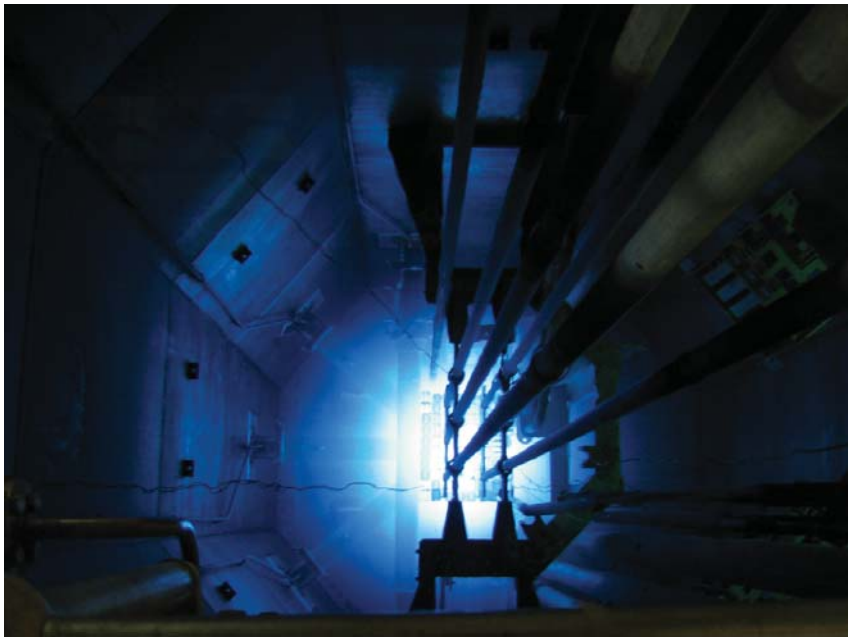
Support to the IAEA Service of Operational and Maintenance Assessment of Research Reactors (OMARR) mission

THE CHALLENGE

As research reactors age, their proper operation and maintenance becomes ever more important. Many Member States look to the IAEA for advice, support and information exchange in this area.

IAEA RESPONSE

The main objective of an Operational and Maintenance Assessment of Research Reactors (OMARR) mission is to conduct a comprehensive operation and maintenance review of the research reactor facility, suggest areas of improvement and potential solutions, identify good practices, and as appropriate share lessons with research reactor communities. Its recommendations can also be used to disseminate implementation practices within the research reactor community, with the agreement of the recipient operating organization.



PROJECT ACTIVITIES

- **Missions.** Operational and Maintenance Assessment of Research Reactors missions are initiated by the operating organization. They consist of pre-mission activities, a main mission and a follow-up mission, if requested by the facility. All missions are conducted at the request of the Member State.
- **Information gathering.** The mission team gathers information from written material, interviews with personnel, direct observation of performance, and discussion of evaluations among the team members. It designates issues for which it addresses either a recommendation or a suggestion.

DURATION

Three years

BENEFICIARY COUNTRIES

IAEA Member States operating research reactors

EXPECTED RESULTS

An official mission report will be produced in Vienna by the team leader and sent to the research reactor operating organization, with a copy to the Government of the host Member State. It will include good practices as well as issues for the Member State to address in order to improve the operation and maintenance of research reactors.

Such a mission will also contribute to the transfer of knowledge and experience between experts and reactor personnel, as well as the development of self-assessment capabilities.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	74 900
2017	144 450
2018	144 450
Total	**363 800**

Development of e-learning modules on the remediation of radioactively contaminated sites

THE CHALLENGE

In the planning and implementation of environmental remediation projects, it is important for affected communities to get a better understanding of the objectives and overall technical aspects of the decision making process.

The IAEA already provides Member States with a broad range of courses, workshops and other types of training events related to environmental remediation. Experience shows that providing information to geographically dispersed course participants via web-based technologies or e-learning is a very cost effective and efficient approach. E-learning can also be made available to a wider audience seeking reliable information about technically complex issues. A base level environmental remediation e-learning package has already been formulated and put into preparation, but additional content is required.

IAEA RESPONSE

The purpose of this project is to develop additional e-learning modules addressing topics that constitute key elements in the planning and implementation of environmental remediation projects. These pre-selected topics are the result of interactions with training course and workshop participants, as well as the professional opinions of a broad range of experts.

PROJECT ACTIVITIES

- **Definition of content** of each learning module.
- **Collaborative production of content** and evaluation of alignment with IAEA standards.
- **Elaboration of presentations** related to each module.
- **Overall assessment** of the quality and accuracy of the produced material.
- **IAEA CONNECT.** Upload of material to the e-learning platform.

DURATION

Three years

BENEFICIARY COUNTRIES

All IAEA Member States

EXPECTED RESULTS

The project is expected to help improve the level of implementation of environmental remediation projects in Member States. The material will enhance understanding of the main issues related to environmental remediation and therefore allow participants to maximize the benefits of training courses andworkshops. It will also contribute to the dissemination of authoritative information on environmental remediation, thereby improving communication with different stakeholders.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	176 800
2017	350 960
2018	350 960
Total	**878 720**

Nuclear economic analysis: a key foundation for newcomer decision making

THE CHALLENGE

A Member State's decision to use nuclear power often requires strong economic justification. This is particularly true for newcomers to nuclear power and is one of the most important factors in decision making related to energy technology choices and for the selection of acceptable, sustainable development paths.

IAEA RESPONSE

The objective of this project is to develop a new resource called the Methodology for Nuclear Energy Cost Analysis report. The report will become an important guide for Member States in performing nuclear economic analyses. It is aimed at energy system analysts, planners, and cost estimators in nuclear newcomer and existing nuclear countries. The report will provide Member States with support in analysing their energy mix, planning their first reactor and nuclear programme, upgrading, extending, or expanding their nuclear power programme, or retiring and decommissioning nuclear power plants.

PROJECT ACTIVITIES

- **Analysis of requirements.** A team of nuclear cost experts will analyse the programme requirements and further develop the design and structure of the study.
- **Technical meetings.** These will be used to discuss the costing approaches and methodologies with experts, providing input and technical review. They will also create a nuclear energy estimating module to be used as a template for additional modules in the report.
- **Workshops.** Workshops will be held with nuclear newcomers to evaluate the usefulness of the cost analysis methodologies.

DURATION

Three years

BENEFICIARY COUNTRIES

IAEA Member States introducing or interested in expanding their nuclear programmes

EXPECTED RESULTS

The main outcome will be the Methodology for Nuclear Energy Cost Analysis report composed of a number of estimating modules selected by evaluation of Member States' needs.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	160 500
2017	214 000
2018	214 000
Total	**588 500**

Capacity building through introduction and application of knowledge management methodologies and nuclear education initiatives in Member States

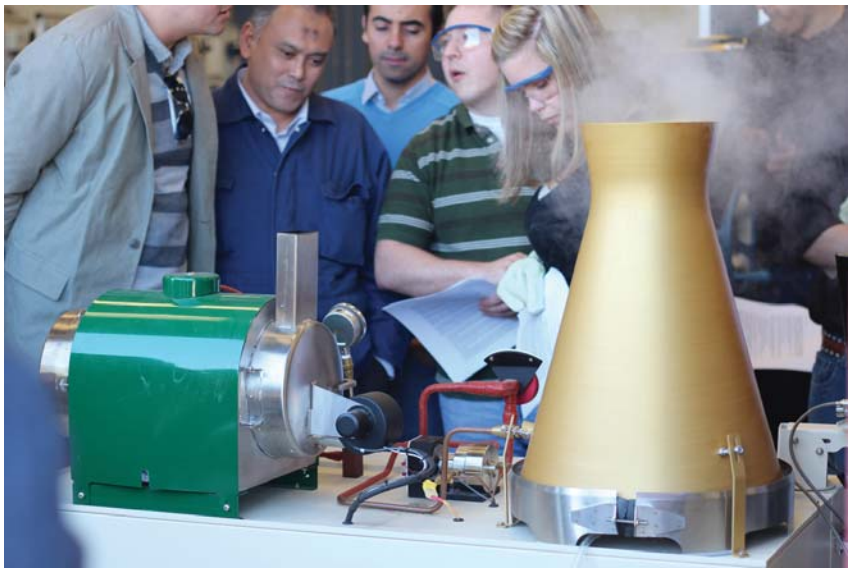
THE CHALLENGE

Science and technology, including the nuclear industry, is knowledge-based and relies heavily on skilled employees and their know-how. Recent trends such as the ageing of the workforce and declining student enrolment numbers, together with the risk of losing accumulated knowledge and experience, have drawn attention to the need for better management of nuclear knowledge both nationally and internationally.

IAEA RESPONSE

The IAEA continues to assist Member States with existing nuclear power programmes to plan expansion and/or manage ageing and life extension related issues. At the same time, it supports Member States planning to start nuclear power programmes by assisting them in ensuring competence and knowledge for the safe construction and operation of nuclear facilities.

This project is aimed at helping Member States to understand the methodologies, assess the current status of their knowledge management and the risks of knowledge loss, as well as to tailor and apply IAEA model methodologies to their needs. The first part of the project is focused on strengthening knowledge management methodology tools and practices in Member States. The second part is focused on strengthening nuclear education through collaboration initiatives.



PROJECT ACTIVITIES

- **Develop guidance documents, resources and training material.** Training and workshops will also be provided.
- **Facilitate and coordinate international collaboration with leading stakeholders.** This is intended to develop a common understanding, guidance documents, tools and approaches to plant information models.
- **Improve e-learning.** Capabilities, tools and content will be developed to this end.

DURATION

Three years

BENEFICIARY COUNTRIES

IAEA Member States requiring knowledge management methodologies to support national programmes related to nuclear energy and applications

EXPECTED RESULTS

The outcome of this project is to assist Member States embarking on or expanding their nuclear energy programme in achieving higher levels of safety as well as more efficient and reliable operation economics of nuclear facilities. It will particularly benefit developing countries by helping to ensure a more sustainable nuclear technology life cycle through the effective establishment and management of nuclear knowledge.

TOTAL ESTIMATED BUDGET

Year	*Budget (EUR) with 7% PSC included*
2016	850 650
2017	850 650
2018	850 650
Total	**2 551 950**