



# Supporting Member States: IAEA Peer Reviews and Advisory Services

Nuclear Safety and Security Programme



Nuclear  
Safety and  
Security

## Enhancing Safety and Security: the IAEA Peer Review and Advisory Services



Nuclear safety and security are national responsibilities and the IAEA helps its Member States to fulfil them by developing Safety Standards and Nuclear Security Guidance, which can be used as the basis for devising national regulations.

One of the major supports that the IAEA provides its Member States — to strengthen nuclear safety and security — is through the peer reviews and advisory services it offers. The number of these services has grown from a few to 17 that we currently offer.

This assistance to Member States aims to enhance and implement the highest levels of nuclear safety and security and to establish effective legal and regulatory systems.

The IAEA established an internal Peer Review and Advisory Services Committee (PRASC) in 2016 to review and evaluate all nuclear safety and security peer review and advisory services in a holistic manner and to identify specific ways to monitor and further improve their effectiveness and efficiency.

This committee has undertaken significant work since 2016. It has enhanced the flexibility and modularity of some of the services to reduce the burden on requesting Member States.

So far, globally, we have provided more than 1200 services and we look forward to further collaborating with our Member States to build a stronger and more effective global nuclear safety and security framework.

### **Lydie Evrard**

*Deputy Director General*

*Head of Nuclear Safety and Security Department  
International Atomic Energy Agency*

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1. The IAEA peer reviews and advisory services help Member States to assess their application of IAEA standards and guidance to help them improve their level of nuclear safety and security.
2. The IAEA's Department of Nuclear Safety and Security offers 17 different services, all conducted only at the request of a Member State.
3. Each service is undertaken by a team of international experts whose conclusions and recommendations are compiled in a report which advises the Member State on ways to strengthen its nuclear safety and security. A follow-up mission assesses progress made in implementing the recommendations.

## Introduction: strengthening national mechanisms

As part of its work to help Member States fulfil their responsibilities for nuclear safety and security, the peer reviews and advisory services offered by the IAEA aim to help countries in their application of IAEA safety standards and security guidance — which serve as the global reference for achieving and maintaining a high level of nuclear and radiation safety and security in all fields such as energy generation, medicine, agriculture, industry and research. Some

Member States also use these services to 'help them' meet their international legal obligations.

The IAEA and international experts who take part in the services develop and suggest recommendations and identify good practices to strengthen global nuclear safety and security.

Of the 17 services, 14 are peer reviews and 3 are advisory services. The IAEA Peer Review and Advisory Services Committee (PRASC) defines peer review as a documented review based on relevant IAEA safety standards and security guidance performed by peers who are independent of the work being reviewed, and the advisory services as an assessment conducted by an expert team whose focus is to provide advice on the application of relevant IAEA and international instruments and guidance.

Some of the peer reviews and advisory services are considered 'generic' as they are cross-cutting and/or include multiple layers of States' arrangements (e.g. government, regulator and/or operator) or envelope various areas. Services that focus on an explicit area are considered 'specific'. To provide flexibility, several of the services have core and optional modules, that Member States can request to meet their needs.

Feedback from Member States, peers and experts enables the IAEA to regularly improve the services.



<sup>1</sup> A person having technical expertise in the subject matter to be reviewed to a degree at least equivalent to that needed for the original work.

<sup>2</sup> The peer's independence from the work being reviewed means that the peer, a) was not involved as a participant, supervisor, technical reviewer, or advisor in the work being reviewed, and b) to the extent practical, has sufficient freedom from funding considerations to assure the work is impartially reviewed.

### Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation (ARTEMIS)

The ARTEMIS service covers safety and technical aspects in spent fuel and radioactive waste management, as well as decommissioning of nuclear facilities and remediation activities.

This service is intended for national stakeholders responsible for radioactive waste management such as regulatory bodies, facility operators, and other implementing organizations.

**Duration of the mission:** up to 14 days.

**Final report:** two months after the mission.

### Emergency Preparedness Review (EPREV)

The EPREV service reviews the level of preparedness for a nuclear or radiological emergency in a Member State, irrespective of its cause. It provides recommendations, suggestions and good practices to improve arrangements to respond to such events and enhance preparedness.

This service is intended for Member States' organizations involved in emergency preparedness and response at the national, local, facility or activity level.

**Duration of the mission:** 5 to 12 days.

**Final report:** two months after the mission.

### Integrated Safety Assessment of Research Reactors (INSARR)

The INSARR service provides an initial safety assessment on the design and siting aspects of a reactor project. It also reviews practices at an operating research reactor or evaluates ageing management programmes and long-term operation processes.

This service is intended for regulatory bodies and current or future operators.

**Duration of the mission:** 5 to 10 days.

**Final report:** two months after the mission.



ARTEMIS mission, Spain (Photo: IAEA)



EPREV Mission, Malaysia (Photo: IAEA)



Inside of the JEEP II reactor at the Kjeller research centre, Norway (Photo: IFE)

## Integrated Regulatory Review Service (IRRS)

The IRRS aims to strengthen and enhance the effectiveness of a Member State national regulatory infrastructure for nuclear, radiation, radioactive waste and transport safety. It considers both technical and regulatory policy issues.

This service is intended for governmental organizations and regulatory bodies dealing with nuclear safety.

**Duration of the mission:** 5 to 14 days.

**Final report:** usually within two months after a Member State's feedback on the draft report is addressed.

## Operational Safety Review Team (OSART)

The OSART service provides Member States with an objective and independent assessment on the status of nuclear power plants operational safety with respect to the IAEA Safety Standards. It covers a facility's performance in multiple reviews areas such as leadership and management; training and qualification; operations; radiation protection; emergency preparedness and accident management.

This service is primarily intended for organizations that operate nuclear power plants, including corporate organizations.

**Duration of the mission:** 18 days.

**Final report:** three months after the mission.

## Safety Evaluation of Fuel Cycle Facilities During Operation (SEDO)

The SEDO service reviews safety aspects of facilities in which nuclear and radioactive material is processed, used, stored or disposed of.

This service is intended for fuel cycle facility operators.

**Duration of the mission:** 5 to 10 days.

**Final report:** two months after the mission.



IRRS mission, Japan. (Photo: IAEA)



OSART mission at Rosenergoatom Joint-Stock Company, Russia (Photo: Rosenergoatom)



SEDO mission, Romania (Photo: IAEA)

## Education and Training Appraisal (EduTA)

The EduTa service evaluates the provisions for education and training in radiation protection and safety of radiation sources.

This service is intended for regulatory bodies and education and training providers.

**Duration of the mission:** 3 to 5 days.

**Final report:** usually three months after the mission.

## Independent Safety Culture Assessment (ISCA)

The ISCA service provides Member States with an independent assessment of the safety culture of an organization based on a wide ranging and systematic review of its safety culture characteristics, shared values and basic assumptions. It addresses technical, human and organizational interactions, using proven assessment tools and engagement with personnel in various functions and at different levels of responsibility.

This service is intended for licence holders for nuclear facilities and activities.

**Duration of the mission:** 10 to 15 days.

**Final report:** two months after the mission.

## Occupational Radiation Protection Appraisal Service (ORPAS)

The ORPAS provides independent reviews of legislation, regulation and practical implementation of requirements related to occupational radiation protection. This service assesses radiation protection implementation and approaches at facilities and technical service providers, including individual and workplace monitoring. It also promotes self-assessment, a culture for safety and quality management systems.

This service is intended for organizations utilizing radiation in facilities or activities; technical and scientific support organizations; and regulatory bodies.

**Duration of the mission:** 7 to 10 days.

**Final report:** two months after the mission.



Preparatory EduTA, Pakistan (Photo: IAEA)



ISCA workshop, Vienna, Austria (Photo: IAEA)



ORPAS mission, CCHEN Atomic Centre Lo Aguirre, Chile (Photo: IAEA)

## Peer Review of Operational Safety Performance Experience (PROSPER)

PROSPER reviews the process and practice of learning from operating experience at nuclear power plants. The review covers the use of external operating experience and the effectiveness of the internal event reporting systems, including internal low-level and near miss event reports; and other relevant operating performance information, such as performance indicators and non-compliance reports on quality assurance.

This service is intended for nuclear power plants under commission or in operation.

**Length of mission:** 4 to 5 days, depending on the scope.

**Final report:** two months after the mission.

## Safety Aspects of Long-Term Operation (SALTO)

The SALTO peer review service assesses the strategy and key elements in preparing for the safe long-term operation of nuclear power plants. Because of the extended time and effort required to prepare for long term operation, a SALTO mission is often preceded by a pre-SALTO mission to ensure that preparatory work is focused on those areas that will add most safety value.

This service is intended for nuclear power plant operators but has also been conducted successfully at research reactors.

**Duration of the mission:** 8 to 9 days.

**Final report:** three months after the mission.



SALTO Mission, Armenia NPP (Photo: IAEA)

## Site and External Events Design (SEED)

The SEED service reviews the site hazard, the installation design and safety assessment in relation to natural and human-induced external and internal hazards considered during site selection, site evaluation, design and safety assessment of a nuclear installation. It comprises modules designed to assist Member States from the site selection stage onwards.

This service is intended for regulatory bodies, current or future operators and vendors.

**Duration of the mission:** 5 to 10 days.

**Final report:** two months after the mission.

## Technical Safety Review (TSR)

The TSR service provides a tailored, independent evaluation of a Member State's documentation and activities in six safety areas: accident management, design safety, national safety requirements, generic reactor safety, periodic safety review and probabilistic safety assessment.

This service is intended for regulatory bodies, plant operating organizations, vendors and other stakeholders.

**Service duration:** Varies depending on the scope requested for review.

**Final report:** delivered according to an agreement at the preparation of each TSR service.



SEED mission, Egypt (Photo: IAEA)



TSR mission, Kozloduy NPP (Photo: Kozloduy NPP)



## International Nuclear Security Advisory Service (INSServ)

The INSServ helps Member States to maintain and strengthen their nuclear security regime related to nuclear and other radioactive material out of regulatory control (MORC). The INSServ missions can be requested in a combination of three modules:

1) basis for nuclear security systems and measures for material out of regulatory control; 2) detection systems and measures; and/or 3) response systems and measures, including for major public events security.

This service is intended for regulators, operators, educators, and law enforcement and government officials, regulatory authority, law enforcement, customs and border control, national security and intelligence agencies, response organizations, judicial entities, and other stakeholders.

**Duration of the mission:** 5 to 10 days.

**Final report:** eight weeks after the mission.

## International Physical Protection Advisory Service (IPPAS)

The IPPAS assists Member States in strengthening their national nuclear security regimes. The missions comprise a national-level review of the legal and regulatory framework for nuclear security and an operator-level review of the implementation of nuclear security systems and measures for nuclear material, other radioactive material, associated facilities and associated activities, including transport security and computer security.

This service is intended for competent authorities and operators, shippers or carriers.

**Duration of the mission:** 10 to 14 days.

**Final report:** two months after the mission.



INSServ kick off meeting, Malaysia (Photo: IAEA)



IPPAS follow-up mission, The Netherlands (Photo: IAEA)

## Advisory Mission on Regulatory Infrastructure for Radiation Safety and Nuclear Security (RISS)

The RISS service provides advice to the host countries on actions to be taken to establish or strengthen their regulatory infrastructure for radiation safety and nuclear security and meet the provisions of the IAEA safety standards and nuclear security guidance, and of the Code of Conduct on the Safety and Security of Radioactive Sources and its Supplementary Guidance. The scope of a RISS can be tailored to cover safety or security or both and may also include regulatory aspects for radiological emergency preparedness and response. Each advisory mission is customized according to the host country's needs and takes account of the status of its regulatory infrastructure for radiation safety and nuclear security. RISS focus on the responsibilities and functions of the government regarding the safety of radiation sources and the security of radioactive material, the establishment of the Regulatory Body and its functions and processes.

**Duration of the mission:** 4 to 5 days.

**Final report:** three months after the mission.

## Safety Culture Continuous Improvement Process (SCCIP)

The SCCIP service assists Member States in strengthening and maintaining their safety culture and provides the basis for sustainable improvements in safety culture. It promotes senior management awareness and engagement in this area and comprises workshops and a self-assessment methodology to identify strengths and weakness, attitudes, beliefs and assumptions which drive behaviours in organizations. The goal is to help Member States establish an effective programme for the continuous improvement in safety culture.

This service is intended for organizations that operate nuclear facilities and regulatory bodies.

**Duration of the mission:** 10 days.

**Final report:** three months after the mission.



Participants of the RISS mission, Costa Rica  
(Photo: Ministry of Health of Costa Rica)



SCCIP training, Moscow (Photo: IAEA)



Almaraz NPP, Spain (Photo: IAEA)

## Requesting a service

Member States request services through official channels and a Member State request may be preceded by discussions with the IAEA.

## Funding

The requesting Member State funds the service. Depending on the request and the eligibility of the Member State, funds may also be provided, when planned, through the IAEA's Technical Cooperation Programme.

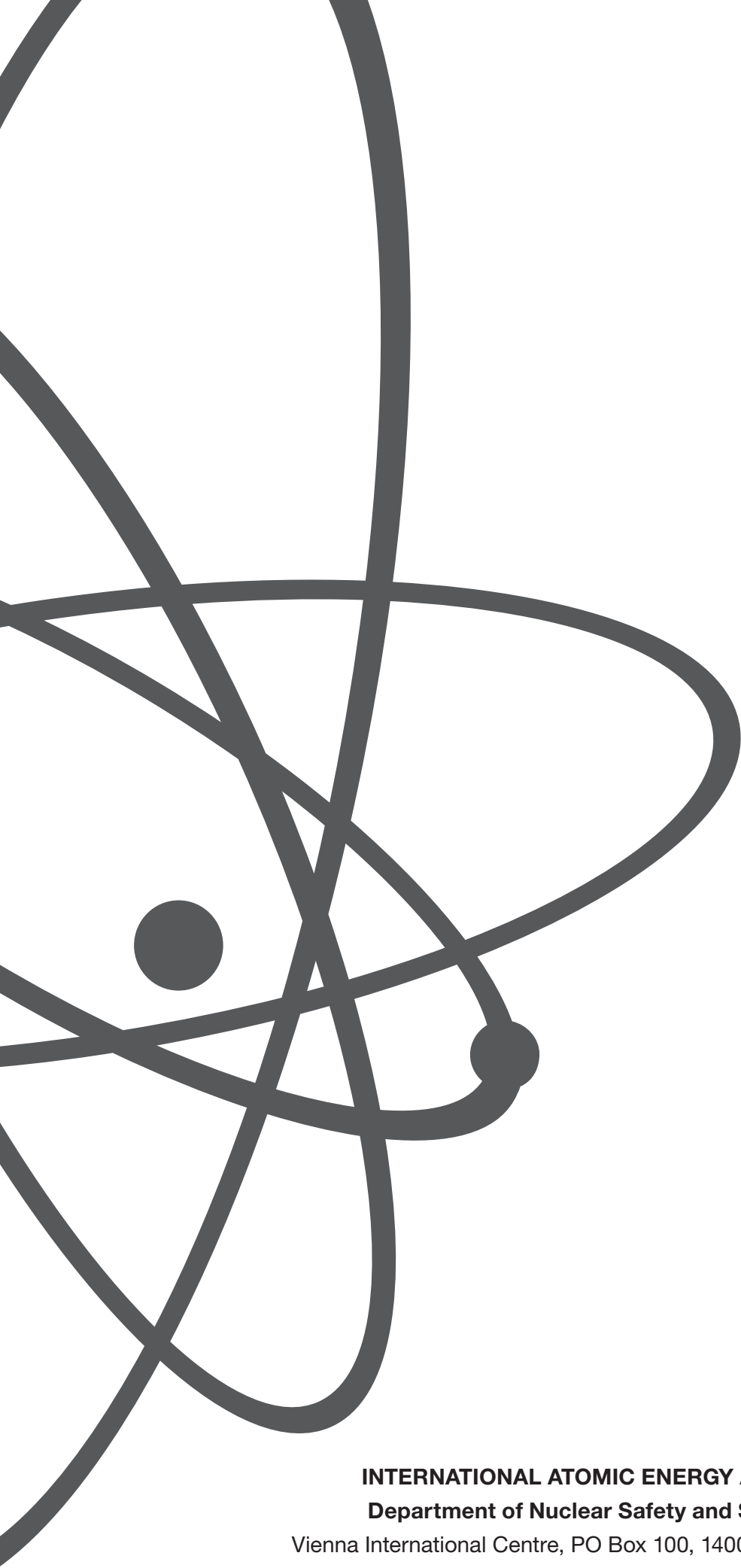
## Important note

The IAEA peer reviews, and advisory services do not constitute a design certification, licensing or supervisory activity, nor do they constitute a regulatory inspection or an audit against national codes and standards. The review process focuses only on the specific area requested by the Member State. These services support the strengthening of national safety and security infrastructure whilst recognizing that the responsibility for nuclear safety and security rests entirely with the Member State.

## More information

Please visit <https://www.iaea.org/services/review-missions>, that provides a calendar of planned and completed reviews and services, with mission reports or summaries as appropriate.

Contact: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org)



**INTERNATIONAL ATOMIC ENERGY AGENCY**  
**Department of Nuclear Safety and Security**

Vienna International Centre, PO Box 100, 1400 Vienna, Austria

[www.iaea.org/ns](http://www.iaea.org/ns) | [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org)