Ukraine

IAEA Member State since July 1957

Selected achievements

2021: Spent Nuclear Fuel -2 (ISF-2) is commissioned.

2019: Stage 1 of the New Safe Confinement (NSC CS-1) is commissioned.

2009–2024: Lifetime extension of 12 nuclear facilities throughout the country.

National priorities

- Decommissioning, radioactive waste management and other complex long term problems within the Chornobyl Exclusion Zone
- Cancer diagnostics and treatment
- Lifetime management of nuclear power plants

Main areas of IAEA support

- Human health and nutrition
- Radioactive waste management and decommissioning
- Nuclear knowledge management
- Regulatory framework
- Medical applications
- Energy planning and nuclear power introduction
- Nuclear power reactors and fuel cycle
- Radiation safety and protection
- Radioisotopes and radiation technology applications
- Research reactors

Project successes

Nuclear power

The shutdown of the Chornobyl Nuclear Power Plant (ChNPP) in 2000 resulted in premature decommissioning efforts without appropriate decommissioning design and infrastructure put in place. Therefore, the IAEA supported Ukraine in formulating a decommissioning plan and related documents.

Some of the experts working on a new, comprehensive and multidisciplinary virtual training programme to address the shortage of radiotherapy and medical imaging specialists in Ukraine. (Photo: K. Deufrains/IAEA)

IAEA experts helped Ukraine develop a feasibility study to evaluate different options for the decommissioning of the ChNPP cooling pond. Furthermore, the IAEA helped to monitor work progress and measure radiation levels in the environment to ensure the decommissioning was conducted in line with international best practice.

The results were subsequently published in the IAEA publication 'Environmental Impact Assessment of the Drawdown of the Chornobyl NPP Cooling Pond as a Basis for Its Decommissioning and Remediation.'

In addition, the IAEA helped Ukraine to identify options for the treatment of liquid radioactive waste containing organic and transuranic elements resulting from conditioning. The different treatment techniques were tested and evaluated with IAEA assistance and a pilot facility was established. These efforts have been supporting the establishment of post-accident radioactive waste management technologies.

Strengthening the Secondary Standards Dosimetry Laboratory for radiation therapy dosimetry

The IAEA has supported Ukraine to improve the safety and effectiveness of radiation use in medical applications. This has boosted the quality of radiation therapy and diagnostics for patients. It also served to protect radiation workers and the general public due to improved measurement accuracy and improved dosimetry practices.

Previously, a serious problem existed in the system of metrological assurance of dosimetry for radiation therapy: the methods and instruments

used could not provide the necessary accuracy and reliability of dosimetry for gamma and X ray radiation beams used in radiation therapy.

One of the prerequisites for safe dose delivery to patients undergoing radiation therapy is the availability of reliable calibration services for dosimetry equipment used in radiation therapy to hospitals in Ukraine through establishment of a Secondary Standards Dosimetry Laboratory (SSDL).

With IAEA support, Ukraine was able to establish calibration services for dosimetry equipment used in radiation therapy for end users in Ukraine through the establishment of a SSDL which complies with international requirements.

Improving the knowledge management system

The Integrated Management System (KMS) supports nuclear knowledge management at all stage of the nuclear power plant (NPP) lifecycle. The IAEA has been supporting Ukraine in the development of fundamental KMS standards and the implementation of a corporate knowledge portal (CKP) for NNEGC 'Energoatom', Ukraine's owner and operator of all nuclear power plants in the country.

The IAEA also supported the adoption of the IAEA Cyber Learning Platform for Network Education and Training (CLP4NET) for greater access to educational resources related to nuclear energy, nuclear safety and nuclear science and technology.

More than 30 000 users have access to the platform.

Participation in the major initiatives

- Rays of Hope

Date of imPACT Review(s)

2018

IAEA support received in the 21st century

Contributions to South-South and triangular cooperation