Uzbekistan

IAEA Member State since January 1994

IAEA Technical Cooperation Programme

Key achievements in Uzbekistan

- 2018/2019: Two new state of the art linear accelerators (LINAC), used in radiotherapy, become operational in Tashkent.
- 2017: The Government of Uzbekistan decides to develop a nuclear power programme.
- 2008: The IAEA starts providing assistance to the Institute of Nuclear Physics to convert the WWR-SM research reactor's fuel from high to low enriched uranium, while modernising several of its main components and systems.

Atoms for peace and development

Widely known as the world's 'Atoms for Peace and Development' organization within the United Nations family, the IAEA is the international centre for cooperation in the nuclear field. The Agency works with its Member States and multiple partners worldwide to promote the safe, secure and peaceful use of nuclear technologies.

The IAEA's technical cooperation (TC) programme helps countries to use nuclear science and technology to address key development priorities in areas including health, agriculture, water, the environment and industry. The programme also helps countries to identify and meet future energy needs. It supports greater radiation safety and nuclear security, and provides legislative assistance.

In 2018, the IAEA supported Uzbekistan through an Operational and Maintenance Assessment for Research Reactors (OMARR) peer review mission to optimise operational practices at the WWR-SM reactor. (Photo: Institute of Nuclear Physics)

SUSTAINABLE DEVELOPMENT GOALS

Recent project successes

Human health

Although there are 15 radiotherapy centres in Uzbekistan, many lack up to date machinery for treatment, while others currently have no operational equipment at all. Over the past decade, the IAEA has helped Uzbekistan to improve the infrastructure of four oncology centres in the country. This included training clinical staff and providing new equipment. Multidisciplinary national training courses were provided, and expert advice supported independent verification to commission new machines and to assure safe and effective treatment. Access to radiotherapy continues to increase with thousands of cancer patients already benefiting.

Research reactors

The WWR-SM research reactor at the Institute of Nuclear Physics in Tashkent is mainly used for isotope production but also for conducting research into nuclear and radiation physics, radiation material science and the irradiation of materials.

The IAEA has been supporting the conversion of the reactor's highly enriched uranium (HEU) fuel to low enriched uranium (LEU) fuel. IAEA support is also helping to strengthen the radiation and nuclear safety infrastructure of the Institute of Nuclear Physics, build human resource capacities, modernise several of the reactor's main components and systems, and plan for its long-term operational maintenance.

The IAEA also supported the decommissioning of Uzbekistan's second research reactor, IIN-3M, operated by JSC 'Foton'. This involved removing the reactor's HEU and over a hundred disused radioactive sources, while transferring the reactor vessel, which contained the fuel, and radioactive waste to the national disposal facility. By the end of 2018, the project was complete and the site turned into a greenfield.

Environmental radiation monitoring

Radionuclides and potentially toxic elements associated with residues from uranium production in Uzbekistan's old mining and uranium production sites could have a significant negative affect on people and the environment. To help address this, the IAEA supported the Centre of Hydrometeorological Service (UzHydromet) in Tashkent, to conduct environmental studies to monitor radioactivity around the country.

Training for laboratory staff was provided in sampling and analytical techniques to measure radionuclides in soil, freshwater and sediments. A new alpha spectrometric system was procured, enabling the laboratory to determine concentrations of low-level alpha-emitting radionuclides and monitor radioactivity levels in the environment. The IAEA also helped procure a new portable air sampler for adhoc air monitoring at the country's borders and in emergency situations. These new monitoring capabilities now support environmental impact assessments, safety verifications and the preparation and implementation of environmental remediation programmes.

Active national projects

- Building Capacity in the Peaceful Use of Nuclear Science and Technologies at the National University of Uzbekistan and the Samarkand State University (UZB0006)
- Strengthening Radiation and Nuclear Safety and Improving Use of the WWR-SM Research Reactor at the Institute of Nuclear Physics of the Academy of Sciences (UZB1006)
- Building Human Resources Capacity and Developing National Nuclear Infrastructure for a First Nuclear Power Plant (UZB2002)
- Strengthening Radiotherapy Services in the Namangan Regional Oncology Dispenser (UZB6014)
- Establishing the Secondary Standards Dosimetry Laboratory (UZB6015)
- Upgrading the Nuclear Medicine Department of the Republican Endocrinology Scientific Centre (UZB6016)
- Improving the Quality of Radiotherapy (UZB6017)

Uzbekistan also participates in 34 regional and 3 interregional projects, mostly in the areas of health, energy planning and nuclear power, and radiation protection and nuclear safety.

Previous IAEA support to Uzbekistan

Previous IAEA support has focused on improving radiation safety at the WWR-SM research reactor at the Institute of Nuclear Physics. In the area of human health, the IAEA helped to upgrade radiotherapy infrastructure at the Namangan Regional Oncological Dispensary, supported the establishment of a secondary standards dosimetry laboratory and improved the nuclear medicine infrastructure of the Republican Endocrinology Scientific Centre. Additional support was provided to improve the regulatory, legal and institutional infrastructure for the safe, secure and sustainable development of Uzbekistan's nuclear power programme.

IAEA support to Uzbekistan, 2009–2019

292 trained (including 63 women)

81 international experts provided

114 attended specialist meetings (including 9 women)

Priority areas of support

- Improving state, legislative and regulatory infrastructure for radiation safety
- Supporting human health
- Strengthening the food and agriculture sector
- Enhancing environmental protection and water resource management
- Supporting radioactive waste management
- Improving environmental radiation monitoring

Uzbekistan's contribution to South-South and triangular cooperation, 2009–2019

22 expert and lecturer assignments provided by Uzbekistan

2 training courses hosted

1 fellow or scientific visitor hosted

Based on data available as of April 2020

Cancer control imPACT Review conducted: March–April 2014

Strategic documents supported

- United Nations Development Assistance Framework 2016–2020
- Country Programme Framework 2016–2021, signed in August 2016

www.iaea.org/technicalcooperation

The IAEA collaborates with National Liaison Officers and Permanent Missions to deliver its TC programme.