



Key achievements in Slovenia

- 2018: Slovenia begins production of Gallium 68 (Ga-68) radiopharmaceuticals for cancer treatment.
- 2011: Nuclear technologies are used to date historical artefacts at archaeological sites.
- 2006: Enhanced capacities to characterise movement of pollution, using isotopic techniques, helps improve water quality throughout the country.

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.



The IAEA provided technical support in management practices to help reduce nitrate losses in soil for the Biotechnical faculty of the University of Ljubljana. Assistance was also provided for research, fellowships, scientific visits and the procurement of equipment to help improve plant growth above shallow aquifers and enhance water management. (Photo: V Zupanc/University of Ljubljana)

Recent project successes

Human health

Slovenia upgraded laboratory equipment at the Department of Nuclear Medicine at the University Medical Centre in Ljubljana with IAEA support. The laboratory is currently the country's only facility producing radiopharmaceuticals for diagnostic and therapeutic use. For medical imaging, positron and beta emitters are being used as tracers to diagnose diseases with PET (positron emission tomography) machines. IAEA assistance also enabled the routine production of gallium-68 (GA-68) radiopharmaceuticals to help the management of neuroendocrine tumours. The use of GA-68 in positron emission tomography and computed tomography (PET/CT) examinations produce more accurate diagnostic tests and enables medical personnel to monitor cancer treatment and planning options more effectively.

Water management

Differing methods of using fertilizer and irrigation techniques by farmers can cause nitrates to leach out of the soil and pollute watercourses. Slovenia is using nuclear techniques to help trace and monitor possible contamination stemming from both organic and inorganic fertilizers, with IAEA support. Specialist equipment, scientific visits, fellowships and expert advice were provided as part of the support.

In addition, a sustainability study was conducted by the Biotechnical Faculty of the University of Ljubljana to measure the production of vegetables in the Ljubljansko Polje area. IAEA assistance was provided through expert advice and training in sampling and stable isotope analysis. The results enabled the publication of best practices and guidelines for improving water quality and farming practices in central Slovenia.

Cultural heritage

Slovenia has built its capacity to analyse and preserve its cultural heritage sites with IAEA assistance. The precise dating of archaeological artefacts and gravesites is an important but often difficult task, helping to reveal key information on, for example, human development and migration.

Slovenia's Jožef Stefan Institute can now use nuclear-based methods, such as proton induced X-rays (PIXE) and gamma-rays (PIGE) to analyse

glass items found in its western regions. Previously, the age of glass artefacts had been estimated to be from the seventh century AD, but the technology's greater precision demonstrated that the artefacts

Active national projects

- Improving Water Quality in Vulnerable and Shallow Aquifers under Two Intensive Fruit and Vegetable Production Zones (SLO5004)
- Improving Safety and Quality of Radiology Services through the Development of Medical Physics Departments and Enhancing the Theranostic Nuclear Medicine Approach (SLO6006)
- Enhancing the Capacities of the Regulatory Authority and the Implementing Organization on Radioactive Waste Management for the Safe Operation of Nuclear and Radiation Facilities (SLO9020)

Slovenia also participates in 34 regional and 2 interregional projects, mostly in the areas of health and nutrition, water and the environment, and nuclear knowledge development and management.

Previous IAEA support to Slovenia

Previous IAEA assistance focused on nuclear safety, staff training and operational safety at the Krško nuclear power plant, as well as on upgrading the capabilities of the nuclear safety regulatory body. In addition, several projects focused on radioactive waste management, radiation protection, improving agricultural water management, upgrading national nuclear medicine services and enhancing the capacities of the TRIGA type research reactor.



A technician prepares newly produced gallium-68 isotope radiopharmaceuticals for transport to national health clinics around the country. The IAEA assisted in the procurement of a unit to produce radiopharmaceuticals to treat neuroendocrine tumours at Slovenia's University Medical Centre in Ljubljana. (Photo: T Roš/University Medical Centre Ljubljana)

IAEA support to Slovenia, 2009–2019



297 112 213

trained
(including 119 women)

international
experts
provided

attended specialist
meetings
(including 52 women)

Priority areas of support

- Supporting energy
- Improving regulatory issues
- Enhancing human health
- Protecting the environment
- Supporting research in nuclear science and technology
- Strengthening the food and agriculture sector
- Enhancing emergency preparedness

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



435
expert and lecturer
assignments provided
by Slovenia

13
training
courses
hosted

293
fellows or
scientific visitors
hosted

Based on data available as of April 2020

Strategic documents supported

- Country Programme Framework 2017–2022, signed in January 2018

www.iaea.org/technicalcooperation

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