

Slovenia

IAEA Member State since September 1992

Selected achievements

2024: The Institute of Oncology Ljubljana is designated as a Rays of Hope Anchor Center.

2018: Slovenia launches the production of gallium-68 radiopharmaceuticals for cancer treatment.

2011: Nuclear technologies are used to date historical artefacts at archaeological sites.

2006: Enhanced capacities to characterize the movement of pollution using isotopic techniques help improve water quality throughout the country.



The radiopharmacist prepares the newly in-house produced gallium-68 labelled isotope radiopharmaceutical for transport to the diagnostic unit of the main national nuclear medicine department in the country. The unit to produce the radiopharmaceuticals was procured with IAEA assistance. (Photo: T. Roš/University Medical Centre Ljubljana)

National priorities

- Regulatory support
- Human health
- Environment
- Research in nuclear science and technology
- Food and agriculture
- Emergency preparedness

Main areas of IAEA support

- Nuclear safety
- Radioactive waste management
- Radiation protection
- Agricultural water management
- Human health
- Research reactor

Project successes

Human health

With IAEA support, Slovenia modernized laboratory equipment at the University Medical Centre in Ljubljana's Department of Nuclear Medicine.

This radiopharmacy laboratory is currently the only facility in the country producing in-house radiopharmaceuticals for diagnostic and therapeutic uses.

IAEA assistance in the form of fellowships and scientific visits enabled the routine production of gallium-68 radiopharmaceuticals.

The use of these radiopharmaceuticals in hybrid imaging (PET/CT) has enhanced patient management for neuroendocrine neoplasms and prostate tumours.

Water management

Due to the use of land above aquifers (a body of rock and/or sediment that holds groundwater), the pressure on groundwater quality in Slovenia is steadily increasing.

With IAEA support, Slovenia is utilizing nuclear techniques to monitor contamination from organic and inorganic fertilizers and emerging pollutants.

A sustainability study conducted by the University of Ljubljana and supported by the IAEA measured vegetable production in the Krško Brežiško aquifer. Its findings enabled the identification of best practice and the publication of guidelines for improving water quality and farming practices in central Slovenia.

Additionally, Slovenia upgraded its facilities for microbial source tracking at the National Institute for Biology's and developed capacity for modelling groundwater hazard maps.

IAEA support for these project successes was in the form of specialized equipment, scientific visits, fellowships, and expert advice.

Cultural heritage

With IAEA assistance, Slovenia enhanced its capacity to analyse and preserve cultural heritage sites.

The Jožef Stefan Institute now uses nuclear-based methods such as proton-induced X rays (PIXE) and gamma-rays (PIGE) to analyse archaeological artefacts such as glass items in western regions. Previously estimated to be from the seventh century AD, the improved technology provided the basis for more accurate dating. This revealed valuable insights into human development and migration and contributed significantly to the preservation and understanding of Slovenia's cultural heritage.



A field trip was organized to see plant production above shallow aquifers and how soil water management can help with nutrient use efficiency and groundwater pollution prevention. (Photo: V. Zupanc/Biotechnical faculty, University of Ljubljana)

Participation in the major initiatives

- Rays of Hope
- ZODIAC

IAEA support received in the 21st century



Contributions to South-South and triangular cooperation

