# Croatia

IAEA Member State since February 1993

IAEA Technical Cooperation Programme

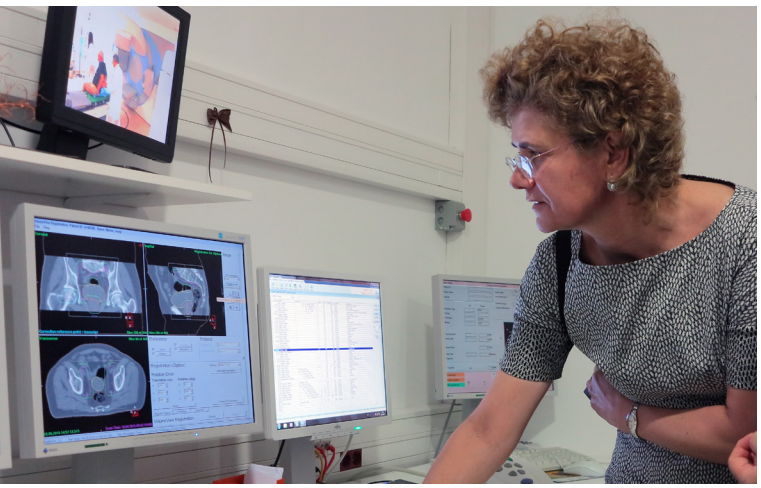
## Key achievements in Croatia

- 2019: IAEA conducts an Integrated Regulatory Review Service (IRRS) follow-up mission and notes the importance of strengthening the role of medical physicists in the country.
- 2014: A National Strategy for the Management of Radioactive Waste, Disused Sources and Spent Nuclear Fuel is adopted with plans to establish a storage facility for disused sealed radioactive sources and waste.
- 2010: The Mediterranean fruit fly (ceratitis capitata) emergence and release facility in Opuzen begins its operations.

## 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.



Staff at the Sisters of Mercy University Hospital in Zagreb analyse a cancer patient's scan. The IAEA helped the Hospital to improve its capacities for the diagnosis and treatment of cancer using nuclear technology. (Photo: C. Brady/IAEA)

SUSTAINABLE DEVELOPMENT GOALS

## Recent project successes

### Human health and radiation safety

For more than a decade, Croatia has worked with the IAEA to implement a strategy to improve the quality and safety of the use of ionizing radiation in medicine. This included establishing a comprehensive quality assurance programme and providing training for medical physicists. The quality assurance and quality control programmes in radiotherapy as well as diagnostic and interventional imaging radiology in two major regional hospitals in Croatia were reviewed, harmonised and upgraded. The knowledge was then shared with other hospitals in the country, which helped improve the implementation of IAEA standards and guidelines in clinical practice and related national legislation. This initiative also increased patient safety in radiotherapy and radiology practices.

In 2019, the IAEA supported an Integrated Regulatory Review Service (IRRS) mission to Croatia, which confirmed the importance of previous government initiatives to strengthen the role of medical physicists in the country. Croatia's improved delivery of cancer services, which helped reduce the number of radiation doses patients received for diagnostic purposes, was assessed through a number of comparisons and external audits, and later presented in scientific papers and conferences.

### Insect pest control

Citrus farming is an important part of Croatia's economy, with 75 per cent of all mandarins grown sold for export. Crops were at great risk from infestation of the Mediterranean fruit fly which causes significant damage to harvests.

Working with national authorities, the IAEA provided support for the application of the sterile insect technique (SIT) to reduce harm to the crops. From 2009 to 2012, a sub-regional project provided insect traps and equipment to monitor the pest. Specialist training and expert guidance was provided to optimise the use of the SIT technique. In 2010, the Croatian Centre for Agriculture, Food and Rural Affairs opened a fly rearing and release facility in Opuzen, Neretva Valley, capable of handling 20 million sterile males per week for release.

Since Croatia started integrating SIT with other control methods, such as orchard sanitation and mass-trapping in 2009, the number of Mediterranean fruit flies recorded in the Neretva Valley has decreased

by 73 per cent in fig crops and 86 per cent in mandarins. Overall crop production has seen an annual increase of 20 per cent, which has helped bring an estimated €30 million to local farmers each year. Due to the success of SIT in Croatia, capacity building on its use was expanded to 12 Balkan and Eastern Mediterranean countries.

### Radioactive waste

Croatia's radioactive waste and disused sources are currently being stored in temporary facilities in the country. IAEA human resource support is being provided for the country's Fund for Financing the Decommissioning of the Krško Nuclear Power Plant (NPP), which oversees the establishment of a new, centralized radioactive waste management centre. The IAEA has already supported specialist training and expert reviews, including for the Third Revision of the Krško NPP Radioactive Waste and Spent Fuel Disposal Programme, and the conceptual design and transport study for the Centre for Radioactive Waste Management. Future support will include expert reviews of safety documentation for the Radioactive Waste Management Centre, communication plans and the conceptual design of an information centre project.

## Active national projects

- Establishing Centres of Competence for Quality Assurance/Quality Control in Diagnostic and Interventional Radiology at Two Distant Regional University Hospitals (CRO6018)
- Verifying Intensity Modulated Radiotherapy Treatment Dose Delivery — Method Development, Standardization and Implementation through a National Audit (CRO6019)
- Optimizing Interventional Procedures and Dose Management (CRO6020)
- Using Nitrogen and Oxygen Stable Isotopes in the Determination of Nitrate Origin in the Unsaturated and Saturated Zone of the Velika Gorica Wellfield (CRO7002)
- Developing a Safety Case for the Establishment of the Centre for Management of Radioactive Waste (CRO9012)
- Supporting Implementation of Recommendations and Suggestions of the Integrated Regulatory Review Service Mission (CRO9013)

Croatia also participates in 35 regional and 3 interregional projects, mostly in the areas of health, and radiation protection and nuclear safety.

### IAEA support to Croatia, 2009–2019

**532** trained (including 292 women)

**67** international experts provided

**235** attended specialist meetings (including 138 women)

### Priority areas of support

- Supporting nuclear and radiological safety and security
- Improving the food and agriculture sector
- Strengthening human health including radiotherapy, nuclear medicine, dosimetry and medical physics
- Supporting the management of water and the environment
- Improving energy
- Strengthening industry

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

**304** expert and lecturer assignments provided by Croatia

**11** training courses hosted

**152** fellows or scientific visitors hosted

Based on data available as of April 2020

### Cancer control imPACT Review conducted: September/October 2014

### Strategic documents supported

- Country Programme Framework 2020–2025, signed in December 2020

## Previous IAEA support to Croatia

Previous IAEA support focused on strengthening radiation safety infrastructure, enhancing nuclear imaging, improving radiation safety of patients in diagnostic and interventional radiology, and supporting radioactive waste management.

**www.iaea.org/technicalcooperation**

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