



Key achievements in Colombia

- 2020: The Pesticide Residues Analysis Laboratory at the National University of Colombia becomes fully operational and is accredited for ensuring the safety of food products for export.
- 2014: The Marine and Coastal Research Institute (INVEMAR) starts using nuclear techniques to analyse heavy metal pollution and the effects of climate change, and generating data to help protect the coastal and marine environment.
- 2012: Diagnostic imaging services are strengthened for patients at Colombia's National Cancer Institute.

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.



Experts from four water management institutions were trained in core sampling techniques to determine rates of sedimentation in bodies of water connected to hydroelectric power plants. The IAEA supported the training and the procurement of equipment. (Credit: A Lurian/IAEA)

Recent project successes

Food and agriculture

The IAEA assisted Colombia to establish plant breeding capacities in order to develop crop varieties with greater resistance to diseases and changes in the climate. IAEA support included the procurement of genome sequencing equipment and the training of national staff in data collection and analysis. Using radiation induced mutation, new rice strains were developed that are better able to tolerate climate variability and more resistant to diseases. These new varieties will contribute to improving farmer livelihoods.

Water resource management

Colombia depends on hydroelectric power for 72 per cent of its power supply. This means that monitoring sedimentation of the water bodies that feed the power plants is very important. With IAEA assistance, Colombian experts developed their capacities and skills to use nuclear techniques to determine sedimentation and its effects on the hydroelectric infrastructure.

Sediment dating allows researchers to examine the history of its dispersal, particle's sources and patterns of distribution into nearby bodies of water. Dating also supports existing monitoring programmes used by construction companies and hydropower operators. Overall, the technique enables greater sustainable management of water resources and the efficiency of hydroelectric power.

The IAEA and the Government of Colombia supported training for specialists from four national institutes, in the collection and analysis of sediment core samples from the Tomine Reservoir, north of Bogota. The results of the study are expected to further inform national policy on water resource management.

Nuclear knowledge management

The IAEA assisted Colombia to organize a Symposium on Nuclear Sciences and Applications in 2019, hosted by the Colombian Geological Service and the Ministry of Mines and Energy.

With over 400 international and national participants, the event showcased Colombia's achievements in the nuclear sector and promoted its capacities. Collaboration among national institutions was significantly strengthened, resulting in greater interest in the socioeconomic benefits of nuclear technology, particularly in human health, food and agriculture, and water and the environment.

Active national projects

- Enhancing Crop Productivity of Creole Potato Using Nuclear and Related Techniques (COL5026)
- Strengthening Capacities of Positron Emission Tomography, Nuclear Medicine and Radiopharmacy Centres to Comply with National Regulations and Good Practices of Hospital Radiopharmacy (COL6018)
- Estimating Sedimentation Rates and Reconstructing Sedimentary Processes in Hydroelectric Power Plants, Water Dams and Reservoirs (COL7003)
- Strengthening National Capacities for Detecting Marine Biotoxins during Harmful Algal Blooms (COL7004)
- Strengthening the National Infrastructure for Radiation Safety (COL9009)

Colombia also participates in 36 regional and 2 interregional projects, mostly in the area of water and the environment.

Previous IAEA support to Colombia

In recent years, IAEA support focused on improving the quality of life of cancer patients by helping to expand access to radiotherapy services and developing staff skills in radiopharmacy.

Further assistance built capacity to estimate the rates of sedimentation in water bodies connected to the generation of hydroelectric power. This helped strengthen several technical areas of the Colombian Geological Service.



The Government of Colombia received IAEA support to establish the Nuclear Medicine Centre at the National Cancer Institute, providing greater access to qualitative diagnostic imaging. (Credit: N. Delgado/National Cancer Institute)

IAEA support to Colombia, 2009–2019



327 trained
(including 103 women)

112 international experts provided

69 attended specialist meetings
(including 26 women)

Priority areas of support

- Enhancing environmental monitoring and protection
- Supporting agriculture and rural development
- Improving human health
- Improving nuclear safety and radiation protection
- Supporting mining and energy planning
- Facilitating the management and preservation of nuclear knowledge

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

122 expert and lecturer assignments provided by Colombia

13 training courses hosted

43 fellows or scientific visitors hosted

Based on data available as of April 2020

Cancer control imPACT Review conducted: June 2011

Strategic documents supported

- United Nations Development Assistance Framework 2015–2019
- Country Programme Framework 2016–2021, signed in December 2015

www.iaea.org/technicalcooperation

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