



Key achievements in Ecuador

- 2019: Golden berries, dragon fruit and tree tomatoes are certified 'fruit fly free' enabling their export to international markets for the first time.
- 2018: The IAEA enhanced Ecuador's capacity to measure water and soil contaminants, enabling over 50 per cent of Ecuadorian palm oil producers obtain the Organic Certification ECOCERT for good agricultural practices, with progress towards a Roundtable on Sustainable Palm Oil certification.
- 2012: A human tissue bank is inaugurated at the Luis Vernaza General Hospital in Guayaquil to support tissue grafting and transplantation.

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.



An expert from the National Plant and Animal Health Regulation and Control Agency (Agrocalidad) verifies the absence of fruit flies in the tree tomato harvest. The IAEA supported Ecuador in the application of the sterile insect technique which allowed fruit such as golden berries, dragon fruit and tree tomatoes to be certified as 'fruit fly free' and exported internationally. (Photo: Agrocalidad)

Recent project successes

Cancer services

The IAEA has supported Ecuador for many years in cancer control. In 2012, the IAEA conducted an imPACT Review to assess the availability of cancer services throughout the country and to provide recommendations on how these could be strengthened. The review advised that a comprehensive national cancer control plan be developed.

The IAEA also built capacities for the use of new radiotherapy techniques at Ecuador's Guayaquil and Quito hospitals and supported the development of the country's first paediatric radiotherapy service. Specialist medical staff were trained in radiation medicine and equipment was procured, including a multi-dimensional detector array for analysis, immobilization devices for treatment and a management information system for external dosimetry. A second imPACT Review was conducted in 2019.

Water and environment

Ecuador has been working with the IAEA to improve the management of its water resources, using isotopic techniques to measure aquifer recharge and identify clean water. In 2015, the country implemented an artificial recharge project to increase the amount of water entering aquifers through human-controlled means, and also characterised 70 per cent of the coastal aquifers. This ensured that the communities of the drought-prone Santa Elena peninsula, have a reliable source of clean groundwater.

The impact of mining activities on the quality of the country's water resources is also of concern to the authorities. The IAEA helped Ecuador's Water Secretariat (SENAGUA) to monitor and manage local groundwater systems and enabled Ecuador to develop strategies to improve the conservation of water resources, including in the Zamora River Basin.

Insect pest control

Two species of fly are having particular devastating effects in Ecuador: the Mediterranean fruit fly is one of the most destructive pests for fruit growers; and the Philornis Downsi fly, which was recently detected on the Galapagos Islands is seriously threatening the survival of 20 native bird species, including 12 species of Darwin's finches.

Ecuador is one of the largest producers of tropical fruit in the Western Hemisphere but has had significant problems with the Mediterranean fruit fly damaging crops. With technical assistance from the IAEA and the Food and Agriculture Organization of the United Nations, it has successfully reduced populations of the fly using methods including the nuclear-derived Sterile Insect Technique (SIT). This achievement has enabled fruit farmers to grow additional non-traditional varieties such as golden berries, dragon fruit and tree tomatoes. As a result, exports of these varieties to markets in the United States, Latin America and the European Union have increased by US\$22 million.

For the *Philornis Downsi* fly on the Galapagos Islands, a range of potential tactics are being considered for further research, such as SIT. Noting the urgency and unique environmental challenge for the islands, short-term solutions are being used help effectively manage the pests until targeted nuclear technologies can contribute to those so far conducted by the country and the international community.

Active national projects

- Strengthening Human Resources for the Safe Control and Use of Nuclear Techniques (ECU0009)
- Enhancing the Application of the Sterile Insect Technique as Part of an Integrated Pest Management Approach to Maintain and Expand Fruit Fly Low Prevalence and Free Areas (ECU5031)
- Building Capacity for Mass Rearing, Sterilization and Pilot Release of *Aedes Aegypti* and *Philornis Downsi* Males (ECU5032)
- Establishing the First Public Paediatric Radiotherapy Service (ECU6026)
- Strengthening the National Infrastructure for Radiation Safety (ECU9017)

Ecuador also participates in 45 regional and 3 interregional projects, mostly in the area of food and agriculture.

Previous IAEA support to Ecuador

Previous IAEA support to Ecuador has focused on improving radiation safety, implementing new radiotherapy treatment techniques and strengthening national capacity to implement irradiation technology.

Ecuador also received support to respond to natural emergencies: capacities for virus detection have been enhanced, and Ecuador is also now able to use non-destructive testing techniques to test the structural integrity of key public buildings.

IAEA support to Ecuador, 2009–2019



417 trained
(including 154 women)

100 international experts provided

122 attended specialist meetings
(including 41 women)

Priority areas of support

- Improving human health
- Supporting agriculture and the environment
- Developing the industrial and energy sectors
- Strengthening radiation protection

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

18 expert and lecturer assignments provided by Ecuador

7 training courses hosted

13 fellows or scientific visitors hosted

Based on data available as of April 2020

Cancer control imPACT Reviews conducted: March 2012, March 2019

Strategic documents supported

- United Nations Development Assistance Framework, 2019–2022
- Country Programme Framework 2016–2021, signed in December 2016

www.iaea.org/technicalcooperation

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