Cuba

IAEA Member State since October 1957

Selected achievements

2020: Decree Law 10/2020 'Of the National Regulatory Authorities' enters into force, reinforcing regulatory activity in Cuba. Decree Law 70/2023 'On Safety and Security' subsequently further solidifies the regulatory framework, ensuring adherence to international safety and security standards.

2017: The Caribbean Observatory for Ocean Acidification Studies at the Centre for Environmental Studies of Cienfuegos (CEAC) is inaugurated, fostering research and a better understanding of ocean acidification.

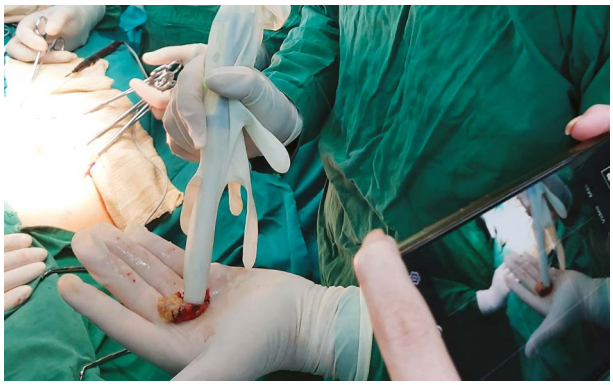
2012 to 2017: New research irradiators are installed at the Centro de Aplicaciones Tecnológicas y Desarrollo Nuclear (CEADEN) and a major refurbishment of the irradiator at the Food Irradiation Plant takes place.

National priorities

- Health and nutrition
- Food and agriculture
- Water and the environment
- Energy and industry
- Radiation technologies
- Radiation safety

Main areas of IAEA support

- Radiotherapy, nuclear medicine and radiopharmacy services
- Impact of climate change on the marine environment
- Isotope hydrology
- Food safety
- Radiation safety
- Sterile insect technique



The surgical management of breast, melanoma and colorectal cancers has been greatly enhanced with the introduction of the sentinel node radio-guided surgery technique. (Photo: A.Lopez/Latin American School of Medicine)

Project successes

Nuclear medicine and diagnostic imaging

Cuba introduced the sentinel node radio-guided surgery technique in 2019. The IAEA provided training for staff and procured equipment for three reference hospitals. This new technique has provided surgeons with real-time information on the location and scale of a disease and has minimized surgical invasiveness.

The project was implemented at a national scale with a focus on safety, quality and sustainability. It revolutionized the surgical management of breast, melanoma and colorectal cancers.

Marine environment

The warming climate is generating an increase in harmful algal blooms, which release toxins that contaminate marine life and can lead to seafood poisoning (ciguatera fish poisoning). The IAEA has helped to build national and regional capacities to detect and measure toxins in seafood and to evaluate ocean acidification caused by CO_2 emissions.

With IAEA support, the Centre for Environmental Studies of Cienfuegos (CEAC) became the first laboratory in Latin America and the Caribbean with the capacity to detect and measure ciguatoxins in seawater and fish. This has helped to protect the marine environment, enhanced food security and improved the livelihoods of fishermen.

CEAC uses nuclear techniques to monitor the impact of climate change on marine ecosystems and provide crucial data to the entire region.

Radiation technologies

Cuba received support from the IAEA to successfully reinstate irradiation capacities at two institutions: the Centre of Applied Technologies and Nuclear Development (CEADEN) and the Food Industry Research Institute.

Thanks to expert missions, training and essential additional equipment, CEADEN is now able to perform laboratory-scale irradiation. This has enabled Cuba to utilize food irradiation technology for safer and sterile food preservation, mitigating the risk of food-borne contaminants. It has also bolstered food security and access to international markets, while reducing the cost of food imports.

The upgraded food irradiation plant at the Food Industry Research Institute will benefit not only the food and agriculture sector, but it also has the potential to support industrial processing, radiation sterilization and decontamination.

The IAEA is using nuclear techniques such as irradiation to support food safety in Cuba. (Photo: IAEA)

Participation in the major initiatives

- Atoms4Food
- NUTEC Plastics
- Rays of Hope
- ZODIAC

IAEA support received in the 21st century

52
national TC projects implemented

705 (259 women)
fellows and scientific visits

857 (415 women)
training participants

1460 (607 women)
meeting participants

144 (21 women)
expert missions received

Contributions to South-South and triangular cooperation

150 (46 women)
fellows and scientific visits hosted

608 (207 women)
meeting participants hosted

1299 (354 women)
expert missions supported

ARCAL