Singapore

IAEA Member State since January 1967

Selected achievements

2024: The National Cancer Centre Singapore (NCCS) establishes a proton beam therapy centre, offering advanced radiation treatment that destroys cancer cells while minimizing damage to surrounding healthy tissues.

2019: Singapore inaugurates a new mosquito production facility to reduce mosquito-borne diseases.

2018–2020: The National Radiochemistry Laboratory (NRL) and the Ambient Radiation Monitoring Network (ARMNet) become operational. Together, they monitor Singapore's baseline background levels of radiation in the environment.

National priorities

- Nuclear and radiation safety and security
- Environmental monitoring
- Food safety
- Human health
- Energy and industry

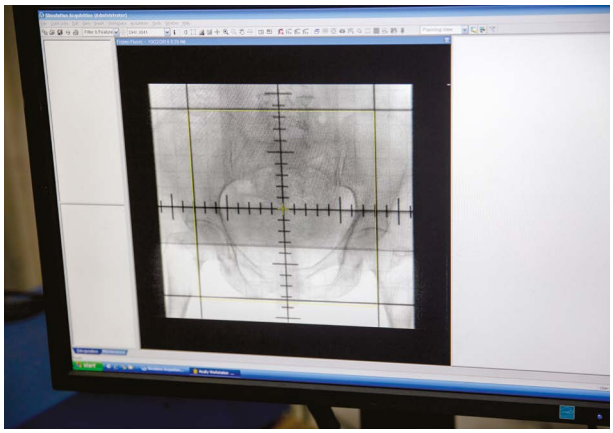
Main areas of IAEA support

- Proton therapy application
- Nuclear regulatory authority strengthening
- Radiation protection and monitoring
- Emergency preparedness and response
- Human health
- Environmental radioactivity monitoring
- Food safety

Project successes

Nuclear science, applications and technology

With IAEA support, Singapore has been leveraging nuclear science and technology in the areas of environmental monitoring, food safety, insect pest management and human health.



With advanced equipment and the support of the IAEA, medical staff in Singapore are expanding nuclear medicine and cancer treatment services in the country. (Photo: L. Gil/IAEA)

In nuclear medicine, imaging, and oncology, the IAEA has helped Singapore to develop advanced diagnostic methods, SPECT-CT applications, and to establish a new proton beam therapy centre.

Singapore is also supporting nuclear related capacity building throughout the Asia and the Pacific region, fostering South-South and triangular cooperation.

Radiation protection and nuclear safety through environmental monitoring

Singapore significantly enhanced its radiochemical monitoring and evaluation capabilities with the construction of a National Radiochemistry Laboratory in 2017. This followed the Fukushima Daiichi nuclear power plant accident.

The IAEA has been helping the laboratory to analyse environmental samples and ensure sustainability by providing expert recommendations, monitoring assistance and radiation protection training to develop human resource capacities.

This long term collaboration resulted in a highly trained team of dedicated science officers who continue to strengthen the country's radiation protection and monitoring capacities.

Sterile insect technique (SIT)

In collaboration with the IAEA, Singapore has developed advanced capacity for applying science and technology (IIT/SIT) to control *Aedes* mosquitoes.

Field trials demonstrated a 98 per cent suppression of *Aedes aegypti,* leading to a 70 per cent reduction in dengue cases at release sites. These promising results have led the National Environment Agency (NEA) to initiate a randomized controlled trial (RCT) to assess the epidemiological impact of the approach.

Singapore has also actively been participating in regional technical cooperation projects. Apart from receiving technical and expert assistance, Singapore has itself provided support and knowledge sharing through fellowships and regional training courses.

These achievements demonstrate Singapore's leadership in developing innovative vector control methods and contributing to sustained mosquito management efforts in the region.

An IAEA Radiation Monitoring Technician from Singapore measures the photon ambient dose equivalent rate on the outside of transport containers ready for shipment. (Photo: D. Calma/IAEA)

Participation in the major initiatives

- ZODIAC

IAEA support received in the 21st century

21
national TC projects implemented

107 (42 women)
fellows and scientific visits

334 (111 women)
training participants

374 (102 women)
meeting participants

25 (2 women)
expert missions received

Contributions to South-South and triangular cooperation

193 (60 women)
fellows and scientific visits hosted

581 (226 women)
meeting participants hosted

118 (6 women)
expert missions supported

RCA