

## Key achievements in the United Arab Emirates

- 2020: The United Arab Emirates (UAE) safely loaded nuclear fuel to begin operation of the Barakah Nuclear Power Plant.
- 2019: The UAE becomes the first country in the Asia and the Pacific region to establish a National Strategy on Education and Training in Radiation Protection.
- 2018: The UAE's first Secondary Standards Dosimetry Laboratory at the Khalifa University in Abu Dhabi is inaugurated.
- 2017: Khalifa University in Abu Dhabi is designated as an IAEA Collaborating Centre for Training in Nuclear Power Infrastructure Development.

## 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.



The IAEA assisted in the establishment of the Secondary Standards Dosimetry Laboratory at the Khalifa University in Abu Dhabi through procurement, training and fellowships. (Photo: FANR)

## Recent project successes

### Energy planning and nuclear power

The United Arab Emirates (UAE) started its nuclear power programme in 2008. Construction of the nuclear reactor began in 2012, making the UAE the first 'newcomer' country for nuclear power in 27 years.

The IAEA supported the development of the national programme through an Integrated Work Plan signed in 2013. This plan provided an operational framework to integrate and coordinate IAEA support and technical assistance to the UAE's nuclear power programme, based on the evolving needs of nuclear stakeholders, between 2013–2017 and then extended until 2019.

IAEA support also included expert advice to develop a legal framework and establish a nuclear regulatory body, as well as assistance in building nuclear safety and operational capacities.

In 2020, the country expects its nuclear power plant to become operational. The UAE's experience has been of great interest to other newcomer countries who are looking to develop nuclear programmes.

### Health and nutrition

With support from the IAEA, the UAE strengthened its patient radiation safety and dosimetry practices, and enhanced the quality assurance of several medical services. This included hosting Quality Assurance review missions in the UAE's major hospitals, and establishing and adopting diagnostic reference levels in computed tomography (CT), mammography and dental radiology, which helped reduce radiation doses by more than 50 per cent.

Further IAEA support was provided to establish a Continuous Professional Development programme for patient radiation protection and the development of principles necessary for performing radiological procedures. The IAEA also supported education and training activities for medical physicists.

Since 2014, 27 IAEA activities related to radiation protection of medical staff and patients and on medical procedures were hosted in the UAE and attended by 2200 participants and trainees. Six papers were published on radiation protection in scientific journals and shared with IAEA Member States during a special Scientific Forum on Nuclear Technology for the Sustainable Development Goals at the IAEA in Vienna.

## Industrial applications

The IAEA assisted the UAE to enhance its national capacities and establish the necessary infrastructure for both radiation dosimetry and the use of nuclear technology in industrial applications.

IAEA support helped establish two national laboratories: the first state-of-the-art national material analysis laboratory at the University of Sharjah, which improved national nuclear analytical capabilities for environmental, industrial and archaeological applications; and the UAE's first secondary standards dosimetry laboratory (SSDL), established at Khalifa University and operated by the Federal Authority for Nuclear Regulation. The national material analysis laboratory supported the material analysis for the restoration of the UAE's first century temple, the 'Al-Dor' at Um Al-Quwain.

The SSDL also provides radiation metrology and calibration services for equipment used in UAE's medical, industrial and nuclear sectors. Such equipment was previously sent to SSDLs overseas for calibration, resulting in higher costs and delays. The laboratory joined the IAEA-WHO SSDL Network in February 2018 after passing the IAEA's proficiency tests.

## Active national projects

- Supporting Continuous National Capacity Building for the Nuclear Sector (UAE0007)
- Establishing a Master's Degree Programme in Radiation Medical Physics (UAE6008)
- Strengthening Quality and Safety of Radiology, Radiotherapy and Nuclear Medicine Services for Improved Cancer Management (UAE6009)
- Enhancing National Nuclear and Radiological Emergency Preparedness, Response and Recovery - Phase II (UAE9015)
- Strengthening the Infrastructure for Radiation, Transport and Waste Safety — Phase II (UAE9016)

The United Arab Emirates also participates in 30 regional and 4 interregional projects, mostly in the area of health and nutrition, and energy planning and nuclear power.

## Previous IAEA support to the United Arab Emirates

In previous years, the IAEA has primarily focused on building human resource capacity for the sustainability of the nuclear power programme and strengthening radiation applications in the medical sector.

## IAEA support to the United Arab Emirates, 2009–2019



**238** trained  
(including 99 women)

**258** international experts provided

**123** attended specialist meetings  
(including 65 women)

## Priority areas of support

- Supporting sustainable human resource development and safe operation for the nuclear power programme
- Enhancing the quality of health services
- Strengthening nuclear and radiation safety infrastructure as well as nuclear and radiological emergency preparedness and response

## The United Arab Emirates' contribution to South-South and triangular cooperation, 2009–2019



**10** expert and lecturer assignments provided by the United Arab Emirates

**287** training course participants

**37** fellows or scientific visitors hosted

Based on data available as of April 2020

## Strategic documents supported

- Country Programme Framework 2020–2025, expected to be signed in 2020
- IAEA Integrated Work Plan supporting UAE's infrastructure and HR development for the peaceful nuclear power programme (2013–2019)

Practical Arrangements (PA) signed:

- The University of Sharjah in nuclear technology (2018)
- The Khalifa University in nuclear infrastructure development (2017)
- The Dubai Health Authority on Cooperation for IAEA Curricula for Nuclear Medicine Professionals (2016)
- The International Center for Biosaline Agriculture in soil and water management and sustainable agriculture (2015)

[www.iaea.org/technicalcooperation](http://www.iaea.org/technicalcooperation)

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