



# Egypt

IAEA Member State since September 1957



Technical Cooperation Programme

## Key achievements in Egypt

- 2018: The sustainability of the Egyptian research reactor ETRR-2 is strengthened.
- 2017: A MGC20 cyclotron machine is upgraded at the Nuclear Research Centre in Inshas, Egypt, for radioanalytical services and radioisotope and radiopharmaceutical production.
- 2015: Hot Laboratory and Waste Management Centre for decontamination of radioactive waste is established in Inshas, Egypt.

## Atoms for peace and development

The International Atomic Energy Agency is the world's central intergovernmental forum for scientific and technical cooperation in the nuclear field. It works for the safe, secure and peaceful uses of nuclear science and technology, contributing to international peace and security.

The IAEA's technical cooperation 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 infrared beamline specialist from Egypt, during her IAEA supported fellowship at the SESAME centre in Salt City, Jordan. The programme connects local health professionals with global research facilities providing meaningful scientific exchanges and cross-country knowledge sharing. (Photo: Dean Calma/IAEA)

## Recent project successes

### Waste management

Radioactive waste is produced from spent nuclear fuel, the production and use of radioisotopes in medicine, industry, research and agriculture, and as a by-product from the mining and processing of ores, combustion of fossil fuels, and the production of natural gas and oil. To ensure the protection of people and the environment from such hazards, the IAEA supported the establishment of a national radioactive waste decontamination centre for Egypt's nuclear and medical facilities, providing specialized training for the staff of the centre. A quality assurance and control working group was established to develop a detailed decontamination plan and procedures, and the centre's staff were trained at the National Decontamination Operational Unit of the Hot Laboratories in Inshas.

### Radioisotope production

Egypt's nuclear medicine sector requires a constant and reliable supply of short lived, neutron deficient radioisotopes from a cyclotron machine, a type of particle accelerator. The government requested the IAEA to provide assistance to upgrade and improve the performance of their cyclotron at the Nuclear Research Centre in Inshas. Support included delivering and installing a radiofrequency system to produce radioisotopes for medical treatment.

Training, advisory services and equipment were also provided to strengthen the capacities of the Nuclear Research Centre of the Egyptian Atomic Energy and start the provision of radioisotopes by the refurbished cyclotron in Inshas.

### Research reactor

The IAEA supported the installation of a device at the Egyptian research reactor, ETRR-2, which can analyse in real-time the elemental composition of materials being tested. Assistance also helped build training and education capabilities for the research reactor and included a data acquisition system (which measures the amount of highly enriched uranium being used by research reactors) a training room, with programmes, equipment and devices to develop a train-the-trainers programme. The existing research reactor's design has the potential to increase production of radiopharmaceuticals, specifically Mo99 radioisotopes to diagnose and treat diseases.

## Active national projects

- Establishing a National Training Center and Developing Information and Communication Technology Materials to Build Technical Skills in the Field of Nuclear Science and Technology (EGY0020)
- Strengthening the Applications Associated with the Second Research Reactor (EGY1026)
- Supporting Technological Separation and Purification of Naturally Occurring Radionuclides and Rare Earth Elements from Minerals (EGY2013)
- Building Capacity for the Nuclear Power Plant Project Construction Stage (EGY2014)
- Developing Project Management for a Nuclear Power Programme During the Construction and Commissioning Phases (EGY2015)
- Supporting a Feasibility Study for Uranium and Rare-Earth Element Recovery from Unconventional Resources (EGY2016)
- Establishing a National Reference Laboratory Applying Nuclear/Isotopic and Related Techniques in the Analysis of Food Contaminants (EGY5026)
- Contributing to the Establishment of a Well Equipped National Laboratory for the Quality Control of Radiopharmaceuticals to Enhance the Regulatory Functions of the Ministry of Health (EGY6011)
- Strengthening the Regulatory Inspection of Nuclear and Radiological Installations (EGY9042)
- Strengthening Capacities for Radiological Impact Assessment of Nuclear Facilities Using Modelling and Data (EGY9043)
- Establishing and Upgrading Radiation Protection and Safety Measures for the Egyptian Incinerator for Low Level Radioactive Waste (EGY9044)
- Developing a Quality Assurance and Quality Control Programme for the Radioactive Waste Management Facility (EGY9045)
- Supporting and Strengthening the National Regulatory Body for Reviews, Assessments and Inspection for the Construction of a Nuclear Power Plant (EGY9046)

Egypt also participates in 31 regional and 9 interregional projects, mostly in the areas of health and nutrition, industrial applications, energy planning and nuclear power, and radiation protection and nuclear safety.

## Previous IAEA support to Egypt

Until the mid-1990s, the IAEA's activities in Egypt focused on nuclear safety, nuclear engineering and technology. Support was provided to assess the safety status of the country's research reactor and to assist in reviewing and assessing updated safety reports in order to improve its safe operation and utilization. The IAEA also provided support for the research reactor licensing process. In recent years, assistance has shifted to the application of isotopes, human health, water resource management and nuclear technology, and the development of the nuclear power infrastructure.

## IAEA support to Egypt, 2009–2019



**854** trained  
(including 194 women)

**211** international experts provided

**260** attended specialist meetings  
(including 58 women)

## Priority areas of support

- Supporting water resource management
- Strengthening industrial applications
- Improving human health and radiation safety
- Sustainable energy development

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

**174**  
expert and lecturer assignments provided by Egypt

**492** training course participants

**207** fellows or scientific visitors hosted

Based on data available as of April 2020

## Strategic documents supported

- United Nations Development Assistance Framework 2013–2017
- Country Programme Framework 2016–2021, signed in September 2015
- Integrated Workplan for nuclear power 2015–2021

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

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