



# China

IAEA Member State since January 1984



Technical Cooperation Programme

## Key achievements in China

- 2019: China finalizes its analysis and plans for its first underground research laboratory and deep geological disposal site for high-level radioactive waste at Beishan in Xinjiang province, north-west China.
- 2019: The China Atomic Energy Authority is designated as an IAEA Collaborating Centre to help regulate the safe and secure operations of its nuclear power plants.

## 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.



Scientists at Beijing's Research Institute of Uranium Geology, test a bentonite block which acts as a buffer for high-level radioactive waste. The IAEA provided technical assistance and staff training in geological, geohydrological and mechanical studies for waste disposal. (Photo: G Cheng/BRIUG)

## Recent project successes

### Energy planning and nuclear power

In September 2018, the China Atomic Energy Authority signed practical arrangements with the IAEA to partner on education and training in nuclear energy, nuclear safety and security, and nuclear science and applications. This included supporting PhD and MSc degrees in Nuclear Engineering for more than 20 professionals from developing countries, annually.

With 48 nuclear power reactors in operation and 10 under construction, China continues to strengthen its national nuclear safety and security, its emergency preparedness and response infrastructures. It receives expert advice from the IAEA on strengthening its radioactive waste management programme.

In 2019, the China Atomic Energy Authority, through its State Nuclear Security Technology Centre and the China Institute of Atomic Energy, was designated as an IAEA Collaborating Centre enabling China to provide research, development, testing and training on nuclear security detection and physical protection technologies to IAEA Member States.

### Radioactive waste and safety management

China has received support to enhance the radioactive waste management infrastructure in the Asia-Pacific region, which led to the design of the country's first research laboratory for the deep geological disposal of high-level radioactive waste, 400 metres below the Beishan underground research laboratory. China has also hosted training sessions in the region on the conditioning of high activity radioactive sources, spent fuel management, and policy and strategy for 24 radioactive waste management specialists from 17 countries.

Over 20 years, China has developed its institutional infrastructure, human capacity and technical capabilities for the geological disposal of high-level radioactive waste. The IAEA has supported planning, site selection, geologic and hydrogeologic site characterization, on-site tests and staff training for the Beishan underground research laboratory. The facility will play an important and multi-faceted role in the development of high-level waste repositories.

## Active national projects

- Implementing Exploration Techniques for Paleochannel Sandstone-Hosted Uranium Deposits and Fluid-Rock Interaction in In-Situ Leaching Processes (CPR2016)
- Developing Integrated Strategies to Improve Nitrogen Utilization and Production Efficiency in Dairy Cows (CPR5025)
- Applying the Sterile Insect Technique as Part of an Area Wide Integrated Pest Management Approach to Control Two Fruit Flies (CPR5026)
- Enhancing the Capacities of Nuclear Emergency Response by Source Term Estimation and Unmanned Aerial Survey of Radioactivity (CPR9053)
- Evaluating Underground Research Laboratory Site Characteristics at Depth for High-Level Radioactive Waste Disposal (CPR9054)
- Building Capacity for Research on the Key Issues of Emergency Preparedness and Response for Nuclear Fuel Cycle Facilities (CPR9055)
- Strengthening Capacity for Monitoring and Evaluating Doses to Patients and Occupational Staff in Medical Exposure (CPR9056)
- Improving National Capabilities for Disused Sealed Radioactive Source Management (CPR9057)
- Enhancing the Accelerated Application of Mutant Germplasm and High-Efficiency Breeding in Crops (CPR5024)
- Conducting Research on Ground Water Restoration in Acid In-Situ Leaching Mines (CPR7005)
- Evaluating Potential Sites in Clay Formations for High Level Waste Disposal (CPR9050)
- Establishing the Safety Requirements for the Decommissioning of Nuclear Facilities and Environmental Remediation for Contaminated Sites and Facilities (CPR9051)
- Designing a Nuclear Emergency Decision Deduction and Training Platform (CPR9052)

China also participates in 41 regional and 10 interregional projects, mostly in the area of radiation protection and nuclear safety, energy planning and nuclear power and nuclear knowledge development and management.

## Previous IAEA support to China

In recent years, the IAEA focused its support on developing China's nuclear energy, fuel cycle, safety and emergency preparedness and response capabilities, in addition to strengthening the food and agricultural sector.

### IAEA support to China, 2009–2019



**811** trained  
(including 210 women)

**369** international  
experts  
provided

**178** attended specialist  
meetings  
(including 44 women)

### Priority areas of support

- Strengthening the use of nuclear energy
- Improving the nuclear fuel cycle
- Supporting nuclear and radiation safety
- Improving the food and agriculture sector
- Strengthening the industrial sector
- Protecting water resources and the environment
- Improving the human health infrastructure
- Developing nuclear-based research and capabilities
- Strengthening nuclear security and safeguards

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



224  
expert and lecturer  
assignments provided  
by China

**648** training course  
participants

**340** fellows or  
scientific visitors  
hosted

Based on data available as of April 2020

### Strategic documents supported

- Country Programme Framework 2016–2021, signed in September 2016

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

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