

China's Nuclear Security Technology Centre supports international training efforts

By Miklos Gaspar



A simulator room in the SNSTC designed to generate and contain strong electromagnetic waves for testing nuclear security equipment.

(Photo: M. Gaspar/IAEA)

Accounting for mock nuclear material and its residues to confirm that nothing has been stolen, shooting laser pistols at moving human-shaped targets and climbing over wired fences. These are just a few of the training exercises performed at China's State Nuclear Security Technology Centre (SNSTC) on the outskirts of Beijing. The Centre is part of the International Network for Nuclear Security Training and Support Centres (NSSC Network), which is coordinated by the IAEA and plays a key role in international cooperation and the sharing of best practices in nuclear security.

“Protecting nuclear or other radioactive material from falling into the hands of terrorists is of growing importance in a country like China, which is expanding its nuclear power programme,” said Zhenhua Xu, Deputy Director General of the SNSTC.

“Nuclear security is the responsibility of every nuclear facility operator and nuclear material possessor in the sector — training is therefore a central element for strengthening nuclear security capacity.”

Since the Centre of Excellence, operated by the SNSTC, opened in 2016, over 3000 participants, including 800 from abroad, have completed its national and regional training courses. The participants comprise staff from nuclear facilities, including nuclear power plants and law enforcement agencies, and the courses deal with all aspects of nuclear security, such as the prevention of terrorist attacks and sabotage, as well as how to deal with them should they occur.

The SNSTC's state-of-the-art facilities span 28 000 square metres on an 8-hectare campus, making the Centre one of the largest

of its kind in the world. In addition to a virtual shooting range and mock nuclear facility for combat training, the Centre houses a nuclear material accounting and control training facility, an emergency response simulation room and a physical protection testing field.

The facilities also house an analytical laboratory for quantifying uranium and plutonium in samples to check whether nuclear or other radioactive material has gone missing, or whether undeclared activities have taken place, as well as a laboratory for testing nuclear security equipment under extreme weather conditions.

Preparing for threats

As the amount of nuclear material in peaceful use grows worldwide, so does the need for authorities to prepare for threats. At the 2019 NSSC Network's annual meeting in Beijing, participants discussed how they can increase their cooperation in strengthening the protection of nuclear and other radioactive material against terrorism and smuggling.

There is close cooperation among national authorities, facilitated by the IAEA, in globally strengthening the nuclear security framework, and training is a key activity in this cooperation, said Raja Abdul Aziz Raja Adnan, Director of the IAEA's Division of Nuclear Security. In 2019 alone, more than 2000 participants from 145 countries took part in 101 IAEA nuclear security-related training courses and workshops — many of which were organized at various NSSCs — and developed their expertise.

“The NSSC Network and the IAEA can now provide more customized support and expand into a wider range of technical activities, in a structured, systematic and sustainable manner, in order to meet the needs of individual centres,” Raja Adnan said. “We must always aim for continuous improvement to stay ahead of the threat while endeavoring to use limited resources efficiently.”

For countries with smaller nuclear programmes, having facilities as large as those of the SNSTC may not be necessary. With proper planning, these countries can set up NSSCs that are suited to their national needs and can complement what countries with major nuclear power programmes can offer.

“Our Member States have asked us to play a central role with assisting in strengthening the global nuclear security framework,” said Raja Adnan. “In that respect, the IAEA coordinates and implements activities through which countries can cooperate to minimize the risk of nuclear and other radioactive material being used in a malicious way.”

One of these activities is through the broader IAEA Collaborating Centre scheme, which, among other activities, facilitates cooperation across countries with the purpose of advancing research, development and training in the peaceful uses of nuclear science and technology, including nuclear security. In September 2019, the SNSTC, which is part of the China Atomic Energy Authority (CAEA), became an IAEA Collaborating Centre in nuclear security technologies. Under a new cooperation agreement, the IAEA and the CAEA will work together to improve the functionality of radiation detection equipment and physical protection systems, including, for example, through tests that simulate harsh environmental conditions. The agreement facilitates collaboration between the IAEA and the CAEA in research, development, testing and training related to nuclear security detection and physical protection technologies.

“Terrorism knows no borders, so counter-terrorism must also be coordinated among countries,” Xu said. “As a growing power in nuclear energy, we want to play our part in that.”

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— Zhenhua Xu, Deputy Director General, State Nuclear Security Technology Centre, China

Using a rain simulator to test the resilience of a surveillance camera.

(Photo: M. Gaspar/IAEA)

