Security culture: one for all, and all for one

By Miklos Gaspar


(Photo: D.Calma/IAEA)

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— Khairul Khairul, Senior Nuclear Security Officer, National Nuclear Energy Agency (BATAN), Indonesia

Preventing the theft of nuclear material and attacks and sabotage against nuclear installations is a challenge that governments, nuclear regulators and operators around the world are increasingly facing.

"Terrorism is a real threat that exists around the world and also in Indonesia. And it can affect nuclear security," said Khairul Khairul, a senior nuclear security officer at Indonesia's National Nuclear Energy Agency (BATAN), which operates three research reactors. "We need to strengthen the notion of nuclear security in our entire workforce by developing a strong nuclear security culture."

Nuclear security culture refers to the characteristics, attitudes and behaviour of individuals, organizations and institutions that enhance and support nuclear security. It is about the importance of the human factor in nuclear security.

"Historically, there has been a focus on nuclear safety and safety culture around the world, particularly after the Chernobyl accident in 1986. We now need to develop the same focus for security," Khairul said.

The coherent and rigorous implementation of a security culture implies that staff remain vigilant of the need to maintain a high level of security, said Kazuko Hamada, Nuclear Security Culture Officer at the IAEA. "Ultimately, the entire nuclear security regime depends on the people involved. It is the human factor — including management and leadership — that must be addressed in any effort to enhance nuclear security culture."

Organizations need to have a nuclear security policy, a sound management system and regular training and sensitization techniques for employees to understand nuclear security risks. Culture evolves slowly, and people are often resistant to change, Hamada added. "Maintaining a strong nuclear security culture requires persistent effort and continuous monitoring."

The IAEA has offered assistance and support to its Member States in the area of security culture ever since the term was coined a decade ago. It is currently developing guidance for security culture self-assessment and enhancement for countries and for organizations responsible for nuclear security.

In Indonesia, many of BATAN's 2800 employees have gone through security

awareness training and have participated in drills and exercises over the last few years, Khairul explained. Around 1000 employees periodically attend training events on nuclear security culture. They learn about the importance of information protection and of compliance with facility procedures. They are also better informed about the need to avoid divulging information that has the potential to undermine security, including by being on the alert for insider threats (see Box below). "An enhanced security culture is particularly important for a country that is considering the introduction of nuclear power, like Indonesia," he said.

Self-assessment in Bulgaria

Bulgaria has operated nuclear power plants for decades and has used IAEA guidance and services to enhance its security culture.

In 2013, the Kozloduy nuclear power plant's management team conducted a nuclear security self-assessment to evaluate the extent of nuclear security culture at the plant. The self-assessment, based on IAEA methodology, identified areas for improvement as well as areas where good practices had to be maintained, said Vladimir Yankov, Head of Analysis and Control of Physical Protection at the plant's Security Division. This led to the development of an action plan for ongoing enhancement of security culture at the plant.

Since culture is often difficult to change, the plant's management decided to undertake self-assessments every two years to check progress made and update the action plan.

"The key message we transmit to our staff is that security is a shared responsibility," Yankov said. "It cannot be done by security professionals alone."

Hidden but real: Insider threat

Nuclear installations are well guarded and protected against violent intrusion from the outside. But their employees, contractors and other individuals with access to, authority over, or knowledge of nuclear material may be a weak link in guarding against the theft of nuclear material.

"In the past we were mostly concerned about outside attacks. We now need to focus more and more on insider threats, too," said Tapani Hack, Section Head for Nuclear Security at Finland's Radiation and Nuclear Safety Authority (STUK). Insiders can be engaged in malicious acts by, for instance, leaking information to terrorist groups or playing a part in the theft of materials. Or they can pass on information inadvertently.

STUK has recently revised its security regulations for nuclear operators, requiring the development of preventive measures against insider threats. Operators now need to submit their security plan to STUK for approval. This applies equally to nuclear installations under construction. "We now expect operators to consider insider threats from the moment of planning," Hack said.

The IAEA has developed a guidance document and training courses to help countries educate their nuclear workforce in preventing theft of nuclear material by insiders. A new tool, currently under development, includes the three-dimensional model of a hypothetical facility, and the task for trainees is to find a way to smuggle nuclear material out of it. Once they find a way, they need to identify upgrades to protection systems and internal controls to prevent the theft.

A new IAEA training tool includes a 3D model of a hypothetical facility for the identification of insider threats.