NUCLEAR SECURITY ON THE FRONTLINE

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(Photo: D. Calma/IAEA)

Port Klang, on the Straits of Malacca outside Kuala Lumpur, the twelfth largest port in the world, handles over 18000 containers daily. Bustling around the clock, Port Klang is strategically located at a crossroads of trade routes in South East Asia and is a major trans-shipment hub for cargo moving from sea to land and air.

Cargo of all types passes through Port Klang. All of these goods are carefully monitored by the national authorities to detect radioactive signatures. The diversity of products causes daily challenges for nuclear security. False alarms for radioactivity can be triggered by commonly traded goods, including building materials like sandstone, and cement, food stuffs like bananas and coffee, and household items like TVs and smoke detectors. However, similar cargo can also contain nuclear and other radioactive material that may be illegally trafficked through ports, which are a prime transport pathway used by smugglers to move such materials around the world.

Traditional security measures like 'guns, gates and guards' cannot alone prevent malicious acts that could involve nuclear or other radioactive material. The IAEA's Incident and Trafficking Database reveals consistent patterns of nuclear and other radioactive material that is outside regulatory control and could be used for malicious purposes. The authorities at transit points like container ports seek to screen cargo for nuclear or other radioactive material without significantly impeding normal operations.

The risk of illicit trafficking is an added challenge for customs officers, who can rely upon radiation portal monitors (RPMs) to help them detect radiation and subsequently interdict illicit material in transit or at border crossings. At Port Klang, 42 operational RPMs ensure that all goods for import, export or transhipment are scanned for radioactivity. As trucks carrying cargo containers pass through, RPMs detect the presence of radiation in real time. In addition, personal radiation detectors, or pagers as they are called in the field, are clipped onto the belts of customs officers to further detect the presence of radiation.

Siva Arravan, Senior Assistant Director of Customs at Royal Malaysian Customs, explained, "Without a pager, no one can go to the port or near a container." Such measures ensure that personnel are not inadvertently exposed to radiation. The pagers' presence is a constant reminder that nuclear security is a high priority concern on the front line.

If an RPM detects radiation, an alarm is triggered, and measurement data is transmitted to a central alarm station, where the information is analysed and processed. If the measurement is suspicious, all clearances and forms are further scrutinized for possible sources of radiation, which are transported legally. A secondary inspection of the cargo is subsequently conducted.

An effective detection system is more than equipment, such as RPMs and pagers; it entails a system of national coordination and cooperation between different agencies and across disciplines. Understanding a radiation measurement, and ensuring an appropriate response demands close coordination between the competent authorities such as the regulatory body, port authority officials, police, and fire brigade. This coordinated response is the basis for nuclear security in action.

The ability to detect and interdict illicitly trafficked nuclear and other radioactive materials, helps to make ports more secure, by minimizing the potential risk of harm to society and the environment, creating higher levels of transparency and assurance for trading partners, and helping to ensure that no radioactive material finds its way into exported cargo.

"We don't want to undermine our ability to be a good trading partner. Nuclear security measures in place in Malaysia send a strong message to those looking to Malaysia to be a 'mule' for illicit trafficking. If there is a radiological dispersion device , it would create terror and we do not want that on our watch," said Raja Adnan, Director General of the Malaysian Atomic Energy Licensing Board (AELB).

Nuclear security measures have significant implications for the security of the entire supply chain. "Being able to detect radiation allows for a level of checks and balances between security and revenue," said Arravan. Nuclear security is a confidence-building measure, which helps to keep a State's borders secure, and in turn keeps trade open and thriving.

After nuclear security measures are set in place the threat of nuclear and other radioactive material falling into the wrong hands nonetheless remains. Terrorists continually seek to locate and exploit the weakest link or point of entry. RPMs and pagers are deterrents that reduce the likelihood that illicitly trafficked radioactive material will remain undetected, and traffickers will attempt to move these materials illicitly through less well-protected transit points. As a result, States need to be informed about such security measures, as well as properly equipped and trained to address this risk.

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The IAEA assists States in strengthening the global response to this global threat, and has worked closely with Malaysia on nuclear security, by providing expertise to develop and strengthen infrastructure, procure equipment, and deliver training.

At Port Klang, Malaysia, cargo of all types is monitored carefully to detect radioactive signatures. (Photo: D. Calma/IAEA)

At Port Klang, all customs officers have to be trained in radiation detection. "Without training," explained Arravan, "we can't do our job. The IAEA has trained us on how to use equipment to detect, locate and identify radiation. Even if we interdict one illicit shipment, it is a success."

Danielle Dahlstrom, IAEA Office of Nuclear Security.