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Missing Iridium: Enhancing Regional Nuclear Security

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Synopsis

The recent case of a missing radioactive device in Malaysia highlights the significance of nuclear security in Southeast Asia. Enhancing nuclear security cooperation is needed to address Southeast Asia's nuclear security challenges and weak nuclear security culture.

Commentary

AN INDUSTRIAL device containing radioactive material reported missing by Malaysian authorities on 20 August 2018 is a reminder that nuclear security is an important security issue that needs attention in Southeast Asia. The device was lost while being transported from Seremban in Negri Sembilan to Shah Alam, Selangor by two technicians of a company that provides testing, calibration and inspection services to heavy industries.

There are concerns that the unknown amount of radioactive iridium contained in the device could cause radiation exposure or be used as a weapon, otherwise known as "dirty bomb".

Potential Risks

Although there is no nuclear power plant in the region currently, radioactive sources are widely used for civilian applications in medical, industrial, agricultural, and scientific research fields. Without stringent oversight on the use and handling of radioactive materials, there are potential risks of these being accidentally leaked, stolen and used for malicious purposes, or released indiscriminately by non-state actors/terrorists through 'dirty bombs'.

Hence, a key point to note is that the security of radiological material is an important component of nuclear security. According to the latest *Global Incidents and Trafficking Database* prepared by the James Martin Centre for Nonproliferation Studies (CNS), there were 870 reported incidents involving radioactive materials (theft, missing, leaked, smuggled etc) from 51 countries between 2013 and 2017.

Four of such incidents were reported in Southeast Asia, including one case in Malaysia last year. The need to strengthen radiological security cannot therefore be overstated.

Southeast Asia's Nuclear Security Challenges

This recent incident highlights the importance of nuclear security to ASEAN. While nuclear security is often understood to be about securing nuclear power plants and nuclear weapons, it is also very much about the security of radioactive materials. As defined by the International Atomic Energy Agency (IAEA), nuclear security is “the prevention and detection of, and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear material, other radioactive substances or their associated facilities”.

Even in the nuclear weapon-free Southeast Asia, there is a broad range of legitimate uses of radioactive material especially in industrial facilities, hospitals, research reactors, and scientific laboratories. For instance, radioactive sources are present in 17 hospitals in Thailand and seven hospitals in the Philippines.

Radioactive material is under the State's regulatory, export and licensing control, but unauthorised removal or loss puts the material out of regulatory control. This is where the potential risk of this being used by an adversary in a malicious act is present. This risk has clear transborder implications.

The risk in the region is further magnified with the presence of extremist groups wanting to use 'dirty bombs', weak maritime security, insufficient border and export controls, and scarcity of adequately trained radiological security responders. The chance that a malicious actor or group could try to get access to radioactive material cannot be ignored.

But apart from the immediate impact of a radiological leak, attack or explosion, there are four major transboundary consequences associated with a nuclear security incident—health, economic, societal and environmental. These consequences are all non-traditional security concerns which should compel all ASEAN member states to enhance cooperation on nuclear security.

Enhancing Regional Nuclear Security Cooperation

Establishing an effective and sustainable nuclear security infrastructure is crucial for the protection of states, people, society and the environment. In ASEAN, there are in place building blocks of a nuclear security infrastructure that needs to be strengthened, beginning with every state that utilises nuclear technology and radioactive material.

National governments are responsible for legal and regulatory framework that governs

how security at relevant facilities are maintained and how radioactive material is managed, utilised and transported. While not all ASEAN member states have ratified legally binding nuclear security conventions and voluntarily developed national regulations based on IAEA's code of conduct and guidance on the security of radioactive material, regional cooperation frameworks can help member states strengthen nuclear security.

The ASEAN Network of Regulatory Bodies on Atomic Energy (ASEANTOM) focuses on sharing of best practices, exchange of experiences, assisting ASEAN member states in enhancing their regulatory frameworks, and capacity building through training courses and technical collaboration with other international organisations such as the IAEA and European Commission.

ASEANTOM's latest nuclear security-related activities include the Nuclear Security Border Exercise along Malaysia-Thailand borders; ASEANTOM Workshop on Capacity Building and Strengthening the Nuclear and Radiation Safety and Security Network in the ASEAN Region; the IAEA Regional Workshop on Strategy to Establish Inventory for the Security of Radioactive Sources; and the IAEA Regional Training Course on Nuclear Security Culture.

Another key regional collaboration on nuclear security is the Regional Radiological Security Partnership in Southeast Asia (RRSP), which brought together Southeast Asian states, Australia, the United States and the IAEA.

Launched by Australia in 2004, RRSP primarily aims to improve the physical protection and security management of high-risk radioactive sources in Southeast Asia through technical assistance and training, providing radiation detection equipment, sharing of best practices, and on-going cooperative activities on searching of missing radioactive sources and emergency response amongst national authorities, regulators and law enforcers.

Addressing Weak Nuclear Security Culture

Despite the robust regional cooperation on nuclear security, one evident shortcoming of nuclear security governance in Southeast Asia is weak nuclear security culture, highlighting the importance of human factors, such as attitudes, awareness and behaviours. Nuclear power and utilisation of radioactive material for non-power applications do not merely involve technological aspects.

Human errors such as complacency and the lack of critical thinking play a role in most reported incidents, including cases of loss and theft. It is therefore crucial to develop and strengthen the security culture of individuals, organisations and institutions that handle radioactive material. In Malaysia alone, there are around 21,000 radiation workers.

It is important that all of them demonstrate a strong security culture. However, only a few ASEAN member states such as Indonesia, Thailand and Malaysia have established nuclear security support centres of excellence that can provide holistic education and training for radiation workers, researchers, hospital staff and industrial

workers. National policy frameworks on developing a nuclear security culture remain fragmented or non-existent in several regional countries.

To make the ASEAN's capacity-building cooperation more comprehensive, it is equally important to complement regional technical training workshops on nuclear energy with enhanced training assistance on strengthening the security culture—the human factors. With the ever-present transboundary risks of radiological emergencies and stolen radioactive material, improving the rate at which security policies are fully implemented and understood by all stakeholders could dramatically narrow the gaps in nuclear security in the region.

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