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The Political Utility of Radioactive Material in Southeast Asia *

By Paul M. Cole

Synopsis

At least three Southeast Asian states appear to be planning to build nuclear power plants (NPP) at a time of unusual global market conditions for radioactive material. Of particular interest is the fact that the potential political utility of nuclear weapons, the ultimate by-product of radioactive material, is practically irrelevant as a means for a state to generate force or coercive diplomacy in the 21st Century.

Commentary

AT LEAST three nations in Southeast Asia - Indonesia, Malaysia and Vietnam – have expressed interest in entering the nuclear power plant (NPP) segment of the radioactive material product life cycle. The government of Singapore, on the other hand, has funded at least three projects intended to re-write the country's laws, policies and regulations (domestic and regional) in order to facilitate Singapore's entry into the nuclear power plant segment of the radioactive material product life cycle should that decision be taken in the future.

Moreover, Indonesia may become a source of uranium ore and perhaps yellowcake (Naturally-Occurring Radioactive Material, "NORM"). Each nation entering the radioactive material product life cycle must prepare, plan and invest in the infrastructure required to transport, store and dispose of both NORM as well as NORM that is technically-enhanced ("TENORM") into highly-enriched or fissile material. Each nation must also create policies and implement counter-measures to prevent both NORM and TENORM from causing environmental damage or falling into the hands of non-state actors.

Variants of Hazardous Material

Both NORM and TENORM are variants of hazardous material. Hazardous materials are defined by Singapore's National Environmental Agency (NEA) for example as chemical materials that are "generally those that have mass-disaster potential, are highly toxic and pollutive, and/or generate toxic wastes that can only be disposed of with greater difficulty".

Radioactive materials, which are chemicals defined by the World Nuclear Association as 'hazardous materials', share the same dangerous properties as 'hazardous material' as defined by Singapore's NEA. Radioactive materials should be defined and treated in policy, regulation and law in Singapore and elsewhere in Southeast Asia in a similar way as currently applies to non-radioactive hazardous materials."

Potential political utility varies according to the segment of the radioactive material product life cycle each nation intends to enter.

Nuclear Power Plants (NPP)

Over the past 60 years, uranium has become one of the most important energy materials in the world. More than 80 percent of the world's mined uranium derives from just six countries - Australia, Canada, Kazakhstan, Niger, Namibia, Russia. (Enriched uranium extracted from nuclear warheads is also used as a NPP fuel source). With regard to uranium reserves in Southeast Asia, Indonesia claims to have uranium deposits in excess of 50,000 tonnes.

As of 2016, there are no nuclear power plants in Southeast Asia. The development of nuclear power plants in Southeast Asia will introduce a range of new political and economic opportunities and problems. A comprehensive policy for each country entering the radioactive material produce life cycle must include the ability to create and maintain safe harbours, overland transportation, storage and disposal facilities for both NORM and TENORM.

The potential political utility of nuclear power generation is primarily for domestic purposes, due to cheaper energy prices as well as increased independence from foreign carbon-based energy sources. The economic decision to invest in NPP is complicated by the free-fall in fossil fuel prices (both oil and natural gas) that is forecast to continue for a decade if not longer.

The by-products of NPP create certain potential hazards. In addition to the potential environmental risks associated with NPP, effective steps must be taken from the outset to prevent NPP TENORM by-products, including highly-enriched uranium (HEU) and plutonium, from falling into the control of a non-state actor (i.e., a terrorist organisation) that might attempt to create some sort of radiological dispersal or explosive device.

Dirty Bombs (RDD) and nuclear weapons

Radiological Dispersion Devices (RDDs), aka “dirty bombs,” are neither weapons of mass destruction, nor are they nuclear explosive devices. There are significant indications that RDDs are clumsy, ineffective devices that pose the greatest threat to those trying to assemble an RDD. The best defence against an RDD is to create and implement the capacity and procedures required to minimise the effect of the dispersal of radioactive material. These mitigation procedures may effectively negate any potential political utility of an RDD threat, including a detonation.

With regard to a Nuclear Explosive Device (NED), there is no indication that any Southeast Asia nation has any interest in obtaining nuclear weapons. More importantly, however, the preponderance of the empirical evidence clearly points to an important conclusion: With a only two exceptions, the US-Soviet balance of power during the Cold War and the Sino-Soviet border crisis in the 1960s, the utility of nuclear weapons as a tool of state force or coercive diplomacy has been on the decline since the 1950s.

There is no empirical evidence that nation-states respond positively to nuclear threats. There are many examples of nations making nuclear threats, but little if any evidence that the target nation altered its behaviour in favour of the nation making the threat. The only place where nuclear threats are effective is the non-falsifiable, hypothetical world created by international relations theorists.

There is little, if any, independently-verifiable evidence, such as archival or other primary sources, that verifies the political utility of threats to use nuclear weapons. Since the end of the Cold War, nuclear weapons have lost much, if not all, of their value as a state’s ability to manifest force or coercive diplomacy. A 2012 study conducted by a group of former US national-security officials and political leaders chaired by former Vice Chairman of the Joint Chiefs of Staff, General James Cartwright, concluded emphatically:

> No sensible argument has been put forward for using nuclear weapons to solve any of the major 21st century problems we face … [including] threats posed by rogue states, failed states, proliferation, regional conflicts, terrorism, cyber warfare, organised crime, drug trafficking, conflict–driven mass migration of refugees, epidemics, or climate change. […] In fact, nuclear weapons have on balance arguably become more a part of the problem than any solution. (Emphasis added)

The foreign and security policy implications of the fact that the threat to use nuclear weapons is indeed a “paper tiger” are profound. Nuclear weapon states attempting to exert influence in Southeast Asia must rely on non-nuclear sources.

Possible role for AADMER

The ASEAN Agreement on Disaster Management and Emergency Response (AADMER), which came into force in 2005, is a legally-binding agreement to develop a regional cooperative mechanism to deal with disaster management. The AADMER text does not include the words “radioactive,” “radioisotope,” “atomic” or “nuclear”.

AADMER requires the signatories to “give priority to prevention and mitigation, and

thus shall take precautionary measures to prevent, monitor and mitigate disasters". It would appear that this would be the appropriate forum to conceive, develop and implement measures to prevent and mitigate the effects of radioisotope contamination whether deliberate or accidental.

This would be consistent with the requirement that AADMER signatories "shall earmark assets and capacities […] for disaster relief and emergency response" that may be used within other ASEAN member states.

Paul M. Cole was recently a Visiting Research Fellow with the S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University, Singapore, where he undertook research concerning the potential political utility of radioactive materials in Southeast Asia.

**This is a revised version of the Commentary.*

Nanyang Technological University
Block S4, Level B4, 50 Nanyang Avenue, Singapore 639798
Tel: +65 6790 6982 | Fax: +65 6794 0617 | www.rsis.edu.sg