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Prospects for an ASEAN Nuclear Cooperation: A common nuclear facility?

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Nuclear energy has emerged as a viable option to provide base load power for many nations. However, countries in Southeast Asia planning to develop nuclear reactors could face a multitude of problems. Therefore, a strategy for nuclear cooperation among the various nations in the region could help minimise the risks.

THE RECENT ASEAN summit has called for regional cooperation among the various regional nations in the sectors of energy and climate change. With advanced safety features that are to be incorporated in modern nuclear reactors, the civilian usage of nuclear energy is an attractive solution to the twin agenda of energy security and carbon reduction. Nations will benefit if it considers all available options to diversify its energy resources. With regards to the ASEAN community, a common nuclear facility can possibly reap greater advantages than individual national plants.

A call for a common nuclear facility

Global consumption of energy is expected to increase particularly in Asia, fuelled by the economic growths of China and India. Within Southeast Asia, developing nations such as Vietnam and Indonesia are treading on accelerated growth paths. The apparent linkage between economic growth and energy consumption would readily see nuclear energy emerge as a middle term solution that enables developing nations to transit from hydrocarbons to sustainable renewables, with minimal disruption to their economies.

To date, no ASEAN country has utilised nuclear power for its energy needs, which involves a hefty upfront cost and investment capital. The energy consumption of individual ASEAN nations is relatively small on a global scale. However, in considering the ASEAN region, its collective energy demands will be significant. Therefore, it is only prudent for a common nuclear facility to see to the needs of the region while at the same time, alleviating the financial risks associated with the operation of the nuclear power reactors.

In addition, both the economic environment and geographical features are not entirely homogeneous throughout the ASEAN nations. A small territorial space or active seismic movements poses as impediments in the operation of a nuclear plant. As such, it is not viable for some smaller states like Singapore to operate a nuclear power plant given its sheer size. But unfavourable conditions can be overcome when considering the Southeast Asian region in totality, whereby feasible sites are more readily available. The concept of a common ASEAN nuclear power plant would also provide better justification for smaller member nations that are economically stronger to enter the partnership.

Cooperation in this aspect is a critical strategy for member states. They can contribute in different kinds, all for the common goal of attaining reliable energy and reducing greenhouse emissions.

Another reason for cooperation lies in the domain of technology. Apart from its inherent high cost, the element of novelty is also a primary concern for stakeholders to keep up with advanced technology. Cooperation among the nations in this aspect would not only reduce the duplication of technology, but also foster individual nations to develop expertise in their niche areas. If technology transfer is to be effected, individual nations focussed on specific areas of capability could lead to more advanced technology being adopted at a cheaper cost.

Regional energy distribution

Nuclear energy can be stored for use at a later stage. Strategic storage of energy has become critical with the increasing frequency and intensity of natural disasters in the region. In this regard, nations with nuclear energy are able to enhance their energy reserve, thereby achieving a level of energy independence. This concept can be extrapolated to a common strategic reserve stored for the ASEAN members that can be tapped in the event of a crisis.

It is timely that ASEAN has decided in August 2007 to set up a common power grid. This agreement lays the infrastructure for power to be distributed to nations within Southeast Asia.

The Memorandum of Understanding on the ASEAN Power Grid signed by ASEAN ministers serves as a reference document to facilitate energy cooperation programmes. This agreement lays the infrastructure for power to be distributed to nations within Southeast Asia. Significantly, the ministers also suggested the possible introduction of nuclear energy into the region.

It has, however, to be noted that the ASEAN region is geographically diverse, and power connections across mountainous regions and deep seas would likely to be expensive. Nevertheless, ASEAN is committed to develop the necessary infrastructure that links its constituent members with a more reliable supply of electricity. With the appropriate market structure, electricity generated by the nuclear plant can be distributed via the common power grid.

A common regional repository ?

Finally, radioactive wastes are inevitable in the nuclear fuel process. Currently, Finland has managed to successfully deposit its permanent high-level waste 500 metres underground. The call for a repository site poses several geological challenges, and has been met with great scepticism as to whether technology is capable of modelling tectonic movements for several thousands of years.

Nevertheless, the more resisting factor in nuclear waste management stems from the societal perceptions of the host nation. The 'Not In My Backyard', or more commonly known as the NIMBY syndrome is already prevalent among many nuclear-powered countries, not to mention a common repository site in Southeast Asia. Unless a neutral site can be located, strong resistance is likely to occur for a common repository site when the nation not only accepts its own, but also the regional nuclear wastes.

Cooperation in this aspect is crucial owing to the close proximity of the nations in Southeast Asia. The NIMBY syndrome needs to be overcome, as any waste repository within the region would in one way or another have consequential impact on its constituent nations. Hence, the notion of NIMBY is inapplicable within Southeast Asia as anywhere within its premise is likely to be 'everyone's backyard' in the event of a waste leakage. Given the fact that some of its nations already decide to build nuclear reactors, the more discerning question that ASEAN needs to address is whether it would like to see a region of ten individual waste storages residing in each country, or alternatively, to cooperate with each other to safely manage a common waste facility.

Nuclear waste management remains a pertinent issue that needs to be addressed during the development stages of nuclear plants. Societal mindsets in overcoming the NIMBY mentality require innovative educational campaigns by the respective governments. They need to convince their respective publics about the common good in establishing a shared repository site. The host nation of the common waste repository needs to be 'incentivised', possibly in the form of economic gains that can trickle down to the individuals in society. If successful, it could serve as a model for other institutions to follow in the sharing of nuclear facilities.

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