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The Rush for Nuclear Energy in Southeast Asia: Promises and Pitfalls

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THE WORLD'S surging demand for energy, coupled with the urgent need to mitigate the impact of climate change, has pressed many states to explore clean energy alternatives. For many developing countries in Asia, nuclear energy seems to be the most viable option. Japan — which relies heavily on nuclear energy for about a third of its electricity needs and is a prime advocate for the use of nuclear energy for civilian use — has been a good point of reference. Japan has also the largest nuclear power programme in Asia and the third largest worldwide after France and the United States.

However, despite Japan's great advancements in nuclear energy and good reputation for public safety, a series of nuclear-related disasters have raised concerns over the reliability of its nuclear industry. The recent earthquake in the country's northern province of Niigata that resulted in a fire and leak in its Kashiwazaki-Kariwa nuclear plant — despite being fortified to withstand earthquakes of as strong as 6.5 on the Richter scale — has once again provided a grim reminder of the high risks and vulnerabilities that come with having nuclear power plants. More importantly, this raises more concerns as to whether developing countries in Southeast Asia — many of which have poor public safety records and/or are in earthquake prone areas — are able to effectively manage their own nuclear energy programmes without jeopardizing the security of the region.

Nuclear energy in ASEAN

So far, several countries in ASEAN have jumped onto the nuclear energy bandwagon. Apart from the need to utilize carbon-free forms of energy, this bandwagoning is driven by the need to increase energy supply amidst rapid economic growth. The Indonesian Government has indicated that Gorontalo in Sulawesi would likely become the country's first province to have a 4000 megawatt nuclear power plant, which is expected to supply two percent of the country's total energy demand by 2017. Thailand also released plans of spending an estimated USD 6 billion to build nuclear power plants by the year 2021 while Vietnam plans to build its first nuclear energy plant by 2020.

The move towards the use of nuclear energy has been further strengthened by the belief that newer and safer technologies developed over the past 20 years would be better able to prevent nuclear disasters such as the Chernobyl plant in the former Soviet Union. The setting of longer time frames for the completion of nuclear plants also appears to indicate the growing awareness of respective governments of the need to build up sufficient expertise to safely operate these plants.

International and bilateral support extended to certain countries — both technical and financial — had also added impetus to develop more nuclear energy plants in the region. The International Atomic

Energy Agency (IAEA), for instance, has approved six projects valued at almost US\$1.5 million to develop nuclear technology in Vietnam in 2007 and 2008. The Russians have also played a significant role in encouraging nuclear energy use in Indonesia and even in Myanmar.

Risks and debates about nuclear energy plants

Against the growing interest in building nuclear power plants are also rising concerns in the region about the lack of transparency and public discussions about the potential dangers of the use nuclear energy. The 1986 Chernobyl disaster was a vivid example of the severe threats to human security when a nuclear accident happens.

Lessons from Kashiwazaki

With the recent incident at the Kashiwazaki nuclear plant in Japan, threats arising from such disasters have been brought much closer to home. Reports about the accident point to two very important issues. First is the location of the nuclear plant. Analyses of the aftershocks indicate that the nuclear reactors actually stand directly below a fault plane which is believed to extend from beneath the Sea of Japan. This latest finding negates the earlier assumption that no active fault lines lies beneath the location.

Second is the inevitability of human error. The *Asahi Shimbun* newspaper cited reports from Japanese geologists that while many of its nuclear plants are built to withstand an earthquake magnitude of up to 6.5, the calculations obviously underestimated and/or did not allow for a much higher magnitude. The latest quake in Niigata registered a magnitude of 6.8. Moreover, it is worth noting that an increase of 0.2 in magnitude would mean a two-fold rise in energy released.

The sobering message we get from the above is that there are obviously no guarantees for earthquake-proof reactors, despite claims from manufacturers. Following the accident, alarms have already been raised about the massive radioactive leak, which has found its way into the oceans. The dangers of marine pollution can potentially snow-ball from having poisoned products from the sea to jeopardized livelihood of fisher folks around the region, as well as food security. In addition to disrupted electricity supply, there are also concerns about containing the structural damage of the power plant — which is the world's largest — and whether this can be safe again for future use.

Crisis Management

Aggravating the concerns for safety is the lack of transparency that frustrates efforts to efficiently manage the unfolding impact of the disaster. Anti-nuclear Japanese activists like Satoshi Fujino of the Citizens Nuclear Information Centre (CNIC) in Tokyo have cited inadequate government regulations and the “culture of secrecy” as the main factors contributing to nuclear accidents. According to him, the culture of secrecy has been used and abused to conceal information about safety procedures when plants are being prepared for inspections.

Further reports from CNIC reveal that the nuclear plant industry in Japan has been plagued by scandals. CNIC claims that there have been a number of ‘falsification’ cases which hide and suppress information about the extent to damage from nuclear accidents — from as far back as 1995. And, despite efforts by authorities to set up a number of fact-finding committees, it appears that many gaps still remain which could help explain why this latest accident could happen in a country that is known for its high safety standards.

Implications for the region

Issues about lack of transparency, corruption and poor crisis management are certainly not unique to

Japan. It can be argued that the same problems apply to Southeast Asia --perhaps to an even more acute degree. The debacle of the Philippines' Bataan Nuclear Power Plant (BNPP) during the Marcos regime is a case in point. Lack of safety standards, economic viability and corruption had led to the failure of BNPP, leaving the Filipinos with a debt of US\$2.2 billion.

Given the chequered experience of operating nuclear energy plants in Asia, it may do well for countries in ASEAN to exercise more caution and diligence in executing their plans to build nuclear power plants. More so, for countries which are geographically exposed to the so-called 'Ring of Fire'. It may also be prudent to heed the objections from local communities living around the earthquake-prone zone, as in the case of Indonesia's Mount Merapi in central Java.

Finally, given that safety standards in many of these countries are still problematic, communities therefore face higher risks when nuclear accidents happen. Failure to draw lessons from Japan and ignoring the voices of local communities who are familiar with the inherent dangers of their geographical terrain could result in catastrophic consequences.

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