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Energy Security: Would Vietnam's Ninh Thuan Nuclearise Southeast Asia?

By Margareth Sembiring

Synopsis

Vietnam plans to construct its first nuclear power plant in 2014 despite the 2011 Fukushima disaster. Although its initiative may act as a trailblazer in Southeast Asia, Hanoi's nuclear-aspiring neighbours may see renewable energy as a better alternative to the region's energy trilemma.

Commentary

VIETNAM is scheduled to start building its first nuclear power plant (NPP), the Ninh Thuan 1-1, in 2014 and is set to be the first country in Southeast Asia to operate a nuclear power facility. Indonesia, Thailand, and the Philippines, have laid down some groundwork for the same end for decades, but political, financial, and environmental reasons have thus far impeded the realisation of such vision.

Would the imminent construction of Vietnam's NPP spur its neighbours to follow its footsteps?

A little late for the nuclear game

Arguably, Southeast Asian countries have found their journey to the 'nuclear energy club' way too tardy. The birth of environmentalism in the 1970s, the 1986 Chernobyl disaster, and the 2011 Fukushima accident, pose significant hurdles in acquiring civilian nuclear capability at present.

The initial rapid development of civilian nuclear energy took place between the mid-50s and mid-70s particularly in Northern America, the Soviet Union, and Western Europe. The high expectation for nuclear energy was evident in the US when it placed an order for up to 250 nuclear reactors by 1974. The excitement, however, did not last long. In early 1970s, environmentalist movements began to form and affected nuclear energy development. Construction of nuclear facilities peaked at 43 in 1976 and dropped to about 20 a year between 1976 and 1985. The expansion of nuclear energy has never been at the same pace as it was prior to the rise of environmentalism.

Southeast Asian countries missed the golden period of nuclear energy development. The fact that they did not succeed in establishing NPPs before the emergence of the environmental movements contributes significantly to their stalled nuclear energy planning at present. The Philippines had made the furthest attempt with the construction of Bataan Nuclear Power Plant (BNPP) in 1976 but the facility was never put into operation due to strong opposition from environmental and anti-nuclear groups in the early 1980s.

The challenge of civilian nuclear energy development was exacerbated with the 1986 Chernobyl accident. Although the incident has resulted in enhanced nuclear safety measures, the number of new constructions within a year further slumped to less than 10 in the following decade after the incident.

Public acceptance of nuclear power development

Public acceptance is an important factor in the development of NPP. Countries with top-down political systems are better at dealing with public concerns. The only country in Asia that succeeded in acquiring nuclear power facility despite the 1986 Chernobyl accident and growing pressure from environmentalism was China. In 1991, China's first grid connection was made to its Qinshan-1 reactor. Following Chernobyl, regardless of one million signatures garnered to oppose the development plan of Daya Bay NPP, the Chinese government proceeded with the project and saw its completion in 1993. Subsequently, 50% of new constructions between 1991 and 2010 took place in China.

Similar observations can be made in Southeast Asia. With top-down approaches, Vietnam is able to rise above the challenges of environmentalism, Chernobyl, and Fukushima. The governments of Indonesia, the Philippines, and Thailand, however, would be unlikely to find the task of convincing their public any easier despite the claim of better nuclear safety technology and standards following the Fukushima nuclear plant disaster. Although there are a number of factors behind the delay in the construction of NPPs in these countries, the role of civil society organisations in a more democratic system cannot be discounted.

The involvement of Greenpeace Southeast Asia and the Philippine Climate Watch Alliance has contributed to the halting of BNPP operations in that country. In Indonesia, Greenpeace Indonesia, MANUSIA, and Walhi have staged oppositions against nuclear power development since early 1990s. In Thailand, the Ongkharak Nuclear Research Centre Project has been put on hold for more than a decade due to strong opposition from local residents and environmentalists.

More organised and more influential environmental movements undoubtedly increase the political and social costs associated with nuclear energy development. Globally, about 20% of nuclear reactors that have been shut down are attributed to political reasons and a lack of public acceptance.

The unbearable “What If” scenario

Despite the Fukushima disaster resulting in better and improved nuclear safety, the same incident has also shown the severe challenges in managing the aftermath. The Japanese government's efforts to bring radiation level to 1 millisievert a year - the normal limit of radiation exposure for the public - is noticeably failing. The decommissioning of Fukushima Dai-ichi facility may take more than three decades. The huge financial expenses associated with decontamination of public utilities and compensations for affected residents have compelled the Japanese government to borrow additional 3 trillion yen (US\$28.96 billion), and increased the expenditure to US\$80 billion excluding the decommissioning costs.

If Japan, a developed country with a proven record of reliable technology and safety culture, finds post-disaster relief efforts a difficult struggle, it is important to ask whether more budget-constrained Southeast Asian countries whose safety culture has long been a subject of concerns, would fare any better should a similar disaster happen.

Elusive nuclear future in Southeast Asia

Although Vietnam is already on its way to be the first to operationalise NPPs in Southeast Asia, its nuclear-aspiring neighbours are likely to continue doing what they have been doing all these years: putting the ambition in low gear while waiting for a more opportune moment to push the nuclear agenda through. Whether or not this strategy would remain tenable, however, is less than clear. The financial costs to ensure the survivability of nuclear programmes may eventually lead to the more pressing need to create real energy-generating facilities.

Strengthening commitments to the development of renewable energy (RE) may provide a better alternative. RE technology has become more reliable in recent years. There was a notable growth in RE investments over the past eight years, and RE investment in developing economies is increasing. Among different sources of RE, solar energy seems to be most promising. The solar sector attracts the most investment and the costs of solar photovoltaic technology are falling. In 2012, a record 30.5GW PV capacity, up 6% from the previous year, was installed. The average cost of PV-generated electricity, however, was one third lower than in 2011.

The Southeast Asian countries must not miss out on the current developments of RE. Such developments have their own set of challenges such as high costs and land use issues. Still, their benefits would very likely

outweigh the irreversible consequences of a nuclear disaster.

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