Southeast Asia’s nuclear push: the need for better regional communication and nuclear accident response capabilities

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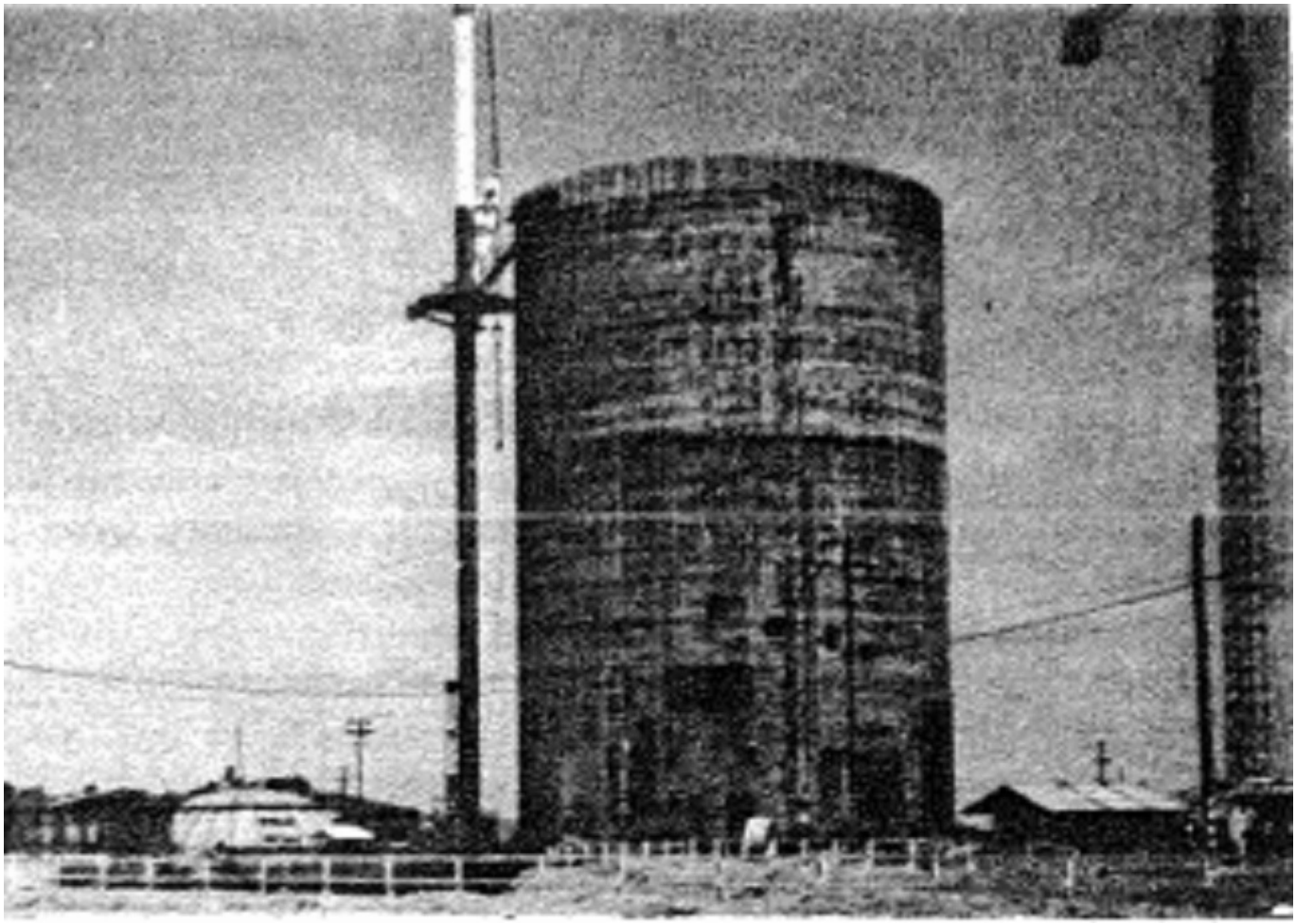

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by Denia Djokic

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I. INTRODUCTION

In this article on the push for nuclear power in Southeast Asia, Denia Djokic writes "There are many responsibilities that these nuclear aspirants must fulfill in order to be able to utilize nuclear energy responsibly. These include technical capacity-building for the nuclear workforce and the strengthening of programs of nuclear engineering education, as well as enhancing the rigor and robustness of their regulatory infrastructure. Independence of the nuclear energy regulators from the government bodies and/or private industries that promote nuclear energy must be ensured, so as to not repeat the conflicts of interest that arose from the pre-Fukushima Japanese nuclear regulatory structure. Emerging nuclear energy countries also must improve cooperation with international oversight bodies, most notably the International Atomic Energy Agency (IAEA), in light of proliferation and nuclear accident risks. For a region that is prone to natural disasters, including typhoons, tsunamis, and earthquakes, assurance of preparedness to respond to a nuclear incident is indispensable."

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Banner image: Updated June 21 2018, image from 500 Mile Island.

ii. POLICY FORUM BY Denia Djokic

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Last month, in January 2015, the Nuclear Power Asia Summit in Kuala Lumpur brought representatives of the global nuclear industry and Asian nations together for a conversation on the status of nuclear energy growth in Asia. Although many Asian countries reconsidered their nuclear ambitions in the aftermath of the tragic Fukushima Daiichi Nuclear Power Plant accident of March 2011, plans to introduce nuclear energy into their long-term energy mix have not been permanently deterred. Although most of the additions to Asia's nuclear power plants fleet are being planned and built in China, India, and South Korea, the level of interest in nuclear power in an increasing number of members of ASEAN (Association of Southeast Asian Nations) remains high. OECD projections of

economic growth in the Southeast Asian region predict an annual average 5.6% increase in gross domestic product (GDP) between 2015 and 2019.[1] This growth, accompanied by expected rapidly increasing energy (and particularly electricity) needs, coupled with energy security issues and concerns about greenhouse gas emissions, has led many Southeast Asian countries to take a renewed interest in nuclear energy development.

On the forefront of this regional nuclear energy push are Vietnam, Indonesia, and Malaysia, according to a recent report on the sustainability of nuclear energy in Southeast Asia, published last October by the Centre for Non-Traditional Security Studies (NTS) at the S. Rajaratnam School of International Studies (RSIS).[2] All of these nations have plans to acquire nuclear energy capability in the next decade. After some delays, Vietnam is determined to commission its first nuclear power plant, two Russian-built 1000 MWe reactors, at Phuoc Dinh (Ninh Thuan Province) after 2020. Indonesia's National Nuclear Energy Agency, BATAN, and the Nuclear Energy Regulatory Agency, BAPETEN, have conducted feasibility studies and undergone extensive preparations to ready the country for a possible nuclear energy expansion. BATAN has also performed a number of site selection processes, focusing on Muria (Central Java Province), Banten (West Java Province), and Bangka Island (east of Sumatra Island), identifying these areas as those with lowest risk of natural disasters. Last September, Russia's state nuclear energy corporation Rosatom expressed interest in constructing two nuclear power plants on Batam Island. Malaysia announced last July that it plans to conduct a feasibility study aimed at the possibility of building a nuclear power plant in the next ten years. Other ASEAN countries have also been part of the nuclear discussion, historically as well as currently. Thailand has drafted proposals to implement nuclear energy, including it in its Power Development Plan starting in 2026[3]. The Philippines constructed a 621 MW (megawatt) nuclear power plant at Bataan, about 75 km west of Manila. Though the Bataan plant was essentially complete and had undergone non-nuclear testing by 1984, it never went into operation due to public and political opposition. Cambodia and Myanmar have also identified themselves as "aspirants" to nuclear energy. Some of the smaller countries in the region, however, such as Brunei, Singapore, and East Timor, have said they will abstain from pursuing a commercial nuclear energy option.[4]

There are many responsibilities that these nuclear aspirants must fulfill in order to be able to utilize nuclear energy responsibly. These include technical capacity-building for the nuclear workforce and the strengthening of programs of nuclear engineering education, as well as enhancing the rigor and robustness of their regulatory infrastructure. Independence of the nuclear energy regulators from the government bodies and/or private industries that promote nuclear energy must be ensured, so as to not repeat the conflicts of interest that arose from the pre-Fukushima Japanese nuclear regulatory structure.[5] Emerging nuclear energy countries also must improve cooperation with international oversight bodies, most notably the International Atomic Energy Agency (IAEA), in light of proliferation and nuclear accident risks. For a region that is prone to natural disasters, including typhoons, tsunamis, and earthquakes, assurance of preparedness to respond to a nuclear incident is indispensable. According to the NTS report from October 2014, "It is imperative for ASEAN member states to work together to ensure effective governance of nuclear facilities, materials, and wastes and to adopt a regional disaster preparedness mechanism. ASEAN can facilitate regional cooperation on capacity-building, information dissemination, and emergency preparedness and response frameworks."[6]

Even though the Fukushima Daiichi nuclear accident in 2011 was geographically distant enough to not prompt a large-scale immediate crisis response (for example, related to the health impacts of radiological emissions from the accident) in Southeast Asian nations, the events at Fukushima spawned effects that transcended national boundaries. The nuclear accident created far-reaching confusion about radiological fallout, shifted public opinion of nuclear energy, and complicated many national nuclear energy policies globally in the midst of what had been considered a "nuclear

renaissance", including a reconsideration of nuclear energy in Southeast Asian countries previously enthusiastic about adopting developing or acquiring reactors.[7] In the aftermath of the Fukushima nuclear accident, the need for a coordinated and coherent approach to responding to natural disasters in an effective and timely manner was immediately acknowledged in ASEAN. Notably, on April 9, 2011, almost a month after the Great East Japan Earthquake, a Special Japan-ASEAN Ministerial Meeting was held in Jakarta, at which ASEAN countries expressed solidarity with Japan in the context of natural disasters, and which stressed the importance of international cooperation in disaster management. In his opening speech, President Yudhoyono of the Republic of Indonesia emphasized "the need to further enhance capacity for disaster preparedness and management by building upon the existing mechanisms and frameworks."[8]

The two devastating natural disasters in Southeast Asia in the last decade, the 2004 Indian Ocean Tsunami and the 2008 Cyclone Nargis, presented lessons in and demonstrated the indispensability of disaster response readiness. If Southeast Asia is to gain significant nuclear capacity in the near future, nuclear-specific disaster preparation is a pressing need. To address "the peculiar nature of a radiation-related disaster," the NTS report recommends the establishment of "a special coordinating body, such as a nuclear crisis centre, which is expected to be conversant in the appropriate responses to this type of disaster affecting people in the region."[9] An existing example of such a crisis center, though it does not target nuclear-related issues, is the ASEAN Coordinating Centre for Humanitarian Assistance located in Jakarta. Furthermore, this type of center could be established to respond to not only nuclear reactor accidents, but also nuclear security and terrorism incidents. Currently, the two ASEAN sub-organizations that promote regional cooperation on nuclear energy are the ASEAN Network of Regulatory Bodies on Atomic Energy (ASEANTOM) and the Nuclear Energy Cooperation Sub-sector Network (NEC-SSN). This existing infrastructure could be built upon to enhance regional coordination, communication, and training on nuclear disaster-related issues.

In light of Southeast Asia's near-term nuclear ambitions, it is imperative to cultivate a regional culture of response readiness, cohesion and communication, as well as policies to facilitate this goal. To prepare for nuclear safety and security-related incidents, all ASEAN and neighboring nations, independent of whether they have plans to utilize nuclear energy, need to develop an early warning system for nuclear accidents and a thorough regional emergency preparedness and response plan. This could be achieved by more regional preparedness exercises, specifically radiological disaster training, coupled with training and assistance from the IAEA and countries with greater technical experience in nuclear power, such as the US, Russia, France, Japan, and South Korea. This preparation must start sooner rather than later; the earlier that gaps and limitations in response readiness to a nuclear incident are identified, the sooner and more thoroughly they can be addressed.

Image: National Geographic

III. References

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