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Benefits and Concerns Arising from the Accelerated Development of Nuclear Power in Southeast Asia

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One of the consequence for the global energy market resulting from the blockade of the Strait of Hormuz is renewed interest in nuclear power generation. Nuclear power is often referred to as a “quasi-domestic” energy source because it requires far fewer shipments of uranium fuel compared to fossil fuels and allows for long-term fuel storage. The blockade of the Strait of Hormuz has once again highlighted the importance of improving energy self-sufficiency, and interest in nuclear power as one of the options is growing. However, the rationale for relying on nuclear power goes beyond simply improving self-sufficiency. With electricity demand expected to rise, there is a strong need for power sources capable of providing a stable supply of large amounts of electricity. As the hurdles to building new coal-fired power plants have become higher, nuclear power—along with natural gas-fired power—has become a valuable option. Furthermore, nuclear power is an effective means of achieving long-term decarbonization. Consequently, even among developing countries, there are nations that are seriously considering the use of nuclear power after carefully weighing the pros and cons, including safety risks and back-end issues.

Amid these circumstances, I came across a very interesting news report at the end of August this year. Although not yet confirmed, the report stated that construction of small modular reactors (SMRs) could begin in Myanmar as early as 2027. Russia’s Rosatom plans to build two 55-MW SMRs, for a total capacity of 110 MW. Myanmar, where civil war continues under a military regime, has tended to become isolated from the international community and has been unable to receive adequate support for necessary energy development. Against this backdrop, the construction plan appears to be moving forward, following an agreement reached during a summit between Russian and Myanmar leaders. Currently, no country in Southeast Asia utilizes nuclear power, and if this project proceeds as planned, Myanmar could overtake Vietnam—which is also moving forward with its own construction plans—and become the first country in ASEAN to utilize nuclear power.

In Southeast Asia, in addition to Myanmar and Vietnam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand are also considering the introduction of nuclear power. Several countries had previously had plans to develop nuclear power but withdrew them in the wake of the

Fukushima Daiichi nuclear accident. However, Thailand, for example, included plans in its draft power development plan announced on September 10 to introduce its first reactor by 2037 and up to 9 GW of SMRs by 2050. Thailand aims to shift toward electric vehicles as part of its efforts to reduce dependence on oil, driven by its experience with the crisis caused by the blockade of the Strait of Hormuz, and expects this to further boost electricity demand. While renewable energy will remain the mainstay, the country plans to utilize nuclear power as a stable, decarbonized, and quasi-domestically produced power source. Similar momentum is evident in other countries, and there is a possibility that the use of nuclear power will expand across Southeast Asian nations in the coming decades.

Given the benefits of nuclear power, the progress of the development plan is welcome, but there are also concerns. I have visited Myanmar several times and feel that the country lacks the technical infrastructure, human resources, and institutional frameworks necessary for the construction and operation of a nuclear power plant. It is likely that Rosatom will end up taking full responsibility for the project. While one could argue that this is no different from an IPP (Independent Power Producer) project for thermal power generation, it is problematic for a host country to have absolutely no capacity to make its own decisions or implement its own measures in the field of nuclear power generation, which requires strict safety management. Assuming Rosatom's SMR construction period is 3–4 years, operations might begin around 2030. It must be acknowledged that it is uncertain whether Myanmar will be able to build sufficient capabilities and systems in the remaining four years or so. Other Southeast Asian countries also lack experience in the practical operation of nuclear power plants and must make thorough preparations.

Furthermore, the geographical proximity of Southeast Asian countries is likely to pose a challenge. Since an accident in one country would affect neighboring nations, contingency planning and countermeasures must be developed on a multilateral basis. A key challenge will be whether effective coordination can be achieved not only among Southeast Asian countries but also, in some cases, with neighboring China, northeastern India, and Bangladesh. Southeast Asia does have multilateral cooperation frameworks related to nuclear energy. These are ASEANTOM (ASEAN Network of Regulatory Bodies on Atomic Energy), a network of nuclear regulatory agencies, and NEC-SSN (Nuclear Energy Cooperation Sub-Sector Network), which operates under the ASEAN Energy Ministers' Meeting. If the development of nuclear power generation accelerates in Southeast Asian countries, discussions aimed at ensuring safety—utilizing these networks—must be strengthened and made more concrete. In this regard, Japan will be able to make a significant contribution by drawing on its own experience. One of the three pillars of the POWERR GX initiative announced by the Japanese government in August is “strengthening the

global energy structure, particularly in Asia,” and contributing to nuclear power development in Southeast Asia aligns with this objective. It is hoped that cooperation between Southeast Asian countries and Japan will help alleviate concerns and enable all parties to reap the maximum benefits.

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