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## **Can ASEAN Develop a Robust Nuclear Energy Regime?**

*By Mely Caballero-Anthony, Alistair D.B. Cook, Julius Cesar I. Trajano and Margareth Sembiring*

### **Synopsis**

*The development of nuclear power in Southeast Asia faces hurdles to collectively ensure nuclear security, safety and safeguards (3S). However regional cooperation remains key to achieving it. Can ASEAN live up to expectations?*

### **Commentary**

VIETNAM, MALAYSIA and Indonesia plan to diversify their energy mix, reduce over-dependence on fossil fuel, and gradually integrate nuclear power into their long-term energy plans. Earlier this year, Vietnam announced a delay of its first Nuclear Power Plant (NPP) until 2020. Its government wanted to take a calibrated step-by-step approach while developing the necessary infrastructure, including training future NPP operating engineers and strengthening relevant laws and regulations.

Indonesia's NPP programme has stalled because of strong public opposition. President Joko Widodo will make or break the decision for Indonesia to go nuclear, and as public acceptance is a key factor, he is unlikely to make an unpopular decision. Nevertheless, to demonstrate Indonesia's commitment to nuclear security and safety, the country's nuclear regulatory body BAPETEN established the Indonesian Centre of Excellence on Nuclear Security and Emergency Preparedness (I-CoNSEP) in August 2014 to coordinate relevant government agencies.

### **Skills shortage**

In neighbouring Malaysia nuclear energy has also received strong public opposition. The Malaysian government does not rule out the nuclear option, however. Minister in the Prime Minister's Department Mah Siew Keong stated in early July that the government will conduct a feasibility study, including a public opinion survey and comparative energy analysis.

While the three countries have maintained their nuclear energy plans, there are still significant challenges to developing human resources and regulatory frameworks to pursue sustainable nuclear energy development in the region.

Vietnam continues to develop and expand its pool of nuclear engineers by sending hundreds of

students to Russia and Japan, offering nuclear energy scholarships in five local universities, and allocating a US\$150 million capacity-building budget between 2013 and 2020. However, critics argue that HR training emphasises theory rather than practice.

According to a consultant to the NPP project in Ninh Thuan province, Vietnam's strategy of sending its nuclear scientists and professors for short training courses overseas (average six weeks) has so far failed to provide sufficient knowledge because the courses are too short for anything other than basic knowledge.

Indonesia does not have comprehensive educational plans to produce sufficient numbers of engineers for its future NPPs. Some programmes are in place to boost the country's human resources in nuclear energy, but specific competencies still need to be developed in cooperation with future NPP investors.

Meanwhile, Malaysia does not yet have a dedicated human development programme for NPPs, and it remains unclear whether Malaysia will have the necessary human resources by the time it constructs its first NPP. At present the focus of nuclear knowledge and expertise is primarily on non-power applications such as medical, health, agriculture, industry and manufacturing.

### **Safety and regulatory loopholes**

One key takeaway from the Fukushima accident is the importance of an effective and independent nuclear regulatory body. The Japanese parliament's investigation concluded that collusive relationships between Fukushima plant operators and government regulators compromised safety.

Nuclear regulatory bodies in Vietnam and Malaysia do not have effective independence from government ministries which promote nuclear energy. If this arrangement remains by the time they start operating their NPPs, nuclear safety may be compromised. Vietnam's emergency protocol still does not conform with the International Atomic Energy Agency's (IAEA) emergency preparedness and response standards.

In addition, Vietnam has yet to come up with a comprehensive NPP security and management plan for spent fuel or high-end radioactive waste. Vietnam's Atomic Energy Law is currently being revised to address these significant regulatory issues.

In Indonesia, contrary to what the IAEA prescribes, there is no Nuclear Energy Implementing Organisation (NEPIO) to lead and manage the effort to consider and develop a NPP programme. Instead, several institutions such as the National Nuclear Energy Agency (BATAN), BAPETEN, Ministry of Energy and Mineral Resources, Ministry of Environment, and Ministry of Research and Technology carry out separate functions in preparing for the establishment of NPPs. This arrangement may compromise the regulatory impartiality of BAPETEN.

### **Regional cooperation**

Although not all ASEAN member states currently have plans to build NPPs, the transboundary implications of radioactive waste leaks and nuclear accidents on public health, environment, food security, and economic well-being should compel the region to collectively ensure nuclear security, safety and safeguards (3S). It is imperative for ASEAN member states to work together to ensure effective governance of nuclear facilities, materials, and waste and to adopt a regional disaster preparedness mechanism.

ASEAN member states need to review existing domestic laws and regulations on nuclear energy and bring them into line with the international legal instruments that they have already acceded to.

Learning from the rich experience of the European Atomic Energy Community (EURATOM), ASEAN can facilitate regional cooperation on human resources training, information dissemination, and joint emergency preparedness and response exercises in case of nuclear accidents.

As ASEAN member states work to establish an ASEAN Community, the fostering of an ASEAN consensus on nuclear energy-related issues is possible. Key to its success is for member states to

work around concerns about non-interference in domestic affairs for a shared concern and interest in a nuclear-safe ASEAN.

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