

## HOW SHOULD WE ADDRESS NUCLEAR RISKS IN ASIA?

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While North Korea would appear to be the most prominent nuclear risk in Asia, the United States faces a more complex web of nuclear challenges as it works to build secure and sustainable relationships in that region. More than ever, a strong U.S. role in nuclear energy and nonproliferation in that region will be crucial for reducing emerging nuclear risks.

Without a doubt, nuclear energy will grow fastest in Asia, given the ambitious construction plans of China and South Korea, and the tremendous energy needs of other emerging economies and exploding populations. This contrasts with Europe and the Americas, which are likely to see little growth or perhaps even decline in nuclear energy. Unlike in the 1970s when U.S. nuclear exports dominated the global market, the nuclear power plants that will be constructed in Asia are much more likely to be “home-grown”—that is, built by Chinese, Japanese, and South Korean nuclear vendors. In all three cases, there is a tremendous learning curve in nuclear governance, for domestic and export programs.

In China, the rapid pace of nuclear power plant construction (16 operating and 29 under construction) is placing strains on a relatively small regulatory system, prompting outside concerns that China needs more resources (financial and human) for nuclear regulation. After the March 2011 Fukushima nuclear power plant accident in Japan, China halted construction for a year although targets for growth have not changed. Japan, which is experiencing a complete nuclear power shutdown, is still adjusting to its new, more independent nuclear regulatory agency created after Fukushima, but the future of nuclear energy in Japan is uncertain. Until a significant number of reactors restart, observers will question the need to maintain Japan’s nuclear fuel cycle capabilities (uranium enrichment and spent fuel reprocessing). Indeed, resuming reprocessing could leave Japan with huge stockpiles of separated plutonium with nowhere to go, posing significant security risks. South Korea will be closely watching what happens in Japan, especially since it is petitioning the United



States for approval to enrich and reprocess U.S. material under the bilateral agreement for nuclear cooperation. At the same time, the South Korean nuclear industry is also adjusting to a new regulatory system and indictments over significant safety lapses.

Even as they struggle to implement best practices at home, nuclear vendors in all three countries have ambitious plans to export their technology, particularly to Southeast Asian countries that have little or no experience with nuclear energy—Vietnam, Malaysia, Indonesia, Philippines. This combination of new exporters and inexperienced recipients suggests a potentially significant increase in the risks of new nuclear energy.

China, South Korea and Japan need to be part of a broader, global discussion on how to make nuclear energy sustainable in the long run. That discussion needs to involve all stakeholders (civil society, industry, governments, and international organizations) and has to address whether we need better, mandatory standards for safety and security. The United States should be a key voice in that discussion, as well as continue government cooperation and commercial relationships it has developed over decades with Japan and South Korea. The United States also needs to support more dialogue in Asia about regional approaches to such things as energy and nuclear energy research and development, fuel assurances, and nuclear waste disposal.

The growth in nuclear energy in Asia comes at the same time as growth in nuclear weapons in Asia. China is the only one of the five “legitimate” nuclear weapon states (under the terms of the Nuclear Non-Proliferation Treaty) that is increasing its arsenal with new warheads, missiles, and submarines. (China’s estimated arsenal of 250 nuclear warheads, of which about 140 are designed for delivery on land-

based missiles—mostly mobile, solid-fuelled—and the rest for delivery with aircraft, is still far smaller than those of the United States and Russia, but roughly equal with those of the United Kingdom and France.<sup>3</sup>) While the other nuclear weapon states adhere to an informal, decades-long moratorium on production of fissile material for weapons, China does not and could add to its reported 20 metric tons of highly enriched uranium (HEU) and about 2 tons of separated plutonium. The Obama administration has approached China to discuss strategic stability, but reaching the long-term objective of greater restraint within the Chinese nuclear program, and, ultimately, participation in multinational strategic arms reduction talks, is still far off.

North Korea is the other obvious nuclear weapons threat in Asia. With a small (8–12) nuclear weapons stockpile and fledgling fissile material production capability, North Korea currently shows no signs of restraint. Pyongyang recently restarted its 5MWe plutonium production reactor that had been mothballed under the 1994 Agreed Framework, and likely continues its work on uranium enrichment. At the moment, there is little promise of engaging in disarmament talks with the United States, China, Russia, Japan or South Korea. Perhaps even more worrisome, the regime is building at least one nuclear power reactor for electricity, entirely outside the international safety, security and nonproliferation regime.

No other countries in the region have active nuclear weapons program, although at least two have had programs in the past. Some observers worry about latent nuclear weapons proliferation in Japan's fuel cycle capabilities and worry that U.S. assurances about extended nuclear deterrence are not as credible as they might be. Unlike Europe, the absence of alliance structures in Asia makes it

difficult to strike the same kinds of security bargains and assurances that allowed nuclear energy to prosper in Europe without significant proliferation risks. Finding the right balance between promoting nuclear energy and discouraging expansion of existing or new nuclear weapons stockpiles could be trickier in Asia.

Ideally, a U.S. strategy for enhancing nuclear energy while dissuading nuclear weapons proliferation in Asia would include a blueprint for nuclear governance in the region. Such a blueprint would have to address fissile material production, stockpiles, and nuclear waste management, including regional solutions. Overall, a tiered approach to reach out to all levels of stakeholders—civil society, industry, governments and international organizations—is essential. Finally, such a strategy would need to incorporate the highest standards in nuclear safety, security and nonproliferation, and require significant transparency and cooperation among regional partners. This would be far-reaching for Asia, where territorial and historical disputes still make front-page news, limiting the public's appetite for cooperation. However, there may still be a window for encouraging cooperation in the aftermath of Fukushima. The United States should leverage its strengths in nuclear governance to minimize nuclear risks and ensure the safe, secure and sustainable development of peaceful nuclear energy abroad. ►

**IDEALLY, A U.S. STRATEGY FOR ENHANCING NUCLEAR ENERGY WHILE DISSUADING NUCLEAR WEAPONS PROLIFERATION IN ASIA WOULD INCLUDE A BLUEPRINT FOR NUCLEAR GOVERNANCE IN THE REGION.**

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3. Hans M. Kristensen and Robert S. Norris, "Global Nuclear Weapons Inventories: 1945–2013," *Bulletin of Atomic Scientists* 69, no. 5 (September/October 2013).