Rising Powers Initiative- Sigur Center for Asian Studies
Nuclear Debates in Asia Digest - February 28, 2014

Asian Powers Wrestle Over Nuclear Security in Asia

By Timothy Westmyer, Research and Program Assistant, Rising Powers Initiative

As Japan debates restarting its dormant nuclear reactor fleet, leaders in Tokyo are under intense international pressure to address Japan's large stockpile of plutonium. According to *The Japan Times*,the United States asked Japan to return over 300 kilograms of weapons-grade plutonium transferred to the island nation for energy research purposes during the Cold War. The consolidation of this nuclear material in Japan, which could be used to produce forty to fifty nuclear weapons, is a major priority of the Obama Administration ahead of the March 2014 Nuclear Security Summit in The Netherlands. The impact of Japan's substantial remaining stock of plutonium on nuclear security and non-proliferation continues to be a source of debate within the country and throughout the region. This latest *Nuclear Debates in Asia Digest* examines China's reaction to Japan's plutonium repatriation, the future of Japan's plutonium reserve, and the direction of nuclear security in Asia.

Plutonium in Japan Takes the Long Way Home

In a 2009 speech in Prague, President Barack Obama announced a "new international effort to secure all vulnerable nuclear material around the world within four years" and called on a summit within the year to jump start actions toward this goal. The 2010 Nuclear Security Summit in Washington, DC and the 2012 follow up summit hosted by South Korea were opportunities for leaders to coordinate and reassess their nuclear security plans as well as for expert observers to measure progress and identify deficiencies in these countries. The United States backed an international effort to minimize the use of highly-enriched uranium (HEU), separated plutonium, and radioactive sources in medical and research reactors around the world and return these nuclear materials to their countries of origin where possible.

For decades, Japanese nuclear energy policy aimed to develop a self-sufficient plutonium-based nuclear fuel cycle to support a growing number of reactors throughout the country. Before the 2011 accident at the Fukushima plant, Japan amassed a large stockpile of plutonium that was to be used in fast neutron reactors. As part of this research during the Cold War, the United States and the United Kingdom contributed 300 kg of high quality plutonium to Japan for research into these next generation reactors, which are still under development. As part of President Obama's goal to consolidate sources of potentially dangerous nuclear material, the United States has been pressuring Japan to return the 300kg of plutonium since the first Nuclear Security Summit in 2010. While Japan hoped to keep the material for its on-going research, the Abe government has reportedly finally agreed to return the material to the United States. This deal will likely be formally announced at the 2014 summit and follows similar arrangements reached at previous Nuclear Security Summits in 2010 and 2012 to minimize and repatriate HEU and plutonium stocks in other countries.

The 300 kg of plutonium, while enough for several dozen nuclear warheads, would be considered small change relative to Japan's current stockpile of 44 tons of separated plutonium. To further complicate matters, Japan's new reprocessing facility at Rokkasho could produce around 8 tons of plutonium each year. According to Dr. Charles Ferguson, president of the Federation of American Scientists and co-chairman of the Maureen and Mike Mansfield Foundation's U.S.-Japan Nuclear Working Group,domestic politics in Japan could drive its nuclear fuel cycle policies and complicate any efforts to halt its plutonium recycling program. Japanese officials hoped to burn reserves of spent fuel and extracted plutonium in its nuclear energy reactors. With Japan's fleet of nuclear reactors still idle after the 2011 accident at the Fukushima plant, however, officials from the U.S. Departments of State and Energy,former high-level White House staffers, non-proliferation watchdogs, and others have questioned what Japan will do with all that separated plutonium.

China Raises the Alarm on Japan, Still Has Work to Do at Home

Nuclear security and non-proliferation have become another theater in the on-going diplomatic and military row between China and Japan. Media outlets in China issued several reports on Japan'splutonium debate. Editorials in *Global Times*, *Xinhua*, and *China Daily* echoed official Chinese statements and called on how Japan can claim "it sticks by the three non-nuclear principles but at same time hoards far more nuclear materials than it needs." At a February 17, 2014 press conference, China's Foreign Ministry spokeswoman Hua Chunying expressed concern about Japan's resistance to return the

300 kg of plutonium. "For a long time, Japan has not returned the stored nuclear materials to the relevant country, which has caused concern in the international community," said Hua. "China is of course very concerned."

Delving further into Japan's domestic nuclear debate, Hua Chunying declared "in recent years, voices in favor of nuclear weapons have kept emerging in Japan without any clarification from the government."Days after Japanese Foreign Minister Fumio Kishida suggested Japan may permit the basing of U.S. nuclear weapons on Japanese territory during a national security crisis, Hua pressed Japan to "adhere to its international obligations and stick to its own Three Non-Nuclear Principles." First enunciated by the Japanese government in the late 1960s, these principles of no manufacture, possession or deployment of nuclear weapons have been a mainstay of Japanese nuclear policy. These official Chinese statements and news reports indicate Beijing has leveraged the upcoming Nuclear Security Summit to support its overall case against Japan on the international stage.

While it is often hard to distinguish between real policy preferences and mere diplomatic quarrels, studying China's policies to protect its large stockpiles of military and civilian nuclear material is a major component of the *Nuclear Debates in Asia* project. In a recent article for *Science & Global Security*, Dr.Hui Zhang, project scholar and senior research associate at Harvard's Project on Managing the Atom, detailed China's attitude toward nuclear security issues and identified where work still needs to be done.

Here are some of the highlights of his article:

- Dr. Zhang concludes "many Chinese experts believe it is implausible (if not impossible) for Chinese nuclear weapons to be stolen because China's arsenal is relatively small, tightly monitored, and guarded by heavily armed force." China's 2000 national defense white paper, for example, asserts "China is extremely cautious and responsible in the management of its nuclear weapons."

- In terms of civilian nuclear material in China, Dr. Zhang writes that "Chinese nuclear experts believe that the probability of terrorist getting access to fissile material inside China and manufacturing a crude bomb is very low." The "most realistic threat," according to his interviews with Chinese nuclear experts, "is from a radiological dispersal device or 'dirty bomb'" from orphaned, spare, or less secure radioactive sources.

- He notes a growing sense of "complacency that exists among a significant number of senior nuclear experts and nuclear industries" that may see nuclear security upgrades as "more of an international requirement than as a response to a serious threat," which add higher capital and operating costs to the nuclear fuel cycle.

- Dr. Zhang recommends actions China could take to strengthen its domestic nuclear security culture, legal framework, and enforcement mechanisms: improved physical protection; improved materials control and accountability systems to reduce insider threats; and international assurances through better transparency and cooperation with the IAEA, World Institute for Nuclear Security, and United States.

Nuclear Material Security in Asia

The 2010 and 2012 Nuclear Security Summits were attended by several countries in Asia, including all of the *Nuclear Debates in Asia* project countries (China, India, Japan, Pakistan, South Korea, Thailand, and Vietnam) with the exception of Taiwan due to its unique diplomatic status. The chart below shows several of the metrics used to evaluate progress on bolstering nuclear security. While disputed by some countries for how it ranks nuclear security efforts, the Nuclear Threat Initiative's Nuclear Material Security Index is included as a comprehensive third-party analysis widely used by non-proliferation advocates and related NGOs.

		Treaty Status			Multilateral Initiatives						Fissile Material Holdings	
Country	Nuclear Material Security Score (out of 100)[1]	CPPNM	CPPNM 2005	ICSANT	ITBD[2]	PSI	GICNT	G8 GP	Mega ports	NSF[3]	HEU[4]	Pu[5]
China	64	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	16 +/- 4 tons	1.5 +/- 0.5 tons
India	41	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	2.0 +/- 0.8 tons	4.6 +/- 0./65 tons
Japan	76	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1.2-1.4 tons	44.9 tons
Pakistan	46											
South Korea	82	Yes	No	No[6]	Yes	Yes	Yes	Yes	Yes	Yes	None	None
Thailand	41	No	No	No[7]	Yes	Yes	Yes	No	Yes	No	None	None
Vietnam	51	Yes	Yes	No	Yes	No[8]	Yes	No	No[9]	No	None[10]	None

Abbreviations
Nuclear Material Security Score: NTI Nuclear Materials Security Index as of January 2014 report
CPPMNM: Acceded to or ratified Convention on the Physical Protection of Nuclear Materials
CPPMNM 2005: Acceded to or ratified amendment of Convention on the Physical Protection of Nuclear Materials
ICSANT:Acceded to or ratified International Convention for the Suppression of Acts of Nuclear Terrorism
ITBD:Participation in IAEA's Incident and Trafficking Database
PSI: Member of U.S.-led Proliferation Security Initiative
GICNT: Participation in Global Initiative to Combat Nuclear Terrorism
G8GP: Member of G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction
Megaports:Participation in U.S. Department of Energy's Megaports Initiative
NSF: Contributor to the IAEA Nuclear Security Fund

Conclusion

The growing stockpiles of nuclear material and their continued safety and security remain significant challenges throughout Asia. As countries in the region ramp up their nuclear energy plans and turn up the heat in long-standing territorial disputes, these challenges become increasingly more complex and closely interconnected. Be sure to follow the RPI's Nuclear Debates in Asia project as these issues develop.

Notes:

1. *Nuclear Threat Initiative*, "NTI Nuclear Materials Security Index: Building a Framework for Assurance, Accountability, and Action," Second Edition, January 2014, http://ntiindex.org/wp-content/uploads/2014/01/2014-NTI-Index-Report.pdf
2. Cann, Michelle, Kelsey Davenport, and Sarah Williams, "The Nuclear Security Summit: Progress Report," *Arms Control Association and Partnership for Global Security Report,* July 2013,http://www.armscontrol.org/files/Nuclear_Security_Summit_Report_2013.pdf
3. Ibid
4. International Panel on Fissile Materials, "Global Fissile Materials Report 2011: Nuclear Weapon and Fissile Material Stockpiles and Production," January 10, 2012, http://www.ipfmlibrary.org/gfmr11.pdf
5. Ibid
6. Signed, but not yet acceded to or ratified
7. Signed, but not yet acceded to or ratified
8. In October 2013, Vietnam announced plans to join the PSI. Source: http://tuoitrenews.vn/politics/14020/premier-calls-for-secure-regional-architecture-for-east-asia
9. Since 2012, Vietnam operates a local Megaports Initiative in Cai Mep. Source: http://www.nti.org/analysis/articles/vietnam-1540-reporting/
10. In July 2013, Vietnam completed the transfer of HEU to Russia to repatriate its HEU research reactor fuel under the auspices of the Russian Research Reactor Fuel Return Programme. Source: http://www.iaea.org/newscenter/news/2013/vietnamheu.html