

WHAT MIGHT HELP

These trends invite disorder. How much depends on how well the United States, Russia, China, and other key states deal with them.

Despite its strained relations with Moscow over Ukraine, the United States is still committed to negotiating more nuclear weapons reductions with Russia.¹⁵⁹ New START is supposed to be followed eventually by an agreement that will cover both strategic and theater nuclear arms in Europe. The Obama administration was committed to bringing the CTBT into force, and is on record trying to secure an international agreement to end the production of fissile material for nuclear weapons. The United States has encouraged all countries to protect civilian and military nuclear facilities and stores of weapons-usable nuclear materials against theft or

159. See, e.g., Department of State, “Press Availability for G7,” Remarks of John Kerry, Secretary of State, Hiroshima, Japan, April 11, 2016, available from <https://web.archive.org/web/20170114005426/https://www.state.gov/secretary/remarks/2016/04/255689.htm>; Office of the Press Secretary, “Statement by National Security Advisor Susan E. Rice on the Five-Year Anniversary of the New START Treaty Entry into Force,” February 5, 2016, available from <https://obamawhitehouse.archives.gov/the-press-office/2016/02/05/statement-national-security-advisor-susan-e-rice-five-year-anniversary>; and Guy Faulconbridge and William James.

sabotage. And the U.S. has tried to persuade nonweapons states to forgo reprocessing or enrichment to make their own nuclear fuels.

But these U.S. nuclear control initiatives, even if successful, still leave much to be done. Several related areas cry out for greater attention: nuclear and missile developments in China and East Asia, the global spread of “peaceful” nuclear technology, and the continued failure to develop a consistent, broad approach to preventing nuclear proliferation. This suggests three recommendations.

1. Clarify China’s strategic military capabilities and promote nonproliferation and arms control measures that limit strategic weapons in Asia. Most current nuclear arms control agreements (e.g., the Limited Test Ban Treaty, the CTBT, FMCT, limits on missile defenses, SALT, START and INF) were originally designed to limit arms competitions between the United States and Russia. The NPT was initially designed to reduce the prospects of nuclear proliferation mostly in Europe. As the world’s economic and strategic center of gravity shifts toward Asia, though, it would make sense to tailor more of our control efforts toward this region.

Wither Beijing?

This means, first of all, clarifying China’s strategic capabilities. Beijing’s revelations that it has built 3,000 miles of deep tunnels, to protect and hide its dual-capable missiles and related nuclear warhead systems, suggest the need to reassess estimates of China’s nuclear-capable missile and nuclear weapons holdings and plans. Are Beijing’s revelations disinformation designed to intimidate? Or is it hiding more military assets than we currently assess it has? What is it planning to acquire and deploy? How much military fissile material—plutonium and highly-enriched uranium—does China currently have on hand? How likely is it that China has or will militarize or

expand its fissile material holdings? How might China militarize its civilian nuclear infrastructure? How many different types of nuclear weapons does it have or intend to deploy? How much fissile material does each type require? How many missile reloads does China currently have; how many is it planning to acquire? How extensive are Chinese deployments of multiple warheads for the country's missiles and how much further might China expand these deployments? For which missile types and in what numbers? How many nuclear and advanced conventional warheads is China deploying on its missiles, bombers, submarines, and artillery? What are its plans for using these forces? How might these plans relate to China's emerging space, missile defense, and anti-satellite capabilities? All of these questions, and more, deserve review within the U.S. government, with America's allies, and, to the extent possible, in cooperation with India, Russia, and China as well.

As a part of this review, it also would be helpful to game alternative war and military crisis scenarios that feature China's possible use of these forces. These games should be conducted at senior political levels in American and allied governments. Conducting such games should also inform U.S. and allied arms control policies and military planning. With regard to the latter, a key focus would have to be how one might defend, deter, and limit the damage that Chinese nuclear and nonnuclear missile systems might otherwise inflict against the United States, its bases in the Western Pacific, America's friends and allies, and Russia.

This could entail not only the further development and deployment of active missile defenses, but of better passive defenses (e.g., base hardening and improving the capacity to restore operations at bases after attacks; hardened command, control, and communication systems; etc.) and possibly new offensive forces—more capable, long-range conventional strike systems to help neutralize possible offensive Chinese operations.

Yet another focus for such gaming would be to clarify the likely consequences of Japanese or South Korean acquisition of nuclear weapons. These games should be held routinely, bilaterally and multilaterally with our allies and friends and, at times, with all of the key states, including China, represented by informed experts and officials. The aim of such games would not only be to understand just how risky Japanese and South Korean nuclear proliferation might be, but to clarify the risks China and North Korea will run if they continue to build up their missile and nuclear forces.

Controlling Nuclear Missiles

Such gaming should also encourage a review of Washington's current arms control agenda. Here several specific ideas, which are particularly relevant to Asia, deserve attention. First among these is talks with China, Russia, and other states about limiting ground-based, dual-capable ballistic and cruise missiles. China possesses more of these systems than any other state. Counting American, Russian, Indian, Pakistani, North Korea, South Korean, and Chinese ground based missiles, Asia is targeted by more such missiles than any other region.

Unlike air and sea-based missiles, ground-launched systems can be securely communicated with and fired instantly upon command. As such, they are ideal for use in a first strike. These accurate, dual-capable missiles also can inflict strategic harm against major bases and naval operations when carrying conventional warheads.

Ronald Reagan referred to these weapons as "nuclear missiles," and looked forward to their eventual elimination. Toward this end, he concluded the INF Treaty agreement, which eliminated an entire class of ground-based nuclear-capable missiles, and negotiated the Missile Technology Control Regime (MTCR), which was designed to block the further proliferation of nuclear-capable missiles (i.e.,

rockets and unmanned air-breathing systems capable of lifting over 500 kilograms for a distance of at least 300 kilometers). With the promotion of space-based missile defenses, Reagan hoped to eliminate enough of such ground-based missiles to eliminate credible nuclear first strike threats.¹⁶⁰

Which states have an incentive to eliminate these missiles? The United States eliminated all of its intermediate ground-launched missiles under the INF Treaty. Most of America's shorter-range missiles are either air-launched or below MTCR range-payload limits. As for U.S. ground-based ICBMs, they are all based in fixed silos. To avoid being knocked out in any major future nuclear exchange, these missiles may have to be launched on warning. Russia, on the other hand, has a large, road-mobile ICBM force. At the same time, it is worried about growing numbers of long-range, precision missiles that both the United States and China are developing that it cannot easily defend against.¹⁶¹

India and Pakistan have ground-launched ballistic missiles, but some of their most seasoned military experts have called for the elimination of short-range missiles, arguing that these weapons are only likely to escalate border disputes.¹⁶² As for China, it has much

160. See Martin Anderson and Annelise Anderson, *Reagan's Secret War: The Untold Story of His Fight to Save the World from Nuclear Disaster*, New York: Three Rivers Press, 2009.

161. See, e.g., Kipp; note 100; and "US Concerned by China's New Hypersonic Missile," *The Voice of Russia*, January 29, 2014, available from http://sputniknews.com/voiceofrussia/news/2014_01_29/US-concerned-by-Chinas-new-hypersonic-missile-1459/.

162. See, e.g., RN Ganesh, "Nuclear Missile-Related Risks in South Asia," *The Next Arms Race*, pp. 305-56, available from http://npolicy.org/books/Next_Arms_Race/Ch10_Ganesh.pdf; Feroz Hassan Khan, "Prospects for Indian and Pakistani Arms Control," *The Next Arms Race*, pp. 357-86, available from http://npolicy.org/books/Next_Arms_Race/Ch11_Khan.pdf; and David Sanger, "U.S. Exploring Deal to Limit Pakistan's Nuclear Arsenal," *The New York*

to gain by deploying more ground-launched missiles, unless, of course, such deployment causes India, Russia, and the United States to react militarily. The United States has been developing hypersonic boost glide systems that could provide it with prompt global strike options. It could base these systems either in the continental United States or in forward bases in the Western Pacific.¹⁶³ It also has hundreds of silo-based ICBMs that it could convert to deliver advanced nonnuclear payloads, including hypersonic boost glide systems.¹⁶⁴ Provoking the development of such U.S. weapons would not be in China's interest, or Russia's. Talks about reducing long-range, nuclear-capable ground-based missile systems and preventing the

Times, October 15, 2015, available from http://www.nytimes.com/2015/10/16/world/asia/us-exploring-deal-to-limit-pakistans-nuclear-arsenal.html?_r=0.

163. See Tim Walton, "Why We Need the Advanced Hypersonic Boost Weapon," *War on the Rocks* (blog), June 9, 2014, available from <http://warontherocks.com/2014/06/why-we-need-advanced-hypersonic-weapon/>.

164. Neither of these options would violate the INF Treaty, which does not cover hypersonic boost glide intercontinental systems. See Bill Gertz, "Inside the Ring: Pentagon goes hypersonic with long-range rapid attack weapon," *Washington Times*, March 19, 2014, available from <http://www.washingtontimes.com/news/2014/mar/19/inside-the-ring-pentagon-goes-hypersonic-with-long/?page=all>. Other options that have been discussed would. See, e.g., Barry D. Watts, *Long-Range Strike: Imperatives, Urgency and Options*, Washington DC: Center for Strategic and Budgetary Assessments, April 2005, pp. 62-68, available from <http://www.bits.de/NRANEU/docs/R.20050406.LRPS.pdf>.

further spread of advanced missile technologies (e.g., hypersonic boost glide technology) to other states¹⁶⁵ should be explored.¹⁶⁶

Limiting Forward Nuclear Deployments

Another arms restriction that should be considered is keeping the world's nuclear-armed states from deploying any additional nuclear weapons in peacetime on the soil of states that lack such weapons. An immediate concern is Saudi Arabia, which has been rumored to be interested in buying nuclear weapons either from China or Pakistan, or in getting either nation to deploy several of their warheads there. Under the NPT, it is permissible for nuclear weapons states to deploy their weapons in states that lack such weapons so long as

165. For a fuller discussion, see Richard H. Speier, et. al, *Hypersonic Missile Nonproliferation: Hindering the Spread of a New Class of Weapons*, Santa Monica, CA: RAND, 2017, available from https://www.rand.org/pubs/research_reports/RR2137.html. See also Richard H. Speier, K. Scott McMahon, and George Nacouzi, *Penaid Nonproliferation: Hindering the Spread of Countermeasures Against Ballistic Missile Defenses*, Santa Monica, CA: RAND Corporation, 2014, available from http://www.rand.org/pubs/research_reports/RR378.html#recommendations and Henry Sokolski, "Missiles for Peace," *Armed Forces Journal*, July 2010, available from http://www.npolicy.org/article/file/Missiles_for_peace-With_strong_conventional_strike_options_the_US_can_lessen_nuclear_threats.pdf. Also listen to the audio of a panel discussion, "Missiles for Peace," held at the Carnegie Endowment for International Peace in Washington, DC, September 13, 2010, available from <https://d2tjk9wifu2pr3.cloudfront.net/2010-09-13-Sokolski.mp3>. Also see Rachel Oswald, "Russian Expert Urges Multilateral Ban on Ground-Based Strategic Missiles," *Global Security Newswire*, February 13, 2014, available from http://www.nti.org/gsn/article/russian-expert-advises-getting-rid-icbms-encourage-multilateral-arms-control/?utm_source=dlvr.it&utm_medium=twitter.

166. Yet another aerospace control topic for possible negotiations (especially with the Chinese) is how to limit the emerging space "stalker" satellite threat to prevent possible space "Pearl Harbor" attacks against key military space assets. See Brian G. Chow, "Stalkers in Space: Defeating the Threat," *Strategic Studies Quarterly* 11, no. 2, Summer 2017, pp. 82-116, available from http://www.airuniversity.af.mil/Portals/10/SSQ/documents/Volume-11_Issue-2/Chow.pdf.

these weapons stay under the “control” of the donor nuclear weapons state. This provision in the NPT was crafted in the 1960s to allow the United States to continue to deploy tactical nuclear weapons to NATO countries and East Asia, and for the Soviet Union to do so in Warsaw Pact countries.

Although the United States continues to forward base some of its weapons in Europe, long-range bombers and missile systems have made it possible to remove all of the forward deployed U.S. tactical nuclear systems from East Asia. Given that Washington is unlikely to reintroduce them or to increase existing deployments, it may be possible to broker some understanding to forbid any further deployments in exchange for Chinese and Pakistani pledges not to deploy any of their nuclear arms beyond their soil.

With the turmoil in the Persian Gulf region, brokering such an understanding would be timely. It also would have the immediate advantage of engaging Pakistan, a non-NPT member, in some form of nuclear arms restraint. This is something that should be encouraged more generally with nuclear weapons-armed non-NPT members. Pakistan recently announced its willingness to forgo nuclear testing unilaterally.¹⁶⁷ Given Pakistan’s rivalry with India, perhaps New Delhi could be persuaded to consider adopting such limits as well. Beyond this, other limits, including on nuclear fissile production might be sought, not only by Pakistan and India, but Israel. In this manner, one could begin to view states that are now outside the NPT as being instead potential NPT members in noncompliance—i.e., as states, which by taking steps toward nuclear restraint, might improve their current noncompliant NPT status. Additional nuclear restraints ought also to be promoted among the nuclear weapons

167. “Have declared unilateral moratorium on nuclear testing: Pakistan,” *The Indian Express*, December 16, 2016, available from <http://indianexpress.com/article/world/have-declared-unilateral-moratorium-on-nuclear-testing-pakistan-4430382/>.

armed states. Although, there is no clear legally binding obligation for the nuclear-armed states to disarm, the NPT encourages all states to make good faith efforts to do so.¹⁶⁸

Fissile Limits, Starting with China

If the United States could get other states to reduce their nuclear weapons capabilities in a verifiable fashion, it should be open to continuing to do so. Reaching new treaty agreements, though, ought not to be the only measure of progress. Although it may not be possible to conclude a fissile material cutoff treaty anytime soon, all of the other permanent members of the United Nations Security Council should press China to follow their lead in unilaterally forswearing making fissile material for weapons. This, in turn, could be helpful in pressing for moratoriums on “peaceful” nuclear fuel making of uneconomical nuclear weapons-usable fuels as well.¹⁶⁹

In this regard, an informal pause on the commercial production, stockpiling, and recycling of plutonium would make sense. A good place to begin would be in East Asia and the Pacific, starting with China, the United States, Japan, and South Korea.¹⁷⁰ Here, it is

168. On the hortatory (vice legally binding) character of the NPT Article VI call for disarmament, see Christopher A. Ford, “Debating Disarmament: Interpreting Article VI of the Treaty on the Non-proliferation of Nuclear Weapons,” *Nonproliferation Review* 14, No. 3, November 2007, pp. 401-28, available from <http://cns.miis.edu/npr/pdfs/143ford.pdf> and Cf. Gilinsky and Sokolski, “Serious Rules for Nuclear Power without Proliferation,” in Henry Sokolski, ed., *Moving Beyond Pretense: Nuclear Power and Nonproliferation*, pp. 479-81, available from http://www.npolicy.org/books/Moving_Beyond_Pretense/Ch16_SeriousRules.pdf.

169. For the latest discussion of need to reduce states’ production and stockpiles of civilian and military nuclear weapons-usable fuels, see Harold A. Feiveson, et al., *Unmaking the Bomb*, pp. 172-183.

170. See Brad Sherman, Jeff Fortenberry, and Adam Schiff, “Letter to President Obama Regarding the Production of Fissile Material in East Asia,” June 10,

worth noting that the 2012 report of the U.S. Blue Ribbon Commission on America's Nuclear Future determined that dry cask storage would make more economic sense for the United States to pursue in the management of waste and economic production of nuclear electricity than commercial plutonium recycling in the near and mid-term.¹⁷¹ Meanwhile, America's efforts to convert weapons plutonium into commercial mixed oxide fuel (MOX) have encountered financial and technical difficulties.¹⁷² As for Japan's planned plutonium reprocessing and fast reactor programs, Tokyo will have trouble implementing them given its reduced reliance on nuclear power and its termination of its only demonstration sized breeder at Monju. South Korea wants to recycle plutonium in a prototype integrated fast reactor, but this program may well get pushed back considerably. Also, its planned first fuel loading will be low-enriched uranium, not plutonium-based fuel.¹⁷³

2016, available from <http://www.npolicy.org/article.php?aid=1317&rtid=4>.

171. See Blue Ribbon Commission on America's Nuclear Future, *Report to the Secretary of Energy*, Washington, DC: Blue Ribbon Commission on America's Nuclear Future, January 2012, pp. xii, xiv, 30, 98, 112, 118, available from energy.gov/sites/prod/files/2013/04/f0/brc_finalreport_jan2012.pdf.

172. See Steve Mufson, "Obama Plan to de-fund Savannah River Plutonium Conversion Plant Draws Fire," *The Washington Post*, February 25, 2016 available from https://www.washingtonpost.com/business/economy/obama-plan-to-de-fund-savannah-river-plutonium-conversion-plant-draws-fire/2016/02/25/71428a72-db6e-11e5-925f-1d10062cc82d_story.html.

173. See "Japan official calls for scrapping of troubled Monju reactor," *CBC News*, September 20, 2016, available from <http://www.cbc.ca/beta/news/technology/japan-monju-reactor-1.3770197> and Ferenc Dalnoki-Veress, Miles Pomper, Stephanie Lieggi, Charles McCombie, and Neil Chapman, *The Bigger Picture: Rethinking Spent Fuel Management in South Korea*, Occasional Paper no. 16, Monterey, CA: Center for the Nonproliferation Studies, 2013, pp. 23-25, 37-50, available from http://cns.miiis.edu/opapers/pdfs/130301_korean_alternatives_report.pdf.

China is working with AREVA to build a commercial reprocessing plant nearly identical to the Rokkasho plant in Japan. A sticking point, though, is siting. So far, Beijing has been unable to select a site its public can humor. According to nuclear analysts, Beijing might build this large commercial reprocessing plant by 2030, have it separate plutonium for 10 to 20 years, and stockpile this material to fuel a fleet of commercial breeder reactors.¹⁷⁴ This view, in turn, is driven by the expectation that uranium yellowcake will be unavailable after 2050 for anything less than \$130 (current) per pound (i.e., 300 percent more than the price today).¹⁷⁵

This uranium price projection is speculative and rebuttable. What isn't is the potential military utility of China's civilian plutonium program. As already noted, the commercial-sized reprocessing plant the Chinese nuclear establishment may decide to build could produce enough plutonium for roughly 1,500 first-generation bombs annually. Assuming China's first breeder reactor came online by 2040, its first fueling with plutonium would come only

174. On the Chinese protests against the possible construction of this plant at Lianyungang, a city in Jiangsu Province, see, e.g., Chris Buckley, "Thousands in Eastern Chinese City Protest Nuclear Waste Project," *The New York Times*, August 8, 2016, available from <http://www.nytimes.com/2016/08/09/world/asia/china-nuclear-waste-protest-lianyungang.html> and Brian Spegele, "China Looks to Placate Nuclear-Project Protesters," *The Wall Street Journal*, August 10, 2016, available from <http://www.wsj.com/articles/china-cracks-down-on-nuclear-project-protests-1470734568>. The 2030 date was recently confirmed by The World Nuclear Association. See "Nuclear growth revealed in China's new Five-Year Plan," *World Nuclear News*, March 23, 2016, available from <http://www.world-nuclear-news.org/NP-Nuclear-plans-revealed-in-Chinas-new-Five-Year-Plan-2303166.html>.

175. See, e.g., Zhongmao Gu, "Envision of Nuclear Energy Development in China," April 2014, presentation at the Nonproliferation Policy Education Center Alternative East Asian Nuclear Futures conference held February 25-27, 2014 in Honolulu, Hawaii, available from <http://npolicy.org/article.php?aid=1257&rid=2>.

after China had amassed well over 15,000 weapons' worth of plutonium.

Of course, if any of the three East Asian states begins to reprocess plutonium commercially, the other two would almost certainly follow, as much as a security hedge against each other as for any civilian purpose. At a minimum, the United States, France, and Russia should refrain from promoting large fast reactors in the region.¹⁷⁶ For similar reasons, China, Japan, and South Korea are each interested in significantly expanding their capacity to enrich uranium even though there is a surfeit of uranium enrichment capacity world-wide. To head this off, it would be helpful to call for a freeze on the deployment of any additional commercial uranium enrichment capacity in China, Japan, and South Korea (and North Korea, if possible).¹⁷⁷

As already noted, the United States and Russia maintain surplus nuclear weapons and nuclear weapons materials stockpiles, and India, Israel, Pakistan, China, Japan, France, and the UK hold significant amounts of nuclear explosive plutonium and uranium. This fissile material overhang increases security uncertainties as to how many nuclear weapons these states might have or could fashion relatively quickly. Given the verification difficulties with the proposed fissile material cutoff treaty and the improbabilities of such a treaty

176. On this last point, see Henry Sokolski, "How France is Fueling Japan and China's Nuclear 'Race'" *The National Interest*, November 6, 2015, available from <http://nationalinterest.org/feature/how-france-fueling-japan-china%E2%80%99s-nuclear-race-14271> and Sokolski, "Can East Asia Avoid a Nuclear Explosive Materials Arms Race?"

177. See Frank Von Hippel, *Civilian Nuclear Fuel Cycles in Northeast Asia*, paper presented the Panel on Peace and Security of North East Asia, Nagasaki, Japan, November 20, 2016, available from http://npolicy.org/article_file/Civilian%20Nuclear%20Fuel%20Cycles%20in%20NE%20Asia%2028Oct2016%20%28rev.%20%29.pdf.

being brought into force, it would be useful to consider control alternatives.¹⁷⁸

One idea, backed by several analysts and former officials, is a voluntary initiative known as the fissile material control initiative (FMCI).¹⁷⁹ It would call on nuclear weapons-usable material producing states to set aside whatever fissile materials they have in excess of their immediate military or civilian requirements for either final disposition or internationally verified safekeeping. Russia and the United States have already agreed to dispose of 34 tons of weapons-grade plutonium, and have blended down 683 tons of weapons-grade uranium for use in civilian reactors. Much more could be done to dispose of and end production of such weapons-usable nuclear materials, not only in the United States and Russia, but also in other fissile-producing states, including those in Asia.¹⁸⁰

178. See Christopher A. Ford, “Five Plus Three” and “Preparing for 2010.”

179. For the earliest presentation of this concept, see Brian G. Chow, Richard H. Speier, and Gregory S. Jones, *A Concept for Strategic Material Accelerated Removal Talks (SMART)* DRU-1338-DoE, RAND Corporation, Santa Monica, CA, April 1996, available from <http://www.rand.org/content/dam/rand/pubs/drafts/2008/DRU1338.pdf>. Also see Robert J. Einhorn, “Controlling Fissile Materials and Ending Nuclear Testing,” presented at an international conference on nuclear disarmament, “Achieving the Vision of a World Free of Nuclear Weapons,” held in Oslo, Norway, February 26-27, 2008, available from http://www.ctbto.org/fileadmin/user_upload/pdf/External_Reports/paper-einhorn.pdf.

180. It should also be noted that although China’s and South Korea’s fast reactor and plutonium recycling plans are ambitious, they are not yet locked in. China’s fast reactor program is not yet fully funded. There is money to build pilot facilities, but not enough to operate them year-round. Nor, as already noted, has the Chinese government yet identified a specific construction site for its planned large commercial sized reprocessing plant. As for South Korea’s program, it is still a matter caught up in the implementation of the U.S.-South Korean civilian nuclear cooperative agreement. See International Panel on Fissile Materials, *Plutonium Separation in Nuclear Power Programs*, pp. 19-29, 73-79; Chris Buckley, “Chinese City Backs Down on Proposed Nuclear Fuel Plant after Protests,” *The New York Times*, August 10, 2016, available from [http://www.nytimes.com/2016/08/11/world/asia/china-nuclear-fuel-lianyungang.html?](http://www.nytimes.com/2016/08/11/world/asia/china-nuclear-fuel-lianyungang.html?_)

2. Encourage nuclear supplier states to condition their further export of civilian nuclear plants upon the recipients forswearing reprocessing spent reactor fuel and enriching uranium and press the IAEA to be more candid about what it can safeguard. Will Iran's pursuit of "peaceful" nuclear energy serve as a model for Saudi Arabia (which says it wants to build 16 large power reactors before 2035), Turkey (which says it plans to build 20), Egypt (1), and Algeria (3)? When asked, none of these countries' officials have been willing to forgo making nuclear fuel. So far, only Turkey and the UAE have ratified the IAEA's tougher nuclear inspection regime under the Additional Protocol. There also is the outstanding issue of whether the United States will eventually authorize South Korea to recycle U.S.-origin nuclear materials.

All of this should be a worry, since, as already noted, the IAEA cannot find covert enrichment or reprocessing facilities or reactor plants with much confidence (cf. recent history regarding nuclear plants in Iran, Iraq, North Korea, and Syria). Once a large reactor operates in a country, fresh low-enriched uranium becomes available and raises the possibility that it could be seized for possible further enrichment to weapons-grade in a covert or declared enrichment plant. Alternatively, the reactor's plutonium-laden spent fuel could be reprocessed to produce many bombs' worth of plutonium. Unfortunately, IAEA inspections at declared, commercial-sized uranium hexafluoride and enrichment plants, plutonium separation facilities, and plutonium fuel production plants could lose track of several scores of bombs' worth of nuclear explosive material annually.

The Gold Standard

Given these points and recognizing that the authority to inspect anywhere at any time without notice is not yet available to the IAEA (even when it operates under the Additional Protocol), any state's pledge not to conduct reprocessing or enrichment could not be fully verified in a timely manner. Still, securing such a legal pledge would have some value: It would put a violating country on the wrong side of international law if and when it was found out, and would make such action sanctionable. This may not be as much as one wants or needs, but it is far more of a deterrent to nuclear misbehavior than what current nonproliferation limits afford.

Other than the United States, no nuclear supplier state (i.e., Russia, France, Japan, China, or South Korea) has yet required any of its prospective customers to commit to not enrich uranium or reprocess spent fuel to extract plutonium, or to ratify the Additional Protocol. Worse, the United States itself has backed away from insisting on these conditions (often labeled the nonproliferation "Gold Standard" for U.S. civilian nuclear cooperation).¹⁸¹

There is some support in the U.S. Congress for making it more difficult to finalize any future U.S. nuclear cooperative agreements with nonnuclear weapons states like Saudi Arabia unless they agree

181. See Victor Gilinsky, "'Flexible' Nuclear Trade," *National Review Online*, February 10, 2014, available from <http://www.nationalreview.com/article/370671/flexible-nuclear-trade-victor-gilinsky>; Henry Sokolski, "Putting Security First: The Case for Amending the Atomic Energy Act," prepared testimony for the Senate Foreign Relations Committee hearing on "Section 123: Civilian Nuclear Cooperation Agreements," January 30, 2014, available from <http://www.npolicy.org/article.php?aid=1244&rtid=8>; and "Obama's Nuclear Mistake: The President Converts Bush's Anti-Proliferation 'Gold Standard' into Lead," *National Review Online*, February 7, 2012, available from <http://www.nationalreview.com/article/290330/obamas-nuclear-mistake-henry-sokolski>.

to the U.S.-UAE nuclear cooperative conditions.¹⁸² These congressmen believe that by taking the lead on imposing such nonproliferation conditions, the United States would be in a much better position to persuade other nuclear supplier states to do the same.

With the Japanese and South Koreans, close U.S. nuclear cooperation and security guarantees could be leveraged to secure these countries' agreement to such conditions on their nuclear exports. They and the Chinese want to export reactors based on U.S. designs. It is unclear whether they can do so legally to states that do not have a nuclear cooperative agreement with the United States. China, meanwhile, needs all the help it can get from the United States to complete the Westinghouse-designed reactors it is building and the Chinese variant it is pegging much of its nuclear future on. As for France, it may have difficulty exporting reactors without significant Asian support.¹⁸³ With Russia as well as China, the United

182. See Elaine M. Grossman, "U.S. Senate Panel Backs Vietnam Nuclear Trade Pact, But Tightens Conditions," *Global Security Newswire*, July 23, 2014, available from <http://www.nti.org/gsn/article/us-senate-panel-backs-vietnam-nuclear-trade-pact-tightens-conditions/> and "Bipartisan Bill Filed to Heighten Oversight of U.S. Nuclear Trade," *Global Security Newswire*, December 13, 2013, available from <http://www.nti.org/gsn/article/bipartisan-bill-filed-heighten-oversight-us-nuclear-trade/>. Also see H.R. 3766, "A Bill to Amend the Atomic Energy Act of 1954 to Require Congressional Approval of Agreements for Peaceful Nuclear Cooperation with Foreign Countries, and for Other Purposes," introduced in the 113th Congress on December 12, 2013, available from <https://www.govtrack.us/congress/bills/113/hr3766/text>; H.R. 1280, "A Bill to Amend the Atomic Energy Act of 1954 to Require Congressional Approval of Agreements for Peaceful Nuclear Cooperation with Foreign Countries and Other Purposes," introduced in the 112th Congress on March 31, 2011, available from <https://www.govtrack.us/congress/bills/112/hr1280>; and "Chairman Ros-Lehtinen Opening Statement: HR1280, The Atomic Energy Act of 1954," April 20, 2011, available from http://www.youtube.com/watch?v=Qrvz2_gzik8.

183. See Energy Collective, "AREVA Struggles to Dig Out of Debt," March 25, 2015, available from <http://www.theenergycollective.com/dan-yurman/2208496/areva-struggles-dig-out-debt>; John Lichfield, "UK Nuclear Strategy Faces Meltdown As Faults Are Found in Identical French Project," *The Independent*,

States should be more candid about the safety issues construction and operation of their reactors present and offer to renew or expand nuclear cooperation to help resolve these concerns in exchange for upgrading the nonproliferation conditions on these countries' nuclear exports.¹⁸⁴ Each of these points constitutes nuclear leverage that Washington could exploit to push broader supplier applica-

April 18, 2015, available from <http://www.independent.co.uk/news/uk/home-news/uk-nuclear-strategy-faces-meltdown-as-faults-are-found-in-identical-french-project-10186163.html>; Stephen Chen, "French Warnings on Nuclear Reactors Being Built in China's Guangdong," *South China Morning Post*, April 15, 2015, available from <http://www.scmp.com/news/china/article/1762861/french-warning-nuclear-reactors-being-built-guangdong>; ASN, "Flamanville EPR Reactor Vessel Manufacturing Anomalies," Press Statement, July 4, 2015, available from <http://www.french-nuclear-safety.fr/Information/News-releases/Flamanville-EPR-reactor-vessel-manufacturing-anomalies>; "Japan's JNFL in Talks on Taking Areva Minority Stake: Source," *Reuters*, December 13, 2016, available from <http://www.reuters.com/article/us-areva-restructuring-idUSKBN14227K>; and "Japan's JNFL in Talks on Taking Areva Minority Stake: Source," *Reuters*, December 13, 2016, available from <http://www.reuters.com/article/us-areva-restructuring-idUSKBN14227K>.

184. The United States suspended all civilian nuclear cooperation with Russia shortly after it invaded the Crimea. On the questionable safety of Russian and Chinese reactor construction, see Tara Patel and Benjamin Hass, "China Regulators 'Overwhelmed' As Reactor Building Steams Ahead," *Bloomberg News*, June 20, 2014, available from <http://westhawaiiitoday.com/news/nation-world-news/china-regulators-overwhelmed-reactor-building-steams-ahead>; "Concerns over China's Nuclear Power Expansion," *Chinadialogue*, April 24, 2014, available at <https://www.chinadialogue.net/blog/6932-Concerns-over-China-s-nuclear-power-expansion/en>; Christina MacPherson, "China's Nuclear Safety Prospects Are Not Good," *nuclear-news*, October 29, 2013, available from <http://nuclear-news.net/2013/10/29/chinas-nuclear-safety-prospects-are-not-good/>; Eve Conant, "Russia's Nuclear Reactors Could Take Over the World, Safe or Not," *Scientific American*, October 2013, available from <http://www.scientificamerican.com/article/russias-nuclear-reactors-could-take-over-the-world-safe-or-not/>; and Quamrul Haider, "How Safe Are the Russian Civilian Nuclear Reactors?" *Daily Star* (Lebanon), June 12, 2013, available from <http://archive.thedailystar.net/beta2/news/how-safe-are-the-russian-civilian-nuclear-reactors/>.

tion of gold standard nonproliferation requirements with each of the nuclear supplier states.¹⁸⁵

Timely Detection

It also would be helpful if the IAEA was more honest about what kinds of nuclear activities and material holdings it can actually safeguard effectively—i.e., which ones it can inspect so as to detect military diversions in a timely fashion and which ones it cannot. As it is, the IAEA is unwilling to make public its assessments of the Agency's ability to meet its own timeliness detection goals (which are hardly strict). Meanwhile, no state, including the United States, has yet done such an assessment of the Agency's safeguards effectiveness.¹⁸⁶

In the 1960s, 70s, 80s, and 90s, when only a handful of states lacking nuclear weapons were interested in enriching uranium or separating plutonium from spent reactor fuel, this lax approach may have been tolerable. Today, however, Japan, South Korea, Argentina, Brazil, South Africa, Egypt, Turkey, Saudi Arabia, Iran, Vietnam, and Jordan are all either making enriched uranium, reprocessing spent reactor fuels, or reserving their "right" to do so. All of these states are members of the NPT and have pledged not to acquire nuclear weapons. Should we assume that none of them will ever cheat? What confidence should we have that the IAEA would be able to detect possible diversions early enough for the other NPT members to intervene to prevent them from producing nuclear weapons?

185. See Emily B. Landau and Shimon Stein, "To Prevent Another Iran Disaster, Fix Nuclear Enforcement," *The National Interest*, June 8, 2016, available from <http://nationalinterest.org/feature/prevent-another-iran-disaster-fix-nuclear-enforcement-16516>.

186. See *World At Risk: The Report of the Commission on the Prevention of WMD Proliferation and Terrorism*, Washington, DC, December 2, 2008, pp. 49-50, available from <http://www.cfr.org/terrorism/world-risk-report-commission-prevention-wmd-proliferation-terrorism/p17910>.

Currently, the IAEA's own nuclear safeguards guidelines set routine inspection intervals to approximate the time the Agency estimates it is needed to convert certain special nuclear materials into bomb cores. The IAEA's ability to verify production figures at large uranium hexafluoride; reprocessing, uranium enrichment, and plutonium and mixed oxide fuel fabrication plants though, is limited. Not only does the Agency have difficulty detecting abrupt diversions in a timely fashion (i.e., it may only be able to learn of diversions after they have occurred), but the margins of error associated with the IAEA's ability to detect small, incremental diversions are equivalent to many bombs' worth every year. In either case, once a state has enough fissile material to make a bomb, it could break out well before the IAEA or other states could intervene to prevent nuclear weapons from being built.

These facts are troubling. What makes them doubly so is that the IAEA has yet to share these specifics publicly in any detail. Worse, it continues to claim that it can safeguard these materials and plants (i.e., provide "timely detection" of possible military nuclear diversions of), when, in fact, in many cases, it cannot.

It is essential that inspectors and diplomats distinguish between what inspectors can merely monitor (i.e., inspect to provide confidence that major diversions have not taken place sometime in the past) from what they can actually safeguard (i.e., inspect to assure detection of military diversions early enough so outside parties have sufficient time to block actual bomb making). If this distinction were made clear, governments could fully appreciate and, hopefully, restrict, nuclear activities and holdings that are unsafeguardable and hence dangerous.¹⁸⁷ This, in turn, would make pro-

187. See note 156; Victor Gilinsky and Henry Sokolski, "Is the IAEA's Safeguard Strategic Plan Sufficient?" a paper presented at the International Atomic Energy Agency Symposium on International Safeguards: Linking Strategy, Implementation and People, October 22, 2014, Vienna, Austria, available from

moting tougher nonproliferation standards, like the Gold Standard, much easier.

3. Anticipate and ward off nuclear proliferation developments before recognized redlines have been clearly violated. One of the regrettable legacies of the Cold War is the habit U.S. and allied government officials have acquired of waiting for irrefutable evidence of undesirable, foreign nuclear weapons developments before taking action. This must change.

After the Soviet Union first acquired nuclear weapons in 1949, the West's aim in competing against Russia was not so much to prevent it from acquiring more strategic weapons as it was to prevent it from gaining strategic superiority. For this purpose, it was sufficient that Western military forces remained more modern and sufficiently numerous to deter Soviet offensive capabilities—i.e., that Russia's strategic technology stayed roughly one or more generations behind ours so that its strategic deployments could never change the relative balance of power. If Russia deployed a new strategic nuclear rocket, Washington would focus on what the Soviets had built and built a bigger or better U.S. version, developed some new passive or active defenses or built counter offensive forces that could neutralize the new Soviet weapon system.

After the United States and Russia ratified a number of strategic arms limitation agreements, any Russian strategic nuclear deployment that exceeded agreed limits became a matter for diplomatic adjudication. In either case, U.S. or allied action turned on detecting and verifying the violation of agreed or implicit redlines. Fortunately, in this competition, the Soviets ultimately failed to keep up with

http://npolicy.org/article_file/IAEA_Safeguard_Strategic_Plan.pdf; and Trevor Finlay, *Proliferation Alert! The IAEA and Noncompliance Reporting*, Report no. 2015-04, Cambridge, MA: Project on Managing the Atom, October 2015, available from <http://belfercenter.ksg.harvard.edu/files/proliferationalert-web.pdf>

the United States and its allies. Moscow's failed attempts to do so only helped bankrupt it financially and politically.¹⁸⁸

Competitive Strategies

That was the Cold War. In our current efforts to prevent horizontal proliferation, the objective is quite different. Instead of merely trying to stay ahead of a proliferating state militarily, our aim must be to prevent it from acquiring certain weapons altogether. Being able to detect states' possible violations of pledges not to acquire these weapons is necessary.

The problem is that verifying such detections is much more awkward than detecting and verifying Soviet strategic weapons developments. Whereas detecting Soviet arms developments was often deemed to be an intelligence success and frequently prompted policy or military actions, detecting nuclear proliferation today is bad news—it only confirms that our nuclear nonproliferation policies have failed. Also, more often than not, by the time one verifies a nonproliferation violation, it is too late to roll it back unless one takes relatively extreme diplomatic or military measures. It is not surprising, then, that in more than a few proliferation cases—e.g., with Israel, Pakistan, North Korea, South Africa, and India—U.S. officials often averted their gaze from, denied, or downplayed intelligence that these states had acquired or tested nuclear weapons.¹⁸⁹

188. On these points, see Octavian Manea, "Lessons from Previous Competitive Strategies," *Small Wars Journal*, July 6, 2014, available from <http://smallwarsjournal.com/jrnl/art/lessons-from-previous-competitive-strategies> and "The Art of Tailoring Competitive Strategies," *Small Wars Journal*, March 24, 2014, available from <http://smallwarsjournal.com/jrnl/art/the-art-of-tailoring-competitive-strategies>.

189. See Victor Gilinsky, "Sometime Major Violations of Nuclear Security Get Ignored," in Henry Sokolski, ed., *Nuclear Materials Gone Missing: What Does History Teach?* Arlington, VA: The Nonproliferation Policy Education Center,

In some cases, though, the United States and its allies succeeded in preventing nuclear proliferation. The most prominent cases included getting Taiwan, South Korea, South Africa, Argentina, Brazil, Ukraine, and Libya to give up their nuclear weapons programs. In these cases, the United States and its allies had a long-term regimen of nonproliferation sanctions and export controls in place well before the state in question ever acquired nuclear weapons (e.g., in the cases of Libya and South Africa), or acted well before there was clear proof that nuclear weapons were in hand or were going to be retained (e.g., with Taiwan, South Africa, South Korea, and Ukraine).¹⁹⁰

What these and other less well known nonproliferation successes suggest is the desirability of creating long-term, country-specific strategies that initially eschew dramatic actions. These strategies could be developed along several lines. In the case of Libya and South Africa, the West relied heavily on long-term, bureaucratically institutionalized economic sanctions and export controls as well as a vigilant proliferation intelligence watch on each country's nuclear weapons-related programs and timely political interventions.

2014, available from http://www.npolicy.org/books/Materials_Unaccounted_For/Ch4_Gilinsky.pdf; Robert Zarate, "The Nonuse and Abuse of Nuclear Proliferation Intelligence in the Cases of North Korea and Iran," and Leonard Weiss, "The 1979 South Atlantic Flash: The Case for an Israeli Nuclear Test," in Henry Sokolski, ed., *Moving Beyond Pretense: Nuclear Power and Nonproliferation*, Carlisle, PA: Strategic Studies Institute, 2014, pp. 345-71, 373-409, available from http://www.npolicy.org/books/Moving_Beyond_Pretense/Ch14_Zarate.pdf and http://www.npolicy.org/books/Moving_Beyond_Pretense/Ch13_Weiss.pdf.

190. See Mitchell Reiss, *Bridled Ambition: Why Countries Constrain Their Nuclear Capabilities*, Washington, DC: Woodrow Wilson Press, 1995, pp. 90-129 and Eugene Kogan, "Coercing Allies: Why Friends Abandon Nuclear Plans," paper presented at the American Political Science Association Annual Meeting, Chicago, IL, August 2013, available from <http://live.belfercenter.org/files/kogan-apsa-aug-2013.pdf>.

An even more aggressive approach would create a set of tailored competitive strategies that would work backwards from nuclear futures U.S. officials wanted to avoid towards futures they thought were better. The aim here would be to set a series of mid-term (i.e., 10-20 year) goals that would drive and guide our diplomatic, economic, military, and intelligence efforts to shape more peaceful futures.¹⁹¹ Rather than wait to act until there is proof of a nuclear weapons program, officials would act earlier, taking modest steps to ward off incipient nuclear weapons programs or to support positive policies that might reduce the targeted state's interest in initiating such programs in the first place.¹⁹²

Hard-headed Internationalism

An integral part of working such competitive strategies would be a willingness to promote the kinds of nonproliferation and arms control proposals noted above. This would require a hard-headed kind of internationalism. In the 1960s and 1970s, when U.S. and allied arms control policies were premised upon finite deterrence—i.e., on the evils of targeting weapons and defending against them, and on the practical advantages of holding innocents at risk in the world's major cities—arms control rightly became an object of

191. See David J. Andre, "Competitive Strategies: An Approach against Proliferation" and Henry D. Sokolski, "Nonproliferation: Strategies for Winning, Losing, and Coping," in Henry D. Sokolski, ed., *Prevailing in a Well-Armed World: Devising Competitive Strategies against Weapons Proliferation*, Carlisle, PA: Strategic Studies Institute, 2000, pp. 3-25, 51-64, available from http://npolicy.org/books/Well-Armed_World/Ch3_Sokolski.pdf. Also see Henry D. Sokolski, "Fighting Proliferation with Intelligence," *ORBIS* 38, no. 2, Spring 1994, pp. 245-60, available from <http://fas.org/irp/threat/fp/b19ch16.htm>.

192. For specific examples, see note 189 and Henry Sokolski, "Ending South Africa's Rocket Program: A Nonproliferation Success," Nonproliferation Policy Education Center, Arlington, VA, August 31, 1993, available from <http://www.npolicy.org/article.php?aid=458&tid=2>.

derision by serious security planners.¹⁹³ Since then, it almost has become an article of conservative, Republican faith that arms control is self-defeating. Most liberal Democrats, on the other hand, believe that it deserves unquestioned support.¹⁹⁴

Any serious effort to reduce future nuclear threats will need to move beyond this ideological divide. Certainly, any nuclear threat reduction effort that supports U.S. and allied aims will be difficult to sus-

193. Although today there are virtually no respectable, hawkish or hard-headed works on what sorts of nuclear arms control might be useful; this was not always the case. Thirty or more years ago, before arms control practice became dominated by mutual assured destruction theorizing, several distinguished military scientists including Fred Ikle, Albert Wohlstetter, Leon Sloss, Donald Brennan, and Alain C. Enthoven all believed unconstrained nuclear competitions and strategic weapons proliferation was less than optimal and seriously considered what sort of arms control might be practical. See, e.g., Albert and Roberta Wohlstetter, "On Arms Control: What We Should Look for in an Arms Agreement," unpublished draft essay, May 20, 1985, available at the Hoover Institution Archive, Albert and Roberta Wohlstetter Papers, Notes, Box 118, Folder 16, available in Robert Zarate and Henry Sokolski, eds., *Nuclear Heuristics: Selected Writings of Albert and Roberta Wohlstetter*, Carlisle, PA: Strategic Studies Institute, 2009, pp. 472-500, also available from <http://www.npolicy.org/userfiles/file/Nuclear%20Heuristics-On%20Arms%20Control.pdf>; Albert Wohlstetter and Brian C. Chow, "Arms Control that Could Work," *Wall Street Journal*, July 17, 1985, available from http://www.npolicy.org/article_file/Arms_Control_That_Could_Work.pdf; Fred Charles Iklé, "Nth Countries and Disarmament," *Bulletin of the Atomic Scientists* 16, no. 10, December 1960, pp. 391-94, available from <http://www.tandfonline.com/doi/abs/10.1080/00963402.1960.11454156?journalCode=rbul20#.V2BWT0SDGko>; Leon Sloss and M. Scott Davis, eds., *Game for High Stakes: Lessons Learned in Negotiating with the Soviets*, New York: Harper Business, 1986; Alain C. Enthoven and K. Wayne Smith, *How Much Is Enough: Shaping the Defense Program, 1961-1969*, New York: Harper and Rowe Publishers, Inc., 1971; and Donald G. Brennan, ed., *Arms Control, Disarmament and National Security*, New York: George Braziller, 1969.

194. Cf., J. Peter Scoblic, *US vs. Them: Conservatism in the Age of Nuclear Terror*, New York: Penguin Books, 2009 and John Wohlstetter, "Nuclear Zero 2012: We Disarm While Others Arm," *Human Events*, September 12, 2012, available from <http://humanevents.com/2012/09/12/nuclear-zero-2012-we-disarm-while-others-arm/>.

tain unless it complements some larger diplomatic effort. The best way to start would be to put our Cold War fascination with mutual assured destruction theorizing aside and focus instead on what is most likely to reduce the chances of war, nuclear proliferation, and nuclear weapons use.¹⁹⁵

International law also has become increasingly stylized to restrain states from taking military action. Its practical impact, however, has been to restrain those states least likely to take such action even when such action is called for. As a result, international law has lost its standing among many of those most concerned about the safety and security of their country. To be sure, there are limits to what any international legal structure can achieve without the backing of sovereign military power.¹⁹⁶ But in the past, international law and the promotion of justifiable sovereign power were seen as being mutually supportive. We need to get back to this earlier understanding. Like maintaining peace, this is neither hopeless nor automatic.¹⁹⁷

195. See Henry D. Sokolski, "Preface," in Henry D. Sokolski, ed., *Getting MAD*, pp. v-vi, available from http://npolicy.org/books/Getting_MAD/Preface_Sokolski.pdf and Idem., "Taking Proliferation Seriously," *Policy Review*.

196. See Henry R. Nau, "Conservative Internationalism: A Smarter Kind of Engagement in World Affairs," *National Review Online*, August 2, 2014, available from <https://www.nationalreview.com/nrd/articles/358318/conservative-internationalism> and *Conservative Internationalism: Armed Diplomacy under Jefferson, Polk, Truman, and Reagan*, Princeton, NJ: Princeton University Press, 2013.

197. Since George F. Kennan's publication of *American Diplomacy*, Chicago: University of Chicago, 1984, there has been a popular belief that international law that claims to promote international security is generally at odds with our national security. However, there are alternative views that could and have guided U.S. diplomacy and national security policies. Principal among these is the life work of Elihu Root, U.S. Secretary of State under President Theodore Roosevelt, Secretary of War from 1899 to 1904, Nobel Peace Prize winner, founding architect of the Permanent Court of International Justice, and founder of the American Society of International Law. On his career and advocacy of promoting international laws to promote and protect America's national interests,

In any effort to return to this view, the given suggestions are a reasonable place to begin. It is clearly desirable to reduce the number of nuclear weapons, the amount of nuclear weapons-usable materials, the number of plants that make them, the number of long-range nuclear-capable missiles, and the number of states possessing these nuclear assets. It may be imprudent to make such cuts unilaterally or without effective verification, but we should be clear about our willingness to compete militarily and diplomatically to realize such reductions in a manner that avoids such risks. Indeed, on this last point, there should be no hesitation. Less, in this case, *would* be better.

Thinking Ahead

Recently, a friend and former senior official under three presidents (both Republican and Democratic) quipped that with most nuclear weapons proliferation problems, officials initially are loath to act because they believe there is no clear problem, and then, when they finally are convinced that the problem is real, they insist there is no solution. This is a pathology for inaction. It also is unnecessary. In fact, some of the toughest nuclear proliferation problems can be neutralized well before they are fully realized, and, in key cases, have been.

From 2013 through 2015, I held a series of workshops on alternative nuclear futures in East Asia. These meetings, which included Chinese, Korean, Japanese, U.S., and Russian security and energy experts and officials, focused on how each country would react if they or their neighbors either acquired nuclear weapons or ramped

see Erik A. Moore, "Imperial International Law: Elihu Root and the Legalist Approach to American Empire," *Essays in History*, 2013, available from <http://www.essaysinhistory.com/articles/2013/172> and Robert E. Hannigan, *The New World Power: American Foreign Policy, 1898-1917*, Philadelphia: University of Pennsylvania Press, 2002.

up the number of nuclear arms they already had. First, I was warned that no one would attend. Then, I was told that if they did come, no one would speak. Finally, I was advised, if they spoke, they would not get along. All of these predictions proved to be mistaken. Instead, there were candid Chinese and Korean exchanges about Japan's stockpiling of plutonium and Japanese and Russian anxieties expressed about the opacity of China's nuclear weapons program. There was a problem, though: All of the participants, including government officials from each state (including the United States), confided in me that the discussions we were having could never be conducted by or within each of their respective governments—the topics simply were too sensitive.

This is bad enough. Yet, the challenge of working difficult security issues (including nuclear weapons proliferation) runs even deeper. Operating outside of government, one has the freedom not only to be vocal, but consistent (two things that are difficult to do while in office). Yet, exercising this freedom often draws criticism from those in or close to power as being dangerously radical or impractical. There is no easy response to this. One strong possibility, however, is that too many government officials are failing to do their jobs while too few analysts outside government are pointing this out. There is, after all, a strong temptation (particularly among officials who are ambitious or eager to please) to avoid issues that, if mishandled, could result in catastrophe (either for themselves or for others). Those outside of government, who wish to maintain and expand their network of contacts, share such caution.

Giving in to this temptation, however, risks backing into and compounding our most serious, avoidable problems. Thus, the nuclear crisis in Iran was made worse by more than 20 years of inattention and consistent down playing of the risks Iran's program posed. When U.S. officials finally began to focus in the early 2000s on the Iranian nuclear threat, Iran's nuclear program had become so

mature and intractable that the available responses were limited either to acts of war or diplomatic backsliding. Not surprisingly, this only encouraged an unhealthy political polarization over the issue.¹⁹⁸

With nuclear weapons proliferation, these pitfalls can be avoided, but only if those in and outside of government focus on proliferation problems earlier and more seriously than they have to date. Of course, some will protest that we can ill afford to concentrate on anything but the most pressing nuclear crises—whether it be North Korea, Iran, or our relations with Moscow. “Solving” these matters, it’s argued, is imperative to avoid immediate and certain nuclear disaster and, therefore, to assure nuclear restraint and peace for the long haul. Perhaps. But any honest assessment would suggest that our most urgent problems no longer allow for any simple solutions. If so, our optimism and hopes would be better directed more toward futures we can shape now than on correcting present crises our past neglect has all but determined.

198. See Henry Sokolski, “Ten Regrets.”