



UNITED STATES AIR FORCE  
CENTER FOR STRATEGIC  
DETERRENCE STUDIES

NEWS AND ANALYSIS

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## Feature Report

***“What Provokes Putin's Russia? Deterring Without Unintended Escalation”***. Published by RAND; January 2020

<https://www.rand.org/pubs/perspectives/PE338.html>

Deterrence presents an inherent dilemma: While it seeks to prevent aggression, a deterrent effort that is too heavy-handed or appears to represent an existential threat to the potential aggressor might prompt that precise response. In the context of North Atlantic Treaty Organization (NATO)–Russia relations, deterring without provoking requires an understanding of what Russia considers to be "redlines," defined as those triggers that Russian leadership claims cannot be crossed without provoking a major or hostile response on their part.

The authors of this Perspective provide a better understanding of what provokes Putin's Russia. They identify Russia's claimed redlines before examining those developments that prompted Russia to escalate a dispute in the past and comparing them with the identified redlines. Next, they analyze how current and future deterrence efforts on the part of the United States and NATO might collide with Russian stated interests and cross these redlines.

The authors find that predicting Russian reactions to U.S. and NATO movements is a challenging exercise, as some claimed redlines have proven not to be redlines at all, while in other cases, actions taken by the United States and its allies have triggered unexpectedly strong Russian responses. Overall, changes in force posture seem to hold the most potential for effective deterrence if carefully calibrated to minimize the risks of provoking Russia.

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# NUCLEAR WEAPONS AND DETERRENCE

Department of Defense

## **Stratcom Commander: DOD on Track to Face 2 Peer Nuclear-Capable Competitors**

By David Vergun

Sept. 14, 2020

Russian and Chinese military capabilities are growing, said the commander of U.S. Strategic Command, who outlined steps the department is taking to meet those challenges.

"Our competitors have continued to develop non-strategic and strategic capabilities in an effort to outpace us," Navy Adm. Charles "Chas" A. Richard said during a Pentagon press briefing today.

"We are on a trajectory for the first time in our nation's history to face two peer nuclear-capable competitors who have to be deterred differently, and we're working very hard to meet that challenge," he said.

Richard mentioned that the nations are not just increasing their nuclear capabilities, but they're also involved in military ventures in space and cyberspace and are advancing key weapons systems, including hypersonics.

"China [is] developing a stack of capabilities inconsistent with their stated 'no-first use' policy," he added. For instance, Beijing is now capable of threatening the U.S. homeland with its ballistic missile submarine fleet.

In response to these challenges, Richard said U.S. Stratcom has been modernizing all of its capabilities.

For instance, the Nuclear Command, Control and Communications Enterprise Center (dubbed NC3) is progressing nicely and will eventually be nested with the Joint All-Domain Command and Control, he said.

JADC2 is a combination of new technology and processes that will enable the joint force to connect sensors, data and communications with shooters. NC3 is the nuclear forces command and control element.

In another example, Richard said bomber task force missions are operating worldwide and, in particular, they're supporting allies and partners in the U.S. European Command and U.S. Indo-Pacific Command areas of responsibility.

Despite the COVID-19 pandemic, the 150,000 personnel at U.S. Stratcom are continuing to do their work, either on-site or remotely, he said.

"We are fully mission capable," he said. "The bottom line is we're ready."

A positive result of the pandemic is that personnel were able to efficiently and effectively telework and engage in distributed learning, Richard said, adding that his command will not go back to the way it did business before the pandemic, meaning he'd like to keep a lot of this capability in place permanently.

According to U.S. Stratcom's mission statement, the command's purpose is to deter strategic attack and employ forces, as directed, to guarantee the security of our nation and our allies.

<https://www.defense.gov/Explore/News/Article/Article/2346371/stratcom-commander-dod-on-track-to-face-2-peer-nuclear-capable-competitors/>

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Air Force Times

## **Here's How Global Strike Command is Shifting Its Focus to China, Russia**

By Stephen Losey

Sept. 13, 2020

Unlike the wars the nation has fought over the past two decades against terrorists and violent extremist groups, the next one — potentially against China or Russia — threaten the nation's survival, said Gen. Timothy Ray, head of Air Force Global Strike Command.

Those potential adversaries are modernizing in a way that the United States is not, Ray said Sept. 11 in an emailed response to questions. Those peer nations have modernized their nuclear weapons and systems to deliver them, Ray said.

To keep pace, he said, the United States needs to modernize its network of bombers, submarines and intercontinental ballistic missiles, in part by developing new technologies. This is how Global Strike plans to respond to Chief of Staff Gen. Charles "CQ" Brown's recent call for the Air Force to "accelerate change or lose," Ray said.

The Air Force is already working on this by developing the B-21 Raider bomber. But until enough B-21s are ready, the Air Force will need to keep sustaining and modernizing the existing — and aging — B-1, B-2 and B-52 bomber fleet, he said.

The Air Force awarded a contract to Northrop Grumman Sept. 8 to build the next generation of ICBM, the Ground-Based Strategic Deterrent. This will replace the 50-year-old Minuteman III ICBM, Ray said, which was originally only meant to serve a decade.

"Our contribution to the joint fight, and frankly national-level power, is not a birthright and must be continuously invested in and evolved," Ray said. "We must keep our nuclear modernization and investments in long-range strike stable and on time to ensure we're positioned for the 21st century."

The Air Force will continue to invest in long-range strike. In fact, it has "no substitute ... regardless of what you hear to the contrary," he said.

"No matter where you look, the Air Force has proven time and again that rapid, flexible power projection — anywhere and anytime — is one of our bread-and-butter mission sets, and the premium on those attributes increases as we look ahead," Ray said.

Global Strike's ability to keep operating during this year's COVID-19 pandemic, with just a small number of cases, was one of the things of which he is most proud.

ICBM airmen began pulling two-week alerts, he said, the longest in history. And in January, Global Strike began conducting tabletop exercises, worked with local civilian agencies and reached out to academia and business to create real-time models to map the spread of the virus around bases.

That predictive modeling gave wing commanders data they needed to make accurate, timely decisions to protect bases without applying a "one-size-fits-all" solution, Ray said. Commanders had the ability to dial up or down protective measures as they saw fit, he said.

"We never faltered," Ray said. "The nation expects us to be ready under all conditions. ... The coronavirus has not, and will not, stop us."

As the pandemic spread across the planet, Global Strike Command kicked off a series of engagements and training missions by sending bombers and their crews to the Western Pacific, Europe and the Arctic, Ray said.

These Bomber Task Force missions — including the recent “Allied Sky” mission, in which six B-52s from Minot Air Force Base in North Dakota flew over all 30 NATO countries in Europe in a single day — helped build relationships with allies and partner nations, he said.

Global Strike also focused on trying to fix its ailing B-1B Lancer fleet, Ray said, by preparing a two-year “roadmap to recovery.” Some B-1s have taken part in deployments to the Pacific region, he said, showing the fleet’s improving health. However, some B-1s still need “significant structural repairs,” and Global Strike is working to retire 17 that have most frequently been flown in ways they weren’t designed for in the Middle East, he said.

In December, Global Strike stood up Detachment 7 at Duke Field in Florida to prepare to receive the MH-139A helicopter, known as the Grey Wolf, Ray said. This will replace the UH-1N fleet, and provide security and support for ICBM fields in Wyoming, Montana, North Dakota, Colorado and Nebraska.

Over the next year, Ray said, he hopes Global Strike will continue improving its culture, by dealing with issues of race, diversity and inclusion.

And, he said, Global Strike will continue moving forward with programs such as the B-21, the B-52 modernization, the GBSB missile, and the Grey Wolf helicopter.

“We’re building an enterprise that is naturally inclined to innovate while moving forward,” Ray said. “These airmen will be the ones who will preserve and perfect the production of American air and space power, in the same way our airmen accomplish this today.”

<https://www.airforcetimes.com/news/your-air-force/2020/09/13/heres-how-global-strike-command-is-shifting-its-focus-to-china-russia/>

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National Defense (Arlington, Va.)

## **Global Strike Command Opens New Innovation Hub**

By Mandy Mayfield

Sept. 9, 2020

Following in the footsteps of other military agencies and offices, Air Force Global Strike Command is reaching out to nontraditional industry partners with the launch of a new innovation hub.

The command — which is tasked with operating the Air Force’s bomber fleet, intercontinental ballistic missiles and nuclear command, control and communications systems — set up a new facility called STRIKEWERX in May to connect with academia, small businesses and even “garage inventors,” said Donna Senft, the command’s chief scientist.

“We call it our storefront,” she said in an interview. “It is a facility that enables anyone to come in who wants to work with us and they can bring us their good ideas.”

While the focus of STRIKEWERX is on expanding the command’s innovation base, the door is also open to traditional defense contractors and large businesses, she noted.

“Sometimes within the large businesses we have people who are investing in new ideas through internal research and development and they’re eager to talk to us,” she said. “Any of those types of people, we’re happy to talk to them and connect and hear more.”

The STRIKEWERX facility is located outside of Barksdale Air Force Base, Louisiana, where Global Strike Command is headquartered. The hub was strategically placed off-base to avoid difficulties for those looking to meet with the command, Senft said.

“It can be a little bit hard sometimes for some of our partners to get through the gate,” she said. “Sometimes they don’t know anybody in particular within the command to work with, and so now we have a facility that’s located off-base where they can just walk in the door and talk to our people there and say, ‘I have a great idea. I think you would be interested in it.’”

The effort is modeled after AFWERX, an Air Force initiative that was set up in 2017 to boost the service’s engagement with industry, academia and nontraditional partners while developing much-needed capabilities more quickly and flexibly. AFWERX now has locations in Austin, Texas, Las Vegas and Washington, D.C.

Global Strike Command hopes its new hub will aid in facilitating a cooperative “ecosystem” where its particular needs can be addressed.

“In the old days, the Department of Defense drove a lot of new innovations. They had enough funding to go out and invest in and invent the things that we needed, and some of those spinoffs ended up out in the private sector today,” Senft said. However, now there is more investment in the private sector than there is by the Pentagon, she noted.

The command is looking to harvest the “great technologies out there and bring them inside Global Strike Command to solve our needs,” she said.

The STRIKEWERX facility was slated to open in April. However, the ongoing COVID-19 pandemic forced the command to push its grand opening to May. The organization has since hosted multiple “open houses” where small groups of interested parties registered ahead of time to attend both in person and virtually, Senft said.

“These days it can be a little bit more difficult to travel to the Shreveport–Bossier City, Louisiana, area and walk in the door. But we have a virtual presence online,” Senft said.

“We all along had the idea that ... STRIKEWERX would have a virtual presence.”

Moving forward, the hub will be home to events, workshops, meetings and industry challenges to find technology to fill the command’s operational gaps. One area STRIKEWERX is already working to address is electromagnetic pulse hardening, Senft said. An electromagnetic pulse, or EMP, is an intense burst of energy that can be released by a nuclear weapon detonated high in the atmosphere, or by a geomagnetic disturbance caused by natural phenomena such as solar flares.

In 2019, President Donald Trump released the “Executive Order on Coordinating National Resilience to Electromagnetic Pulses,” which called for the nation to reduce its vulnerability to such attacks.

“The federal government must foster sustainable, efficient and cost-effective approaches to improving the nation’s resilience to the effects of EMPs,” the order said.

Global Strike Command is facing the same EMP issues and vulnerabilities as the rest of the nation, Senft said. “We’re interested in good ideas across the country that could help us more cheaply and more effectively harden some of our equipment.”

STRIKEWERX will soon open its doors to industry for a challenge to get after EMP hardening. Invited members of industry will be able to bring their designs, “so it’s more of a problem-solving interaction,” she said.

Innovators that don’t receive an invitation to participate in the challenge won’t be shut out of the facility.

“For companies that haven’t been invited and they have great ideas, they can go to our website and interact with us or walk in the front door,” Senft said.

Another topic of interest for STRIKEWERX is chemical, biological, radiological and nuclear defense, or CBRN.

The innovation center will host a CBRN virtual event in September in partnership with SOFWERX, an initiative founded in 2016 to facilitate cooperation with industry partners and Special Operations Command. The event will include a technology assessment to identify capabilities that could aid in the development of a next-generation CBRN mask.

Focus areas for the effort include reducing user burden, interoperability and an enhanced face seal.

During the event, individuals will be allotted one-on-one virtual sessions with SOCOM to pitch or demonstrate their solutions.

Other partners for the event include the Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense, the U.S. Army Combat Capabilities Development Command’s Chemical Biological Center, and the Defense Threat Reduction Agency.

Meanwhile, the hub has helped Global Strike Command discover a number of local businesses in the surrounding area that may be able to address its problem sets.

“People don’t think of Shreveport, Louisiana, as a hotbed of technology activities normally,” Senft noted. “But we’re finding out there are some great companies that we want to work with that we didn’t know about before. So it has already paid off.”

In the future, the hub will have a topics list to compare proposals presented by companies and members of industry to the command’s needs for compatibility purposes. At this point, the command does not plan to release its future needs list to the public, Senft said.

The STRIKEWERK facility will also be a place for airmen’s “ideas to become reality,” according to the command. It will give servicemembers access to experts, acquisition coaching, and engineering and technical support.

Andrew Hunter, director of the Defense-Industrial Initiatives Group at the Center for Strategic and International Studies, a Washington, D.C.-based think tank, said smaller scale Pentagon efforts to reach out to industry, such as STRIKEWERX, have shown to be effective.

“What we’ve seen today have been pretty discreet efforts to tackle clear problems ... that really lend themselves to being solved with innovative software,” he said. “These organizations have proven a lot of utility in doing that and in doing it with a mixture of military folks with real coding skills themselves working on the problem, but also getting innovative solutions from industry and being able to combine those two capabilities.”

There have been signs of success, said Hunter who previously led the Pentagon’s Joint Rapid Acquisition Cell.

“Initially what we heard is: ‘We just don’t know how to get access. We don’t know how to find out what the military needs. We can’t get through the contracting process,’” he said. That now seems to



be changing in a positive way with the creation of organizations such as AFWERX, the Defense Innovation Unit and others.

The Defense Innovation Unit, also known as DIU, set up its headquarters in Silicon Valley in 2015 to try to help bridge the divide between the military and commercial tech hubs. It has since opened additional offices in Austin and Boston.

Through such initiatives, companies have been able to gain insights about the military's requirements, how their products could be applicable, receive initial contracts and begin working with the Defense Department, Hunter said.

"There's a lot of success in the fact that some of those problems that industry has long complained about — I wouldn't say they've been totally solved forever — but a lot of progress has been made in solving them," he said.

What many companies now struggle with is crossing over the Pentagon's dreaded "Valley of Death" from the initial exploratory prototyping phase of a program to implementing their solutions and products on a larger scale across the military, he noted.

"It's still proving challenging to get the follow-on contracts to those initial contracts," he said.

One key piece of the equation for initiatives like STRIKEWERX to see positive results boils down to the hub's business models for industry, Hunter said.

"One of my things that I've been focused on a lot lately is thinking about the business model for some of these innovative, especially software-oriented solutions, which is: How does the contractor profit in the near term and the long term?" he said. "Where does that profit incentive come to constantly innovate? Which is what we're kind of asking industry to do."

<https://www.nationaldefensemagazine.org/articles/2020/9/9/global-strike-command-opens-new-innovation-hub>

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## US COUNTER-WMD

Department of Defense

### Senior Defense Officials Discuss 2030 Missile Defense

By Terri Moon Cronk

Sept. 11, 2020

Three senior Defense Department officials took part in a discussion about missile defense capabilities in 2030 and the demands of tomorrow at the Missile Defense 2030 symposium.

Yesterday's panel included James H. Anderson, acting undersecretary of defense for policy; Navy Vice Admiral Jon A. Hill, director of the Missile Defense Agency; and Army Lt. Gen. Daniel L. Karbler, commander of the Army Space and Missile Defense Command.

"When you look at 2030, we're looking at advanced ballistic missiles, [and] we know they're going to maneuver hypersonic threats and cruise missile threats," Hill said. "That's a very challenging place to be."

When you get into ground-based missile defense or midcourse defense for protection of the United States, we are working very Intensely on the service-life extension program, along with the reliability program that takes us beyond just the analytical, he added. "We now have hardware and equipment tied into that thanks to very great support coming from Congress, as well as the department."

That support, Hill said, will help DOD increase and extend the life of the existing fleet, which he said is vital.

"While we have to also compete in parallel with the next generation interceptor, ... by closing that gap with a very strong liability program for the fleet today, and bringing on a new interceptor that will tie into the ground systems and into the sensors, [it] is going to be pretty formidable," Hill said.

The joint kill web has to enable DOD's defensive systems and its offensive systems, Karbler said.

"If the adversary launches at us, we're going to the joint kill web [to] enable us to censor any sensor by shooter to engage," he said. He noted it also will allow DOD, integration-wise, to offensively respond with whatever capability that it might have from air to surface.

"The Army is working very hard on long-range precision fires to be able to counter what that adversary brings to us," Karbler said.

In terms of DOD's vision for 2030, the department will seek out those opportunities where it makes sense to work with allies and partners in missile defense, Anderson said.

"We talked before about defending the homeland. What's also very critical when we talk about missile defense is the regional context," he noted.

Anderson also said both China and Russia would seek to overwhelm the U.S. and its allies early in a particular theater and impede the flow of allied forces.

Because of this, it's vital in a regional context for the United States to have a robust integrated air and missile defense. "That's why we have had these collaborative efforts, and we will seek out them going forward, as well," he added.

<https://www.defense.gov/Explore/News/Article/Article/2345352/senior-defense-officials-discuss-2030-missile-defense/>

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UPI (Washington, D.C.)

## **Army Adopts New Tech to Detect Chemical Weapons**

By Christen McCurdy

Sept. 8, 2020

Sept. 8 (UPI) -- The Army is sending a new, more sensitive tool for chemical weapons detection to units at risk of exposure.

According to an Army press release, some active Army, Reserve and National Guard units have begun to receive Chemical Agent Disclosure Spray and the Contamination Indicator/Decontamination Assurance System, known as CIDAS.

It detects chemical weapons accurately at lower concentration levels -- and can help inspectors determine whether decontamination worked.

The Army is fielding the system to all units in areas where there is a threat of chemical agents.

The Army funded research behind the technology at the University of Pittsburgh starting 20 years ago.

Lead researcher Alan Russell looked for ways to incorporate enzymes into polymers that would be stabilized for use outside the cell and then used in realistic battlefield environments -- creating a tool to sense chemicals in those conditions.

Russell then started a business which was later purchased by FLIR Systems, Inc., to develop the technology -- a liquid solution that changes color when applied to a surface contaminated by a specific chemical agent.

"Our ability to respond to chemical warfare is a national security challenge that is vital to protecting both civilian and military lives," said Dr. Stephen Lee, senior scientist at the ARO.

Previously, inspectors had used simpler color-change systems, but they tended to be susceptible to chemical interference, which made results unreliable, and were often not very sensitive.

"This technology is highly sensitive, providing accurate results on only trace amounts of material, even at concentrations below levels that represent an immediate danger to life and health," Lee said.

<https://www.upi.com/Defense-News/2020/09/08/Army-adopts-new-tech-to-detect-chemical-weapons/3891599594461/>

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## US ARMS CONTROL

USNI News (Annapolis, Maryland)

### **U.S. Forces Korea CO: North Korea Showing No Signs of Regime Instability**

By John Grady

Sept. 11, 2020

North Korea is not showing any signs of lashing out against South Korea or Japan or launching a deliberate provocation as the American presidential election nears, the senior commander on the peninsula said Thursday.

Army Gen. Robert Abrams, speaking in a Center for Strategic and International Studies online forum, said "we're not seeing any sign of regime instability" as North Korea confronts the threat of COVID-19 that sharply curtailed its trade with China, recovers from three typhoons this year and remains under severe U.N. economic sanctions.

North Korean leader Kim Jong-un's regime "is focused on getting their country back together." Abrams, commander of U.S. Forces Korea, said as harsh as conditions are now, they do not compare to the widespread famine that Kim's father faced in the mid-1990s.

Along the Demilitarized Zone between the two Koreas, "the reduction in tensions is palpable" from earlier this year. Abrams remained hopeful that some type of negotiations over Pyongyang's nuclear and missile programs could resume between the North and South or between the United States and North Korea.

The talks between the United States and the North over Pyongyang's nuclear and missile programs have been on hold for months.

Speaking in the same event, Sue Mi Terry, a CSIS Korea specialist, said, "the threat remains" from the North Korean nuclear weapons stockpile and the country's sophisticated ballistic and cruise missiles. Those facts require ready South Korean and American forces to deter any rash actions by Kim.

While the readiness of American, South Korean and U.N. forces remains high, Abrams expressed concern over his recent inability to have aviation units — fixed wing and vertical — participate with company-level ground forces in live-fire exercises. "The bottom line focus [is we] have to have company-level live-fire training. ... It's essential" with aviation units participating, he said.

For now, Army helicopter units and Air Force squadrons are receiving live-fire training "off Peninsula."

A key reason for the shift has been "encroachment" on training ranges and complaints from civilians near those ranges about live-fire exercises on the peninsula, he said.

As for theater-level exercises, Abrams said the headquarters part worked this year with "training scenarios into the 21st century" that included cyber, space and gray zone cases. "We're in good shape" and "have not hit the pause button" for those exercises even with the pandemic, he said.

Abrams said the headquarters exercises could continue "side by side" because the command imposed strict measures on arriving American forces and families and conducted double-testing as the quarantine ended. There also was wide-ranging cooperation between Korean health officials and the command over workers coming onto the installations and service members and others leaving.

He dated the extensive coordination back to late January "when we could see what was coming out of China" as the virus spread through its population. The last positive COVID-19 case for a service member stationed in Korea was recorded in April.

The large-scale field and naval exercises, however, remain on hold since President Donald Trump and Kim met in Singapore two years ago to discuss denuclearizing the peninsula.

Looking at the alliance's strength, Abrams said, "we've had some dark patches before," but "over 67 years, when in doubt, the alliance always wins."

"The ROK-U.S. military alliance is truly one of a kind." Abrams called it "typhoon-proof," "COVID-19-proof and willing to say earthquake-proof."

Looking ahead to the possibility of former Vice President Joseph Biden getting elected, Terry said the North Koreans likely "will have to dial up the pressure" to remind American policy-makers they are a nuclear power.

Victor Cha, director of the center's Korea programs, said North Korea's usual response to U.S. presidential elections "is to poke the new administration in the eye," as it did when Trump took office in 2017. His administration's response was to deliver "fire and fury" if Kim threatened American forces on the peninsula or the United States itself with nuclear attack.

"If we don't see that [kind of provocation], there's something wrong in Pyongyang," Cha said, referring to the impact of the pandemic on North Korea's health system, its already threatened food supply and its contracting economy, which has caused the regime to concentrate on domestic stability.

<https://news.usni.org/2020/09/11/u-s-forces-korea-co-north-korea-showing-no-signs-of-regime-instability>

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NTI (Washington, D.C.)

## **Get Ready for School with NTI's Resources on Nuclear and Biological Security – and a New Mobile Game!**

By NTI

Aug. 18, 2020

Whether you're starting the 2020-21 school year off at home or in the classroom, NTI's EDUCATION CENTER and our LEARN collection can help fill out lesson plans and refresh your knowledge on issues related to nuclear and biological threats. You'll find teaching tools to incorporate into virtual and interactive learning, such as the 2020 NTI Nuclear Security Index, which allows you to interact with unique visualizations to compare and assesses countries' progress on nuclear security. Similarly, you can use our collection of interactive Missile Test Databases and Maps, developed by the Center for Nonproliferation Studies (CNS), to track missile tests in North Korea, Iran, India, and Pakistan.

To learn more about the very real risk of nuclear weapons use, presidential authority over nuclear weapons, and the need for action and diplomacy to reduce risks and tensions between the United States and Russia, try NTI's new mobile game Hair Trigger. The game combines strategy and speed as the player, acting as the U.S. president, works with Russia to take nuclear weapons off dangerous hair-trigger status before a catastrophic nuclear launch. With narration by Emmy Award-winning actor Harry Hamlin, the engaging game teaches players about the dangers of hair-trigger status in part through real-life close calls. It's a great way to engage students about nuclear security. Here's what one reviewer on Twitter had to say: "So I ended up blowing the world up, but I LOVED playing this game. With a touch of horrifyingly real events mixed into an interactive choose-your-own-adventure, #HairTriggerGame is a brilliant way to educate and entertain."

Additional new educational content and teaching tools from our partners at CNS include articles on:

- How analysts used new open source tools to investigate a Middle East missile exercise
- How orphan radioactive sources were tracked through social media and satellite images
- U.S.-Chinese cooperation on nuclear reactors, including a 3D model of one and information on how it can be made proliferation-resistant
- U.S.-Russian arms control, including a 3D model of a dismantled nuclear bomb and an augmented reality feature that allows readers to place it in their own home!

### COVID-19 and Biosecurity

Are you a student or researcher tracking issues related to the COVID-19 pandemic? Visit the COVID-Local website, which features a guide for local decision-makers on reducing the impact of the pandemic, and explore COVID-Amp, a policy database and map that illustrates policies and plans that have been implemented in the U.S. and around the world. The tool tracks the impact that these policies have had on communities and shows what could have happened without them.

For a deeper dive into health security, explore the the Global Health Security (GHS) Index. Developed with partners and released just months before the COVID-19 pandemic hit, the GHS Index is the first comprehensive assessment and benchmarking of health security and related capabilities across 195 countries. The Index uses six categories to organize data: prevention, detection and reporting, rapid response, health system, compliance with international norms, and risk environment. Students can download scores and profiles for each country, use a score simulator to adjust scores and see the impact on a country's ranking, download the data model, and much more.

This Back-to-School initiative is part of NTI's public education mission, aimed at providing professors, students, researchers, and other audiences the need-to-know facts about WMD-related threats. If you teach or study issues related to our work, sign up below to keep updated on what we have to offer.

<https://www.nti.org/newsroom/news/get-ready-for-school-with-ntis-resources-on-nuclear-and-biological-security-and-a-new-mobile-game/>

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Atlantic Council (Washington, D.C.)

## **Iran's Expansion of Uranium Stockpile Is Troubling but Manageable**

By Kelsey Davenport

Sept. 14, 2020

The most recent report by the International Atomic Energy Agency (IAEA) on Iran's nuclear program demonstrates that the main result of the Trump administration's "maximum pressure" campaign has been the fraying of US alliances and the steady expansion of Iran's enriched uranium stockpile.

At the same time, the IAEA report documents Tehran's relative nuclear restraint and the continued viability of the 2015 Joint Comprehensive Plan of Action (JCPOA), which the US unilaterally withdrew from in 2018.

Secretary of State Mike Pompeo attempted to use Iran's uranium stockpile growth to push the remaining parties—Britain, France, Germany, China and Russia—away from the agreement, to convince them to "wake up to the reality that the nuclear deal is history," and to join US sanctions targeting Iran. However, this appeal is likely to fail.

Iran's expanding uranium stockpile and its other violations of the deal are troubling, but the current risk is manageable and reversible.

The September 4 IAEA report confirms that Iran now possesses about 2,105 kilograms of uranium enriched to less than 4.5 percent, which is roughly ten times the 202 kilogram limit set by the deal (202 kilograms of uranium enriched to 3.67 percent by weight equates to 300 kilograms of uranium gas enriched to the same level). But to put this number in perspective, Iran's output of enriched uranium has remained fairly steady over the course of 2020, demonstrating that Tehran is not accelerating production.

The IAEA also noted no significant changes in the number of centrifuges enriching uranium or in enrichment levels, which means that the breakout time—the period it would take to produce enough nuclear material for one weapon—remains three to four months—roughly the same as it was in June. This is a significant decrease from the twelve months established by full

implementation of the JCPOA, but it's still enough time for the international community to act if Tehran made the decision to pursue a bomb. As of the September report, it is likely that Iran could produce enough weapons-grade material for a second nuclear device from its current stockpile of enriched uranium, but that would take several additional months.

Iran also continues to test advanced centrifuge machines beyond what is allowed by the deal and is using cascades of those machines to produce enriched uranium, which the JCPOA prohibits. The number of those machines operating as of the September report is similar to what the IAEA reported in June. Iran did notify the agency of its intention to expand installation of advanced machines, but stated that the number of advanced machines enriching uranium would remain constant. This also speaks to a strategy of consistent pressure in response to the US sanctions campaign instead of an effort to destroy the deal or dash to a bomb.

While the knowledge gained by testing and operating these machines cannot be “reversed,” it is unlikely to be a gamechanger. Tehran’s pursuit of so many different advanced centrifuges—fourteen—is less worrisome than if Iran had a clearly designated successor for its inefficient first-generation centrifuges that are currently responsible for nearly all its enrichment. And if the full implementation of the JCPOA is restored under a future US administration, it would create space for a long-term discussion on future limits for Iran’s advanced centrifuge program, among other nuclear issues.

While Iran’s violations of the JCPOA cannot and should not be ignored, the nuclear deal has not been hollowed out completely. The IAEA report confirms that Iran continues to abide by critically important verification measures put in place by the deal, including continuous monitoring of enrichment levels and key sites. As a result, if Tehran were to further move outside the limits set by the JCPOA or make the political decision to dash to a bomb, it is highly likely that its efforts would be quickly detected.

Also, on the positive side of the equation, Iran and the IAEA have resolved a dispute over access to two undeclared sites where the agency has evidence of possible undeclared nuclear material and activities. According to a second September 4 IAEA report, one of the visits has already taken place and a date for inspectors to visit the second location is scheduled for later this month.

While Iran’s stonewalling was concerning and it is critical that the nine-month delay between the request for access and the inspections do not become a precedent, the IAEA made clear that the materials and activities in question pre-date 2003 (when the IAEA assessed Iran had an organized nuclear weapons program) and are not currently ongoing. In this case, though the delay fed speculation that Iran had something to hide, it is unlikely that the results of the investigation will significantly alter the assessment of Iran’s nuclear weapons capabilities acquired from its past program nor argue that they pose a near-term risk. However, Iran must comply with such requests down the road in a more timely fashion.

Just days after the IAEA report was finalized, Ali Salehi, head of the Atomic Energy Organization of Iran, announced that Iran was building a new facility for manufacturing advanced centrifuges in the mountains near Natanz. He described the decision as a direct response to an act of sabotage targeting the current production building in July. It is unclear who was behind the sabotage—Tehran says it has identified the perpetrators of the attack but has not yet named them—but Iran’s response should serve as a reminder that diplomacy is the only option for addressing proliferation risks over the long-term.

Construction of the facility itself does not pose a near-term threat as Iran’s production of centrifuges is subject to continuous surveillance for twenty years under measures put in place by the JCPOA. Given that IAEA reports have consistently noted Tehran’s compliance with the deal’s

verification measures, there is no reason to believe this facility, if completed, would be treated any differently.

Nevertheless, Iran's decision exemplifies the risk and limits of kinetic action intended to disrupt the country's nuclear program. Targeted acts of sabotage or direct strikes may set back Iran's program, but they cannot erase the fact that Iran already has the capabilities necessary to build nuclear weapons, something US intelligence agencies concluded in 2007. As evidenced by the Natanz case, destruction of the country's nuclear facilities are unlikely to push Tehran to abandon its nuclear program and will instead spur Iran to rebuild in locations more difficult to target. If Iran feels its nuclear program is less vulnerable and if it's concerned about deterring further strikes or sabotage, that could influence any future discussion about the costs versus the benefits of pursuing nuclear weapons.

In the face of failed US efforts to garner support for multilateral Iran sanctions, the Trump administration is likely to redouble its efforts to kill the JCPOA. Despite this, the most recent IAEA reports demonstrate that the window for returning to full implementation of the nuclear deal is still open and, if anything, has widened slightly given progress on the agency's investigation into possible past undeclared activities. Returning to compliance with the nuclear deal and using it as a platform for a longer-term framework remains the best option to ensure Iran's nuclear program remains peaceful for decades to come.

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<https://www.atlanticcouncil.org/blogs/iransource/irans-expansion-of-uranium-stockpile-is-troubling-but-manageable/>

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# COMMENTARY

CNAS (Washington, D.C.)

## **The Decline of Deterrence**

By Dr. Andrew F. Krepinevich

Sept. 14, 2020

The Bottom Line

Deterrence is not as stable as believed, and is becoming less so.

Deterrence strategies are under assault on a number of fronts—geopolitical, military-technical, and geostrategic—and are even being challenged by advances in the cognitive and social sciences.

Time not on our side. The new administration must move quickly to stem the erosion of deterrence strategies and restore their efficacy.

### Introduction

Following the enormous human and material losses in two world wars, which ended with the use of nuclear weapons, it became clear that the next general war would produce no winners, only survivors. Thus deterrence became the foundation of U.S. defense strategy for avoiding general wars, both nuclear and conventional. Deterrence involves efforts to prevent a rival, or “target,” from pursuing a proscribed action. This is done by influencing the target’s calculation of the costs, benefits, and risks associated with engaging in the proscribed action. Deterrence works by convincing the target that it has an unacceptably low probability of achieving its goals (deterrence through denial), or that the costs incurred through pursuing the proscribed action will exceed any benefits derived (deterrence through punishment).

Although deterrence held during the Cold War, on several occasions the United States and Soviet Russia came perilously close to nuclear Armageddon. Russia’s military decline following communism’s collapse found America enjoying a period of military dominance that appeared to guarantee none of its rivals would risk a general war. With the return of intense geopolitical competition between the United States and the revisionist great powers, China and Russia, this happy state of affairs no longer obtains, if it ever did.

During the past decade, as the era of U.S. military dominance has faded, both the Obama and Trump administrations have addressed deterrence—a centerpiece of both national defense strategies—in only the most general terms. The unstated assumption has been that what worked during the Cold War and the two decades of U.S. military primacy that followed will ensure deterrence remains robust in the future. Yet the conditions under which military dissuasion must function are changing—and in nearly every case they are eroding its efficacy.

The conditions under which military dissuasion must function are changing—and in nearly every case they are eroding its efficacy.

With this in mind, the drafters of the next National Defense Strategy should undertake a fundamental assessment of how deterrence strategies must be adapted in order to succeed under new and very different geopolitical and military-technical circumstances that include growing military competition in relatively new warfare domains and advances in the cognitive sciences.

### Geopolitical Transition

Today the United States confronts two revisionist great powers in China and Russia. Unlike the Cold War bipolar international system or the U.S.-dominated unipolar world that succeeded it, today's world is increasingly multipolar, both politically and militarily. If nothing else, this increase in the number of rivals the United States seeks to deter provides more opportunities for deterrence to fail.

The shift toward a multipolar world is particularly pronounced with regard to nuclear weapons. Following the Cold War, America and Russia dramatically reduced their nuclear arsenals, lowering the "entry barrier" to states aspiring to become major players in the "Nuclear Club." Thus far none have reached that status, but China, as well as new members India, North Korea, and Pakistan are all expanding and improving their arsenals.<sup>1</sup> This portends problems for deterrence. For example, both the United States and Russia have long considered parity—a rough equivalence in nuclear capability—an essential feature in their arms control agreements to enhance deterrence by ensuring both sides could maintain the ability to inflict massive "assured destruction" after suffering a surprise first strike. Parity was possible in what was effectively a bipolar nuclear competition during the Cold War. It is not possible, however, for every power in a multipolar nuclear competition to enjoy parity with its rivals.

The shift toward a multipolar world is particularly pronounced with regard to nuclear weapons.

The increasingly dynamic geopolitical environment further complicates matters. The disposition of nuclear powers such as Pakistan, which risks falling into China's orbit, is unclear. North Korea is seeking to create a nuclear arsenal whose size would have given Truman and Eisenhower pause. The potential for rapid shifts in geopolitical alignments, and the nuclear balance, could pose significant challenges for U.S. deterrence strategy.

#### Military-Technical Advances

The development of near-zero-miss conventional weapons suggests that, at least in some cases, these precision-guided munitions may be capable of substituting for nuclear weapons against certain kinds of targets. This further complicates efforts to assess the strategic military balance. Moreover, states such as Russia that cannot match the U.S. precision warfare capability are fielding nuclear weapons with very low yields to offset the American advantage.<sup>2</sup> Both Chinese and Russian military writings talk of employing nuclear-generated electromagnetic pulse attacks.<sup>3</sup> These developments are eroding the clear "firebreak" that once existed between the use of conventional and nuclear weapons. Deterrence may be compromised if U.S. leaders discount the risk that a conventional war involving widespread use of precision-guided weapons against strategic targets could escalate to nuclear war. Meanwhile, their Chinese and Russian counterparts believe their "discriminate" nuclear weapons will not trigger escalation to general nuclear use.

Cyberweapons may pose a serious threat to a state's early warning and command and control systems. The same is true for nuclear powers armed with ballistic missiles in close geographic proximity to one another, as is the case with India and Pakistan, for example, or, prospectively, with Iran and Israel.

States such as Russia that cannot match the U.S. precision warfare capability are fielding nuclear weapons with very low yields to offset the American advantage

Fears that cyber malware may compromise early warning or corrupt command and control systems could find political leaders losing confidence in their ability to receive warning of an attack or effectively communicate their orders to retaliate. The same fears could obtain if ballistic missiles from close neighbors so compress warning time that even instantaneous attack detection would not provide enough time to prepare an effective response. If so, leaders may delegate nuclear (or strategic) force release authority to lower-level commanders, which would put more fingers on the nuclear trigger and thereby increase the risk of accidental or unauthorized use.

Devolving strategic force release authority could also increase a prospective attacker's incentive to strike, lest one of its rival's independent commanders should decide to strike first. This incentive may increase if a potential aggressor were to believe its opponent's warning and response systems could be compromised, since that would lower the risk of undertaking an attack. Simply put, the development of cyber weapons as well as weapons offering high speed of attack and geographic proximity pose significant challenges for strategies relying on deterrence.

The true (as opposed to "advertised") effectiveness of relatively new but untested military capabilities and those that may emerge over the next decade—such as hypersonic missiles, robotic swarms and CubeSat architectures—remains relatively ambiguous, due to the (thankfully) long absence of general war between major military powers. This uncertainty may find prospective belligerents reaching significantly different conclusions on the military balance. To the extent they reach optimistic conclusions regarding these capabilities' contributions to their side of the balance, it could lower the perceived costs and risks of war.

### New Warfighting Domains

Recent decades find military competition expanding in the relatively new domains of space, cyberspace, and the seabed. In each one, the competition favors the offense: All other factors being equal, the costs associated with taking a proscribed action are less than those needed to mount a successful defense, and this undermines deterrence through denial.

Moreover, in each domain, identifying the source of an attack—especially promptly—is relatively difficult by comparison with large-scale attacks in more traditional warfighting domains, such as land, air, and sea. This may lower the perceived risk associated with pursuing a proscribed action in these domains and, in so doing, incentivize risk-tolerant actors—which erodes the efficacy of deterrence through punishment.

### Advances in the Cognitive Sciences

Understanding how a rival engages in risk management is central to developing effective deterrence strategies. The underlying assumption is that the rival decisionmaker will act rationally, in line with his risk profile.

Unfortunately, advances in the cognitive and behavioral sciences reveal that humans cannot be counted on to act rationally in making decisions where risk is involved. The emergence of prospect theory, for example, finds people are relatively reluctant to run risks to acquire what they do not have, and more willing to do so when it involves preserving that which they believe is theirs.<sup>4</sup> This would seem to fortify deterrence. Problems arise, however, when both rivals view themselves as being in a "domain of loss," and are thus willing to run relatively high risks in order to prevail. This dynamic is at work in the South China Sea, where Beijing increasingly sees its creeping territorial expansion being progressively less a claim and increasingly an established fact, while other powers continue viewing it as illegitimate. In a crisis, both parties may see themselves in a domain of loss. If so, both would be willing to run unusually high risks to achieve their aims.

Another advance in the cognitive sciences concerns optimism bias,<sup>5</sup> or the tendency of successful individuals—like political leaders—to discount risk. This is particularly worrisome with respect to tyrants, who often must run great risks on the way to seizing power. Their experience in beating the odds can enhance the danger that they will discount risk. If so, deterring them becomes more difficult.

Nebulous concepts such as fairness and honor can skew a decisionmaker's rational calculations. Research in the social sciences finds that participants across a range of cultures have very different ways of calculating cost, benefit, and risk, and are also prone to reject win-win outcomes in favor of lose-lose outcomes if they feel they are being treated unfairly or with a lack of respect.<sup>6</sup>

Understanding the affect these factors have on rival leaders' decisionmaking will be important if deterrence strategies are to avoid lose-lose outcomes.

### Recommendations

Irrespective of which political party gains the White House, the United States shows every indication of continuing its reliance on deterrence as a centerpiece of its defense strategy. If so, the trends outlined here warrant the kind of sustained intellectual effort by the nation's best strategists to adapt deterrence strategy to today's realities. Toward this end, the Defense Department might usefully pursue the following recommendations:

**Understand the Competition:** Deterrence lies in the eye of the beholder. During the Cold War, the Department devoted persistent, intense effort to understanding how Soviet leaders calculated cost, benefit, and risk, as well as how they viewed the strategic military balance and the balance in key regions. A similar effort needs to be undertaken today, with priority given to China, followed by Russia. Net assessments of these balances can aid policymakers in identifying areas of weakness and prospective opportunities to enhance the U.S. defense posture's deterrent effect.

**Rethink Escalation Dynamics:** The very different environment in which contemporary deterrence strategies must function suggests a need to update the vertical and horizontal escalation "ladders," which were generally ignored following the Cold War. As the term suggests, the ladder rungs mark quantum leaps in conflict intensity (vertical escalation) or geographic spread (horizontal escalation), and they identify important points for deterring rivals from escalating. After these ladders are updated, work can begin on fortifying those rungs that need to be strengthened to enhance deterrence. Because deterrence lies in the eye of the beholder, understanding how America's rivals view escalation will be essential to success.

**Close the Attribution Gap:** Failure to identify the source of an attack, and to do so promptly, risks undermining deterrence strategies based on the threat of inflicting prompt, unacceptable punishment on the aggressor. The problem might be ameliorated through increased intelligence efforts, particularly human and signals intelligence.

**Keep Options Open:** There is a saying that the budget, not strategy, drives the Defense Department. Defaulting to "program momentum" would be especially risky in an era in which the character of warfare is changing rapidly, and where defense budgets are likely to come under ever-greater pressure as the consequences of a generation of poor fiscal stewardship and the costs of Coronavirus disease-19 come home to roost. Given that the means and methods of deterrence are likely to require significant adjustments, priority should be accorded to maximizing the Department's investment options until a new defense strategy and the requirements for deterrence can be identified.

### Conclusion

As long as deterring wars remains central to preserving the nation's security, crafting and executing effective deterrence strategies will remain central to the Department's work. Myriad trends indicate that strategies founded on deterrence are becoming more difficult to construct and implement. Yet the price to be paid, should deterrence fail and general war ensue, make it imperative that the next administration dedicate itself to ensuring that this cornerstone of U.S. defense strategy rests on a solid foundation.

### About the Author

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Defense One (Washington, D.C.)

## **What Abe Leaves Behind**

By Jeffrey W. Hornung

Sept. 11, 2020

Last week, Japan's Prime Minister Shinzo Abe shocked the political world by resigning. His unexpected departure leaves several of his policy priorities unfinished, including revising Japan's constitution and finalizing a peace treaty with Russia. But the security issues facing Japan and the region remain unchanged, and Abe's successor may be forced to confront several of them on his very first day.

Although there are several qualified candidates who could replace Abe, the factions of the Liberal Democratic Party that are responsible for voting on Abe's replacement in an intra-party election appear to have coalesced around current Chief Cabinet Secretary Yoshihide Suga. Suga, in his position since 2012, is known for his ability to coordinate policies and work with bureaucrats, not for defense or national security issues. Assuming Suga becomes the next prime minister, he might choose to continue the policies put in place by Abe. Because the security issues facing Japan and the region have largely not changed, Suga's approach might not either. Three issues will likely demand Suga's attention.

The first is China. If history is a guide, and as Japan's defense white paper has acknowledged, China will continue to pour money into its military to improve nuclear, missile, naval and air forces while working to dominate in cyber, space, and the electromagnetic spectrum. This matters for Abe's successor because China leverages these capabilities to engage in unilateral and coercive attempts to change the status quo of the existing international order, including in the waters and airspace surrounding Japan, with a particular focus on the Senkaku Islands. This is highly unlikely to change. In fact, China may take advantage of the leadership transition in Tokyo to test Suga.

The second issue is North Korea. Despite its relative silence in recent years, Japan believes that North Korea continues to develop weapons of mass destruction and increase its arsenal of ballistic missiles while growing a large-scale cyber capability. The flurry of diplomacy over the past few years has done little to stop North Korea's behavior. The regime conducted six nuclear tests, three since 2016. Those tests paused during the height of talks under President Donald Trump. But most experts believe that it is not a question of if North Korea will resume these provocations, but when. Historically, North Korea has conducted nuclear or missile tests during moments like leadership transitions in South Korea, so the November election in the United States or even Japan's transition later this month could be next. The point is, North Korea has used provocative rhetoric and behavior against Japan in the past, it will likely do so again.

The final issue is the United States. Suga is likely to confront challenges stemming from Japan's only ally. Perceived U.S. disengagement from the region has led some leaders to openly question whether the United States will honor its commitments to regional security and to call for Japan to take on greater leadership roles and strengthen its security relationships. There's good reason for their fears. Under the Trump administration, the United States has openly criticized allies, and Trump demanded Japan pay more for America's troop presence or risk troop withdrawal, according to John Bolton, the president's former national security advisor. Negotiations on host nation support are expected to begin soon. Suga is going to have to manage those and the possibility that

the reputation of the United States could continue to decline — not to mention a possible presidential transition that could lead to a vacuum of U.S. engagement for some time.

Suga is capable and is expected to be skillful at managing Japan's bureaucracy, but he is not known to be a security expert or interested in diplomacy. This does not mean he does not see the threats or understand the issues; rather, Abe's personal involvement in these issues meant that Suga focused on intra-government relations and largely domestic issues. Should Suga become prime minister, which is almost certain, he will be confronted with security issues relatively soon. Before his resignation, Abe set in motion the process to revise Japan's National Security Strategy and update the 2018 iterations of the National Defense Program Guidelines and Medium Term Defense Plan. And in June, the Abe government decided to cancel the deployment of the Aegis Ashore missile system and began to discuss options for bolstering Japan's deterrence capabilities. These items will be in the inbox awaiting Suga.

As daunting as it may be to follow Abe as Japan's next leader, it is possible that Suga might choose to simplify his life in the foreign and security domains by focusing less on pushing new initiatives and more on continuing those started by Abe. This could mean continuing to advocate the Free and Open Indo-Pacific concept created by Abe. Tangentially, it also could mean continuing to maintain, if not strengthen, security ties with likeminded partners, particularly the Quad framework with India, Australia, and the United States. It also could mean working with the United States. Finally, it could mean continuing the trend of building a more capable Japanese Self-Defense Force in terms of its capabilities, force posture, legal interpretations, and interoperability with the United States.

Doing so may even pay dividends politically, given the Japanese public appears to approve of the trajectory set by Abe. According to a March 2020 poll conducted by Japan's Ministry of Foreign Affairs, 85 percent of Japanese either fully or somewhat agreed that the security environment in East Asia has gotten worse. The same poll found that not only did 69 percent of Japanese express a positive evaluation of the U.S.-Japan security structure, 79 percent felt U.S.-Japan relations should be strengthened most in national security. And 75 percent expressed a positive evaluation of the Abe administration's activities to proactively construct a broad network and strengthen Japan's presence in international society.

Suga is no doubt a skillful politician. Whether he becomes an effective prime minister remains to be seen. Abe appears to have left behind a strategy for handling the security challenges facing Japan. Continuing them or not will be one of Suga's first critical decisions.

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<https://www.defenseone.com/ideas/2020/09/what-abe-leaves-behind/168413/>

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War on the Rocks (Washington, D.C.)

### **Japanese Nuclear Policy after Hiroshima, after Abe, and after Nov. 3**

By Masakatsu Ota

Sept. 14, 2020

On the morning of Aug. 6, Prime Minister Shinzo Abe of Japan delivered a cautious statement in front of the Hibakushas, the victims of the atomic bombs dropped on two major Japanese cities. One of the two cities, Hiroshima, marked the 75th anniversary of the nuclear assault that day. A diminished number of participants, due to the COVID-19 pandemic, carefully listened to Abe's message as it echoed over the solemn ceremony in Hiroshima Peace Memorial Park.

“As the only country to have experienced the horror of nuclear devastation in war, Japan has the unceasing mission of advancing steadily, step by step, the efforts of the international community towards realizing ‘a world free of nuclear weapons,’” Abe said.

During the remarks, which I covered from about 100 meters away, Abe didn’t forget to mention Japan’s unwavering commitment to the Three Non-Nuclear Principles (not possessing, not producing, and not permitting the introduction of nuclear weapons into Japanese territories). This hard-and-fast national policy was officially declared and formulated in the late 1960s by Abe’s great-uncle, then-Prime Minister Eisaku Sato, who was awarded a Nobel Peace Prize in 1974, mainly thanks to this nonnuclear declaratory policy.

However, contrary to the strong wish of the Hibakushas and their peace-loving supporters, in the roughly eight years Japan has been governed by Abe — one of the most conservative and promilitary prime ministers in modern Japanese history — the country has increasingly and more unequivocally relied on the nuclear umbrella provided by its key ally, the United States.

The main reasons for this trend are two geopolitical factors. The first is the aggressive military buildup by China, which adamantly insists on its territorial sovereignty over the Japanese Senkaku Islands in the East China Sea. The second is North Korea’s expanding nuclear and missile program, which U.S. President Donald Trump has so far failed to reverse through his oft-trumpeted, if incomplete, bilateral summit process.

One fact of the matter is that the nuclear reliance policy driven by the Abe administration has deepened the dilemma and ambivalence of Japan, the majority of whose people oppose nuclear arsenals in general and want their government to sign and ratify the Treaty on the Prohibition of Nuclear Weapons adopted at the United Nations in 2017.

The public sentiment on this point was eloquently vindicated by another statement during the same ceremony on Aug. 6. From the same podium Abe had used just several minutes before, the governor of Hiroshima, Hidehiko Yuzaki, announced in an emphatic manner, “Nuclear deterrence is no more than a manmade myth, which loses its validity once enough of us stop believing in it.”

#### Securing Trump’s ‘Nuclear Commitment’

In the past few years, the political scene most symbolic of Japan’s increased dependence on the U.S. nuclear umbrella was seen on Feb. 10, 2017, when Abe and Trump issued the U.S.-Japan Joint Statement.

It says, “The unshakable U.S.-Japan Alliance is the cornerstone of peace, prosperity, and freedom in the Asia-Pacific region. The U.S. commitment to defend Japan through the full range of U.S. military capabilities, both nuclear and conventional, is unwavering.”

One of the top agenda items for Abe and Trump’s first official summit meeting in 2017 was North Korea. At the exact same time as the two leaders were meeting at Mar-a-Lago, North Korea launched a missile believed to be a modified version of the intermediate-range ballistic missile Musudan. The meeting was overshadowed by the nuclear threat posed by the country, which had accelerated a series of missile tests since 2016.

Against this backdrop, Abe and Trump announced their joint statement. It was the second time in the history of Japan that the country’s top leader asked the U.S. president to guarantee Japanese national security through U.S. nuclear arsenals, if necessary, on the public record.

The first occasion was on Aug. 6, 1975, when then-Prime Minister Takeo Miki and U.S. President Gerald Ford published the U.S.-Japan Joint Announcement to the Press, which confirmed that “the U.S. nuclear deterrent is an important contributor to the security of Japan.”

Japanese policymakers had reason to be concerned about Trump's commitment to the security alliance, especially amid increasing tensions with North Korea. During the election campaign in 2016, Trump said, "If we're attacked, Japan doesn't have to do anything. They can sit home and watch Sony television, OK?"

Trump was the first U.S. president to criticize the U.S.-Japanese security alliance. Under its peaceful constitution drafted by the U.S. occupation power almost 75 years ago, Japan has been prohibited from directly getting involved in U.S. military combat operations outside Japanese territories.

In this context, security policy elites of the Abe administration tried their best to reconfirm the nuclear deterrence commitment made by a series of U.S. administrations at a very early stage of the Trump presidency. This effort bore fruit when Trump himself engaged with the joint statement, which reaffirmed the credibility and effectiveness of the U.S. nuclear umbrella.

While it was very difficult to know to what extent Trump understood what the joint statement meant in terms of the U.S. deterrence commitment, Japanese security officials must have nevertheless been relieved by this significant statement, which they could have assumed would strengthen a "nuclear bond" between Japan and the United States.

#### 'High Appreciation' of Trump's Nuclear Posture Review

Almost a year after the first Abe-Trump summit took place, the government of Japan tried another measure to reaffirm the U.S. nuclear commitment to protect Japan.

On Feb. 3, 2018, then-Japanese Foreign Minister Taro Kono released a succinct statement with a clear signal to the United States. It said,

The U.S. Department of Defense released its Nuclear Posture Review (NPR) on Friday, February 2. Japan highly appreciates the latest NPR which clearly articulates the U.S. resolve to ensure the effectiveness of its deterrence and its commitment to providing extended deterrence to its allies including Japan, in light of the international security environment which has been rapidly worsened since the release of the previous 2010 NPR, in particular, by continued development of North Korea's nuclear and missile programs.

Kono's statement was released just one day after the Trump administration made public its Nuclear Posture Review. The Japanese intention was very simple and obvious. Facing a dire situation with repeated missile launches by North Korea and China's rapidly modernizing military, the Abe administration tried to reaffirm to Washington that Japanese security is highly dependent on U.S. nuclear extended deterrence by demonstrating full support of Trump's nuclear policy.

However, this Nuclear Posture Review includes several controversial points: It suggests introducing low-yield nuclear weapons into Navy strategic submarines, does not exclude a nuclear retaliatory option against adversaries' strategic cyber attack, and objects to Senate ratification of the Comprehensive Nuclear-Test-Ban Treaty.

The last point especially is politically puzzling for the government of Japan, which has been an avid and long-term advocate for early entry into force of the test-ban treaty. Under the Obama administration, the United States promoted the same goal in tandem with Japan on this important disarmament agenda, but Trump reversed the policy discourse.

Recently I had a chance to talk with Kono, who also served as Abe's last defense minister, on this specific topic and I asked him why he gave a highly appreciative statement about the Trump Nuclear Posture Review when it totally rejects the possibility of U.S. ratification of the Comprehensive Nuclear-Test-Ban Treaty. He explained that he had tried to persuade then-Secretary of State Rex Tillerson to change the Trump administration's position on the treaty by using the leverage of an ally that supports the Trump administration's nuclear policy.



As far as I know, Japan is the first nation to express clear and full support of Trump's Nuclear Posture Review. Despite well-considered diplomatic calculation made by those in Japanese foreign policy circles seeking to induce the Trump administration to be more positive on the nuclear disarmament agenda, it seems Kono could not make it happen.

This anecdote reminds us of the ambivalent nature of Japanese nuclear policy. Kono might have assumed strengthening the "nuclear bond" with the United States would definitely increase Japanese political influence on U.S. policymaking on the nuclear disarmament agenda, upon which Japan has focused keenly. However, the reality he faced was bleak.

### Cold Shoulder to Nuclear Ban

At the 75-year anniversary ceremonies in Hiroshima and Nagasaki, both city's mayors made a strenuous appeal in one voice to Abe to sign and ratify the Treaty on the Prohibition of Nuclear Weapons. However, the Abe administration has been giving the cold shoulder to this nuclear ban treaty and its most ardent supporters, the Hibakushas. (In Nagasaki, I was privileged to take a seat in the front row of the ceremony, where I could clearly observe Abe carefully listening to what Mayor Tomihisa Taue announced in the peace declaration. But Abe did not mention the Treaty on the Prohibition of Nuclear Weapons at all in either Nagasaki or Hiroshima.)

In 2017, the Abe administration did not participate in the multilateral negotiation process for adopting the nuclear ban treaty at the United Nations in spite of broad support for the treaty among the Japanese public. According to a public opinion poll conducted by Kyodo News in November 2016, 71.1 percent of the Japanese public believed Japan should participate in the treaty negotiation.

Japanese policymakers have suggested that the Abe administration decided in 2017 that the treaty would undermine Japan's security environment.

The deep, serious division between the nuclear weapon states opposing the treaty and the nonnuclear weapon states supporting it was another factor. However, the most fundamental reason Tokyo continues to reject the nuclear ban treaty is Tokyo's dependence on the nuclear umbrella provided by the United States.

Japanese officials may have feared that supporting the treaty would hurt the U.S.-Japanese "nuclear bond" that was reaffirmed by the joint statement announced by Abe and Trump in February 2017, which they saw as securing Trump's nuclear commitment to Abe.

Abe and his security policy elites must have expected strong backlash from Japan's antinuclear public on their decision not to participate in the treaty negotiations. Nevertheless, they made an unambiguous judgment that the bilateral security relationship with the United States, the sole guarantor of the nuclear umbrella for Japan, should be prioritized over participation in the treaty.

This episode sheds light on both the coherence and the ambivalence of Japanese nuclear policy. It also illuminates another reality: Japan's deepening dilemma, caught as it is between a still strongly antinuclear public and its "nuclear gung-ho" ally.

### What Will Be Next?

Japanese security officials are now starting to think about what a Biden administration's nuclear policy would look like.

Just four years ago, after his historic first visit to Hiroshima as sitting U.S. president, Barack Obama gave serious thought to a nuclear "no-first-use" policy. However, this policy initiative failed as Japan and other allies opposed it for the same reasons Japan did not participate in negotiations on the

Treaty on the Prohibition of Nuclear Weapons — so as not to diminish the nuclear umbrella provided by the United States in any way.

Needless to say, Biden was vice president under the administration that made the last push for no first use. Biden also left an important message to the world on behalf of Obama at the very end of his term. On Jan. 11, 2017, at the Carnegie Endowment in Washington, he stated his belief that the United States could now adopt no first use, saying, “Given our nonnuclear capacities and the nature of today’s threats, it’s hard to envision a plausible scenario in which the first use of nuclear weapons by the United States would be necessary or would make sense.”

In an article for Foreign Affairs early this year, Biden made the same assertion: “As I said in 2017, I believe that the sole purpose of the U.S. nuclear arsenal should be deterring — and, if necessary, retaliating against — a nuclear attack. As president, I will work to put that belief into practice, in consultation with the U.S. military and U.S. allies.”

Of course, the “U.S. allies” he mentioned include Japan. After Nov. 3, what will be next for Japan’s ambivalent nuclear policy? Even after Abe steps down, we will not see any major change as long as his security-conscious successors, including the next prime minister, Yoshihide Suga, stay in power.

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## ABOUT THE USAF CSDS

The USAF Counterproliferation Center (CPC) was established in 1998 at the direction of the Chief of Staff of the Air Force. Located at Maxwell AFB, this Center capitalizes on the resident expertise of Air University — while extending its reach far beyond — and influences a wide audience of leaders and policy makers. A memorandum of agreement between the Air Staff's Director for Nuclear and Counterproliferation (then AF/XON) and Air War College commandant established the initial personnel and responsibilities of the Center. This included integrating counterproliferation awareness into the curriculum and ongoing research at the Air University; establishing an information repository to promote research on counterproliferation and nonproliferation issues; and directing research on the various topics associated with counterproliferation and nonproliferation.

In 2008, the Secretary of Defense's Task Force on Nuclear Weapons Management recommended "Air Force personnel connected to the nuclear mission be required to take a professional military education (PME) course on national, defense, and Air Force concepts for deterrence and defense." This led to the addition of three teaching positions to the CPC in 2011 to enhance nuclear PME efforts. At the same time, the Air Force Nuclear Weapons Center, in coordination with the AF/A10 and Air Force Global Strike Command, established a series of courses at Kirtland AFB to provide professional continuing education (PCE) through the careers of those Air Force personnel working in or supporting the nuclear enterprise. This mission was transferred to the CPC in 2012, broadening its mandate to providing education and research on not just countering WMD but also nuclear operations issues. In April 2016, the nuclear PCE courses were transferred from the Air War College to the U.S. Air Force Institute for Technology.

In February 2014, the Center's name was changed to the Center for Unconventional Weapons Studies (CUWS) to reflect its broad coverage of unconventional weapons issues, both offensive and defensive, across the six joint operating concepts (deterrence operations, cooperative security, major combat operations, irregular warfare, stability operations, and homeland security). The term "unconventional weapons," currently defined as nuclear, biological, and chemical weapons, also includes the improvised use of chemical, biological, and radiological hazards. In May 2018, the name changed again to the Center for Strategic Deterrence Studies (CSDS) in recognition of senior Air Force interest in focusing on this vital national security topic.

The Center's military insignia displays the symbols of nuclear, biological, and chemical hazards. The arrows above the hazards represent the four aspects of counterproliferation — counterforce, active defense, passive defense, and consequence management. The Latin inscription "Armis Bella Venenis Geri" stands for "weapons of war involving poisons."

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