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## Feature Report

***“The Future of the Undersea Deterrent: A Global Survey”***. Edited by Rory Medcalf, Katherine Mansted, Stephan Frühling and James Goldrick. Published by ANU National Security College; February 2020

<https://nsc.crawford.anu.edu.au/departments-news/16184/future-undersea-deterrent-global-survey>

Amid rapid geopolitical change at the start of the 2020s, nuclear weapons manifest grim continuity with the previous century. Especially persistent is a capability that has existed since the 1960s: the deployment of nuclear weapons on submarines. The ungainly acronym SSBN represents nuclear-powered ballistic missile submarines: the most destructive armaments carried on a supposedly undetectable, and thus invulnerable, platform.

In the new nuclear age, many nations are investing in undersea nuclear deterrence. In the Indo-Pacific region (the centre of strategic contestation), four major powers – the United States, China, India, and Russia – have SSBN programs, while Pakistan and North Korea are pursuing more rudimentary forms of submarine-launched nuclear firepower. This complex maritime-nuclear dynamic brings deterrence but also great risk. Yet the intersection of undersea nuclear forces, anti-submarine warfare (ASW), geostrategic competition, geography, and technological change is not well understood. This has a major bearing on peace and security, in terms both of crisis stability and arms race stability

To illuminate these critical issues, the National Security College at The Australian National University, with the support of the Carnegie Corporation of New York, is conducting an international research project on strategic stability in the Indo-Pacific. The project’s focus is on new technologies and risks relating to undersea warfare and nuclear deterrence over a twenty year timeframe. The present volume is the project’s second publication, bringing together the insights of leading international scholars and next-generation experts to produce a comprehensive and authoritative reference. The edited volume examines the interplay of strategic issues, including nuclear strategy and deterrence; maritime operational issues, including ASW; and technology issues, including new and disruptive technologies and potential game-changers in relation to deterrence.

This volume represents a significant contribution to the field of nuclear deterrence and strategic stability. Its 22 authors span seven countries, and reflect world-leading academic and operational experience across nuclear strategy, deterrence and arms control, maritime operations, and the trajectory of emerging technologies.

This volume will help to advance critical conversations about undersea nuclear deterrence in the Indo-Pacific – a region of intensifying complexity, and uncertainty – and is of value to the policymakers and governments who must chart a course through these dynamics.

Support for this publication was provided by a grant from Carnegie Corporation of New York.

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# NUCLEAR WEAPONS

Defense One (Washington, D.C.)

## **Esper Plays Nuclear War: Russia Nukes Europe, US Fires Back**

By Marcus Weisgerber

Feb. 21, 2020

U.S. Defense Secretary Mark Esper took part in a classified military drill this week in which Russia and the United States traded nuclear strikes, Pentagon officials said on background Friday.

The “mini exercise” held at U.S. Strategic Command headquarters in Omaha, Nebraska, on Thursday comes just weeks after the U.S. confirmed that it has deployed controversial low-yield nuclear missiles on Navy submarines, and as the Trump administration asks Congress to approve \$44 billion to buy new nuclear weapons and maintain its existing arsenal.

“The scenario included a European contingency where you’re conducting a war with Russia and Russia decides to use a low-yield, limited nuclear weapon against a site on NATO territory,” a senior defense official said, speaking on the condition of anonymity to discuss classified military drills.

The U.S. fired back with what the senior official called a “limited response” to Moscow’s nuclear attack in Europe.

“During the course of the exercise, we simulated responding with a nuclear weapon,” the official said.

The U.S. regularly exercises its response to a nuclear strike, with defense and military officials playing the roles of the president and defense secretary “so they’re familiar with the mechanical process of making these decisions and providing the orders back out to the fleet,” the senior official said.

“They played out that game and the secretary got a good understanding for how that went,” the official said.

Two reporters traveling with Esper to Strategic Command were not told about the secretary’s participation in the exercise.

In a new book, “The Bomb: Presidents, Generals, and the Secret History of Nuclear War,” Fred Kaplan details similar drills and scenarios conducted by political and military officials during the Obama administration.

On one occasion, Kaplan writes, a group of National Security Council deputies responded to Russia’s firing a low-yield nuclear weapon into Europe with a conventional strike. A month later, cabinet secretaries and military leaders went through the same scenario, but they decided to launch a nuclear strike on Belarus in response to Russia’s attack.

Modernizing the U.S. nuclear weapons arsenal is Pentagon leaders’ top priority. The Pentagon, in its fiscal 2021 budget request, asked Congress to approve \$28.9 billion to maintain its existing weapons and buy new intercontinental ballistic missiles, stealth bombers, submarines, cruise missiles, warheads and communications equipment. The Energy Department’s National Nuclear Security Administration has requested \$15.6 billion for its nuclear weapons projects.

While at Strategic Command officials also briefed Esper about the nuclear arsenals of North Korea, Russia, and China.



<https://www.defenseone.com/politics/2020/02/esper-plays-nuclear-war-russia-nukes-europe-us-fires-back/163268/?oref=d-river>

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Defense News (Washington, D.C.)

## **Britain Confirms New Nuclear Warhead Project after US Officials Spill the Beans**

By Andrew Chuter

Feb. 25, 2020

LONDON — The British government has confirmed it is developing a new nuclear warhead for its missile submarines, days after the U.S. revealed the program was going ahead before Parliament had been informed.

In a written statement to Parliament, Defence Secretary Ben Wallace confirmed Feb. 25 that Britain is working on a new warhead to equip its Trident missile-armed nuclear submarine fleet.

“To ensure the Government maintains an effective deterrent throughout the commission of the Dreadnought Class ballistic missile submarine we are replacing our existing nuclear warhead to respond to future threats and the security environment,” Wallace said.

The announcement was not expected to be made prior to publication of the defense, security and foreign policy review scheduled for late this year. But the Conservative government’s hand was forced when U.S. officials revealed last week the program was up and running.

That caused a stir in the U.K., as high-profile programs like the nuclear deterrent are usually announced in Parliament first. It’s only a courtesy, but if Parliament is not informed first, ministers can be forced to attend the House of Commons to make a statement.

“The decision is basically a forgone conclusion, but the announcement has come sooner than expected. We were looking at probably next year but certainly not before the defense and security review due for release towards the end of the year,” said David Cullen, the director at the U.K.-based Nuclear Information Service, an independent organization promoting awareness of nuclear weapons issues.

Adm. Charles Richard, commander of U.S. Strategic Command, and Alan Shaffer, the Pentagon’s deputy undersecretary of defense for acquisition and sustainment, separately made statements that Britain is pursuing development of its own version of the W93 warhead, which is in the assessment phase for the U.S. military ahead of replacing U.S. Navy W76 warhead.

“It’s wonderful that the U.K. is working on a new warhead at the same time, and I think we will have discussions and be able to share technologies,” Shaffer told an audience at the Nuclear Deterrence Summit, hosted in Washington by ExchangeMonitor.

Shaffer said the W93 and the British weapon “will be two independent development systems.”

Richard, in testimony prepared for the Senate Armed Services Committee, said Feb. 20 that the W93 will “support a parallel replacement warhead program in the United Kingdom.”

Wallace told Parliament that the Defence Ministry’s “Defence Nuclear Organisation is working with the Atomic Weapons Establishment: to build the highly skilled teams and put in place the facilities and capabilities needed to deliver the replacement warhead; whilst also sustaining the current warhead until it is withdrawn from service. We will continue to work closely with the US to ensure our warhead remains compatible with the Trident.”

The new British warhead will replace the existing weapon, known as the Trident Holbrook, which equips the four Vanguard-class submarines charged with providing Britain's nuclear deterrence capability.

Cullen noted that the existing British weapon is unlikely to be very different from America's W76.

"They are both fitted to the same Trident missile used by Britain and the U.S. Our assumption is the two warheads are very close, if not virtually identical," he said.

The Atomic Weapons Establishment in the U.K. is undertaking a life-extension program on its stock of warheads, including replacing some electronics and systems to improve accuracy and provide performance benefits.

The Trident Holbrook entered service along with the Vanguard-class submarines in the mid-1990s. Britain plans to replace the subs in the early 2030s with four new Dreadnought-class subs. Work on the £31 billion (U.S. \$40 billion) boat program is already underway.

Britain is also spending billions of pounds building infrastructure to support the Atomic Weapons Establishment's development, building and testing of a new warhead at sites in southern England and Valduc, France, where Britain is cooperating in hydrodynamic experiments with the French Alternative Energies and Atomic Energy Commission as part of a wider nuclear agreement.

Cullen said there is little in the public domain on the delivery timetable for the current warhead updates.

"They started delivery of the life-extended warheads around 2016/2017. The warheads will last up to another 30 years if you assume they are doing similar changes to updates being undertaken by the U.S.," he said. "I expect Mk4A, [as the updated weapon is referred to], to come out of service in the mid-2040s with the replacement warhead being available from the late 2030s at the earliest."

Britain and the U.S. have cooperated on nuclear weapons development for decades. In 1958, they signed what is known as the Mutual Defence Agreement to formalize that arrangement. That pact remains in place and is renewed about every decade. It was last signed in 2014.

<https://www.defensenews.com/global/europe/2020/02/25/britain-confirms-new-nuclear-warhead-project-after-us-officials-spill-the-beans/>

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Homeland Preparedness News (Washington, D.C.)

## **Democrat Senators Seek Answers from Defense Secretary on W76-2 Warheads**

By Dave Kovalski

Feb. 21, 2020

A group of Democratic Senators recently questioned Defense Secretary Mark Esper about the decision to begin fielding W76-2 "low-yield" nuclear submarine-launched ballistic missile warheads.

"We write to express our concern about the recent decision to begin fielding the W76-2 low-yield nuclear submarine-launched ballistic missile warhead, a decision we do not support," wrote Sens. Dianne Feinstein (D-CA), Patrick Leahy (D-VT), Bernie Sanders (I-VT), Tammy Baldwin (D-WI) and Elizabeth Warren (D-MA) in a letter to Esper.

The Senators said it is inconsistent for the United States to begin fielding new nuclear weapons while urging other countries not to do so. They told Esper that he should President Trump to extend the New START before it expires next year and begin negotiating a successor treaty that adequately addresses U.S. security needs.

“As we have previously written, we remain skeptical of the ability of a low-yield weapon to effectively deter our adversaries. The stated rationale of fielding a low-yield weapon is to build the capability to respond, in kind, to a Russian first-use of a low-yield weapon. However, the argument that the threat of escalation by degree deters further escalation undermines decades of U.S. leadership to reduce nuclear proliferation among other nations that claim to pursue their own nuclear programs for a deterrent,” the Senators wrote.

They requested answers to several questions, including what projects in support of the Department of Defense the NNSA has postponed to shift focus to the low-yield nuclear warheads, and under what conditions would the United States consider using low-yield nuclear weapons. The senators also requested information regarding whether the United States can distinguish between an incoming low-yield nuclear weapon versus a conventional one in the event of a hostile attack.

<https://homelandprepnews.com/stories/44633-democrats-senators-seek-answers-from-defense-secretary-on-w76-2-warheads/>

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Breaking Defense (Washington, D.C.)

## **Nuclear C3 Goes All Domain: Gen. Hyten**

By Colin Clark

Feb. 20, 2020

*This is the third story from our interview with Gen. John Hyten, vice chairman of the Joint Chiefs of Staff, about All Domain Operations. After this, we will publish the entire interview. You can read all the Hyten interview stories by clicking here. This is part of our series about the future of the American way of war and a concept now known as All-Domain Operations. It's a vision of a computer-coordinated fight across land, sea, air, space, and cyberspace, with forces from satellites to foot soldiers to submarines sharing battle data at machine-to-machine speed. We hope this series will help educate Capitol Hill, the public, our allies, and much of the US military itself on an idea that's increasingly important, but is still poorly understood. Read on! The Editor.*

PENTAGON: The football is the traditional name for the case containing nuclear codes. An officer carries it at all times so the president, if needed, can order the use of American nuclear weapons.

But the hard part isn't carrying and opening the football; it's creating a reliable and secure system that can verify the president really is the president, and move that information from wherever the president may be to the bombers, bunkers and submarines that deliver the weapons.

That is the job of the Nuclear Command, Control and Communications system, known as NC3. America is building an entirely new NC3 system, which Gen. John Hyten, now vice chairman of the Joint Chiefs of Staff, got underway during his tenure as head of Strategic Command.

Hyten sent then-Chairman of the Joint Chiefs, Gen. Joe Dunford, the operational requirements for NC3 two years ago after Jim Mattis named Hyten the point person for the effort, streamlining what had been an unwieldy set of committees. We will never know much about NC3 as details of how it operates are among the most highly classified in the American military portfolio. In an interview in

his E-ring office here, the Air Force general offered new details about NC3, noting that the Pentagon's embrace of All Domain Operations will shape NC3, and vice versa.

How do we know this? I asked him if NC3 was going to inform the new conventional forces Joint All Domain Command and Control system (JADC2), or the other way around?

"Yes. The answer is yes," Hyten told me, "but it's important to realize that JADC2 and NC3 are intertwined because, well, NC3 will operate in elements of JADC2."

The current NC3 system is largely analog, though not entirely. Portions of it have been upgraded in recent years. For example, during a recent visit to Vandenberg AFB for a testing of a Minuteman III, this is what Theresa noted on entering the command center:

"The age of the equipment, especially anything IT related, is one of the first things that strikes you when touring the facilities used in the months-long testing process for the ICBM arsenal. While the command centers for both the test site here and the three operational Minuteman III bases — F.E. Warren AFB, Wyoming; Malmstrom AFB, Montana; and Minot AFB, North Dakota — no longer use the larger-sized black floppy disks (8 inch and 5.25 inch), some systems still rely on the 3.5 inch ones first introduced in 1986."

Since the Internet barely existed then, NC3 was not designed with it in mind. But All Domain Operations provide a global model for much better data sharing around the world. The primary sources of nuclear warning and indications, aside from human sources and signals intelligence, are the infrared satellites known as DSP and SBIRS. They detect the flash from missile launches and feed that information to Strategic Command, which, together with Northern Command, analyzes the risk to the homeland and then makes a recommendation to the White House for a proportional and effective response. But those systems are, for the most part, highly protected and separate from conventional military data flows. That will change with JADC2 and the new NC3, Hyten said.

"NC3 will also operate in things that are separate from JADC2 because of the unique nature of the nuclear business, but it will operate in significant elements of JADC2. Therefore, NC3 has to inform JADC2 and JADC2 has to inform NC3. You have to have that interface back and forth, and that's been recognized," he said. "The chairman, as we were going through the budget process, made a significant point to the secretary that we have to make sure we get JADC2 and NC3 correct. And those will be continuing challenges as we go forward. We have to get those correct. It's critically important and they have to be priorities for the department to figure out how we do that."

Indeed, one of the goals as the Air Force evolves technology to underpin JADC2 via the Advanced Battle Management System (ABMS) family of systems is to enable classified and unclassified data to populate the same networks, so that as much data and information can be shared as widely as possible as quickly as possible.

For example, the "dataONE" storage library is being designed to that users will all levels of clearances can get access to the data, both classified and unclassified, stored there — but in a manner that matches their individual clearance levels. Similarly, "crossdomainONE" will move data "seamlessly and securely move data up and down security classification boundaries."

<https://breakingdefense.com/2020/02/nuclear-c3-goes-all-domain-gen-hyten/>

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# US COUNTER-WMD

Politico (Washington, D.C.)

## **Missile Defense Agency Wish List Includes More Interceptors, THAAD Battery**

By Connor O'Brien

Feb. 21, 2020

The Missile Defense Agency has outlined more than \$1.1 billion in programs that didn't make it into last week's defense budget request, including more missile interceptors and a new missile defense battery.

The agency's full unfunded requirements list, obtained by POLITICO, gives lawmakers a blueprint should they choose to boost funding for missile defense programs.

The wish list includes \$231 million to purchase 10 more SM-3 Block IIA missile interceptors. The agency said the additional purchase would help it reach the goal of 24 interceptors per year, which it called "the maximum sustainable production rate per year without further investment." The interceptors are ranked as MDA's top unfunded priority.

The second-place priority is \$319 million for an eighth Terminal High Altitude Area Defense battery. MDA said the procurement is "synchronized" with a sale to Saudi Arabia that includes a missile defense radar.

Another \$224 million would go toward speeding up the development of a regional glide phase weapon system to defend against hypersonic missiles.

The Trump administration's fiscal 2021 budget proposes \$9.2 billion for MDA for the coming year.

On Thursday, POLITICO also obtained the Army's wish list, which requests money for more vehicles and helicopters.

<https://www.politico.com/news/2020/02/21/missile-defense-agency-wish-list-includes-more-interceptors-thaad-battery-116593>

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US Army via Global Biodefense (Seattle, Wash.)

## **Army Medical Department Board Tests Nerve Agent Antidote Auto-Injectors**

By Global Biodefense

Feb. 11, 2020

Nerve agents are the most toxic of the known chemical agents. They are hazards in both liquid and vapor states and can cause death within minutes after exposure. Nerve agents are the primary chemical warfare agent threat because of their high toxicity and effectiveness through multiple routes of entry. They are absorbed through the eyes, respiratory tract and skin.

Ensuring nerve agent antidote auto-injectors are functional and usable are critical in saving lives. These nerve agent antidote auto-injectors are designed to be used in a Chemical, Biological, Radiological and Nuclear, or CBRN, environment.

Recently the U.S. Army Medical Department Board, or USAMEDDBD, assigned to the U.S. Army Medical Center of Excellence at Joint Base San Antonio-Fort Sam Houston, conducted a test of these devices at JBSA-Camp Bullis.

The United States military adopted the auto-injector as the drug delivery device for chemical weapons exposure because of ease of use, packaging durability, and drug product stability under varying storage conditions.

The Joint Program Executive Office for Chemical, Biological, Radiological, and Nuclear Defense's Joint Project Manager for Chemical, Biological, Radiological, and Nuclear Medical, or JPM CBRN Medical, at Fort Detrick, Maryland, requested the AMEDD Board conduct a customer test of the nerve agent antidote auto-injector within the operational environment. The data and test findings collected by the AMEDD Board will be provided to JPM CBRN Medical.

The nerve agent antidote auto-injector is a replacement for the currently fielded auto-injector for treatment against nerve agent and insecticide poisoning, adjunctive treatment, and management of agent-induced seizures.

The United States military adopted the auto-injector as the drug delivery device because of ease of use, packaging durability, and drug product stability under varying storage conditions.

Soldiers donned Mission Oriented Protective Posture, more commonly known as MOPP protective gear, and tested the auto-injectors in a simulated battlefield exercise complete with smoke grenades. MOPP masks can limit visibility, so the injectors have clear, easy to understand pictorial instructions.

"A lot of these auto-injectors used to have wording, just written instructions," said Gary Cabigon, an operational tester with the AMEDD Board. "What we learned over the years is that pictures are easier to comprehend, especially in a stressful environment."

Cabigon said that when under a CBRN attack vital seconds saved in dispensing the auto-injector matter.

Sgt. First Class Elijah Williamson, an AMEDD Board test officer, talked about conducting the test in the field.

"I think it's great having the training asset at JBSA-Fort Sam Houston," Williamson said. We have the austere environment where we can create the simulation of the battlefield. We do so much on slides and videos that you want to get hands-on and create that realism out at JBSA-Camp Bullis. You can't get that in the classroom."

The nerve agent antidote auto-injectors are designed to deliver an intramuscular injection with a 22-gauge needle with a pressure-activated coil spring mechanism that triggers the needle after removal of the safety cap. When activated, the needle protrudes through the needle end.

Story courtesy U.S. Army, edited for context and format by Global Biodefense.

<https://globalbiodefense.com/2020/02/11/army-medical-department-board-tests-nerve-agent-antidote-auto-injectors/>

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# US ARMS CONTROL

Defense News (Washington, D.C.)

## **Arms Control Decisions by Trump Administration Could Be ‘Imminent.’ Will China Be Involved?**

By Aaron Mehta

Feb. 26, 2020

MINOT AIR FORCE BASE, N.D. — With a major arms control agreement between the U.S. and Russia set to expire next February, members of the nonproliferation community have been watching for signs that negotiations may begin in earnest.

For those observers, some welcome news: Movement on the Trump administration’s arms control plan is “imminent,” according to a senior defense official familiar with internal administration discussions.

However, what that looks like appears to be up in the air: a short-term extension of the New START agreement with Russia; something that involves nuclear-armed China; a combination of those two; or all parties walking away entirely.

“All the options are literally on the interagency table,” the official told Defense News on condition of anonymity.

The New START agreement, signed in 2010, is an arms control pact between Russia and the U.S. that restricts each country to a total of 1,550 warheads deployed on bombers, submarines and in underground silos. Following the dissolution of the Intermediate-Range Nuclear Forces Treaty, New START is the only major nuclear arms control agreement left between the two nuclear powers.

China has traditionally refused to sign onto arms control agreements. But Beijing has become a focus for those in Washington convinced that any new arms control agreement must include the Asian nation. China is estimated by the Federation of American Scientists to have 290 nuclear warheads, compared to more than 6,000 for Russia and the U.S. each, and the country is investing in nuclear modernization efforts.

Though top Chinese officials made clear that Beijing will not participate in trilateral talks, U.S. President Donald Trump in December expressed optimism that a deal could happen, saying Chinese officials “were extremely excited about getting involved. ... So some very good things can happen with respect to that.”

While traveling last week to tour the intercontinental ballistic missile fields at Minot Air Force Base, North Dakota, Defense Secretary Mark Esper declined to speculate on the state of negotiations and what he would recommend Trump do. But he did indicate there would be a meeting at his level “soon” on the issue.

“If we proceed forward [with New START], we have to include Russia’s new strategic weapons. They have to be included in the treaty. Number two, we should include Russia’s nonstrategic nuclear weapons. They have nearly 2,000 of them,” Esper said. “Then I think we should put on the table: Can we bring China into the fold? We’re trying to create strategic stability. It’s hard to do that if you have a country of China’s capacity and capability outside of that treaty.”

Speaking at Minot later, Esper added: “If we want to preserve strategic stability using arms control as a counterpart of that, as a tool in that toolkit, then China should be in as well.”

## State of discussion

While some have theorized that the Trump administration is trying to run out the clock on negotiations, the official ascribed the slow public movement to myriad “distractions” around Washington that has sucked attention from Trump, Esper and Secretary of State Mike Pompeo. The official added that the outbreak of the coronavirus known as COVID-19, which originated in China, has made discussions with Chinese counterparts difficult.

There have been ongoing meetings on the issue at the assistant secretary level across the Defense Department, the National Security Council, the State Department and the National Nuclear Security Administration. “Ultimate decisions haven’t been taken yet, but [a proposal] should be imminent,” the official said.

The first challenge, timewise, is the Feb. 5, 2021, expiration date for New START. Getting something done before then may be a challenge, especially if the goal is an expanded arms control agreement that loops in China, but “physically, you could do it because it doesn’t require senate ratification, just a couple of notes signed by just getting everyone — the three sides — to agree to something,” the official said.

The question of New START’s fate is complicated by the desire to loop in China on a new agreement. Administration officials have been working to develop a compelling case for how to convince Beijing to join a trilateral nuclear deal.

The argument largely comes in two forms. First, that if China does not sign onto a nuclear arrangement of some sort, it could lead Russia or the U.S. to consider growing their own arsenals — ensuring China’s nuclear inferiority at a time when the Pacific power is racing to grow its stockpile.

The second argument is that great powers work on nuclear agreements together — and so joining one as equals with Washington and Moscow should appeal to Beijing’s desire for recognition on the global stage.

Meia Nouwens, an expert on Chinese military affairs with the International Institute for Strategic Studies, says those two arguments are the most sensible ones to put forth to Beijing, particularly the appeal to China as a great power. She also speculated that if China’s economy takes a downturn, it may find cooperating with the rules-based international system to be a “greater priority” than a China-first agenda.

But, Nouwens predicts, “it will require the U.S. and Russia to make the first steps though before China decides to agree to reducing what it views as an already significantly smaller Chinese nuclear arsenal. The trust isn’t there.”

Rose Gottemoeller, who served as undersecretary of state for arms control and international security at the U.S. State Department during the Obama administration, before becoming deputy secretary general of NATO from 2016-2019, believes a careful calibration of what, exactly, is being negotiated will be key to any negotiation involving the Chinese.

“I think you can make a case for the Chinese to come to the table early on intermediate-range constraints of ground-launched missiles because they are staring at the possibility of a deployment of very capable U.S. missiles of this kind,” she said at a January event hosted by the Defense Writers Group.

“But I am concerned, they have so few warheads that if you put an emphasis on controlling their warheads, the incentive is for them to run the other direction rather than come to the table,” she added.

Gottemoeller also indicated that the question of extending New START is a separate one from trying to bring China into the arms control fold.

"The way the expansion program of New START is written, it's written so that it remains in place four to five years, so from '21 to '26, or until superseded by a new treaty. So it's not as if the administration is stuck with New START for another five years," she said. "Go for it. Work on the new treaty. Get it done. And then New START would be superseded by the new treaty entering into force," if ratified.

"Let's just get on with what we need to do in negotiating new treaties. I am concerned that there will be a lot of gamesmanship going on, and as I said, the Russians are excellent in that kind of game as well," she added. "Let us not play around with leverage in this case, but simply extend the thing for five years and then get done what we need to get done, which is to negotiate these new treaties."

<https://www.defensenews.com/pentagon/2020/02/26/arms-control-decisions-by-trump-administration-could-be-imminent-will-china-be-involved/>

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Deutsche Welle (Bonn, Germany)

## **Europe, China and Russia Urge Preservation of Iran Nuclear Deal**

By Deutsche Welle

Feb. 26, 2020

Six nations on Wednesday called for adherence to the Joint Commission of the Joint Comprehensive Plan of Action (JCPOA) — better known as the Iran nuclear deal. The meeting in Brussels cited concerns over the impact of US sanctions imposed on Iran and the 2018 withdrawal from the agreement.

The commission, attended by representatives of China, France, Germany, Russia, the United Kingdom and Iran, was chaired by EU High Representative Josep Borrell Fontelles and European Union External Action (EEAS) Secretary General Helga Maria Schmid.

Schmid tweeted that the meeting "concluded with substantial discussions on next steps."

Mikhail Ulyanov, the meeting's Russia representative, said the meeting was held in a "businesslike atmosphere" where participants "reaffirmed their commitment" to the Iran deal, while Iran's state-run news agency IRNA called the conference the "shortest ever" JCPOA meeting.

"Serious concerns were expressed regarding the implementation of Iran's nuclear commitments under the agreement," read the official EU statement.

"Participants also acknowledged that the re-imposition of US sanctions did not allow Iran to reap the full benefits arising from sanctions-lifting."

The representatives also expressed their solidarity with China and Iran in their efforts to address the COVID-19, or coronavirus outbreak.

<https://www.dw.com/en/europe-china-and-russia-urge-preservation-of-iran-nuclear-deal/a-52544410>

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VOA (Washington, D.C.)

## **Senators Call for Stronger Sanctions on North Korea amid Diplomatic Stalemate**

By Eunjung Cho

Feb. 25, 2020

U.S. senators are urging stronger sanctions enforcement amid a prolonged stalemate in denuclearization talks with North Korea.

Republican Senator Cory Gardner of Colorado, chairman of the East Asia, the Pacific and International Cybersecurity Policy subcommittee of the Senate Foreign Relations Committee, called for the return to the "maximum pressure policy."

"The successful policy of maximum pressure that was adopted early in the Trump administration, but since abandoned in earnest effort of diplomatic engagement with Pyongyang. ... We must immediately enforce sanctions against Pyongyang and its enablers," Gardner said.

However, he said the Trump administration must double down on diplomacy to isolate Pyongyang internationally.

The subcommittee held the hearing Tuesday, which marked the one-year anniversary of the second summit between U.S. President Donald Trump and North Korean leader Kim Jong Un in Hanoi, Vietnam. But the hearing was sparsely attended.

Trump and Kim first met in Singapore in June 2018, signing a broad agreement on the denuclearization of the Korean peninsula, but they failed to agree on how to implement that deal when they met again in Vietnam. Except for a brief working-level meeting in Stockholm, Sweden, last October, North Korea has been refusing serious talks with the U.S.

### **Pursuing diplomatic solutions**

Democratic Senator Ed Markey of Massachusetts, ranking member of the subcommittee, also called on the Trump administration to tighten sanctions enforcement on North Korea.

Senators Gardner and Markey introduced sanctions legislation, called Leverage to Enhance Effective Diplomacy (LEED) Act, expanding U.S. sanctions against North Korea and its enablers, including those engaged in illegal oil transfers to North Korea. So far, they have no other co-sponsors.

Markey, while stressing that his sanctions legislation would strengthen Washington's negotiating position over Pyongyang, also underscored the importance of pursuing diplomatic solutions.

"We must not return to the charged rhetoric of 'fire and fury,' a war, much less a nuclear war, will lead to unfathomable loss of life," he said. "Threats are not an alternative to a negotiated agreement."

Markey said he would reintroduce legislation, the "No Unconstitutional War against North Korea Act," in the coming weeks in an effort to speak out against Trump taking actions against North Korea that mirror the removal of a top Iranian commander, Qassem Soleimani.

### **Promoting human rights**

Testifying before the subcommittee, Robert King, former special envoy for North Korea, said the U.S. should not lose sight of human rights in policy toward North Korea.

"Since the collapse of the Hanoi summit, sincere efforts by the U.S. to resume dialogue with the North on denuclearization have not been reciprocated. Abandoning our principles on human rights, did not lead to progress on the nuclear issue," King said.

He said the U.S. has backed away in the United Nations from pressing North Korea on its dismal human rights record. Last December, the Trump administration refused to support a U.N. Security Council discussion on North Korea's human rights situation, effectively blocking the meeting for the second straight year.

King said the "United States should be a shining example on the hill, a beacon of hope on human rights, unfortunately we've hidden our light under a bushel."

<https://www.voanews.com/usa/senators-call-stronger-sanctions-north-korea-amid-diplomatic-stalemate>

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## COMMENTARY

The Hill (Washington, D.C.)

### **Arms Control Agreement with Russia Should Cover More Than Nuclear Weapons**

By Kevin Ryan

Feb. 23, 2020

With the Russia investigation and impeachment behind him, President Trump finally may feel empowered to engage with Russian President Vladimir Putin and pursue an arms control deal. Arms control experts are focused on whether the U.S. and Russia can save the 2010 New START Treaty, which limits strategic nuclear weapons. On Feb. 5, national security adviser Robert O'Brien announced that he was dispatching officials to Moscow to "start negotiations soon on arms control." The same day, the Arms Control Association published an Issue Brief urging the extension of New START, which is due to expire in January 2021. Other experts argue we cannot trust Russia to obey the treaty.

Russia and the U.S. have said they want to extend the treaty, but with changes to address new strategic weapons and capabilities each claims the other side is developing. Experts fear a dangerous era of escalation if Russia and the U.S. fail to save their last remaining bilateral nuclear arms control agreement. But START, and Cold War model treaties like it, cannot protect America from strategic attack anymore.

When the best American and Russian scientific minds of the 1960s created our Cold War strategic arms control regime, they could not balance even the two variables of defensive and offensive nuclear missiles in the strategic arms equation. So, they banned one variable outright — missile defenses — with the Antiballistic Missile Treaty of 1972. This enabled the two sides to establish strategic stability by counting offensive nuclear weapons. This has been the treaty model for strategic arms control ever since.

START follows that model by counting nuclear warheads and their delivery systems — missiles and bombers. Under START, both countries commit to having no more than 1,550 deployed nuclear warheads on 700 deployed missiles and bombers.

But, America's strategic security no longer is solely a function of how many missiles and nuclear warheads we have in relation to Russia or other countries. In today's world of rapidly emerging technologies and capabilities, many with strategic effects, we no longer can be confident in our security by simply counting nuclear systems.

Take the example of the recently deceased INF Treaty (Intermediate Nuclear Forces Treaty). In the 1980s, the U.S. and Russia were in a dangerous nuclear standoff in Europe with hundreds of nuclear-tipped, immediate-range missiles able to destroy Europe's capitals in minutes after launch. The solution, a good one at the time, was to eliminate the intermediate range ground-launched missiles. But over the three decades that followed, the U.S. developed and deployed new capabilities which, while not technically violating the treaty, made it superfluous. Today, the U.S. can launch drones and sea-based cruise missiles, which could be armed with conventional or nuclear warheads, and strike the same targets that Russia sought to protect in 1987.

By the time Russia violated the INF Treaty in the 2000s the treaty already had ceased protecting Russia and was on the verge of failing to protect us and our allies. Continuing that treaty, while it might have demonstrated mutual trust, would have done nothing to stop the progression of new weapons undermining the security once provided by the agreement.

Today, new technologies and capabilities are having a similar effect on our last remaining strategic nuclear arms agreement: New START. Saving the existing START Treaty would be a sign of good faith, something that is sorely needed and should be supported.

But extending START won't solve our problem. New capabilities and technologies complicate the strategic stability math. How do we integrate missile defenses into our strategic equation? No one knows. What is the impact of cyber on our strategic stability? We aren't sure. What is the impact of China on strategic balance? What about Russian nuclear torpedoes or American nuclear-armed drones? We don't know. New technologies such as lasers and space-based weapons are coming soon, and they are not even under discussion. Artificial intelligence is around the corner.

Whether we save START or not, our real efforts must be focused on creating a new paradigm for strategic arms control — one that is based not on counting weapons but on preventing their use. We should not refer to the agreement as a nuclear treaty because it needs to cover much more than just nuclear weapons. It should address weapons with strategic effects. And our effort must include more states than just Russia. It's time to dedicate real brains and real money to creating a new model for preventing strategic attack on America.

Retired Brig. Gen. Kevin Ryan is an associate fellow at Harvard Kennedy School's Belfer Center. He served as U.S. defense attaché to Moscow and chief of staff of the U.S. Army Space and Missile Defense Command.

<https://thehill.com/opinion/national-security/483431-arms-control-agreement-with-russia-should-cover-more-than-nuclear>

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Defense News (Washington, D.C.)

## **Insufficient Missile Defense Funding Would Leave Americans Vulnerable**

By Bradley Bowman

Feb. 25, 2020

The U.S. Missile Defense Agency submitted its report on unfunded priorities to Congress last week, which includes a number of priorities worth more than \$1.1 billion. The list demonstrates the tangible consequences of a flat Pentagon budget request and provides a road map for lawmakers to ensure that the U.S. homeland and America's forward-deployed troops have sufficient missile defense protection.

The Trump administration requested \$705.4 billion for the Department of Defense for fiscal 2021, a level that fails to keep pace with inflation. Accordingly, the DoD is only requesting \$9.2 billion for FY21 for the MDA — more than an 11 percent reduction from the FY20 enacted amount of \$10.4 billion.

The National Defense Authorization Act requires the MDA to submit a list to Congress of items not included in the administration's budget request but that are "necessary to fulfill a requirement associated with an operational or contingency plan of a combatant command or other validated requirement." The list includes programs that combatant commanders genuinely need and would have included if additional resources were available.

The MDA's top unfunded priority for FY21 is \$231 million for 10 additional Standard Missile-3 Block IIA missiles. The SM-3 IIA missile is designed to intercept medium- and intermediate-range missiles. This additional purchase would bring the total number to 24 missiles a year, which MDA calls the "maximum sustainable production rate per year without further investment."

In addition to the SM-3 IIA's vital existing capabilities against medium- and intermediate-range missiles, the DoD believes that the missile could potentially be adapted to intercept intercontinental ballistic missiles. In response to a mandate in the NDAA, the MDA plans to conduct a flight test this spring, known as FTM-44, to determine whether an SM-3 IIA could intercept an ICBM. If successful, the SM-3 IIA could then provide an additional and complementary layer of protection for the U.S. homeland against a limited ICBM attack from an adversary such as North Korea.

Consequently, keeping the SM-3 IIA production line at full speed would enable the U.S. to meet combatant commander requirements for medium- and intermediate-range ballistic missile defense. And if the test this spring is successful, optimized ongoing production would also allow the DoD to more quickly field SM-3 IIAs for homeland defense against ICBMs.

The MDA's second- and third-highest unfunded priorities relate to the Terminal High Altitude Area Defense system. These include \$319 million to procure an eighth THAAD battery for the United States and \$30 million to procure trucks required to support THAAD systems.

The THAAD is a rapidly deployable land-based missile defense system designed to intercept incoming ballistic missiles during their terminal (or final) phase of flight. Since the program was initiated, the MDA reports, THAAD has completed 15 successful intercepts in 15 attempts.

THAAD uses hit-to-kill technology to destroy an incoming warhead. It is effective against short-, medium- and some intermediate-range ballistic missile threats. The DoD can transport the THAAD system by air, land or sea.

Iran's January ballistic missile attack on U.S. service members at two bases in Iraq highlighted the lack of sufficient U.S. ballistic missile defense capacity. With no U.S. ballistic missile interceptors in

range, U.S. forces could only watch and wait for impact. Had a THAAD system been deployed in the region, the U.S. could have intercepted the Iranian ballistic missiles and better protected U.S. troops.

Acquiring an eighth THAAD battery makes not only operational sense, but also financial sense. Saudi Arabia is purchasing a large quantity of THAAD systems. A U.S. and Saudi “synchronized” purchase would enable the U.S. to benefit from the associated economies of scale.

The fourth priority on MDA’s unfunded list is \$39 million to “develop technology and advanced command and control to integrate networked sensors to detect and track advanced cruise missile threats.”

As Gen. Terrence O’Shaughnessy, the commander of Northern Command, highlighted in congressional testimony on Feb. 13, the U.S. homeland remains incredibly vulnerable to a cruise missile attack. He testified that “advanced cruise missiles now carried by Russian aircraft and submarines present a growing challenge to our current sensor networks and have the range and accuracy to strike military and civilian targets throughout the United States and Canada.”

O’Shaughnessy argued that investments in cruise missile defense capabilities “are necessary to defend our vital facilities and infrastructure, preserve our national ability to project power abroad, and help to safeguard our citizens and vital institutions.”

That is exactly what MDA’s unfunded priority would do, and the burden of proof should be on those who argue that it should not be funded.

A fundamental responsibility of the federal government is to protect the American people. The MDA’s report on unfunded priorities to Congress demonstrates that the agency requires additional funding from Congress to fulfill this important responsibility.

Bradley Bowman is the senior director for the Center on Military and Political Power with the Foundation for Defense of Democracies.

<https://www.defensenews.com/opinion/commentary/2020/02/25/insufficient-missile-defense-funding-would-leave-americans-vulnerable/>

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Pandora Report (Fairfax, Va.)

## **Reaping What You Sow: The Case for Better Agroterrorism Preparedness**

By Stevie Kiesel

Feb. 20, 2020

For years, interest groups, academics, and policymakers have sounded the alarm on the vulnerability of U.S. crops to a terrorist attack. This article briefly reviews the history, risks, and consequences of agroterrorism attacks targeting crop yields and suggests how the recently established DHS Countering Weapons of Mass Destruction Office could play a role in countering this threat.

Infecting a plant with disease is not always a technically challenging operation, and there are examples of this throughout history. In Alabama in the 1970s, the Ku Klux Klan poisoned black Muslim farmers’ water supplies for their cattle. Also, in the U.S., in 1989 a group calling themselves The Breeders spread medflies (an invasive species of fruit fly that has destructive effects on 22 different crops grown in California) in the Los Angeles area to protest aerial pesticide practices. Although medfly infestations are not abnormal in California, the numbers and patterns of this



particular infestation raised red flags. Law enforcement also received several letters signed by The Breeders claiming responsibility for the medflies' intentional release. A few months later, California stopped its aerial pesticide program. Elsewhere in the world, in 1978 the Arab Revolutionary Council poisoned citrus that were being exported from Israel to Europe with liquid mercury as a means of harming Israel's economy. In 1997, Israel sprayed a chemical on grapevines in Palestinian territory, destroying hundreds of vines and nearly 17,000 metric tons of grapes.

In addition to these attacks on agriculture, other groups have threatened to conduct such an attack and/or researched agroterrorism methods. An attack on the food supply gives the perpetrating group several benefits. First, the psychological and economic effect of targeting food supplies would be substantial. Such an effect could have a powerful pull with a group such as al Qaeda, who has shown interest in biological weapons and in targeting US economic strength. Second, and related, this type of attack would be relatively low cost when compared to the economic effects it could cause. Third, similar to other forms of terrorism, agroterrorism can allow a weaker group to lessen the power imbalance between themselves and the state they are targeting. Fourth, some groups may turn to agroterrorist tactics because these attacks "do not harm humans directly and may therefore be more easily justified." And finally, the nature of agroterrorism makes attribution difficult—this is particularly appealing to groups that want to evade detection. The effects of an attack on crops would not be immediately apparent but would vary based on a number of factors, such as the time lapse between exposure to the agent and the onset of symptoms. Economic impacts would also not be instantaneous, but a longer-term negative effect of such an attack. Conversely, though, this characteristic may make agroterrorism unsuitable for other groups because they place a high value on more immediate, kinetic effects such as those achieved by explosives.

While agroterrorism has advantages for terrorist groups, what level of technical proficiency would be required to successfully conduct such an attack? Although more complicated than acquiring guns or building crude bombs, agroterrorism should not be considered beyond the capabilities of a well-organized terrorist group. While technical skill is often cited as a barrier to weaponization of biological agents that would be used against humans, plant pathogens are simpler to weaponize. The plant pathogens could be acquired from nature (from plants already infected with a naturally occurring disease) or obtained more easily than human pathogens because they are generally not as tightly controlled. Basic understanding of plant pathogens would be necessary, but this information is available in open sources. Working with biological agents generally requires specialized equipment, personal protective gear, and a controlled environment; however, plant pathogens do not pose the same caliber of challenges. Because plant pathogens are not contagious to humans, the attackers would not be concerned about the risk to their own health.

The US is moderately vulnerable to an agroterrorist attack, largely because of the logistics of US farms and weaknesses in surveillance and detection. US crops are vulnerable because they're grown over a wide area, and generally these areas aren't heavily protected. Because it's not feasible to secure all areas of the US where crops are grown, this point of vulnerability will remain a factor. Conversely, even as these plants take up a lot of space, many crops are clustered together—therefore, if terrorists wanted to target one particular crop, it would be relatively easy to wipe out a massive yield with one attack. For example, a few counties in California produces over 70 percent of the U.S.'s lettuce, and Arizona produces nearly 30 percent. According to the USDA, three-fourths of the U.S.'s vegetables are grown in just three states. Another major point of vulnerability concerns US surveillance and detection capabilities. Security on farms is generally lax, with little surveillance equipment trained on the crops to detect intruders—logistically, this would be overwhelming. The US government has only a moderate capability for detecting illicit plant pathogens coming into the country; it would be impossible to detect all biological materials, especially plant pathogens that

can be easily hidden. Improving surveillance and detection capabilities would not only interrupt or mitigate the effects of an agroterrorism event, but would also improve detection of naturally occurring pathogens that were not intentionally released.

Although scholars and policymakers largely agree that agroterrorism has much lower costs and technical barriers than bioterrorism with a human pathogen, there is a disagreement over whether an attack of any significant scale is technically feasible for terrorist groups. I argue that an attack on the food supply as a psychological mechanism of terror, coupled with the effects that would have on the US and global economy, merits taking the issue of agroterrorism seriously. To get an accurate and timely assessment of US prevention and response capabilities, all agencies responsible for preparedness and response to agroterrorism should conduct a tabletop exercise wherein they respond to an agroterrorism attack. The Department of Homeland Security (DHS) recently established a Countering Weapons of Mass Destruction (CWMD) Office, whose mission is “to counter attempts by terrorists or other threat actors to carry out an attack against the United States or its interests using a weapon of mass destruction.” As the CWMD Office merges extant DHS offices that deal with WMD, leaders have an opportunity to consider agroterrorism as it relates to their mission space. The CWMD Office should sponsor the suggested tabletop exercise and use its findings to identify gaps in existing capabilities. These gaps should be shared with the affected stakeholders, and the CWMD Office can provide support and expertise in closing these gaps.

<https://pandorareport.org/2020/02/20/reaping-what-you-sow-the-case-for-better-agroterrorism-preparedness/>

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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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