UNITED STATES AIR FORCE

CENTER FOR STRATEGIC DETERRENCE STUDIES

NEWS AND ANALYSIS

Issue No. 1317
1 June 2018

Feature Report

"*Missile Defense: The Warfighter and Decision Makers Would Benefit from Better Communication about the System's Capabilities and Limitations*". Published by the U.S. Government Accountability Office; May 2018

https://www.gao.gov/assets/700/692136.pdf

What GAO Found

In fiscal year 2017, the Missile Defense Agency (MDA) made mixed progress in achieving its delivery and testing goals.

- MDA continued to deliver assets to the military services. However, system-level integrated capabilities, such as some discrimination and integrated cyber defense improvements, were delayed and delivered with performance limitations.
- Several programs achieved notable firsts, including the first intercept of an Intercontinental Ballistic Missile. However, one program experienced a failure, and other tests were delayed or deleted.

Moreover, GAO found challenges in MDA's processes for communicating the extent and limitations of integrated capabilities when they are delivered. As a result, warfighters do not have full insight into the capabilities MDA delivers.

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NUCLEAR WEAPONS

The New York Times (New York, N.Y.)

North Korea Nuclear Disarmament Could Take 15 Years, Expert Warns

By William J. Broad and David E. Sanger

May 28, 2018

As the Trump administration races to start talks with North Korea on what it calls "rapid denuclearization," a top federal government adviser who has repeatedly visited the North's sprawling atomic complex is warning that the disarmament process could take far longer, up to 15 years.

The adviser, Siegfried S. Hecker, a former director of the Los Alamos weapons laboratory in New Mexico, and now a Stanford professor, argues that the best the United States can hope for is a phased denuclearization that goes after the most dangerous parts of the North's program first.

The disarmament steps and timetable are laid out in a new report, circulated recently in Washington, that Dr. Hecker compiled with two colleagues at Stanford's Center for International Security and Cooperation. Dr. Hecker has toured that nation's secretive labyrinth of nuclear plants four times and remains the only American scientist to see its facility for enriching uranium, a bomb fuel. American intelligence agencies had missed the plant's construction.

Dr. Hecker's time frame stands in stark contrast with what the United States initially demanded, on what could be a key sticking point in any summit meeting between President Trump and Kim Jong-un, the North Korean leader.

Two American delegations, one in Singapore and one in North Korea, are attempting to work out a meeting between the two leaders. Mr. Trump canceled the meeting in a letter to Mr. Kim on Thursday but has been working to reconstitute it ever since, posting Twitter messages that say he is confident the North Korean economy will prosper if an accord is reached.

The delegation in Singapore is discussing the logistics of a meeting, to be held June 12 or afterward. The other, led by Sung Kim, an American diplomat with long North Korea experience, is meeting senior officials of the North Korean Foreign Ministry at the Demilitarized Zone to work on the wording of what kind of communiqué might be issued by the two leaders. But the White House and State Department have said nothing about the details of those discussions.

In an interview, Dr. Hecker said he was making the Stanford study public to advance discussion of a complicated topic that will be at the heart of Mr. Trump's encounter with Mr. Kim in Singapore, if that meeting happens. So far, the denuclearization agenda has been a mix of bold claims by the administration about what it will demand, and vague generalities from the North.

"We're talking about dozens of sites, hundreds of buildings, and thousands of people," Dr. Hecker said Friday. The key to dismantling the sprawling atomic complex, begun six decades ago, Dr. Hecker added, "is to establish a different relationship with North Korea where its security rests on something other than nuclear weapons."

Dr. Hecker cautioned that his team's road map left room for many knotty points of negotiation — such as where to draw the line between civilian and military nuclear activities. At first, the Trump administration said the North must give up all enrichment of uranium, which can fuel not only bombs but reactors that illuminate cities. Last week, Secretary of State Mike Pompeo, testifying

before the Senate Foreign Relations Committee, said for the first time that he needed some "negotiating space" on that question.

But Mr. Trump exited the Iran nuclear deal this month because it allowed the country to produce atomic fuel after 2030, which he said was an unacceptable risk. It is unclear how he could ban Iran from peaceful production, yet allow North Korea to do the same.

Dr. Hecker said a similar open question was whether to let the North's rocket engineers, now making long-range missiles, redirect their skills into a peaceful space program.

"They're not going to eliminate everything, and there're some things that aren't a problem," Dr. Hecker said. "Some of the risks are manageable."

In its report, the Stanford team sees three overlapping phases of denuclearization activity that, in total, would take 10 years. The initial phase, taking up to a year, is the halt of military, industrial and personnel operations. The second, taking up to five years, is the winding down of sites, facilities and weapons. The final and hardest phase, taking up to 10 years, is the elimination or limiting of factories and programs.

Dr. Hecker noted that the decontamination and decommissioning of a single plant that handles radioactive materials could take a decade or more.

In an interview on Sunday, Dr. Hecker said his personal denuclearization estimate ran to 15 years given the tangle of political and technical uncertainties that the United States and North Korea would face if they went ahead and sought a historic accord.

The road map, which was posted late Monday on a Stanford website and was circulated to some administration officials and members of Congress, underscores the complexity of the task at hand: While politicians and cable news commentators use the shorthand of the North surrendering its nuclear arms, the road map makes clear that denuclearization would be a vast undertaking that involved the shuttering of large industrial plants and decades of detailed inspections.

The Trump administration has made public no details of what particular steps it sees for the North's denuclearization, or what it intends to demand if Mr. Trump meets with Mr. Kim. Its bottom line is that denuclearization must be complete, verifiable and irreversible.

Mr. Trump's hawkish national security adviser, John R. Bolton, argued before joining the administration in April that the president should use a summit meeting exclusively to tell North Korea to dismantle and deliver up all its nuclear arms and equipment, saying only then should the United States discuss easing sanctions and participating in the North's economic development.

In recent television and radio interviews, Mr. Bolton has advocated quick denuclearization in which the North would send its weapons and equipment to the Oak Ridge National Laboratory in Tennessee, where nuclear inspectors in 2004 shipped some of Libya's gear for enriching uranium. Mr. Bolton has repeatedly cited Libya as a role model for the North's atomic disarmament.

In the interview, Dr. Hecker argued that the only safe way to disassemble the North's nuclear warheads was to have the job done by the same North Korean engineers who built them.

Mr. Trump, in contrast to Mr. Bolton's public stance, twice last week opened the door to phased denuclearization, saying the North might find it impossible to dismantle its entire nuclear program in one step.

Dr. Hecker comes to the issue with decades of experience in learning about foreign nuclear programs and managing their phased reductions.

After the Cold War, as the Los Alamos director, he fostered wide cooperation between American and Russian nuclear laboratories to secure and safeguard vast stockpiles of ex-Soviet nuclear materials. His 2016 book, "Doomed to Cooperate," details the long collaboration.

Dr. Hecker made his first visit to the North's sprawling Yongbyon nuclear site in 2004, with follow-up visits in 2007, 2008 and 2010, learning more than any other Western expert about the North's secretive atomic doings. Since then, he has emerged publicly as one of the world's most knowledgeable experts on its nuclear program.

His co-author Robert L. Carlin, a former C.I.A. analyst and State Department intelligence official who has traveled to North Korea more than 30 times, is frequently cited as an expert on the North Korean leadership. The third author is Elliot A. Serbin, a research assistant to Dr. Hecker.

The team divides up the North's nuclear program into eight general categories and 22 subgroups. The range is wide. It includes not just plants and facilities but related issues such as ending the North's missile and nuclear exports and redirecting its technical experts from military to civilian work.

Plutonium fuel for atom bombs is especially frequently mentioned. The radioactive metal is considered the founding step for aggressive programs set on making a variety of nuclear arms.

Producing it is easier than purifying uranium, and it takes far less plutonium to make a blast of equal size. Atop a missile, all else being equal, the reduced weight means warheads fueled by plutonium can fly longer distances, making them more threatening. Plutonium is also ideal for igniting the thermonuclear fuel of hydrogen bombs.

The Stanford team recommends six ways to curb the North's plutonium complex, targeting Yongbyon, the secretive site that Dr. Hecker has repeatedly visited.

For instance, the team calls for the dismantlement of the North's five-megawatt reactor for making plutonium. It began operating in 1986, and Western experts say it produced the fuel for the North's first atom bombs.

The team is less categorical in recommendations for a large new reactor, known as the experimental light-water reactor, now being started up at Yongbyon. Since the plant can make electrical power for civilians, the team suggests the reactor needs to be closely inspected before its fate is negotiated.

The team calls for the North to join two global accords meant to halt the making of nuclear arms and the means of delivering them. The pacts are the Nuclear Nonproliferation Treaty, which the North once observed, and the Missile Technology Control Regime. Its member states coordinate export licensing to curb the spread of long-range missiles that can deliver weapons of mass destruction.

"We're going to have some people argue with us," Dr. Hecker said of how technical experts were likely to react to the team's recommendations. "That's O.K."

https://www.nytimes.com/2018/05/28/us/politics/north-korea-nuclear-disarmament-could-take-15-years-expert-warns.html

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The Diplomat (Washington, D.C.)

20 Years After Pokhran-II: Have Nuclear Weapons Made India More Secure?

By Travis Wheeler and Heather Byrne

May 30, 2018

20 years later, what are the effects of India's nuclear weapons on South Asia's security environment?

In May 1998, India detonated five nuclear devices in the Thar Desert, crossing the threshold from a nuclear-capable to a nuclear-armed state. Indian Prime Minister A.B. Vajpayee authorized the tests, fulfilling the Bharatiya Janata Party's long-time pledge to exercise India's "nuclear option." In a letter to U.S. President Bill Clinton, Vajpayee cited the "deteriorating security environment, [e]specially the nuclear environment" — thinly veiled references to China and Pakistan — as the primary justification for Pokhran-II. Reflecting on Washington's post-test diplomacy, former Deputy Secretary of State Strobe Talbott later wondered why India had gone through the trouble of testing "given the likelihood of consequences that would make India less secure."

Twenty years later, it is worth asking: have nuclear weapons made India more secure? We attempt to answer this question by assessing India's security through the lens of three security challenges: 1) Pakistan's support to anti-India militant groups, 2) the state of India's relations with China, and 3) the China-Pakistan axis.

Pakistan's Support to Anti-India Militant Groups

Pakistan responded to India's tests by detonating a series of nuclear devices — six in total, one more than India had tested — in late May. The advent of Pakistan's bomb greatly limited India's options for confronting the Pakistan Army over its support to anti-India militants who stage attacks on civilian and military targets in India. The dilemma, as lucidly outlined by George Perkovich and Toby Dalton, is that most military options — from airstrikes to limited war — available to India would be unlikely to motivate the Pakistan Army to cease its aid to militant groups while requiring India to run significant escalation risks.

The aftermath of the 2001-02 "Twin Peaks" crisis highlights India's quandary. This crisis began when terrorists with links to groups based in Pakistan attacked the Indian Parliament. New Delhi mobilized the military, but, in part due to fears of nuclear escalation, decided against authorizing a conventional assault on Pakistan. Afterwards, the Indian Army sought to address the perceived deficiencies of the response to "Twin Peaks" by developing a new limited-war doctrine for a nuclearized subcontinent. The result was Cold Start, which called on the army to mobilize rapidly, cross the international border, and capture Pakistani territory to give India bargaining leverage to compel Pakistan to end cross-border militancy. While experts doubt Cold Start's feasibility, this endeavor to reclaim space for limited war factored into Pakistan's embrace of full-spectrum deterrence and the deployment of the short-range Nasr system in 2011. This underscores a key reason, identified by Michael Krepon, that India's nuclear-armed status has not delivered the returns trumpeted by BJP figures before and after the tests: policies to enhance India's security have been "quickly undercut by countermeasures taken by wary adversaries."

These interrelated challenges of compellence and deterrence have led some Indian and Western strategic analysts to tout the military utility of India's nuclear arsenal. Experts such as Evan Braden Montgomery and former U.S. Undersecretary of Defense for Policy Eric Edelman have encouraged India strategic planners to institute limited nuclear options to neutralize full-spectrum deterrence and shore up the credibility of its threats to punish Pakistan conventionally. Lt. Gen. B.S. Nagal, the former head of India's Strategic Forces Command, has advocated softening India's commitment to no first use to deter Pakistan from launching a damage-limiting first strike during a crisis. These

debates highlight the degree to which nuclear weapons have generated new anxieties and a constant search for reassurance as much as they have contributed to deterrence.

The State of India's Relations with China

India's 1998 tests sacrificed the opportunity to set relations with China on a more stable trajectory. Sino-Indian relations had improved in the decade before India attained the bomb. Indian Prime Minister Rajiv Gandhi made a bold visit to Beijing in 1988. This act of statesmanship was reciprocated by Chinese President Jiang Zemin with a visit to Delhi (and later Islamabad) in 1996. The end of the Cold War had weakened ties between New Delhi and Moscow. This geopolitical shift, coupled with the mutual desire to expand bilateral trade, provided the impetus for rapprochement. Jiang made a deposit in the Sino-Indian relationship account when on the Islamabad portion of his trip he pointedly insisted that India and Pakistan seek a "just and reasonable settlement through [bilateral] consultations and negotiations," a clear rebuke of Pakistan's desire to internationalize the Kashmir dispute. Both Jiang's visit to New Delhi and the endorsement of India's position regarding Kashmir reflected Beijing's desire to adopt a more "balanced" approach toward South Asia.

A year and a half after the Chinese leader's visit, Vajpayee authorized the Pokhran-II tests. Vajpayee's invocation of the Chinese threat led Beijing to issue a statement accusing India of upsetting the region's "peace and stability." Jiang doubled down on the Chinese line in his public comments, noting that China, a country that subscribed to no first use of nuclear weapons, had become a potential target of India's arsenal. He later blamed India for "single-handedly" provoking tensions in South Asia. In the assessment of Chinese nuclear scholars, India had tested in large part to advance its great-power aspirations. This conclusion appears to be shared by Chinese leaders and has reinforced Beijing's determination to head off New Delhi's rise as an alternative power center in Asia.

China's concerns about India's geopolitical ambitions were exacerbated by a momentous consequence of India's nuclear tests: a burgeoning strategic partnership with the United States. U.S.-India ties improved under both the Bill Clinton and George W. Bush administrations via a series of strategic dialogues that overcame decades of mistrust. The Bush administration viewed New Delhi as an ideal counterweight to Beijing. It decided the best way to recruit India to this balancing mission was to downgrade nonproliferation issues in the bilateral relationship and integrate India into elements of the global nuclear order. In 2008, the two sides concluded the Indo-U.S. civil nuclear deal, which, along with a waiver secured from the Nuclear Suppliers Group, gave India the ability to engage in nuclear commerce with foreign industry. For China, the nuclear deal and NSG waiver demonstrated not only that the United States prioritized geopolitics ahead of nonproliferation concerns, but that the U.S. partnership could position India to compete in a regional arms race and pose a long-term threat to China.

The China-Pakistan Axis

India's 1998 tests — combined with U.S. and international efforts to "normalize" India as a responsible nuclear-armed state — reinvigorated the China-Pakistan axis. China's nuclear cooperation with Pakistan predated the subcontinent's overt weaponization in 1998 and included the transfer of weapons-grade uranium and mobile M-11 missiles. Yet, India's emergence as a nuclear-armed state did not help it overcome China's policy of keeping the India-Pakistan relationship in a state of "managed mistrust." This policy is manifested in China's intent to re-hyphenate India to Pakistan by continuing to transfer military technology to Pakistan and linking India's NSG membership to Pakistan's. In March of this year, China admitted it had exported an advanced tracking system that could facilitate the development of the Ababeel, Pakistan's first multiple-warhead missile. China has also sold several nuclear reactors to Pakistan and opposed

India's membership to the NSG unless Pakistan is granted simultaneous access to the cartel and nuclear commerce with its members.

Is India More Secure?

It would be too harsh to conclude that India made a mistake in testing nuclear devices in 1998. The BJP government perceived it had little choice in this matter and most Indians cheered its decision. China had been a nuclear-armed state since 1965 and Pakistan's bomb had been in the basement for a decade. Even if New Delhi had opted against crossing the threshold of overt weaponization, Beijing and Islamabad would have likely sought to forestall India's rise as a major power and keep it confined to the South Asian neighborhood.

However, India's threat environment is no better than in 1998 and, in some cases, its security is worse. The Pakistan Army continues to abet cross-border militancy against India and lower the nuclear threshold to limit India's military options. China appears more determined than ever to prevent India's rise as a major power, rehyphenate India to Pakistan, and challenge India's influence among its neighbors.

To their credit, Indian leaders have not responded to Chinese and Pakistani provocations or geopolitical uncertainty by embracing nuclear weapons. The languid pace at which India has developed and deployed its arsenal indicates it is not interested in engaging China or Pakistan in a nuclear competition. Yet, Indian leaders have not done enough to either surmount the security challenges posed by its adversaries or position India to realize its full potential in Asia and beyond. India lags behind in China in most measures of "usable" power — and nuclear weapons have not attenuated the widening gap in economic vitality, diplomatic influence, and conventional firepower between the two Asian giants. Twenty years after becoming a nuclear-armed state, India is, by many measures, underperforming in the security realm. With strategic competition in Southern Asia expected to intensify further in the coming years, economic growth, balancing coalitions, and military modernization may prove to be more rewarding sources of security than nuclear weapons.

https://thediplomat.com/2018/05/20-years-after-pokhran-ii-have-nuclear-weapons-made-india-more-secure/

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The Hill (Washington, D.C.)

China Pushing New Generation of Nuclear Weapons: Report

By Ellen Mitchell

May 28, 2018

China is reportedly stepping up its development of next-generation nuclear weapons, holding tests to simulate blasts more often than the United States is.

The United States carries out less than one such test a month on average, while China's average is five tests a month.

China conducted about 200 nuclear blast simulations between September 2014 and December 2017, according to the China Academy of Engineering Physics, a major Chinese weapons research institute.

The United States, in comparison, carried out only 50 such tests between 2012 and 2017, according to the Lawrence Livermore National Laboratory, an American federal research facility in California used to aid national security.

Experts warned The South China Morning Post that as China, the United States and Russia separately seek more targeted nuclear weapons to deter against potential threats, the risk of a nuclear conflict increases.

The White House has pushed a $1.2 trillion plan to upgrade its nuclear stockpile, while the Pentagon In January unveiled its Nuclear Posture Review, which calls for developing smaller, low-yield nuclear weapons to deter Russia and China.

Pentagon officials have said the United States wants aggressive nations to believe it might actually use such weapons.

"We need to ensure we have a credible nuclear deterrent, and we are confident that we are prepared to ... defend this nation no matter what," Pentagon chief spokeswoman Dana White said in February.

Congress followed up with authorization to fund such weapons in separate versions of its annual defense policy bill.

The Senate Armed Services Committee's version of a $716 billion National Defense Authorization Act (NDAA) for fiscal 2019 — moved to the full Senate last week — supports the administration's request for $65 million to develop a low-yield nuclear warhead.

The House's version of the NDAA, passed by the full chamber last week, also authorizes $65 million for the new low-yield nuclear weapon, to be launched from submarines.

But after the U.S. Nuclear Posture Review was released, Chinese state-run paper Global Times published an editorial that stated China would seriously consider going public with its low-yield nuclear weapons program in response to a new nuclear arms race.

An international ban imposed in the 1990s prevents nuclear weapons from being tested — though North Korea has not followed the agreement.

In place of the real tests, Chinese scientists instead use high-powered gas guns that fire projectiles in the country's main nuclear design facilities under mountains in Mianyang, southwestern Sichuan province.

China is currently creating new tactical nuclear weapons meant for close-range battles.

http://thehill.com/policy/defense/389628-china-pushing-new-generation-of-nuclear-weapons-report

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Popular Mechanics (New York, N.Y.)

Russian Sub Unleashes Four Nuclear Missiles in Less Than 20 Seconds

By Kyle Mizokami

May 24, 2018

The world-ending Yuri Dolgoruky can deliver the the firepower of 640 Hiroshimas in less than a minute.

One of Russia's most powerful submarines ripple-fired four long-range nuclear-tipped missiles in a matter of seconds. The exercise this week was an important reminder of how Russia, the United States, and other nuclear powers test and maintain large numbers of nuclear weapons at sea.

From a submerged position in the White Sea, the ballistic missile submarine Yuri Dolgoruky launched four Bulava missiles in just 15 seconds. According to a statement by the Russian Ministry of Defense, missiles were pointed east at Russia's Kura missile testing range on the Kamchatka peninsula. The Ministry stated the launches were the first salvo fire from the new Borei-class submarines.

The Yuri Dolgoruky is the first of the Borei-class. Building Dolgoruky began in 1996, but funding problems meant the submarine wasn't completed until 2008, and the ship wasn't formally inducted into the Russian Navy until 2014. The Borei-class sub is 525 feet long, displaces 21,000 tons underwater, and has a theoretically unlimited range thanks to nuclear propulsion. The new submarines are needed to replace Russia's Cold War-era Delta-class missile submarines.

Each Borei has 16 missile launch silos located behind the sail loaded with Bulava submarine launched ballistic missiles (SLBMs). Each Bulava carries six multiple independently targeted reentry vehicles (MIRVs) with a 100-kiloton yield, or about six times the explosive power of the bomb dropped on Hiroshima. A single Borei can launch all of its missiles in a single minute, unleashing 640 times the destructive power of Hiroshima. The missiles have a range of 5,770 miles, meaning a submarine parked in the White Sea could hit any point in the United States with the exception of Hawaii.

The quick-launching process is useful in wartime, as the faster the submarine can unload its missiles, the more likely it is to get away undetected. The submarines are meant to return to port to rearm at a later date, although it is doubtful the submarines would have a port to return to after a nuclear exchange.

Russia recently announced it will field a fleet of 14 Borei submarines, including eleven improved subs known as Borei-A. Plans to build a line of even better submarines, Borei-B, were recently cancelled.

https://www.popularmechanics.com/military/navy-ships/a20898184/russian-sub-four-nuclear-missiles-20-seconds/

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US COUNTER-WMD

Bloomberg (New York, N.Y.)

U.S. Missile Defense System Had Major Accomplishments, GAO Says

By Anthony Capaccio

May 30, 2018

The U.S. network of ground-based interceptors intended to defend against a intercontinental ballistic missile fired from North Korea "achieved a number of major accomplishments" in 2017, according to the General Accountability Office.

The system managed by Boeing Co. conducted its first successful flight test of an improved interceptor last year "when it successfully intercepted a target representative of an intercontinental ballistic missile," according to the annual report published Wednesday. It also met a Pentagon goal set by the Obama administration of increasing the number of interceptors, which are based in California and Alaska, to 44 from 30.

The GAO, which has repeatedly criticized the interceptor system, said "the program also fielded a software upgrade to the fire control segment" that included some improvements for battle management and discrimination and completed a preliminary design review for a new hit-to-kill warhead.

"The program was able to execute all of these activities while also maintaining 24/7 availability of the system to the warfighter during a heightened period of North Korean missile testing," according to the GAO report.

The interceptor program, with all its planned improvements, is now estimated to cost $67 billion, up from the agency's most recent estimate of $41 billion. That makes it the Defense Department's "fourth most expensive" weapons system, behind the Lockheed Martin Corp. F-35 jet and two Navy programs.

"That total is likely to continue to increase as MDA defines future capability increments," the report said, referring to the U.S. Missile Defense Agency.

https://www.bloomberg.com/news/articles/2018-05-30/u-s-missile-defense-system-had-major-accomplishments-gao-says

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Phys.org (Isle of Man)

Drones Will Help Investigators Tackle Chemical, Biological and Nuclear Attacks

Author Not Attributed

May 25, 2018

Researchers are making use of unarmed vehicles and robots to gather information and samples from crime or disaster scenes. Their initiative will help save lives.

Risks that involve chemical, biological, radiological, nuclear and explosive (CBRNe) materials are among major safety concerns. Accidental or targeted, events caused by such agents could be hazardous to humans. They could also hinder and endanger any subsequent forensic investigations.

To address the challenges involved in examining such incidents, researchers from the EU-funded project ROCSAFE are developing strategies and technologies that will automate the collection of evidence related to CBRNe scenes. This is done by using remotely controlled robotic aerial vehicles (RAVs) and robotic ground vehicles (RGVs).

According to a news report in Ireland's 'TheJournal.ie', a research team has recently conducted a test to evaluate how first responders, emergency workers and forensic specialists would react to 'dirty bomb'-type scenarios. Dirty bombs are weapons that combine radioactive waste materials with conventional explosives. They could contaminate an area and cause loss of life, injury, property damage, social and economic disruption, or environmental degradation.

Robotic air and ground vehicles

As explained on the ROCSAFE project website, the overall goal of the project is to fundamentally change how CBRNe events are assessed, "in order to ensure the safety of crime scene investigators by reducing the need for them to enter high-risk scenes when they have to determine the nature of threats and gather forensics."

First, RAVs – which have cameras and miniaturised sensor systems for radiological, nuclear, chemical and biological threats – will assess the scene. All images and data will be streamed to a

command centre using central decision management software. The data will be analysed and displayed "on a sophisticated and intuitive interface with maps and video, showing results of analytics and giving readings geographical context. This will enable the scene commander to assess the nature of threats, develop an Action Plan and an Evidence Plan, supported as needed by the Central Decision Management."

After this process, RGVs will roll in to collect forensic material or evidence, with automatically optimised routes to avoid hazards. "Thus, ROCSAFE will ensure that CBRNe scenes are assessed more rapidly and thoroughly than is currently possible, and that forensic evidence is collected in a manner that stands up in court, without putting personnel at risk." It adds that the RAVs and RGVs are designed to endure rain, wind, and challenging ground surfaces and obstacles.

The ongoing ROCSAFE (Remotely Operated CBRNe Scene Assessment Forensic Examination) project is led by the National University of Ireland Galway and brings together various experts from the private and public sectors, including the Irish Defence Forces.

Quoted in the magazine Horizon, Prof. Michael Madden from the National University of Ireland Galway and project coordinator, said: "We will send robots into harm's way instead of humans. The goal is to improve the safety of crime scene investigators." He added: "These are rare events. This is nobody's everyday job."

https://phys.org/news/2018-05-drones-tackle-chemical-biological-nuclear.html

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US ARMS CONTROL

The Jerusalem Post (Jerusalem, Israel)

U.S. Walks Out of Disarmament Conference to Protest Syrian Presidency

By Tovah Lazaroff

May 30, 2018

The United States delegation briefly walked out of a plenum debate at the Conference on Disarmament in Geneva on Tuesday to protest the Syrian presidency of the body tasked with halting the threat of weapons of mass destruction.

“Just prior to the commencement of today’s CD plenary, I walked out in protest of Syria’s assumption of the CD presidency,” US Ambassador Robert Wood said in a tweet that included a photograph of his back as he walked out of the room. “I did return later, however, to harshly condemn the regime in Damascus for its repeated use of chemical weapons against its own people.”

“This is no normal presidency,” he told reports on Tuesday, one day after Syrian Ambassador Hussam Edin Aala took over the monthlong rotating presidency of the United Nations body.

During the convention’s plenum meeting, Wood said: “The US is outraged at Syria’s actions, its blatant disregard for international obligations and its temerity in assuming the presidency of a body committed to advancing disarmament and nonproliferation.”

“Given its demonstrated contempt for the work of this body through the repeated violations of treaties negotiated here, Syria has neither the credibility nor the moral authority to assume the presidency of the CD, the very body that negotiated the chemical-weapons convention,” he added.

The European Union, Canada and many other Western countries echoed Wood's objections.

Aala dismissed their words as "sensational propaganda" by countries with a "phobia" toward his that wanted to "undermine the work of this forum."

Their statements are "characterized by double standards and moral selectivity" that these countries have already exhibited in "dealing with national and regional security matters, Aala said.

Some of these countries "are trying to give lessons on compliance with conventions and treaties on weapons of mass destruction at a time when these states refuse to abide by these legal instruments," he said.

Aala pledged to impartially and professionally fulfill his role as conference president during the coming month.

"I reiterate my commitment to uphold this presidency with full transparency and professionalism," he said. "I will act in a way that will address the security concerns of all the member states."

Aala called on countries to "refrain from harmful practice" that would only "poison the atmosphere in the forum."

"The Damascus regime has neither the credibility nor moral authority to preside over the CD," Wood said. "The international community must not be silent."

He and other international leaders continued their attacks on Tuesday, including a public statement during a plenary session of the conference.

"The representative of the Syrian regime called on the US and others not to 'poison the atmosphere' of the CD with condemnations of Damascus," Aala said. "I told CD members I'm more concerned about Syria having 'poisoned' its own people with chemical weapons."

Countries including Iran and Pakistan supported his statements.

British Ambassador Matthew Rowland stood with the US.

"Your words are empty," he told Aala.

Wood retorted: "The lies coming from the regime are fooling absolutely no one. Its regime is concerned about the poisoning of the atmosphere in the CD. I am more concerned about the poisoning of the Syrian people."

US Ambassador to the UN Nikki Haley issued a statement on the matter from New York.

"The United States would have attempted to block Syria's presidency, but the rules of the Conference on Disarmament prevented us from doing so. During this period, the United States will limit participation in informal sessions convened by the presidency and will continue to highlight the hypocrisy of Syria holding this position in spite of its continued use of chemical weapons and disregard for its other disarmament obligations," she said.

https://www.jpost.com/International/US-walks-out-of-disarmament-conference-to-protest-Syrian-presidency-558690

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Omaha World-Herald (Omaha, Neb.)

Senate, House Defense Bills in Conflict over Funding for Breakdown-Prone Offutt Jets

By Steve Liewer

May 24, 2018

The U.S. Senate and House of Representatives are at odds over whether to buy replacements for two breakdown-prone 55th Wing jets that fly Open Skies aerial photography missions over Russia.

The full House approved the $717 billion National Defense Authorization Act on Thursday, but without $222 million to purchase two small airliners for the Open Skies flights.

The flights are required under the 1992 Open Skies Treaty, which allows 34 countries (including the United States and Russia) to conduct supervised aerial photography over one another's territory.

The chairman of the House Armed Services Committee, Rep. Mac Thornberry, R-Texas, cut Open Skies funding from the House bill because he believes the treaty is flawed and as a tactic to pressure the Russians over alleged violations of the treaty. He has said Russia benefits from the treaty, while the United States does not.

Rep. Don Bacon, R-Neb., said he tried unsuccessfully to persuade Thornberry to keep the funding this year but believes the chairman will consider doing so next year. He introduced an amendment on the House floor to restore the funding, but the House Rules Committee blocked it. A Bacon amendment that did pass would require the Defense Department to report to Congress on the state of the Open Skies fleet by next January.

On the Senate side, Nebraska Republican Sen. Deb Fischer persuaded the Senate Armed Services Committee to keep the Open Skies funding in the Senate version of the bill. The committee approved the bill on a 25-2 vote. It will now go on to the full Senate for approval, and eventually to a conference committee that will work out differences between the House and Senate versions of the bill.

The U.S. flies the Open Skies flights with two OC-135 jets built in 1961. They are based at Offutt Air Force Base. In 2017, they completed only 64 percent of their scheduled flights over Russia, Defense Secretary Jim Mattis said in letter this week to Fischer. Russia, which uses newer aircraft, typically completes all of its flights, Mattis said.

"The 1960s-era U.S. Open Skies aircraft are ill-suited to extreme operating environments in Russia and experience regular, unplanned maintenance issues, often resulting in delays or cancellations," Mattis said in the letter.

In July 2017, a U.S. flight over Russia was scrubbed after the OC-135's landing gear failed to retract following takeoff, according to Russian media reports. And the pilot of a March 2016 flight out of Khabarovsk, Russia, declared an emergency after a generator failure was compounded by a fire in the pressurization system that filled the cabin with smoke.

"If we don't have the planes to complete the mission, we're not hurting the Russians," Fischer said. "We're hurting ourselves."

About $500 million in other funding for Offutt-based aircraft is included in both the House and Senate versions of the bill.

That includes more than $200 million to replace two WC-135 radiation-detection jets with three tankers refurbished for the reconnaissance mission. It also includes $185 million to upgrade mission equipment on other 55th Wing aircraft.

The House bill also included a 2.6 percent pay increase for military personnel as well as 77 F-35 Joint Strike fighters, 135 M1 Abrams tanks and two Virginia-class attack submarines.

Bacon said five of his bills were included in the National Defense Authorization Act, including measures dealing with electronic warfare and Gold Star families.

World-Herald staff writer Joseph Morton contributed to this report.

http://www.omaha.com/news/military/senate-house-defense-bills-in-conflict-over-funding-for-breakdown/article_6cf06458-df9d-5dbd-823d-eb4659c9b37c.html

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The New York Times (New York, N.Y.)

News Analysis: Trump's Negotiating Playbook Faced Test in North Korea

By David E. Sanger

May 24, 2018

WASHINGTON — President Trump attempted a revolutionary approach to North Korea — a gamble that negotiating prowess and deal-making charm in a face-to-face meeting with Kim Jong-un could accomplish what no American president or diplomat had dared to attempt in the 65 years since an uneasy armistice settled over the Korean Peninsula.

It was a bold and innovative approach, and one worth trying, to take on the related goals of a peace treaty and eradicating the North's now-substantial nuclear arsenal.

The fact that it fell on Thursday before getting out of the starting gate, though, underscored how little the two men understood about each other, or how their words and maximalist demands were resonating in Washington and Pyongyang.

Mr. Trump approached Mr. Kim, the North Korean leader, as if he were a competing property developer haggling over a prized asset — and assumed that, in the end, Mr. Kim would be willing to give it all up for the promise of future prosperity. So he started with threats of "fire and fury," then turned to surprise initiatives, then gratuitous flattery of one of the world's more brutal dictators.

"He will be safe, he will be happy, his country will be rich," Mr. Trump said of the North Korean leader on Tuesday, as he met again with Moon Jae-in, the over-optimistic South Korean president whose national security adviser predicted, that same day, it was "99.9 percent" sure that the summit meeting in Singapore would go ahead.

But it was already becoming clear to Mr. Trump and his team that the techniques involved in negotiating real estate do not translate easily into negotiations over nuclear weapons.

Mr. Kim needs money, investment and technology, for sure. But more than that, he needs to convince North Korea's elites that he has not traded away the only form of security in his sole control — the nuclear patrimony of his father and his grandfather.

"For them, 'getting rich' is a secondary consideration," said William Perry, the former secretary of defense and one of the last people to negotiate with the North over peace treaties, nuclear disarmament and missiles — in 1999, when he was sent out as President Bill Clinton's special envoy. "If I learned anything dealing with them, it's that their security is pre-eminent. They know we have the capability to defeat them, and they believe we have the intent to do so."

"And the only way to address that," Mr. Perry, now 90, said this week in Palo Alto, Calif., as the North Koreans were issuing their latest threats, "is with a step-by-step process, exactly the approach Trump said he did not want to take."

Other complications prevented the talks from making it far enough to even discuss those issues. As the two leaders circled each other over what long-range goals they would agree to in Singapore, it became increasingly clear there were forces at work in both capitals that had a strong interest in failure.

The creators of North Korea's nuclear and missile forces are the country's true elite, celebrated as the heroes who keep America at bay. To lose their arsenal is to lose their status and influence.

When Mr. Trump sent one of his deputy national security advisers to Singapore a week ago for a prearranged meeting to work out meeting logistics, the North Koreans stood him up. In the past week, they did not answer the phone, a senior administration official told reporters on Thursday afternoon.

The North has its own list of complaints. After Mr. Trump accepted Mr. Kim's offer to meet face-to-face, he replaced his national security adviser with John R. Bolton, who just a few months ago published an essay titled "The Legal Case for Striking North Korea First," an ode to pre-empting Pyongyang — no matter what it promised about the future.

Once he ensconced himself in the West Wing, Mr. Bolton began talking publicly about the "Libyan model" of turning over nuclear weapons, a reference to a deal he helped design in 2003 in which Col. Muammar el-Qaddafi turned over a nascent nuclear program in return for exactly the kinds of economic lures Mr. Trump was talking about.

To the North Koreans, Mr. Bolton knew, the Libya example was shorthand for making a bad decision to unilaterally disarm. They have little doubt that if North Korean citizens rose to overthrow their government — as Libyan rebels did against Colonel Qaddafi in 2011 — Washington would be more than happy to help chase down the leadership.

None of this means the initiatives with North Korea are entirely dead. Mr. Trump carefully left open the door for Mr. Kim to "call me or write" if he decides to cease the threats of nuclear exchanges and wants to reschedule the summit meeting.

But Mr. Trump also on Thursday could not resist echoing his Twitter post months ago about the size of the nuclear button on his desk: The United States' nuclear abilities "are so massive and powerful" that he should never be tempted to reach for them.

It may have been intended to intimidate. But it seems more likely to spur Mr. Kim to new demonstrations of his own abilities to reach American cities with North Korean missiles.

In fact, the question about North Korea now is the same question that Washington is asking about Iran: What is their next chess move? Are they likely to escalate?

For now, the Iranians have indicated they are taking it slow. But history suggests that North Korea's reaction to the end of negotiations is almost always to create a crisis — and see if that, in turn, forces the United States back to the table.

When the "Agreed Framework" with the Clinton administration collapsed — in part because of North Korean cheating, in part because of the United States' lack of interest in moving toward reconciliation — Mr. Kim's father moved to the country's first nuclear tests.

When accords were scuttled at the end of the George W. Bush administration, the North tested a new president, Barack Obama, with a series of larger nuclear tests and then a race to build intercontinental missiles.

Even before he came to office, Mr. Trump complained — accurately — that the incremental approaches pursued by his predecessors had failed.

He inherited a North Korea that had exploited the United States' distraction during Iraq, Afghanistan and the Iran negotiations, and managed to build 20 to 60 nuclear weapons. The North had paid almost no price. So Mr. Trump did what he learned to do in the New York real estate market: Make maximalist demands, inflict pain and then begin a negotiation.

But his "fire and fury" approach resulted in reactions he had never seen in the private market. Mr. Moon became so concerned that a new, famously volatile American president could trip into a war on the Korean Peninsula that he raced to wrap Mr. Trump into a negotiation that would make it difficult for the United States to launch the kind of pre-emptive attack Mr. Bolton had advocated.

Mr. Moon then showered Mr. Trump with effusive praise, even to the point of endorsing the premature talk about Nobel Peace Prizes.

"Moon's role is what is entirely new this time," Mr. Perry noted, hours before the meeting planning fell apart.

The South Korean president saw himself as the essential go-between, the central player in coaxing both sides back on track when moments of crisis — like this one — arise.

Now comes the test of his peacemaking skills.

"The denuclearization of the Korean Peninsula and building a permanent peace on the peninsula is a task we cannot give up or delay," Mr. Moon said in Seoul on Thursday, calling the cancellation of the summit meeting "disconcerting and very regrettable." He urged Mr. Trump and Mr. Kim to talk directly.

Mr. Moon's task is to rebuild what fell apart. But first there must be a diagnosis of what went wrong.

Overheated language on both sides — including unsubtle reminders of each country's willingness to wipe the other off the map — was part of it. But that was an occasional feature of the Cold War, too.

The bigger problem was that the United States and North Korea were never on the same page about what the objective of the negotiation should be. Mr. Trump, Mr. Bolton and Secretary of State Mike Pompeo had one vision: what they called "complete, verifiable, irreversible denuclearization."

But it was a one-sided affair — never once did they raise the likelihood that the United States would have to give something up, too.

Mr. Kim used the phrase "denuclearization" as well, but he seemed to be discussing something more like arms control. He was willing to give up part of the arsenal, but only as the United States pulled back its troops in South Korea and gradually surrendered its ability to threaten the North.

Mr. Trump, of course, talked about the North giving up all of its weapons in one fell swoop — before allowing, just in the past few days, that he might be willing to try a more gradual approach.

But that was probably too late.

"Zero warheads was never going to be on the table," said Robert S. Litwak, a senior vice president of the Wilson Center for International Scholars, who wrote a detailed study of how to deal, gradually, with defanging the North Korean threat. He said Mr. Trump needs to move to something closer to the 2015 Iranian deal, which constrained but did not eliminate Tehran's nuclear abilities.

That, of course, is the deal Mr. Trump walked away from a few weeks ago, meaning that he now has two nuclear crises on his hands at once.

https://www.nytimes.com/2018/05/24/world/asia/trumps-gamble-hits-reality-check-in-north-korea-negotiations.html

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COMMENTARY

The Atlantic (Washington, D.C.)

How Trump Could Revive the Iranian Regime

By Karim Sadjadpour

May 29, 2018

A policy seemingly aimed at bringing about the collapse of the government could backfire.

"When your enemy is making a mistake," Napoleon purportedly cautioned, "never interrupt him." In recent months the Islamic Republic of Iran has been battered by accumulating crises—including a collapsing currency, an irrepressible citizen's-rights and feminist movement, and persistent labor strikes—that have called into question its continued viability. It is increasingly evident that the Trump administration's goal, as outlined most recently by Secretary of State Mike Pompeo, is to exacerbate these crises to hasten either an Iranian capitulation or political implosion. While Iran's positive political transformation is a worthy goal, the Trump administration's reckless execution of this strategy could serve to resuscitate an ailing regime.

The Arab spring was a reminder that the collapse of authoritarian regimes appears inconceivable while they rule, and inevitable after they've fallen. In Iran it is notable how many longtime observers of the country have begun openly contemplating the latter. The Iranian sociology professor Mohammed Fazeli, in a recent speech widely shared on social media, asserted that the country was experiencing a "convergence of crises"—economic, social, political, environmental, and geopolitical—"unlike any other country in the world." Most remarkably, his speech was given not at an opposition rally, but at an official government think tank.

The two remaining veteran foreign correspondents in Iran—Thomas Erdbrink of The New York Times and Najmeh Bozorgmehr of the Financial Times—have also taken note of this growing sentiment. The usually sober Bozorgmehr began her May 7, 2018 dispatch with a striking question: "Has the countdown to the collapse of the Islamic Republic of Iran begun?" She quotes an Iranian businessman who perhaps unwittingly echoes de Tocqueville's observation that authoritarian regimes are most vulnerable when trying to reform. "The problem is that if the Islamic Republic reforms itself," he said, "nothing would remain of it. And if it refuses to reform itself, it would die."

Pompeo's maiden speech as secretary of state centered on 12 demands that offered Iran's leaders a similar choice: Transform yourselves into something diametrically opposed to what you have been for four decades, or we will seek your collapse. Iran's 78-year-old Supreme Leader Ayatollah Ali Khamenei reacted by prohibiting any interaction with the U.S. government. This, coupled with Khamenei's long-held view that capitulation to the West will only accelerate, not avert, regime change, means the United States and Iran are on a clear collision course.

There are typically two prerequisites for authoritarian collapse: Pressure from below and divisions from above. While there is often a symbiotic relationship between these two—popular unrest can foment elite divisions—crude attempts by outside powers to instigate regime change can also serve to strengthen authoritarian cohesion. Pompeo has sought to incite Iran's population against an

Iranian regime he portrays as a unified monolith. “Here in the West, President Rouhani and Foreign Minister Zarif are often held apart from the regime’s unwise terrorist and malign behavior,” Pompeo said. “Yet, Rouhani and Zarif are your elected leaders. Are they not the most responsible for your economic struggles? Are these two not responsible for wasting Iranian lives throughout the Middle East?”

In their research on the “Durability of Revolutionary Regimes”— those which emerge out of “sustained, ideological, and violent struggle from below”—political scientists Steven Levitsky and Lucan Way show that regimes spawned by popular revolutions—including the former USSR, Cuba, and Iran—usually share four attributes that enhance their durability: “(1) the destruction of independent power centers; (2) cohesive ruling parties; (3) tight partisan control over the security forces; and (4) powerful coercive apparatuses.” All four apply to Iran. These attributes help to “inoculate revolutionary regimes against elite defection, military coups, and mass protest—three major sources of authoritarian breakdown.”

While the Islamic Republic has experienced bouts of significant popular unrest in the past, during times of crisis the regime’s normally factionalized political and military elite have always seemingly understood that if they did not hang together, they might hang separately. The regime’s coercive apparatus—the Islamic Revolutionary Guards Corps and the Basij militia—are an armed and organized group of at least 300,000 men, some of whom have a strong financial interest in preserving the status quo. As Garry Kasparov has said about Russia, every country has its own mafia—but Khamenei and the Revolutionary Guards increasingly resemble a mafia within their own country. The Islamic Republic may also be able to draw on the support of some 40,000 Shia militiamen—including Lebanese Hezbollah—it has been arming, financing, and training outside of Iran. These forces have spent years fighting Syrian rebels and Sunni jihadists, while Iranian opponents of the government, in contrast, are unarmed and leaderless.

One of the Republican critiques of the Iran nuclear deal was that it was predicated on the positive transformation of the Iranian regime into a more benign actor by the time the deal’s restrictions on Iran’s nuclear activities expired in the next 10–15 years. Similarly, however, the Trump administration’s Iran strategy appears to be a bet on an unarmed, divided Iranian population’s ability to peacefully overthrow a deeply unpopular but heavily armed, cohesive ruling elite. But while the 1979 Iranian revolution was the story of an opposition willing to mass martyr itself against a regime that wasn’t willing to commit mass murder, in today’s Iran these roles are reversed.

* * *

Since 1979, successive U.S. administrations have tried unsuccessfully to change either the behavior of the Iranian regime, or the regime itself. The George W. Bush administration surrounded Iran with over 250,000 U.S. soldiers in neighboring Iraq and Afghanistan and actively supported Iranian democracy activists. Yet during Bush’s time in office, Tehran relentlessly attacked U.S. forces in Iraq and political opposition in Iran withered. The Iraq War, which intended to spread Iraqi democracy to Iran, instead served to spread Iranian theocracy to Iraq.

When Barack Obama took office, he sought to be the anti-Bush. More than any of his predecessors, Obama actively sought rapprochement with Tehran, including via numerous letters he wrote to Ayatollah Khamenei. Secretary of State John Kerry—who as a senator in 2009 sought to visit Tehran—spent more time talking with Iranian Foreign Minister Javad Zarif than perhaps any of his global counterparts. Despite high expectations after the signing of the JCPOA, however, Iran’s internal and external behavior and hostility toward the United States showed little signs of change.

The Trump administration inherited an Iran ascendant regionally, but descendant internally. Instead of marshaling global unity against Tehran's malign domestic and regional activities—most notably mass slaughter in Syria—Trump instead focused on the one thing that Iran is perceived to be doing right: adhering to the nuclear deal. Consequently, since Trump's withdrawal from the nuclear agreement, international media attention—including among close American allies—has been diverted away from Iran's internal repression and regional ambitions, to focus on America as the dangerous and untrustworthy superpower.

In the aftermath of Pompeo's speech on Iran, the hashtag #RegimeChangeIran began trending on Twitter. It is understandable why the potential implosion of a virulently anti-American theocracy excites many U.S. officials and Iranians—both inside Iran and abroad—who long to see positive transformation in their homeland. But if there is a lesson to be learned from both Iran's 1979 revolution and the 2011 Arab uprisings, it is that revolutions are ultimately judged by what they build, not what they destroy. The IRGC and Basij militia, like powerful militaries elsewhere in the region, are unlikely to relinquish power absent considerable bloodshed, and may yet emerge on top even in the event of abrupt political change. #RegimeChangeIran has no guarantees of leading to #DemocracyIran.

* * *

In his famous long telegram from Moscow, the celebrated American diplomat George Kennan cautioned that U.S. policies alone could potentially expedite, but not engineer, political change in the Soviet Union. "It would be an exaggeration to say that American behavior unassisted and alone," Kennan wrote, "could exercise a power of life and death over the Communist movement and bring about the early fall of Soviet power in Russia. But the United States has it in its power to increase enormously the strains under which Soviet policy must operate. … For no mystical, Messianic movement … can face frustration indefinitely without eventually adjusting itself in one way or another to the logic of that state of affairs."

Kennan's essay was written in 1947, before the advent of 24-hour cable news and social media made it increasingly impossible for the United States to exhibit strategic patience. It took five decades after Kennan wrote that "Soviet power …bears within it the seeds of its own decay, and the sprouting of these seeds is well advanced" for the Soviet Union to ultimately implode in 1991. Ronald Reagan helped adeptly manage its demise by championing Soviet dissidents and countering Soviet influence while simultaneously engaging the Soviet regime, helping foment the elite divisions and popular unrest—the "internal contradictions"—which led to the peaceful collapse of a nuclear-armed empire.

In theory, a similar template could be applied to U.S. strategy toward Iran. It would require great patience and flexibility, and a willingness to not only intelligently support Iranian civil society and counter malign Iranian influence, but also engage the Iranian regime to heighten the divisions between those who want Iran to be a nation and those who want it to be a cause. It would require heeding Kennan's advice that "such a policy has nothing to do with outward histrionics: with threats or blustering or superfluous gestures of outward 'toughness.'" But just as we must be realistic in our foreign-policy goals, so must we be realistic about our domestic political realities. A scandal-plagued, internationally reviled, unfocused president at home significantly curtails our ability to promote more decent government abroad.

https://www.theatlantic.com/international/archive/2018/05/iran-trump-khamenei-obama-pompeo/561449/

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Bloomberg (New York, N.Y.)

U.S. Needs Better Missile Defense for a Scarier Nuclear Age

By The Editors

May 29, 2018

It's a threat that should be taken more seriously.

In the last few weeks, the world has become a measurably more dangerous place. The apparent collapse of the North Korea talks, U.S. withdrawal from the Iran nuclear pact, Russia's threat to shoot down U.S. planes over Syria, and China's placement of anti-ship and anti-air missiles on its manufactured islands in the South China Sea have all pushed the needle one tick closer to the unthinkable: nuclear war.

So now, more than ever, is the time to think about it — and plan for it.

America's primary domestic defense system against a nuclear-missile attack is the Ground-Based Midcourse Defense, or GMD, with bases in Alaska and California. More than $40 billion has been spent on this successor to Ronald Reagan's so-called Star Wars project. Yet it has only 44 "kill vehicles" intended to defend against a small-scale intercontinental attack of the sort North Korea might attempt, and its success rate in testing is only about 50 percent.

A second system based in Eastern Europe since 2016 uses an on-shore version of the Navy's excellent Aegis combat system and is intended to protect Europe from an Iranian nuclear attack. But it isn't geared toward defeating the longer-range ballistic missiles Iran is thought to be developing in violation of United Nations resolutions. Testing of the system has been limited.

If the uncertainty over whether these systems could knock even a single attack by a rogue state out of the sky isn't unsettling enough, the U.S. would be all but defenseless from a mass attack by nuclear superpowers China and Russia. The only U.S. defense is its overwhelming offense of 6,800 nuclear warheads in Midwestern bunkers and aboard nuclear submarines and long-range bombers.

Yet there are reasons for optimism. The Pentagon's "theater defense" systems, designed to take out short- and medium-range conventionally armed missiles (and perhaps tactical nuclear weapons) on the battlefield, have performed far better. The ground-based Terminal High Altitude Area Defense, which is now deployed in South Korea and Guam, has been virtually flawless in testing, according to the Pentagon. The older Patriot system and the ship-based version of Aegis have also been highly reliable.

It doesn't take a rocket scientist to see that one solid step toward improving matters would be to integrate all these systems into a holistic national missile shield.

Movement in that direction, one hopes, will be spurred by the imminent release of the newest congressionally mandated Defense Department comprehensive overview of the issue. Even before the public sees it, there is already a promising signal: While previous versions were titled the "Ballistic Missile Defense Review," that first word has been dropped from the forthcoming document, showing that the Pentagon is looking at the bigger picture.

Integrating the various defense shields is all the more vital because China and Russia are making great advances in developing hybrid technologies such as hypersonic missiles — which unlike ballistic missiles can change course rapidly — as well as a new generation of long-range (and perhaps nuclear-powered) cruise missiles, better unmanned systems and more.

While it's certain that the new review won't ignore the China-Russia threat — as the Obama administration's 2010 version largely did, another instance of its general failure to take the Russian

threat seriously — it would be a terrible oversight if it doesn't fully consider the implication of a new era of great-power conflict.

Thus one pillar of any new strategy should be a rebalancing toward homeland defense, which in budget terms has been badly undernourished compared to tactical systems over the last decade.

An obvious first step would be to improve the two existing land-based systems. On the domestic shield, the quickest and easiest improvement would be to expand the missile fields at Fort Greeley, Alaska, which could accommodate 60 interceptors or more. The Pentagon should also look at the feasibility of a new shield to defend the eastern half of the country, perhaps with a mobile system that could move between sites on the East Coast and Midwest.

On Eastern Europe, the Trump administration could go ahead with two plans shelved by its predecessor in deference to Russian concerns — placing batteries in one more allied country, likely Poland, and re-arming the system with a new generation of Raytheon's SM-3 interceptors. A second area requiring urgent attention is space. The heavens are currently an arms-free zone under the terms of a 1967 treaty, but there's little doubt that America's adversaries are planning to someday weaponize satellites, and the U.S. should be ready to do the same.

New space-based sensor technologies are needed to track missiles (including low-altitude weapons such as hypersonics) from launch to impact. Ground- and sea-based sensors can't do that because of the curvature of the earth. Such monitoring would also be better than terrestrial systems at discerning decoys and other missile trickery.

In addition, most U.S. defenses are designed to intercept incoming missiles at their midcourse phase, just before they re-enter the earth's atmosphere. This is aptly likened to "hitting a bullet with a bullet." A far surer way to defuse the threat would be to blow it up on take-off. Possibilities for this include cyberattacks and directed-energy weapons (that is, laser beams).

Finally, as more money and effort are put into research and development, the U.S. would be well advised to share its advances with its closest allies, particularly Israel (which could return the favor by sharing its Iron Dome technology) and the Gulf Arab states, which have long struggled to build a joint missile-defense system against Iran.

Many will worry that if the U.S. steps up its defense architecture in these and other ways, it will simply spur China and Russia to put more money into their own missile capabilities. But those two nations are already in a mad dash to upgrade and expand every aspect of their militaries. Stronger U.S. defenses are the best way to deter their increasing aggressions and bring them, someday, to the negotiating table for arms-reduction talks.

That said, China and Russia need to be reassured that these new systems are defensive only, and not engineered for preemptive strikes on their strategic arsenals. Any ambiguity about that would be destabilizing — the last thing anybody should want in the life-and-death chess game of nuclear deterrence.

Last year, President Trump claimed that "We have missiles that can knock out a missile in the air 97 percent of the time." Let's hope the Missile Defense Review will set him straight: Judged as a whole, the country's missile defenses come nowhere close to providing that kind of security. Ensuring Americans' safety amid rising nuclear threats from major powers and rogue states demands new vision and determination of U.S. civilian and military leaders.

https://www.bloomberg.com/view/articles/2018-05-29/u-s-missile-defense-for-a-scarier-nuclear-age

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The Hill (Washington, D.C.)

Missile Defense Too Critical for 'Ready-Fire-Aim' Strategy

By Maj. Gen. Howard “Dallas” Thompson (Ret.)

May 25, 2018

In the news, in the halls of Congress, within the Pentagon and on the minds of the American people, ballistic missile defense remains a weighty and timely topic. But it is also one that is often the subject of superficial, “sound-bite” solutions.

The Missile Defense Agency (MDA), a highly professional and serious-minded organization with a very tough job to do, is being prodded by some to take a short-term approach to the missile defense of Hawaii and the Pacific with its new Homeland Defense Radar (HDR) programs.

While defending Hawaii and the Pacific is a real and imminent challenge, it deserves to be met thoughtfully, responsibly, and above all, adequately. Congress can, and should, help the MDA do just that.

At issue is whether MDA’s current approach will actually deliver the required capabilities once fielded, ostensibly in the 2023 timeframe. The plan envisions MDA to procure three Homeland Defense Radars, using up to three separate contracts concluded under a full and open industry competition.

However, what is currently lacking is a set of rigorous, unambiguous requirements that will ensure the radars will, once fielded, be able to address and successfully operate within the actual threat environment.

Without these requirements being successfully met, we risk buying and fielding a system that is at a minimum inadequate, and at the worst, obsolete the first time a warfighter turns on the switch.

MDA is, no doubt, responding to a political environment best characterized by, “Do something — anything!” Following the commander of Pacific Command (PACOM) testifying before Congress on the subject of ballistic missile defense for Hawaii, a prominent and powerful congressman stated that we had “lost so many years” to the threat, and there was no more time to study the problem.

An axiom in life states, “if you want it bad, you get it bad.” Our national treasure is too valuable to be squandered in such a ready-fire-aim manner.

The air and missile defense environment is changing at an ever more rapid rate, both with our adversaries and their capabilities, as well as with our emerging technology and industrial capability.

Admiral Harry Harris, PACOM Commander, has testified, “Given where we think the North Korean capability might be in terms of their missiles in three or four years or in the early 2020s, I think we must continue to improve our missile defenses.”

On the plus side, the U.S. defense industry stands on the precipice of bringing fully digitized sensors into production to support an integrated air and missile defense capability.

Defense stalwarts are bringing the best of the Active Electronically Scanned Array (AESA) radar technology coupled with an all-digital design from the airborne fighter jet arena to terrestrial sensors, greatly enhancing their capability not only against ballistic missiles, but against multiple other threats.

Any defensive capability bought by the American taxpayer should be flexible and adaptable enough to defend against the myriad threats that will threaten our homeland. Some threats are long-standing, such as ballistic missiles, and others have only recently been fielded or are just on the horizon, such as stealthy cruise missiles and hypersonic missiles.

MDA should leverage this emerging digital technology by absolutely requiring its inclusion in the HDR family of programs, instead of risking fielding an inadequate or obsolete system and simply doing more of the same.

However, to fully benefit from this transformation, digital technologies must be paired with another emerging capability — Open Mission System Architecture.

Admittedly, "open architecture" is the latest Department of Defense (DoD) and defense industry buzzword, but this software-driven concept represents the real revolution in defense systems acquisition. It is being demanded by DoD in programs as diverse as satellite control software and light attack aircraft.

This architecture will allow a sensor to be rapidly reprogrammed to the evolving threat without lengthy and costly software "patches" or hardware upgrades, both only available from the prime contractor.

In fact, Congress should demand that all new DoD acquisition programs be built with an open, contractor-agnostic architecture, which allows for rapid reprogramming and inherent flexibility, as well as another potential secondary effect: more competition from smaller, agile companies in a dwindling industrial base now dominated by mega-corporations.

None of the above should be taken to imply that nothing should be done now to mitigate the ballistic missile threat to Hawaii. PACOM Commander Harris, as well as former Deputy PACOM Commander Lt. Gen. Dan Leaf, USAF (ret.), have both called for the deployment of existing, proven systems to the islands, including Aegis Ashore, THAAD and either SM-3 or MDA-provided Ground Based Interceptors.

These systems have already been developed, are fielded and represent an off-the-shelf temporary defensive capability, while freeing MDA's developmental dollars to pursue a truly capable, flexible and adaptable defensive capability.

Congress should help by allowing MDA to take this long-term view, not just for the benefit of Hawaii, but for the entire nation and our allies.

Every dollar Congress appropriates should compete with every other dollar. Authorizers and appropriators, members of Congress and staffers alike, should support MDA and its mission through the true exercise of their fiscal responsibility, while providing the best capabilities to the warfighter.

The American People deserve no less.

http://thehill.com/opinion/national-security/389345-missile-defense-too-critical-for-ready-fire-aim-strategy

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The New Yorker (New York, N.Y.)

The Growing Dangers of the New Nuclear-Arms Race

By Eric Schlosser

May 24, 2018

The Trump Administration's push for more nuclear weapons is part of a perilous global drive to miniaturize and modernize devices that already promise annihilation.

Less than a decade after President Barack Obama called for the abolition of nuclear weapons, the nine countries that possess them are engaged in a new nuclear-arms race. North Korea has most likely developed a hydrogen bomb, and its Hwasong-15 missiles may be large enough to transport not only a warhead but also decoys, chaff, and other countermeasures that would thwart America's Ground-Based Midcourse Defense anti-ballistic-missile system. India recently commissioned its second ballistic-missile submarine, launched an Agni-5 ballistic missile that can strike targets throughout Pakistan and China, and tested nuclear-capable BrahMos and Nirbhay cruise missiles. Pakistan now has the world's fastest-growing nuclear stockpile, including low-yield warheads on Hatf-9 missiles for use against Indian troops and armored vehicles. Israel is expanding the range of its Jericho III ballistic missiles and deploying cruise missiles with nuclear weapons on submarines. France and the United Kingdom are developing replacements for their Vanguard and Triomphant ballistic-missile submarines. China is about to introduce Dongfeng-41 ballistic missiles that will be mounted on trucks, loaded with up to ten nuclear warheads, and capable of reaching anywhere in the United States. Russia is building a wide range of new missiles, bombers, and submarines that will carry nuclear weapons. The R-28 Sarmat missile, nicknamed Satan-2, will carry up to sixteen nuclear warheads—more than enough for a single missile to destroy every American city with a population larger than a million people. Russia plans to build forty to fifty of the Satan-2s. Three other countries—Iran, Japan, and South Korea—may soon try to obtain their own nuclear arsenals.

In the preface to the Nuclear Posture Review, released in February by the Trump Administration, Secretary of Defense James Mattis expresses the new American point of view: "We must look reality in the eye and see the world as it is, not as we wish it to be." That reality, according to the Pentagon, requires a full renovation of the Cold War nuclear triad—new intercontinental ballistic missiles, new long-range bombers, and new ballistic-missile submarines. It also requires new, low-yield "tactical" warheads and bombs, a category of weapons once considered so destabilizing that President George H. W. Bush removed almost all of them from active service, in 1991. The cost of rebuilding America's nuclear arsenal is projected to be more than a trillion dollars, spent over the course of thirty years.

The growing danger of the nuclear-arms race has failed to inspire much debate. Nuclear policy is no longer widely discussed in the media; the public has been told little about a subject of existential importance; and questions once passionately argued have been largely forgotten. Why do we have nuclear weapons? What they are for? How might they be used? And, at a time when a single American submarine can destroy the capital city of every country in the United Nations, how much is enough?

Instead, these questions are being addressed by a small group of policymakers. Many of the crucial details are top secret, and the mundane terms used in official discussions tend to hide the apocalyptic consequences at stake. "Mutual deterrence," "flexible response," "counterforce," "countervalue," "buffer distance," "ladders of escalation," "circular error probable," "releasing commander," "release other than attack," "nuclear umbrellas," "nuclear posture," "force elements," "yield," "penetration aids"—none of these sound too alarming. But one term truly evokes its

meaning. A "megadeath" is a unit of measurement in nuclear warfare. Ten megadeaths, for example, means that ten million people have been killed.

The targeting strategies of today's nuclear powers stem from the aerial-bombing campaigns of the Second World War, when the distinction between hitting military assets and killing civilians disappeared. After the German bombing of the Spanish city of Guernica, and the Japanese attack on the Chinese city of Nanking, President Franklin D. Roosevelt called the destruction of cities "inhuman barbarism" in a 1939 statement, demanding that combatants "under no circumstances, undertake the bombardment from the air of civilian populations." The United States Army Air Forces tried to minimize civilian casualties during its attacks on Germany, flying missions in daylight, aiming at military and economic targets, and attempting to carry out "precision bombing." But the U.K.'s Royal Air Force, under the direction of Prime Minister Winston Churchill and Air Marshall Sir Arthur (Bomber) Harris, flew at night, aimed at residential areas, and tried to cause maximum devastation. Known as "de-housing," the British policy sought to break the morale of the German people.

Unfavorable weather patterns over Japan and racism shifted the focus of American bombing there from military and economic targets to the civilian population. As the historian John Dower has noted, the war with Japan was a "war without mercy." The Japanese used conventional, chemical, and biological weapons to kill as many as ten million to fifteen million people, mainly in China, and the United States did not hesitate to employ practices condemned a few years earlier as barbaric.

A great deal has been written about the ethics of President Harry Truman's decision to destroy the cities of Hiroshima and Nagasaki with atomic bombs. Much less attention has been given to Roosevelt's support for the use of firebombs against more than sixty Japanese cities. Those attacks subjected about a third of Japan's population to aerial bombardment and killed perhaps a million civilians. More people died during the firebombing of Tokyo in March, 1945, than during the atomic bombing of Hiroshima. According to a subsequent account by the United States Strategic Bombing Survey, "Probably more persons lost their lives by fire at Tokyo in a 6-hour period than at any [other] time in the history of man."

The atomic bomb revolutionized modern warfare not by enabling the mass slaughter of civilians but by vastly increasing its efficiency—the ease with which densely populated cities could be annihilated. The destruction of Tokyo had been achieved by about three hundred American planes dropping roughly eight thousand bombs. Hiroshima was destroyed by a single plane carrying one bomb.

After the Second World War, the United States mothballed hundreds of ships, cut the number of military aircraft by more than two-thirds, reduced the size of the U.S. Army by almost ninety per cent, and halted the production of atomic bombs. The Cold War began at a time when American military forces in Europe were outnumbered roughly ten to one by the Soviet Union's Red Army. Unable to defend Western Europe with soldiers and tanks, the United States chose to deter a Soviet invasion by threatening to drop atomic bombs on Soviet cities. One of the early war plans, called trojan, listed seventy cities as targets. They would be struck by a hundred and thirty-three atomic bombs. Moscow would be hit by eight; Leningrad, by seven. Conservative estimates predicted that about seven million Soviet civilians would be killed or wounded. Threatening the mass slaughter of noncombatants had come to be seen as the only means of safeguarding freedom and preventing another world war.

The advent of hydrogen bombs seemed to endanger no less than the future of humanity. The new weapons could be made hundreds, if not thousands, of times more powerful than the bomb that destroyed Hiroshima. J. Robert Oppenheimer, known as the "father of the atomic bomb," opposed the development of the H-bomb, and, in 1951, he strongly advocated the development of low-yield,

"tactical" nuclear weapons that would be aimed at military targets. He hoped to minimize civilian casualties and limit the scale of a nuclear war. If the Soviet Union invaded Western Europe, Oppenheimer supported using tactical weapons against tanks, troops, and airfields. The idea of bringing "the battle back to the battlefield" was later endorsed by a young Harvard academic, Henry Kissinger, who imagined nuclear wars in which adversaries fired only tactical nuclear weapons at each other, obeyed rules of engagement, paused the fighting to negotiate, and agreed to spare cities from harm.

Confronted with a choice between tactical weapons and more powerful strategic weapons, the United States decided to build both. The Navy got nuclear depth charges, torpedoes, cruise missiles, gravity bombs, and submarine-launched ballistic missiles. The Army got nuclear artillery shells, land mines, anti-aircraft missiles, ground-to-ground missiles, and even the Davy Crockett, a recoilless rifle carried by infantrymen that shot a small nuclear projectile. The U.S. Special Forces got "backpack nukes" for sabotage missions behind enemy lines. And the Air Force got the most lethal nuclear weapons of all, mounted on cruise missiles, ballistic missiles, and bombers.

American war plans relying on tactical weapons and those relying on strategic weapons were in many ways incompatible. The Atomic Energy Act of 1946 specified that the President had the sole authority to order the use of a nuclear weapon. That authority was later embodied in America's main nuclear-war plan, the Single Integrated Operational Plan (siop)—a highly-centralized scheme that launched nuclear weapons in an all-out attack on the Soviet Union and its allies. But a Soviet invasion of Western Europe might sideline the siop: tactical weapons would only be effective on the battlefield if they could be used immediately. The commander of an American infantry division, about to be overrun by the Red Army, might not have time to call the White House and wait for Presidential approval before authorizing the firing of his nuclear artillery shells and Davy Crocketts.

As a result, during the Eisenhower Administration, the authority to use nuclear weapons was secretly delegated to relatively low-level American officers assigned to nato. They could decide when to go nuclear. Once the first tactical weapon detonated on a battlefield, the escalation of the conflict would be hard to control. Communications could prove impossible amid the nuclear blasts, and a Third World War might begin without the President's knowledge or approval. By deploying large numbers of both tactical and strategic weapons, the United States embraced a nuclear decision-making process that was simultaneously centralized and decentralized—and bound to be chaotic in a crisis.

Throughout the Cold War, the proper size and composition of America's nuclear arsenal was a continual source of debate, as each military service championed its own role in any conflict. During the Kennedy and Johnson Administrations, Secretary of Defense Robert McNamara concluded that the United States should have enough nuclear weapons to fulfill two objectives: deter a Soviet attack and limit the damage of such an attack by destroying Soviet nuclear forces. If deterrence failed, at a bare minimum, regardless of the circumstances, McNamara believed that the United States should always be able to kill at least a quarter of the Soviet population and eliminate at least two-thirds of its industrial capacity. That level of "assured destruction," he later told President Lyndon B. Johnson, "would certainly represent intolerable punishment to any industrialized nation and thus should serve as an effective deterrent." But the nuclear-weapon requirements for "damage limitation" could become endless, as the Soviet Union expanded its nuclear arsenal and the number of military targets there multiplied.

The U.S. Air Force initially wanted ten thousand long-range ballistic missiles to attack Soviet nuclear forces, leadership bunkers, and other strategic targets, but later settled for a tenth of that number. The Army wanted a hundred and fifty-one thousand tactical nuclear weapons to hit battlefield targets, but eventually obtained about a twentieth of that number. The Navy argued that

a few hundred nuclear warheads, mounted atop missiles in its submarines and aimed at Soviet cities, would keep the peace, guarantee deterrence, and render all those Army and Air Force weapons unnecessary. Although the Navy's strategy of "minimum deterrence" would limit the size of America's nuclear arsenal, it would focus almost entirely on slaughtering civilians.

The interservice rivalries and competing nuclear strategies led to a remarkable degree of overkill. America's first nuclear-war plan approved by the joint chiefs, known as Halfmoon, had assumed that dropping fifty atomic bombs on the Soviet Union would devastate the country. By the late nineteen-eighties, the United States had more than twenty thousand nuclear weapons, and planned to use almost four hundred of them just to strike targets in Moscow. The Soviet Union built a similar mix of tactical and strategic forces to deter the United States—and had more than forty thousand nuclear weapons at the end of the Cold War.

The world's other nuclear powers harbored much smaller arsenals and simpler ambitions. In China, Chairman Mao was dismissive of America's "small stack of atom bombs," suggesting that his country's huge population could survive any attack and wouldn't be "cowed by U.S. atomic blackmail." China pursued a policy of minimum deterrence, planned only to destroy American cities, and never had more than a few hundred nuclear weapons. The United Kingdom showed little interest in hitting Soviet military targets, and its nuclear-war plans increasingly focussed on "the Moscow criterion," a threat to destroy the capital of the Soviet Union. France had a nuclear policy known as "deterrence of the strong by the weak," operating a command structure independent of nato and targeting Soviet cities. President Charles de Gaulle compared the thinking behind the strategy to that of a man walking in an ammunition dump with a cigarette lighter. "Of course, if he lights up, he'll be the first to blow," de Gaulle explained. "But he will also blow all those around."

The Fourth Geneva Convention extends legal protection to civilians during wartime. The rules against deliberately harming noncombatants were expanded by two additional protocols, in 1977. "The civilian population . . . shall not be the object of attack," Protocol II states. "Acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited." Despite that admonition, today's nuclear-targeting policies in many ways resemble medieval hostage-taking. The innocent are threatened with murder in order to preserve the peace.

Pakistan is now moving away from that sort of minimum deterrence to a more complex strategy known as "full-spectrum deterrence," building tactical nuclear weapons to offset India's superiority in troop strength and conventional weapons. Much like nato during the Cold War, Pakistan assumes that tactical weapons will deter an invasion or defeat the invading army without endangering cities. But Pakistan now faces many of the same risks and challenges that nato once encountered.

To be effective on the battlefield, tactical weapons need to be widely dispersed and available for immediate use, making them more vulnerable to theft, sabotage, and unauthorized use. They may also make nuclear war more likely. Because the destructive effects of tactical weapons are smaller, the temptation to use them may be greater. Once the "nuclear taboo" has been broken, nobody can be certain what will happen next. At Hiroshima and Nagasaki, nuclear weapons were used against a nation that didn't have them.

Russia and the United States possess about ninety per cent of the world's approximately fifteen thousand nuclear weapons, maintaining arsenals large and diverse enough to hit a variety of targets. The most recent Nuclear Employment Strategy of the United States, issued by the Obama Administration, in 2016, is a veritable jobs program for weapons of mass destruction. It emphasizes the importance of destroying counterforce (military) targets rather than countervalue (civilian) targets, and it vows to "minimize collateral damage to civilian populations," in keeping with international law. The Trump Administration's Nuclear Posture Review advocates a strategy that sounds oddly elegant: "tailored deterrence." Its objectives include preventing a nuclear attack on

the United States, protecting American allies from attack, and, if deterrence fails, ending "any conflict at the lowest level of damage possible and on the best achievable terms."

Russia has also changed its nuclear strategy. During the Cold War, the Soviet Union claimed that it would never be the first to use nuclear weapons. But Russia is no longer confident that its conventional forces are superior to those of nato, and so it has embraced an "escalate to de-escalate" strategy, raising the possibility of the use of tactical weapons against nato troops. The strategy is based on a faith that low-yield nuclear blasts will impose "tailored" damage on nato, de-escalate the conflict, and force a ceasefire. The strategy presumes that nato won't retaliate by using nuclear weapons, too. The change in Russian doctrine has prompted the Trump Administration to seek new low-yield, tactical weapons. The Administration believes that its new tactical weapons will deter the Russians from ever using their own—reversing a bipartisan consensus that for the past quarter century has regarded these weapons as gravely and needlessly dangerous.

At the height of the Cold War, the United States kept about seven thousand tactical nuclear weapons in Europe. The utility of those weapons was always in doubt. During Carte Blanche, a war game conducted in 1955, three hundred and thirty-five nato tactical weapons were used against invading Soviet tanks and troops, for the most part on battlefields in Germany. Robert McNamara later outlined the results: "It was estimated that between 1.5 and 1.7 million people would die and another 3.5 million would be wounded—more than five times the German civilian casualties in World War II—in the first two days." Those estimates did not include deaths from illness, radiation poisoning, or Soviet nuclear weapons. Subsequent war games confirmed the findings of Carte Blanche: if nato ever used tactical weapons to defend Germany, it would destroy Germany. The mere existence of tactical weapons could destabilize a crisis and make it end badly. During the Cuban Missile Crisis, President John F. Kennedy and his advisers didn't know that the Soviet forces on the island and in the sea surrounding it not only had tactical weapons but also had the ability to use them without consulting Moscow. An American attack—contemplated for days at the White House and nearly set in motion—would have unwittingly led to a nuclear war.

After the collapse of the Soviet Union, in 1991, the United States unilaterally removed all of its tactical weapons from South Korea and almost all of them from Europe. The Chairman of the Joint Chiefs of Staff at the time, General Colin Powell, had trained in the employment of tactical nuclear weapons as a young officer and thought that they "had no place on a battlefield." With the support of every member of the Joint Chiefs of Staff, Powell persuaded Secretary of Defense Dick Cheney and President George H. W. Bush to get rid of them, and over the years the size of nato's tactical nuclear stockpile fell by ninety-seven per cent.

Today, the United States keeps about two hundred tactical weapons at six nato bases in Germany, Belgium, Turkey, Italy, and the Netherlands. The weapons are B-61 bombs designed to be carried by fighter planes. They have no assigned role in nato's war plans, and their military usefulness is "practically nil," according to General James Cartwright, a former commander of the United States Strategic Command. The B-61 bombs have been retained as symbols of America's commitment to the defense of nato, despite concern that the weapons are vulnerable to theft by terrorists, sabotage, and attack, especially in Turkey. A few B-61s could fit in the bed of a pickup truck.

The Trump Administration is moving forward with plans to modernize the B-61 and would like to mount low-yield tactical warheads on submarine-based missiles. The advantage of basing tactical weapons on a submarine is that they will be hidden underwater—and therefore will be less likely to be stolen, attacked, or become the subjects of political protests. The disadvantage is that Russia will have no way of knowing whether a missile launched from a submarine is carrying a tactical warhead meant to destroy a tank battalion on the battlefield or a strategic warhead fired to destroy an underground leadership bunker in Moscow.

The glaring problem of how the President of the United States and the President of Russia might reliably communicate and negotiate during a limited nuclear war has never been resolved. The Moscow-Washington Direct Communications Link, known as the "hotline," isn't a voice link with matching red telephones, as portrayed in Hollywood thrillers. It's a dedicated computer link that transmits encrypted e-mails between the Kremlin and the Pentagon. A recent photograph of the hotline is not reassuring: it looks like a computer terminal you might find in the business center at a Marriott hotel.

The return of tactical weapons is the most controversial aspect of Trump's Nuclear Posture Review. The new policy assumes that American tactical weapons will deter the use of Russian tactical weapons, raising "the nuclear threshold" and making "nuclear employment less likely." Sam Nunn, a former chairman of the U.S. Senate Committee on Armed Services and a co-founder of the Nuclear Threat Initiative, has argued against that sort of thinking for more than forty years. He fears that the chance of accidents, miscalculations, and blunders with tactical weapons—as well as the pressure to "use them or lose them" in battle—greatly increase the risk of an all-out nuclear war. Like so many of the disagreements about nuclear strategy, this one cannot be settled with empirical evidence, and selecting the wrong policy could be catastrophic. As Nunn observed in 1974, after a tour of nato's tactical nuclear units, "Nobody has any experience in fighting nuclear wars, and nobody knows what would happen if one were to start."

On the morning of August 6, 1945, Setsuko Thurlow, then thirteen years old, was preparing to decode messages on the second floor of the Army headquarters in Hiroshima. About twenty girls from her school worked beside her, and thousands of other middle schoolers were employed at patriotic tasks throughout the city as part of the Student Mobilization Program. Thurlow noticed a bright bluish-white flash outside the window at 8:15 a.m. She never saw the mushroom cloud; she was in it. She felt herself fly through the air, blacked out, and awoke pinned in the rubble of the collapsed building, unable to move. Lying there in silence and total darkness, she had a feeling of serenity. And then she heard the cries of classmates trapped nearby: "God, help me!," "Mother, help me!" Someone touched her, removed the debris on top of her, and told her to crawl toward the light. She somehow made it out safely and realized that what was left of the headquarters was on fire. A half dozen or so other girls survived, but the rest were burned alive.

The smoke and dust in the air made the morning look like twilight. As Thurlow and a few classmates left the city center and walked toward the hills, they witnessed one grotesque scene after another: dead bodies; ghostly figures, naked and burned, wandering the streets; parents desperately searching for lost children. She reached an Army training ground in the foothills, about the size of two football fields. Every inch of ground was covered with wounded people begging for water. There seemed to be no doctors, no nurses, no medical help of any kind. Thurlow tore off strips of her clothing, dipped them in a nearby stream, and spent the day squeezing drops of water from them into the mouths of the sick and dying. At night, she sat on the hillside and watched Hiroshima burn.

Thurlow was reunited with her parents. But her sister and her sister's four-year-old son died several days later. Her sister's face had grown so blackened and swollen that she could only be recognized by her voice and her hairpin. Soldiers threw her body and that of her son into a ditch, poured gasoline on them, and set them on fire. Thurlow stood and watched, in a state of shock, without shedding a tear. Her favorite aunt and uncle, who lived in the suburbs outside Hiroshima and appeared completely unharmed, died from radiation poisoning a few weeks after the blast.

More than seven decades later, on the afternoon of December 10, 2017, I watched Thurlow accept the Nobel Peace Prize on behalf of the International Campaign to Abolish Nuclear Weapons (ican). It was a remarkable moment, as she slowly walked to the podium with a cane, and the crowd in Oslo's

City Hall gave a standing ovation. After the bombing, Thurlow attended universities in Hiroshima and Lynchburg, Virginia. Later, she earned a master's degree in social work at the University of Toronto. She married a historian and settled in Canada. She began her anti-nuclear activism in 1954, and became a leading advocate for survivors of the atomic bombings, known as the hibakusha. A few years ago, I spent time with her in Stockholm, meeting with academics and legislators to discuss the nuclear threat. In her early eighties, she was sharp, passionate, tireless, and free of bitterness. "Today, I want you to feel in this hall the presence of all those who perished in Hiroshima and Nagasaki . . . a great cloud of a quarter of a million souls," Thurlow said in her Nobel speech. "Each person had a name. Each person was loved by someone. Let us insure that their deaths were not in vain."

The movement to abolish nuclear weapons began soon after the destruction of Hiroshima and Nagasaki. In January, 1946, the first resolution of the United Nations General Assembly called for "the elimination from national armaments of atomic weapons," and during the Cold War every American President supported that goal, with varying degrees of sincerity. On September 25, 1961, addressing the U.N. General Assembly, President Kennedy gave perhaps the most eloquent speech on behalf of abolition. "Every man, woman, and child lives under a nuclear sword of Damocles, hanging by the slenderest of threads, capable of being cut at any moment by accident or miscalculation or madness," he said. "The risks inherent in disarmament pale in comparison to the risks inherent in an unlimited arms race."

That week, Kennedy also secretly met with military advisers at the White House to discuss the pros and cons of launching a nuclear surprise attack on the Soviet Union. American and Soviet troops were confronting each other in Berlin, and a war between the superpowers seemed possible. Kennedy wanted to hear the benefits of striking first. The casualties that would result from the Single Integrated Operational Plan seemed excessive to him: an estimated two hundred and twenty million deaths in the Soviet Union and China (not including fatalities caused by fire). A Kennedy aide, Carl Kaysen, had come up with a surprise-attack plan, focussing solely on air bases and missile sites. He predicted that it would kill "less than 1,000,000, and probably not much more than 500,000." The problem with the plan, he acknowledged, was that it might not eliminate all of the Soviet Union's nuclear weapons—which could prove unfortunate for cities like New York and Chicago. If the United States launched a surprise attack on the Soviets, the likely American death toll was somewhere between five million and thirteen million. But, if the Soviets attacked the United States first, perhaps a hundred million Americans would die. "In thermonuclear warfare," Kaysen observed, "people are easy to kill." Kennedy wrestled with the dilemma, decided not to launch a surprise attack, and made his feelings clear at the U.N.: "Together we shall save our planet, or together we shall perish in its flames."

The height of anti-nuclear sentiment in the United States occurred during the Reagan Administration, amid renewed tensions with the Soviet Union. An opinion poll in 1983 found that about half of the American people thought that they'd die in a nuclear war. The Nuclear Freeze Movement and worldwide anti-nuclear protests helped to transform Ronald Reagan from an ardent Cold Warrior into a nuclear abolitionist. At a 1986 summit in Reykjavik, Reagan and the Soviet leader at the time, Mikhail Gorbachev, nearly reached an agreement to get rid of all of their countries' nuclear weapons. After the collapse of the Soviet Union, the fear of nuclear war receded, and arms-control agreements between the United States and Russia cut the number of nuclear weapons by about eighty per cent.

Republican Presidents had proved especially effective at reducing the nuclear threat. President Richard Nixon signed the Treaty on the Non-Proliferation of Nuclear Weapons, committing the United States to seek "cessation of the nuclear arms rate at an early date and nuclear disarmament."

President George H. W. Bush cut the size of America's nuclear arsenal by half. And President George W. Bush cut it in half again.

In 2007, the abolition movement was revived by an unlikely group of people: the leadership of the American national-security establishment. Two former Republican Secretaries of State, Henry Kissinger and George Shultz, joined two influential Democrats, former Secretary of Defense William J. Perry and Sam Nunn, the former chairman of the Senate Armed Services Committee, in writing an editorial for the Wall Street Journal, whose title aptly conveyed their goal clear: "A World Free of Nuclear Weapons."

A new anti-nuclear group, Global Zero, was formed in 2008 by an international assortment of military, diplomatic, and political leaders. Both the Democratic and the Republican candidates for President that year, Barack Obama and John McCain, supported nuclear abolition. The revitalized movement reached its apogee on April 6, 2009, when Obama gave a speech about nuclear weapons in Prague's Hradčany Square. He said that the United States had a moral responsibility, as the only country that has used nuclear weapons, to lead the international effort to abolish them. "Some argue that the spread of these weapons cannot be stopped, cannot be checked," Obama said. "Such fatalism is a deadly adversary, for, if we believe that the spread of nuclear weapons is inevitable, then in some way we are admitting to ourselves that the use of nuclear weapons is inevitable."

Nine years later, nuclear weapons have regained their sinister allure. North Korea has repeatedly threatened to launch a nuclear attack on the United States, producing elaborate videos that show the destruction of the White House and the U.S. Capitol. During a speech by the Russian President, Vladimir Putin, in March, computer animations projected on a large screen behind him showed Russian nuclear warheads descending over the state of Florida, perhaps aimed at Mar-a-Lago. And President Trump has delivered the sorts of nuclear threats that only Soviet leaders used to make, promising to unleash "fire and fury" and boasting about the size of his "button." Nuclear weapons are once again being depicted as good, valuable things, the measure of national status and strength. The current arms race between the United States and Russia betrays the same assumptions as the last one: that new weapons will be better, and that technological innovations can overcome the nuclear threat. It's a familiar delusion.

William Perry, who's been involved in nuclear matters for more than half a century, believes that the risk of a nuclear catastrophe is greater today than it was at any time during the Cold War. The Bulletin of the Atomic Scientists, unfortunately, agrees with him, and in January moved the hand of its Doomsday Clock to two minutes before midnight. The Cold War arms race between the United States and the Soviet Union has been replaced by a multipolar nuclear competition, with far more volatile dynamics. Russia faces possible nuclear attacks by the United States, China, France, and the United Kingdom. India must worry about China and Pakistan. China must deter the United States, India, and Russia. North Korea feels threatened by the United States, while some politicians in Japan and South Korea advocate developing their own nuclear weapons to counter those of North Korea. Nuclear terrorism poses a global threat. And everyone, it seems, hates the United States.

Moreover, the aftermath of a nuclear war may be even more dire than anything anticipated during the Cold War. In the nineteen-eighties, the astronomer Carl Sagan brought public attention to the danger of "nuclear winter," a sudden and extreme form of climate change that would be precipitated by the dust and debris rising into the atmosphere as mushroom clouds from obliterated cities. The latest studies suggest that a relatively small nuclear exchange would have long-term effects across the globe. A war between India and Pakistan, involving a hundred atomic bombs like the kind dropped on Hiroshima, could send five million tons of dust into the atmosphere, shrink the ozone layer by as much as fifty per cent, drop worldwide temperatures to their lowest point in a thousand years, create worldwide famines, and cause more than a billion

casualties. An all-out war between the United States and Russia would have atmospheric effects that are vastly worse.

The fact that launching a nuclear attack would be suicidal as well as genocidal hasn't put an end to nuclear-war planning. Nor does the prospect of Armageddon loom as an effective deterrent. Some religious fanatics celebrate the slaughter of civilians and have no reluctance to die for their gods, while leaders like Syria's Bashar al-Assad have been willing to use banned chemical weapons and bring on the destruction of their own countries rather than surrender power. An eagerness to embrace death undermines the logic of nuclear deterrence, while a determination to kill may perversely uphold it. In a recent documentary, Putin said that his country would only use its nuclear weapons in retaliation—and that he wouldn't hesitate to use them. "Why do we need a world," he asked, "if Russia ceases to exist?"

The International Campaign to Abolish Nuclear Weapons was formed in 2007. It seeks to reframe public attitudes toward nuclear weapons and gain ratification of an international treaty banning them. ican contends that the same rationale used to outlaw chemical weapons, biological weapons, land mines, and cluster munitions—their cruel, indiscriminate harm to civilians—should be applied to the deadliest weapons of all. According to the World Health Organization, no nation has the medical facilities or emergency-response capability to deal with the detonation of a single nuclear weapon in a city, let alone hundreds. After a nuclear blast, as in Hiroshima and Nagasaki, survivors would have to fend for themselves.

ICAN wants to stigmatize nuclear weapons, portraying them as inherently immoral and in violation of international law, not symbols of power or guarantors of national security. In July, 2017, the Treaty on the Prohibition of Nuclear Weapons, sponsored by ican, was endorsed by a hundred and twenty-two of the hundred and ninety-three countries in the United Nations. The treaty will attain legal force after being signed and ratified by fifty. It forbids the testing, development, production, acquisition, manufacture, and possession of nuclear weapons. Last November, Pope Francis backed the treaty, altering the Catholic Church's position on nuclear weapons; the Vatican had long opposed their use in war and advocated nuclear disarmament, but recognized their value in deterring war. Francis called nuclear weapons "senseless from even a tactical standpoint," criticized their "catastrophic humanitarian and environmental effects," and "firmly condemned" any possession of them.

A month later, the 2017 Nobel Peace Prize was awarded to ican—an impressive achievement for an organization with only three full-time employees and a part-time office temp. ican's success has been driven by thousands of idealistic volunteers who are mainly in their twenties and thirties. During her Nobel lecture, Beatrice Fihn, the group's executive director, a young and charismatic Swede, challenged the complacency of world leaders. "It is not irrational to think nuclear states can disarm," she said. "It is a necessity."

The Trump Administration and the eight other governments that have nuclear weapons vehemently disagree on a wide range of issues, but they are united in opposition to ican's treaty. They argue that it is poorly conceived, unverifiable, unenforceable, unrealistic, and an invitation to nuclear blackmail. "This treaty will not make the world more peaceful, will not result in the elimination of a single nuclear weapon, and will not enhance any state's security," the State Department said in a statement after the group won the Nobel Peace Prize. The United States, France, and the United Kingdom declined to send a representative to the award ceremony, as a protest against the winner.

Thirty-five years after President Reagan promised an American missile-defense system that would somehow blast dozens of nuclear-warhead-tipped missiles from the skies, his dream remains unfulfilled. Pursuing it, at a cost of close to two hundred billion dollars, has only pushed other

nations to modernize their nuclear arsenals. The exotic weapons recently announced by Putin—long-distance undersea drones with nuclear warheads, nuclear-powered cruise missiles that can circle the globe—aren't necessary to evade a missile defense system. A hydrogen bomb hidden in a forty-foot sailboat can do that. Nuclear wars remain unwinnable, despite fantasies to the contrary. During the last two tests of American interceptors, the missile-defense system failed to destroy a single missile launched, even when it knew the trajectory.

The many grievances between the United States and Russia are serious. They include the expansion of nato to the Russian border; American withdrawal from the Antiballistic Missile Treaty; Russia's invasion of Georgia, seizure of Crimea, and attack on eastern Ukraine; hostile propaganda; cyberwarfare; and meddling in elections. But they hardly justify killing billions of civilians. During a telephone call between Trump and Putin on March 20th, the two discussed resuming arms-control talks. If the two countries, which possess nine-tenths of the world's nuclear weapons, can agree to make significant cuts in their arsenals, the other nuclear powers can be pressured to do the same. And if a meeting between Trump and the North Korean leader, Kim Jong Un, ever occurs, Kim should be told that having nuclear weapons, for a wide variety of reasons, makes the destruction of his country more likely.

The abolition of nuclear weapons will require unprecedented trust between nations, a strict inspection regime, and severe punishments against any country that cheats. Until the day when those things are possible, greatly reducing the number of nuclear weapons, taking ballistic missiles off of alert, and abandoning high-risk strategies will make the world a much safer place. None of that will happen until people are willing to confront the threat. "Yet in spite of the immeasurable importance of nuclear weapons, the world has declined, on the whole, to think about them very much," Jonathan Schell wrote in "The Fate of the Earth," which was published in The New Yorker thirty-six years ago. "This peculiar failure of response, in which hundreds of millions of people acknowledge the presence of an immediate, unremitting threat to their existence and to the existence of the world they live in—but do nothing about it . . . has itself been such a striking phenomenon that it has to be regarded as an extremely important part of the nuclear predicament."

Since the publication of my book "Command and Control," in 2013, I've gotten to know the young leadership of the nascent anti-nuclear movement, spoken at ican gatherings, joined the board of the Ploughshares Fund (a foundation dedicated to reducing the nuclear threat), and received financial support for some of my work from the Nuclear Threat Initiative. I have also met with many of the top officials at our nuclear-weapon laboratories, with the leadership of the National Nuclear Security Administration (the civilian agency in charge of our nuclear weapons), and with the commanding officers at the Air Force Global Strike Command, the unit responsible for our intercontinental ballistic missiles and strategic bombers. What these disparate groups share is a strong and sincere desire to avoid a nuclear war. But they don't agree about the best way to do that.

I hope the spirit now animating the demonstrations against gun violence will soon offer resistance to the greatest possible form of organized violence. As government officials in Washington, Moscow, London, Paris, Beijing, New Delhi, Islamabad, Tel Aviv, and Pyongyang discuss how to update and improve their arsenals, the madness at the heart of the whole enterprise must be loudly asserted. How much is enough? The only rational answer: even one nuclear weapon is one too many.

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

Nuclear Diplomacy between Brazil and Argentina: An Imperfect but Important History Lesson

By Sara Kutchesfahani

May 25, 2018

International observers witnessed a historic moment on April 27 when the leaders of North and South Korea met for a landmark summit, the first time the two countries' leaders had met in over a decade. Upon the summit's conclusion, the leaders issued a joint statement promising to denuclearize and bring "lasting peace" to the peninsula and to end decades of hostilities.

After the ceremony comes the substance. Denuclearizing the Korean Peninsula would be unprecedented and, indeed, is an unlikely outcome for many reasons. In addition, the North Korean interpretation of denuclearization differs vastly from that of the United States and South Korea. Despite the unfavorable geopolitical conditions and large gap between interpretations, there is progress the two Koreas can make toward a less hostile and more secure status quo. In this regard, lessons can be drawn from two other former rivals on the other side of the world: Argentina and Brazil.

Between the 1950s and 1980s, Argentina and Brazil were suspected by the international community — as well as by each other — to be pursuing covert nuclear weapons programs. Yet the two countries did not ultimately become nuclear weapon states – instead, they become nuclear partners. The end of Argentina and Brazil's broader geopolitical rivalry took place partially through a gradual nuclear rapprochement process starting in the late 1960s and early 1970s.

By 1991, both countries had normalized relations and subsequently created the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC). The agency comprises an equal number of Brazilian and Argentine scientists and is the world's only existing bilateral mutual safeguards inspection agency. The process behind its creation could provide a useful framework for both Koreas to contemplate as they move forward with their rapprochement. ABACC was crucial in helping Argentina and Brazil assuage suspicions by verifying one another's non-nuclear weapon status, and to officially renounce any interest in nuclear weapons.

Skeptics may argue that ABACC might not be the best model to use as a comparison for the Korean Peninsula. It's true that the challenge in Brazil and Argentina was to verify each other's non-nuclear weapon statuses, while the challenge today is about persuading North Korea to denuclearize for the sake of regional stability and security. Nevertheless, the creation of ABACC is relevant. The experience of Brazil and Argentina provides three solid lessons that could be applicable to solving the crisis on the Korean Peninsula today.

The Importance of Dialogue

Argentina and Brazil's normalization of relations can be traced back to May 1980, when both countries were ruled by military leaderships. As I outline in my book, upon an invitation from Argentine President Jorge Videla, President João Figeuiredo became the first Brazilian leader to visit Buenos Aires in 40 years. Figeuiredo's visit was also personal because his father had previously been exiled in Argentina. Beyond the symbolic nature of the visit, the leaders made a significant policy advance, signing the first joint nuclear agreement between the countries. A decade later, following a series of further joint nuclear declarations, the nuclear rapprochement was firmly grounded through a 1991 agreement establishing ABACC. Consider the similarities to the Korean case: Kim Jong Un's family traces its lineage to South Korea, while President Moon Jae-

in's family traces its lineage to North Korea. That both leaders crossed over to each other's territory is a step in the right direction.

The case of Brazil and Argentina highlights the value of establishing and maintaining dialogue between countries at odds with one another. Indeed, the main activities of the Argentine/Brazilian nuclear working group involved dialogue, information exchanges, and technical consultations. Meeting every 120 days alternately in Argentina and Brazil allowed the group to discuss the possibilities of establishing a joint inspection regime and the related technical details. These discussions created opportunities to consider other mutual interests in the nuclear field. Diplomats and technical experts involved in the discussions were tasked with exploring all avenues for nuclear cooperation including collaboration, safety measures, a data bank for information exchange, and application of safeguards to the two states' nuclear activities. It was the constant interaction and dialogue that allowed the countries to make progress.

In the Panmunjom declaration, the two leaders of North and South Korea agreed

> through regular meetings and direct telephone conversations, to hold frequent and candid discussions on issues vital to the nation, to strengthen mutual trust and to jointly endeavor to strengthen the positive momentum toward continuous advancement of inter-Korean relations as well as peace, prosperity and unification of the Korean Peninsula.

This is a good start, as is the planned visit by South Korean President Moon Jae In to Pyongyang this fall. Kim Jong Un should reciprocate soon after with more meetings in the DMZ.

The Argentina and Brazil case is indicative of what all diplomats know: Dialogue matters. More specifically, meetings at both the head-of-state level and at the technical expert level can be important drivers of progress, while creating avenues for trust and confidence-building measures.

Trust and Confidence-Building

In creating ABACC, Argentina and Brazil embarked on a number of such measures, including high-level presidential and technical reciprocal visits to unsafeguarded and sensitive nuclear facilities. In 1987, Argentine President Raúl Alfonsín invited Brazilian President José Sarney to an exclusive tour of the unsafeguarded Pilcaniyeu pilot uranium enrichment facility. Until then, Argentina had not publicly admitted this facility existed. In response, Sarney invited Alfonsín to the navy-controlled Aramar uranium enrichment facility in the Iperó nuclear complex, Brazil's own secret nuclear installation. Alfonsin was the first foreigner to visit the plant.

These mutual visits to previously secret and unsafeguarded nuclear installations created an atmosphere of trust, helping assure one another and the international community that neither country was pursuing nuclear weapons. In addition, these measures propelled further declarations, encouraging deeper bilateral nuclear cooperation. The process of building confidence increased trust and facilitated working relationships that were helpful in finding ways to turn goodwill into practical steps, most notably the creation of ABACC.

The North and South Koreans could explore various options for exchanges related to both nuclear and conventional issues, such as visits by South Korean and IAEA inspectors to North Korean nuclear sites. Over time, this could lead to a new policy based on openness rather than opacity.

Political Will

The final lesson concerns the political will of the Argentine and Brazilian leadership. A mutual safeguards inspection regime could not have been realized without the commitment of leaders in Buenos Aires and Brasilia. The re-emergence of civilian leadership in both countries in the mid-1980s created space for better engagement. Under the leadership of civilians committed to fostering cooperation, the bilateral nuclear agreements became a major part of the rapprochement

process. The countries' first democratic governments established a common nuclear policy by signing five nuclear cooperation agreements that helped demonstrate their respective programs were peaceful. Successive administrations maintained this cooperation, eventually resulting in the decision to implement ABACC, which remains in place today.

There seems to be a similar foundation of political will on both sides of the 38th parallel. Moon favors engagement with his North Korean neighbor, while Kim surprised the world with his diplomatic overture agreeing that both Koreas should walk under one flag at the Pyeongchang Winter Olympics.

An Imperfect But Important Example

Of course, there are aspects of the ABACC process that differ from the situation between North and South Korea. First, while North Korea and South Korea also share a border, one has a nuclear weapons program, while the other doesn't (though it sits under the protection of the U.S. nuclear umbrella). This was not the case for Argentina and Brazil since neither had a nuclear weapons program, nor any security guarantees from allies. Second, while Korean peninsula tensions may have been diffused somewhat given the recent interactions between the heads of state, deep-rooted feelings of suspicion and mistrust may still exist. Third, no two regions can be expected to have identical political, military, or economic characteristics. Therefore, a mutual inspections and safeguards verification system that works well in one region is not guaranteed to do so in another. Still, the Panmunjom declaration outlines a path toward sustained dialogue, provides room for confidence and trust-building measures, and indicates nascent political will from both sides — all features that the Brazilian and Argentinian experience suggests are signs of progress.

With numerous challenges ahead, the lessons learned from the creation and subsequent sustained success of ABACC are a good starting point for a discussion of next steps between another pair of rival nations whose ties are fraught with nuclear tensions.

https://warontherocks.com/2018/05/nuclear-diplomacy-between-brazil-and-argentina-an-imperfect-but-important-history-lesson/

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ABOUT THE USAF CSDS

The USAF Counterproliferation Center 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 Director for Nuclear and Counterproliferation (then AF/XON), now AF/A5XP) and Air War College Commandant established the initial manpower 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.

The Secretary of Defense's Task Force on Nuclear Weapons Management released a report in 2008 that 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." As a result, 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 continuing education through the careers of those Air Force personnel working in or supporting the nuclear enterprise. This mission was transferred to the Counterproliferation Center in 2012, broadening its mandate to providing education and research to not just countering WMD but also nuclear deterrence.

In February 2014, the Center's name was changed to the Center for Unconventional Weapons Studies 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.

The CSDS (now the Center for Strategic Deterrence Studies) 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.