UNITED STATES AIR FORCE CENTER FOR UNCONVENTIONAL WEAPONS STUDIES

OUTREACH JOURNAL

Issue No. 1288
3 November 2017

Featured Item

"*The North Korean Nuclear Challenge: Military Options and Issues for Congress*". Written by Kathleen J. McInnis, Andrew Feickert, Mary E. Manyin, Steven A. Hildreth, Mary Beth D. Nikitin, and Emma Chanlett-Avery; published by the Congressional Research Service; October 27, 2017

https://fas.org/sgp/crs/nuke/R44994.pdf

North Korea's apparently successful July 2017 tests of its intercontinental ballistic missile capabilities, along with the possibility that North Korea (DPRK) may have successfully miniaturized a nuclear warhead, have led analysts and policymakers to conclude that the window for preventing the DPRK from acquiring a nuclear missile capable of reaching the United States is closing. These events appear to have fundamentally altered U.S. perceptions of the threat the Kim Jong-un regime poses to the continental United States and the international community, and escalated the standoff on the Korean Peninsula to levels that have arguably not been seen since 1994.

A key issue is whether or not the United States could manage and deter a nuclear-armed North Korea if it were to become capable of attacking targets in the U.S. homeland, and whether taking decisive military action to prevent the emergence of such a DPRK capability might be necessary. Either choice would bring with it considerable risk for the United States, its allies, regional stability, and global order. Trump Administration officials have stated that "all options are on the table," to include the use of military force to "denuclearize,"—generally interpreted to mean eliminating nuclear weapons and related capabilities—from that area.

One potential question for Congress is whether, and how, to employ the U.S. military to accomplish denuclearization, and whether using the military might result in miscalculation on either side, or perhaps even conflict escalation. Questions also exist as to whether denuclearization is the right strategic goal for the United States. This is perhaps because eliminating DPRK nuclear or intercontinental ballistic missile (ICBM) capabilities outside of voluntary denuclearization, and employing military forces and assets to do so, would likely entail significant risks. In particular, any move involving military forces by either the United States/Republic of Korea (U.S./ROK) or the DPRK might provoke an escalation of conflict that could have catastrophic consequences for the Korean Peninsula, Japan, and the East Asia region.

In this report, CRS identifies seven possible options, with their implications and attendant risks, for the employment of the military to denuclearize North Korea. These options are

- maintaining the military status quo,
- enhanced containment and deterrence,
- denying DPRK acquisition of delivery systems capable of threatening the United States,
- eliminating ICBM facilities and launch pads,
- eliminating DPRK nuclear facilities,
- DPRK regime change, and
- withdrawing U.S. military forces.

These options are based entirely on open-source materials, and do not represent a complete list of possibilities. CRS cannot verify whether any of these potential options are currently being considered by U.S. and ROK leaders. CRS does not advocate for or against a military response to the current situation.

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US NUCLEAR WEAPONS

Breaking Defense (Washington, DC)

10 Reasons The US Should Build New Nuclear Missiles, GBSD

By Peter Huessy

October 30, 2017

The first InterContinental Ballistic Missile, Minuteman 1, was deployed some 45 years ago on the same day that President Kennedy announced that Soviet missiles were being deployed in Cuba. At the end of the Cuban missile crisis, President Kennedy credited the newly deployed Minuteman ICBM as his "ace in the hole" that allowed the crisis to be settled peacefully.

Fast forward to today. The United States Air Force has selected two contractors to compete for designing the next land-based ICBM, the Ground Based Strategic Deterrent (GBSD). This will be the first new ICBM since the Peacekeeper missile was deployed in 1986. (The current Minuteman III guidance and propulsion systems went through a nearly 20-year service life extension program (SLEP) to keep the Minuteman III missile viable through 2030.)

Several highly respected Washington-based think tanks have assessed the US nuclear deterrent and how best to ensure future deterrence. A common theme has been criticism of the land-based leg of the nuclear triad. Most of the criticism has largely relied on faulty assumptions about the strategic stability aspects of ICBMs, their flexibility and their costs.

For example, an often-repeated and primary argument used in these studies is an assertion that our land based missiles are "vulnerable" because their silo locations are known.

Categorically incorrect.

First, America has 400 deployed missiles spread over tens of thousands of square miles in 450 silos in five western states. Any adversary would find it impossible to destroy all 450 silos in one strike, even if a very high percentage of an adversary's nuclear forces were used. (Only Russia possesses a nuclear force large enough to even consider such an act.)

Second, in a crisis the president can be sure our land-based missiles are available for whatever deterrent mission is required, without any need for a quick launch decision.

Far from being vulnerable, these missiles are highly survivable. This means any attack on a small number of the missiles is irrational; an attempted attack on all of them is simply not executable.

Thus, as far as strategic stability is affected, ICBMs contribute a great deal.

Third, each Minuteman missile possesses only one warhead, making them unattractive targets. The Russians would have to use at least two warheads to try and take out each American missile silo, a very expensive rate of exchange.

Fourth, even if you theoretically assume all Minuteman missile silos were successfully destroyed in an attack, our complementary nuclear submarine and bomber forces, boasting hundreds of warheads, could be launched in retaliation. Knowing this, no rational adversary would take such a risk and attack us first.

Fifth, one of the most severe critics of Minuteman has recently admitted the central argument of the ICBM vulnerability is unfounded. Jan Wolfshal, formerly Vice President Biden's adviser on nuclear matters, admitted at a conference held by the Center for International and Strategic Studies that Russians would have to be irrational to attack the continental-US based Minuteman force because they could not destroy all the missiles.

Wolfshal also acknowledged any such Russian strike would most certainly precipitate a retaliatory submarine and bomber strike by the United States, further reinforcing the irrationality of any such hypothetical Russian strike.

Frank Miller, a former top OSD and White House nuclear policy official, turned the argument around to show how fallacious it is. In remarks to a Capitol Hill seminar hosted by the Mitchell Institute on June 6, Miller asked whether critics of the American ICBM force survivability would urge an American President to strike vulnerable Russian land-based missiles, just as they assume a Russian President would seriously contemplate striking the United States.

"You're a very senior adviser to the president of the United States," he said. "You go into the Oval Office and say 'Mr. President, I'm worried about the Russians and I think our best option is to strike first and eliminate their [ICBM] nuclear forces. I know they have missile detection and warning systems, and in the Russian case perhaps a 'dead-hand' launch capability, and they will see us coming, but maybe we can get lucky."

Mr. Miller continued: "In the famous Cold War movie classic "Dr. Strangelove", General Buck Turgidson recommends the [US] President try and pre-emptive disarming strike against the Soviet Union, declaring "Mister President, I'm not saying we wouldn't get our hair mussed. But I do say no more than 10- to 20-million killed, tops! Depending on the breaks."

Concluded Miller: "Can anybody seriously envision such a scenario? The notion that any President of the United States would indulge in such a cosmic throw of the dice is completely and utterly unbelievable. There are sufficient issues to talk about in nuclear deterrence and force modernization policy without indulging in such nonsensical flights of dark fantasy."

Sixth, the assertion that during a crisis the president would have only a few minutes during which to decide to launch our ICBMs is unfounded. No such attack is likely; nor is such an attack rational, as we explained above.

The US capability to respond with other elements of our nuclear triad also ensures an enemy cannot achieve any objective by striking the United States first. Thus, the structure of our deterrent means that in a crisis the time during which our president can decide on the proper course of action can be considerably expanded. No sudden decision is required.

Seventh, missing from most assessments addressing the stability of the ICBM leg of the triad is a key — and illogical — assumption. To decide unilaterally to take down our Minuteman force assumes the remainder of our triad would remain safe from attack for decades into the future.

And, of course, an attack on the Minuteman missile force is a direct attack on sovereign U.S. soil in the continental United States. Such as attack could not be ambiguous, small or defy attribution. It would be a highly visible attack on the contiguous territory of the US, striking at the very sovereignty of the United States. We would most certainly know the return address of the attacker, thus making a counter strike almost automatic.

Eliminating Minuteman would leave the United States with only five key US based nuclear targets — our three bomber bases and two submarine bases.

Thus, without 450 land-based silos and their associated 45 launch control centers, these five assets plus our five to seven submarines at sea, would constitute the entirety of our nuclear deterrent.

It simply doesn't make sense to make it markedly easier for a nuclear armed adversary to denuclearize the United States in one or a small series of strikes having to find and take out a dozen or fewer assets compared to over 500 today.

Our five bomber and submarine bases are also soft targets, ones that can be easily destroyed. We know this. But the future could mean a breakthrough in anti-submarine warfare, putting at risk our five to seven submarines at sea at any one time. How could we responsibly assume no such future technology breakthrough would be possible? No responsible military planner or national leader would make such an assumption.

Thus, while submarines at sea are highly survivable today, future advances in technology may change that, making a robust ICBM force a key insurance policy and critical to maintain deterrence now and into the future.

Unfortunately, even if the vulnerability argument is overcome, and it is recognized there is a sound requirement for an ICBM leg of the nuclear triad, some analysts still do not think we need the GBSD. An alternative discussed is keeping the existing Minuteman force and funding a Service Life Extension Program (SLEP). The assumption is such a program would be relatively inexpensive, be limited largely to a redo of the ICBM propulsion system, and provide the flexibility and capability to effectively respond to emerging threats through the infusion of modern technology.

However, that is not the case. Relying on a refurbished 55-year-old missile to remain credible for future decades to come when a new, better, more cost-effective and more capable system can be built does not make sense.

Any SLEP would most likely find an array of components that are no longer made and would be costly to make. Unanticipated upgrades may simply not be possible with the current system, adding to costs and possibly subtracting from capabilities. Meanwhile, our nuclear armed adversaries are constantly expanding their nuclear capability.

Eighth, the land-based missile force requires greater range and accuracy as improved technology allows our adversaries systems to become more resilient. The GBSD system will provide the required improvements along with increased durability and cost-effective maintenance. ICBMs will remain a highly cost-effective leg of the nuclear triad. Engaging in a costlier SLEP will not meet emerging adversary threats.

Ninth, the new GBSD system will remain operational for six decades. This includes a 30-year mid-life replacement of the propulsion system, which will be required of any ICBM alternative. Even with the upgraded prolusion system, it is the least expensive of all ICBM future options. Just doing a SLEP is not a viable alternative as a new ICBM would have to follow at the end of the SLEP sustainment.

Tenth, since Minuteman went on alert in October 1962, the missile system has perfectly executed its deterrent mission for over 32 million minutes. No president has ever ordered a Minuteman missile to be launched, despite numerous crises, terror attacks, conventional wars and stark challenges to American interests. That is an extraordinary record of providing stable and effective deterrence.

Examined in the light of these 10 factors, going forward with a new ICBM force makes great sense. And the best ICBM force would be one based on the GBSD, as it provides the nation the deterrent capability required to meet emerging threats, the flexibility to embrace emerging technology and the least costly option in providing a sustainable, stabilizing, and flexible land-based ICBM force.

https://breakingdefense.com/2017/10/10-reasons-the-us-should-build-new-nuclear-missiles-gbsd/

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Minot Daily News (Minot, ND)

VP Pence Makes Promises at Minot AFB Visit

By Eloise Ogden

October 28, 2017

Pence assures airmen administration will rebuild the military

It was a historic day at Minot Air Force Base when Air Force Two landed here Friday morning, bringing to the base Vice President Mike Pence.

When the blue-and-white plane with "United States of America" emblazoned across the side pulled up and stopped, Pence stepped out and waved to the greeters below, followed by Secretary of the Air Force Heather Wilson.

Col. Matthew Brooks, commander of the base's 5th Bomb Wing, and Col. Colin Connor, commander of the base's 91st Missile Wing, Gov. Doug Burgum, Sen. John Hoeven and Congressman Kevin Cramer were among those on hand to welcome Pence to Minot AFB and North Dakota.

The Minot base is the only Department of Defense dual-wing, nuclear capable installation. The bomb wing has two squadrons, the 69th and 23rd bomb squadrons, with B-52 bombers. The 91st Missile Wing has Minuteman III intercontinental ballistic missiles in underground facilities in several counties.

"Any time you have an opportunity to showcase the mission and the airmen at Minot Air Force Base to the vice president of the United States, it's a tremendous honor and a proud day for our airmen and their families," said Brooks.

Brooks met with the vice president and secretary of the Air Force shortly after they arrived on Friday. He said he had an opportunity to provide them with an overview of the mission at Minot AFB "and hear first-hand the incredible level of support that they have for us."

Connor said of the vice president's visit, "I think it's great for Minot."

Airman 1st Class Joshua Willacey, who works in the 5th Bomb Wing's Finance Office, serving both wings, said of the vice president's visit, "I think it's awesome. It's really a highlight and shows the importance of what we do here."

This was Pence's first visit to North Dakota since becoming vice president in January. The last vice president to visit this area was Spiro T. Agnew who was in Minot in September 1970 to give a speech at the Minot Municipal Auditorium.

Security was heightened at the base on Friday with Secret Service members also on detail for the vice president's visit.

Shortly after his arrival at the base, Pence visited a launch facility with a Minuteman III ICBM in the Minot missile field. When he returned to the base, he spoke to about 200 airmen in a hangar with a B-52 bomber as the backdrop.

Pence told the group he stood before them on behalf of their Commander-in-Chief, President Donald Trump. "And on behalf of a grateful nation to pay a debt of gratitude to all of you who have stepped forward to wear the uniform of the United States at such a time as this," he said. He also recognized the spouses, children and parents who support them.

Noting the 60th anniversary of the first unit to take flight from Minot AFB, he said, "And every day since, Minot Air Force Base has answered America's strategic needs and exemplified American

leadership in the skies. This Air Force base is the bedrock of America's national security and stability across the wider world," he said.

Pence told the group it's a great honor for him to serve as vice president to a president who cares so deeply about the men and women of the Armed Forces of the United States, their families, and the veterans. "I believe that history will record that President Donald Trump is the best friend the Armed Forces of the United States will ever have," Pence said.

Pence made a promise to the group of airmen: "Under President Trump's leadership, we're going to rebuild our military, we're going to restore the arsenal of democracy, and we will once again, as a nation, give our soldiers, sailors, airmen, Marines and Coast Guard the resources and the training you need and deserve to accomplish your mission and come home safe. That's my promise to every one of you and your families." His promise drew a loud applause from the airmen.

He told the group that last week, American and allied forces liberated Raqqa, a city in Syria. "Many of you were a part of that historic victory. America is defeating ISIS because the brave men and women of Minot took the fight to ISIS in the air, and on the ground, and I came to say thanks to the team here at Minot for a job well done." He said the Minot bomb wing's B-52s were responsible "for over 700 danger-close strikes to support the coalition for freedom in the region."

Pence noted President Trump will be traveling to the Korean Peninsula in a few days. While the president has made it clear the U.S. has, in his words, "great strength and patience," Pence said all options are on the table.

"Anyone who would threaten our nation should know that America always seeks peace, but if we are forced to defend ourselves or our allies, we will do so with military power that is effective and overwhelming. He said those gathered at Minot AFB would play a critical role, again.

"Now more than ever, your Commander-in-Chief is depending on your to be ready, stay sharp, mind your mission, and your airmen, and be that credible deterrent that has assured the security of the American people for generations." He said the "brave men and women of Minot Air Force Base may yet be called upon to be the instruments of American power. And if that day comes, we know you will be prepared."

He thanked the men and women at Minot AFB for their service and their vigilance. "May God bless you. May God bless your families and your mission and may God continue to bless the United States of America," said Pence.

http://www.minotdailynews.com/news/local-news/2017/10/vp-pence-makes-promises-at-minot-afb-visit/

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The Warzone (Tampa, FL)

No, B-2s Aren't Deployed to the Pacific and They Didn't Fly Near South Korea

By Tyler Rogoway

October 30, 2017

Not everything is a sign of an impending preemptive strike against North Korea or some "show of force" meant to keep Pyongyang in check.

Lots of headlines today about B-2s deploying to the Pacific and even those implying they flew a deterrence missions near the Korean Peninsula. We cannot corroborate these claims. In fact, military plane trackers on the net have shown a very different story.

From what we can tell, two B-2As, callsigns MYTEE51 and MYTEE52, left their home at Whiteman AFB in Missouri and headed toward Andersen AFB in Guam on October 28th. One of the B-2s appeared to turn back midway during its flight. This is not totally uncommon both for "air-spare" reasons or due to mechanical issues.

The one B-2 continued on to its forward staging base at Andersen AFB, Guam and then returned very early the next day, October 29th, to Whiteman AFB. The chances the jet flew a deterrence mission in between are next to zero bordering on impossible. Although the flight did occur while Defense Secretary James Mattis was making a high profile visit to South Korea, it wasn't publicized at the time and there isn't any indication that it was intended to overtly "pressure" the leadership in Pyongyang. Just today it was officially disclosed to have occurred by U.S. Pacific Command, who said little about beyond posting a couple of pictures of it on its social media accounts.

The reasons for such a mission are numerous and multi-fold. Even B-2 pilots, who aren't known for racking up high hours in the type on a regular basis, need real mission training, as do the people on the ground who support the Spirit's unique operational needs. Ultra long-range Global Power missions are the keystone of B-2 combat doctrine. Simulators help prepare B-2 crews for these flights but actually getting out there and executing them is very important, as is familiarizing crews with at least some of the B-2's three remote operating locations—Fairford, Diego Garcia, and Guam.

More B-2 training flights to Guam could soon be underway as U.S. Strategic Command kicks off exercise "Global Thunder 2017."

It's possible that last weekend's flights could have also served double duty for repositioning Massive Ordnance Penetrators (MOPs) to Guam as part of contingency preparations for an air campaign over North Korea.

The 40,000lb super-bunker buster will be absolutely essential for any major air war aimed at wiping out North Korea's nuclear weapons and ballistic missile programs, as well as for destroying key regime targets, many of which are buried under mountains. Short of nuclear weapons, no other penetrating munition on earth stands a chance at destroying these targets, with temporarily sealing their entrances being the only other possibly feasible option short of a commando raid.

As we have discussed in detail before, the B-2 will be essential in any war plan against North Korea. It will serve to drop MOPs on key targets as well as executing destruction of enemy air defenses missions against North Korea's fixed air defense system sites and airfields.

MOPs can also be transported by heavy transports, like the C-17, but it may just be easier and more effective for training purposes to fly the munitions out to the island outpost on B-2 training flights, where the weapons would be downloaded from the jets and stored after they arrive.

Once again, none of this is to say that the B-2 won't soon take up station at Andersen AFB in Guam. The stealth bombers rotate in and out of the base, sharing the forward deployed bomber rotation mission with their B-52 and B-1 brethren. The B-1 has fulfilled this role for over a year, having returned to Andersen AFB for the first time in a decade in August of 2016. For a period after the B-1's arrival, it, the B-2, and the B-52 were all present at Andersen AFB at the same time.

The B-1B has gone on to fly many so called "show of force" flights near North Korea, often being accompanied by various local fighter aircraft, including armed USMC F-35Bs on one especially provocative flight. The B-1B is not capable of carrying the MOP (nor nuclear weapons), and its ability survive over North Korea during the opening stages of an air war is highly doubtful, but they would lug stealthy cruise missiles near the peninsula for standoff attacks and possibly attack targets along the DMZ early on during an actual war.

We'll have to wait to see if the B-2 beds down on Guam in the near future, and Chairman Joint Chiefs of Staff General Dunford has alluded to potential strategic shifts in the region in response to the growing threat faced by North Korea. But as of now this is simply not the case.

http://www.thedrive.com/the-war-zone/15598/no-b-2s-arent-deployed-to-the-pacific-and-they-didnt-fly-near-near-korea

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RealClear Defense (Chicago, IL)

The Cost of the U.S. Nuclear Arsenal: Not Scary

By Matthew R. Costlow

November 1, 2017

The Congressional Budget Office gave nuclear modernization supporters a Halloween “treat” by releasing their much-anticipated report on the 30-year costs of the U.S. nuclear arsenal yesterday. The report is the first of its kind by the government which documents the anticipated costs of the entire nuclear arsenal – delivery systems, command and control, warheads, etc. – for the entire period of modernization 2017-2046.

The findings of the report are important for a couple of reasons. First, the Trump administration is in the final stretch producing its Nuclear Posture Review, (NPR) which informs nuclear weapons policy decisions for years to come.

The NPR, due by the end of the year, will most likely detail the purposes and goals for U.S. nuclear forces which are organized by the triad of submarines, land-based missiles, and bombers (plus dual-capable aircraft). How much the U.S. government values nuclear weapons within its overall defense strategy, in turn, determines how much it is willing to spend on these weapons. That is where the CBO report comes in.

We already have some indications that the Trump administration has thought about, and agreed on, the need for investing in the U.S. nuclear arsenal. In fact, in Secretary of Defense Mattis’ words, it is “the number one priority of the Department of Defense.”

In D.C., it is one thing to say something is a priority, but something else entirely to put your money where your mouth is and fund it. Here too, the Trump administration’s position is clear. General Paul Selva, Vice Chairman of the Joint Chiefs of Staff, recently stated, “Perhaps the clearest indicator of this prioritization is how we have chosen to spend our resources and the tradeoffs we have been

willing to accept… we are emphasizing the nuclear mission over other modernization programs when faced with that choice."

So what will this prioritization cost for the next 30 years? CBO's answer: $1.2 trillion, or about $40 billion per year. For context, in the last fiscal year, the Department of Defense was appropriated about $580 billion, and the Department of Energy was appropriated a little less than $30 billion. That is $610 billion total per year.

In addition, CBO states, "In percentage terms, the total cost of nuclear forces would represent about 6 percent of all spending on national defense over the 2017–2046 period, in CBO's estimation, if DoD implemented its 2017 plan for defense. On an annual basis, that percentage would vary substantially, rising from about 5.5 percent in 2017 to a peak of around 8 percent in the late 2020s and early 2030s before declining to about 4.5 percent in the 2040s."

It should be noted that in the 2040s, the United States will be spending less on nuclear weapons than it is currently, and that would likely remain the case for decades afterward. Since modernization is happening all at once and the weapon systems last for decades, some into the 2080s, the United States would most likely coast on a flat spending trajectory after the 2040s, much like what happened in the 1990s and 2000s after the Reagan buildup.

Despite the scary-sounding "t-word," $1.2 trillion spread out over 30 years is quite affordable and looks especially so when one considers that the U.S. will spend $16 trillion or more in that same period. In the words of Mattis, "America can afford survival."

The second important effect of this report, beyond informing decision-makers in the Pentagon and the White House, is that it will inject new life into the national debate on nuclear weapon costs which has grown stale with exaggerations and head-in-the-sand attitudes.

The commonly-heard myths that this report takes head-on (and subsequently destroys) are numerous.

Myth #1: Cutting planned U.S. nuclear modernization programs will result in big savings

As seen above, cutting the size of a small piece of the defense budget will not, and cannot, result in big savings. CBO reviewed some of these "minimum deterrence" plans such as a reduced triad, or even a dyad, and found the fiscal "savings" of these plans were between 2% and 11% of the modernization total. The report states, "the percentage reduction in overall costs would be limited because no single segment of the strategic nuclear triad (SSBNs, ICBMs, and bombers) would represent more than 25 percent of the total costs. Moreover, there are substantial fixed costs involved in maintaining the capability to safely and reliably field nuclear weapons."

There are just so many fixed costs associated with nuclear weapons that cutting modernization programs, even substantially, will save very little money while not even accounting for the obvious risks to deterrence, assurance, damage limitation, and nonproliferation.

In short, the hunt for savings in the nuclear budget remains, "the hunt for small potatoes."

Myth #2: The U.S. nuclear modernization program is unaffordable

CBO's bottom line number says it all, an average of $40 billion per year spread across two departments over 30 years is affordable. It is all the more so when, as Gen. Selva describes, the U.S. government prioritizes its nuclear systems over its conventional systems.

The concept of "affordability" is more than just dollars and cents, it is the priority placed on the programs. Technically I could "afford" a swimming pool if I emptied my bank and retirement accounts, but since it is not high on my list of priorities, I cannot actually afford it.

Since the United States values the deterrence and assurance effects of nuclear weapons very highly, among other positive attributes, it can afford the cost of maintaining these weapons.

Myth #3: Savings from cuts to nuclear programs will help fund conventional programs

As shown above, the savings that would result from cutting nuclear programs is minimal, but a myth still persists that savings from nuclear cuts could fund conventional weapon programs that "need" it more.

This is flatly contradicted by military officials who do not even have nuclear systems under their command but who use the nuclear deterrent as the "bedrock" for their missions. As U.S. Army Chief of Staff Gen. Mark A. Milley testified in Congress recently, "It is not even an Army system. It needs to be overhauled and brought back up to its level of readiness."

In addition, conventional forces generally cost much more to sustain that nuclear forces, a point rarely mentioned by nuclear disarmament advocates. CBO states that it costs approximately $2.6 billion per year to maintain an active-component armored brigade combat team. In contrast, it costs $170 million per year to operate one nuclear ballistic missile submarine. While nuclear weapons are not inexpensive, they are certainly affordable when compared to their conventional counterparts.

Lastly, CBO is actually overestimating the costs of nuclear forces by counting 100% of the bomber costs towards the nuclear mission, when in reality, the costs of making a bomber nuclear-capable are conservatively estimated by independent analysts at 10% (or 25% according to CBO). Acknowledging this, CBO estimates $139 billion could more accurately be subtracted from the total of $1.2 trillion, making the real total approximately $1.1 trillion.

Unfortunately, these myths, like the zombies of Halloween, will inevitably rise again since the undead are nothing if not persistent. Thankfully this CBO report should clear the field, at least for now, and dispel the "tricks" of nuclear disarmament advocates.

https://www.realcleardefense.com/articles/2017/11/01/the_cost_of_the_us_nuclear_arsenal_not_scary_112569.html

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US COUNTER-WMD

CBS News (San Francisco, CA)

Defending the U.S. from North Korea's Nuclear Threat

By David Martin

October 29, 2017

After years of threatening to burn the United States in a sea of fire, North Korea is on the verge of having an intercontinental ballistic missile -- an ICBM -- capable of hitting the American homeland with a thermonuclear warhead. The missile is called the Hwasong -- which translates to Mars, the Roman God of War.

North Korea's brash, young dictator Kim Jong Un is not there yet and will need several more tests before he has a weapon he can count on. Still, the chairman of the Joint Chiefs calls it the greatest threat facing the U.S. today. Defense Secretary James Mattis went to the DMZ two days ago and vowed to stand with South Korea against the north.

Tracking that threat, and helping to come up with defenses against it, is the job of the National Air and Space Intelligence Center, NASIC for short, located near Dayton, Ohio. If you've never heard of NASIC, that's because television news cameras have never been inside its operations center -- until now.

On any given day at NASIC more than 100 photo interpreters, engineers, rocket scientists and intelligence analysts are poring through reams of data collected every time North Korea launches a missile. Last summer, the North Korean threat went to a whole new level, says NASIC Commander Col. Sean Larkin.

Col. Sean Larkin: They demonstrated the ability that they could reach the continental United States.

David Martin: The lower 48?

Col. Sean Larkin: Yes.

There were two tests -- one on July 4 and again on July 28. Both were launched at a very high angle, so they did not go far out to sea. But once NASIC crunched the numbers there was no doubt had one of those missiles been fired on a standard trajectory it could have reached California and beyond.

Col. Sean Larkin: Math is our secret weapon. So there's lots of things that go into an ICBM or other types of weapons systems that simply -- even if we don't have the pieces of the puzzle we can do the math and figure out what's missing.

Jeremy Suel and his team of analysts produced a computer simulation of North Korea's ICBM.

Jeremy Suel: Well, this is the actual code that we develop.

David Martin: So, can you take me through what this would look like on a flight?

Jeremy Suel: Yes.

Jeremy Suel: The first stage of the system is there to get it off the ground, get initial motion. But then it will drop that stage.

After the Hwasong 14's engines have sent it into space all that is left is the re-entry vehicle. A warhead would be inside as gravity pulls it back to Earth.

Jeremy Suel: You're at the mercy of the atmosphere at that point. You're slamming into it at many, thousands of miles per hour, so that will have tremendous forces imparted on the, the reentry vehicle.

David Martin: And what kind of temperatures are we talking about?

Jeremy Suel: Many thousands of degrees.

North Korea cannot attack the U.S. with a nuclear weapon until it develops a reentry vehicle that can stand that kind of heat.

Hugh Griffiths is head of the team which monitors the North Korean missile program for the U.N. Security Council. He says pictures released by the regime last year were an attempt to prove it had already succeeded. A reentry vehicle was subjected to a rocket engine blast.

David Martin: Is that a realistic test?

Hugh Griffiths: We assessed that it wasn't sufficiently realistic to be credible.

David Martin: Because the rocket engine does not create enough heat?

Hugh Griffiths: Correct. The heat produced by the rocket engine is not sufficient to mimic what this would experience reentering the earth's atmosphere.

North Korea released a picture of the scorched reentry vehicle. And one of its 33-year-old leader Kim Jong Un being shown how little had been burned away.

Correspondent David Martin and Hugh Griffiths sit before a picture of Kim Jong Un observing a reentry vehicle CBS NEWS

Hugh Griffiths: The idea of this narrative is to prove that yet another requirement of the nuclear ballistic missile program has been achieved.

David Martin: Kim Jong Un seems to be everywhere. Does it strike you as unusual that you would have a head of state inspecting a reentry vehicle?

Hugh Griffiths: Yeah. The whole thing is inconceivable and out of, like, some bad science fiction film. The man is intimately connected with the whole program, and this is very deliberate -- and very unusual.

Almost all of North Korea's missiles -- from long range down to short range -- are carried on mobile launchers.

Senior Intelligence Analyst Steve Hancock says the Scud can be launched straight off the back of this truck.

Steve Hancock: This is a Russian Scud B. It's mobile, and even to this day, it's a very challenging aspect of the missile force for us to deal with.

David Martin: A moving target is harder to hit.

Steve Hancock: Yes sir.

David Martin: And...

Steve Hancock: It's harder to find as well.

Hancock says a well-trained crew can raise, aim and fire a Scud in 18 minutes.

David Martin: Do they use these exact same procedures if they're launching a longer-range missile?

Steve Hancock: Yes. They're gonna be very similar.

David Martin: And is the -- the launch time still about 18 minutes?

Steve Hancock: So, the bigger the missile gets, it's probably gonna get to be a little bit slower. But we don't know the exact launch times for all of the systems.

Inside the Missile and Space Intelligence Center, there's another Scud laid out like a corpse on an autopsy table.

Marie -- we agreed not to use her last name -- is a missile engineer whose job is to know as much about the Scud as the people who built it.

Marie: These are graphite rudders that sit in the exhaust of the missile and are used to steer the missile. This is the instrument section where the guidance equipment sits. So there's a lot of complex equipment in here.

David Martin: Is that part made of what it looks like it's made of?

Marie: Plywood, yes it is

David Martin: Plywood...

Marie: It saves a lot of weight putting that wood in there instead of metal.

David Martin: Plywood just doesn't sound like rocket science.

Marie: You know, it doesn't feel that way to us as westerners They don't invest resources where it's not necessary.

It only has a range of 186 miles, but it would reach its target in about five minutes.

Marie: So, then we get up to the real serious part of this missile which is what we call the payload. The payload is everything including the warhead that sits inside this cavity. It can carry about 1,000 kilograms or 2,200-pound payload.

But here's the feature that sets this Scud apart.

Marie: This was designed to be a nuclear trainer and you can tell because the thickness of the aero-shell here is more than what it would be for a standard high explosive warhead.

David Martin: A nuclear trainer? This missile is capable of carrying a nuclear warhead?

Marie: This missile as designed by Russia was intended to carry a nuclear warhead.

David Martin: A nuclear-capable weapon with a five minute flight time, it doesn't give you much time to react.

Marie: It doesn't give you much, does it?

Last March, North Korea launched a salvo of four Scuds simultaneously in what it said was a drill to attack U.S. military bases.

David Martin: What's the purpose of firing a salvo of missiles.

Scott MacDonald: Well, so a salvo is intended to overwhelm your defenses.

Senior Weapons Analyst Scott MacDonald took us into the computer simulation center to show how missiles like those would perform in flight.

Scott MacDonald: So, as the videos from North Korea end, when they go into the clouds, we're able to represent the entire flight of the missile by putting this into a digital representation. And this looks a lot like a cartoon or a video game, but this is really a lot different. There's a lot of hard science and math that goes behind this.

At this point, the only defense would be to shoot them down which is why these computer simulations go into so much detail.

David Martin: So this is reverse engineering.

Scott MacDonald: Exactly.

David Martin: That's what would happen as it was re-entering.

Scott MacDonald: Correct. So it's showing kind of a tumbling motion and you can see the pressure waves coming off of that missile... That's the aerodynamic forces that are acting on that missile and that's how we understand how it's going to fly.

The Scud can reach targets in South Korea where 28,500 American troops are based. Another North Korean missile called the Nodong has a great enough range to hit Japan where 54,000 American servicemen are stationed.

Mark Clark: It's a scaled-up Scud missile.

Mark Clark is director of the Military and Space Intelligence Center.

David Martin: Japan and South Korea and all the Americans living there are already in range of nuclear capable missiles?

Mark Clark: They're certainly in range of Scud and Nodong class missiles. Absolutely.

David Martin: How many Scud and Nodong class missiles do the North Koreans have?

Mark Clark: Hundreds.

David Martin: Hundreds?

Mark Clark: Yes.

Clark would not discuss classified intelligence about North Korea, but he did tell us this.

Mark Clark: We have insights today that we didn't have a few years ago.

David Martin: Such as

Mark Clark: I'm hesitant to go into sources and methods except to say there are opportunities we've had to observe and learn about the ballistic missile threats there.

In February 2016 the U.S. and its allies got their hands on another missile, this time a long-range one, part of a rocket North Korea used to launch a satellite into orbit.

Hugh Griffiths: The satellite never really functioned. It wasn't a serious satellite, but it was a serious rocket.

The U.N.'s Hugh Griffiths says that rocket was really a test vehicle for an intercontinental ballistic missile, and a large part of it fell into the sea.

Hugh Griffiths: The South Korean Navy got to this location, and when debris fell from the sky they were able to recover some of that debris and invited us to inspect it.

David Martin: So you physically got your hands on some of the components that had been used.

Hugh Griffiths: Yes, we were very lucky. We were able to photograph the debris, take it apart and run checks on the serial numbers of quite a variety of components.

In the past two years, North Korea has conducted more than 40 test launches, virtually every one of them personally approved and supervised by Kim Jong Un.

"An ICBM has a reentry velocity on the order of four to five miles per second, so there's very little time to react."

Tom Boyd: What's he's shown is that he has a tolerance for failure.

Tom Boyd, senior intelligence analyst for ballistic missiles at the Air and Space Intelligence Center, means that as a compliment.

Tom Boyd: If you are not willing to fail in the ballistic missile or space launch vehicle missiles business, you're in the wrong business… It's almost inevitable, these are highly complex systems, and failures are pretty much inevitable.

David Martin: 2016 saw a lot of failures.

Tom Boyd: I can't recall the exact number, but he did have significant failures.

David Martin: And not so many this year.

Tom Boyd: He's having much, much better success this year.

David Martin: So, it just looks like they've figured something out.

Tom Boyd: Yes, I think they have learned from their failures.

What North Korea figured out is a high thrust engine and a high-performance fuel to power it.

David Martin: Would you say that engine and that fuel is responsible for their recent successes?

Tom Boyd: They seem to be getting good performance, yes.

The Pentagon says it is confident its missile defense system -- 42 interceptors based in Alaska and California -- can shoot down a North Korean ICBM, although the test record shows only a 55 percent success rate.

Last May it shot down this mock North Korean missile which was designed from models developed by the Air and Space Intelligence Center. Despite that most recent success, ICBMs are what Boyd calls "a challenging target."

Tom Boyd: They've been referred to as the ultimate weapon. They get to the target very quickly. An ICBM has a reentry velocity on the order of four to five miles per second, so there's very little time to react.

So how long before North Korea can really threaten the American homeland with an ICBM?

Tom Boyd: Probably several more flight tests, but ultimately if they want to have confidence that the system works as intended they have to flight test it and prove that reentry vehicle can survive realistic reentry conditions.

David Martin: So that really is then the moment of truth when they launch, if they launch, a ballistic missile out over the Pacific Ocean at a range approximating what it would take to reach the United States.

Tom Boyd: That would give them higher confidence that the system really works as they want it to.

At the rate North Korea is testing, U.S. intelligence estimates that could happen as early as next year.

https://www.cbsnews.com/news/defending-the-u-s-from-north-koreas-nuclear-threat/

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New York Times (New York, NY)

South Korea and China End Dispute Over Missile Defense System

By Choe Sang-Hun

October 30, 2017

SEOUL, South Korea — South Korea and China on Tuesday agreed to end a dispute over the deployment of an advanced American missile defense system in the South and to restore their economic and other ties.

The agreement, unveiled following low-key negotiations involving Chinese and South Korean officials, removed a major obstacle in relations between Seoul and Beijing, one that has complicated international efforts to tame North Korea's nuclear weapons ambitions.

For years, China has vehemently protested the United States' plan to deploy the Terminal High Altitude Area Defense, or Thaad, system in South Korea, fearing it would undercut its own national security. After the United States and South Korea pressed ahead with the deployment in Seongju, 135 miles southeast of Seoul, the capital, in April, Chinese customers boycotted South Korean cars, movies and television dramas, as well as South Korean-run supermarkets.

"Both sides shared the view that the strengthening of exchange and cooperation between Korea and China serves their common interests and agreed to expeditiously bring exchange and cooperation in all areas back on a normal development track," said a statement from the South Korean Foreign Ministry on Tuesday.

The Chinese Foreign Ministry also issued a similar statement announcing the agreement on Tuesday.

For months, Seoul and Beijing appeared to have been deadlocked over their dispute over Thaad. China has insisted that South Korea remove the system, saying it could not tolerate its powerful radar on its door step. But South Korea said the Thaad system was essential to defending itself and American troops in South Korea from the growing nuclear and missile threats from North Korea, and called the matter nonnegotiable as long as those threats did not subside.

The breakthrough came only days after President Xi Jinping of China emerged triumphant from the Communist Party congress this month, more confident than ever in his hold on power and in the pursuit of his foreign policy. The inauguration of Moon Jae-in, a liberal president of South Korea who has stressed the importance of relations with China, his country's biggest trading partner, in May has also helped thaw relations.

In a separate statement, Mr. Moon's office said he would hold a summit meeting with Mr. Xi on the sidelines of a summit of Asia-Pacific Economic Cooperation countries in Vietnam on Nov. 10-11.

Foreign Minister Kang Kyung-wha of South Korea first hinted at a possible breakthrough on Monday, when she said that despite the Thaad deployment, South Korea had no intention of joining the United States' efforts to build a regionwide missile-defense system aimed at countering China's expansion of its military capabilities. Ms. Kang also said South Korea would not accept any additional Thaad batteries.

She also reiterated that South Korea would not enter any trilateral military alliance with the United States and Japan, something that Mr. Xi raised concerns about when he met Mr. Moon in July. The United States remains South Korea's most important military ally.

At Washington's urging, South Korea and Japan have been expanding their military cooperation to better deal with North Korea's missile threats. But South Korea has repeatedly stressed that it had no intention of entering a military alliance with Japan, its former colonial master, and has been wary of Japan's ambitions, under its nationalist prime minister, Shinzo Abe, to increase its military profile in the region.

Underscoring the continuing threat from North Korea's nuclear program, the head of South Korea's weather agency said on Monday that another powerful blast at the North's underground test site could destabilize the area and send radioactive material into the atmosphere.

"Should another nuclear test take place, there is that possibility," Nam Jae-cheol, director of the Korea Meteorological Administration, told lawmakers inquiring about the potential for radioactive fallout.

North Korea has conducted six nuclear tests since 2006, all of them in tunnels buried deep under Mount Mantap in Punggye-ri, in North Hamgyong Province.

https://www.nytimes.com/2017/10/30/world/asia/north-korea-nuclear-test-radiation.html

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Foreign Policy (Washington, DC)

DoD Pushing New Missile Defenses as Existing Technologies Age

By Paul McLeary

October 25, 2017

A major new review of the country's ballistic missile defenses is wrapping up, and the president is promising "billions" in funding.

The Pentagon is ready to deliver a top-to-bottom review of the military's missile defense programs to the White House by the end of the year, taking a broad look at new technologies, basing options, and potentially billions in new spending, according to defense officials.

The report promises to be the Trump administration's first stab at reshaping a critical area of defense spending for years to come, and follows the president's promise in August to "be increasing the anti-missiles by a substantial amount of billions of dollars."

Defense officials tell Foreign Policy that the review will not only focus on existing programs, but also take stock of new threats posed by Iran, North Korea, and the changing nuclear and ballistic missile posture of both Russia and China.

Iran is emerging as a particular focus of the review. U.S. President Donald Trump earlier this month refused to certify that Iran was living up the the 2015 nuclear agreement with Western nations, and Iranian leaders have refused to back off plans to continue work on long-range missile programs.

"Part of the [Ballistic Missile Defense Review] is to try and figure out how much of a threat Iran is, and what more we may need to do beyond what we have right now," one Pentagon official with knowledge of the planning told FP.

The review comes as Trump charts a hawkish course toward both Iran and North Korea. The regime in Pyongyang is much closer to developing intercontinental ballistic missiles than Tehran, and it is thought to be within a year of placing a nuclear warhead on one of its long-range missiles.

As the threat of war inches closer, however, the generals at the Pentagon are facing the reality that many of their missile defense systems are aging, leading to reliability issues and raising questions over how effective they might be against a potential attack.

Those concerns were reflected in a $440 million emergency funding request the Pentagon sent to Congress last month, which asked lawmakers to pump more money into missile defense upgrades, new interceptor silos, radar systems, and classified satellite capabilities.

Some analysts and government watchdogs fear the increasing pressure to field complex new systems quickly could result in rushing out new technologies, which might prove effective.

One item high on the Pentagon's wish list is $128 million to build new Ground-Based Interceptor silos at Fort Greely, Alaska. The United States currently has 44 interceptor silos in California and Alaska, and the goal is to bring that up to 64.

While the request was met with approval on Capitol Hill, the Pentagon official familiar with the spending request told FP that the work there won't begin for several years — and not until an ambitious new $6 billion missile interceptor program is complete in 2022.

"You can't do these right away. You wouldn't want to build new [Ground-Based Interceptors] with the old technology, so it all depends on development," the official said.

The old technology is the Exoatmospheric Kill Vehicle, a 1990s-era system that is designed to strike incoming ICBMs launched from North Korea and Iran.

But years of incremental upgrades and piecemeal modernization has resulted in two different variants, meaning many of the 44 existing interceptor sites in California and Alaska have different versions of the weapon. Fielding two variants has led to difficulties in getting spare parts and raised questions over its reliability.

Since 1999, only 10 for 18 tests against ICBM-like threats have been successful.

A "Redesigned Kill Vehicle" program is designed to to be cheaper, easier to maintain, and more reliable. Those upgrades would allow U.S. Northern Command to "change their shot doctrine, which would allow the U.S. to shoot fewer interceptors to knock down missiles," the defense official said.

But some analysts are worried about this approach.

"DoD is placing a significant amount of eggs in the RKV basket," said Kingston Reif of the Arms Control Association.

Given that the new technology is still over two years away from its first planned flight test in 2020, and frequent delays of ambitious Pentagon programs, "it begs the question of whether the plan for deployment in 2022 is realistic," Reif said.

But the review will be much more than a wishlist for new radars and missiles. "One would hope it emphasizes the need for opening the aperture and thinking about the missile problem more comprehensively than just the ballistic missile threat," said Thomas Karako, director of the missile defense project at the Center for Strategic and International Studies.

Karako said that the Pentagon has to begin considering how drones and swarms of missiles fired from land and sea simultaneously could be employed — and defeated — in "a complex and integrated attack." The wars of the future will likely feature a mix of high- and low-end technologies thrown together on a messy and crowded battlefield, he said, and the new Pentagon review needs to begin to account for how American forces will handle such conflicts.

http://foreignpolicy.com/2017/10/25/dod-pushing-new-missile-defenses-as-existing-technologies-age/

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Forbes (Jersey City, NJ)

EPA Considers Raising Radiation Limits for Emergency Responders – It's About Time

By James Conca

October 24, 2017

Last week, the U.S. Environmental Protection Agency began discussing new radiation recommendations concerning the acceptable limits on the radiation dose that can be tolerated by first responders and emergency personnel in the case of a nuclear incident, radspill, terrorist attack like a dirty bomb, or any other radiological emergency.

"According to radiation safety experts, radiation exposures of 5-10 rem (5,000-10,000 mrem or 50-100 mSv) usually result in no harmful health effects, because radiation below these levels is a minor contributor to our overall cancer risk," EPA said in the document.

Change is long overdue, and has nothing to do with the present EPA Administrator, Scott Pruitt, or the Trump Administration. There has been a major push over the last twenty years by scientists in the field to change these limits - ever since Fukushima and Chernobyl showed the real danger of having too low limits. The Obama Administration was also trying to raise these limits.

We have long known that our established radiation limits are absurdly low and have led to widespread fear and panic over radiation levels that are the same as normal background levels across many parts of the Earth.

Such unreasonable, and unscientific, limits cause unfounded fear, and have hurt and killed more people than the radiation released from events such as Fukushima or Chernobyl. This fear is also the reason that a dirty bomb attack would be successful against the United States.

A dirty bomb, or a radiation dispersal device (RDD), uses a conventional bomb, such as a car bomb, to disperse radioactive materials in a populated or financial district to cause great economic and social disruption disproportionate to their actual radiological effects and well beyond the physical destruction from their conventional bomb components (see figure above).

A dirty bomb is a psychological weapon, not a nuclear weapon.

Research has shown that few people, if any, would die from the radiation from a dirty bomb, even a big one, although hundreds would die from the conventional blast.

But it would scare everyone. The panic and bureaucratic confusion would most likely prevent the correct and timely response, causing harm and even death during the evacuation, like what occurred at Fukushima, and driving clean-up costs upwards of several hundred billion dollars if detonated in an area like Manhattan. This is the strength of such a weapon, and it's based on fear and misunderstanding of radiation.

Changes would raise the radiation limits that emergency personnel can take, making them less fearful of responding to an event, which will make this weapon less effective, and will make any radiological incident less deadly. This discussion was included as part of EPA guidance on messaging and communications in the event of a nuclear power plant meltdown or a dirty bomb attack. The September 2017 FAQ document, is part of a broader planning document for nuclear emergencies, but is not a federal standard or a law.

Unless you, the reader, are in a boat out in the middle of the Pacific Ocean, you're getting a radiation dose between 0.2 and 1 rem/year (0.002 and 0.01 Sv) in the United States, just from background sources such as rock, dirt, potatoes and cosmic rays (EPA Rad Limits). Some places in the world have background doses ten times higher than we do, without any differences in cancer rates.

There have never been any observable health effects from doses less than 10 rem (0.1 Sv). Ever. Anywhere.

Under the Safe Drinking Water Act, exposure limits are set at 4 millirem (or mrem) a year, and federal standards for hazardous air pollutants limits radiation exposure to 10 mrem a year. Federal regulations limit exposure for living near a nuclear power plant to 25 mrem a year. These limits are between 10 and 100 times below background radiation levels in the United States, 1000 times below background radiation levels in than many areas of the world.

Sure, it's easy to keep rad levels low when you have the luxury of a laboratory, or water treatment plants, but no health effects have ever been seen in these areas of relatively high radiation levels, so these low limits are overkill. And costly.

Our ultralow limits have cost the United States close to a trillion dollars, and will cost us a lot more in the years to come (Low-Level rad Summit; Atomic Insights; Reason.com). This latest step by the EPA is also driven by none other than the Government Accounting Office. More and more reports indicate that the forced evacuation in Fukushima was not necessary (Fukushima 2.25). The panicked Japanese authorities were following our American policy (As Low As Reasonably Achievable, or ALARA) that has always been misinterpreted to mean any and all radiation is dangerous no matter what level.

Scientific Consensus

Contrary to continued claims by non-scientists, there is no scientific consensus on health effects from low levels of radiation (below 10 rem or 0.1 Sv), except that the risk is extremely low to non-existent, certainly lower than those faced from everyday life.

This makes sense since the eukaryotic cell, which comprises all multicellular life, evolved 2.3 billion years ago when background radiation levels were about ten times the present, and cells evolved very effective repair mechanisms for all oxidative agents, including radiation and oxygen itself. Our present regulatory framework ignores the immune system.

If the dose is dribbled out over a long period (chronic), the body can take even more radiation than if it comes all at once (acute) because our immune system can handle it better.

"Although current science suggests there is some cancer risk from any exposure to radiation, it is very hard to tell whether a particular cancer was caused by very low doses of radiation or by some other source," the EPA said. This is another way of saying the effects are so trivial, we can't even measure them.

On the other hand, there is administrative consensus by regulatory bodies around the world that there is some risk, but that's because we can measure radiation to absurdly low levels.

We can't do this with any other carcinogenic or pathological agent. We need billions of atoms of mercury to even detect it, but we can detect a single radioactive atom disintegrating that gives off radiation, even though it takes billions of such atoms to hurt you.

This ability to detect any amount of radiation is a double-edged sword. Most safety limits for hazardous chemicals have been set by our ability to detect them. Generally, we can detect lead (Pb) to about 2 parts per billion (ppm), meaning 2 nanograms of Pb in a gram of water (or a billion nanograms of water). So in the laboratory, you couldn't see 1 nanogram in that gram of water, even though there are over a trillion atoms of Pb present.

But if you can detect one disintegrating atom giving off one photon of radiation, it means you always see radiation even if it's billions of times lower than what can hurt you.

Background radiation across the Earth varies from 0.003 rem (0.00003 Sv) over the oceans to 10 rem (0.1 Sv) in many mountainous areas, such as Brazil and south Asia. Across the U.S., radiation levels range from about 0.2 rem (0.002 Sv) along portions of the California coast to 2 rem (0.02 Sv) in the Colorado Rockies. The average is about 0.3 rem (0.003 Sv).

There is no association of cancer with these levels because radiation is such a weak carcinogenic agent. In fact, many of the higher-level radiation areas have lower cancer rates than the lower level areas (see figure below), meaning anything less than 10 rem will have no measureable health effects.

Cancer is almost never caused by radiation. You have to get very high doses to get cancer from radiation. This is what we found after WWII and from all the accidents that have occurred for the last 100 years.

To put this into perspective with respect to first responders and emergency workers that these new recommendations cover, relative to the risks normally faced during their job, the risks of various radiation doses can be estimated as:

10 rem (0.1 Sv) acute dose is as risky as:

- Fighting a dumpster fire
- Hand-cuffing an inebriated nuisance

25 rem (0.25 Sv) acute dose is as risky as:

- Fighting a three-alarm fire from the street
- Arresting a perpetrator who has no weapon

50 rem (0.5 Sv) acute dose (DHS-suggested upper limit for saving large numbers of lives) is as risky as:

- Running into a burning building not at risk of collapse
- Disarming a perpetrator who has a knife

100 rem (1 Sv) acute dose is as risky as:

- Running into a burning building at risk of collapse
- Disarming a perpetrator who has a gun

Yes, wrangling a mean drunk can be risky, but a police officer wouldn't think twice about doing it. Fire and police have dangerous jobs, but getting a radiation dose of 10 rem (0.1 Sv) is not one of the things they need to worry about.

Of course, I wouldn't hesitate to take 50 rem to save my cats, but then I understand the low risks of radiation, having worked in the field for 35 years.

It is now up to the EPA to raise these limits to scientifically-correct ranges, for all situations, public and private. .

This EPA move will surely be met with resistance from those ideologically opposed to anything nuclear or from those who live in fear of even background radiation. But we can't keep pretending to control radiation to levels below what Nature throws at us every day.

We just can't afford it.

https://www.forbes.com/sites/jamesconca/2017/10/24/epa-raises-radiation-limits-for-emergency-responders-its-about-time/#5893fed36eb2

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US ARMS CONTROL

Union of Concerned Scientists (Cambridge, MA)

Scientists to Congress: The Iran Deal is a Keeper

By Lisbeth Gronlund

October 31, 2017

The July 2015 Iran Deal, which places strict, verified restrictions on Iran's nuclear activities, is again under attack by President Trump. This time he's kicked responsibility over to Congress to "fix" the agreement and promised that if Congress fails to do so, he will withdraw from it.

As the New York Times reported, in response to this development over 90 prominent scientists sent a letter to leading members of Congress yesterday urging them to support the Iran Deal—making the case that continued US participation will enhance US security.

Many of these scientists also signed a letter strongly supporting the Iran Deal to President Obama in August 2015, as well as a letter to President-elect Trump in January. In all three cases, the first

signatory is Richard L. Garwin, a long-standing UCS board member who helped develop the H-bomb as a young man and has since advised the government on all matters of security issues. Last year, he was awarded a Presidential Medal of Freedom.

What's the Deal?

Diplomats announcing the framework of the JCPOA in 2015 (Source: US Dept. of State)

If President Trump did pull out of the agreement, what would that mean? First, the Joint Comprehensive Plan of Action (JCPoA) (as it is formally named) is not an agreement between just Iran and the US—but also includes China, France, Germany, Russia, the UK, and the European Union. So the agreement will continue—unless Iran responds by quitting as well. (More on that later.)

The Iran Deal is not a treaty, and did not require Senate ratification. Instead, the United States participates in the JCPoA by presidential action. However, Congress wanted to get into the act and passed The Iran Agreement Review Act of 2015, which requires the president to certify every 90 days that Iran remains in compliance.

President Trump has done so twice, but declined to do so this month and instead called for Congress—and US allies—to work with the administration "to address the deal's many serious flaws." Among those supposed flaws is that the deal covering Iran's nuclear activities does not also cover its missile activities!

According to President Trump's October 13 remarks:

> Key House and Senate leaders are drafting legislation that would amend the Iran Nuclear Agreement Review Act to strengthen enforcement, prevent Iran from developing an inter–—this is so totally important—an intercontinental ballistic missile, and make all restrictions on Iran's nuclear activity permanent under US law.

The Reality

First, according to the International Atomic Energy Agency, which verifies the agreement, Iran remains in compliance. This was echoed by Norman Roule, who retired this month after working at the CIA for three decades. He served as the point person for US intelligence on Iran under multiple administrations. He told an NPR interviewer, "I believe we can have confidence in the International Atomic Energy Agency's efforts."

Second, the Iran Deal was the product of several years of negotiations. Not surprisingly, recent statements by the United Kingdom, France, Germany, the European Union, and Iran make clear that they will not agree to renegotiate the agreement. It just won't happen. US allies are highly supportive of the Iran Deal.

Third, Congress can change US law by amending the Iran Nuclear Agreement Review Act, but this will have no effect on the terms of the Iran Deal. This may be a face-saving way for President Trump to stay with the agreement—for now. However, such amendments will lay the groundwork for a future withdrawal and give credence to President Trump's claims that the agreement is a "bad deal." That's why the scientists urged Congress to support the Iran Deal as it is.

The End of a Good Deal?

If President Trump pulls out of the Iran Deal and reimposes sanctions against Iran, our allies will urge Iran to stay with the deal. But Iran has its own hardliners who want to leave the deal—and a US withdrawal is exactly what they are hoping for.

If Iran leaves the agreement, President Trump will have a lot to answer for. Here is an agreement that significantly extends the time it would take for Iran to produce enough material for a nuclear weapon, and that would give the world an alarm if they started to do so. For the United States to throw that out the window would be deeply irresponsible. It would not just undermine its own security, but that of Iran's neighbors and the rest of the world.

Congress should do all it can to prevent this outcome. The scientists sent their letter to Senators Corker and Cardin, who are the Chairman and Ranking Member of the Senate Foreign Relations Committee, and to Representatives Royce and Engel, who are the Chairman and Ranking Member of the House Foreign Affairs Committee, because these men have a special responsibility on issues like these.

Let's hope these four men will do what's needed to prevent the end of a good deal—a very good deal.

http://allthingsnuclear.org/lgronlund/scientists-letter-on-iran

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RadioFreeEurope/RadioLiberty (Prague, Czech Republic)

UN Nuclear Inspections Chief Sees No Problems Checking Facilities in Iran

Author Not Attributed

October 31, 2017

United Nations nuclear inspectors have encountered no problems in checking facilities in Iran to determine whether Tehran is complying with the 2015 nuclear deal, the head of the UN's atomic energy agency has said.

"Our inspectors are discharging their responsibilities without problem," International Atomic Energy Agency chief Yukiya Amano told reporters in Abu Dhabi on the sidelines of a conference on nuclear power on October 30.

The United States has pushed the UN agency to be aggressive in inspecting Iranian facilities and has questioned whether the agency was given strong enough authority to access Iranian military sites to determine whether Tehran is complying with curbs on its nuclear activities required under the accord in exchange for sanctions relief.

U.S. President Donald Trump called the accord's inspection regime "weak" in deciding earlier this month not to certify that Iran was complying with the agreement.

"We got weak inspections in exchange for no more than a purely short-term and temporary delay in Iran's path to nuclear weapons," Trump said on October 13.

But Amano has disputed the administration's claims, saying his inspectors have encountered no obstacles checking facilities in Iran and maintaining that "Iran is subject to the world's most robust nuclear-verification regime."

Amano on October 30 repeated his assessment that Tehran is keeping its commitments under the agreement one day after stating that conclusion after meeting with Iranian leaders in Tehran.

"I requested that Iran...fully implement the nuclear-related commitments. This [was] the main thrust of the meeting in Iran," Amano said. "The IAEA can state that such nuclear-related commitments are being implemented."

https://www.rferl.org/a/un-nuclear-inspections-chief-amano-sees-no-problems-checking-facilities-iran/28825431.html

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Arms Control Wonk (Washington, DC)

Do As I Say, Not As I Do: Demanding Strengthened Inspections in Iran

By Michael Krepon

October 30, 2017

We are now in a sixty-day period in which the Congress can propose strengthening measures for the Iran nuclear deal, known as the JCPOA – Joint Comprehensive Plan of Action — in wonk land. Some have proposed tougher inspections at suspect sites as one way to improve the Obama administration's handiwork. They are particularly focused on suspect sites like Parchin, where research and development activities on warhead design might well have occurred in the past. As David Albright and his co-authors have argued,

"Resolving these discrepancies is critical to understanding Iran's progress on nuclear weapons at this site and elsewhere, assuring the detection of any Iranian attempt to reconstitute its nuclear weapons program, and ensuring that the JCPOA is adequately verified."

Before pursuing this remedy, critics of the Iran deal would do well to familiarize themselves with conditions the United States Senate attached to the Chemical Weapons Convention to curtail and even deny international inspectors at industrial and suspect sites. The motivation behind these conditions was presumably to protect against the loss of trade secrets – even though chemical industry leaders at that time appeared to be satisfied that the CWC's provisions provided adequate protection. On top of this, the Congress's implementing legislation carved out a blanket "national security exemption" to block any foreign inspection deemed to be harmful to U.S. interests.

The CWC has been a resounding success despite these congressional strictures. Like the Nonproliferation Treaty, the CWC has its outliers, but fewer of them. Four states are non-parties – Egypt, Israel (a signatory, but not a ratifier), North Korea and South Sudan — two or three of which might still have undeclared CW stocks. While the CWC has not prevented all chemical weapons' use — most recently and egregiously in Syria – the world is far better off with the CWC than without it. The surest two signs of effective norm building are when violations are rare and when the violator is viewed as a pariah state.

The CWC contained several first-ever monitoring provisions, including routine inspections at industrial facilities where various "scheduled" chemicals that could be used in munitions are produced. Facilities for the demilitarization of CW munitions and bulk agent are also subject to inspections – a process that, not surprisingly, has taken far longer than expected. In addition, the CWC contains challenge inspection provisions for suspect sites, using "managed access" procedures. Under these procedures, the challenged state is obliged to address concerns over compliance but is not obligated to divulge classified and proprietary information. In other words, the CWC drafters recognized that challenge inspections would be a tightrope act. This tightrope has yet to be walked.

Credit for making the final push for the CWC goes to George H.W. Bush, the last Republican President who strongly believed in the utility of multilateral arms control and disarmament agreements. Bush the Elder committed his administration to negotiate a far more encompassing agreement than the 1925 Geneva Protocol which was, in effect, a "no first use" compact prompted by the widespread use of "poisonous and asphyxiating" gases in World War I. The CWC went

farther, banning the development, possession, production as well as use of chemical weapons, which now included far more lethal types of nerve agents. Just a week before leaving office, the Bush administration submitted the CWC to the Senate for its advice and consent. The challenge of ratification then fell to the Clinton administration.

The Senate attached 28 conditions to the CWC. Six pertained to protecting the U.S. chemical industry's trade secrets. One of these conditions prohibited samples assessed at U.S. labs from leaving the country. (When a U.S. lab investigated a sample taken from Syria, there was some awkwardness in declining a request from the CWC's home organization — the Organization for the Prohibition of Chemical Weapons — for its transmittal.)

The Congress's implementing legislation added another blanket level of protection against foreign inspectors. Section 307 reads as follows:

"Consistent with the objective of eliminating chemical weapons, the President may deny a request to inspect any facility in the United States in cases where the President determines that the inspection may pose a threat to the national security interests of the United States."

These qualifications were early indicators of trouble ahead for the Arms Control and Disarmament Enterprise, then seemingly going from strength to strength. (The Comprehensive Test Ban Treaty was next in the negotiating queue.) Even though an internationalist-minded Republican administration negotiated this remarkable accord, the Senate Republican caucus split down the middle over consenting to ratification. The Chairs of the Armed Services and Foreign Relations committees voted against ratification. The latter – Senator Jesse Helms – made clear in private dealings with the Clinton administration that his price for allowing an up or down vote was the disestablishment of the quasi-autonomous U.S. Arms Control and Disarmament Agency and its folding into the State Department, where it's advocacy would be more muted.

But I digress. Back to challenge inspections under the CWC: No state has issued a challenge inspection – at least not yet. After Syria joined the OPCW in 2013, inspectors conducted "fact-finding" missions rather than challenge inspections to affirm the Assad regime's use of chemical weapons against its own population. Much, but clearly not all of Assad's chemical weapons have been moved outside the country for safe destruction.

Syria remains an outlier, even within the OPCW. The paucity of outliers clarifies how successfully the CWC has been implemented — without challenge inspections. How is this possible? One reason is that challenge inspections are not critical to determine the obvious, nor to reaffirm norms that are reinforced even when they are broken. Who wants to join the club Syria leads? (The norm against testing nuclear weapons also benefits from this paradox: Who wishes to follow North Korea's example?) Another reason for the absence of challenge inspections is that there will usually be some higher priority bilateral issue that could be jeopardized and that supersedes the issuance of a challenge. Fourth, by challenging another state, the challenger could well face retaliation in kind, prompting its own need to protect proprietary or national security secrets. It's hard to be holier than thou when the tables are turned.

Of course, the tables won't be turned on the Iran deal; they can only be upended. Under this deal, all the meaningful obligations to constrain relevant nuclear weapon-related activities fall on Iran. Those who believe these constraints are insufficient or not lengthy enough and therefore need to be toughened will be negotiating with themselves and with allies, not with Iran. The dictation of tougher inspections works only against defeated states, and even then, only temporarily.

Iran is not a defeated state. Demanding "tougher" challenge inspections would be particularly hypocritical since the Congress has rejected or heavily conditioned them for U.S. facilities. Challenge inspections are useful to have in one's hip pocket, but are no panacea. If the CWC experience has

relevance, the most reliable and useful indicators of compliance are routine inspections and continuous, in situ monitoring by technical devices at critical facilities.

Those who wish to be tougher on Iran's troubling activities outside the scope of the nuclear deal have no shortage of means to do so. Holding the nuclear deal hostage when Tehran is abiding by its terms isn't even penny wise; it's just pound foolish.

http://www.armscontrolwonk.com/archive/1204345/do-as-i-say-not-as-i-do-demanding-strengthened-inspections-in-iran/

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Council on Foreign Relations (New York, NY)

The Uncertain Future of the INF Treaty

By Ankit Panda

October 25, 2017

A landmark arms control agreement concluded between the United States and the Soviet Union in the final years of the Cold War is at risk of unraveling amid mutual suspicions.

What is the INF Treaty?

Signed by U.S. President Ronald Reagan and Soviet leader Mikhail Gorbachev in 1987, the Intermediate-Range Nuclear Forces (INF) Treaty is the only Cold War-era U.S.-Soviet arms control agreement that remains in force today. After the collapse of the Soviet Union in 1991, at which point all U.S. and Soviet INF missiles had been eliminated, the United States sustained the INF Treaty with the Russian Federation and some other successor states. Today, only Russia, Ukraine, Belarus, and Kazakhstan actively participate in the INF Treaty with the United States.

The INF Treaty required both countries to destroy their stockpiles of ground-launched ballistic and cruise missiles with ranges between 500 and 5,500 kilometers. The treaty, which covers both nuclear and conventionally armed missiles, also prohibits signatories from possessing, producing, and flight-testing these kinds of missiles. It was the first agreement of its kind to reduce nuclear missile stocks instead of merely establishing a limit on arsenals. While the treaty required the elimination of missile bodies and launchers, it did not result in the elimination of nuclear warheads.

After the treaty entered into force in 1988, the United States and Soviet Union dismantled and destroyed about 800 and 1,800 missiles, respectively, along with related equipment such as launchers. A pillar of the treaty was a rigorous verification regime, including on-site inspection, which allowed parties to physically confirm the other's implementation. Both sides came into full compliance in the summer of 1991, months before the dissolution of the Soviet Union, by completely eliminating the systems covered by the treaty. On-site inspection activity ended in 2001, in accordance with the treaty.

The treaty also established a forum known as the Special Verification Commission for parties to address and resolve compliance concerns. It has met thirty times, with the last meeting taking place in November 2016. (The most recent meeting before 2016 took place in October 2003.)

What is the state of INF Treaty compliance today?

In recent years, both the United States and Russia have alleged the other has violated the INF Treaty, and many defense analysts say the thirty-year-old treaty is in danger of unraveling. These

allegations have accompanied a general decline in bilateral ties following Russia's annexation of Crimea from Ukraine in 2014, and Russia's alleged interference in the 2016 U.S. election.

In 2014, the U.S. Department of State said Russia violated its obligation not to "possess, produce, or flight-test" missiles prohibited by the treaty, although officials did not provide details as to the nature of the alleged violation.

The U.S. government has not made public which missile system it believes violates the treaty. Some reports say Russia may have produced an extended-range version of the Iskander K, a short-range cruise missile that is compliant with the INF Treaty, which would be in violation of the agreement.

Russia, for its part, has rejected these claims and alleged that the United States has itself violated the INF Treaty by deploying a component of a missile defense system—the Mark 41 Vertical Launch System (VLS)—that is capable of launching offensive missiles. It also claims the United States has used banned missiles in missile defense tests and that some U.S. armed drones are effectively banned cruise missiles.

U.S. officials deny these allegations. Regarding the VLS, they note that the text of the INF Treaty allows systems designed solely for intercepting "objects not located on the surface of the earth." This VLS is part of missile defense systems the United States has deployed at sea and in Europe to protect allied countries from limited missile attacks by regional powers like Iran. However, Russia has long questioned U.S. motives, and notes that VLS systems on U.S. warships can launch both offensive cruise missiles and missile defense interceptors.

Do Russia's alleged violations alter the strategic environment?

Several U.S military leaders have said that Russia's alleged violation of the INF Treaty places allied forces in jeopardy. Testifying before the U.S. Congress in March 2017, Vice Chairman of the Joint Chiefs of Staff General Paul J. Selva noted that the INF Treaty-violating system "presents a risk to most of our facilities in Europe."

At the same time, General Curtis M. Scaparrotti, NATO's supreme allied commander, added that [PDF] "Russia's fielding of a conventional/nuclear dual-capable system that is prohibited under the INF Treaty creates a mismatch in escalatory options with the West."

However, in July 2017 testimony, Selva told lawmakers that the INF Treaty-violating system does not give Russia any particular military advantage in Europe "given the location of the specific missiles and deployment."

The State Department's 2017 Arms Control Compliance Report [PDF] notes that Washington was "consulting with allies to review a range of appropriate options should Russia persist in its violation."

Where does the INF Treaty go from here?

Both the United States and Russia may reassess the continued compatibility of the INF Treaty with their national defense priorities in the coming years. In 2017, the United States remains committed to the treaty, but the Trump administration is conducting a review of U.S. nuclear capabilities that military officials say [PDF] will present the president with options on how to respond to Russia's alleged treaty violations. Meanwhile, U.S. lawmakers are debating whether the military should begin development of missile systems now banned under the INF Treaty.

In October, Russian President Vladimir Putin said Russia would adhere to the INF Treaty as long as the United States does the same. According to former U.S. Secretary of Defense Robert M. Gates' memoirs, Moscow proposed a joint termination of the treaty in 2007 so it could deploy

intermediate-range missiles in its south and east to "counter Iran, Pakistan, and China." The United States rejected the offer.

For now, the impasse since 2014 over compliance remains. Arms control advocates recommend that the United States and Russia continue to use the Special Verification Commission to resolve outstanding disputes.

How does China factor into the INF debate?

In recent years both the United States and Russia have become more wary of China's military capabilities. China's growing nuclear and conventional missile inventory is mostly composed of systems in the INF Treaty-prohibited range of 500 to 5,500 kilometers.

Admiral Harry Harris, commander of U.S. Pacific Command, recommended in April 2017 testimony that the United States renegotiate the treaty with Russia because it limits its ability to "to counter Chinese and other countries' cruise missiles, land-based missiles." Russian military officials, too, have pointed to Moscow's perceived imbalance with China [PDF] in this area as a possible factor leading to the eventual demise of the treaty.

Other observers have recommended that the United States seek to bring China into the INF Treaty or seek a separate, similar agreement with Beijing. However, China has expressed no interest in joining the INF Treaty, and experts are doubtful that Beijing would consider participating in the future.

https://www.cfr.org/backgrounder/uncertain-future-inf-treaty

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ASIA/PACIFIC

Yonhap News Agency (Seoul, South Korea)

Top Nuclear Envoys of S. Korea, China Agreed to Join Efforts to Open Talks with N. Korea

Author Not Attributed

October 31, 2017

The top nuclear envoys of South Korea and China agreed on Tuesday to work together to bring North Korea to the table to negotiate its denuclearization, the foreign ministry here said.

Lee Do-hoon, the special representative for peace and security affairs on the Korean Peninsula, had in-depth discussion on the North Korean nuclear issue with Kong Xuanyou, a Chinese assistant foreign minister who doubles as the top negotiator for the nuclear issue, in Beijing, according to the Ministry of Foreign Affairs.

It was the first meeting between Lee and Kong, who both assumed the current positions recently.

"South Korea and China reaffirmed their firm position for a nuclear free Korean Peninsula and peaceful resolution of the North Korean nuclear issue," the ministry said in a press release. The two sides also agreed to join hands to deter North Korea's additional provocations and stably manage the security situation involving the country, according to the ministry.

They also agree to "continue close discussion to come up with ways to resume talks" with North Korea, while continuing to inflict diplomatic pressure on the communist country to bring it out to the negotiating table, the ministry also noted.

Kong also committed his efforts to mend bilateral ties between South Korea and China, it said, as the meeting came on the day the neighbors announced a decision to mend relations frayed over the past 13 months over Seoul's deployment of the U.S. Terminal High Altitude Area Defense system.

The countries said they would work to bring their exchanges and cooperation back on track following a prolonged feud over the deployment.

"Through the meeting, I have high expectations of having extensive conversations and creating a consensus on ways to peacefully resolve the North's nuclear issue and stably manage the situation," Lee told reporters earlier as he left for China from Seoul.

Lee held a trilateral meeting with his U.S. and Japanese counterparts in Seoul in mid-October.

Tensions have been high following the North's provocations, including its sixth and most powerful nuclear detonation early last month, though it has not carried out any major weapons tests in recent weeks.

http://english.yonhapnews.co.kr/northkorea/2017/10/31/0401000000AEN20171031013700315.html

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South China Morning Post (Hong Kong)

North Korean Nuclear Test 'Left 200 Dead After Tunnel Collapse', According to Japanese Reports

Author Not Attributed

October 31, 2017

It is very unusual for North Korea to acknowledge any major accident, especially anything that involves its nuclear programme

More than 200 people are feared to have died when a tunnel caved in at North Korea's nuclear test site after its latest detonation, a Japanese news report said on Tuesday.

A tunnel collapsed at Punggye-ri in early September, days after North Korea conducted its sixth and largest underground nuclear test on September 3, TV Asahi said, quoting unnamed North Korean sources.

Some 100 workers were involved in an initial collapse. Another cave-in occurred during rescue operations, leaving at least 200 people feared dead in total, the Japanese broadcaster said. The accident was triggered by the test, TV Asahi added.

Experts have warned that the underground tests could cause the mountain to collapse and leak radiation into the atmosphere near China's border.

The latest test – the sixth at the site since 2006 – triggered landslides in the detonation area and beyond, according to satellite pictures taken the day after.

The images published by the 38 North website showed changes in the surface at Punggye-ri where the ground had been lifted into the air by the tremors. Small landslides followed the course of stream beds.

The blast caused a 6.3-magnitude earthquake, according to the US Geological Survey, followed a few minutes later by another with a magnitude of 4.1.

Japan assessed the yield from the test of what the North said was a hydrogen bomb at 120 kilotons, eight times the size of Hiroshima in 1945.

It is very unusual for North Korea to acknowledge any major accident, especially anything that involves its nuclear programme.

Lee Eugene, a spokeswoman at South Korea's unification ministry, said: "We are aware of the report but do not know anything about it."

The report came ahead of US President Donald Trump's first presidential visit to South Korea next week amid an escalating war of words between him and North Korean leader Kim Jong-un.

The reclusive country has made significant strides in its atomic and missile technology under Kim, who took power after the death of his father and long-time ruler Kim Jong-il in 2011.

Since then he has overseen four of the country's six nuclear tests and hailed atomic weapons as a "treasured sword" to protect the nation from invasion by the United States.

http://www.scmp.com/news/asia/east-asia/article/2117819/north-korean-nuclear-test-left-200-dead-after-tunnel-collapse

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New York Times (New York, NY)

North Korea Rouses Neighbors to Reconsider Nuclear Weapons

By David E. Sanger, Choe Sang-Hun and Motoko Rich

October 28, 2017

As North Korea races to build a weapon that for the first time could threaten American cities, its neighbors are debating whether they need their own nuclear arsenals.

The North's rapidly advancing capabilities have scrambled military calculations across the region, and doubts are growing the United States will be able to keep the atomic genie in the bottle.

For the first time in recent memory, there is a daily argument raging in both South Korea and Japan — sometimes in public, more often in private — about the nuclear option, driven by worry that the United States might hesitate to defend the countries if doing so might provoke a missile launched from the North at Los Angeles or Washington.

In South Korea, polls show 60 percent of the population favors building nuclear weapons. And nearly 70 percent want the United States to reintroduce tactical nuclear weapons for battlefield use, which were withdrawn a quarter-century ago.

There is very little public support for nuclear arms in Japan, the only nation ever to suffer a nuclear attack, but many experts believe that could reverse quickly if North and South Korea both had arsenals.

Prime Minister Shinzo Abe has campaigned for a military buildup against the threat from the North, and Japan sits on a stockpile of nuclear material that could power an arsenal of 6,000 weapons. Last Sunday, he won a commanding majority in parliamentary elections, fueling his hopes of revising the nation's pacifist Constitution.

This brutal calculus over how to respond to North Korea is taking place in a region where several nations have the material, the technology, the expertise and the money to produce nuclear weapons.

Beyond South Korea and Japan, there is already talk in Australia, Myanmar, Taiwan and Vietnam about whether it makes sense to remain nuclear-free if others arm themselves — heightening fears that North Korea could set off a chain reaction in which one nation after another feels threatened and builds the bomb.

In a recent interview, Henry A. Kissinger, one of the few nuclear strategists from the early days of the Cold War still living, said he had little doubt where things were headed.

“If they continue to have nuclear weapons,” he said of North Korea, “nuclear weapons must spread in the rest of Asia.”

“It cannot be that North Korea is the only Korean country in the world that has nuclear weapons, without the South Koreans trying to match it. Nor can it be that Japan will sit there,” he added. “So therefore we’re talking about nuclear proliferation.”

Such fears have been raised before, in Asia and elsewhere, without materializing, and the global consensus against the spread of nuclear weapons is arguably stronger than ever.

But North Korea is testing America’s nuclear umbrella — its commitment to defend its allies with nuclear weapons if necessary — in a way no nation has in decades. Similar fears of abandonment in the face of the Soviet Union’s growing arsenal helped lead Britain and France to go nuclear in the 1950s.

President Trump, who leaves Nov. 3 for a visit to Asia, has intensified these insecurities in the region. During his presidential campaign, he spoke openly of letting Japan and South Korea build nuclear arms even as he argued they should pay more to support the American military bases there.

“There is going to be a point at which we just can’t do this anymore,” he told The New York Times in March 2016. Events, he insisted, were pushing both nations toward their own nuclear arsenals anyway.

Mr. Trump has not raised that possibility in public since taking office. But he has rattled the region by engaging in bellicose rhetoric against North Korea and dismissing talks as a “waste of time.”

In Seoul and Tokyo, many have already concluded that North Korea will keep its nuclear arsenal, because the cost of stopping it will be too great — and they are weighing their options.

Capability to Build the Bomb

Long before North Korea detonated its first nuclear device, several of its neighbors secretly explored going nuclear themselves.

Japan briefly considered building a “defensive” nuclear arsenal in the 1960s despite its pacifist Constitution. South Korea twice pursued the bomb in the 1970s and 1980s, and twice backed down under American pressure. Even Taiwan ran a covert nuclear program before the United States shut it down.

Today, there is no question that both South Korea and Japan have the material and expertise to build a weapon.

All that is stopping them is political sentiment and the risk of international sanctions. Both nations signed the Nuclear Nonproliferation Treaty, but it is unclear how severely other countries would punish two of the world’s largest economies for violating the agreement.

South Korea has 24 nuclear reactors and a huge stockpile of spent fuel from which it can extract plutonium — enough for more than 4,300 bombs, according to a 2015 paper by Charles D. Ferguson, then president of the Federation of American Scientists.

Japan once pledged never to stockpile more nuclear fuel than it can burn off. But it has never completed the necessary recycling and has 10 tons of plutonium stored domestically and another 37 tons overseas.

“We keep reminding the Japanese of their pledge,” said Ernest J. Moniz, chief executive of the Nuclear Threat Initiative and an energy secretary in the Obama administration, noting that it would take years if not decades for Japan to consume its fissile material because almost all its nuclear plants have remained offline since the 2011 Fukushima accident.

China, in particular, has objected to Japan’s stockpile, warning that its traditional rival is so advanced technologically that it could use the material to quickly build a large arsenal.

Analysts often describe Japan as a “de facto” nuclear state, capable of building a weapon within a year or two. “Building a physical device is not that difficult anymore,” said Tatsujiro Suzuki, former deputy chairman of the Japan Atomic Energy Commission.

Japan already possesses long-range missile technology, he added, but would need some time to develop more sophisticated communications and control systems.

South Korea may be even further along, with a fleet of advanced missiles that carry conventional warheads. In 2004, the government disclosed that its scientists had dabbled in reprocessing and enriching nuclear material without first informing the International Atomic Energy Agency as required by treaty.

“If we decide to stand on our own feet and put our resources together, we can build nuclear weapons in six months,” said Suh Kune-yull, a professor of nuclear engineering at Seoul National University. “The question is whether the president has the political will.”

In Seoul, a Rising Call for Arms

President Moon Jae-in has been firm in his opposition to nuclear weapons. He insists that building them or reintroducing American ones to South Korea would make it even more difficult to persuade North Korea to scrap its own.

Though Mr. Moon has received high approval ratings since his election in May, his view is increasingly a minority one.

Calls for nuclear armament used to be dismissed as chatter from South Korea’s nationalist fringe. Not anymore. Now people often complain that South Korea cannot depend on the United States, its protector of seven decades.

The opposition Liberty Korea party called on the United States to reintroduce tactical nuclear weapons to South Korea in August after the North tested an intercontinental ballistic missile that appeared capable of reaching the mainland United States.

“If the U.N. Security Council can’t rein in North Korea with its sanctions, we will have no option but to withdraw from the Nonproliferation Treaty,” Won Yoo-chul, a party leader, said in September.

Given the failure of sanctions, threats and negotiations to stop North Korea, South Koreans are increasingly convinced the North will never give up its nuclear weapons. But they also oppose risking a war with a military solution.

Most believe the Trump administration, despite its tough talk, will ultimately acquiesce, perhaps settling for a freeze that allows the North to keep a small arsenal. And many fear that would mean giving the North the ultimate blackmail tool — and a way to keep the United States at bay.

“The reason North Korea is developing a hydrogen bomb and intercontinental ballistic missiles is not to go to war with the United States,” said Cheong Seong-chang, an analyst at the Sejong Institute

near Seoul. “It’s to stop the Americans from intervening in armed skirmishes or full-scale war on the Korean Peninsula.”

The closer the North gets to showing it can strike the United States, the more nervous South Koreans become about being abandoned. Some have asked whether Washington will risk the destruction of an American city by intervening, for example, if the North attempts to occupy a border island, as its soldiers have practiced.

For many in South Korea, the solution is a homegrown nuclear deterrent.

“If we don’t respond with our own nuclear deterrence of some kind, our people will live like nuclear hostages of North Korea,” said Cheon Seong-whun, a former presidential secretary for security strategy.

With nuclear weapons of its own, the South would gain leverage and could force North Korea back to the bargaining table, where the two sides could whittle down their arsenals through negotiations, some hawks argue.

But given the risks of going nuclear, others say Seoul should focus on persuading Washington to redeploy tactical nuclear weapons.

“The redeployment of American tactical nuclear weapons would be the surest way” to deter North Korea, Defense Minister Song Young-moo said last month, but he added that it would be difficult to get Washington to agree to that.

In Tokyo, Cautious Debate

The discussion in Japan has been more subdued than in South Korea, no surprise after 70 years of public education about the horrors of Hiroshima and Nagasaki.

But Japan has periodically considered developing nuclear weapons every decade since the 1960s.

In 2002, a top aide to Junichiro Koizumi, the prime minister then, caused a furor by suggesting Japan might one day break with its policy of never building, possessing or allowing nuclear arms on its territory.

North Korea has reopened that question.

Shigeru Ishiba, a former defense minister seen as a potential challenger to Prime Minister Abe, has argued that Japan needs to debate its nuclear policy given the threat from North Korea.

Mr. Abe has stopped short of calling for a re-evaluation of the country’s position on nuclear weapons. But he has increased military spending and echoed Mr. Trump’s hawkish position against the North.

Mr. Abe’s administration has already determined that nuclear weapons would not be prohibited under the Constitution if maintained only for self-defense.

The Japanese public is largely opposed to nuclear weapons with polls indicating fewer than one in 10 support nuclear armament.

But Japan’s relations with South Korea have long been strained, and if Seoul armed itself, those numbers could shift.

Some analysts say the discussion is aimed at getting additional reassurance from Washington. “We always do that when we become a little upset about the credibility of the extended U.S. deterrence,” said Narushige Michishita, a professor at the National Graduate Institute for Policy Studies in Tokyo.

Tobias Harris, a Japan analyst at Teneo Intelligence, a political risk consultancy, said Japan would rethink its position on nuclear weapons if it suspects the United States would let it down.

"We're kind of in uncharted waters as far as this goes," he said. "It's hard to know exactly what the threshold is that will lead the Japanese public's switch to flip."

http://www.scmp.com/news/china/diplomacy-defence/article/2111823/china-calls-talks-halt-vicious-cycle-north-korean

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Defense News (Vienna, VA)

US Agrees to Provide South Korea More Weapons, Upgraded Defenses

By Tara Copp

October 29, 2017

US PACIFIC COMMAND, Hawaii — South Korea will buy more U.S. weapons, develop more advanced missiles and receive a more consistent presence of U.S. military nuclear weapons to defend against North Korea, according to agreements reached between top U.S. and South Korean military leaders that concluded in Seoul Saturday.

Both Chairman of the Joint Chiefs Gen. Joseph Dunford and U.S. Defense Secretary Jim Mattis were in Korea during the previous week to discuss ongoing requests by Korea to upgrade its artillery and missile defense capabilities and discuss how to implement President Donald Trump's agreement with his Korean counterpart to expand the deployment of U.S. bomber, submarine and aircraft carriers to the area to dissuade the North.

The regular meetings between the two countries' defense heads have occurred since the 1970s, but both Mattis and Dunford conceded during the week that there was little that was regular about the unstable backdrop of North Korea's rapidly developing nuclear capabilities.

Dunford continued his work on countering North Korea and addressing broader regional threats on Sunday in Hawaii at U.S. Pacific Command. There Dunford hosted Korean Air Force Gen. Jeong Kyeong-doo, the chairman of South Korea's Joint Chiefs of Staff and Japanese Chairman of the Joint Chiefs of Staff, Adm. Katsutoshi Kawano.

The more rare trilateral approach - rare due to continued political sensitivities between Japan and South Korea - to countering the North has become more feasible due to the aggressive testing by North Korean leader Kim Jong-un, defense officials and analysts said.

"Pyongyang's behavior explains why [Japan] Prime Minister Abe and [South Korean] President Moon have elevated security cooperation to the top of their agenda, relegating history to the 'read later' file," said Pat Cronin, the Asia program director for the Center for a New American Security.

In Seoul, Mattis said the threat to the U.S. and the region from North Korea's program had increased significantly even from his previous trip to Seoul earlier this year.

"Our military and diplomatic collaboration has taken on a new urgency," Mattis said of the pressure the region is under. "In the past few months, the North has conducted two [intercontinental ballistic missile] ... tests, has launched two intermediate-range ballistic missiles over Japan and conducted a sixth nuclear test."

To that end, the U.S. has opened the door to a host of military reinforcements that seek to deter North Korea. The most visible will be symbolized by a three-carrier sail in the region next month, potentially to coincide with President Donald Trump's visit there.

Song also said that the meetings in Seoul had focused on the technical details "to expand rotational deployment of U.S. strategic assets."

The agreement also calls for supporting "the implementation of extended deterrents and commitments" in South Korea, Song said at a joint press conference with Mattis following the meetings.

Dunford said that while the assets assigned to Korea, the greater U.S. Pacific Command area of operations and the number of ships or bombers that could be sent from other theaters are fixed in number, "what's not fixed is the manner in which we integrate all those three things. So when do we do it? What pattern do we show?"

Dunford said any additional show of force would also be weighed against the potential risk that added presence could encourage Kim Jong-Un to react militarily.

"What kinds of things have proven to cause [Kim Jong-un] to be concerned? What kinds of things do we believe have actually deterred him from doing things in the past?" Dunford said. "What things maybe exacerbate a crisis or perhaps have, you know, been counterproductive?"

The carriers Nimitz, Reagan and Roosevelt entered the Japan-based 7th fleet area of operations last week. It was the second time this year that the U.S. had three carriers in the Pacific at the same time, Dunford said, but the potential to have the three operate closely together would be the first time the U.S. has used its largest symbol of power projection in that way since 2007, the Pentagon said.

Dunford has emphasized that the carriers are not targeting North Korea, but are there to assure regional allies including South Korea and Japan that the U.S. will not pull back on commitments to defend them against a potential attack. Seoul and its surrounding area is well within North Korea's artillery range and is home to 25 million people, including 28,500 U.S. troops and an estimated 300,000 Americans.

Song also said the visit had further advanced South Korea's efforts to modernize its military. Neither side offered what those specifics were, but Song said the two sides agreed to "continue expanding the acquisition of high tech capabilities for the [Republic of Korea] military. "

Dunford said that once he returns to Washington he would brief the president to prepare him for his own visit to the region, which begins Nov. 3, and then the Pentagon will work "a whole portfolio of Republic of Korea foreign military sales."

Notably, Song said the two sides had also made progress on South Korea's request "to remove the warhead payload limits on the revised missile guidance."

Since 1979 South Korea has agreed to limits on its payload and range on its missiles in exchange for U.S. assistance on its military technology.

The U.S. would not say what terms were agreed to. When pressed, a U.S. defense official who spoke on the condition of anonymity would only say that "we continue to work with our [Republic of Korea] counterparts on all aspects of the Revised Missile Guidelines. When this work is finalized we will provide additional information."

https://www.defensenews.com/flashpoints/2017/10/29/us-agrees-to-give-south-korea-more-weapons-upgraded-defenses/

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Nikkei Asian Review (Tokyo, Japan)

Japan Staging Missile Defense Training in Hokkaido

Author Not Attributed

October 30, 2017

North Korea has recently fired two ballistic missiles over the Japanese island.

TOKYO -- Japanese defense forces will conduct missile intercept training Tuesday in Hokkaido following North Korea's repeated firing of ballistic missiles through that airspace.

The Japan Air Self-Defense Force will carry out the drill at the Erimo Sub Base in the northern Japanese island. The exercise will involve the Patriot Advanced Capability-3 surface-to-air interceptor system, which can be deployed swiftly via mobile launching vehicles.

There are 34 PAC-3 units in Japan. They represent the second line of defense against an incoming rocket in case the sea-based Aegis missile shield, maintained by the Japan Maritime Self-Defense Force, fails to intercept the target. The PAC-3 has a lateral range of up to about 40km.

In August, North Korea launched a suspected medium-range missile that flew over Hokkaido's Cape Erimo and eventually traveled some 2,700km. The regime then fired a missile in September that took a similar trajectory and traveled 3,700km.

"Based on the recurring ballistic missile firings over Hokkaido, we aim to improve military tactics and skills," said Minister of Defense Itsunori Onodera.

https://thediplomat.com/2017/10/north-korea-has-tested-a-new-solid-fuel-missile-engine/

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EUROPE/RUSSIA

The Cipher Brief (Washington, DC)

President Trump & the Iran Nuclear Deal – A European Perspective

By Clovis Meath Baker

October 25, 2017

President Donald Trump's recent decision not to re-certify Iran's compliance with the JCPOA has stimulated much debate on both sides of the Atlantic. But whilst in the U.S., both sides of the argument are being put, in Europe almost no one supports Trump's policy – not governments, and certainly not electors. The unprecedented joint UK/France/Germany 'statement of concern' underlines this.

So why doesn't Europe agree with President Trump?

Europe sees the threat from Iran differently from the U.S. Of course Europe appreciates that Iran's behaviour is destabilizing, but the same could be said of several other countries in the region. Iran does not support terrorist groups that are attacking Europe, but on the contrary is prominent in the struggle against ISIS. Ballistic Missile (BM) proliferation is a bad thing but of a completely different order of magnitude to nuclear weapons: BMs without nuclear (or BCW) warheads are not strategic weapons. But the key difference is over Israel: the Europeans do not share the U.S.'s total commitment to support Israel come what may. Indeed, a majority of Europeans probably believe

that this unquestioning commitment is what is preventing an Israel-Palestine peace agreement: only the U.S. can put sufficient pressure on Israel to negotiate seriously, and the U.S. is not ready to do this.

The Europeans are fully committed to preventing Iran developing nuclear weapons. There was – and is – international near unanimity that nuclear weapons proliferation, by any country, is potentially an existential threat to the world order. The P5+1 process harnessed this and brought Iran to the table to sign the JCPOA through a series of increasingly severe UN Security Council Resolutions, supported by Russia and China, which delivered mandatory international sanctions, reinforced by EU sanctions that went even further.

Another factor bringing Iran to the table was relentless intelligence pressure, a result of focus and cooperation between many Western intelligence agencies. And the intelligence was accepted and used by other intelligence allies, which after the Iraq WMD debacle was an achievement. This meant that Iran just wasn't able to run a covert nuclear programme. The public exposure of the Fordow underground enrichment site during the UN General Assembly in 2009 is the most obvious example of this. A post-JCPOA Iran would be subject to the same pressure.

It is hard for Europeans to see how the U.S. could force Iran to renegotiate the nuclear deal. The U.S. had sanctions on Iran for decades, without noticeably changing Iranian policy; it was U.S. plus UN plus EU sanctions that made the difference. The U.S. on its own cannot impose enough economic pressure on Iran to force it to change its policies on anything much.

Meanwhile, it is as clear now as it was when the JCPOA was agreed in 2015 that there is no military solution that would achieve President Trump's declared aim of preventing Iran from ever having a nuclear weapon. However severe a military strike, some Iranian nuclear know-how would survive, and Iran would have every reason to abandon all nuclear agreements and pursue a weapons programme. After the experience of Afghanistan and Iraq, invasion and/or regime change are not options.

And finally, a point that has been widely made elsewhere: if the U.S. abandons a deal it signed only two years ago, this calls into question not only U.S. reliability in other international and bilateral agreements, but also the utility for European diplomats of working with the U.S. on any other complex multilateral deal.

The real danger here is of a more general divergence between the U.S. and Europe, which would weaken the West and make it even harder for Trump to achieve any of his foreign policy goals – constraining North Korea in particular.

https://www.thecipherbrief.com/column/strategic-view/president-trump-iran-nuclear-deal-european-perspective

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Sputnik International (Moscow)

Global Thunder 2018 US Nuclear Drills 'Signal to Three Certain Countries'

Author Not Attributed

October 30, 2017

The United States is starting the Global Thunder 2018 strategic nuclear forces exercise on Monday, a US Strategic Command (STRATCOM) spokesperson has confirmed to Sputnik. According to a Russian military analyst, these drills are not only about training routines and testing new weapons systems.

Speaking with Sputnik, Alexey Leonkov, a military analyst and editor at the "Arsenal of the Fatherland" magazine, pointed out that the Global Thunder drills are in line with Washington's recently announced program to modernize its nuclear forces.

"In addition to training goals, this exercise is also aimed at evaluating which weapons the Pentagon would need to further modernize and improve," Leonkov said.

However, according to the analyst, the drills are also pursuing another important goal.

"Since the US is a nuclear power, it is clear that drills of this kind are some sort of a signal to three countries, namely Russia, China and from now on also to North Korea," Leonkov said.

Earlier, STRATCOM spokesperson Maj. Brian Maguire told Sputnik that Global Thunder 2018 is kicking off on Monday and added that Washington has notified Moscow about the beginning of the drills.

"Under provisions of New START, the United States and Russia are required to notify each other of major nuclear exercises, so Russia was notified of this exercise in advance. We do not have a similar agreement with China that requires advance notification," Maguire said.

On Friday, the command said in a press release that the exercise is "designed to exercise all STRATCOM mission areas and assess joint operational readiness."

"The scenario for Global Thunder integrates a variety of strategic threats to our nation and calls upon all the USSTRATCOM capabilities that would be provided to geographic combatant commanders in a real-world crisis, including space; cyber; intelligence, surveillance and reconnaissance; global strike; and ballistic missile defense assets," the spokesperson said.

Sergei Kislyak, a Russian senator and former ambassador to the US, said that the current US nuclear forces drills are "alarming" but "not a threat" to Russia's security.

"It's as if the US is continuing its claim on the role of global political gendarme. This is an alarming sign, taking into account the structure of the offensive strategic forces being built by Washington," Kislyak told Sputnik.

Last week, Russia also held nuclear forces drills, in which Russian President and Commander-in-Chief Vladimir Putin took part. During the drills, coordination was practiced between Russia's Strategic Missile Forces, nuclear submarines of the Northern and Pacific Fleets and the long-range aviation of the Russian Aerospace Forces.

Kislyak pointed to an important difference between the Russian exercise and that by the US military.

"While our drills are aimed at maintaining Russia's own security, the Americans, going by the statement of their officials, will practice multidimensional efforts to influence their potential enemy at anytime and anywhere around the world," the Russian lawmaker said.

Moscow has repeatedly criticized the Pentagon's plan to create prospective systems for a prompt global strike which presupposes the implementation of the concept of joint use of offensive and defensive weapons. According to Russian military officials, this plan is "yet another factor proving Washington's intention to destroy the existing balance of power and to ensure its strategic dominance."

https://sputniknews.com/analysis/201710301058658406-us-nuclear-drills-russia/

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Newsweek (New York, NY)

North Korea Could Drop Nuclear Bombs on Europe, NATO Warns

By Christina Silva

October 30, 2017

North Korea could attack Europe or the U.S. with a nuclear missile, the leader of the military alliance said Monday. North Atlantic Treaty Organization (NATO) Secretary General Jens Stoltenberg said North Korean Kim Jong Un had developed the weapons to put Western nations in danger.

"We recognize that Europe has also entered the [North Korean] missile range, and NATO member states are already in danger," he told the Yomiuri Shimbun newspaper.

Stoltenberg is visiting Japan and South Korea this week ahead of President Donald Trump's visit to the region later this week to discuss with Asian leaders how to contain North Korea's nuclear ambitions. "NATO has the capabilities and the resolve to respond to any threat and to any aggressor," Stoltenberg told Jiji Press in an article published Sunday, adding, "No NATO allies and of course NATO do not want war… that would be a disaster."

The U.S. is a member of NATO. Defense Secretary Jim Mattis stopped in South Korea Saturday to discuss Pyongyang, which has made threats to send targets to the U.S. territory of Guam. "Make no mistake – any attack on the United States, or our allies, will be defeated. And any use of nuclear weapons will be met with a massive military response that is both effective and overwhelming," he said.

France warned in September that it was vulnerable to an attack from North Korea "within months." "We see a North Korea whose objective is to have missiles capable of transporting a nuclear weapon tomorrow," France's foreign minister Jean-Yves Le Drian told RTL radio. "In a few months, that will be a reality. At that moment, when it has the capability to hit the U.S., even Europe and at the very least Japan and China, with a nuclear weapon, the situation will be explosive."

Trump will start his 12-day tour of Asia later this week, visiting Japan, South Korea, China, Vietnam and the Philippines. It's unclear if Trump will be able to convince world leaders to stand with him against North Korea.

"It is a big deal. The Obama administration made a point of investing in these regional institutions in order to demonstrate we are an Asia Pacific power, a resident power in the region. This will only raise more questions about American credibility," Derek Mitchell, a former U.S. ambassador to

Burma, to told The Washington Post of Trump's tour. “Multilateralism in Asia is often just about showing up, but even that appears to be hard for him.”

http://www.newsweek.com/north-korea-could-drop-nuclear-bombs-western-europe-nato-warns-696854

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Business Insider (New York, NY)

Putin Himself Just Test-Launched a Nuclear-Capable Missile Designed to Beat US Defenses

Alex Lockie

October 27, 2017

Russian President Vladimir Putin recently oversaw the launch of nuclear-capable ballistic missiles and apparently pulled the trigger on four of them himself, the Associated Press reports.

The large-scale military drill exercised Russia's land, air, and sea-based nuclear capability with test launches from submarines, supersonic bombers, and a launch pad.

"The goal of the launch was to test advanced ballistic missile warheads," a Russian defense ministry spokesman said. And the missiles, as well as the warheads, were very advanced.

Not only does the land-based missile boast a range of over 6,000 miles, enough to hit anywhere in the US with hundreds of kilotons of explosive force, but it has been tailor-made to evade US missile defenses.

Russian media reports that the Yars ICBM tested by Russia flies in a jagged pattern to evade missile defenses. Once the missile breaks up, it carries multiple reentry vehicles and countermeasures to confuse and overwhelm missile defenses.

Even in test conditions, US missile defenses struggle to intercept ICBMs, but the US doesn't even stock a sufficient number of interceptors to repel a Russian attack.

Russia's ministry of defense reported that all missiles hit their targets. Russia last launched the Yars in September during a massive military drill near its border with Eastern Europe.

http://www.businessinsider.com/putin-nuclear-missile-test-beats-us-defenses-2017-10

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MIDDLE EAST

Xinhua News Agency (Beijing, China)

Spotlight: Iran Will Quit Nuclear Deal if Western Sanctions are Reimposed: Military Chief

Author Not Attributed

October 31, 2017

Iran's top military commander said Monday that Iran will quit the endangered 2015 nuclear accord if the United States reimposed sanctions against it, amid wide concerns in the international community following US President Donald Trump's failure to re-certify the deal.

WARNING AMID JITTERS

Mohammad Baqeri, chief of staff of the Iranian Armed Forces, said the deal should benefit Iran in the form of removal of Western sanctions. If sanctions are reimposed under other pretexts, Iran will "definitely" withdraw from the agreement, he said.

Achieved after months of diplomatic efforts, the international nuclear deal, officially called the Joint Comprehensive Plan of Action (JCPOA), was signed by the five permanent UN Security Council members -- China, France, Russia, Britain and the United States -- plus Germany, and Iran, and endorsed unanimously by the UN Security Council in 2015.

As per the agreement, Iran accepted nuclear restrictions in exchange for partial removal of sanctions.

However, President Trump said earlier this month that the United States could not formally certify Iran's compliance with the accord, alleging Tehran had committed "multiple violations."

Over the weekend, International Atomic Energy Agency (IAEA) Director General Yukiya Amano met with Iranian President Hassan Rouhani in Tehran and reiterated that the commitments made by Iran under the 2015 nuclear accord were being implemented.

Amano also said that the JCPOA represents a clear gain from a verification point of view.

Iran will not be the first party to withdraw from the deal, Rouhani told Amano.

However, a country that has signed an international and multilateral agreement does not have the right to deal with it in whatever way it likes, Rouhani said, referring to the U.S. administration's treatment and interpretation of the accord.

OTHER VOICES

The Russian Federation Council, the upper house of Russia's parliament, last week called for saving the deal. "The Federation Council appeals to members of U.S. Congress with an urgent request to use all possible resources to prevent the emergence of this extremely dangerous situation," it said in a statement.

Russian senators fear the collapse of the deal would irreparably damage efforts to maintain the nuclear non-proliferation regime and hinder the settlement of similar nuclear problems.

Right after Trump's refusal, EU leaders voiced their commitment to the nuclear deal and its full implementation by all sides.

In a joint statement, the leaders of France, Germany and Britain said they were concerned at the possible implications of Trump's decision. They urged the U.S. administration and Congress to consider the implications for the security of the United States and its allies "before taking any steps that might undermine the JCPOA, such as re-imposing sanctions on Iran lifted under the agreement."

"We stand ready to take further appropriate measures to address these issues in close cooperation with the US and all relevant partners. We look to Iran to engage in constructive dialogue to stop de-stabilizing actions and work towards negotiated solutions," the statement said.

http://news.xinhuanet.com/english/2017-10/31/c_136717891.htm

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Mehr News Agency (Tehran, Iran)

'Iran Won't Negotiate Over Any Article of JCPOA'

Author Not Attributed

October 31, 2017

Rear Admiral Shamkhani told Mehr's correspondent at International Press Exhibition that Iran will never renegotiate the JCPOA.

"Iranian forces and Hezbollah staff are not only in southern Syria but they are scattered across all parts of Syria," said Secretary of Iran's Supreme National Security Council (SNSC), Ali Shamkhan, on Tuesday.

When he was visiting the 23rd International Press Exhibition, underway at Tehran Grand Mosalla of Imam Khomeini, he was asked about the recent remarks of Russian officials about Iranian and Hezbollah forces in Syria.

He dismissed the claims and added that the Russians also have not confirmed the claim and he demised that is should be a media stunt of Israeli media.

Mehr correspondent, Mahdi Maleki, asked him how he sees the pass of Countering America's Adversaries Through Sanctions Act (CAATSA) in US congress, a law nicknamed as the mother of laws. Rear Admiral Shamkhani answered, "one day the Americans were after making the mother of bombs and now they are passing the mother of laws but they should know that these rootless mothers are inefficient in facing the resolute will of Iranian nation who are defending their identity and their homeland."

When asked about reopening negotiations, the Iranian chief of security reiterated that Iran will never compromise over its missile program or defensive power.

"In addition to proving our commitment to the JCPOA in practice, that has also been verified by the last 8 reports of the International Atomic Energy Agency (IAEA), we will not ever renegotiate over the JCPOA under any circumstances," underlined the top official.

http://en.mehrnews.com/news/129104/Iran-won-t-negotiate-over-any-article-of-JCPOA

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BBC News (London, UK)

Assad Forces Behind Deadly Syria Sarin Attack - UN

Author Not Attributed

October 27, 2017

Syria's government was responsible for a deadly chemical attack on a rebel-held town in the north-west of the country on 4 April, a UN report says.

The authors say they are "confident" Damascus used sarin nerve agent in Khan Sheikhoun, killing more than 80 people.

"Today's report confirms what we have long known to be true," said the US ambassador to the UN, Nikki Haley.

However, Syria's foreign ministry said on Friday it "categorically denies" the report's conclusions.

"This report and the one that preceded it are falsifications of the truth and distort the exact information on what happened at Khan Sheikhun," the statement said.

The ministry went on to accuse the report of being a tool with which the UN could "exert more political pressures", according to news agency AFP.

Syria's opposition and Western powers have blamed the incident on a government air strike on the area, but Syrian President Bashar al-Assad and his ally Russia have repeatedly said the incident was fabricated.

Damascus and Moscow say an air strike hit a rebel depot full of chemical munitions.

The Khan Sheikhoun attack prompted the US to use cruise missiles against a nearby Syrian airbase.

'Clear message'

The report findings were issued by the Organization for the Prohibition of Chemical Weapons (OPCW) and the UN's Joint Investigative Mechanism (JIM).

"The panel is confident that the Syrian Arab Republic is responsible for the release of sarin at Khan Sheikhoun on 4 April 2017," stated the report.

Meanwhile, Ms Haley said in a statement: "Time and again, we see independent confirmation of chemical weapons use by the Assad regime. And in spite of these independent reports, we still see some countries trying to protect the regime. That must end now."

UK Foreign Secretary Boris Johnson said: "Britain condemns this appalling breach of the rules of war and calls on the international community to unite to hold Assad's regime accountable."

The UN director at Human Rights Watch, Louis Charbonneau, said that "today's report should lay to rest any discussion about who was responsible for the Khan Sheikhoun attack".

He added: "The question now is whether Security Council and OPCW members, including Russia, will move to protect a key international rule and hold Syrian authorities accountable as they said they would."

Speaking to the Interfax news agency, Russia's Deputy Foreign Minister Sergei Ryabkov said the UN report had "many inconsistencies".

He said: "Even the first cursory read shows many inconsistencies, logical discrepancies, using doubtful witness accounts and unverified evidence."

On Tuesday, Russia vetoed a resolution extending the JIM's mandate - the only official mission investigating the use of chemical weapons in Syria.

The report also said that so-called Islamic State (IS) was responsible for using sulphur mustard in an attack that in Um-Housh, Syria, on 16 September 2016.

What do we know about the Khan Sheikhoun attack?

Witnesses and activists say warplanes attacked Khan Sheikhoun, about 50km (30 miles) south of the city of Idlib, early on 4 April, when many people were asleep.

Mariam Abu Khalil, a 14-year-old resident who was awake, told the New York Times that she had seen an aircraft drop a bomb on a one-storey building.

The explosion sent a yellow mushroom cloud into the air that stung her eyes. "It was like a winter fog," she said. She sheltered in her home, but recalled that when people started arriving to help the wounded, "they inhaled the gas and died".

Hussein Kayal, a photographer for the pro-opposition Edlib Media Center (EMC), was reported as saying that he was awoken by the sound of an explosion at about 06:30 (03:30 GMT). When he reached the scene, there was no smell, he said. He found people lying on the floor, unable to move and with constricted pupils.

Mohammed Rasoul, the head of a charity ambulance service in Idlib, told the BBC that he heard about the attack at about 06:45 and that when his medics arrived 20 minutes later they found people, many of them children, choking in the street.

Victims experienced symptoms including redness of the eyes, foaming from the mouth, constricted pupils, blue facial skin and lips, severe shortness of breath and asphyxiation, it added.

A Medecins Sans Frontieres (MSF) medical team supporting the Bab al-Hawa hospital, near the Turkish border, confirmed similar symptoms in eight patients there from Khan Sheikhoun.

What is Sarin?

Sarin is highly toxic and considered 20 times as deadly as cyanide.

As with all nerve agents, sarin inhibits the action of the acetylcholinesterase enzyme, which deactivates signals that cause human nerve cells to fire. This blockage pushes nerves into a continual "on" state. The heart and other muscles - including those involved in breathing - spasm. Sufficient exposure can lead to death via asphyxiation within minutes.

Sarin is almost impossible to detect because it is a clear, colourless and tasteless liquid that has no odour in its purest form. It can also evaporate and spread through the air.

http://www.bbc.com/news/world-middle-east-41771133

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Middle East Monitor (London, UK)

Official: Israel Will Attack Iran to Prevent It Acquiring Nuclear Weapons

Author Not Attributed

October 27, 2017

Israel is willing to use military force against Iran to prevent it from acquiring nuclear weapons, Israeli Minister of Transportation and Intelligence Yisrael Katz said during a visit to Tokyo yesterday.

“If international efforts, led these days by US President Trump, don’t help stop Iran obtaining nuclear capabilities, Israel will act militarily by itself,” Katz was quoted as saying.

“There are changes that can be made to ensure that they will never have the ability to have a nuclear weapon,” the minister said in reference to the agreement signed between Iran and the P5+1 countries; the US, Russia, China, France, Britain and Germany.

Trump announced two weeks ago that he will not certify the Iranian nuclear deal while CIA chief Mike Pompeo claimed “the agreement has failed to stop Iran’s progress toward acquiring a nuclear weapon, as well as thwarting its terrorist operations in the Middle East”.

Israeli Defence Minister Avigdor Lieberman said yesterday that Tel Aviv faces "enormous challenges" especially "the Iranian threat and its Shia militias on the northeastern border" claiming that Iran is "working to build a stifling circle" around Israel.

In 2010, Israeli Prime Minister Benjamin Netanyahu and former Defence Minister Ehud Barak planned to attack Iran but their plan was foiled.

https://www.middleeastmonitor.com/20171027-official-israel-will-attack-iran-to-prevent-it-acquiring-nuclear-weapons/

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INDIA/PAKISTAN

The Hindu Business Line (Chennai, India)

Beware the China-Pakistan Nuclear Axis

By G. Parthasarathy

November 1, 2017

Pakistan's nuclear capability has gone from strength to strength with China's support. It's high time Parliament debated this

Led by the US and the Soviet Union, the five permanent members of the UN Security Council tried to ensure some five decades ago that they alone had the right to possess nuclear weapons in perpetuity, with the signing of the nuclear non-proliferation treaty. Their nuclear arsenals steadily increased and pleas for disarmament were arrogantly disregarded.

The scenario today is different from what the five envisaged. Nuclear stockpiles have steadily grown. In the past few decades Israel, Pakistan, India and North Korea have joined the 'nuclear club'. Others like Japan and Iran are capable of doing so when needed. There are an estimated 14,900 nuclear warheads in nine countries, with 93 per cent of these in the possession of the US and Russia.

Little-known facts

While China tested and acquired nuclear weapons in the 1960s, the next country to acquire nuclear weapons was Pakistan, which commenced its quest after the 1971 Bangladesh conflict. India crossed the nuclear threshold only after it received a veiled threat from Pakistan during tensions over military exercises named Operations Brasstacks in January 1987. Instructions were issued in 1988 to nuclear scientist PK Iyengar and scientific adviser VS Arunachalam to assemble a nuclear arsenal. India's distinguished strategic thinker, K Subrahmanyam, provided the rationale for the nuclear weapons programme. India decisively demonstrated its nuclear weapons capabilities ten years later, with the Pokhran nuclear rests. Pakistan followed barely a fortnight later.

India is today confronted with a situation where China has not only provided Pakistan with designs and equipment to manufacture nuclear weapons, but has also given Pakistan the know-how and materials for manufacturing missiles capable of carrying nuclear weapons to every part of India, including the Andaman Islands. While these facts are known to those involved inside and outside the Government in monitoring nuclear developments, it is astonishing that public knowledge on this crucial issue is limited. Sadly, it has never been debated seriously in Parliament. Surely, the public and Parliament need to know more about these issues to promote awareness of the challenges the nation faces from two hostile neighbours working together. American nuclear

analyst Gary Milhollin has perceptively noted: “If you subtract China’s help from Pakistan’s nuclear programme, there is no Pakistani nuclear weapons programme.”

While Zulfiqar Ali Bhutto moved to establish nuclear weapons capability within weeks of the Bangladesh conflict, his prison memoirs suggest that he was guaranteed Chinese assistance after his meeting with Chairman Mao in 1976. China, with antiquated uranium enrichment facilities, benefited from designs stolen by Pakistani nuclear physicist AQ Khan from European (URENCO) enrichment facilities. By the early 1980s, China was providing Pakistan designs for nuclear weapons. China currently has approximately 280 nuclear warheads for delivery by 150 land-based and 48 sea-based missiles and fighter aircraft. While India is estimated to possess 110-120 nuclear warheads, Pakistan has 130-140 nuclear warheads, designed for delivery by ballistic and cruise missiles and aircraft. Experts estimate that Pakistan’s stockpile could potentially grow to 220-250 warheads by 2025, making it the world’s fifth-largest nuclear weapons state. Pakistan’s missiles, with ranges up to 2,750 km, are all of Chinese design and produced at the National Defence Complex facilities in the Kala Chitta Dhar mountain range, to the west of Islamabad. The development, production and test-launching of missiles is done at locations south of Attock, using mobile Chinese designed missile launchers produced in Fateh Jang.

Chinese hand

According to former US Air Force Secretary Thomas Reed, himself a designer of nuclear weapons at America’s Los Alamos Laboratories: “The Chinese did a massive training of Pakistani (nuclear) scientists, brought them to China for lectures, even gave the design of the CHIC-4 device, which was a weapon that was easy to build a model for export. There is evidence that AQ Khan used Chinese designs for his nuclear designs. Notes from those lectures later turned up in Libya. And the Chinese did similar things for the Saudis, North Koreans and Algerians.” The great champions of nuclear non-proliferation in the US, who lectured India for decades, covered up and did nothing to curb the Chinese activities. Pakistan is also known to have received liquid-fuelled ballistic missiles from North Korea in exchange for information on uranium enrichment, in a deal evidently undertaken with Chinese blessings.

Though Pakistan has not enunciated a formal doctrine, its then head of strategic planning at its Nuclear Command Authority, Lt-Gen Khalid Kidwai, had averred that Pakistan’s nuclear weapons are “aimed solely at India”. Kidwai added that Pakistan would use nuclear weapons if India conquers a large part of Pakistani territory, or destroys a large part of its land and air forces. Kidwai also held out the possibility of using nuclear weapons if India tries to “economically strangulate” Pakistan, or pushes it to political destabilisation. India has declared that it will not be the first to use nuclear weapons and will use them only if its territory or armed forces face an attack in which nuclear, chemical or biological weapons are used. Since India has no desire to conquer large parts of Pakistani territory or destroy its armed forces, there is no possibility of India provoking a nuclear conflict. But, given Kidwai’s utterances about a “full spectrum” deterrent involving the use of tactical nuclear weapons, issued after he retired, New Delhi has to carefully review its nuclear strategy imaginatively, bearing in mind that our “no first use “ doctrine has served us well internationally.

Pressure remains

It is obvious, especially after Xi Jinping’s recent enunciation of Chinese global ambitions at the party congress that missile and nuclear proliferation by China to Pakistan will continue in its efforts to “contain” India. Pakistan has already tested a sea-based missile and China is set to strengthen Pakistan’s navy with substantial supply of submarines and frigates. China appears determined to use Pakistan as its stalking horse for its maritime ambitions, to promote its OBOR projects in the Indian Ocean.

The most crucial challenge we face is how to deal with a jingoistic China for whom "containing" India has been a strategic effort for over four decades. Balancing Chinese power involves developing partnerships with others across the Indo-Pacific region. China's policies are multi-faceted and Beijing will likely avoid open hostility, even as it continues to keep up the pressure along its borders with India and uses proxies across India's immediate neighbourhood to keep India tied up in South Asia. These issues will, hopefully, be reviewed and discussed in Parliament.

http://www.thehindubusinessline.com/opinion/beware-the-chinapakistan-nuclear-axis/article9937186.ece

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The National Interest (Washington, D.C.)

Watch Out China: The Indian Navy Has a New Nuclear Missile Submarine

By Zachary Keck

October 31, 2017

The SSBNs will give India a complete nuclear triad, which consists of land, air, and sea-based nuclear delivery systems.

The Indian Navy will launch its second homegrown nuclear-powered submarine within the next month, according to local media outlets.

This week, India's Economic Times reported, citing government sources, that the second indigenous nuclear submarine will be transferred to water sometime in later September or early October. At that time, the INS Aridhaman will undergo extensive sea tests over the next two years before being inducted into the Indian Navy at some point in 2019.

The launch of the INS Aridhaman follows India's first domestically built nuclear-powered ballistic missile submarine (SSBN), the IHS Arihant, being inducted into the Indian Navy in August of last year. That submarine made India only the sixth country after the United States, Russia, the United Kingdom, France and China to build a SSBN. The first Indian SSBN is believed to carry twelve Sagarika (K-15) submarine launched ballistic missiles (SLBMs) that have ranges of 700 km. However, India's Defence Research and Development Organisation (DRDO) is also developing a longer-range SLBM, the K-4, which its SSBNs will also carry. The IHS Arihant is only equipped to handle four of the larger K-4s (the submarine has four launch tubes but three K-15s can fit in each launch tube). The submarine can also carry torpedoes and submarine launched cruise missiles (SLCMs), including possibly a sea-launched version of the BrahMos.

The IHS Arihant was built primarily to serve as a trainer. That is, to train sailors to operate the new Arihant-class submarines, of which Delhi plans to build four boats. Thus, the new INS Aridhaman will pack a lot more firepower than its sister ship. According to the Economic Times, the second SSBN has eight vertical launch tubes, allowing it to carry twenty-four K-15 missiles or eight K-4 missiles. In addition, the new boat will have a reactor more powerful than the INS Arihant's 83 MW pressurised light-water reactor. That reactor uses uranium as fuel and light water as a coolant and moderator, which allow it to operate quietly and stay submerged for about two months at a time. The new SSBN will be able to travel at speeds of 24 knots when submerged.

While technically an indigenous boat, the Arihant-class submarines are based on the designs of the Russian Project 971 Akula I-class nuclear-powered attack submarines. India has leased the Akula I-class SSN from Russia in the past. Still, the launching of the first nontrainer SSBN is a significant milestone for India's Navy. As I've noted before, India's quest to build a nuclear-powered ballistic

missile submarine reportedly began in 1970 under Prime Minister Indira Gandhi. Code-named the Advanced Technology Vehicle (ATV) program, its existence was kept under wraps for more than three decades ago before the former chairman of India's Atomic Energy Commission, PK Iyengar, revealed it at a public forum back in 2007.

The SSBNs will give India a complete nuclear triad, which consists of land, air, and sea-based nuclear delivery systems. In one sense, this could seen as a good development for strategic stability in the region as submarines out at sea are far less vulnerable to surprise attacks compared with airplanes and land-based missiles. This is especially critical for a country like India which maintains a modest-sized nuclear arsenal.

At the same time, the new leg of the triad could produce a sea change in India's nuclear operating procedures. As a country with a no-first use declaratory policy, India's current nuclear warheads and missiles are kept demated and likely in separate locations. This is fine for the air and land-based legs of the triad because they can be brought together if needed. This is not possible for SSBNs. To provide any deterrent benefit, the missiles and warheads will need to be kept together on the submarines, eliminating any actual demonstration of its no first use policy beyond words. This is a challenge that is also being confronted by China, another country with a no-first use policy that also recently began deterrent patrols.

http://nationalinterest.org/blog/the-buzz/watch-out-china-the-indian-navy-has-new-nuclear-missile-22978

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Outlook India (New Delhi, India)

India, Italy Reaffirm Commitment to Strengthen Global Non-Proliferation Efforts

Author Not Attributed

October 30, 2017

India and Italy in a joint statement on Monday reaffirmed their commitment to strengthen global non-proliferation efforts.

Italy congratulated India on its admission to the Missile Technology Control Regime (MTCR).

Italy also welcomed India's subscription to the Hague Code of Conduct against Ballistic Missile Proliferation (HCoC) and supported India's intensified engagement with Wassenaar Arrangement, the Australia Group, and the Nuclear Suppliers' Group (NSG) which strengthens global non-proliferation efforts.

Indian Prime Minister Narendra Modi and his Italian counterpart expressed their satisfaction with the outcomes of the EU-India Summit held in New Delhi on October 6 this year.

Prime Minister Gentiloni, who arrived yesterday on a two-day visit to India, mentioned that Italy strongly supports a strengthened strategic partnership between India and the European Union (EU).

He emphasized that the EU and India share many common interests and objectives and can work together in addressing global challenges and preserving the rules-based system of international governance.

The two leaders expressed their shared commitment for strengthening the Economic Partnership between India and the EU and noted the on-going efforts of both sides to re-engage actively

towards an early resumption of negotiations for a comprehensive and mutually beneficial India-EU Broad Based Trade and Investment Agreement (BTIA).

The two sides also agreed to work bilaterally and with partners in the framework of the United Nations, the G20 and other multilateral fora to address emerging challenges to international security, global economic stability and sustainable development.

Both sides reaffirmed their support to the new United Nations reform agenda on the three reform tracks of peace and security, development and management reform.

The two leaders also called for reforming the bodies and organs of the UN system, including the comprehensive reform of the UN Security Council as well as the revitalisation of the work of the General Assembly, better aligning the work of its committees with the 2030 Agenda.

They reiterated their commitment to improve the transparency and integrity of the public and private sector through practical international cooperation and technical assistance, and agreed to continue to fully implement the G20 Anti-Corruption Action Plan of 2017-18.

Prime Minister Gentiloni called for greater experience sharing between India and Italy in the area of fighting corruption.

The two Prime Ministers underlined the historical importance of this visit to New Delhi, which not only sets a new momentum in the bilateral ties, but also seeks to revitalise on-going engagements between the two countries.

The leaders emphasised the importance of regular high- level contacts to enhance India-Italy co-operation and mutual understanding.

Besides, the two leaders also agreed on the need for a closer partnership between India and Italy based on shared principles and values of democracy, freedom, rule of law and respect for human rights and territorial integrity of States.

They expressed their shared desire to work together to support a rules-based international system that upholds agreed international norms, global peace and stability, and encourages inclusive growth and sustainable development in all parts of the inter-connected world.

Both leaders welcomed the growing India-Italy convergence on contemporary global issues and agreed to enhance bilateral cooperation in multilateral forums.

Recalling the 2005 Memorandum of Understanding on Political Cooperation between the foreign ministries of the two countries, the two sides reaffirmed their intention of holding regular Foreign Minister Consultations.

https://www.outlookindia.com/newsscroll/india-italy-reaffirm-commitment-to-strengthen-global-nonproliferation-efforts/1177874

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Sydney Morning Herald (Sydney, Australia)

Nuclear Club's Rival Weapons and Agendas Pushing Us Into Uncertain New World

By David Wroe

October 28, 2017

For all the heartburn about North Korea, many experts feel the greatest danger of nuclear war remains one between India and Pakistan.

Why? Their nuclear doctrines are downright hot-headed. Pakistan, intimidated by the much larger conventional forces of its neighbour and arch-rival, states that if Indian forces charge over the border, it would launch a nuclear strike on its own soil against the invaders.

Pakistan argues this would be self-defence, not a nuclear attack on India.

India of course sees it differently and vows it would retaliate with nuclear counter-strikes.

India moreover says it might retaliate with nuclear weapons if Pakistani terrorists - regarded as proxies for their country's intelligence agencies - ever carried out another Mumbai-style massacre. That is more than a remote possibility.

"It's scary. The last time there was a conflict, Pakistan devolved launch authority down to the field commander," said John Carlson, an Australian former nuclear negotiator now serving as a counsellor to the Washington-based Nuclear Threat Initiative, a group that works to reduce the risks posed by weapons of mass destruction.

"They say they've got better command and control now but I don't know how much confidence you can have in that."

If that's not enough, India's real nuclear rivalry is not even with Pakistan. It is with fellow rising power China. China in turn has nuclear deterrence strategies against the two established Cold War giants, the US and Russia.

The world, in short, is getting more complicated.

Nuclear weapons have been part of the strategic landscape for more than 70 years. But for most of this time, the standoff was between two superpowers, the US and the Soviet Union. Then for a while there was one, the US.

That's now changing to a world strategic boffins call "multipolar", where power is fragmenting and redistributing. And some experts are wondering why this isn't prompting a more urgent conversation about what it means for nuclear weapons and their proliferation.

David Cooper, a long-serving former Pentagon official who is now a professor of National Security Affairs at the US Naval War College, calls it "trans-regional nuclear arms racing", something he says "we have never seen before in the relatively brief history of the nuclear age".

"And we don't know what deterrence or arms control would look like in this new context of potential nuclear multipolarity, which could involve simultaneous, and interconnecting, nuclear arms races within and across regions, because we have never been in a multipolar world since the dawn of the nuclear age," Cooper said.

"This would be completely new if it comes to pass. That's something we need to start thinking about."

The world's estimated 15,000 fusion and fission bombs remain the only weapons stockpile that poses a truly existential threat to humanity. The most powerful nuclear weapon ever tested, the

Soviet "Tsar" bomb detonated in 1961, had nearly 5 million times the yield of the most powerful conventional bomb, the US-made MOAB.

The current crisis of Kim Jong-un's nuclear program, and the postponed problem of Iran, are symptoms more than drivers of the fears of a more nuclear-armed world.

No doubt they are pressing. Foreign Minister Julie Bishop this week expanded on remarks she made in a recent opinion article for Fairfax Media, expressing concern that an unchecked Kim regime would encourage proliferation elsewhere.

"If North Korea is allowed to achieve its aims and ambitions and increase its leverage as a de facto nuclear power, it could give strong temptation to others to follow the path. They would see that North Korea's success as confirmation that covert development program can be achieved," she said.

"There are numerous countries around the world - I don't want to specify any particularly but there are a whole raft of countries - that don't have the same view of nuclear non-proliferation as we do. And those who may well be harbouring nuclear weapons capability will be observing a North Korean example very closely."

Bishop also pointed to the sensitive question of whether a fully nuclear North Korea might push South Korea and Japan to seek their own nuclear capabilities.

"While they are obviously heavily reliant on the US umbrella of deterrence, it would compel them to reconsider their own defence," she said, though she added she was confident the current collective strategy would strengthen rather than weaken the umbrella of deterrence the US provides its allies.

The Iran nuclear deal, meanwhile, has kicked the can down the road on Tehran's ambitions, according to many experts. Bishop said this week the deal was far from perfect, though she strongly warned against US moves to withdraw from it.

Experts fear that if Iran eventually goes nuclear, then Saudi Arabia, Turkey and possibly Egypt may feel compelled to join the club.

These are just the immediate knock-on effects of the current challenges. But some long-serving nuclear theorists are worried about deeper and more fundamental changes.

Nuclear theory is complex, indeed arcane. But it's important to understand why countries get nuclear weapons.

The Americans and Soviets amassed giant stockpiles during the Cold War to deter one another from what could have been a prolonged nuclear fight. NATO meanwhile positioned nuclear weapons in Europe to overcome the Soviets' conventional military advantage on the continent and deter a land invasion.

Cooper's point is that in a multipolar world, those relationships are becoming interlocked across regions. The countries that are rising in the world pecking order, such as China and India, and those that are trying to revise it, such as Russia, are prominent nuclear powers.

"They are not necessarily satisfied with a nuclear status quo in which the United States is first among a static and stable group of established nuclear powers," said Cooper, who was speaking in a personal capacity. "This is evident because these countries are not seeking opportunities to reduce their nuclear arsenals but quite the opposite, although this may be as much about them warily eyeing each other as the United States."

Carlson similarly said not enough attention was being paid to the triangle between China, India and Pakistan.

"There is the possibility that things could start to get out of hand if you've got arms races involving India, Pakistan, China. It could be very difficult to control," he said.

Meanwhile Russia is cheating on and may even pull out of the Intermediate Range Nuclear Forces Treaty because it only applies to the US and Russia - a relic of the old bipolar world of arms control. Russia needs intermediate-range missiles to counter China, which isn't constrained by the ban and is going "pedal to the metal" on such missiles, Cooper said.

The old nuclear mechanisms such as the Non-Proliferation Treaty have served the world well, Cooper said. But they "may be on the brink of not being operative any more".

He described the latest UN attempt at a total nuclear ban - widely regarded as hopelessly quixotic - as an example of the woefulness of modern multilateral efforts.

"I consider it actually quite worrying that international efforts in these areas have become conspicuously unserious," he said. "That makes me nervous."

Carlson was similarly scathing. Instead of going for something achievable, perhaps a treaty agreeing to no first use of nuclear weapons, the countries leading the effort, which included Brazil, Mexico, Ireland and Austria, "just wanted to make a political statement".

"It couldn't have been worse … It was just totally irresponsible," he said.

Disarmament needs to be stepwise to be realistic, most experts say. But it also needs to be led by the major powers, which isn't happening in this era of rivalry. Hans Blix, the veteran weapons inspector who famously clashed with the Bush administration over its claims of Iraqi weapons of mass destruction, told Fairfax Media that existing disarmament agreements were in danger.

"My own view is that the great powers must strive to get back to detente," he said. "We should not any longer sit puffing a big cigar telling the unruly children of the world to stay away from cigarettes."

Cooper said much responsibility rests with China, given its centrality to the new strategic geography. Though officially it has fewer than 300 warheads - a fraction of the roughly 7000 held each by the US and Russia - China has never been transparent and that is a serious problem, he said.

"The first step of any serious arms control process is baselining. What have you got, how many and what types? And then let's start talking about if you cap or reduce those, then I will cap or reduce these.

"We don't even know what the Chinese have because they won't talk about it."

Yet without at least China, the US and Russia on board, any kind of new disarmament efforts would be doomed, he said.

Not everyone thinks that multipolarity will be worse than the Cold War.

"People have been saying that we're going to have widespread proliferation for decades now," said Jim Walsh of MIT's Security Studies Program. "And in every decade they've got it wrong. If you look at the rate of proliferation, the number of new nuclear weapon states per decade peaks in the 1960s and it's gone down every decade since."

There is another take, which is that, managed right, nuclear weapons provide stability and deter conflict. Many point out that the US nuclear umbrella has probably done more than anything else to stop proliferation by dissuading US allies to seek their own weapons - even Australia.

Stephan Fruehling, a defence scholar from the Australian National University with deep expertise in nuclear theory, said that as conventional military power shifts to Asia, the US will probably have to return to relying on its nuclear arsenal as a stabiliser.

"As China in particular but also Russia in Europe starts to gain at least regional conventional superiority, I think the West and the US will look more to nuclear weapons to counterbalance that," he said.

That will mean a more versatile stockpile including smaller "tactical" weapons - "essentially what we did in the Cold War", Fruehling said.

This is not a bad thing, he adds. Without credible US nuclear power in Asia "then you could well see proliferation cascades", such as South Korea and Japan going nuclear.

There are signs of this already. US-South Korean talks on Friday were expected to canvass the return of tactical US nuclear weapons to the Korean Peninsula.

Similarly in Europe, NATO's language has returned to an emphasis on nuclear weapons since Russia's invasion of Ukraine, Fruehling said.

"Ultimately the role of nuclear weapons is to deter great power war," he said. "And it's great power war which has historically been the horrible thing. So if nuclear deterrence helps us prevent it ... that's a good thing."

The trade-off to making smaller nuclear weapons that are more credible is that they are more useable. That is dangerous, Carlson said.

"We're all better off if we conclude that these things aren't actually useable," he said.

A further complication is missile defence. China hates the US THAAD system in South Korea because though it is aimed at North Korea, Beijing perceives it as undermining its own nuclear deterrent. Carlson said this more than anything risked spurring an existing power to dramatically increase its stockpile.

"China sees it as potentially neutralising its deterrent and therefore is starting to think in terms that they may have to substantially expand their arsenal to overwhelm the defence. That's the biggest destabilising factor," Carlson said.

He thinks weapons states should work together on common missile defence as a joint project - though he acknowledges there won't be much enthusiasm.

Perhaps amid all these uncertainties the major powers will settle into their natural balancing act around a new nuclear status quo, Cooper said. But it could be a rough ride.

"That transition period to a new multipolar nuclear status quo - if indeed it ever comes to that, and given the horrific stakes - could be very dangerous if it is not carefully managed," he said.

"You've got to have nuclear stability work all the time with no miscalculations by anyone, ever, or you face the risk that the first wake-up call will be something really, really bad.

"I am not saying that this scenario is inevitable or even probable, but at the same time is by no means as implausible as many would like to believe."

http://www.smh.com.au/federal-politics/political-news/nuclear-clubs-rival-weapons-and-agendas-pushing-us-into-uncertain-new-world-20171027-gz9jkq.html

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COMMENTARY

Project Syndicate (Prague, Czech Republic)

An Agenda for US Iran Negotiations

By Christopher R. Hill

October 31, 2017

The US cannot continue to base its policy toward Iran – a huge country with more than 80 million people, a growing economy, and strong regional influence – on sanctions and vitriol. Instead, it should pursue bilateral negotiations that get to the heart of the mistrust and antagonism between the two countries.

DENVER – US President Donald Trump has decided not to certify that Iran is in compliance with the terms of the Joint Comprehensive Plan of Action (JCPOA), the agreement constraining Iran's nuclear-weapons program. In effect, Trump has challenged the US Congress to do what is normally the executive branch's responsibility: create foreign policy.

What that policy will be remains an open question. While Congress is already preparing sanctions, these will not, on their own, comprise a comprehensive Iran strategy. Instead, the US and Iran will need to negotiate directly on a range of non-nuclear issues.

As it stands, few assert that Iran is actually failing to comply with its obligations under the JCPOA. Even US Secretary of State Rex Tillerson, who has made no secret of his disdain for Iran, complains only that Iranian leaders are violating the "spirit" of the deal. But the JCPOA is clearly – and deliberately – focused on curbing Iran's nuclear-weapons development, not its missile programs, regional ambitions, or animus toward Israel.

The Trump administration also takes issue with the time limits on the JCPOA, with some provisions – such as strict limits on research and development of advanced centrifuges – in effect for just ten years. Trump's denunciations of the deal have fueled debate over the appropriateness of the time limits, though such discussions often fail to recognize that Iran agreed to adhere to International Atomic Energy Agency standards, including its advanced inspection protocols.

In any case, the key to preventing recidivism after the JCPOA sunset provisions expire will be to move Iran toward good-neighbor polices, and to ensure that its economic interests supersede its ambition to become a regional hegemon. That is where bilateral negotiations come in.

One reason why the JCPOA did not cover non-nuclear issues is that several other partners and allies – namely, China, France, Germany, Russia, the United Kingdom, and the European Union – were involved, and each had its own perspective and objectives. Regional powers with ringside seats to the talks, such as Saudi Arabia, also had plenty to say.

Reconciling these actors' conflicting interests and demands concerning the full range of relevant issues would have been next to impossible. Bilateral negotiations between the US and Iran, however, might allow the US to make progress on the issues that are important to it – and, equally significant, to understand modern Iran better.

Such negotiations would likely start with a lengthy discussion of the two sides' conflicting interpretations of the history of their relationship – in other words, each country's grievances with the other. For Iran, such grievances include US support for the 1953 coup in Iran, and America's subsequent ties to the Shah and his brutal secret police, the Savak.

The US, for its part, would probably raise the 1979 abduction of US embassy staff by Iran's fledgling Islamic revolutionary regime, and, more recently, its targeting of American troops using Shia militia

groups in southern Iraq. These discussions should include detailed questions and specific answers. Working groups might be created to try to create a common narrative.

The negotiations would also need to cover contemporary issues, including a tour d'horizon of current hotspots. What is Iran doing in Yemen, Lebanon, Iraq, and especially Syria? How does it define its interests in these countries? Does it actually see itself, as many Sunni Arabs assert, as a protector of Shia Arabs?

In Iraq, the US invested heavily in toppling Saddam Hussein's regime and then in supporting a political process that has produced a Shia-led government – a positive outcome, from Iran's perspective. The key question, then, is why Iran continues to support militia groups that have often undermined Iraq's government.

As for Syria, Iran moved quickly to support President Bashar al-Assad's government. Iran's backing of an administration dominated by the minority Alawites (a Shia sect) has clearly unnerved Sunni Arab states, especially Saudi Arabia, which regards with great concern this "Shia crescent" just across its northern frontier. Iran cannot really expect the Saudis to be indifferent to such a change in their geostrategic position.

But Iran is not the only actor that must explain its Syria strategy. The US, too, has so far pursued policies that, to put it mildly, have not always had a self-evident rationale. Now is the time for the US to put its cards on the table. Does it seek regime change, or would it settle for policy changes by whatever government Syrians eventually choose?

And what about Israel? During his presidency from 2005 to 2013, Iran's Mahmoud Ahmadinejad inflamed world opinion by repeatedly questioning whether the Holocaust happened. Does this kind of ignorance and contempt for the Jewish people persist among Iran's current leadership, coloring their approach to Israel?

The final vital issue that must be addressed in any bilateral talks between the US and Iran is the latter's military activity and, in particular, its missile programs. Iran frequently alludes to its right to maintain a modern military, with advanced missiles, though unlike, say, North Korea, it stops short of claiming a right to nuclear weapons. To determine the appropriate role and capabilities of Iran's military, direct talks between the US and Iranian militaries, like those the US has pursued with China, might be in order.

The US cannot continue to base its policy toward Iran – a huge country with a population of over 80 million, a growing economy, and strong regional influence – on sanctions and vitriol. Likewise, Iran needs to retire poisonous slogans like "Death to America" and instead work with the US to advance its own interests and aspirations. Perhaps the mountain of mistrust will turn out to be too high for the two countries to scale. But getting to the other side is worth a try.

https://www.project-syndicate.org/commentary/us-iran-bilateral-talks-nuclear-deal-by-christopher-r-hill-2017-10

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The Washington Times (Washington, DC)

Europe in Kim Jong-un's Nuclear Crosshairs

By L. Todd Wood

October 31, 2017

Romania, Poland armed with AEGIS missile system

While on a recent trip to Eastern Europe, and talking with government officials in multiple jurisdictions, I noticed one change in the national security narrative that is new to this part of the world. Europe is realizing that North Korea can hit the continent with nuclear weapons. Kim Jong-un's regime has multiple nuclear weapons and the missiles to deliver them.

All of the wailing and gnashing of teeth in Western Europe over the decades against American missile defense plans seems to have vanished, just as quickly as they have in South Korea as the facts on the ground have changed. Romania and Poland's decision to house the AEGIS missile defense system, which was designed to defend against rogue states like the DPRK, seems highly prescient and wise. Ronald Reagan somewhere is smiling.

Just as in the lower 48 contiguous American states, Kim does not have to be accurate with a missile to hit a city or military installation. He only has to detonate a warhead as an airburst, an electromagnetic pulse attack, or EMP. This will shut down a wide swath of Europe's electric grid. This means no electricity, no food, no water, no medicine, for a very long time. The plague will look like a Sunday picnic in comparison.

North Atlantic Treaty Organization (NATO) Secretary General Jens Stoltenberg is currently on a trip to Japan and South Korea. He described the situation elegantly, saying North Korea had the ability to threaten Europe. "We recognize that Europe has also entered the [North Korean] missile range, and NATO member states are already in danger," he told Yomiuri Shimbun, a Japanese newspaper.

"NATO has the capabilities and the resolve to respond to any threat and to any aggressor…No NATO allies and of course NATO do not want war… that would be a disaster," Stoltenberg commented to Jiji Press over the weekend.

"We see a North Korea whose objective is to have missiles capable of transporting a nuclear weapon tomorrow," France's foreign minister Jean-Yves Le Drian told RTL radio. "In a few months, that will be a reality. At that moment, when it has the capability to hit the U.S., even Europe and at the very least Japan and China, with a nuclear weapon, the situation will be explosive," reported Newsweek.

The good news is the free world finally has a leader willing to confront the North Korean problem. All the derision by Western European leaders directed at Donald Trump for goading Europe to defend itself seems childish and irresponsible at this point. For just like Reagan, Trump is willing to speak the truth. And just like Reagan's forcing the world to develop missile defense, Europe will be safer because of President Trump.

https://www.washingtontimes.com/news/2017/oct/31/europe-kim-jong-uns-nuclear-crosshairs/

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The Hill (Washington, DC)

The Unseen Costs of Dethroning 'Rocket Man'

By Max Brooks

October 26, 2017

As missiles and insults fly between Washington and Pyongyang, the world seems to be teetering dangerously close to resumption of the Korean War (which, technically, never ended). There has been a lot of analysis about what that war would look like from nuclear detonations to EMPs (electromagnetic pulses), to over 8,000 artillery pieces that target over 25 million residents in Seoul (which is over half the entire country's population).

While we need to understand the expensive, bloody cost of another Korean War, we also need to understand the equally expensive: the staggering cost of victory.

Let's say we win, which most experts agree would happen. Let's say the combined U.S.-South Korean forces ultimately smash the DPRK's antiquated war machine. Let's say one of the North's casualties is Kim Jong Un, either killed in combat or in a post-war, Nuremberg-style tribunal. Mission accomplished. Unfurl the banners. Then what?

What would be the financial price tag of rebuilding a shattered North Korea? The reconstruction of East Germany, one of the smoothest, most peaceful unifications in history, still cost the West German people roughly $1.9 trillion.

And East Germany was the picture of modernity compared to North Korea. South Korean estimates peg a seamless, German-style reunion somewhere between eight hundred billion and two trillion.

What would it cost after a devastating war? And who's going to pay for it?

South Korea has budgeted for a reconstruction program that didn't include rebuilding its own nation (which would no doubt suffer greatly in the conflict). Even without nuclear weapons, the North has enough conventional forces to wreck the Mississippi-sized country. While other countries like China and Japan might send limited aid, the lion's share of the financial burden will undoubtedly fall on the U.S.

This is, assuming, of course, that the money is even there, given the economic shocks that will almost certainly follow the disruption of the global supply chain. Consider the number of products and parts of products made in South Korea, from Samsung flat-screens to Hyundai hatchbacks. How many production lines around the world would suddenly grind to a halt?

And that's just money. What about people? How many refugees would another Korean War create? Some estimates predict as many as 5 million, if the crisis mirrors Syria. Right now, Kim's people are suffering a devastating harvest, and for all we know, plunging back into the kind of 1990s famine that literally caused incidents of cannibalism. Now imagine these millions of people streaming into China or Russia, a scenario that has prompted both countries to beef up border security.

Who knows how far these refugees will travel and where they might seek sanctuary. South Korea will have its hands full with trying to resettle its own newly homeless citizens. They may very well insulate themselves behind the DMZ and leave the North's refugees to the rest of the world. And the world is still struggling to absorb displaced citizens of Syria, Libya, Iraq, Afghanistan and South Sudan. What will one more sinking of state do to the lifeboats around it?

And not all of these refugees will be friendly. At present, North Korea collects much of its cash from a mind-boggling web of state-sponsored crime kept in check only by Pyongyang. But what happens when Pyongyang lies in ruins? What happens when the controls on those mini-mafias are severed?

Are we at risk of unleashing an army of international criminals, the way the Russian mob rose like a phoenix from the ashes of the Soviet Union?

Don't forget that al Qaeda developed with assistance from anti-Soviet guerillas, and ISIS rose after the dismantling of Saddam Hussein's Republican Guard. Nothing is more dangerous than a group of highly trained, highly disciplined, professional warriors with no way to make a living.

These ex-killers will have just been defeated by America, probably losing friends and family in the process. Do we really think some of them are not going to be out for revenge? Can we hope to protect our citizens from the kind of weapons they'll have at their disposal? Like Iraq, these newly minted terrorists will have mountains of unused munitions cached all over their occupied homeland. Unlike Iraq, however, some of those weapons glow in the dark. Can we honestly guarantee that in the smoldering, chaotic aftermath of a second Korean war, some clique of disgraced commandos won't get their hands on a cache of chemical, biological, or even nuclear material.

The invasion of Iraq cost us over $1 trillion and more than 35,000 U.S. casualties, and it set off a chain reaction that continues to destabilize the entire world. And Iraq wasn't located in the heart of our world's most heavily industrialized, densely populated region.

We presently don't have any good solutions to the madman across the demilitarized zone, but crossing that zone in anger is no solution at all. War is hell, but so is postwar rebuilding. When we talk and think about the consequences of another Korean War, we need to remember what comes after we declare "mission accomplished."

http://thehill.com/opinion/national-security/357283-the-unseen-costs-of-dethroning-rocket-man

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Bulletin of the Atomic Scientists (Chicago, IL)

Ballistic Missiles: Limit Them First. Then Ban Them.

By James E. Doyle

October 25, 2017

Ballistic missiles have beneficial purposes; they place satellites in orbit, and those satellites provide the world with vital communications capabilities and navigation and weather information. Ballistic missiles send astronauts and space stations into Earth orbit and research probes far across the solar system.

But ballistic missiles armed with nuclear warheads are enablers of apocalypse. There is no effective defense against these missiles, even though the United States has spent more than 30 years and $500 billion trying to build radars that can track them and interceptor missiles that will shoot them down.

Military ballistic missiles have other negative characteristics. The short time needed for them to reach target (if the United States and Russia are the assumed combatants, 10 to 30 minutes) creates pressure to launch first in a conflict. In a crisis, ballistic missiles on high alert can wind up becoming the leading edge of a devastating war begun by miscalculation.

Because of the obvious dangerousness of ballistic missiles, there is a long history of official efforts to limit or eliminate them. Those efforts have shown that agreements to reduce the dangers of ballistic missiles can catalyze improved relations between potential adversaries. The landmark 1987 Intermediate-Range Nuclear Forces (INF) treaty required Washington and Moscow to

eliminate all ballistic missiles with ranges between 500 and 1,000 kilometers. Both nations recognized that these missiles could not be defended against and their proximity to the Cold War boundaries of Europe meant they were highly destabilizing in a crisis. A total of 2,692 missiles (including a small number of cruise missiles) were eliminated under the treaty.

Acknowledging the danger of nuclear ballistic missiles, President Reagan proposed an agreement requiring their total elimination to Soviet leader Gorbachev at their summit in Reykjavik, Iceland in 1985. The Soviets did not accept the proposal because Reagan insisted that America's program to build missile defenses remain unconstrained. That program—known then as the Strategic Defense Initiative and today as the National Missile Defense Program—has yet to develop effective means to defeat ballistic missiles.

In the mid 1990s, Alton Frye, then Washington director of the US Council on Foreign Relations, advocated an international ban on offensive ballistic missiles, an idea whose time has perhaps come again. Many political and technical challenges would need to be addressed to negotiate and enforce new international limitations on ballistic missiles. But model institutional and scientific mechanisms for such efforts exist in the form of preceding treaties, including INF and New START. Procedures and technologies for inspection, verification, and enforcement of agreements limiting or banning all types of ballistic missiles have already been proven. Political will, as usual is the major missing ingredient.

Former Defense Secretary William Perry and several other experts have recently advocated the elimination of the United States' nuclear-armed, land-based intercontinental ballistic missiles (ICBMs). According to Perry, this component of America's nuclear triad is no longer necessary to deter adversaries and is inherently dangerous, fueling instability during crises and arms races with Russia and China.

While Perry proposes to eliminate only land-based ballistic missiles and retain submarine-based missiles, such a move could create powerful international momentum to negotiate new international limits or bans on certain types of ballistic missiles—with an ultimate goal of banning all nuclear-armed ballistic missiles. If a united international community were to seriously consider such a course, it could bring increased pressure on North Korea, Iran, and other nations to suspend or roll back their offensive ballistic missile programs. If they refused, the possibility of using military force against their nuclear and ballistic missile programs would gain legitimacy and support.

One place to start seeking new limits on ballistic missiles has been in the news for months: the INF Treaty, which the United States and Russia have accused one another of violating. Russia's support of the treaty has weakened over the years because it is forbidden to deploy ballistic missiles with ranges between 500 and 1,000 kilometers, but its neighbors who are not party to the treaty are permitted to do so. China has many such missiles, and Turkey, South Korea, and Japan could develop them in the future. To shore up the INF, the United States could propose something the Russians have already advocated—that the INF Treaty be expanded to ban this category of ballistic missiles globally.

Such a move would not immediately apply to the most troubling nuclear-tipped missiles, those with ranges far in excess of 1,000 kilometers. But a worldwide INF could be a first step toward an eventual goal of banning all ballistic missiles. A renewed focus on the danger of these weapons—accompanied by US statements that it is willing to eliminate its land-based ICBMs under the right conditions—might elicit greater support from Russian and China in efforts to defuse the North Korean crisis and control Iranian missile testing.

Like the nuclear weapons ban treaty the UN recently adopted, a ballistic missile ban would require sustained, long-term effort to achieve anything like full success. But the United States has everything to gain from taking a leadership role and asserting that offensive ballistic missiles are dangerous and destabilizing weapons that should eventually be eliminated from the arsenals of all nations.

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ABOUT THE USAF CUWS

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 CUWS's military insignia displays the symbols of nuclear, biological, and chemical hazards. The arrows above the hazards represent the four aspects of counterproliferation - counterforce, active defense, passive defense, and consequence management.