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Feature Report

“Iran’s Nuclear Program: Status”. Published by Congressional Research Service; Updated Dec. 20, 2019

<https://fas.org/sgp/crs/nuke/RL34544.pdf>

Summary Iran’s nuclear program began during the 1950s. The United States has expressed concern since the mid-1970s that Tehran might develop nuclear weapons. Iran’s construction of gas centrifuge uranium enrichment facilities is currently the main source of proliferation concern. Gas centrifuges can produce both low-enriched uranium (LEU), which can be used in nuclear power reactors, and weapons-grade highly enriched uranium (HEU), which is one of the two types of fissile material used in nuclear weapons.

Is Iran Capable of Building Nuclear Weapons?

The United States has assessed that Tehran possesses the technological and industrial capacity to produce nuclear weapons. But Iran has not yet mastered all of the necessary technologies for building such weapons. Whether Iran has a viable design for a nuclear weapon is unclear. A National Intelligence Estimate made public in 2007 assessed that Tehran “halted its nuclear weapons program” in 2003. The estimate, however, also assessed that Tehran is “keeping open the option to develop nuclear weapons” and that any decision to end a nuclear weapons program is “inherently reversible.” U.S. intelligence officials have reaffirmed this judgment on several occasions.

Obtaining fissile material is widely regarded as the most difficult task in building nuclear weapons. As of January 2014, Iran had produced an amount of LEU containing up to 5% uranium-235, which, if further enriched, could theoretically have produced enough HEU for as many as eight nuclear weapons. Iran had also produced LEU containing nearly 20% uranium-235; the total amount of this LEU, if it had been in the form of uranium hexafluoride and further enriched, would have been sufficient for a nuclear weapon.. After the Joint Plan of Action, which Tehran concluded with China, France, Germany, Russia, the United Kingdom, and the United States (collectively known as the “P5+1”), went into effect in January 2014, Iran either converted much of its LEU containing nearly 20% uranium-235 for use as fuel in a research reactor located in Tehran, or prepared it for that purpose. Iran has diluted the rest of that stockpile so that it contained no more than 5% uranium-235. In addition, Tehran has implemented various restrictions on, and provided the IAEA with additional information about, its nuclear program pursuant to the July 2015 Joint Comprehensive Plan of Action (JCPOA), which Tehran concluded with the P5+1.

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- [How Quickly Could Iran Get a Nuclear Bomb?](#) (Defense One)
On Sunday, Iran updated its public stance toward the nuclear limits it accepted in 2015 as part of the Joint Comprehensive Plan of Action, or JCPOA. "Iran's nuclear program no longer faces any operational restrictions, including enrichment capacity, percentage of enrichment, amount of enriched material, and research and development," its official statement said.
- [How to Save the Open Skies Treaty](#) (Carnegie Europe)
The aim of it is to increase confidence in and transparency of military activities by allowing unarmed, fixed-wing observation flights over the entire territory of its participants for information-gathering purposes.

NUCLEAR WEAPONS

Aiken Standard (Aiken, S.C.)

NNSA Says More Large-Scale Environmental Review Not Needed for Pit Production

By Colin Demarest

Jan. 8, 2019

The National Nuclear Security Administration has concluded it does not need to further examine the broader, nationwide environmental repercussions of plutonium pit production.

In a federal notice, the NNSA, the U.S. Department of Energy's weapons-and-nonproliferation arm, announced no more National Environmental Policy Act "documentation at a programmatic level is required." A more-tailored analysis, though, is still expected for the Savannah River Site, one of two locations the nuclear weapon cores could be produced in bulk.

NEPA, enacted decades ago, is a law that makes agencies consider and weigh the environmental and health consequences of plans or projects.

The new conclusion – unveiled Tuesday and more widely publicized Wednesday – could prove to be a boon for the government's already time-crunched plutonium pit production endeavor. At least 80 plutonium pits are needed per year by 2030, a significant-but-achievable feat, as NNSA chief Lisa Gordon-Hagerty has described it.

Missing that mark, according to the 2018 Nuclear Posture Review, would mean more demand and higher costs.

In May 2018, the National Nuclear Security Administration and the U.S. Department of Defense together recommended making the nuclear weapon cores in both South Carolina and New Mexico. At least 50 per year would be made at the Savannah River Site, at a repurposed Mixed Oxide Fuel Fabrication Facility, they counseled. Another 30 per year would be made at an improved Los Alamos National Laboratory, near Albuquerque and Santa Fe.

MOX, a multibillion-dollar, never-completed nuclear fuel project, was axed by the NNSA in October 2018.

"So, again, both making sure that Los Alamos meets their 30 pits a year, and implementing our preferred option of the second site at Savannah River, we're moving out to implement that," Charles Verdon, the NNSA's deputy administrator for defense programs, said in December. Verdon leads the team responsible for maintaining the nation's nuclear stockpile.

Some of those opposed to the U.S. jumpstarting its plutonium pit capabilities – there's no need for more pits, it won't be successful, it promotes an arms race, they have argued – have also come out against the National Nuclear Security Administration's study decision.

"NNSA does not want to expose the contradictions in its pit production plans to further scrutiny by the public, tribes, affected governments, Congress, or even by other NNSA and DOE programs, some of which will suffer as a result of the rush into pit production," said Greg Mello of the Los Alamos Study Group.

Nine Energy Department sites across the country are associated with the plutonium pit production mission.

https://www.aikenstandard.com/news/nnsa-says-more-large-scale-environmental-review-not-needed-for/article_be82869a-322f-11ea-91f8-bfc840cfb120.html

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Radio Free Asia (Washington, D.C.)

Experts: North Korea Can Use Iran to Justify Nuclear Deterrent Strategy

By Seungwook Hong, Hyemin Son and Sangmin Lee

Jan. 7, 2019

North Korea experts say that Pyongyang will likely try to use the tension between the U.S. and Iran to justify a strengthening of its nuclear deterrence, in the wake of the U.S. drone-strike-assassination of Iranian military leader Qasem Soleimani.

Two days after the drone strike, North Korea condemned the attack through state-run media.

Thae Yong-ho, the former deputy ambassador of North Korea to the United Kingdom who famously defected with his family to South Korea in 2016, wrote on his personal website that Pyongyang is worried that word of the drone attack will spread among its people.

Thae also criticized North Korea for what he said was a distortion of facts, saying the North had claimed “the Middle East will be a grave for the U.S.” and that “pro-U.S. countries are putting the U.S. in a tough situation by remaining passive as Washington asks them to send troops.”

He also said that Kim Jong Un, was greatly surprised by the attack and the assassination in Iraq might now cement his convictions that only nuclear weapons will protect him.

Cho Hanbum of the Korea Institute for National Unification told RFA’s Korean Service the assassination actually puts North Korea in a hard place.

Cho said that in the wake of the drone assassination, which has been widely seen as a preemptive strike, if North Korea starts its usual provocations, the U.S. will now have no choice but to take a hardline stance, and even North Korea’s allies, China and Russia, will not be able to side with Pyongyang.

Cho believes North Korea will instead focus on gaining an upper hand in denuclearization and sanctions relief negotiations with the U.S. rather than threatening provocations.

But Cho’s colleague Hong Min, the director of the institute’s North Korea Research Division, said that the North could instead use the drone-strike as an excuse to launch provocations.

Hong said that North Korea has declared a long-term war with U.S. under a so-called “frontal breakthrough” strategy, but it has not abandoned negotiations. He added that the U.S. would be displeased to see Pyongyang disrupt those negotiations.

“North Korea may hope internally that the US will quickly organize its internal issues and focus on negotiations with the North,” said Hong, adding “[but] due to the Iranian situation [that will likely] be put on the back burner.”

“So, North Korea may increase its level of provocation early so that the U.S. must focus on negotiations,” said Hong.

Hong added that if not for the drone-attack, North Korea would begin low-intensity provocations in late February or early March, when the annual U.S.-South Korean joint military exercises are in full swing.

However, Hong said, now it is possible that North Korea could try to draw U.S. attention by unveiling its strategic weapons at an earlier date.

U.S.-based experts weigh in

Several U.S.-based experts also told RFA that the drone-strike would embolden North Korea's resolve to hold on to its nuclear program.

"The U.S. action reinforces North Korea's decades-old paranoia about Washington's intentions for Pyongyang and bolsters the regime's narrative of a 'hostile' United States," said Jung H. Pak, from the Brookings Institution's Center for East Asia Policy Studies.

"The killing of Iran's top general does not fundamentally affect the [North Korean] regime's strategic objectives or its methods, and if anything, further legitimizes Kim's decision to refuse to 'bargain' away the nuclear weapons," said Pak.

Patrick Cronin of the Hudson Institute said the drone-attack affects North Korea in two major ways.

"On the one hand, Pyongyang is reminded that it is vulnerable and should refrain from lethal uses of force," said Cronin.

"On the other hand, North Korea will continue to build up its nuclear arsenal to deter potential regime-change attacks," he said.

Government encourages citizens' self-reliance to overcome sanctions

Meanwhile in North Korea, authorities are forcing citizens to attend ideological education sessions where they are told to bear the difficulties of living under international sanctions using self-reliance.

The sessions began after the Korean Workers' Party held a plenary meeting to decide the best way to deal with the sanctions, which are aimed at depriving North Korea of foreign cash and resources that could be funneled into its nuclear program.

"These days, they are conducting these ideological sessions at every factory and women's organization," said a resident of North Pyongan in an interview with RFA's Korean Service Sunday.

"The core idea of the party's plenary meeting was that people should persevere through economic sanctions with the power of self-reliance," said the source.

But the source said the people are scoffing at the idea.

"[They say] if they just sit there and believe what the Central Committee is saying, they might starve to death, so they have to save dollars on their own," the source said.

"They say they don't believe in Kim Jong Un. They believe in hundred dollar bills, so they are saying that if they have dollars, they can overcome any hardship," the source said.

Another source, also from North Pyongan, told RFA, "There is a saying circulating among residents that 'even a Kisaeng must work the farmland with her hoe'."

Kisaeng were women trained to be courtesans for upper-class men during the Joseon Dynasty (1392-1897) and earlier. The saying means the economic situation is so bad that even those who cater to the wealthy struggle to survive.

The second source explained the saying in the current context, saying, "If government officials or rich people don't make enough money because of sanctions, women who live off of them will have to work hard and suffer a lot."

The second source said that the education sessions indicate to the people that sanctions will not likely be ending soon.

“The more that this type of ideological education is emphasized, the more people realize that the confrontation between North Korea and the U.S. will be prolonged, and the U.N. economic sanctions will not be easily lifted,” said the second source.

“If we give up nuclear weapons and missiles, foreign economic aid, including from South Korea, will begin on a large scale, so there is a lot of resentment and criticism about how the party is handling the situation.”

Reported by Seungwook Hong, Hyemin Son and Sangmin Lee for RFA’s Korean Service. Translated by Leejin Jun. Written in English by Eugene Whong.

<https://www.rfa.org/english/news/korea/nk-expert-iran-drone-strike-01072020164739.html>

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Defense One (Washington, D.C.)

What We Know about the Missiles Iran Fired into Iraq

By Marcus Weisgerber

Jan. 8, 2019

Iran has improved the accuracy and maneuverability of its missiles, like the ones fired Tuesday at military installations in Iraq housing U.S. and coalition troops, in part with foreign help.

New guidance systems have increased the lethality of Iran’s missiles, including the short-range Fateh that appears to have been used in the attacks. But many unknowns remain.

“We don’t have a real good, high-fidelity count of the number of missiles that Iran has,” said Michael Elleman, director of the Nonproliferation and Nuclear Policy Programme at the International Institute for Strategic Studies.

Ellerman estimates that Iran has between 200 and 300 Scud missiles and about 100 Shahab-3 medium-range ballistic missiles.

“Once you get beyond 100, it probably doesn’t matter because they have a limited number of launchers and launch crews,” he said.

Even less is known about the Fateh. That’s because Tehran makes them indigenously.

“My guess is that the numbers would be measured in the hundreds...if not the high hundreds,” Ellerman said.

Iran has updated the guidance systems on its short-range missiles over the past 15 years.

“The missiles that they test do appear to be having different front ends,” said Tom Karako, who leads the Missile Defense Project at the Center for Strategic and International Studies. “The physical characteristics of a number of these missiles and front-end of these missiles, look a lot like some of the hardware that’s been showing up in North Korea.”

Iran also appears to have given its short-range missiles satellite navigation receivers to help them steer on the way down, Ellerman said. The Missile Technology Control Regime, a pact that limits the export of missile technology, bans the transfer of satellite navigation receivers that work on objects flying faster than 1,000 nautical miles per hour and at altitudes above 60,000 feet.

"The use of improved guidance technology and maneuverability during the terminal phase of flight enables these missiles to be used more effectively against smaller targets, including specific military facilities and ships at sea," the Defense Intelligence Agency said in its most recent assessment of Iran's military. "These enhancements could reduce the miss-distance of some Iranian missiles to as little as tens of meters, potentially requiring fewer missiles to damage or destroy an intended target and broadening Iran's options for missile use."

The satellite navigation receivers on the missiles are likely imported, but from where?.

"I suspect they got some foreign assistance, but I don't know specifically from whom or how," Ellerman said.

Said Karako, "They're probably getting a lot of help. It's probably from a variety of places."

Also up for debate is the accuracy of these missiles.

"I don't think they'll achieve that accuracy that they're claiming," Ellerman said.

Iran also builds an antiship missile, the C-802, under license from China.

"They're quite capable," Ellerman said. But the U.S., British, and French navies have equipment, technology and training that could defeat them.

More vulnerable are other Gulf nations in Iran's neighborhood "just because their crews are not nearly as well trained and equipped as the U.S. Navy and the British Navy and French Navy that operate in the region," Ellerman said. "The anti-ship missiles are a concern. They will place greater demands on the crews in the Gulf and of course, commercial shipping is very vulnerable to such systems."

Marcus Weisgerber is the global business editor for Defense One, where he writes about the intersection of business and national security. He has been covering defense and national security issues for more than a decade, previously as Pentagon correspondent for Defense News and chief editor of ...

<https://www.defenseone.com/business/2020/01/heres-what-we-know-about-missiles-iran-likely-fired-iraq-last-night/162326/?oref=d-river>

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US ARMS CONTROL

VOA (Washington, D.C.)

Experts: Iran's Attacks on US Assets Could Encourage N. Korea's Nuclear Ambitions

By Christy Lee

Jan. 9, 2019

WASHINGTON - Iran's attacks on Iraqi bases housing U.S. troops as Tehran announced it will no longer comply with restrictions on uranium enrichment may encourage North Korea to perfect its nuclear and missile technologies, experts said.

"With Iran also challenging the United States, North Korea may feel that terroristlike activities will be less likely to cause U.S. retaliation because the U.S. will be busy with Iran," said Bruce Bennett, a senior defense analyst at the Rand Corporation research center.

Multiple rockets hit Baghdad's Green Zone near the U.S. Embassy Wednesday. There were no known casualties, and it is unclear whether Iran or its proxies launched them.

The rocket fire came a day after Iran attacked two Iraqi bases used by U.S. forces. Iran launched multiple missiles Tuesday in response to the U.S. killing of Iranian Quds Force commander Qassem Soleimani Friday. There are no known American casualties from the attacks.

President Donald Trump authorized killing Soleimani to protect American interests from future Iranian attacks, according to the Pentagon.

Although there were fears that Trump would launch a tit-for-tat retaliation against Iran when he spoke Wednesday morning, he did not announce additional military actions.

"Iran appears to be standing down" he said, pledging to issue new sanctions against Tehran.

'Kim would be emboldened'

Joseph Bosco, an East Asia expert at the Institute for Core America Studies (ICAS), said if Tehran kills Americans, and the U.S. does not take action against Iran, North Korean leader Kim Jong Un might assume a more aggressive stance against the U.S.

"If the U.S. did not respond, Kim would be emboldened," Bosco said, adding the Iranian attack Tuesday would not have too much impact on the U.S.-North Korean dynamics.

Last week, Kim said North Korea intends to bolster its military forces, take "offensive measures," develop "a new strategic weapon" and "shift to a shocking actual action" without specifying the measures.

Kim's statement came after Pyongyang vowed multiple times last year to take a "new path" if the U.S. does not change its attitude, presumably referring to maintaining sanctions on North Korea.

North Korea conducted 13 missile tests last year in an effort to pressure the U.S. to grant concessions, including sanctions relief. Pyongyang was seeking sanctions relief when Kim met with Trump in Hanoi for a February summit that failed.

In October 2019, the U.S. and North Korea held talks in Stockholm, but the talks collapsed without an agreement. Since then, nuclear talks between Washington and Pyongyang have remained deadlocked.

Ken Gause, director of the adversary analytics program at CNA, said Iran and North Korea are watching each other to see how far they could elevate threats against the U.S.

"They're obviously learning by how the U.S. reacts to one another that it might give the other one some insight on how far they can push the United States up the escalatory ladder," Gause said.

The kinds of threats they raise are different, with Iran using proxies in the region to attack U.S. interests there and North Korea testing missiles on the Korean Peninsula.

Gause said, however, Iran and North Korea have taken similar actions of rescinding commitments made on their weapons program that "will move closer to being viable programs in the future."

After the U.S. killed Soleimani, Iran announced it will no longer adhere to the 2015 nuclear deal limiting it from enriching uranium, a key element for making nuclear weapons. Trump withdrew the U.S. from the deal in 2018.

Signaling intent on ICBM testing

Kim last week announced that North Korea no longer feels obliged to keep its self-imposed moratorium on testing a long-range missile, signaling he could test an intercontinental ballistic missile (ICBM).

"You have a kind of an equivalence here on both sides with two countries that a couple of weeks ago somewhat had a lid on both of these nuclear programs," Gause said. "Now they've become a much more complicated issue to deal with."

The Iranians have yet to develop their technology to the point where they can complete a nuclear weapon, but Iran had already breached the 2015 nuclear deal by enriching uranium in July.

Lawrence Korb, former assistant secretary of defense during the Reagan administration, said if the Iranians restart their nuclear program, it could boost North Korea's ambitions to complete its own nuclear program.

"If they do go that far, it makes it easier for North Korea to claim that [it] should be a nuclear power," Korb said.

Robert Manning, a senior fellow at the Atlantic Council, said if Iran renews its proliferation efforts, it "will reinforce Kim's new strategic choice."

Bennett, of the Rand Corp., said the opposite could also be true.

"Iran has likely concluded that it can also get away with such defiance and breaking of commitments," he said. "And appears to be using the [U.S.] airstrikes on Soleimani to justify similar defiance."

Iran's announcement that it could begin to enrich uranium also provides an opportunity for North Korea to continue developing its nuclear weapons and missiles with the intent of selling them to Iran, Bennett said.

"The law of supply and demand relates to North Korea's supply of nuclear weapons and Iranian demand for them," he said.

"Iran now gives North Korea a clear market for nuclear weapons. North Korea is having problems with inadequate food and electricity and wants the hard currency Iran can supply. That could well lead to nuclear proliferation from North Korea to Iran, some of which likely was going on before," Bennett said.

Sold weapons to Iran, Syria

North Korea has sold ballistic missiles and chemical weapons to Iran and Syria in the past. A U.S. government estimate in 2017 suggested North Korea may be producing enough nuclear material each year for 12 additional nuclear weapons, according to the Nuclear Threat Initiative.

Gary Samore, the White House coordinator for arms control and weapons of mass destruction in the Obama administration, said, "Iran would welcome North Korean assistance and North Korea could provide very substantial nuclear weapons help to Iran."

"But there is no evidence as far as I know that North Korea and Iran have cooperated on nuclear weapons," he added.

If Iran decides to push forward with its nuclear weapons program, Bennett said the U.S. would face "a four-front nuclear threat: Russia, China, North Korea and Iran."

"The U.S. must now deal with North Korea and Iran while retaining a nuclear deterrent against both China and Russia" he said. "Iran and North Korea have every reason to coordinate their challenges to complicate and deter U.S. responses."

Joshua Pollack, editor of the Nonproliferation Review at the Middlebury Institute of International Studies at Monterey, said, "If Iran represents any sort of opportunity for North Korea today, it might involve deepened cooperation with another international pariah facing off against the United States."

On Wednesday, Trump said, "As long as I am president of the United States, Iran will never be allowed to have a nuclear weapon."

Thomas Countryman, former assistant secretary of state for international security and nonproliferation, said, "To go beyond its own national defense and to sell nuclear weapons technology to other states would make [North Korea] a well-justified target of U.S. military action."

This report originated in VOA's Korean Service.

<https://www.voanews.com/middle-east/experts-irans-attacks-us-assets-could-encourage-n-koreas-nuclear-ambitions>

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The Hill (Washington, D.C.)

EU Officials to Hold Emergency Meeting on Saving Iran Deal

By Zack Budryk

Jan. 6, 2019

European Union officials will hold an emergency meeting to discuss possible options for salvaging the 2015 Iran nuclear deal after Tehran announced this weekend it would abandon the deal's limitations on uranium enrichment, according to Reuters.

"We must be ready to react to Iran's breaches of the nuclear deal," one of the diplomats involved in the planning of the meeting, which is set for Friday, told Reuters.

Asked whether this could involve moving closer to re-imposing international sanctions against Iran, the diplomat told the news service, "It is increasingly likely, but not yet decided. Friday will be key."

Iran's announcement comes on the heels of the U.S. killing Iranian military commander Qassem Soleimani in a drone strike. The U.S. withdrew from the deal in 2018 but Britain, France, Germany, Russia and China remain committed to the agreement.

Iran has said it will return to compliance with the deal if the United States does the same and, in withdrawing from its commitment, cited the U.S. withdrawal and sanctions that have devastated Iranian oil exports.

"Iran's full cooperation w/IAEA [the International Atomic Energy Agency] will continue," Iranian Foreign Minister Mohammed Javad Zarif said in a tweet Sunday.

Iran has vowed retaliation against the U.S. for Soleimani's death. President Trump said over the weekend that any retaliation would be met with targeted strikes against 52 undisclosed sites in Iran, including those of cultural significance.

<https://thehill.com/policy/international/europe/476926-eu-officials-to-hold-emergency-meeting-to-discuss-ways-of-saving>

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COMMENTARY

Brookings (Washington, D.C.)

The Only Winner of the US-Iran Showdown is Russia

By Strobe Talbott and Maggie Tennis

Jan. 9, 2019

Editor's Note: The heightened tensions between the United States and Iran over the killing of Qassem Soleimani offer Russia another opportunity to increase its influence in the Middle East, argue Strobe Talbott and Maggie Tennis. This article originally appeared in Slate.

Hours before Iran launched a missile attack on U.S. troops in Iraq, Vladimir Putin visited Syria to huddle with his Syrian counterpart Bashar al-Assad over the mounting U.S.-Iran crisis. Russia has repeatedly condemned the U.S. airstrikes that killed Iranian Major Gen. Qassem Soleimani. It's fair to assume that leaders in Moscow are seeking to turn the situation to their advantage.

Relations between Washington and Tehran have deteriorated since the onset of the Syrian conflict and even more so since President Donald Trump's withdrawal from the 2015 nuclear deal. At the same time, Russia and Iran have grown closer through military cooperation in Syria. Moscow's expanding influence in Syria suggests that a conflict between the United States and Iran could advance Russia's power and reputation in the region. At the very least, Russia will be able to paint the United States as an erratic aggressor, leading regional actors and international allies to question cooperation with Washington.

Russia has helped the Assad regime maintain control in Syria, even as the U.S. and its NATO allies demanded Assad's ouster. As the U.S. pulls back from Syria, Assad and Russia remain in control. Russia's backing of Assad began as a quest to undermine U.S. interests and gain influence in the Middle East. More than four years later, Russia's triumphs from that conflict include drawing Turkey away from its NATO allies, building a reputation as a valuable foreign backer, and emerging as a kingmaker—all at the expense of the United States.

Poorly reasoned U.S. foreign policy decisions, such as, most recently, abandoning Kurdish partners in Syria, helped create a power vacuum that Russia has stepped in to fill.

Poorly reasoned U.S. foreign policy decisions, such as, most recently, abandoning Kurdish partners in Syria, helped create a power vacuum that Russia has stepped in to fill. Friday's strikes — and every Trump administration action taken since — will likely improve Russia's position in Syria and the broader region. Iraq's government is outraged by what it views as a U.S. violation of its sovereignty, with the Iraqi prime minister calling the strike a "flagrant violation of the conditions authorizing the presence of U.S. troops." Iraq could soon expel U.S. forces from the country in response. With no troops in Iraq, the United States will find it hard to sustain a presence in Syria. That void would create more maneuverability for Moscow in the region — essentially, cementing its position as a regional power broker.

Beyond strengthening Russia's position, the Soleimani strike contributes to Russia's goals of driving a wedge between Washington and its partners and advancing global perceptions of the United States as volatile and belligerent. Moscow has already succeeded in undermining U.S. relations with Middle Eastern allies. The prime example is Turkey: Although Russia and Turkey were on opposite sides of the conflict in Syria, they now jointly control operations in the north of the country after a remarkable October 22 agreement between Washington and Ankara to establish a "Syria Safe Zone"

and the withdrawal of U.S. troops. In reaction to Soleimani's death, Turkey released a statement that it opposes "foreign interventions, assassinations and sectarian conflicts in the region."

Moscow could also benefit if the U.S. strikes create more disunity between Washington and its European allies. Numerous U.S. decisions in the Middle East have frustrated allies, particularly its withdrawal from the nuclear deal. Reports suggest that the Trump administration even failed to warn Britain and other allies ahead of the strikes on Soleimani. If Washington does not heed its allies' calls for immediate de-escalation, the United States could find itself further isolated on the world stage.

Washington could incur additional damage to its relationships with European allies if Iran now hastens its pursuit of a nuclear weapon as a result of the strikes. Iran announced Sunday it would stop obeying all restrictions imposed by the Iran deal on its nuclear activities. Russia has been a vocal critic of the U.S. decision to withdraw from the deal and instead mount a "maximum pressure" campaign against Iran. In fact, Moscow's position has placed it on the same side as European powers like France and Germany opposing the U.S. decision to reimpose sanctions. Russia has worked with France and Germany to sidestep U.S. sanctions to keep Iran in the deal. Consequently, Russia is ideally situated to emphasize its efforts to maintain the agreement and blame Washington for pushing Iran toward a nuclear bomb.

Of course, there are major downsides for Russia from a U.S.-Iran conflict in the Middle East. A proxy conflict could stress Russian forces in Syria, especially if Israel escalates its strikes against Iranian-backed groups like Hezbollah, which vowed to revenge Soleimani's death. Furthermore, any Iranian progress toward nuclear breakout surely would destabilize the region, complicating Russia's ability to control the situation in Syria. Finally, if Russia cooperates too closely with Iran, it will attract criticism from other Middle Eastern partners.

For a while it seemed that Trump was trying to fulfill his campaign promise of a reduced U.S. presence in the Middle East. Now, it seems as if he's trying to draw the country into another prolonged quagmire — whether as a distraction from impeachment proceedings or to force Iran to the negotiating table, it is too early to tell.

Russia, on the other hand, is left with the enviable position of capitalizing on the turbulent behavior of the United States in the Middle East, regardless of whether the United States and Iran go to war. Ultimately, U.S. actions will strengthen Russian leadership: first, by removing American competition, and second, by turning regional and global sentiment against the United States. Provided Moscow continues cooperating with all regional states and maintains stability in Syrian territory where Russian forces are present, Russia stands a good chance of supplanting U.S. influence in the Middle East — no matter what happens next.

<https://www.brookings.edu/blog/order-from-chaos/2020/01/09/the-only-winner-of-the-us-iran-showdown-is-russia/>

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Bulletin of the Atomic Scientists (Chicago, Illinois)

What the Soleimani Killing Means for the Iran Nuclear Deal

By Abbas Milani

Jan. 5, 2019

First came President Trump's decision to have the United States unilaterally leave the multilateral 2015 nuclear deal with Iran (formally known as the Joint Comprehensive Plan of Action, or JCPOA). It was followed by the policy of "maximum pressure" on the Iranian economy; the rash but momentous decision to assassinate Qassem Soleimani, the commander of the Qods Brigade and easily the second most powerful man in Iran; and the controversial presidential tweet threatening that if Iran took retaliatory action, the United States had already identified 52 targets in Iran, including cultural sites. When Iran's supreme leader and other Iranian officials threatened harsh retaliation on US military sites, President Trump—taking a page out of his playbook with North Korea—reiterated that should Iran take any action against US assets, he would hit Iran "harder than they have ever been hit before!"

Finally, in the seething cauldron of these escalating tensions, on January 5, Iran announced that it would no longer abide by limits on its nuclear program stipulated in the JCPOA. What practical steps the Iranian government takes in this regard, and how provocative those steps will be, remain to be seen.

For some time, in spite of the US withdrawal, Iran had continued to abide by its commitment to the nuclear deal. This continued adherence was, on the one hand, because Iran hoped to receive from Europe a package of economic relief from US sanctions. Even more important, Iran needed to keep Russia and China in its corner. Too radical a breach of Iran's nuclear commitment—or departure from Nuclear Non-Proliferation Treaty, as some Iranian officials had hinted—might have forced China and Russia to abandon their support of the regime.

But the US assassination of Soleimani clearly changed Iran's calculus, and maybe even the dynamics of its relationship with China and Russia.

If there were any tactical gains for the United States in killing Soleimani, they now pale in comparison with the tactical gains—and even potential strategic benefits—that will accrue to the regime in Tehran. The Islamic Republic of Iran might have lost its most important general, but it has already gained strategically. The outpouring of support for Soleimani in Iraq and Iran, part of it obviously organized by the regime, is one important hint of these potential benefits. The regime might savor the moment, accept the advantages it has gained, and avoid escalation. But its own bombast and declared commitment to attack US military assets, and Trump's repeated threats, are likely to lead to more military confrontation, if not war. These confrontations will play out in what is a rapidly changing context and dynamics.

A first hint of this new dynamic came a few weeks ago when, with great fanfare, Iran celebrated joint naval operations with the Russian and Chinese navies in the Persian Gulf. This is the first time in history that these three countries have organized such joint naval operations. The long-term strategic consequences of a serious Chinese and Russian naval presence in the Persian Gulf is hard to exaggerate. The ill-advised Soleimani assassination seems to have redoubled the Russian and Chinese commitments to consolidate their alliance with the Iranian regime.

The assassination has also helped solve two other urgent problems the Iranian regime faced.

Iran had been encountering increasing Iraqi nationalist protest against its sometimes heavy-handed influence and meddling in that country. Soleimani was often at the center of this controversy. Iranian diplomatic outposts were burnt by angry Iraqi demonstrators. There were economic

boycotts of Iranian goods, and statements by Ayatollah Sistani—Iraq’s Iranian-born leader of Shiites—against foreign (read Iranian) interference in Iraqi affairs. Targeting Soleimani has certainly changed the mood in Iraq. The Iraqi parliament just passed a resolution asking the government to end the US military presence in Iraq. Shiite members of the parliament—composing more than half of that body—voted for the resolution, and Sunnis virtually all abstained. Some Shiite factions in Iraq, in and out of the parliament, are even demanding the closure of the US embassy.

A challenge no less significant to the Iranian regime has domestic roots. In response to massive demonstrations against economic hardships—demonstrations that rapidly spread to more than a hundred cities—the Iranian regime moved with shocking brutality, killing several hundred protestors and arresting several thousand.

Supreme leader Ali Khamenei—already under siege by critics for his order to brutally suppress these demonstrations—even drew criticism from his traditional base for mishandling the discontent. The assassination of Soleimani has been a gift to the regime in terms of shifting attention away from these protests.

Always adept at using mass demonstrations to showcase the government’s power and popularity, media have been broadcasting nationalist marches, music, and mourning chants around the clock. The regime and its supporters have used images of hundreds of thousands of Soleimani mourners in the streets of Iranian cities, as a new barometer of national unity—and an argument in favor of the status quo.

In suggesting that its Iraqi proxies attack the US embassy late last month, Iran clearly overplayed its weak hand and underestimated Trump’s willingness to engage in a new military adventure in the Middle East. In its decision to target Soleimani, the United States might also have miscalculated Iran’s ability or resolve to respond. The Trump administration has been essentially moving on the assumption that the Iranian regime is so bereft of legitimacy, so entangled with a failing economy and rising popular discontent, that it could not and would not want to enter into a major war with the United States. Maximum pressure, some in the administration believed, might even lead to regime change. Furthermore Trump’s belief, recently reiterated, that any war with Iran will be very short might have contributed to the acceptance of these assumptions.

Events in the last few days have shown how erroneous those assumptions in both Tehran and Washington were. Unless both sides decide to de-escalate, the United States and Iran are moving toward a dangerous and destructive war that will further dim the waning prospects for a working agreement that will convince Iran it is not in its interest to try to develop a nuclear bomb and will also lessen tensions that have reached a fever pitch with the assassination of Soleimani.

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<https://thebulletin.org/2020/01/what-the-soleimani-killing-means-for-the-iran-nuclear-deal/>

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Defense One (Washington, D.C.)

How Quickly Could Iran Get a Nuclear Bomb?

By Corey Hinderstein

Jan. 8, 2019

On Sunday, Iran updated its public stance toward the nuclear limits it accepted in 2015 as part of the Joint Comprehensive Plan of Action, or JCPOA. “Iran’s nuclear program no longer faces any operational restrictions, including enrichment capacity, percentage of enrichment, amount of enriched material, and research and development,” its official statement said. This announcement was greeted with the expected questions:

Is Iran rushing to a nuclear bomb? How quickly could Iran get enough material for a bomb, often referred to as “breakout time”?

To understand breakout time, and why it matters that Iran is no longer observing these limits, you must first understand uranium enrichment.

Sure, give me Uranium Enrichment 101.

In its natural state, uranium contains less than 1 percent U235, the type of uranium that fuels a nuclear explosion. Enrichment produces one output stream in which the U235 level is higher than in the natural state (“enriched”) and another in which the U235 level is lower (“depleted”). The fuel for nuclear power plants usually contains about 3 to 5 percent U235. Uranium is considered highly enriched, or HEU, above 20 percent, and weapons-grade uranium normally refers to material that is at least 90 percent U235. The same equipment that enriches uranium to 5 percent will take it to 90 percent; it is just a question of how it is operated. Gas centrifuges are the most common technology used to enrich uranium, including by Iran.

Okay, I get it. So what is breakout time?

The amount of time it would take a country to produce enough nuclear material for its first nuclear weapon. It doesn’t include the time it would take to design, manufacture, or assemble the bomb’s components or the nuclear weapon itself. Producing the nuclear explosive material is the long pole in the tent for producing a weapon, which is why it is so closely scrutinized.

How is breakout time calculated?

The calculations depend on how much uranium is available, in what form, its enrichment level, and the number and type of gas centrifuges available. One can picture these variables like sliders on different bars. If all go up (more material, at higher enrichment levels, with more installed centrifuges) then breakout time goes down. If they all decrease, breakout time grows. If you want to hold breakout time steady, you can move some up and others down (for example, allow more stockpiled material but reduce the number of centrifuges).

The calculations also assume the use of all available material and technology. If Iran were to try to produce material using only secret sites that are not under UN monitoring, breakout time would be much longer.

At the beginning of the JCPOA negotiation, Iran’s breakout time was unacceptably short: on the order of weeks. The guidance to the U.S. negotiators was to seek a deal that would push that breakout time to one year, and keep it there for a decade or more. The negotiators accomplished this through a combination of limits on Iran’s enriched uranium stockpile (300 kg), the enrichment level (no more than 3.67 percent) and the number of centrifuges (5,060) which were limited to their first-generation (least capable) design. This marked a significant change from the pre-JCPOA

situation: 12,000 kg uranium enriched to as high as nearly 20 percent and 19,000 centrifuges of various types, with ongoing research and development to improve the machines' efficiency.

What about plutonium?

Plutonium is produced in the fuel of nuclear reactors; it must be separated from that irradiated fuel to be used in a nuclear weapon.

Before the JCPOA, Iran was building a nuclear reactor that would have produced plutonium of a very good quality for nuclear weapons. Because the reactor was still under construction, the plutonium pathway to a nuclear weapon was not included in the breakout calculation.

Under the JCPOA, Iran agreed to change the design of the reactor, with help from China and others, to one that would produce plutonium in small quantities and of a quality not well suited for nuclear weapons. Thankfully, this reactor redesign process is ongoing. The JCPOA also requires Iran to send the used fuel out of the country, making it harder to access the plutonium.

Great. So what is Iran's breakout time now?

I don't know, and neither does anyone else who is speculating publicly right now. It is certainly now longer than it was before the Iran deal.

With Iran's announcement, all the slider bars described above could be moving. In its most recent report, the International Atomic Energy Agency, or IAEA, said the enriched uranium stockpile had increased to more than 550 kg, of which nearly a quarter is above the 3.67 percent limit. While the quantities and enrichment levels are nowhere near the pre-JCPOA levels, the breakout time is starting to tick down. If Iran also begins installing more centrifuges, and possibly deploying more advanced designs, the timeline will shrink even more quickly. The next IAEA quarterly report will report the latest quantities of material, levels of enrichment, and number of installed centrifuges. This will not only give the world a better sense of the breakout timeline now, but the pace at which it is changing.

How will we know how breakout time is changing?

In this time of so many known unknowns, IAEA monitoring and inspections in Iran are key. The verification that came with the JCPOA – and which Iran has so far said it will continue to implement – means that international inspectors are on the ground, every day, in the facilities for uranium enrichment and material storage. This monitoring mission gives facts about what Iran is doing and not just what it is saying. It also gives the IAEA the right to go anywhere it suspects contains relevant, undeclared activities, an access right that the IAEA has exercised and can do so again. These eyes and ears are the “boots on the ground” we need in Iran to reduce dangerous uncertainties.

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Carnegie Europe (Brussels, Belgium)

How to Save the Open Skies Treaty

By Dominik P. Jankowski

Jan. 9, 2019

2019 was a bumpy ride for arms control, disarmament, and non-proliferation (ADN). And no wonder.

Attention was on Russia's continuing violation of the Intermediate-Range Nuclear Forces (INF) Treaty. Rightly so, as the illegally developed, tested, and fielded Russian SSC-8 missiles are mobile, easy to hide, and able to reach European cities with limited warning time. The agreement's demise on August 2, 2019, further eroded the global ADN architecture.

In the meantime, on the sidelines of a larger post-INF debate, another discussion has erupted over the Open Skies Treaty (OST). The treaty, previously known exclusively to ADN pundits, is having its fifteen minutes of fame due to the fact that the United States is currently reassessing its engagement with it.

The OST has played an important role in transatlantic relations. The first to consider an OST-like regime was U.S. president Dwight Eisenhower, who in 1955 proposed that the United States and the Soviet Union allow aerial reconnaissance flights over each other's territory. Back then, Moscow rejected the proposal, claiming the initiative would be used for extensive spying. President George H. W. Bush revived the concept in 1989, and the OST was eventually signed in 1992—but did not enter into force until 2002 when Russia and Belarus completed ratification procedures.

The treaty is a highly technical, ninety-seven pages long document, which until now has been ratified by thirty-four states parties. The aim of it is to increase confidence in and transparency of military activities by allowing unarmed, fixed-wing observation flights over the entire territory of its participants for information-gathering purposes. The parties have yearly quotas on overflights and must make the information they acquire available to all treaty parties. The host cannot declare any area or military installation to be off limits—states parties can only restrict flights or request changes in flight plans for weather or safety concerns.

In short, the OST goal is to enhance mutual understanding, build trust, increase predictability, and lower potential military tensions.

But the OST in its current condition is not sufficient. The United States has in recent years been directly involved in numerous attempts to enhance it, including direct talks with Moscow in the so-called Small Group format (between 2016 and 2017). As the treaty has been slowly slipping into crisis since at least 2014, the United States is currently asking the question of how to get more bang for the buck.

Today, the treaty is at risk for at least three reasons.

First and foremost, Russia continues to violate the treaty. The two most outstanding issues pertain to prohibiting flights over the areas of Russia's borders with the Georgian breakaway regions of South Ossetia and Abkhazia and restricting the total length of observation over the Kaliningrad Oblast to 500 kilometers or less. Russia's decision to deny an OST flight during its Center-2019 military exercise in September 2019 only exacerbated the current concerns.

Second, the deeply technical character of the OST makes the current discussion on its future prone to misinformation. This is especially visible in the debates about the specialized technical elements such as synthetic aperture radars and digital electro-optical sensors, which have been characterized

by fake news and targeted messaging designed to undermine the treaty's value in the context of new technologies.

Third, the OST—contrary to nuclear treaties—has operated mostly unseen and unknown by the public. This creates the impression that the treaty is not indispensable to European security, even though it actually provides smaller states without significant satellite capabilities an important instrument to monitor their powerful neighbors, especially Russia.

The future of the treaty is, indeed, uncertain. Yet, there is still a constructive way forward that could enhance it.

First, as every other transparency and risk-reduction instrument, the OST should contribute to three things: security, stability, and verification.

As security is indivisible, meaning that the security of each party is linked to the security of every other, the ultimate task is to eliminate any security grey zones or regions of unequal security. At the same time, stability based on reciprocity—meaning that all parties must feel they get the same out of the treaty—would maximize the incentive for parties to stay in compliance with their obligations. And finally, parties need solid verification, which in practical terms means the ability to assess the compliance of each other.

Second, the like-minded countries should increase pressure on Russia to come back to full compliance with the OST. This should be done in a coherent and coordinated manner. Therefore, a comprehensive action plan should be agreed and implemented by the like-minded states before the upcoming 2020 Open Skies Treaty Review Conference. Yet at the same time, in a world of digital diplomacy, limiting action to the dedicated bodies only—such as the Open Skies Consultative Commission—might not do the trick. Diplomacy behind closed doors should be complemented by public actions and statements.

Third, the like-minded countries should start a reflection process on how the OST could strengthen other international organizations, as suggested in the preamble of the treaty. The UN, the Organisation for the Prohibition of Chemical Weapons, or the International Atomic Energy Agency could benefit from the treaty, for example by addressing a request to a member state to conduct an observation flight or by requesting it to transmit certain images.

The 2019 efforts by NATO allies and its partners to agree on proposals for the most comprehensive modernization package of the OSCE Vienna Document since 1994 proves that the United States can still work jointly with Europeans to enhance ADN architecture.

In fact, only a close transatlantic cooperation can make the OST great again.

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The views and opinions expressed here are the author's own and do not necessarily reflect the official positions of the institution he represents.

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ABOUT THE USAF CSDS

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

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

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

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

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