

SCOWCROFT CENTER FOR STRATEGY AND SECURITY

## **ISSUE BRIEF**

# Deterring Nuclear Threats from China

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This discussion paper is designed to stimulate thinking about the nature of China's nuclear challenge and ways to manage that challenge.

## 1. Chinese Nuclear Holdings (Estimates)<sup>1</sup>

- a) Intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs) today: ninety-eight ICBMs; up to forty-eight SLBM warheads (\*indicates the eighty-eight ICBMs currently capable of striking the continental United States from China).
  - Ten CSS-3 (DF-4, inaccurate, silo/cave based, liquid fuel, range 4,750km).
  - Twenty CSS-4 Mod 2 (DF-5A, inaccurate, silo/cave based, liquid fuel) and CSS-4 Mod 3 (DF-5B, liquid fuel, multiple independently targetable reentry vehicle [MIRV] capable, 12,000 km range).\*
  - Fifty CSS-10 Mod 1, 2, 3 (DF-31, -31A, -31B, 7,000 to 11,000 km range).\*
  - Eighteen CSS-20 (DF-41, 15,000 km range).\*
  - Forty-eight SLBM JL-2 (on four *Jin*-class, Type 094 submarines, JL-2 range 7,200 km).
- b) Newer long-range capabilities: perhaps two hundred ICBM warheads by

Drawn from: *The Military Balance 2019* (London: International Institute for Strategic Studies, 2019); "China," Nuclear Threat Initiative, last updated April 2020, https://www.nti.org/learn/ countries/china/; "Military and Security Developments Involving the People's Republic of China: Annual Report to Congress," US Department of Defense, 2020, https://media.defense.gov/2020/ Sep/01/2002488689/-1/-1/1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF.

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Military vehicles carrying DF-31A long-range missiles drive past the Tiananmen Gate during a military parade to mark the 70th anniversary of the end of World War Two, in Beijing, China, September 3, 2015. REUTERS/Jason Lee

#### 2025.

- DF-5C is second generation, liquid fuel, MIRV, in development.
- DF-31B is third generation, solid fuel, road mobile, MIRV, 150-meter circular error probable (CEP), 2017.
- DF-41 is fourth generation, solid fuel, road/rail mobile, MIRV, 100-meter CEP, 2017.
- At least two more ballistic-missile submarines (SSBNs) under construction, JL-3 missile (MIRV, 10,000-kilometer range).
- H-6N (nuclear-capable bomber with air-to-air refueling).

- c) Intermediate-range ballistic missiles (IRBMs), mediumrange ballistic missiles (MRBMs), cruise missiles, gravity bombs: about one hundred and seventy total tactical nuclear warheads today.<sup>2</sup>
  - Eighty CSS-5 (DF-21A/E, MRBM, road mobile, range of 1,750 km).
  - Seventy-two DF-26 (dual-capable, road-mobile IRBM).
  - Twenty nuclear gravity bombs for shorter-range aircraft.
  - DF-17 (new road-mobile hypersonic MRBM, not yet deployed).
  - New CJ-100 cruise missile (not yet deployed).

<sup>2</sup> With regard to non-nuclear missiles, according to the 2020 "Military and Security Developments Involving the People's Republic of China" report from the US Department of Defense, "the PRC has more than 1,250 ground-launched ballistic missiles (GLBMs) and ground-launched cruise missiles (GLCMs) with ranges between 500 and 5,500 kilometers." "Military and Security Developments Involving the People's Republic of China," ii.

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Military vehicles carrying hypersonic missiles, the DF-17, travel past Tiananmen Square during the military parade marking the 70th founding anniversary of People's Republic of China, on its National Day in Beijing, China October 1, 2019. REUTERS/Jason Lee

#### 2. Consequences of China's Nuclear-Modernization Program

The recent and projected growth of China's nuclear posture is consistent with President Xi Jinping's 2016 statement that China's goal is "to achieve a great rise in strategic capabilities."<sup>3</sup> China now has the wealth and technical knowhow to surge its nuclear programs.

Chinese third- and fourth-generation missiles, plus its SSBN and strategic-bomber programs, are giving China several new capabilities.

Chinese nuclear forces will be more survivable as a result of larger numbers, solid fuel, mobility, and People's Republic of China (PRC) submarine and bomber programs.

- The number of warheads that can hit the United States may double in five years, increasing China's deterrent capability.
- Increased numbers and missile accuracy also raise the potential that China could, at some point, destroy deployed US ICBMs.
- China will be able to better penetrate US missile defenses due to new penetration aids.
- The number of Chinese warheads that can strike regional targets with greater accuracy will also increase, raising questions about the security of US bases in Asia and about US extended deterrence.

<sup>3</sup> Ibid., 55.

- China will have a more flexible and survivable capability as it builds a long-range triad.
- China will be able to deliver more warheads per missile as missiles are MIRVed, though excessive MIRVing could be destabilizing.

The modernization and growth of China's nuclear-weapons force has some positive, but mostly negative, implications for the United States and its allies and partners. On the positive side, to the extent that China feels more confident in its nuclear-deterrent capability, it would be less inclined to develop a launch-on-warning posture. But, the growing accuracy and number of Chinese nuclear systems could, at some point, create incentives for China to consider firstuse options, either in the region or globally. Increased confidence in its own nuclear deterrent would also give China greater leeway to pursue more aggressive regional policies and to consider conventional military options.

## 3. Chinese Nuclear Doctrine

China has traditionally relied on a set of nuclear doctrines that were consistent with both the thoughts of Mao Zedong and the PRC's primitive nuclear capabilities: minimal deterrence and no first use. At issue is whether those doctrines will still be valid as China continues to build its nuclear force.

China's historical nuclear doctrine has variously been called existential, limited, or minimal deterrence. That doctrine holds that as long as China has enough nuclear weapons to destroy several major population centers of its adversary, then that adversary would be deterred from striking first. When China had to rely on its vulnerable, liquid-fueled first- and second-generation nuclear systems, there were questions about the viability of that doctrine.<sup>4</sup> Yet, China had little choice but to rely on that strategy, banking on the fact that at least some of its nuclear systems would survive a first strike and, hence, still deter. Now that Chinese nuclear systems are more secure and numerous, minimal deterrence has more credibility.

The US Defense Department's 2020 report on Chinese military and security developments concluded that "new

developments in 2019 further suggest that China intends to increase the peacetime readiness of its nuclear forces by moving to a launch-on-warning (LOW) posture with an expanded silo-based force."<sup>5</sup> China has not announced a launch-on-warning doctrine. It is correct that solid-fueled missiles have a greater LOW capacity than liquid-fueled systems. It is also true that silo-based systems may be more vulnerable. But, as noted above, a launch-on-warning posture would make less sense for China if its nuclear force is more secure. China's new road- and rail-mobile systems, including the DF-31B and the DF-41, should provide China with greater confidence in its deterrent's survivability. One caveat might be that China's early-warning systems are primitive, which could complicate China's risk calculations.

In 1964, China declared a no-first-use (NFU) policy, stating that it would "not be the first to use nuclear weapons at any time or under any circumstances."<sup>6</sup> That NFU policy has been repeated in most Chinese defense white papers, and apparently remains official Chinese policy. An NFU policy is quite consistent with a primitive nuclear force posture, as limited first use against a nuclear nation would only invite a massive retaliation. How NFU might be implemented in practice, should Chinese nuclear weapons platforms be threatened by conventional strikes, is unclear.

Despite its stated NFU policy, China might recalculate should it be on the verge of losing a major conventional war. Russia's "escalate to de-escalate" doctrine could serve as an alternative policy for China under such circumstances. China's improving IRBM and MRBM posture, including the new DF-17, could provide it with a regional capacity to consider such an alternative.

At some point, China's nuclear buildup will exceed the number of deliverable warheads needed to implement minimal deterrence. A continued buildup beyond that point could pose a possible first-strike threat against US ICBMs. That threshold needs to be calculated.

It is also unclear how China's growing ICBM capability might affect the strategic nuclear balance with the United States. Thus far, Chinese nuclear weapons have been an afterthought for the United States. But, if China achieves the

<sup>4</sup> Many liquid-fueled missiles cannot be stored ready to launch for a long period of time and are, therefore, easier to destroy before launch than their more advanced, solid-fueled cousins.

<sup>5 &</sup>quot;Military and Security Developments Involving the People's Republic of China," 85.

<sup>6 &</sup>quot;Statement by the People's Republic of China on 16 October 1964," *People's Daily*, October 17, 1964, quoted in Zhenqiang Pan, "A Study of China's No-First-Use Policy on Nuclear Weapons," *Journal for Peace and Nuclear Disarmament* 1, 1, 2018, 115–136, https://doi.org/10.1080/25751654.2018.1458415.



Protesters attend a demonstration demanding Hong Kong's leaders step down and withdraw the extradition bill, in Hong Kong, China, June 16, 2019. Picture taken June 16, 2019. REUTERS/Stringer

ability to destroy US ICBMs, how might that affect strategic stability? Mutually assured destruction (MAD) based on a secure second-strike capability provided strategic stability between the United States and the Soviet Union during the Cold War. Would MAD work with China? As practiced during the Cold War, MAD implies equal levels of deployed strategic warheads formalized in arms-control agreements, plus limits on defenses. Seeking a similar numerical balance between the United States and China would be a nonstarter for the United States, especially as China and Russia move closer to across-the-board defense collaboration. And yet, China may desire such equivalence.

## 4. Three Complicating Factors

Three sets of factors further complicate the nature of deterrence with China. First, the principal issues that might trigger conflict with China relate to what China sees as its territorial sovereignty. The Taiwan situation is becoming more tense as a result of Chinese treatment of Hong Kong and Taiwan's realization that "one country two systems" might not work. Taiwan may push the envelope on sovereignty just as the United States seeks to strengthen its commitment to Taipei. In the South and East Chinese Seas, China's nine-dash-line claims have been reinforced with militarization of atolls and increased Chinese military provocations. Given that China sees sovereignty as the issue in both instances, it may take greater military risk.

Second, the United States has firm treaty commitments to defend Japan, South Korea, the Philippines, and Australia, including extending a nuclear umbrella over their territory. That complicates deterrence calculations in the region.



PLAAF H-6 nuclear-capable bomber intercepted by Japanese fighters over the East China Sea in 2015. Courtesy Ministry of Defense of Japan. https://web.archive.org/web/20190919084413/https://www.mod.go.jp/js/Press/press2015/press\_pdf/p20151127\_02.pdf.

Third, Chinese offensive cyber and anti-satellite capabilities would allow China to disrupt US communications and space assets during time of conflict. War in space and cyberspace could draw the parties closer to a nuclear confrontation.

## 5. What Needs to Be Deterred?

Given these developments, the United States needs to deter at least seven different types of Chinese nuclear scenarios.

- A counterforce first strike on the US homeland. It is unlikely that China would use its growing nuclear strength in a preemptive nuclear attack against the US homeland, as that would result in the annihilation of China. In any event, China does not yet have the number of accurate warheads to accomplish this task, and the US SSBN fleet would remain secure. But, should China be on the verge of losing a major conventional war and losing sovereign territory, such a desperation attack is not completely unthinkable.
- A countervalue launch-on-warning strike on the US homeland. If China develops a launch-on-warning posture, its imperfect warning systems could lead to a tragic mistake in which it falsely believes it is under nuclear attack and retaliates.
- A countervalue nuclear strike on a US ally. If China has doubts about the United States' nuclear commitment to its allies, it might take a risk in a time of conventional military conflict. Direct conflict between China and Japan would be the most likely scenario, given disputes over the Senkaku Islands. Should such a conflict escalate, the United States defense treaty with Japan would be triggered. China might rely on the threat of a nuclear strike against Japan to terminate the conflict. The United States would need to reinforce its nuclear umbrella.
- Use of theater nuclear weapons by China to win a regional war against the United States. China might

consider using theater nuclear weapons as part of a war-winning regional strategy, in the hope that it can avoid escalation to strategic systems and win regionally. To pursue this strategy, however, China would need to assume that the United States would not retaliate in kind, which would be excessively risky. But, the lack of US theater nuclear weapons in the region could conceivably lead China to miscalculate.

- A demonstration strike against US forces or US bases in the region. This scenario might be more realistic should US conventional forces be on the verge of defeating the People's Liberation Army, Navy, and Air Force. It could include the use of a nuclear weapon to generate an electromagnetic pulse (EMP) to disrupt US forces, or a demonstration shot to signal China's willingness to escalate rather than lose. It might also be undertaken should China feel that US conventional strikes are threatening Chinese strategic assets.
- Use of China's nuclear deterrent as a shield. The most likely deterrent requirement for the United States, however, is to convince Beijing that China's nuclear deterrence should not serve as a shield behind which it could launch a major conventional attack on US forces and/ or allies in the region. This would be complicated if, as some have suggested, Russia and China agree to a defense arrangement under which Russia would offer China an extended nuclear guarantee.
- Nuclear coercion or blackmail. Given China's increasingly accurate short-range missile capability and the lack of a formal US nuclear-umbrella commitment to Taiwan, China in extremis might chose to coerce Taiwan with nuclear threats.

## 6. Tools for Deterrence and Stability

There are at least eight sets of tools that might be used by the United States to enhance nuclear deterrence and promote greater nuclear stability with regard to China. None are ideal.

a) Strategic stability talks. China's confidence in its minimum-deterrence nuclear posture seems to be waning, while Washington does not have a clear view on what is needed to deter China. The United States and China have held strategic talks—"senior dialogues" under the George W. Bush administration, which were upgraded in 2009 by then-US President Barack Obama before being put on a back burner by President Donald Trump. These talks should be reinvigorated, and both Washington and Beijing should seek a clearer mutual understanding of strategic stability. The talks might be used to discuss nuclear procedures to avoid a Chinese launch on warning.

- b) Arms control. Arms-control negotiations might be used to cap both Chinese strategic and tactical nuclear weapons. Some have suggested that the "follow on to New START (Strategic Arms Reduction Treaty)" talks be expanded to encompass China's nuclear weapons. Also, an effort to resurrect the Intermediate Range Nuclear Forces (INF) Treaty might also be expanded to include China. But, there are three problems.
  - China has indicated an unwillingness to participate in either treaty. At the strategic level, China's current warhead count of about one hundred and fifty (including SLBMs) is 10 percent that of the allowable deployed-warhead limits under New START for the United States and Russia. If China joined a renewed INF agreement banning all nuclear-tipped INF-range missiles, China would need to give up all of its intermediate-range systems, which constitute a large portion of its total nuclear warheads.
  - The bilateral START follow-on talks will be so complicated that bringing China in directly could undermine progress.
  - Bringing China into nuclear arms-control talks might also require bringing in the United Kingdom, France, India, and perhaps Pakistan. Despite these problems, it might be possible for the United States and Russia together to seek a freeze in Chinese warheads in the context of a successful bilateral strategic arms-control negotiation. Incentives for China to join will also be needed.
- c) Missile defenses. Thus far, US missile defenses have been deployed to intercept small numbers of missiles launched from North Korea and Iran. The forty-four Ground-based Midcourse Defense (GMD) interceptors deployed in the United States are not highly reliable, and much larger numbers would be needed to reduce ICBM threats from China. The SM-3 interceptor is used by the US, Japanese, and South Korean navies to deal with shorter-range Chinese missiles. To reduce the ability of Chinese missiles to penetrate either strategically or regionally, significantly larger interceptor numbers and greater accuracy would be needed. That, in turn, would negatively impact strategic stability with Russia.



A Standard Missile (SM) 3 Block IIA is launched from the Aegis Ashore Missile Defense Test Complex at the Pacific Missile Range Facility at Kauai, Hawaii, Dec. 10, 2018, to successfully intercept an intermediate-range ballistic missile target in space. US Army photo/Released 181210-A-AB123-005. https://www.flickr.com/photos/usnavy/45565272534/in/photolist-2m24gJp-2cqrW49-dUWno8-dV2WUy-dUWnmc-dV2WPu-cngJhU-dWYar9-cnMRRW-cnMRU5-cnMRY7-fZsuoH-do1zeU-en2osX-do1sKP-do1yhu-cngJo5-cngJEf-enB31b-enB1YY/.

d) US nuclear deployments in Asia. Tactical nuclear weapons were withdrawn from US warships in 1991. Recently—in response to Russia's "escalate to de-escalate" doctrine—some Ohio-class SSBNs were armed with the W76-2 (a very low-yield, 5-kiloton warhead.) Other low-yield nuclear warhead deployments on sealaunched cruise missiles (SLCMs) are also under consideration. Some argue that low-yield nuclear deployments lower the nuclear threshold, while others believe that these weapons might be used to counter and deter an adversary's low-yield theater-range systems in Asia might be considered to deter China's theater nuclear-missile advantage. Such deployments might also be used as an

arms-control bargaining chip, similar to the dual-track decisions of the 1980s that led to the INF Treaty.

- e) Clearer defense commitment to Taiwan. The US commitment to Taiwan rests on language in the 1979 Taiwan Relations Act, not in a firm mutual-defense treaty. Some believe that this ambiguity might lead China to misinterpret US intentions. A firmer commitment might avoid a Chinese miscalculation, but it would need to be coupled with a clear understanding that the commitment is valid only as long as Taiwan does not openly declare independence.
- f) US nuclear declaratory policy. The United States has traditionally promulgated a nuclear declaratory policy fo-

cused on Moscow. Washington might consider a separate nuclear-use policy designed to deter the array of threats from China. Since regional use is perhaps the most likely threat, a "retaliation in kind" policy might be effective. Under this policy, the United States might promise never to use nuclear weapons first, but to retaliate in a "mirror image" mode should China strike first. A similar policy might also be considered for Russian theater nuclear use.

- g) Adequate conventional forces. To deter China from using its theater nuclear missiles as a shield behind which it might launch a conventional strike, the United States and its allies will need to maintain adequate conventional forces in the region. China has some 1,250 conventionally armed missiles of intermediate range, which constitutes an important part of its anti-access/ area-denial strategy for the first island chain. The US Indo-Pacific Command has requested \$27.4 billion for a six-year Pacific Deterrence Initiative, which would include "fielding of an Integrated Joint Force with precision-strike networks west of the International Date Line along the first island chain, integrated air missile defense in the second island chain, and a distributed force posture that provides the ability to preserve stability, and if needed, dispense and sustain combat operations for extended periods."7 Those deployments, if land based, would require host-nation approval, which may prove controversial.
- h) Diplomatic initiatives. The two most likely causes of armed conflict with China are territorial disputes and freedom-of-navigation issues in the South and East China Seas and over Taiwan. Diplomatic initiatives to remove these underlying disputes would dramatically reduce the risk of nuclear conflict. Potential conflict over Taiwan might be defused by a US reiteration of the One China Policy, while negotiations under the United Nations Convention on the Law of the Sea (UNCLOS)

could help defuse freedom-of-the-seas issues. A dual-track approach using both diplomacy and deterrence has previously been effective in Europe and might prove beneficial in Asia as well.

## 7. Conclusions

Of the various nuclear scenarios presented, four in particular require priority attention in a tailored US strategy to deter Chinese strategic attack, including

- a Chinese strategic buildup that threatens US ICBMs;
- a Chinese launch-on-warning posture;
- a Chinese demonstration strike or other use of tactical nuclear weapons in the region; and
- Chinese nuclear blackmail to coerce Taiwan.

The first would best be addressed by arms-control efforts designed to freeze the growth in Chinese strategic warhead numbers. That may prove difficult, given the current warhead disparities. Help from Russia might be needed to accomplish the task.

The second would best be addressed by strategic stability talks that could make clear to China that a launch on warning posture is both unnecessary and dangerous.

The third might require some US nuclear deployments to the region to provide offsetting capabilities and a US doctrine making clear that a Chinese demonstration strike would not go unanswered.

Nuclear coercion should best be addressed by a clearer statement of US intent to defend Taiwan as long as it does not declare independence.

<sup>7</sup> Ryo Nakamura, "US to Build Anti-China Missile Network Along First Island Chain," Nikkei Asia, March 5, 2021, https://asia.nikkei.com/Politics/Internationalrelations/Indo-Pacific/US-to-build-anti-China-missile-network-along-first-island-chain.

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