

Towards Nuclear Stewardship with China

Hans Binnendijk and David C. Gompert

With the rising risk of complex crises and military escalation in the Pacific region, the United States should invite China into a process of nuclear restraint and confidence-building, which we call ‘nuclear stewardship’. This process could start with a joint bilateral declaration that neither superpower would use nuclear weapons first against the other or its formal allies. This would acknowledge that neither side could gain by striking first with a nuclear device. This declaration could be the leading edge of a broader set of discussions on strategic stability and eventual implementation of confidence-building measures designed to enhance mutual understanding and trust in the US–Chinese nuclear relationship.

While some might argue that a no-first-use (NFU) pledge is flawed because it could be ignored in a crisis, it would nonetheless help start a process aimed at reducing mutual suspicion about the nuclear motives of the other party. And such a pledge could be reinforced in peacetime by monitoring the military exercises of the other party and in a crisis by America’s overwhelming nuclear strength. The benefits far outweigh the risks.

Such an initiative would introduce a cooperative pursuit in an otherwise fraught relationship, while also setting an example for other nuclear-weapons states. Conventional deterrence in the region can be sustained

Hans Binnendijk is a distinguished fellow at the Atlantic Council. He previously served as senior director for defense policy at the US National Security Council, principal deputy director of the US State Department’s Policy Planning Staff, and director of the US Institute for National Strategic Studies. He was editor of *Survival* from 1988 to 1991. **David C. Gompert** is a distinguished visiting professor at the US Naval Academy. He previously served as the acting director of national intelligence, special assistant to the US president, deputy under secretary of state, and vice president of the RAND Corporation.

with strong US and allied defence efforts, and Asian allies can be further reassured that the US will defend them conventionally and deter nuclear strikes on their territory. The US declaration would not apply to Russia, North Korea or Iran (should that nation cross the nuclear threshold). The timing for this initiative is propitious.

Dangerous times

Tension between the United States and China has been growing steadily. This stems from conflicting Chinese and American goals. Now that it is powerful, China seeks to recover territory it feels was taken when it was weak and, more than that, to be the leading power in the Pacific region. It views the United States – its military presence, alliances and influence – as its main obstacle. For its part, the United States has its own interests to protect, including defending its allies and upholding the freedom of the seas. It will not – arguably, cannot – cede this vital region to Chinese dominance.

Within this geopolitical face-off, particular problems take on great danger of spiralling into conflict. The most salient of these is China's intention to expedite unification with Taiwan.¹ China believes the United States' 'One China' policy is eroding and it is becoming impatient for reunification. This sensitivity explains China's militarised response to Nancy Pelosi's visit to Taiwan as speaker of the US House of Representatives in 2022, as well as its increasingly frequent and blatant displays of military might. Tensions also extend to the disputes over sovereign claims in the South and East China seas, affecting US allies including Japan and the Philippines, and new friends such as Vietnam. Given China's heightened aggressiveness, the United Kingdom and Australia have joined the United States in the AUKUS military arrangement that shares defence technologies and strengthens deterrence. Similarly, Australia, India, Japan and the United States re-established in 2017 a Quadrilateral Security Dialogue which includes defence cooperation and invites other Asian partners to participate. Both deepen Chinese fears of US-orchestrated encirclement. Japan is embarking on a major defence build-up and has made clear it will act along with the United States to secure the region at large.

Regional tensions have been amplified by China's military modernisation. According to US Defense Secretary Lloyd J. Austin III, China is now the

'pacing threat' for US worldwide force planning.² Although China's annual defence budget is about one-third of America's – roughly \$287 billion compared to about \$759bn for America in 2022³ – it is almost entirely spent on Pacific capabilities, whereas the United States has global security interests and demands. The Chinese are directing new investment towards expanding, extending the range and improving the accuracy of its missiles, as well as towards intelligence, surveillance and reconnaissance (ISR) systems, including space and counter-space capabilities. The Chinese navy has invested heavily in diesel attack submarines, frigates and corvettes, and it now outnumbers the US Navy in terms of overall platforms. These efforts are intended to create a conventional advantage for China within the First Island Chain. The United States is responding deliberately with plans for a more dispersed and elusive force, emphasising submarines, uninhabited vessels and drone aircraft, to be integrated in a space-based Joint All-Domain Command and Control System. While neither power wants armed conflict, the dynamics of this military rivalry is increasing the likelihood and potential severity of crises.

In November 2021, presidents Joe Biden and Xi Jinping discussed holding strategic-stability talks to reduce these risks, but the effort stalled.⁴ A year later, during a meeting on 14 November in Bali, the two presidents again sought to defuse the tension. They noted the importance of managing their competition carefully and avoiding open conflict. They agreed to keep lines of communication open and to establish working groups to discuss differences, as well as to advance cooperation where possible, such as on climate change, global macroeconomic stability, health security and global food security.⁵

In Bali, the two presidents reiterated their belief that a nuclear war can never be won and must not be fought, and they made known their opposition to the threatened use of nuclear weapons by Russia in Ukraine. This particular convergence of views offers a glimmer of hope that the US and China could partner to lead in fostering nuclear stewardship by embracing the responsibility to govern these uncommonly dangerous weapons with uncommon restraint and to encourage other nuclear-weapons states to show similar restraint. But the two stopped short of creating an agenda to pursue these ideas for greater nuclear stability. American officialdom is

preoccupied with the question of how to deal with the projected growth of China's nuclear arsenal. The moment for traditional arms-control negotiations aimed at capping numbers of nuclear weapons has not yet come, as China has thus far rejected negotiations that would codify the overwhelming American and Russian quantitative lead.

More fundamentally, it needs to be asked whether numerical limits are the best way, at the outset, to engender nuclear stability with China. After all, the ultimate goal of arms control is to lessen the danger of nuclear war. The initial US goals should be to prevent military escalation from going nuclear, to diminish the role of nuclear weapons in Pacific security, and to lay a foundation for nuclear stewardship, led by the world's two superpowers.

The alternative we propose is to start by squarely addressing the danger of nuclear instability by instituting a set of stability measures. This could begin with a Sino-US bilateral and reciprocal nuclear NFU declaration. But it must not end with that. The two superpowers could collaboratively craft confidence-building measures to reinforce NFU, expand transparency, avert misunderstandings and avoid actions that could ignite a nuclear war. Throughout this process, the two sides' concepts, intentions and vocabulary concerning nuclear weapons could be clarified in an effort to strive for greater understanding, and with it greater nuclear stability.

Layers of instability in Sino-US security relations

At the heart of the rationale for agreed Sino-American restraint in the use of nuclear weapons is the need to prevent regional geopolitical and military instabilities from escalating to nuclear war. While neither power has any desire to wage nuclear war, instabilities can alter assessments, spawn miscalculations and accentuate fears that could lead to fateful choices. There is a particular danger of this happening in relation to three types of instability in the Pacific:

Festering sovereignty disputes. Contending sovereignty claims, often involving territory or resources, are historically a major cause of war. Chinese claims to sovereignty over Taiwan and within the 'nine-dash line' of the South China Sea put China in potential conflict with the United States and its partners in Asia. China has traditionally not ruled out the use of force to unite

with Taiwan, but more recently the patience of Chinese leaders, especially Xi, seems to have worn thin. The Chinese believe that the US is retreating from the One China policy. Some American observers believe that China will try forcefully to unite with Taiwan during Xi's current term of office.

A US-led diplomatic initiative might reduce this festering dispute by gaining agreement from China not to invade Taiwan in exchange for a clear Taiwanese pledge not to declare independence. The United States would, as part of such a diplomatic package, formally reinforce its One China policy and note that its hardening defence commitments to Taiwan are contingent upon Taiwan's restraint with regard to an independence claim. This initiative might need adjustment or even fail, but would at the very least test China's intent.

Crisis instability. Should instability over sovereignty claims cause a crisis, existing conventional military technology could propel the parties from confrontation towards hostilities. With the advent of advanced information systems, a 'targeting revolution' has given both sides the ability to locate and track the other's forces with precision at great and growing distances, and to deliver precision weapons, mainly missiles, at those distances. Consequently, the conventional-strike capabilities of each side are increasingly vulnerable to the strike capabilities of the other. This rewards the side that strikes first and penalises restraint. In a crisis, the logic of how to avoid a war could be displaced by the logic of how to avoid losing a war. These dynamics are somewhat akin to the Schlieffen Plan in 1914, which seemed to reward rapid German action and penalise delay.

China and the United States are racing to master a new generation of 'deep' technologies, among them artificial intelligence (AI), quantum computing and complex autonomous systems. Used to enhance military systems, these could contribute to crisis instability. AI gives machines the power to make choices based on abundant data, which raises the possibility of decisions that are more hostile and less inhibited than those under the control of human beings. Quantum computing will accelerate the processing of data and present leaders with far more information at faster speeds than is the case now; indeed, the goal is to accelerate decision-making. In addition, commanders might be more inclined to use uncrewed platforms (with little danger of loss of life) rather than crewed ones, but in ways that

can start a war that kills human beings. Notwithstanding such hazards, neither side will hesitate to develop and use these technologies.

Escalation instability. Should a war with China begin, it could escalate rapidly.⁶ The advantage of using rather than withholding strike systems would be increasingly pronounced after hostilities begin. Hesitation could lead to defeat. Sino-American armed conflict could become very destructive very quickly, and difficult to control or end. For instance, China would likely attack American targets, such as aircraft carriers and air bases, from mainland sites. The United States could not allow a Chinese sanctuary from which to attack US forces, and so would conduct strikes on China proper. ‘Kill the kill chain’ is a term of art in US warfare.

This is where the likelihood of using nuclear weapons could rise sharply. Although China has not adopted the Russian doctrine that attacks on the homeland would merit a nuclear response, the Chinese could interpret American conventional attacks as a prelude to an attempt to disarm China’s nuclear capability. Such a perception, even if mistaken, could be amplified if US kinetic or cyber targets included leadership nodes or nuclear command-and-control networks. Or, the United States might target Chinese missile-launch infrastructure, given the lethality and reach of Chinese conventional missiles. With its relatively immature early-warning ISR system, China might misread US intentions and launch nuclear weapons on warning lest they be destroyed. It cannot be excluded that the United States will mistake Chinese preparations to launch non-nuclear weapons as preparations for nuclear ones, and so strike first.

In cases like these, when conventional war reaches the outskirts of nuclear war, the danger of the latter can rise steeply. This is why NFU is important but not sufficient. While the credibility of reciprocal NFU pledges could plummet under such circumstances, accompanying confidence-building measures could lessen the dangers of mistakes and excessive suspicion.

Chinese nuclear posture

The Chinese have long embraced the standard of ‘minimal deterrence’ in sizing their nuclear arsenal. In essence, this standard requires China to maintain whatever forces it must – no more, no less – to pose a credible

threat of devastating retaliation. This implies that strategic delivery systems be sufficiently destructive, survivable and capable of penetrating defences to assure a robust second strike.

The Chinese are increasing the aggregate number, diversity and survivability of their arsenal. They are moving to less vulnerable mobile and solid-fuel delivery systems. China currently has some 100 intercontinental ballistic missiles (ICBMs) and 48 submarine-launched ballistic missiles (each with a single warhead), which together constitute the core of its strategic deterrent capability vis-à-vis the United States, as well as Russia. It is developing new mobile and more accurate DF-31B and DF-41 solid-fuel missiles capable of carrying multiple warheads and of striking US territory. Within the region, China has deployed some 150 intermediate-range nuclear missiles, and is developing both a new DF-17 medium-range missile and CJ-100 cruise missiles. That is a total of some 350–400 Chinese nuclear warheads now deployed.⁷ The United States does not normally deploy non-strategic nuclear weapons in the region.

The Pentagon's 2022 'China Military Power Report' estimates that China could deploy a total of 1,000 nuclear warheads by 2030 and 1,500 by 2035. The report notes that work continues on three new, large Chinese ICBM fields, and that last year, China fielded its first long-range nuclear-capable bomber.⁸

China's current nuclear force is consistent with its declared policy of minimal deterrence and NFU. Even the modest force of 100–150 deliverable intercontinental warheads is more than adequate to deter an American first nuclear strike, whether the US admits that or not. At the same time, the current Chinese force posture does not create a first-strike threat against the United States, which should be seen as stabilising by both sides.

Why then is China growing its nuclear force structure beyond what it has for years considered to be optimal? There are several possible explanations:

- China feels that higher warhead levels are needed to sustain minimal deterrence because of growing US prompt-global-strike capabilities, potential anti-ballistic-missile capabilities and cyber-strike technologies that could disrupt command and control;
- China does not want to adopt a dangerous launch-on-warning policy, so it requires a larger retaliatory force to ride out any first strike;

- China wants to break out of its minimal deterrent posture and achieve greater parity with the United States to demonstrate that it is a true superpower;
- China wants a large enough nuclear force so that it can pursue its sovereign ambitions in Taiwan and in the South and East China seas without American interference; and/or
- China wants enough nuclear weapons to deter what it sees as an erratic Russia.

Gaining greater insight into China's rationale for a larger nuclear force should be a principal goal of the strategic-stability dialogue recommended here. If the reasons relate to maintaining minimal deterrence or avoiding a launch-on-warning posture, then confidence-building measures could be designed to alleviate Chinese concerns. If the motive appears to be creating opportunities for conventional operations against Taiwan, additional US conventional-deterrent measures may be needed. If the motive is more diplomatic, such as gaining a higher degree of parity with the US to demonstrate superpower status, then alternative political approaches might be designed.

America's nuclear posture

The US National Defense Strategy declares that the most comprehensive and serious challenge to US national security is China's coercive and increasingly aggressive behaviour.⁹ This is mainly because of Chinese enhancements in targeting and conventional strike within the vital Pacific region. Though expanding, China's small nuclear-missile force does not now feature in the configuration of US nuclear forces. Rather, the size and qualities of the United States' nuclear posture are currently geared almost entirely to Russian nuclear forces, as shaped and constrained by arms-control agreements.

The US Nuclear Posture Review (NPR), released in October 2022 together with the National Defense Strategy, notes that although the fundamental role of US nuclear weapons is to deter nuclear attack, they may also deter all forms of strategic attack, assure allies and partners, and allow the US to achieve its objectives if deterrence fails.¹⁰

This declaratory policy extends to nuclear use in response to 'high consequence' attacks of a strategic though non-nuclear nature, which could include

biological-weapons attacks or debilitating cyber attacks.¹¹ Though the NPR's bar for nuclear use remains very high, it stops short of the 'sole use' doctrine advocated by Biden during the 2020 presidential campaign and of an NFU declaration.¹² American 'negative security assurances' continue to commit to countries that have signed and abide by the Nuclear Non-Proliferation Treaty that the US will not use nuclear weapons against them.

The NPR emphasises the need for the United States to provide credible nuclear deterrence against attacks on itself and its treaty allies. Admiral Charles Richard, while serving as the commander of US Strategic Command in 2022, noted that his team was 'furiously' rewriting a new nuclear-deterrence theory to account for the need to deter both Russia and China simultaneously.¹³ That assessment needs to recognise that each country presents a different nuclear threat, and that different strategies are required.

Plans to upgrade America's nuclear force are substantial. The Congressional Budget Office estimates that the US will spend \$634bn during the next ten years for the sustainment and modernisation of its nuclear arsenal.¹⁴ The United States has already refurbished many of its nuclear-delivery systems. Upgrades include a new Ground Based Strategic Deterrent to replace *Minuteman III*; new *Columbia*-class ballistic-missile submarines to replace the *Ohio*-class submarines; the B-21 *Raider* bomber to replace the B-2; and new Long-Range Standoff Weapons.¹⁵ These formidable upgrades are more than adequate to offset new Russian strategic-missile developments and growth in China's inventory. At the same time, they should not pose an additional nuclear threat to China.

With such formidable nuclear forces and superiority in conventional forces, it is fair to question whether the United States' nuclear capabilities are needed as insurance against conventional military defeat, as opposed to deterring nuclear attack by confronting nuclear-armed adversaries with the certainty of devastating retaliation.

Developing nuclear stewardship with China

The NPR placed no emphasis on entering a 'strategic dialogue' with China, which we consider essential to enhancing nuclear stability in the vital and precarious Pacific region. Such a dialogue might be initiated by an offer to

China to enter into a bilateral NFU agreement with three conditions. Firstly, the Chinese would acknowledge that such an agreement would cover US allies; logically, this should not give China cause to object, because it already pledges NFU globally. Secondly, the Chinese would agree to enter into a process to foster transparency and to build confidence in support of an NFU agreement, and nuclear stability more generally. Thirdly, China would agree to work with the United States to strengthen nuclear stewardship globally, which might include constraining Russian and North Korean nuclear belligerence – actions which are in China’s interest.

Compatible with a bilateral NFU pledge would be a mutual understanding that both sides are *already* highly vulnerable to the nuclear weapons of the other side. Thus far, the United States has resisted such an understanding. This would be an important element of any dialogue and could serve to limit China’s desire for a massive build-up.¹⁶

Such talks should engender improved understanding of the dynamics of crisis and escalation instability, and thus reinforce the need to decouple nuclear weapons from such risks. Confidence-building measures should include crisis-management protocols, effective and tested hotlines for incident management, and talks aimed at gaining a clearer and ultimately converging understanding of why each power has the nuclear forces it does. In due course, other nuclear confidence-building measures worth considering could include agreement not to interfere with each other’s early-warning and nuclear command-and-control mechanisms, both of which could be highly destabilising; pre-launch warnings and shared early-warning agreements similar to those being negotiated with the Russians at the end of the Clinton administration; transparency measures to alert each side to future nuclear-modernisation efforts and to provide explanations for them; and mutual on-site inspections where helpful.

Towards the end of this strategic dialogue augmented by confidence-building measures, mutual limits might be agreed on deployed warheads held by the US and China. Such a goal would flow logically from greater strategic understanding, as it did with the Soviet Union during the Cold War. If China comes to understand that its minimal deterrent posture can be achieved, perhaps at a higher level, but without achieving parity with

the US, then progress in achieving agreements similar to the Strategic Arms Reduction Treaty might be made. But given Russia's aggressive nuclear doctrine, trilateral strategic arms-control limitations seem implausible and unwise. The United States will need to achieve one deterrence arrangement with an aggressive Russia that is used to nuclear parity, and another with a China that may still be searching for a new form of minimal deterrence.

The concept of nuclear stewardship should extend to joint efforts to lessen nuclear instability across the region. To this end, the two super-powers should affirm their commitment to denuclearisation of the Korean Peninsula. Meanwhile, the United States must bolster nuclear deterrence there, while keeping China abreast of its intentions as part of the process of confidence-building.

Ensuring the security of American allies

In contemplating a strategic initiative to lessen the danger of nuclear war in the Pacific, the United States should seek the full-throated endorsement of its allies. To achieve this, it must approach them with a compelling case before any approach is made to Beijing. That case rests on two beliefs: that instability in the Pacific region must not result in nuclear war; and that the United States and its allies should and can rely on non-nuclear military means to thwart Chinese aggression. This includes both conventional forces and cyber capabilities, in which the United States is superior.

Among US treaty allies in the region, only South Korea and Japan would have the most immediate concerns. South Korea will want to be sure that American adherence to Sino-US NFU would not prevent the United States from using whatever means necessary to defend against North Korean aggression. A US NFU pledge should not apply to North Korea. It cannot be ruled out that North Korea would threaten a nuclear attack on South Korea, Japan or the United States. Given the scale and locations of North Korea's nuclear weapons, the United States cannot be sure that these could be destroyed in their entirety with conventional strikes. Therefore, the United States cannot foreclose the limited use of nuclear weapons to prevent a North Korean nuclear attack. The NFU agreement with China proposed here would not preclude such an action.

Some Japanese defence officials may be concerned that a US–Chinese NFU pledge would weaken America’s defence commitment to Tokyo. That concern can be dealt with by constantly strengthening US and allied militaries, and by demonstrating America’s ability to reinforce quickly and sustain conventional conflict in the region if need be. When combined with US conventional forces, Japan’s plans to improve its defence forces – including by extending their range – will ensure superiority over any Chinese conventional force threatening Japan for the indefinite future. Washington should provide Tokyo with its full support in assisting and integrating Japan’s growing military strength. Given its history, Japan should in general be supportive of an initiative to reduce the danger of nuclear war.

At the same time – and fully consistent with the Sino-US nuclear-stability initiative proposed here – the United States should take additional steps to reassure its Asian allies that the US will continue to deter both conventional and nuclear attacks against them. For example, because Japan and Australia are core members of the US-led alliances meant to deter China, these particular allies could be invited to participate in trilateral nuclear-policy talks, akin to NATO’s Nuclear Planning Group. Similar arrangements could be made for South Korea.

The defence of Taiwan provides perhaps the greatest challenge given China’s growing military reach across the Taiwan Strait. President Biden has now on four occasions stated publicly that the United States would send troops to defend Taiwan in keeping with the Taiwan Relations Act, which states that ‘any effort to determine the future of Taiwan by other than peaceful means, including by boycotts or embargoes’ would be considered ‘a threat to the peace and security of the Western Pacific area and of grave concern to the United States’.¹⁷ The US Congress has recently passed \$2bn in new arms-transfer loans to further strengthen Taiwan’s defensive posture. Japan has also indicated that it would help defend Taiwan. Beijing has witnessed the global opposition to Russia’s actions in Ukraine and the difficulties Russia has had in occupying even parts of Ukraine, without having the Taiwan Strait or US troops to contend with. Russian territory has served as a sanctuary for Moscow in the Ukraine war. Chinese territory would probably not be a sanctuary in a war with the United States. Short

of an outright and foolish Taiwanese declaration of independence, Beijing should be deterred from attacking Taiwan by the prospect of conventional war with the United States and Japan.

Meanwhile, America's NATO allies will be seized with consideration of the implications for the Alliance of a Sino-US nuclear understanding. While they would surely see the advantages of such an understanding for the Pacific, they will be sensitive to indications that the United States has similar intentions towards Russia. Although NATO has overwhelming conventional military superiority over Russia, attempting to draw Russia into an NFU pledge would be fruitless. Because its conventional capabilities are poor and declining, Russia depends on the threat of using nuclear weapons should its territory be attacked. The United States should advise NATO allies that it has no intention of raising NFU in Europe despite its conventional military superiority.

* * *

The proposal for a US–Chinese reciprocal nuclear NFU declaration is made as an opening gambit in a longer process to achieve greater nuclear stability in Asia, and thus to reduce the risk of nuclear war. Structured the right way, it is certainly not a concession to China. Nor is it a panacea. It would apply only to China. Such a joint declaration may be difficult to monitor or rely on during an escalation crisis, but it could create enough confidence to begin a process that might produce other positive military and diplomatic outcomes. There is enough commonality of interests to make the effort. If this proposal fails to stabilise US–Chinese nuclear relations, it is reversible.

Notes

- 1 See 'Blinken Says China Rejects Status Quo of Taiwan Situation', Reuters, 26 October 2022.
- 2 US Department of Defense, '2022 National Defense Strategy of the United States of America', 27 October 2022, p. iii.
- 3 On the Chinese budget, see Jon Grevatt and Andrew MacDonald, 'China Increases 2022 Defense Budget by 7.1%', *Janes*, 7 March 2022. Using purchasing power parity, the Chinese defence budget is closer to \$350bn – see Peter Robertson, 'Debating Defense Budgets: Why Military Purchasing Power Parity

- Matters', VOX CERP, 9 October 2021, table 1. On the US budget, see Earl Timothy, 'U.S. Defense Budget 2022', ExecutiveGov, 27 June 2022.
- 4 See Naoko Aoki, 'First Steps for Possible U.S.–China Strategic Stability Talks', *Georgetown Journal of International Affairs*, 8 February 2022.
 - 5 White House, 'Readout of President Joe Biden's Meeting with President Xi Jinping of the People's Republic of China', 14 November 2022.
 - 6 See David Gompert, Astrid Cevallos and Christina Garafola, *War with China: Thinking Through the Unthinkable* (Santa Monica, CA: RAND Corporation, 2016).
 - 7 Hans Binnendijk, 'Deterring Nuclear Threats from China', Atlantic Council, November 2021.
 - 8 US Department of Defense, 'Military and Security Developments Involving the People's Republic of China 2022', 29 November 2022, pp. ix, 97.
 - 9 US Department of Defense, '2022 National Defense Strategy of the United States of America', p. 4.
 - 10 US Department of Defense, '2022 Nuclear Posture Review', 27 October 2022, p. 7.
 - 11 Hans Kristensen and Matt Korda, 'The 2022 Nuclear Posture Review: Arms Control Subdued by Military Rivalry', Federation of American Scientists, 27 October 2022.
 - 12 'Sole purpose' differs from an NFU in that it is vaguer and not a firm *ex ante* constraint. Sole purpose would indicate that nuclear weapons are weapons of extreme last resort, grammar notwithstanding. See Ankit Panda and Vipin Narang, 'Sole Purpose Is Not No First Use: Nuclear Weapons and Declaratory Policy', *War on the Rocks*, 22 February 2021, <https://warontherocks.com/2021/02/sole-purpose-is-not-no-first-use-nuclear-weapons-and-declaratory-policy/>.
 - 13 Tara Copp, 'US Military "Furiously" Rewriting Nuclear Deterrence to Address Russia and China, STRATCOM Chief Says', *Defense One*, 11 August 2022.
 - 14 See Arms Control Association, 'US Nuclear Modernization Programs', January 2022, <https://www.armscontrol.org/factsheets/USNuclearModernization>.
 - 15 Two nuclear systems were dropped in the NPR: the nuclear sea-launched cruise missile (which was seen as expensive and redundant) and the B83-1 bomb.
 - 16 For elaboration of this concept, see George Perkovich, 'Engaging China on Strategic Stability and Mutual Vulnerability', Carnegie Endowment for International Peace, 12 October 2022.
 - 17 US Congress, 'H.R.2479 – Taiwan Relations Act', 96th Congress (1979–1980), <https://www.congress.gov/bill/96th-congress/house-bill/2479>.