

ISSUES & INSIGHTS
VOL. 22, WP7

NOVEMBER 2022

PACIFIC FORUM
INTERNATIONAL

Rising from the Ashes: The Future of Arms Control

BY
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WORKING PAPER

VOL. 22, WP7 | NOVEMBER 2022

Issues & Insights

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Abstract

This paper employs a comparative approach to provide an initial comprehensive analysis of the political interactions, contemporary nuclear policies, and military strategies and capabilities of China, Russia, and the United States in the context of the unstable international security landscape. At a time when the global arms control regime is teetering on the brink of disintegration, the authors aim to offer practical and feasible policy recommendations for remodeling the arms control regime from the Chinese and Russian perspectives. The authors stress the need to revive “traditional” arms control and advocate the search for ways to control emerging military technologies. This paper endeavors to present a two-pronged vision proposed by representatives of two major global players.

Introduction: Arms Control in Crisis

While the fate of arms control has ebbed and flowed over the decades and long been shrouded in the pessimism of experts,¹ the situation has never been more distressing than it is today, as the public has yet to understand how dangerous the lack of a full-fledged negotiating mechanism is, while leading to a possible imminent nuclear war. There is a prevailing perception within the current international arms control community that long-established arms control mechanisms, which have been crumbling in recent years, may soon be on the verge of complete collapse. Seventy-six years after the devastating bombings of Hiroshima and Nagasaki, the lessons from these tragedies have not yet been learned. These days, the Anti-Ballistic Missile (ABM) Treaty, the Treaty on Conventional Armed Forces in Europe, and the Intermediate-Range Nuclear Forces (INF) Treaty are all inexorably defunct, resulting in a considerable detrimental effect on the future destiny of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and threatening the entire nuclear nonproliferation regime.

For the past sixty years, the United States and Russia, which possess most of the world's nuclear arsenal, have been locked in a ferocious nuclear arms race, in contrary to their obligations under Article VI of the NPT.² In the meantime, amid a global political landscape of disruptive changes in military technology, mounting tensions between the United States and Russia, and between the United States and China, pose a direct threat to global strategic stability. The emergence of new weapons technologies and ABM defense solutions as a result of intense competition between major powers will only exacerbate the situation. These advancements are fraught with the unpredictability of the strategic situation and increase the likelihood of incoming strategic threats being assessed incorrectly. Confidence in deterrence capacity and the ability to cause

“unacceptable damage” to a potential aggressor in a crisis may disappear completely as well.

The failure of member states to reach consensus on the final document at the 2022 NPT Review Conference illustrates vividly the enormous and unbridgeable contradictions in nuclear relations between states against the backdrop of a deteriorating global political environment. The erosion of confidence and common understanding renders future arms control among the major nuclear powers exceedingly difficult. With this in mind, there is a need to adopt the methodology of the comparative approach to conduct a comprehensive analysis of the military capabilities and policies of the major and emerging nuclear powers and to lay a solid foundation for proposing new practical measures for the restoration of arms control mechanisms.

In the Broader Geopolitical Context: The Political Drivers of the “Grand Debacle”

The complex and volatile worldwide security and political situation is a primary contributor to the decay of arms control. At present, the situation is exacerbated by factors such as proxy wars waged among major powers; the intensification of territorial disputes and hotspot conflicts; and the soaring national threat perceptions of China, the United States, and Russia, along with the substantial expansion of their armaments' arsenals. Many of these developments are founded on political rivalries that remain unresolved.

China, as an emerging power, is striving to find its appropriate tone and role positioning in global affairs. At present, Chinese foreign policy has undergone a strategic transformation. The design of China's foreign interaction in the new era is based on the pillar of “head of state” diplomacy, while actively developing global partnerships with the initiative to build a community of human destiny, further developing the diplomacy of

¹ Linton F. Brooks, “The End of Arms Control?,” *Dædalus* 149, no. 2 (2020): 84–100; Eugene Rumer, “A Farewell to Arms... Control,” *Carnegie Endowment for International Peace* 17, no. April (2018): 2018.

² Article VI of the Non-Proliferation Treaty: “Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on

effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.”

neighbors and developing countries with the implementation of the Belt and Road Initiative, and placing greater emphasis on the continued development of China-Russia relations. Given the weariness of being shackled by power politics, as well as its reluctance to plunge into the morass of a new Cold War and zero-sum game as the country's economy grows fast and its international position gradually improves, China is advocating a new vision of common, comprehensive, cooperative, and sustainable security.³ In recent years, the obvious trend lies in the tense and deteriorating Sino-US relations. After several rounds of explicit and implicit confrontations with the United States on trade and financial wars, disinformation dissemination and denial, science and technology sanctions, biosecurity, and military stand-offs, China became more steadfast in its pursuit of a strong strategic cooperation with Russia.⁴ Moreover, China is seeking the enlargement of its "circle of friends" on the world stage, particularly by promoting the idea of an equitable, open, and cooperative global partnership and expanding the intersection of interests as a way to cement its ties with neighboring and developing countries.⁵

As for the United States, it regards both China and Russia as its primary strategic competitors in the effort to maintain global leadership.⁶ On the one hand, the United States continues to view Russia as its top-tier national security challenge and one of the most serious foreign influence threats to its national security agenda. On the other hand, China is labeled as the biggest obstacle for the United States to maintain its global strategic competitiveness, financial hegemony, and military technology.⁷ In light of this, the United States is pursuing a dual containment strategy against both

China and Russia.⁸ At present, the US military deployment under the European Deterrence Initiative in Europe and the Pacific Deterrence Initiative in the Asia-Pacific region squeezes the regional existential space of China and Russia, exposing both countries to similar national security threats. The latest assessment conducted by the US Office of the Director of National Intelligence reveals that China will continue to deepen its cooperation with Russia on the diplomatic, defense, and technological fronts in the future to mount a challenge to the United States.⁹

For Russia, when it comes to many fundamental issues of modern world politics, Moscow's views and measures of democracy and governance are often diametrically opposed to those of the "collective West" and its de facto 'leader', the United States. The enormous differences between the West and Russia in the areas of ideology, democratic values and principles, and national security has resulted in an increasingly dichotomous and irreversible split in the world. At the core of these differences are the contrasting stances and political cultures of the elites of Russia and the West, as well as the well-known internal transformation of Russian society and its adoption, albeit informal, of the ideology of "greatness" of an almost imperial state, perceived as a disconnected "island" that does not succumb to external pressure.

Since 2014, Russia has stepped up its actions in the post-Soviet space, the Syrian crisis, and Ukraine, perceiving itself as a mediator of conflicts in the greater Eurasian area and a challenger to the Western-dominated world order. At present, Moscow and most of the Western countries are now enmeshed in a twofold quagmire of

³ Yi Wang, "Acting on the Global Security Initiative to Safeguard World Peace and Tranquility," *The People's Daily*, April 24, 2022, <http://opinion.people.com.cn/n1/2022/0424/c1003-32406751.html>.

⁴ Ministry of Foreign Affairs of the People's Republic of China, "Foreign Ministry Spokesperson Zhao Lijian's Regular Press Conference on January 17, 2022," January 17, 2022, https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/2511_665403/202201/t20220117_10598778.html.

⁵ Ministry of Foreign Affairs of the People's Republic of China, "Major Achievements in the External Work of the Communist Party of China Over the Past Decade," September 30, 2022, http://us.china-embassy.gov.cn/eng/zgyw/202209/t20220930_10774937.htm.

⁶ "Interim National Security Strategic Guidance," The White House, March 3, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/03/interim-national-security-strategic-guidance/>.

⁷ Office of the Director of National Intelligence, "2022 Annual Threat Assessment of the US Intelligence Community," February 7, 2022, <https://www.dni.gov/files/ODNI/documents/assessments/AT A-2022-Unclassified-Report.pdf>.

⁸ Michael Mandelbaum, "The New Containment: Handling Russia, China, and Iran," *Foreign Aff.* 98 (2019): 123.

⁹ Office of the Director of National Intelligence, "2022 Annual Threat Assessment of the US Intelligence Community."

insurmountable “security dilemma” and “Tacitus trap”, as well as a pathetic misunderstanding of each other’s actions and real intentions. The intense antagonism between Russia and the West over the global security situation has resulted in the prevalence of “hybrid war” and even raised the alarming possibility of a nuclear conflict. Inevitably, such a stalemate triggers new and highly acute risks, making it urgent to reflect on arms control solutions.

In terms of Russian-Chinese relations, Moscow views China as an overwhelmingly special strategic partner. Moscow’s official stance is that the Russian-Chinese tandem is one of the foremost factors in ensuring stability in world affairs. Legislatively, the mutual threat between Russia and China has been eliminated, especially since the two sides signed a joint declaration in 1994 prohibiting the targeting and use of nuclear weapons against each other.¹⁰ In recent years, Russia and China have reached an unprecedented level of strategic mutual trust and military-security cooperation. Forging bilateral consensus on issues related to the international order, global sustainable development, and other critical security challenges has propelled Russian-Chinese relations into the new realm of comprehensive strategic partnership.¹¹

The bilateral strategic partnership was further promoted at the 2022 Shanghai Cooperation Organization Summit in Samarkand, which was held after the joint military exercises “Vostok 2022.” During the drills, Russia and China conducted special operations together for air and naval forces in the Sea of Japan and the Sea of Okhotsk in response to perceived threats from Japan, South Korea, and the United States. The interoperability of the two militaries also benefits from this kind of collaborative military planning. Concerning the Russian-Ukrainian conflict, the Ministry of Foreign Affairs of China has consistently called on all

parties to exercise calm and restraint, and encourage and support all diplomatic efforts that are conducive to the peaceful settlement of the Ukraine crisis.¹² Russia does not expect China to play along with it in everything. The diplomatic activity of Moscow and Beijing, as well as their initiatives on the international stage, demonstrates that Russian-Chinese relations are not of an allied nature, but are based on similar viewpoints on the most significant world-wide issues and profound changes in global politics and economy.

In the Whirlwind of Military Competition : The Nuclear Policy and Military Strategy of China, the United States and Russia

These days, the contemporary military strategies and nuclear policies of China, the United States, and Russia have all undergone compatible adjustments under the premise of great power competition.

For China, since it first developed nuclear weapons in the 1960s, Beijing has placed emphasis on the political symbolism of nuclear weapons rather than their operational use in military practice. Historically, Chairman Mao labeled nuclear weapons “paper tigers,” arguing that they cannot play a decisive role in the face of people-led guerrilla warfare and conflicts. Marshal Nie Rongzhen has stated that China’s purpose in pursuing nuclear weapons was to insulate the country from the threat of nuclear blackmail.¹³ Over the past decades, China has stressed that its nuclear weapons are primarily focused on deterring nuclear attack and preventing nuclear coercion. Such a nuclear philosophy has laid the foundation for China’s current nuclear policy. In

¹⁰ Алексей Сергеевич Степанов, “Ядерная Политика Китая и Контроль Над Вооружениями,” *Россия и Америка в XXI Веке*, no. 4 (2019): 15-15.

¹¹ Kremlin, “Joint Statement of the Russian Federation and the People’s Republic of China on the International Relations Entering a New Era and the Global Sustainable Development,” February 4, 2022, <http://en.kremlin.ru/supplement/5770/print>.

¹² Ministry of Foreign Affairs of the People’s Republic of China, “Foreign Ministry Spokesperson Wang Wenbin’s Regular Press Conference on October 18, 2022,” October 18, 2022, https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/202210/t20221018_10785403.html.

¹³ Nie Rongzhen, “Inside the Red Star: The Memoirs of Marshal Nie Rongzhen,” *Trans. by Zhong Renyi. Beijing: New World Press*, 1988.

general, China's contemporary nuclear strategy is based on three fundamental principles.¹⁴

1. No First Use (NFU). China pledges not to be the first to use nuclear weapons whenever and wherever possible.
2. Credible Minimum Deterrence. This refers to limiting the size of nuclear forces to the minimum level necessary for national security and to ensure that a portion of nuclear weapons will survive (and be capable of nuclear counterstrike) after suffering a first nuclear strike.
3. Negative Security Assurances (NSA). This represents the commitment to unconditionally refrain from using nuclear weapons against non-nuclear-weapon states and zones.

In recent years, evidence suggests that China has increased its nuclear arsenal and developed multiple types of nuclear weapon delivery systems. Based on the US Department of Defense's assessment,¹⁵ China is now modernizing its nuclear triad capabilities, arguably moving toward a launch-on-warning strategy, and could triple its nuclear potential within ten years. There are voices primarily in the United States that question China's motivation for expanding its nuclear arsenal, seeing it as a sign of abandoning NFU and minimum deterrence.¹⁶ However, the authors of this paper argue that China's efforts are not aimed at changing its established NFU policy, but rather at improving its nuclear retaliatory capabilities

and survivability, and the two are not contradictory.

According to Chinese expert Wu Riqiang, China's nuclear deterrent strategy is based on "first-strike uncertainty," that is, preventing adversaries from being confident that they can completely destroy China's nuclear retaliatory capabilities in a first strike.¹⁷ However, China's existing nuclear retaliation capability is far from adequate. Once the United States launches a first nuclear strike, China's surviving nuclear forces would be virtually nonexistent.¹⁸

Chinese scholar Hu Gaochen echoes this view, maintaining that compared to the United States and Russia, there is still a wide gap in China's strategic deterrence capabilities and a noticeable shortfall in the technological strength of its nuclear weapons.¹⁹ Under such circumstances, given the deterioration of US-China relations, the offsetting effect of US missile defense on China's nuclear retaliatory capabilities, and the tailored targeting of China in the United States' newly released Nuclear Posture Review (NPR), China has no choice but to consolidate the credibility of its nuclear deterrent capabilities by expanding its nuclear stockpile and upgrading the quality of its nuclear weapons. China's nuclear modernization choices since 2021 appear to be a response to these concerns.²⁰ Recognizing the insufficient credibility of its nuclear retaliatory capabilities, China seems to be facilitating the build-up of Sino-US mutual nuclear vulnerability and mitigating US nuclear opportunism through increased nuclear warheads.²¹

¹⁴ State Council Information Office of the People's Republic of China, "China's National Defense in the New Era," July 24, 2019, http://english.www.gov.cn/archive/whitepaper/201907/24/content_WS5d3941ddc6d08408f502283d.html.

¹⁵ Shannon Bugos, "Pentagon Sees Faster Chinese Nuclear Expansion," Arms Control Association, December 2021, <https://www.armscontrol.org/act/2021-12/news/pentagon-sees-faster-chinese-nuclear-expansion>.

¹⁶ M. Kristensen Kristensen, "Prepared Statement of Hans M. Kristensen Before The US-China Economic and Security Review Commission Hearing On China's Nuclear Forces," June 10, 2021, https://www.uscc.gov/sites/default/files/2021-06/Hans_Kristensen_Testimony.pdf.

¹⁷ Wu Riqiang, "Certainty of Uncertainty: Nuclear Strategy with Chinese Characteristics," *Journal of Strategic Studies* 36, no. 4 (2013): 579-614.

¹⁸ Wu Riqiang, "Living with Uncertainty: Modeling China's Nuclear Survivability," *International Security* 44, no. 4 (2020): 84-118.

¹⁹ Gaochen Hu, "An Analysis of China-US Asymmetric Nuclear Stability and the US Strategic Opportunism(中美不对称核稳定与美国战略机会主义论析)," *Journal of International Security Studies* 《国际安全研究》, no. 2 (March 2021).

²⁰ Office of the Secretary of Defense, "Military and Security Development Involving the People's Republic of China 2021: Annual Report to Congress," January 2021, <https://media.defense.gov/2021/Nov/03/2002885874/-1/-1/0/2021-CMPR-FINAL.PDF>.

²¹ Tong Zhao, "Why Is China Building Up Its Nuclear Arsenal?," *The New York Times*, November 15, 2021, <https://www.nytimes.com/2021/11/15/opinion/we-need-to-pay-attention-to-chinas-nuclear-build->

While some speculate that China could move closer to the Russian retaliatory-responsive strike (ответно-встречный) strategy, this does not imply that China is seeking parity in the number of nuclear weapons with the United States and Russia. As Chinese expert Li Bin argues, maintaining strategic stability does not require that two states possess equal numbers of nuclear weapons, but only that they have sufficient retaliatory capabilities.²² Contrary to the Cold War desire of the United States and the Soviet Union to seek hegemony and power symbolism through numbers of nuclear weapons well beyond “mutual assured destruction (MAD),” so far, China has not expressed an intention to engage in a nuclear arms race.²³ As recently reemphasized by Ambassador Li Song, “China keeps its nuclear capabilities at the minimum level required for national security and does not engage in any nuclear arms race with any other country.”²⁴ China’s pledge not to engage in an arms race signals that it rules out the use of nuclear weapons as a means of contending for hegemony and that it will not try to win a nuclear war, but rather to improve the survivability of its nuclear weapons.²⁵

For the United States, since the early 1990s, each administration has conducted an NPR, which examined US nuclear policy, strategy, and programs. In recent years, Russia, along with China, has been flagged by the NPR as one of the top nuclear threats to the United States and a primary target of US nuclear deterrence²⁶ In the view of Moscow and Beijing, the NPR implies the unsettling fact that nuclear weapons continue to contribute significantly to US political and military policy.

For example, the Trump administration’s 2018 NPR was viewed as a worrisome manifestation of intent. As American experts noted with concern, the US nuclear weapons laboratories have begun to develop new modifications of low-yield nuclear weapons to equip the Trident II SSBNs. Specifically, the increased accuracy of the Trident II D5 SLBM, which serves as the maritime component of the US strategic nuclear triad, is adversely affecting strategic stability through the deployment of the super-fuze equipped W76-1/MK4A and W88/MK5 warheads. Given that the new fuze is designed to destroy fixed targets by detonating above and around a target, such a significant boost in kill capability implies that all US sea-based warheads are now capable of destroying hardened targets, leaving Russia’s ICBM silos in particular vulnerable.²⁷ Meanwhile, the United States is seeking to lower the nuclear threshold and expand the scenarios in which nuclear weapons can be used. The 2019 Missile Defense Review (MDR) addresses the significant expansion of the mission and scope of US missile defense, which includes not only ballistic missiles but also other types of missile threats, such as regional cruise and hypersonic systems. The report also underlines the relevance of space and new technologies for interception during the missile boost phase.

Judging from the new 2022 National Defense Strategy (NDS), NPR, and MDR, the Biden administration completely derailed the campaign promise of embracing a “sole purpose” declaration and shrinking the role of US nuclear weapons because of the growing nuclear threat from China and Russia. This report, which in its core ideology resembles the nuclear strategy of the Trump administration, is undoubtedly risky. For example,

up.html?_ga=2.157757491.843245458.1666335250-2049551904.1666335250.

²² Li Bin, “Chinese Thinking on Nuclear Weapons,” *Arms Control Today* 45, no. 10 (2015): 8.

²³ Ministry of Foreign Affairs of the People’s Republic of China, “Working Paper Submitted by the Chinese Delegation on Nuclear Disarmament,” January 2022, https://www.fmprc.gov.cn/web/wjb_673085/zjzg_673183/jks_674633/fywj_674643/202112/t20211228_10476396.shtml.

²⁴ Ministry of Foreign Affairs of the People’s Republic of China, “Statement at the General Debate by H.E. Amb. LI Song, Ambassador for Disarmament Affairs of China and Head of Chinese Delegation to the First Committee of the 77th Session of the UNGA,” October 11, 2022,

https://www.fmprc.gov.cn/mfa_eng/wjb_663304/zjzg_663340/jks_665232/kjfywj_665252/202210/t20221011_10780842.html.

²⁵ Bin Li and Tong Zhao, “Understanding Chinese Nuclear Thinking” (Carnegie Endowment for International Peace, 2016), <https://carnegieendowment.org/2016/10/28/understanding-chinese-nuclear-thinking-pub-64975>.

²⁶ US Department of Defense, “2018 Nuclear Posture Review,” 2018, <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>.

²⁷ Hans M. Kristensen, Matthew McKinzie, and Theodore A. Postol, “How US Nuclear Force Modernization Is Undermining Strategic Stability: The Burst-Height Compensating Super-Fuze,” *Bulletin of the Atomic Scientists* 1 (2017).

it retains the W76-2 lower-yield warhead on sub-launched ballistic missiles in response to limited nuclear strikes by opponents, preserves a vague posture on the use of nuclear weapons in extreme circumstances to deter non-nuclear weapons threats, reinforces nuclear sharing in Europe, and shares restricted nuclear technology with allies in the Indo-Pacific region.

Beyond that, the commitment to maintain a safe and effective nuclear deterrent, as well as a credible extended deterrent for US allies and partners, was re-emphasized. The documents clearly state that by the 2030s, the United States will need to deter two major nuclear powers for the first time. In light of this, the United States is now vigorously pursuing the modernization of its strategic forces, including the nuclear triad, nuclear command, control, and communications, and nuclear weapons infrastructure.²⁸ Such multifaceted efforts will have implications for the technical specifications of existing and new bomber, submarine, and missile systems.²⁹ It is clear that all these modernization initiatives, will further enhance US warfighting capabilities against China and Russia, thus undermining strategic stability and making a nuclear conflict more likely.

The 2022 US Strategic Reviews also focus on cross-domain and integrated deterrence.³⁰ As a framework for working across the operational domain, theater, and conflict spectrum, integrated deterrence has been widely referenced by the US Department of Defense in recent times. In particular, it emphasizes the cross-domain integration of conventional, nuclear, cyber, space,

and information capabilities, theater integration across competition and potential conflicts, and confrontation from high-intensity warfare to the gray zone.³¹

Some analysts believe that such a strategy would be tailored to the US-China competition, especially as the United States could leverage advanced non-nuclear military technology and non-military components such as diplomacy, intelligence and economic tools to prevent future Chinese military operations in East Asia.³² China may worry that the emphasis on cross-domain non-nuclear technologies could thicken the fog of war and significantly shorten the response and decision-making time for all sides.³³ Moreover, against the backdrop of a serious deficit of mutual trust and increasingly narrow channels of communication between China and the United States, misperceptions and misunderstandings about the intentions of an adversary's integrated deterrence may instead lead to a greater likelihood of war, rather than the other way around.

Not surprisingly, the United States labeling of China as the most comprehensive and serious challenge to its national security and the corresponding adjustments to its nuclear deterrence strategy have raised considerable concern in China. As China's Ministry of Foreign Affairs put it, "the U.S. has been hyping up the nuclear threat from China and brazenly tailored a nuclear deterrence strategy against us. The United States has also tried to reinforce extended deterrence commitments to its allies in the Asia-Pacific and called for nuclear sharing that violates the NPT. Such moves have undermined mutual

²⁸ The White House, "2022 National Security Strategy," October 12, 2022, <https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf>.

²⁹ Frank G. Klotz and Alexandra T. Evans, *Modernizing the US Nuclear Triad: The Rationale for a New Intercontinental Ballistic Missile* (Santa Monica, CA: RAND Corporation, 2022), <https://doi.org/10.7249/PEA1434-1>.

³⁰ US Department of Defense, "2022 National Defense Strategy of The United States of America | 2022 Nuclear Posture Review | 2022 Missile Defense Review," October 2022, <https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF>.

³¹ Jim Gagamone, "Concept of Integrated Deterrence Will Be Key to National Defense Strategy, DOD Official Says," December 8, 2021, [https://www.defense.gov/News/News-Stories/Article/Article/2866963/concept-of-integrated-](https://www.defense.gov/News/News-Stories/Article/Article/2866963/concept-of-integrated-deterrence-will-be-key-to-national-defense-strategy-dod-o/)

[deterrence-will-be-key-to-national-defense-strategy-dod-o/](https://www.defense.gov/News/Releases/Release/Article/3187178/statement-from-secretary-of-defense-lloyd-j-austin-iii-on-release-of-national-s/); US Department of Defense, "Statement From Secretary of Defense Lloyd J. Austin III on Release of National Security Strategy," October 13, 2022, <https://www.defense.gov/News/Releases/Release/Article/3187178/statement-from-secretary-of-defense-lloyd-j-austin-iii-on-release-of-national-s/>.

³² Michael Hanlon, Melanie Sisson, and Caitlin Talmadge, "Managing The Risks Of Us-China War Implementing A Strategy Of Integrated Deterrence" (Brookings, September 2022), https://www.brookings.edu/wp-content/uploads/2022/09/FP_20220926_nds_china.pdf.

³³ Tong Zhao and Bin Li, "The Underappreciated Risks of Entanglement: A Chinese Perspective" (Carnegie Endowment for International Peace, November 2017), <https://carnegieendowment.org/2017/11/08/underappreciated-risks-of-entanglement-chinese-perspective-pub-73164>.

trust between major countries, stoked nuclear arms races and confrontation, stimulated nuclear proliferation, and seriously harmed regional and international peace and stability.”³⁴

Similarly, the Russian Foreign Ministry questioned the US defense strategy’s incorporation of an expanding range of nuclear weapons program options, ambiguous nuclear strategy language, and more permissive nuclear use scenarios.³⁵ In the view of Russian experts, given the degradation of Russian nuclear capabilities and the still modest size of Chinese nuclear forces, a significant increase in the capability and accuracy of US weapons systems would undermine Russia’s strategy, and China intends to respond by ensuring the survivability of nuclear retaliatory capabilities. In principle, this provides an additional incentive for the United States to launch a first nuclear strike aimed at disarming the opponent.³⁶

On the positive side, however, the Biden administration’s nuclear strategy scores points for its reinvigorated emphasis on arms control and nuclear nonproliferation, particularly by endorsing the P5’s commitment in the multilateral arms control process not to fight nuclear war. The US willingness to initiate negotiations on a follow-on to New START and to pursue a strategic stability dialogue with the Russian and Chinese governments is also welcome. Although the majority of these gestures are symbolic, it is certainly a good start.

For Russia, as part of its efforts to adapt to the shifting post-Cold War world order, Moscow renounced the no first use nuclear policy adopted in the Soviet time and made several adjustments to its military strategies and nuclear doctrines. Russia identified in the 2014 edition of the “Military Doctrine of the Russian Federation” the right to respond with the use of nuclear weapons when Russia and its allies’ national survival is threatened by conventional weapons or weapons of mass destruction.³⁷ It was further developed and elaborated in the “Basic Principles of the State Policy of the Russian Federation on Nuclear Deterrence,” issued in 2020, which stipulates nuclear weapons as a means of deterrence; considers their use an extreme, forced measure; and articulates four scenarios in which Russia would use such weapons.³⁸

Considering this, since the outbreak of the Russia-Ukraine crisis, Russia’s nuclear force has been placed on a higher alert.³⁹ Moscow took this action as a direct response to the economic sanctions and statements released by the United States and other Western nations in response to the Ukraine crisis.⁴⁰ The drivers are also clear: the dilemmas of the Ukraine crisis, Russia-NATO and Russia-US strategic relations are on a direct collision course. However, it remained unclear how, if at all, placing nuclear forces in a “special regime of combat missions” would have altered the Russian nuclear posture. Russia, like the United States, keeps its land-based ICBMs on a high state of readiness at all times, as is the case of Russia’s submarine-launched nuclear missiles.

³⁴ Ministry of Foreign Affairs of the People’s Republic of China, “Foreign Ministry Spokesperson Wang Wenbin’s Regular Press Conference on October 28, 2022,” October 28, 2022, https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/202210/t20221028_10793767.html.

³⁵ РИА Новости, “МИД России Прокомментировал Новую Стратегию Оборона США,” October 29, 2022, <https://ria.ru/20221029/ssha-1827705734.html>.

³⁶ Алексей Арбатов and Владимир Дворкин, *Полицентричный Ядерный Мир: Вызовы и Новые Возможности* (Московский Центр Карнеги, 2017).

³⁷ Ministry of Foreign Affairs of the Russian Federation, “The Military Doctrine of the Russian Federation,” December 25, 2014, <http://rusemb.org.uk/press/2029>.

³⁸ The Ministry of Foreign Affairs of the Russian Federation, “Basic Principles of State Policy of the Russian Federation on

Nuclear Deterrence (Вопросы Международной Безопасности и Стратегической Стабильности),” The Ministry of Foreign Affairs of the Russian Federation, June 8, 2020, https://archive.mid.ru/en/web/guest/foreign_policy/international_safety/disarmament/-/asset_publisher/rp0fiUBmANaH/content/id/4152094.

³⁹ Shannon Bugos, “Putin Orders Russian Nuclear Weapons on Higher Alert | Arms Control Association,” Arms Control Association, March 2022, <https://www.armscontrol.org/act/2022-03/news/putin-orders-russian-nuclear-weapons-higher-alert>.

⁴⁰ TASS, “Putin Orders ‘Special Service Regime’ in Russia’s Deterrence Force,” February 27, 2022, <https://tass.com/defense/1412575>.

Heading toward a New Arms Race? Comparative Analysis of Military Capabilities of China, the United States, and Russia

The perceived threat of China, the United States, and Russia to each other on both political and military fronts depend on their national defense capabilities. In the face of a volatile international security situation, all three countries have seen significant advances in the number of nuclear warheads, military spending, and the development of weapons technology.

Military Expenditures

In the face of rising instability due in part to economic troubles, heated political rivalry, and escalation of military conflicts, China, the United States, and Russia have all announced significant increases in their military budgets (see Fig. 1). In

2022, China’s defense spending budget will be RMB 1.47 trillion (approximately US\$223 billion), which is expected to increase by 7.1 percent from the previous year, with a significant increase in the proportion of weapons and equipment costs amid complex security threats.⁴¹ Against the backdrop of aggravated tensions with NATO, the escalating Russia-Ukraine crisis, and soaring international oil prices, Russia’s defense budget has seen a substantial increase over the previous two years, with its 2022 national defense budget expected to reach 10 trillion rubles (approximately US\$154.1 billion).⁴² In the future, the United States will focus on building enduring advantages, integrated deterrence, and campaigning to strengthen defense security. The US defense budget for fiscal year 2023 amounts to US\$813.3 billion, of which US\$773 billion is allocated to the Department of Defense, signaling a 4.1 percent increase over the previous year.⁴³ This represents four times the total budget of China and five times the anticipated Russian expenditures.

Comparative Overview of the Defense Budgets of the U.S., China and Russia (2020-2023)

Data Source: U.S. Department of State; The Russian State Duma/SIPRI; Ministry of National Defense of China

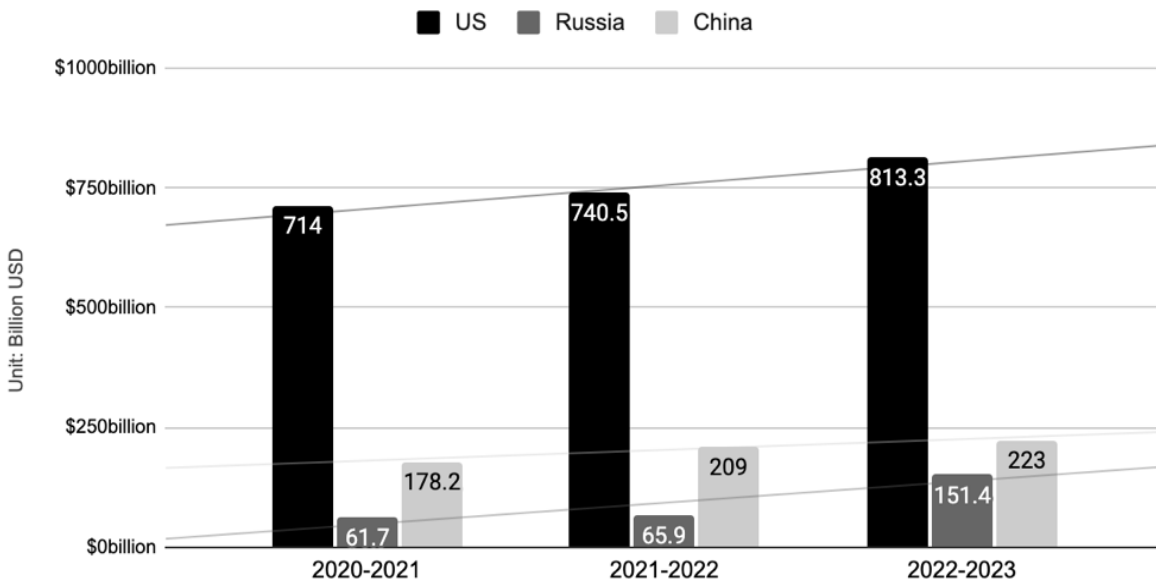


Figure 1 Overview of the Defense Budgets in the United States, China, and Russia (2020–2023)

⁴¹ Ministry of National Defense of the People’s Republic of China, “China’s Defense Spending Will Maintain Moderate and Steady Growth in 2022, with an Increase of 7.1 Percent over the Previous Year,” March 2022, http://www.mod.gov.cn/info/2022-03/10/content_4906558.htm.

⁴² TASS, “Russia’s National Defense Budget to Total \$154 Bln through 2022,” TASS, October 2019, https://tass.com/defense/1080646?utm_source=google.com&utm_medium=organic&utm_campaign=google.com&utm_referrer=google.com; SIPRI, “World Military Spending Rises to Almost

\$2 Trillion in 2020,” April 26, 2021, <https://sipri.org/media/press-release/2021/world-military-spending-rises-almost-2-trillion-2020>.

⁴³ US Department of Defense, “The Department of Defense Releases the President’s Fiscal Year 2023 Defense Budget,” March 28, 2022, <https://www.defense.gov/News/Releases/Release/Article/2980014/the-department-of-defense-releases-the-presidents-fiscal-year-2023-defense-budg/>.

Number of Nuclear Warheads

In terms of the number of nuclear warheads, Russia and the United States continue to hold the world’s largest nuclear arsenals, and China has, for now, seen a modest increase in its nuclear stockpile (see Fig. 2), Russia is steadily modernizing its nuclear forces to replace the aging Soviet-era systems and simultaneously developing new delivery systems. It is estimated that as of 2022, Russia had approximately 4,477 nuclear warheads, including 2,565 offensive strategic warheads, 1,912 non-strategic warheads, and 1,760 additional retired warheads awaiting dismantlement.⁴⁴ Meanwhile, the Federation of American Scientists assesses that the US nuclear arsenal inventory stands marginally below that of Russia, amounting to about 3,800 warheads. Of these, 1,800 warheads are deployed and 1,750 decommissioned warheads are awaiting dismantlement.⁴⁵ The United States has roughly 230 non-strategic nuclear weapons, of which half are deployed under the responsibility of its European Command.⁴⁶ Allegedly, they help

show the US commitment to extended deterrence and readiness to protect its allies. Compared to the United States and Russia, China remains in an asymmetrical position, with the numbers of its nuclear weapons lagging far behind. Despite the high expectation that its stockpile will rapidly grow, China has now produced only 350 nuclear warheads allocated for land-based and sea-based ballistic missiles and bombers.⁴⁷ However, based on the available evidence, this number is likely to increase in the foreseeable future.

Hypersonic Weapons and Related Technologies

Hypersonic technology is changing the nature of nuclear and conventional warfare, making it less predictable and harder to defend. When it comes to the development of hypersonic weapons, namely hypersonic glide vehicles (HGVs) and hypersonic cruise missiles, Russia, the United States, and China are all developing, testing, and now deploying them at a rapid pace. (See Figure 3 for more details.)

Number of nuclear warheads in China, U.S., and Russia (2021-2022)

Data Source: Federation of American Scientists, SIPRI, Statista

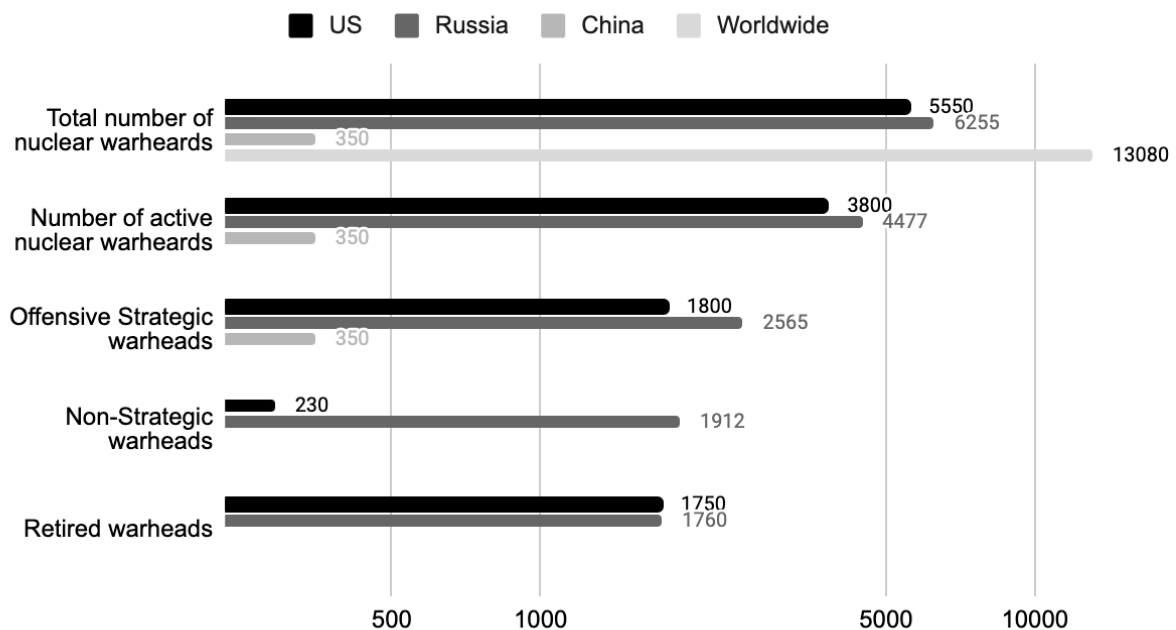


Figure 2 Number of Nuclear Warheads in China, the United States, and Russia (2021–2022)

⁴⁴ Hans M. Kristensen and Matt Korda, “Russian Nuclear Weapons, 2022,” *Bulletin of the Atomic Scientists* 78, no. 2 (2022): 98–121.

⁴⁵ Hans M. Kristensen and Matt Korda, “United States Nuclear Weapons, 2021,” *Bulletin of the Atomic Scientists* 77, no. 1 (2021): 43–63.

⁴⁶ Congressional Research Service, “Nonstrategic Nuclear Weapons,” March 7, 2022, <https://sgp.fas.org/crs/nuke/RL32572.pdf>.

⁴⁷ Hans M. Kristensen and Matt Korda, “Chinese Nuclear Weapons, 2021,” *Bulletin of the Atomic Scientists* 77, no. 6 (2021): 318–36.

Russia's undoubted breakthrough achievements, supported by a series of real tests, are a blow to the image of the United States as the world's sole military superpower and the leader in military technologies' innovation. Russia is so far leagues ahead in terms of the deployment of a hypersonic boost-glider (Avangard) for installation on intercontinental missiles such as the SS-19 (UR-100UTTH) Mod4, or later on the SS-29 Sarmat heavy ICBMs. Already operational, it uses an existing type of ICBM (SS-19) as a booster, as well as an existing type of silo for the SS-18 "Satan" or Voevoda ICBMs. As most military experts in Moscow have stated, the introduction and deployment of a range of new weapon systems

will guarantee the absence of any serious military threats to the country.⁴⁸ These include projections for the composition of Russia's strategic nuclear forces until 2030, including the commissioning of the road-mobile Yars SS-27Mod2, the silo-based heavy Sarmat SS-29 MIRV strategic missiles, the medium-range hypersonic Zircon and Kinzhal, and the famous Kalibr system. Added to these are the commissioning of new SLBMs and heavy bombers and the development of air defense, missile defense networks, and new ASAT weapons. Boost-glide systems such as Burevestnik (NATO-designated as "Skyfall") or the much-hyped Avangard and their American analogues are, in addition to boasting global range and

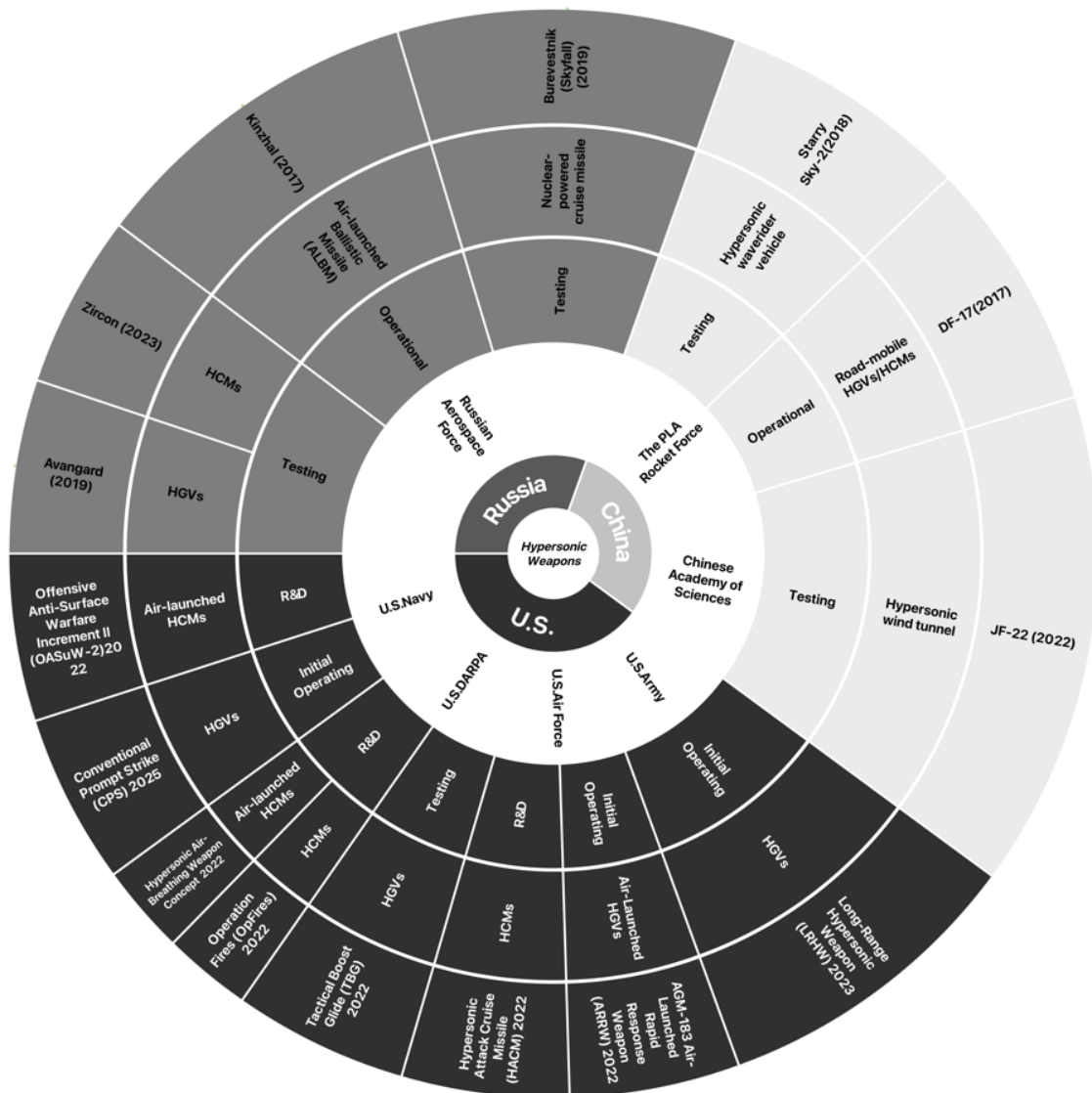


Figure 3 Current Developments of Hypersonic Weapons in China, the United States, and Russia
 Data Source: Arms Control Association, CSIS Missile Defense Project, Ministry of National Defense of the People's Republic of China

⁴⁸ US Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms Fact Sheet," March 1, 2020,

<https://www.state.gov/wp-content/uploads/2020/04/04-01-2020-March-NST-FACTSHEET-Public-Release-of-Aggregate-Data.pdf>.

having the ability to travel at high speeds (up to Mach 20–25) and engage in evasive maneuvers, mostly “invisible” to existing radars. They thus create dangerous “target ambiguity” where, in some cases, it is impossible to determine it as a specific target until the last moment, especially if it is engaged in a single or cluster strike in an area with a high infrastructure density. There is also “provenance ambiguity” making it impossible to identify the country of launch, not to mention the type of warhead.⁴⁹

Moreover, the throw-weight of the R-36M2 Voevoda (SS-18) missiles, as well as the novel Sarmat ICBMs that are replacing them, is excessive, so instead of hypersonic “exotics,” they could carry dozens of “classic” nuclear warheads. The Avangard does not influence the nuclear deterrent capability to any game-changing degree, nor does it enhance Moscow’s strategic arsenal or add to its range or promptness of strike, though allegedly it could pierce any ABM system and possess unpredictable final-phase pre-impact trajectories. Rather, its purpose appears to be to demonstrate Russia’s newly acquired technological prowess and maintain nuclear parity with the United States, which is extremely important for the Kremlin, and could serve as a promising stimulus or bargaining chip in a trade-off with Washington in potential arms control deals.⁵⁰

These systems naturally boost Russia’s prestige and its status as the “most advanced military-technological power” in the world. Their true purpose, however, is political, aimed at exerting psychological pressure on Western governments. According to the renowned Russian specialist

Colonel-General Viktor Yesin, former chief of staff of the Strategic Rocket Forces, Russia could authorize the deployment of 400–500 delivery vehicles and 1,000 warheads without hindering its modernization programs, particularly if the deterrence capabilities of its American counterpart remain limited. They are seconded by the Moscow-central region A-135ABM system and its replacement, the mobile A-235 Nudol ABM/antisatellite complex, which in turn are buttressed by S-400 and S-500 air defense regiments that will form the basis for an integrated aerospace defense network.

China has also been actively developing its hypersonic weapons programs and has achieved remarkable progress.⁵¹ Among them, the DF-17 medium-range ballistic missile system, an HGV with a range capability between 1,800 and 2,500 kilometers, has been fully equipped for combat. An additional project, successfully tested in 2018, is Starry Sky-2, a hypersonic vehicle that is capable of deriving lift from the shockwaves generated by its own hypersonic flight.⁵² In the meantime, China’s JF-22 hypersonic wind tunnel, which is capable of simulating flights at up to 10 kilometers per second, is expected to be ready for use in 2022.⁵³

By comparison, the US hypersonic weapons program is still at a stage of development and experimentation, with no experience in operational use yet. Ongoing US research on hypersonic weapons programs includes the Air Force’s AGM-183 air-launched rapid response weapon and hypersonic attack cruise missile;⁵⁴ the Army’s long-range hypersonic weapon (LRHW or

⁴⁹ James M. Acton, “Hypersonic Boost-Glide Weapons,” *Science & Global Security* 23, no. 3 (2015): 191–219; John Borrie, Amy Dowler, and Pavel Podvig, “Hypersonic Weapons: A Challenge and Opportunity for Strategic Arms Control,” *United Nations Office for Disarmament Affairs, United Nations Institute for Disarmament Research, United Nations*, 2019; Richard H. Speier et al., *Hypersonic Missile Nonproliferation: Hindering the Spread of a New Class of Weapons* (Rand Corporation, 2017).

⁵⁰ Michael Kofman, “Hypersonic Boost-Glide,” *Russia Military Analysis*, January 2019, <https://russianmilitaryanalysis.wordpress.com/tag/hypersonic-boost-glide/>.

⁵¹ Ministry of National Defense of the People’s Republic of China, “Promoting China’s Weaponry Construction to Make a Leap Forward from a New Starting Point,” November 2021,

http://www.mod.gov.cn/jzhzt/2021-11/25/content_4899670.htm.

⁵² “China’s Waverider Hypersonic Vehicle ‘Starry Sky 2’ Successfully Test-Flown,” *Huanqiu.Com*, August 2018, <https://3w.huanqiu.com/a/cf8332/9CaKrnQhLBY?agt=2&s=a%2Fcf8332%2F9CaKrnQhLBY>.

⁵³ “After Four Years JF-22 Wind Tunnel Will Be Completed in 2022” (CCTV, August 2021), <https://news.cctv.com/2021/08/22/ARTIAznHUsrcNcfBeW9VKbsv210822.shtml>.

⁵⁴ Shannon Bugos and Kingston Reif, “Understanding Hypersonic Weapons: Managing the Allure and the Risks—An Arms Control Association Report” (Arms Control Association, September 2021), https://www.armscontrol.org/sites/default/files/files/Reports/ACA_Report_HypersonicWeapons_2021.pdf.

Dark Eagle); the Navy's conventional prompt strike and offensive anti-surface warfare increment II; and the Defense Advanced Research Projects Agency's tactical boost glide, operation fires, and hypersonic air-breathing weapon concept. This shows that the Pentagon is determined to catch up with Moscow and Beijing in the race to develop hypersonic weapons, even though they could increase the risk of a nuclear conflict, while the three countries are striving to deploy defenses against them. While the United States still has its programs to develop Boeing hypervelocity interceptor, Lockheed Martin Valkyrie, and Raytheon SM-3 Hawk interceptors for potential protection against hypersonic weapons, Russia also claims to have forged ahead in this area, especially with the advanced S-500 complex, which is capable of attacking aircraft, various types of ballistic missiles, satellites, and hypersonic targets, and with the over-horizon "container" EWS radar in Kovytkino. There is no doubt that in this area the eternal competition of "shield and sword" will continue, and ways will be sought to intercept roving warheads even at hypersonic speed and with their apparently unpredictable maneuvering on the final section of the trajectory.

The Antidote: Interwoven Arms Control Measures for Traditional Routes and Emerging Technologies

The question arises as to what measures could be taken to promote global strategic stability and salvage the precarious international arms control regime. The authors contend that the goal should be averting an imminent arms race in intermediate- and shorter-range missile systems. At the same time, it is tempting to think about how to include the aforementioned weapons systems in the scope of future negotiations on a successor agreement to New START, especially taking into account emerging technologies and issues such as missile defense and offensive weapons, cruise and hypersonic systems, and space security, among other things.

Dealing with Gridlocked Unresolved Problems

New START Treaty

For the United States and Russia, in a situation where the risk of an accidental nuclear conflict or an unintentional escalation of a non-nuclear conflict is very real, visible tokens of cooperation are sorely needed. This initially includes establishing and preserving stable channels of communication between the militaries of the leading nuclear countries. It is thus of utmost importance today to introduce new limits to the New START Treaty, currently extended for another five years after it expired in 2021. This would hopefully give the two sides the opportunity to examine new opportunities for further strategic arms reductions, while at the same time extending it to newly introduced systems. This proposal was endorsed by key figures in the US arms control and national security community as well.⁵⁵

New START has several issues that need to be addressed in the future. The ceiling for all nuclear warheads in a future START agreement should prevent the "uploading" or quick build-up of nuclear forces in the event of withdrawal from the agreement. The so-called "upload potential" also remained unresolved. This is a considerable part of the nuclear arsenal of the parties, which can be quickly expanded if either party suddenly cease to comply with the treaty. In this case, the strategic potentials of the United States and Russia can grow to 3,500 and 2,400 warheads, respectively. Obviously, the rules for calculating the armament of strategic bombers in Treaty are extremely conditional (one warhead per bomber), and it would be better to return to the calculation of real equipment, as in START-1.

For the follow-on START agreement, the parties should require restrictions for newly deployed roving or "aeroballistics" systems that are launched as a ballistic missile and then maneuver

⁵⁵ Rose Gottemoeller et al., "It's Time to Rethink Our Russia Policy," *Harvard Kennedy School Belfer Center for Science and*

International Affairs, August 5, 2020, <https://www.russiamatters.org/analysis/its-time-rethink-our-russia-policy>.

to the target as a hypersonic aircraft. Russia has declared its readiness to include three new systems (“Avangard”, “Kinzal,” and “Sarmat”) in future “START Plus” agreements after their deployment (although they are in its “gray zone,” since there are no bans on air-launched aeroballistics missiles with a range of more than 600 kilometers or partial orbital bombing systems (FOBS). The United States will likely insist on the inclusion of the “Burevestnik” cruise missile and “Poseidon” underwater drone systems, which formally do not fall under the definitions of strategic weapons of New START, but can be counted as new types of weapons and become the subject of consultations in the Bilateral Advisory Commission for their coverage under Article V. However, for the time being, Russian military experts believe the unilateral inclusion of such new types of Russian hypersonic weapons in the agreement, which may replace New START, is impossible, since they were developed in response to the deployment of the US global missile defense systems, which Washington is not going to abandon. There is no doubt that such a process could begin only when bilateral relations between the major nuclear weapons stakeholders come to at least partial normalization.

Meanwhile, the United States argues that a new nuclear arms limitation treaty should cover all types of warheads, include better verification protocols and transparency measures, and be extended to include China.⁵⁶ But the authors argue that it would be unrealistic to directly involve China in trilateral arms control negotiations in the short term. In terms of numbers, the United States and Russia comprise 95 percent of the world’s nuclear warheads, while China accounts only for roughly one-twentieth of that number, making it impossible for the three countries to cut their warhead numbers to a uniform standard in the near future. With respect to deployment patterns, China has maintained most of its nuclear forces on low warning and kept launchers, missiles, and

warheads in separate storage, indicating that Beijing only seeks to conduct a retaliatory strike, rather than adopting a launch-on-warning posture.⁵⁷ Besides, without experience it could take decades before Beijing might join negotiations as a full-fledged partner.

INF Treaty

The conundrum regarding the Intermediate-Range Nuclear Forces (INF) Treaty must be addressed as well. In the absence of an INF Treaty, the risk of a new missile race will grow. There is thus a need to find solutions for short- and medium-range ground-based missiles in Europe and in the Asia-Pacific region. For instance, in 2020, the Kremlin proposed a verifiable moratorium on the deployment of missiles formerly prohibited by the INF Treaty, which primarily refers to Aegis Ashore ballistic missile defense systems deployed at NATO bases in Europe and Russian 9M729 missile system in Kaliningrad.⁵⁸ The United States and NATO should consider responding to Russia’s 2020 proposal rather than rejecting it. Russian officials have warned that a new round of confrontation may follow if the United States and NATO ignore Moscow’s concerns about the deployment of weapons banned by the INF treaty in Europe, and if its demands for security guarantees are not met.⁵⁹ The Russian plan, while imperfect, is a starting point. Otherwise a new Euromissile crisis may resurface, with medium-range missiles being deployed in large numbers across the continent. The new “Pershing-3” ballistic missiles with a flight time of about three minutes, as well as hypersonic cruise missiles that fly along unpredictable trajectories, would seriously complicate the task of their early detection and interception. This brings the possibility of a Russian preemptive strike closer, which would dramatically increase the risks of nuclear escalation.

⁵⁶ Shannon Bugos and Kingston Reif, “US Seeks’ New Era of Arms Control’,” *Arms Control Today* 49, no. 9 (2019): 31–32.

⁵⁷ Fiona S. Cunningham and M. Taylor Fravel, “Assuring Assured Retaliation: China’s Nuclear Posture and US-China Strategic Stability,” *International Security* 40, no. 2 (2015): 7–50.

⁵⁸ Arms Control Association, “Russia Expands Proposal for Moratorium on INF-Range Missiles,” November 2020,

<https://www.armscontrol.org/act/2020-11/news-briefs/russia-expands-proposal-moratorium-inf-range-missiles>.

⁵⁹ Известия, “Лавров Заявил Об Отказе Запада От Взаимного с Россией Моратория На РСМД,” April 26, 2022, <https://iz.ru/1326280/2022-04-26/lavrov-zaiavil-ot-otkaze-zapada-ot-vzaimnogo-s-rossiei-moratorii-na-rsmd>.

In addition, US, Russian, and Chinese nuclear intermediate-range ground-based ballistic and cruise missiles could theoretically be limited to the same small number. All new intermediate-range nuclear weapons should be deployed at an agreed distance from state borders to prevent the possibility of a prompt short-time attack. Separate limits on conventional and nuclear systems are not practical, as distinguishing between nuclear and non-nuclear versions of the same basic missile is very unwieldy. As Zhao Tong suggests, given China's numerical advantage in land-based intermediate-range missiles and the much larger US and Russian stockpiles of long-range nuclear-capable systems, it would make sense to set an equal ceiling for the combined stockpiles of both types of weapons for all three states.⁶⁰

Achieving Breakthroughs in Emerging Areas

Hypersonic Weapons

Major powers need a multilateral agreement that limits hypersonic arsenals and their use. However, the United States is stuck in catch-up mode and has no interest in negotiating any deals that may prohibit or regulate the development and testing of these weapons. Unfortunately, hypersonic weapons are starting to be viewed as weapons of choice and prestige at time when the entire arms control infrastructure is collapsing and relations between major weapons stakeholders are deteriorating. Hypersonic weapons are a challenge, even if their missions are not substantially different from those of earlier ICBM and SLBM systems.

The New START Treaty does not apply to hypersonic gliders or missiles, since these weapons do not fly on a ballistic trajectory for more than 50 percent of their flight, but Article V of the treaty allows the parties to consider limits on new arms through its Bilateral Consultative Commission.⁶¹ From a legal stand, Article 36 of the Additional Protocol I to the Geneva Conventions directs parties to determine by "the study, development,

acquisition or adoption of a new weapon" whether the weapon's use would "in some or all circumstances, be prohibited by this Protocol or by any other rule of international law applicable to the High Contracting Party."

An interesting, though challenging idea could be that US, Russian, and Chinese hypersonic systems (other than those carried on ICBMs or SLBMs) should not be tested or deployed for purposes of delivering nuclear warheads. An agreement to test and deploy hypersonic systems for the delivery of conventional weapons could reduce the risk of a conventional strike being misinterpreted as something more serious.

Outer Space

Another pressing issue of serious concern to both China and Russia is the potential evolution of outer space into a military battlefield. Therefore, the two countries have jointly proposed to the Conference on Disarmament the "Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects" (PPWT) initiative, with the goal of preventing an arms race in outer space through the enactment of a legally binding treaty. However, the United States opposes the draft treaty on the basis of its lack of an integral verification regime; the complexity of clearly defining the term "space weapons"; the absence in the draft of a prohibition on the possession, testing, production, and stockpiling of the weapons, thereby enabling development of a readily deployable space-based weapons break-out capability; and its failure to address terrestrially based anti-satellite weapon systems, which are considered the most pressing existing threat to outer space systems.

Nevertheless, in the future, if the international community relies solely on norms and principles of responsible behavior in outer space that are completely devoid of legal constraints to safeguard space security, it will likely give cover to states racing to militarize space—who could readily use

⁶⁰ Tong Zhao, "Opportunities for Nuclear Arms Control Engagement with China," *Arms Control Today* 50, no. 1 (2020): 9-12.

⁶¹ Helley M. Saylor, *Hypersonic Weapons: Background and Issues for Congress* (Congressional Research Service, 2019).

loopholes and purposeful omissions to advance the weaponization of space. More importantly, the criteria for determining whether a state's behavior is "responsible" lack international consensus and are inevitably non-neutral and politically motivated. The immediate priority for China and Russia should be to examine how to make the PPWT more specific, such as refining the definition of "space weapons" or "motivation to deploy weapons", specifying and grading the parameters of concrete items, and improving the operability of the verification mechanism. The quest for peaceful outer space will continue to be difficult. However, the results already achieved at the United Nations and Conference on Disarmament gives hope that the necessary prerequisites exist for progress towards prohibiting the placement of weapons into outer space – if, of course, the key states have political will.

Rising from the Ashes: Ten Practical Proposals

Although rebuilding arms control treaties amidst the ashes seems arduous under the current escalating international security situation and the climate of fear that nuclear weapons may be used again, sufficient preparations need to be made in advance for the moment when darkness eventually dissipates. With this in mind, the authors propose the following ten practical suggestions for constructing the building blocks of a new arms control agreement.

1. A future agreement should consider setting a new ceiling on the number of deployed US and Russian strategic warheads. The new parameters could be set at New START Treaty level of 1,550 warheads as a reference, with small reductions to a maximum of 1,100-1,000 deployed warheads. Limits would also be set on strategic launchers, which are delivery vehicles on operational alert and in reserve status, to avoid a sudden increase in the "upload potential" of launches from both sides. The agreement should cover deployed and non-deployed warheads of strategic offensive weapons. The new limit will not include warheads

waiting dismantling, which will eventually be destroyed by separate deal.

2. When the Russian-Ukrainian conflict is somewhat de-escalated, Russia and the United States should consider establishing a consultative mechanism on surveillance of hypersonic weapon system activities, under the guidance of a framework for maintaining strategic stability. For example, exchange information on new developments, the movement of naval vessels or aircraft carrying hypersonic missiles to areas near each other's waters, or the deployment of ground-based hypersonic missiles near each other's borders. Involving China in such a negotiation process would also be beneficial. In a trilateral format, in addition to hypersonic weapons, the discussion could expand to address emerging challenges affecting strategic stability, such as cyber malicious attacks, counterspace capabilities, and the mutual vulnerability of the cyber-space-nuclear nexus as well.
3. Inviting the United Kingdom and France to participate in the future arms control process is preferable than a trilateral framework involving only Russia, the United States, and China. There is a need to strengthen efforts to encourage the active participation of the United Kingdom and France in the nuclear arms control process, even though they have not demonstrated an interest in doing so. Admittedly, efforts to persuade NPT holdouts to meet their nuclear non-proliferation obligations are necessary. It must be acknowledged, however, that to date, there has been no feasible means to draw them into the established mechanisms. It may be more effective to leverage the diplomatic channels of the major nuclear powers, such as urging NPT holdouts to do more in terms of transparency, confidence-building measures, and promoting strategic stability in bilateral US-Israeli, Russian-Indian, and China-Pakistani military discussions.

4. Consider banning any hostile activities against early warning satellite systems designed to detect missile attacks, such as laser dazzling, jamming and destruction, among others, as well as preventing impediments to space- and land-based national technical control means of all parties.
5. Maintain a realistic attitude toward missile defense issues in view of the difficulty of advancing them in the US Congress, and defer their inclusion to a negotiated treaty in the distant future. In the prolonged absence of constructive agreement and genuine prospects for significant limitations on existing US missile defense programs, beyond considering the deployment of strategic countermeasures, Russia and China should refrain from overreacting. In practice, US missile defenses are incapable of posing a lethal threat to the nuclear retaliatory capabilities of their two major counterparts.⁶²
6. Nuclear and conventional missiles of any type with a range greater than 600 kilometers, along with the heavy bombers they actually equip, should be considered for inclusion in the New START 2.0 treaty's restrictions. Future agreements could exchange annual notifications on the planned number of such missiles and the types of surface ships, submarines, and naval missile-carrying aircraft capable of carrying them.
7. There is a need to find solutions to the issue of intermediate-range and short-range ground-based missiles in Europe and the Asia-Pacific region. The United States and Russia should discuss mutual transparency measures and the obligation of both sides to refrain from deploying offensive ground-based missile systems and permanent forces with combat missions, at least on European territory.
8. Given the emergence of new technological means, such as radar, drones, space-based sensors and long-range air surveillance facilities, the three countries should retain and develop additional new procedures for notification, information exchange, inspection and verification. It would also be beneficial to prohibit encryption of telemetry data and return to full exchange of telemetry data as specified in START-1.
9. Establish a joint data exchange center for notification of early warning systems and missile launches to reduce or eliminate misunderstandings about each other's actions and the risk of accidental nuclear conflict, including false warnings about missile attacks.
10. The scope of the next agreement could regulate both precision conventional weapons systems and limited nuclear warfare systems. Separate consultations for information exchange on this topic should also be held.

Conclusions

At a time of heightened international security crisis, major powers should work together to maintain global strategic stability and prevent the outbreak of a nuclear war that would be unbearable for humankind. The goal is to reverse the current tendencies and to gain higher predictability, transparency, and mutual trust and respect to offset mounting tensions and the return of Cold War thinking.

Unfortunately, under current circumstances, when great power confrontations squelch efforts to address shared risks through mutual collaboration, the prospect of serious dialogue or progress on the

⁶² Riqiang Wu, *Asymmetric Nuclear Force Structure: A Study of Strategic Stability* (不对称核力量结构战略稳定性研究) (Global Publishing, 2022), <https://doi.org/10.1142/g506>; В. Мизин,

“Новые Контуры Стратегической Стабильности в Глобальной Многополярной Конкуренции,” *Международные Процессы* 18, no. 2 (2020): 141–68.

substantive measures described above seems elusive. However, no matter how pessimistic the prospects of progress may seem, the arms control community should commit itself to the serious mandate of producing sufficient academic groundwork and generating practical policy recommendations and proposals for solutions that will allow the multilateral arms control regime to rise again from the ashes. The authors do believe that, in a kind of residual “arms control romanticism,” with sufficient demonstrations of good faith on all sides, a positive outcome is still possible in the end.

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