



NUCLEAR WEAPONS AND THE NEW SECURITY ENVIRONMENT

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Abstract:

The international system is undergoing major changes driven by increasing rivalry among great powers. Russia's actions in Ukraine and rising tensions in the Middle East signal a return to the use of force, alongside the spread of "hybrid warfare" combining conventional, cyber, informational, and irregular tactics. Technological advances (AI, drones, cyber tools) and new strategic domains like space and cyberspace are further transforming conflict. Nuclear weapons remain central to global security, but arms control agreements are eroding while major powers modernize and expand their arsenals. This weakens deterrence stability and increases the risk of escalation. Recent cases, such as Ukraine and Iran, raise doubts about nuclear guarantees and may push more states to consider acquiring nuclear weapons. Overall, declining cooperation, rising geopolitical tensions, and rapid technological change are creating a more complex, volatile, and uncertain global security environment, highlighting the need for renewed diplomacy, arms control, and confidence-building measures.

Keywords: Military conflict, geopolitical tensions, nuclear weapons, arms control, disarmament, non-proliferation, confidence building measures

Título en Español: Las Armas Nucleares y el nuevo panorama de seguridad

Resumen:

El sistema internacional está experimentando cambios profundos impulsados por la creciente rivalidad entre las grandes potencias. Las acciones de Rusia en Ucrania y el aumento de las tensiones en Oriente Medio apuntan a un retorno al uso de la fuerza, junto con la expansión de la «guerra híbrida», que combina tácticas convencionales, cibernéticas, informativas e irregulares. Los avances tecnológicos (IA, drones, herramientas cibernéticas) y los nuevos ámbitos estratégicos, como el espacio y el ciberespacio, están transformando aún más los conflictos. Las armas nucleares siguen siendo fundamentales para la seguridad mundial, pero los acuerdos de control de armamento se están erosionando mientras las grandes potencias modernizan y amplían sus arsenales. Esto debilita la estabilidad de la disuasión y aumenta el riesgo de escalada. Casos recientes, como los de Ucrania e Irán, plantean dudas sobre las garantías nucleares y pueden empujar a más Estados a considerar la adquisición de armas nucleares. En general, la disminución de la cooperación, el aumento de las tensiones geopolíticas y los rápidos cambios tecnológicos están creando un entorno de seguridad mundial más complejo, volátil e incierto, lo que pone de relieve la necesidad de renovar la diplomacia, el control de armamento y las medidas de fomento de la confianza.

Palabras Clave: Conflictos militares, tensiones geopolíticas, armas nucleares, control de armamento, desarme, no proliferación, medidas de fomento de la confianza

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1. Changes in the International System

The world order is shifting as a change in the strategic priorities of major powers occurs in the third decade of the 21st century. The events since Russia's invasion of Ukraine in 2014 represent a fundamental change in the Euro-Atlantic security system. They mark a return to the logic of armed violence applied to politics, which had not been seen in Europe since the Second World War. Conflicts in the Middle East have also increased since 2023, with terrorist attacks and military clashes not seen for decades. It is difficult to predict how military threats will evolve in the context of this century's strategic rivalry, but they will probably have different characteristics from those that characterized them in the 20th century.

Political changes during the second decade of this century have reshaped the strategic environment: in China since 2013, in Russia since 2014, and in the United States since 2017. China has been more assertive since 2013, expanding its influence and increasing its role in global affairs. The Chinese military capabilities, including its nuclear arsenal, have continued to grow. Unlike the USSR, China is not only a political and military global player, but also an industrial and commercial power. The emergence of India as a power in a space subject to these tensions also raises new questions. While the tensions in the Indo-Pacific following China's emergence as a major power are probably still in a preliminary stage of development, this phenomenon is altering the status quo and the existing balance of power, introducing another dimension to global strategic rivalry, which overlaps with that which arose at the end of the Cold War between the West and post-Soviet Russia.

Since Russia invaded Crimea in 2014, the war in Donbas, and the full-scale invasion of Ukraine in 2022, Moscow has developed closer ties with Iran and the DPRK. The supply of weapons, ammunition and mercenaries by the latter may also imply other exchanges involving technology, financing, and other forms of cooperation. In a growing strategic imbalance such as that experienced in recent years, a weak Russia that feels it is in difficulty may act unpredictably, even provoking a conflict – or “preventive wars” – before the balance of power deteriorates further, in the hope of gaining better bargaining chips and recovering part of its lost “sphere of influence”. The defence of the so-called “Russian world” against a supposed “Western threat”, which Moscow is wielding in this confrontation, fits into this context. The invasion of Ukraine in 2022 can be seen as a first manifestation of this process, but perhaps not the last.

The United States' new policies, since 2017, have been focused on the Indo-Pacific, the rise of the MAGA movement, strategic competition with China and, lately, an attempt at dialogue with Russia, combined with a reduced commitment to Ukraine's defence. Tensions with allies in North America and Europe have increased since 2014 in relation to various issues - political principles, trade, territory, security, among others - testing the consistency of the transatlantic link. However, U.S. interventions in Syria, Venezuela, and Iran (possibly in Cuba) also aim to reduce Russia's influence and reveal its weakness and inability to support its allies. None of the three great powers seems to be committed to defending and upholding the current status quo in the world order. The US is reviewing its foreign and security policies since 2017 and seeking to preserve its global supremacy; China, as a rising power, and Russia, as a declining power.

On the one hand, there is widespread fear of the consequences of a large-scale / high-intensity military conflict between military powers or alliances. On the other hand, there has been a trend in recent decades towards an increase in asymmetric conflicts and a decrease in the frequency of direct wars between states, which are, however, more intense and violent. In this sense, the technological and conceptual changes that shape the current strategic landscape reflect a shift in the forms of conflict towards new modalities, some of which have already been



tested by states and non-state actors in the context of “hybrid wars”². In this regard, strategic thinking has evolved towards models of multimodal spectrum, in which states or non-state actors may be involved:

- Information warfare, use of social media and the internet as a tool for mobilisation, direction and disinformation.
- Non-lethal and cyber weapons
- Non-state guerrillas, independent or “sponsored” by third parties.
- Private military companies and autonomous mercenaries.
- Regular armies and special operations forces.
- Weapons of mass destruction.
- Terrorist groups.
- Organized crime networks with paramilitary capabilities.

The fusion of classic military confrontation with irregular warfare in a multimodal spectrum, together with other forms of non-warfare confrontation below the threshold of armed conflict, places us in a more complex and volatile scenario than the one that dominated geopolitics until the end of the last century. All of this implies the existence of a wide spectrum of means and strategies available to states, ranging from classic military confrontation to the use of asymmetric tactics and information warfare, in an evolution of the modalities of conflict that blurs the boundaries between war and peace.

At the same time, the world is now at the dawn of an era of new explorations in open and as yet undefined spaces, all of which are largely outside the territorial jurisdiction of states:

- The polar regions, of which almost 17 million km² are outside states' jurisdiction, 11% of the Earth's surface.
- The seabed and international waters beyond the Exclusive Economic Zones, which cover more than 70% of the planet;
- Outer space;
- Cyberspace.

These ‘four spaces’ open the way to new opportunities in another cycle of exploration, but they also pose risks to international security. All of them, like territories under state sovereignty and adjacent waters, are potential scenarios for emerging forms of warfare.

Important technological and economic changes are also shaping the international landscape. New applications of dual-use technologies are having an impact on military affairs (drone swarms, robotics, AI, etc.). The following features can be highlighted:

- An increase in long-range attack capabilities, with a proliferation of long-range, precision weapons aimed at the adversary's critical infrastructure.
- Growing use of precision weapons, robotic systems and unmanned vehicles, among others, in the logic of remote military operations. The automation of offensive systems, by reducing the direct risk to humans, lowers the risk threshold for triggering a conflict.
- Digital ‘information warfare’ operations, which accompany or precede other types of actions.

² “Global trends: paradox of progress”, Washington, D.C., National Intelligence Council, 2017.



- Cyberattacks against critical infrastructure and information networks that enable remote aggression, paralysing advanced military and civilian technology systems.

In this context, there may be growing confusion between actions promoted and/or authorised by states and those originating from non-state actors (insurgents, terrorist groups, cybercriminals). These are usually characterised as “asymmetric threats” or “hybrid threats” when they are integrated into a strategy that combines military and non-military means under the same command, using methods designed to blur the lines between war and peace.

The military capabilities of states will continue to be of paramount importance. However, analyzing and quantifying them will not be enough to assess a state's defence capabilities or to identify its vulnerabilities in the face of new hybrid strategies. Forward thinking in this area requires reflection on the lessons learned from recent and on going conflicts and analysis of geographic areas that could become new flashpoints.

Finally, it is worth reminding the case of Ukraine and the conundrum of nuclear non-proliferation. Ukraine gave up the nuclear weapons inherited from the USSR when it signed the Budapest Memorandum of December 5, 1994, by which it agreed to accede to the Treaty on the Non-Proliferation of Nuclear Weapons in exchange for security assurances that obligated the other three signatory powers (the Russian Federation, the United Kingdom, and the United States) to respect Ukraine's sovereignty and territorial integrity and to refrain from the use or threat of use of force and economic coercion, in accordance with the United Nations Charter and the Helsinki Final Act. Russia was among the guarantors of Ukraine's territorial integrity, but it later became the aggressor. Moreover, Russia's targeting of critical infrastructure in Ukraine added other technical challenges and underscored the absence of a normative framework to address nuclear safety, nuclear security and the implementation of IAEA safeguards in the context of a high-intensity armed conflict.

On the other side, Iran has been trying to develop a nuclear program with military capabilities for decades. Initially, it did so clandestinely, and later with capabilities limited by the JCPOA agreement (2015). The US suspension of the agreement in 2017 and the failure of further negotiations created the conditions for increased tensions, which have so far resulted in two high-intensity military conflicts in 2025-2026.

This analysis raises two difficult questions in the current strategic scenario: 1) the role of nuclear deterrence; 2) the role of non-proliferation.

Nuclear deterrence remains a cornerstone of defence strategies in a number of countries: the United States, the Russian Federation, where the nuclear forces represent the main remnant of its former superpower status; China; the United Kingdom; France; India; Pakistan; Israel; and the DPRK. Deterrence policies are also evolving within NATO and the EU, possibly leading to new multilateral arrangements.

Nuclear non-proliferation has been a common goal of most of the international community since the 1960s, enshrined in the NPT treaty. However, the current strategic context and technological developments do not play in its favour.

2. Growing Geopolitical Tensions, the Rise of Nuclear Deterrence and the Decline of Arms Control and Nuclear Non-Proliferation

Throughout history, one of the factors that has influenced the outbreak of wars is the misperception of the capabilities of adversaries and of one's own capabilities, of what can be achieved through the use of force and what requires other solutions, often ignoring other factors that influence the course of events and can lead to unpredictable outcomes. The confrontation between the West and the “revisionist powers” raises highly complex political problems.



Security strategies — aimed at deterrence, defence and risk reduction — cannot address them and will not resolve them. As these political differences become a central element of rivalry and competition, coexistence will become even more difficult. The emergence and decline of global and regional actors, as well as resistance to change in the status quo by actors with a consolidated or threatened position in the international hierarchy, are leading to international tensions that are likely to worsen in the coming years. Many of these tensions are of a geopolitical nature, but not only since they spread to other areas not exclusively geographic, such as the prevailing ideologies, values, societal concepts and digital technologies not thoroughly attached to the geographic space. A confrontation resulting from different visions of power relations in the world leads to a new arms race underway and the risks of military escalation associated with it. The balance of military power is key to understanding the current geopolitical scenarios. The nuclear domain is also crucial to understanding the mechanisms of deterrence and balance between rival states.

The third decade of the 21st century is marked by two high-intensity conflicts taking place simultaneously. Both are related to nuclear issues: Ukraine and Iran. In the first case, a country that relinquished its nuclear weapons in return for security guarantees was attacked by the guarantor, a nuclear power. In the second case, a country aspiring to a military nuclear status has been attacked by two nuclear powers. In both cases, attacks led to conventional military conflicts.

In the context of the 2022 war in Ukraine, the aggressor—the Russian Federation—has used the nuclear threat as part of a conventional offensive war, thereby undermining deterrence theories, which had previously envisaged the use of nuclear weapons only in response to a first nuclear strike or another existential threat. This opens the door to a new use of nuclear threats to achieve other military, political, or economic objectives within the framework of “escalate to de-escalate” doctrines in future crises, in which nuclear states or members of an alliance with nuclear forces are not necessarily involved. One possible interpretation of this doctrine is that the possession of nuclear weapons would allow certain states to wage wars.³

Iran developed a clandestine military nuclear program, uncovered in 2002. Sanctions, IAEA monitoring, and the JCPOA - from which the USA withdrew in 2018- have failed to resolve the issue. Iran was attacked by the US and Israel in 2025 and 2026. One of the declared aims was to destroy Iran’s nuclear and missile capabilities. From the very beginning, the future of the JCPOA agreement after 2025 remained unclear. The 2015 agreement addressed only the nuclear program and imposed temporary limitations, but it did not address missile development and proliferation. Moreover, it did not address support for terrorism and armed proxies, relations with neighbouring states, or regional stability (nor issues of democracy and human rights). Examples include Hamas, Hezbollah, the Houthis, and armed militias in Iraq and Syria.

In this regard, the contrasting examples of Iraq and Syria (collapse and regime change) versus the case of DPRK (regime survival) add a political motivation for those in Iran in favour of developing a nuclear force. Iran’s nuclear ambitions have been a factor of instability in the Middle East for decades, ultimately increasing the escalating conflict with Israel. However, Arab states and Iran also reiterated their commitment to the norm against nuclear weapons at the fifth UN Conference on the Establishment of a Middle East Zone Free of Weapons of Mass Destruction, which took place in November 2024. Military attacks by the USA and Israel against Iran in June 2025 and March 2026 took place against the backdrop of the aftermath of Iraq’s 2003 war and other recent developments:

³ Karaganov, A. Sergej, “*A Difficult But Necessary Decision*”, *Russia in Global Affairs* 13 June 2023, at <https://eng.globalaffairs.ru/articles/a-difficult-but-necessary-decision/>.



- Russia’s invasion of Ukraine (2022)
- Hamas’ massive terrorist attack in Israel (2023)
- Collapse of the Syrian regime (2024)
- Massive retaliation against Hamas and Hezbollah by Israel in Gaza and Lebanon.
- U.S.–Israeli attacks on Iran (2025 and 2026)

2.1. Nuclear powers and nuclear arsenals

The nine countries possessing nuclear weapons have more than 12,000 warheads. The US and Russia together possess almost 90 per cent of all nuclear warheads. Both have extensive programmes to modernize and replace their nuclear warheads and delivery systems. China has undertaken a significant modernisation and expansion of its nuclear arsenal, although at a lower level compared to the US and Russia. The modernisation of China’s nuclear arsenal has both accelerated and expanded in recent years, possibly reaching approximately 600 nuclear warheads⁴ The arsenals of the United Kingdom, France, India, Pakistan, Israel, and North Korea – at lower quantitative levels – add to the overall nuclear military stocks⁵. Of this group, the US, Russia, China, the United Kingdom and France are *de jure* nuclear powers under the Nuclear Non-Proliferation Treaty. There are significant differences between their respective nuclear arsenals, both quantitative and qualitative.

Table 1. World Nuclear Forces, January 2025 Military stockpiles measured in nuclear warheads

	Deployed	Stored	Total	Retired
USA	1 770	1 930	3 700	1 477
Russia	1 718	2 591	4 309	1 150
UK	120	105	225	
France	280	10	290	
China	24	576	600	
India	0	180	180	
Pakistan	0	170	170	
North Korea	0	50	50	
Israel	0	90	90	
Total	3 912	5 702	9 614	2 627

Source: Data from SIPRI.⁶

⁴ Kristensen, Hans M.; Korda, Matt; Johns, Eliana; Mackenzie Knight: “Chinese Nuclear Weapons, 2025”, *Bulletin of the Atomic Scientists*, Vol. 81, n° 2 (2025), DOI: <https://doi.org/10.1080/00963402.2025.2467011>.

⁵ SIPRI YEARBOOK 2025, SIPRI, Stockholm, 2025, pp. 8-9, at https://www.sipri.org/sites/default/files/2025-06/yb25_summary_en.pdf,

⁶ All figures are approximate and are estimates based on public information or assessments by the authors. “World Nuclear Forces”, SIPRI YEARBOOK 2025, SIPRI, Stockholm, 2025, at <https://www.sipri.org>. The Federation of American Scientists (FAS) is another authoritative source - “Status of World Nuclear Forces 2026” - based on satellite imagery, government statements, leaks, and historical records. But the estimates are similar, 12,321 warheads, instead of 12,421, compared to the Cold War peak of more than 70,000 warheads in 1986. Kristensen Hans; Korda Matt; Johns Eliana; Mackenzie Knight-Boyle; Kohn Kate: “Status of World Nuclear Forces”, Federation of American Scientists, 26 March 2025, at <https://fas.org/initiative/status-world-nuclear-forces/>



2.2 Qualitative differences and technological evolution

There are significant technological differences between the USA, Russia, and China. This military modernization, in turn, drives rival powers to acquire weapons and invest in R&D, creating the framework for an arms race. This also applies to the use of outer space. Emerging technologies also offer new possibilities for altering the balance of power that existed until recently, and for influencing the development and outcome of a potential conflict involving nuclear weapons. There are some qualitative aspects to be taken into account:

1. Low-yield nuclear weapons, designed to produce a small explosive force, typically ranging from less than 1 kt up to around 10–20 kt⁷.
2. Neutron Bombs are also known as enhanced radiation weapon, designed to produce a large burst of neutron radiation, and limit blast and thermal destruction relative to its radiation output⁸.
3. Nuclear fission weapons versus thermonuclear (fusion) weapons. The latter – *hydrogen bombs* - use a primary fission explosion to trigger a secondary fusion reaction, becoming highly destructive second-generation atomic weapons⁹.
4. The use of hypersonic missiles against adversarial command-and-control capabilities.
5. The deployment of swarms of UAVs to saturate and degrade anti-missile defence systems.
6. The use of unmanned underwater vehicles to attack nuclear-capable submarines or vessels.

The United States has so far focused on precision and a mix of variable-yield warheads. Russia gives priority to high-yield strategic weapons and a large stock of tactical nuclear weapons. However, China has a smaller arsenal with simpler, high-yield warheads. Nevertheless, China is now shifting toward more modern, flexible systems, including MIRV deployment. Official sources that highlight areas where China's advantage is growing are significant because they reflect the prevailing perception in US political, military, and academic circles, which largely anticipates a foreseeable future trajectory.

There are some differences in the interpretation of data and the assessment of capabilities depending on the various sources consulted. Some focus on the process of technological convergence, while others focus on the current balance of power. However, it can be said that all analyses agree in describing an irreversible process of military modernisation that—if sustained—would eventually lead to strategic parity between China and the US¹⁰. According to public estimates, China already has 600 nuclear warheads, although not all of

⁷ They cause less widespread destruction than high-yield weapons and aim to limit radioactive fallout. They are designed for battlefield scenarios rather than large-scale strategic destruction. Due to a lower yield, they may have a lower threshold for use and a risk of escalation into full-scale nuclear war. “Nonstrategic Nuclear Weapons”, Washington D.C., Congressional Research Service (CRS), 2021, at https://www.congress.gov/crs_external_products/RL/PDF/RL32572/RL32572.43.pdf

⁸ Neutron bombs are lethal to living organisms while causing comparatively less structural damage to infrastructure. They are also seen as lowering the threshold for nuclear use, raising ethical and humanitarian concerns because of their focus on lethal radiation over destruction. While developed and tested (notably by the United States in the 1970s), neutron bombs are not widely deployed today, and their exact current status is unclear. Bell Robert G.: “Enhanced radiation weapons: the neutron bomb”, Washington D.C., CRS, 1979.

⁹ The Union of Concerned Scientists: “How Do Nuclear Weapons Work?”, 29 September 2016, updated 5 February 2026, <https://www.ucs.org/resources/how-nuclear-weapons-work>.

¹⁰ The IISS, however, also describes the shortcomings and technological lag of much of the Chinese armed forces' equipment.



them are deployed, and they could double over the next years, distributed in a “nuclear triad”. However, there are low levels of transparency that hinder assessments of the status of states’ nuclear arsenals, especially in the case of China.

Russia’s nuclear strategic forces will rely primarily on two models of intercontinental ballistic missiles: the single-warhead SS-27 Mod 1 (Topol-M) and the SS-27 Mod 2 (Yars), which can carry up to four MIRV warheads. Russia has 340 ICBMs, of which 76 are the soviet made S-18 y S-19, to be gradually retired. The Strategic Naval Forces had 11 strategic submarines of three different types (Delta, Typhoon, and Borei classes)¹¹. In 2022, Russia had 76 strategic bombers (60 Tu-95 — built in the 50’s and 60’s — and 16 more modern Tu-160). But some of them have been destroyed or severely damaged by Ukrainian attacks during the war, so the actual number of operational bombers is unknown¹². In addition, Russia possesses short- and medium-range sub-strategic nuclear weapons that were not subject to the limits of arms control treaties with the US.

In 2025, the US maintained a military stockpile of approximately 3700 nuclear warheads, with 1670 strategic and 100 non-strategic warheads deployed on ballistic missiles and at bomber bases¹³. As of January 2024, the heavy bomber fleet included 66 nuclear-capable aircraft (20 B-2As and 46 B-52Hs). The US is building a new heavy bomber (the B-21 Raider). The US deployed 400 LGM-30G Minuteman III ICBMs in 400 silos across three missile wings. The US Navy operates 14 Ohio-class SSBNs (12 are considered to be operational, and the remaining 2 are undergoing maintenance at any given time). Eight of the Ohio-class SSBNs are based at Naval Base Kitsap (Washington state, on the Pacific Ocean), and six at Kings Bay Base (in Georgia, on the Atlantic). Each SSBN is built to carry up to 24 Trident II SLBMs¹⁴.

¹¹ According to public sources, when the modernisation of the strategic submarine force is completed in 2027, Russia will have a total of 10 Borei-class submarines, five in the Pacific Fleet and five in the Northern Fleet. Most submarines in the Russian fleet are of the older Delta class (seven units), the last of which was built in 1992. Construction of the Borei class (three units) began in 1996. The Delta- and Borei-class submarines can each carry 16 SLBMs, with multiple warheads per missile. The modernisation plans include new weapons systems, notably the Sarmat ICBM, the Burevestnik cruise missile, the Avangard hypersonic glide vehicle, the Poseidon autonomous underwater vehicle, the Kinzhal missile, and the Tsirkon hypersonic anti-ship missile. Woolf, Amy F.: “Russia’s Nuclear Weapons: Doctrine, Forces, and Modernisation”, Washington D.C, CRS, 2020, pp. 14-18, at <https://sgp.fas.org/crs/nuke/R45861.pdf>; Kristensen, Hans y Korda, Matt, “Russian nuclear forces, 2019”, *Bulletin of the Atomic Scientists*, Vol. 75, n° 2 (2019), p. 74, at <https://www.tandfonline.com/doi/pdf/10.1080/00963402.2019.1580891>; Defence Intelligence Agency (DIA): *Russia Military Power: Building a Military to Support Great Power Aspirations*, Washington D.C. DIA, 2016, p. 47. Woolf, Amy F., “Russia’s Nuclear Weapons: Doctrine, Forces, and Modernisation”, *op. cit.*, pp. 15 y 20-21.

¹² The Military Balance 2020, *op. cit.*, pp. 194-208; Kristensen, Hans y Korda, Matt: “Russian nuclear forces, 2019”, *op. cit.* Possibly 41 bombers were destroyed or damaged by Ukrainian attacks in 2025, but this number has not been verified. “Ukraine Drones Strike Bombers During Major Attack in Russia”, *BBC*, 2 June 2025, at <https://www.bbc.com/news/articles/c11d7ppre9vo>; “Ukraine’s Drones Swarms Are Destroying Russian Nuclear Bombers: What Happens Now?”, CSIS, 4 June 2025, at <https://www.csis.org/analysis/ukraines-drone-swarms-are-destroying-russian-nuclear-bombers-what-happens-now>. <https://www.bbc.com/news/articles/c11d7ppre9vo>

¹³ SIPRI Yearbook 2025, chapter 6. World nuclear forces, *op.cit.*

¹⁴ SIPRI Yearbook 2024, chapter 7, World Nuclear Forces, at <https://www.sipri.org/sites/default/files/YB24%2007%20WNF.pdf>, pages 273-280.



Table 2. Nuclear weapons taxonomy summary.

Weapon Category	Physical Process	Typical Yield	Primary Target	Powers that possess it
Fission	Splitting of Uranium/Plutonium isotopes	10 - 50 Kilotons	Destruction of large targets.	All nuclear powers
Fission Booster	Fission + Hydrogen Gas	50 - 500 Kilotons	Lightweight warheads for long-range missiles	Probably all
Fusion (thermonuclear)	Fusión of Hydrogen Isotopes	1 - 50 Megatons	Strategic deterrence	USA, Russia, China, France, UK
Neutrons (ERW)	Fusion designed for radiation	Low (1 - 10 kt)	Troops in bunkers or armored vehicles without destroying buildings.	USA, Russia and China have ERW capacity (actual operational possession is unknown).
Low Yield	Controlled fission	< 5 Kilotons	Limited tactical use on the battlefield	USA, Russia, Pakistan.

Source: Based on data from SIPRI, the Federation of American Scientists, Bulletin of the Atomic Scientists, and the Union of Concerned Scientists¹⁵.

2.3 Evolution of nuclear doctrines: the growing risk of first use

Nuclear deterrence doctrines aim to deter enemies from aggression or escalation. Their core idea is that the cost of attack would outweigh any potential gain, thereby discouraging hostile actions. However, although nuclear deterrence constrains escalation, it also freezes certain geopolitical conflicts.

Russia’s defence policy is ultimately based on nuclear deterrence. Russia’s official stance on the first use of nuclear weapons has changed since the Cold War. Since losing its advantage in conventional forces, its doctrine has evolved toward the possible first use of nuclear weapons in critical situations¹⁶. Russia’s 2020 nuclear deterrence doctrine specified that

¹⁵ SIPRI Yearbook 2025, chapter 6, “World nuclear forces”, 26 March 2025, at <https://www.sipri.org/yearbook/2025/06>; and SIPRI Yearbook 2024, chapter 7, “World Nuclear Forces”, at <https://www.sipri.org/sites/default/files/YB24%2007%20WNF.pdf>; FAS: “Status of World Nuclear Forces”, Nuclear Notebook, at <https://fas.org/initiative/status-world-nuclear-forces/>; “United States nuclear weapons”, 2025, *Bulletin of the Atomic Scientists*, January 13, 2025, at <https://thebulletin.org/premium/2025-01/united-states-nuclear-weapons-2025/>; The Union of Concerned Scientists: “How Do Nuclear Weapons Work?”, published 29 September 2016, updated 5 February 2026, at <https://www.ucs.org/resources/how-nuclear-weapons-work>. There is no specific public data on the status of Israel’s nuclear weapons, but the information revealed by Mordechai Vanunu in 1986 led to speculation on a fission booster strategy (Hounam, Peter & The Insight Team, "Revealed: the Secrets of Israel's Nuclear Arsenal", *The Sunday Times* (London), 5 October 1986). Pakistan and DPRK are possibly developing thermonuclear capabilities.

¹⁶ “Basic Principles of State Policy of the Russian Federation on Nuclear Deterrence”, Decree of the President of the Russian Federation 355/2, 2 June 2020, at <https://hansdevreij.com/2022/03/06/basic-principles-of-state-policy-of-the-russian-federation-on-nuclear-deterrence/>. The Russian Federation modified the Soviet “no first use” doctrine in 1993. In subsequent revisions of its nuclear doctrine, the circumstances that could be considered an existential threat have been progressively specified.



it considers the following to be existential threats¹⁷: the launch of ballistic missiles (conventional or nuclear) against Russian territory; the use of weapons of mass destruction; and attacks on critical Russian state or military facilities with the aim of preventing a nuclear response. The most recent major revision of the doctrine was issued in November 2024, where Russia broadened the conditions for nuclear use, reflecting its threat perceptions¹⁸. These include a conventional attack that poses a “critical threat” to the sovereignty or territorial integrity of Russia or Belarus, a massive air or space attack, including drones and cruise missiles, an attack by a non-nuclear state supported by a nuclear state and an attack by one member of an Alliance, which is considered as aggression by the entire bloc.

The official and public doctrine contrasts with the ambiguous and contradictory statements of recent years, in which the red lines of escalation are not clear. The threat of using nuclear weapons has been invoked on several occasions since 2007, giving rise to an unofficial doctrine of “escalate to de-escalate”. In 2024, Russia announced the deployment of nuclear weapons on Belarusian territory, although there is no conclusive evidence.

China's nuclear doctrine is unclear. It is based on the principle of ‘no first use’ of nuclear weapons. However, some analysts claim that its nuclear deterrence policy is ambiguous, due to the development and modernization of its nuclear arsenal¹⁹. The Chinese government has declared its aim to maintain its capabilities “at the minimum level required to safeguard national security”, with the goal of “detering other countries from using or threatening to use nuclear weapons against China”²⁰. But the sophistication and size of China’s nuclear arsenal is increasing, and there is no explicit affirmation of a no-first-use policy in the 2023 proposal for ‘Reform and Development of Global Governance’

To this has to be added that China’s military is highly critical of U.S. low-yield nuclear weapons because it views them as a lowering of the nuclear threshold, making nuclear war more likely, and designed to challenge China’s ability to defend its regional interests. Beijing argues that these weapons, such as the U.S. W76-2 submarine-launched warhead, are part of a broader U.S. strategy to gain “absolute security” by ensuring America can fight and win a localized nuclear conflict, which Beijing sees as destabilizing.²¹

The US *Nuclear Posture Review* 2018 is again in force with the Trump Administration. In 2018, it moved away from the post-Cold War trend – which reduced the importance of nuclear weapons - toward a more flexible nuclear deterrent²². The Nuclear Posture Review ordered the development of low-yield weapons to provide “graduated” options of flexible response. This approach broadened the scenarios where the US might consider a nuclear strike without resorting to a massive use of strategic weapons, including non-nuclear strategic attacks

¹⁷ *Ibid*, Article 19.9

¹⁸ “Fundamentals of State Policy of the Russian Federation on Nuclear Deterrence, 3 December 2024, APPROVED by the Executive Order of the President of the Russian Federation No.991 of November 19, 2024”, Moscow, Ministry of Foreign Affairs of the Russian Federation, The Ministry of Foreign Affairs of the Russian Federation, at https://www.mid.ru/en/foreign_policy/international_safety/1434131/

¹⁹ Military and Security Developments Involving the People’s Republic of China 2020, *op. cit.*, p. 55; “Global Nuclear Arsenals Grow as States Continue to Modernize”, SIPRI Yearbook 2025, at <https://www.sipri.org/media/press-release/2025/global-nuclear-arsenals-grow-states-continue-modernize-new-sipri-yearbook-out-now>.

²⁰ SIPRI 2025, *op.cit.*

²¹ Beck, Daniel G.: *China's Low-Yield Battlefield Nuclear Weapons: A Threat Assessment*, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 2021, at <https://apps.dtic.mil/sti/pdfs/AD1160638.pdf>

²² “Nuclear Posture Review”, Office of the Secretary of Defense, Washington D.C. 2018, at <https://media.defense.gov/2018/Feb/02/2001872877/-1/-1/2018-Nuclear-Posture-Review-Report.pdf>. The Trump Administration nuclear policy will be based on this document, which replaces the NPR 2022



(massive cyberattacks on U.S. critical infrastructure or attacks on nuclear command and control systems). The document also highlighted the need for modernizing the military nuclear infrastructure (production, life-extension, a new nuclear-armed Sea-Launched Cruise Missile, a new warhead)

Extended nuclear deterrence has been a key component of NATO since the 1950's. A credible deterrence and defence, based on an appropriate mix of nuclear, conventional and missile defence capabilities, is central to NATO's strategy for preventing war. NATO's nuclear doctrine is based on NATO's 2022 Strategic Concept and the 2012 Review of Deterrence and Defence Posture²³.

Against the backdrop of nuclear deterrence doctrines, an attitude of rejection toward nuclear weapons is spreading throughout much of the international system. The entry into force of the *Treaty on the Prohibition of Nuclear Weapons* in 2021²⁴ reflects the growing divide between the aforementioned nuclear-armed states and a broad group of countries that, they claim, wish to advance the nuclear disarmament called for in Article VI of the Nuclear Non-Proliferation Treaty. However, many non-nuclear states still accept the logic of nuclear deterrence and are aligned with de jure nuclear powers, under the NPT, particularly NATO members.

The compatibility between the two treaties is a controversial issue, since the former prohibits the nuclear weapons that the five powers mentioned above possess de jure under the latter. Furthermore, the Treaty on the Prohibition of Nuclear Weapons, which has not been negotiated or signed by any nuclear-weapon-possessing state, does not even have a mechanism for verifying compliance by the parties, and is therefore ineffective in practice even after its entry into force.

2.4 Towards a potential enlargement of the nuclear club?

There is a general understanding that nuclear weapons can guarantee security only to a certain extent, and certainly not against asymmetric threats, especially those rooted domestically. Still, nuclear weapons are seen as the ultimate tool for deterrence against major military threats. National debates about nuclear status and defence policy in Europe, the Middle East and East Asia reflect a potential for the enlargement of this group, with more states possibly joining the nuclear club in the future.

Russia's "escalate to de-escalate" strategy, which includes a tactical nuclear phase and has been typically part of the *Zapad* military exercises, has prompted certain circles among several allies on the Eastern flank to reflect on the reliability and scope of nuclear deterrence. On the one hand, there are doubts about Moscow's political will to assume the risk of nuclear escalation in a process that could spiral out of control and extend beyond the regional sphere. All of this leads certain military analysts and politicians to assess possible national deterrence mechanisms²⁵. Some allies are seeking new collective schemes of nuclear deterrence in Europe, complementary to those offered by NATO.

²³ NATO says: "As long as nuclear weapons exist, NATO will remain a nuclear alliance", see: "NATO's nuclear deterrence policy and forces", 6 July 2022, at https://www.nato.int/cps/en/natohq/topics_50068.htm; NATO 2022 Strategic Concept, Brussels, NATO, 2022, at www.nato.int/strategic-concept

²⁴United Nations Office for Disarmament Affairs (UNODA). Treaty on the Prohibition of Nuclear Weapons (TPNW). <https://www.un.org/disarmament/wmd/nuclear/tpnw/>

²⁵ Following the invasion of Ukraine by Russia in 2022, Poland has requested the deployment of nuclear weapons in its territory, and president Nawrocki has declared that Poland should have nuclear weapons. "Nuklearne deklaracje prezydenta Nawrockiego. Czy Polska potrzebuje własnej bomby atomowej?", *Gazeta Wyborcza* 19 February 2026, at <https://wyborcza.pl/7,75968,32609890,nuklearne-deklaracje-prezydenta-nawrockiego-czy-polska-potrzebuje.html>. "Polska w Nuclear Sharing. Temat jest otwarty. Prezydent o broni atomowej". Dodano:



2.5 The deadlock in the debate on negative security guarantees and the impasse of negotiations of a WMDFZ in the Middle East

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) rests on a fundamental bargain: non-nuclear-weapon states undertake not to acquire nuclear weapons, in exchange for security assurances from the nuclear-weapon states that they will not be the targets of nuclear attack. Negative security assurances constitute a central element of this framework—commitments by NPT nuclear-weapon states not to use or threaten to use nuclear weapons against non-nuclear-weapon states. These assurances serve to reward nations that have renounced nuclear arms and to reinforce the broader non-proliferation regime.

Non-nuclear-weapon states have consistently advocated for a legally binding international instrument—for example, a protocol to the NPT—whereas nuclear-weapon states have generally opposed such proposals, preferring unilateral and conditional declarations. In 1995, the United Nations Security Council Resolution 984 formally acknowledged the declarations of the five recognized nuclear-weapon states (China, France, Russia, the United Kingdom, and the United States), wherein they pledged not to use nuclear weapons against states that are parties to the NPT. These NSAs remain unilateral and politically binding, rather than legal obligations, a situation that has long been contested by the Non-Aligned Movement, which continues to call for a universal, legally binding treaty²⁶. At the 1995 NPT Review and Extension Conference, the nuclear-weapon states reiterated their conditional assurances under Resolution 984 (S/RES/984), adopted at the Security Council's 3514th meeting on 11 April 1995. Subsequent NPT review conferences have highlighted ongoing divisions over the negotiation of legally binding security guarantees. At the 2022 NPT Review Conference, China renewed its call for states to support negotiations in the Conference on Disarmament toward a binding international instrument on negative security assurances.

That same year, France, the United Kingdom, and the United States issued a joint statement on security assurances, reaffirming their existing commitments “regarding the use or threat of use of nuclear weapons against non-nuclear-weapon states party to the NPT.” They further confirmed that, by ratifying protocols to nuclear-weapon-free zone (NWFZ) treaties, they had undertaken legally binding obligations not to use or threaten the use of nuclear weapons against parties to those agreements.

The United States' 2022 Nuclear Posture Review reaffirmed that the U.S. “will not use or threaten to use nuclear weapons against non-nuclear-weapon states that are parties to the NPT and compliant with their non-proliferation obligations.” Nonetheless, Washington and its NATO allies maintain that nuclear-sharing arrangements within the Alliance remain compatible with the NPT—an interpretation strongly disputed by the Non-Aligned Movement. Meanwhile, Russia's violation of the 1994 Budapest Memorandum, which contained security assurances to Ukraine, along with its nuclear rhetoric and threats during its war of aggression against Ukraine,

05/10/2022 - Nr 40 z 5 października 2022. Gazeta Polska, at <https://www.gazetapolska.pl/28753-polska-w-nuclear-sharing-temat-jest-otwarty-prezydent-o-broni-atomowej>. See also the analysis in Świdziński, Albert, “Po drugiej stronie lustra: zarządzanie dynamiką konfliktu z Rosją na najwyższych szczeblach drabiny eskalacyjnej, w tym dynamika eskalacji nuklearnej”, *Armia nowego wzoru*, Warszawa, Zona Zero, 2022, pp. 305-366. Gazeta Polska. “Polska w Nuclear Sharing. Temat jest otwarty. Budzisz, Marek. "Realny potencjał NATO w perspektywie wojny z Rosją a sytuacja Polski", *Armia nowego wzoru*, Warsaw, Zone Zero, 2022.

²⁶ In 1995, China, France, Russia, the United Kingdom and the United States gave assurances that they would not use or threaten to use nuclear weapons against non-nuclear-weapon states, but only under certain conditions. UN Security Council Resolution 984 (1995), adopted by the Security Council at its 3514th meeting, on 11 April 1995, (S/RES/984), at [https://docs.un.org/en/s/res/984\(1995\)](https://docs.un.org/en/s/res/984(1995)).



has gravely undermined the credibility of the existing NSA regime²⁷. Ambiguous statements from U.S. authorities concerning potential conflicts with Iran have further increased uncertainty surrounding these assurances.

Another avenue for achieving legally binding NSAs is through the protocols of nuclear-weapon-free zone treaties, under which nuclear-weapon states commit not to use nuclear arms within specific regions. These zones, established pursuant to Article VII of the NPT, legally prohibit the development, manufacture, stockpiling, acquisition, possession, or use of nuclear weapons among their member states²⁸. The five principal regional treaties currently in force are²⁹:

- The Treaty of Tlatelolco (1967) for Latin America and the Caribbean;
- The Treaty of Rarotonga (1985) for the South Pacific;
- The Treaty of Bangkok (1995) for Southeast Asia;
- The Treaty of Pelindaba (1996) for Africa; and
- The Treaty of Semipalatinsk (2006) for Central Asia.

The first legally binding NWFZ was established by Additional Protocol II of the Treaty of Tlatelolco (1967). Collectively, such zones now cover over half of the Earth's surface. However, not all nuclear-weapon states have ratified the related protocols. The United States, for instance, has only ratified the protocol of the Treaty of Tlatelolco, while Russia has ratified the protocols to both the Tlatelolco and Rarotonga treaties. A 1999 report of the UN Disarmament Commission emphasized that nuclear-weapon states should, through signature and ratification of the relevant protocols, undertake legally binding commitments not to use or threaten to use nuclear weapons against states belonging to NWFZs. Although these commitments are regional rather than universal, they established a powerful normative precedent linking NSAs to the architecture of regional disarmament.

Since 1995, efforts to establish a Middle East zone free of weapons of mass destruction (WMDFZ)—covering nuclear, chemical, and biological weapons—have proved among the most politically fraught issues within the NPT process. The 1995 NPT Review and Extension Conference adopted a resolution on the Middle East, which served as the key political condition for the Arab states' acceptance of the NPT's indefinite extension. Persistent regional tensions, Iran's nuclear activities, and instability following the Gaza conflict have, however, rendered prospects for a binding multilateral treaty remote in the near term. Recurring disagreements over implementing mechanisms have repeatedly stalled consensus within the NPT framework, contributing to the failure of the 2015 and 2022 Review Conferences. The Arab states and Iran maintain that priority must be given to Israel's accession to the NPT as a non-nuclear-weapon state and to placing all Israeli nuclear facilities under IAEA safeguards. Israel, a non-signatory to the NPT, conditions its participation in negotiations on regional recognition, normalization

²⁷ "Negative security assurances (NSAs): Proposed internationally legally-binding negative security assurances (NSAs)", Nuclear Threat Initiative. (n.d.), at <https://www.nti.org/education-center/treaties-and-regimes/proposed-internationally-legally-binding-negative-security-assurances/>

²⁸ United Nations Platform for Nuclear-Weapon-Free Zones: Overview — Nuclear-Weapon-Free Zones, at <https://www.un.org/nwzf/content/overview-nuclear-weapon-free-zones>.

²⁹ The right to establish these nuclear-weapon-free zones is based on Article VII of the NPT. United Nations. "United Nations Platform for Nuclear-Weapon-Free Zones: Overview — Nuclear-Weapon-Free Zones", 10 May 2026, from <https://www.un.org/nwzf/content/overview-nuclear-weapon-free-zones>



of relations, and the emergence of comprehensive peace, arguing that security must precede disarmament³⁰.

In response to the enduring stalemate, the United Nations General Assembly established in 2018 a series of annual conferences on the Zone free of nuclear weapons and other weapons of mass destruction in the Middle East (ZEDM), held in New York and attended by Iran and Arab states—but not by Israel or the United States³¹.

As of 2026, the five nuclear-weapon states recognized under the NPT framework have reaffirmed their respective negative security assurances. Yet these commitments remain limited in scope, conditional in nature, and not fully legally binding, perpetuating tensions and mistrust that continue to impede progress at successive NPT review conferences.

2.6 The era of nuclear weapons reductions seems to have ended

The number of nuclear warheads has declined worldwide in the last three decades, due to the US and Russia disarmament commitments (in 1987, there were more than 70.000 nuclear warheads, in 2020, there were more than 13.000). However, the number of warheads being dismantled is decreasing. Most probably, the rate at which retired nuclear warheads are dismantled will be outpaced by the rate at which new warheads are produced. Under the START treaty, Russia and the US were restricted to 1,550 deployed strategic warheads and 700 deployed delivery systems. In 2025, both presidents expressed interest in maintaining New START's ceilings, but no new agreement was reached. As a result, the bilateral strategic nuclear balance is unregulated for the first time since 1972. In July 2025, the US President expressed interest in maintaining New START's nuclear limits and in follow-on trilateral talks with China. In September 2025, the Russian president proposed to preserve New START's quantitative restrictions for one year after its expiry, provided the US refrained from steps that would undermine the 'existing balance of deterrence'³². However, the need to deter both Russia and China will influence US decisions in this area, as China's nuclear arsenal grows. Following the termination of the Intermediate-Range Nuclear Forces Treaty (2019) and the expiration of New START on 5 February 2026, all classes of nuclear weapons are free from bilateral limits.

In a letter addressed by Russia to the UN Security Council, dated on 4th March, Russia has criticised recent decisions by France and the United Kingdom to expand their nuclear arsenals, portraying this as a "NATO nuclear rearmament" lacking transparency measures. In the letter, Russia also refers to other arrangements for sharing responsibilities and burdens to strengthen a nuclear umbrella in Europe, by which Russia feels threatened. With this letter, Russia seeks to highlight and blame NATO, France and the UK for the progressive deterioration of arms control and its negative impact on the NPT Review Conference. The letter also lays the groundwork for future nuclear arms control talks to include, in addition to the US, France and the UK as well. This is a long-standing Russian ambition to move away from the US-Russia parity that underpinned the SALT and START treaties of the 20th century towards a new NATO-

³⁰ "Conference on the establishment of a Middle East zone free of nuclear weapons and other weapons of mass destruction" (A/CONF.254/2023/4), United Nations General Assembly, 2023.

³¹ *Ibid.*

³² A reference to the US proposed *Golden Dome* missile-defence system with a January 2025 executive order to establish a layered missile-defence shield. Despite the expiration of New START, an immediate nuclear arms race is unlikely in the short term. Russia's nuclear-modernisation programme has suffered setbacks in recent years. The *Barguzin* rail-mobile ICBM project has been reportedly excluded from the 2018–27 armament programme due to financing constraints, and the *Sarmat* (RS-SS-X-29) programme has also been delayed. Bollfrass Alexander K. & Dewey Karl: *Cost constraints on the US–Russia strategic nuclear balance after New START*. Online analysis 5 February 2026, IISS, at <https://www.iiss.org/online-analysis/online-analysis/2026/02/cost-constraints-on-the-us-russia-strategic-nuclear-balance-after-new-start/>



Russia parity³³. Overlaying this is the US ambition to take China's nuclear arsenal into account and include that country in the calculation of parities and quantitative limits.

2.7 Growing challenges for international security

a) Strategic competition and tensions are increasing worldwide, while regional epicentres of conflict have a global impact.

1. Nuclear states attacked non-nuclear states with conventional weapons.
2. The only rogue state to cross the nuclear threshold — the DPRK — consolidates the *status quo* and ensures regime survival.
3. Non-state actors, including state-sponsored groups, could engage in nuclear or radiological asymmetric attacks. Terrorist or asymmetric attacks against a nuclear or non-nuclear state can occur, including attacks against nuclear infrastructure or attacks with nuclear/radiological materials against critical infrastructures. Nuclear deterrence does not work in these scenarios.
4. A new debate on nuclear deterrence emerges:
 - * Nuclear powers are relatively secure.
 - * Non-nuclear powers depend on them or must look after their own security.
 - * Neutral states joined NATO - a nuclear military alliance- and adjusted their nuclear policies.
 - * Some non-nuclear states consider either acquiring nuclear capabilities or entering multilateral agreements on burden/capacity sharing. They may undertake military nuclear programs or seek arrangements with nuclear powers.

b) The multilateral architecture of the 20th century is at stake, in particular the security and non-proliferation architecture built in the second half of the 20th century:

1. U.S.–Russia nuclear arms control agreements have been terminated or have expired, with no replacements, while nuclear arsenals are being modernized and enlarged.
2. The CTBT has not entered into force. Moreover, the US has accused Russia and China of conducting secret nuclear tests³⁴.
3. Russia's membership in the NSG, MTCR, and the Wassenaar Arrangement blocks progress.

³³ “Comment by the Ministry of Foreign Affairs of the Russian Federation on the decision of France to increase its nuclear arsenal”. Unofficial translation, 4th March 2026. Text at https://www.mid.ru/en/maps/fr/2084136/?lang=en&COUNTRY_CODE=fr. It is estimated that, prior to the war in Ukraine, Russia's nuclear arsenal accounted for almost 20% of its military budget. In the current situation, with the war in Ukraine still ongoing and an exponential rise in conventional military spending, it is difficult to envision Russia successfully competing in a nuclear arms race against the US, France and the UK simultaneously. Russia's proposal, presented to the UN ahead of the 2026 NPT Review Conference, aims to convey a (false) image of responsibility and commitment, when in reality it reflects ‘strategic’ and economic-industrial strain, since whatever they invest in conventional armed forces cannot be invested in nuclear forces, and vice versa.

³⁴ On 6th February 2026, the US accused China of conducting nuclear explosive tests with a decoupling method to decrease the effectiveness of seismic monitoring. The last one such "yield-producing test" was conducted, according to US sources, on 22 June 2020. See *Reuters*, at: <https://www.reuters.com/world/china/trump-has-been-clear-wanting-new-nuclear-arms-control-treaty-says-us-official-2026-02-06/>; On 29th October 2025, President Trump had said he had directed the Pentagon to begin testing nuclear weapons “on an equal basis” with Russia and China. His comments followed Russia's announcements that it had tested two nuclear-powered, nuclear-capable weapons. China and Russia have denied the allegations, see “A Look at Past Nuclear Weapons Test”, *Washington Post*, 30 October 2025, at <https://www.washingtonpost.com/national-security/2025/10/30/trump-us-nuclear-tests-china-russia/>



4. At the same time, incentives for nuclear non-proliferation are insufficient.

c) *The effectiveness of the NPT is uncertain, and its provisions are interpreted differently by States Parties to the Treaty.*

This could also become a driving factor in nuclear proliferation, to the extent that non-nuclear states might see incentives in developing programs to acquire these weapons as a security guarantee against a state with military supremacy. This perception could have consequences in other regions, such as the Middle East³⁵ and East Asia³⁶.

All of this entails considerable risks. In the defence/deterrence decision-making process, there may be several intermediate stages in the nuclear escalation before reaching a scenario of total war, such as conducting an unexpected nuclear test, detonating a nuclear bomb at high altitude—outside the atmosphere—to disable the electromagnetic field and telecommunications networks, or employing tactical weapons on the battlefield. There is also the possibility of an accident related to raising the alert level, or human and technical miscalculations, given the need to reduce response times to an external attack.

The factors described above are reflected in the 2026 NPT Review Conference. The debate over the potential consequences of US and Israeli attacks on Iran in 2025 and 2026 has emphasised the significance of two interconnected issues. Firstly, there is the issue of conventional military aggression by nuclear-armed states against non-nuclear-armed states, which highlights the need to define the scope of negative security assurances. Currently, the debate in New York centres on whether negative security assurances should be universal or specific, with the latter option proposed by nuclear-weapon states. This would involve offering negative security assurances on a case-by-case basis, taking into account the non-proliferation track record of each non-nuclear state. This proposal has been met with widespread rejection by non-aligned countries.

Furthermore, compliance with Article 3 of the treaty is being addressed, which is linked to the previous point. The DPRK's evasion of IAEA safeguards until crossing the nuclear

³⁵ Turkey's foreign minister, Hakan Fidan, has publicly criticised the NPT as "unjust". "Turkey's FM criticizes nuclear weapons treaty as unjust, questions Turkish endorsement", *Nordic Monitor*, 1st July 2025, at <https://nordicmonitor.com/2025/07/turkeys-fm-criticizes-nuclear-weapons-treaty-as-unjust-questions-turkish-endorsement/>. In September 2023, the Crown Prince of Saudi Arabia said that if Iran acquires a nuclear weapon, his country should get one", according to Arms Control Today. Saudi Arabia signed a civil nuclear cooperation agreement with US soon afterwards. Arms Control Today, "U.S., Saudi Arabia Announce Nuclear Cooperation", December 2025, at <https://www.armscontrol.org/act/2025-12/news/us-saudi-arabia-announce-nuclear-cooperation>.

³⁶ In January 2023, the President of the Republic of Korea told officials in the South Korean Defence and Foreign Affairs ministries that if the threat posed by North Korea "gets worse," it is possible that the Republic of Korea "will introduce tactical nuclear weapons or build them on our own." However, the South Korean Minister of Unification said a few days later that discussing the development of nuclear weapons is "inappropriate" and undermines the long-held goal of denuclearisation on the Korean peninsula. "South Korea Walks Back Nuclear Weapons Comments", Arms Control Association, March 2023, at <https://www.armscontrol.org/act/2023-03/news/south-korea-walks-back-nuclear-weapons-comments>. In 2024, the Korean Minister of Defence raised again the issue of having a nuclear deterrent if the U.S. nuclear umbrella proves insufficient. "Under Yoon, calls for South Korean nukes 'normalized'", *Voice of America*, 9 September 2024, at <https://www.voanews.com/a/under-yoon-calls-for-south-korean-nukes-normalized/7777068.html>. In Japan, PM Takaichi told opposition lawmakers in parliament that, "as her government gears up to revise the country's key national security documents by the end of 2026, "it is not yet at the stage" where she could "definitively state" that the wording of the principles will remain the same. PM Takaichi stated that "...At this stage, the government maintains the Three Non-Nuclear Principles as a policy guideline". However, the next day, Chief Cabinet Secretary Minoru Kihara hinted that it would continue to allow for the prospect of U.S. nuclear weapons being brought into Japan in the event of a security crisis. "Takaichi sidesteps commitment to decades-old nonnuclear principles", *The Japan Times*, 12 November 2025, at <https://www.japantimes.co.jp/news/2025/11/12/japan/politics/takaichi-nonnuclear->



threshold and withdrawing from the NPT in 2006, as well as Iran's decades-long strategy of a combination of negotiations with the suspension and evasion of IAEA safeguards regarding a partially clandestine nuclear programme, highlight the need for a more effective and intrusive verification system. However, the Additional Protocol to the safeguards agreements is not a condition laid down in the NPT. The non-aligned countries are reluctant to accept new demands until the P5 demonstrate a commitment to nuclear disarmament and provide unequivocal, universal negative security assurances. Iran's appointment as Vice-President of the Conference is a clear sign of collusion in this regard.

This issue is of great importance for the future, given the current context of changes in energy policies in many countries, driven by disruptions in the hydrocarbon market resulting from sanctions imposed on Russia and Iran, the ongoing conflicts in the Middle East, and the aim to reduce dependence on fossil fuels for environmental reasons or to achieve greater energy autonomy. All of this suggests that nuclear energy and fuel production technology will be adopted more widely worldwide. Delegates in the NPT Review Conference are also debating the prohibition of attacks on nuclear facilities, alongside calls for nuclear-weapon states to increase transparency and reduce the risk of accidental escalation.

Regarding the current two instances of conflict between nuclear and non-nuclear states — the attacks on Ukraine and Iran — it is worth noting that the nuclear powers involved in both conflicts failed to achieve their objectives through conventional military means. Therefore, nuclear and non-nuclear powers find themselves in a situation where the imbalance of forces is insufficient to achieve a decisive victory, at least with the levels of mobilisation and deployment envisaged so far. These issues, combined with the ongoing arms race, do not bode well for the successful outcome of the 2026 NPT Review Conference in New York and drafting a final consensus document.

In a declining multilateral framework for disarmament, non-proliferation and confidence-building, reckless decisions made by an authority perceived by others as unpredictable or irrational would make it harder to distinguish between a calculated risk and sheer recklessness. Furthermore, the use of disproportionate threats of this nature erodes certainty regarding a nuclear state's future intentions in conflict scenarios.

3. The Only Certainty Is Uncertainty: The Way Ahead

Diplomacy has often followed major armed conflicts (the Peace of Westphalia, the Congress of Vienna, the Treaty of Versailles and subsequent arrangements, the Yalta–Potsdam–San Francisco, and the CFE/VD99/Open Skies). In the 1970s, the states of the Euro-Atlantic region embarked on a process of dialogue that culminated in the Helsinki Conference. This process made détente and the conclusion of a set of agreements between rival political-military blocs possible, aimed at improving security in Europe, based on the principles of coexistence, territorial integrity, and the inviolability of borders. Given the political and ideological differences underpinning the current strategic rivalry between Western states, Russia, and China, it will be necessary in the future—when circumstances permit—to lay the groundwork for rebuilding our security architecture. Any agreement in this regard should respect the territorial integrity and sovereignty of all states to freely determine their future, explicitly excluding the creation of “spheres of influence.”

- The development of mechanisms for preventing and responding to asymmetric conflicts.
- More effective international control over explosives, small arms and light weapons, as well as their ammunition.
- The creation of international codes of conduct that set limits on the methods and scope of hybrid warfare in the grey zone.



- The reconstruction of the Euro-Atlantic security architecture, including an update to the regime governing conventional arms control, confidence-building measures, and nuclear disarmament and non-proliferation.
- The design of a security architecture in the Indo-Pacific.
- Updating the working methodology in multilateral forums on security, arms control, disarmament, and non-proliferation.

A new climate of dialogue would also allow for the relaunch of nuclear arms control negotiations in a variable-geometry format. In this context, the extension of New START in 2021 was a positive development, which would be further strengthened if an agreement similar to the INF Treaty were feasible. However, nuclear arms negotiations limited to the U.S. and Russia resolve only part of the problem³⁷. It is necessary to seek formulas that allow for China's participation in this process, maintaining a global strategic balance that affects both the U.S. and Russia. In Asia, this would also involve the participation of other minor nuclear powers in separate, parallel talks. In this context, one could primarily consider a dialogue between India and Pakistan, and between India and China, initially aimed at establishing confidence-building measures, but to address nuclear arms limitation at a later stage.

While efforts continue to preserve the principles and objectives of the NPT and the CTBT, several possible future courses of action can be considered:

1. *Diplomacy focused on global and regional stability, including arrangements for a new balance of power at both levels.* There is now a need to balance deterrence and collective defence measures against potential future aggression with measures to keep the dialogue open and prevent possible escalations. Today, there is talk of the erosion of the multilateral security architecture and its disconnect from reality; therefore, efforts should also focus on its renewal and modernization. A strategy for rebuilding the Euro-Atlantic security architecture would involve the possibility of initiating new talks on arms control, disarmament, non-proliferation, and confidence-building measures, which would entail updating the commitments made after the Cold War or replacing them with more appropriate ones. Russia, in addition to having a holistic view of security and disarmament, shares the Eurasian strategic theatre with China and other Indo-Pacific states. From a security perspective, there is no clear-cut division between the Indo-Pacific region, Eurasia, and the Euro-Atlantic zone. For this reason, and due to the growing strategic rivalry in the Indo-Pacific, the design of a security architecture in this region is also a pending issue. Although the Euro-Atlantic experience cannot be directly applied to this end, it is worth revisiting the logic of détente and shared security that guided it in the final decades of the 20th century. It is time to consider whether the Indo-Pacific powers are ready to take the first step in this direction.

2. *Updating technology-oriented non-proliferation initiatives.* The efficiency of multilateral export control regimes established in the 20th century has been undermined by illicit trafficking and gaps in export controls. The Coordinating Committee for Multilateral Export Controls (COCOM) was created after World War II³⁸. The NPT came into effect in 1970, setting the pace

³⁷ Albertson, Mike & Sokov, Nikolai: "Beyond New START: Two Forecasts for Future Russian–US Arms Control", IISS, 25 April 2023, at <https://www.iiss.org/research-paper/2023/04/beyond-new-start-forecasts-for-future-russian-us-arms-control/>

³⁸ Initially conceived in 1949 by the United States, Britain and France to achieve a coordinated embargo policy against the USSR, the COCOM was an informal regime to coordinate the national export controls on military and dual-use technology, and strategic materials. The COCOM had three control lists: the Nuclear List, the International Munitions List and the Industrial List. The COCOM members were Australia, Belgium, Canada, Henshaw, John H.: "The Origins of COCOM: Lessons for Contemporary Proliferation Control Regimes. Washington", The Henry L. Stimson Center, 1993. Denmark, France, the Federal Republic of Germany, Greece,



for a new era in non-proliferation³⁹. Between 1971 and 1996 five multilateral export control regimes were established in order to balance commercial interests with legitimate security concerns: the Zangger Committee (1971), the Nuclear Suppliers Group⁴⁰ (1975), the Australia Group⁴¹ (1985), the Missile Technology Control Regime⁴² (1987) and the Wassenaar Arrangement⁴³ (1996). These five export control regimes share some common features, and all their decisions are taken by consensus⁴⁴.

The global context in which export control regimes are operating is characterised by an adverse geopolitical environment; an expanding global trade; two decades of a fast cognitive and technological revolution; new suppliers, new technologies, new applications of existing technologies and new methods of technology transfers; non-state actors used as state tools and proxies⁴⁵.

The military cooperation between Russia, Iran and DPRK in recent years is based on two-way transfers of weapons and sensitive technologies. Moreover, the existing tensions between the Western states and Russia-China, stemming from divergent views on global and regional stability, have negatively affected technological proliferation. Technology used in proliferation programmes shows Western-made items, which could indicate countries of concern have foreign assistance and supplies. This fact has also raised questions about the real effectiveness of sanctions on countries of concern. Less than 40 like-minded states are willing to implement such measures worldwide, while the rest of the international community remains in a 'grey zone', where only restrictive measures adopted by the UNSC are officially - and theoretically - enforced.

This justifies the need to upgrade export control mechanisms through improved international coordination among like-minded industrial suppliers. Some elements of a common strategy to improve their effectiveness are awareness-raising policies in industry and academia; addressing gaps in domestic legal tools; and enhancing international cooperation. Such a coordination mechanism can coexist with the four existing Export control regimes in a *variable geometry model*.

Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Turkey, the United Kingdom, and the United States, at <https://www.govinfo.gov/>; *Multilateral Export Control Policy: The Coordinating Committee (CoCom)*, Chapter 8, in *Technology and East-West Trade* (1979), Princeton, Princeton University, 1979, at <https://www.princeton.edu/~ota/disk3/1979/7918/791810.PDF>

³⁹ The NPT came into effect in 1970 and led to the establishment of the Zangger Committee in 1971 under the auspices of the IAEA. Between 1975 and 1987 three Export control regimes were founded: NSG, AG and MTCR. In 1992, after the Cold War, COCOM members agreed to open participation to countries of Central Europe and the former Soviet Union. The COCOM was finally replaced by the Wassenaar Arrangement in 1996.

⁴⁰ INFCIRC/539/Revision 7, 1. 2019. The Nuclear Suppliers Group: Its Guidelines, Origins, Structure, and Role, at <https://www.iaea.org/sites/default/files/publications/documents/infcircs/>. The Point of Contact is at the Embassy of Japan in Vienna.

⁴¹ <https://www.dfat.gov.au/publications/minisite/theaustraliagroupnet/site/en/index.html>.

⁴² <https://www.mtc.info/en>. The MTCR Point of Contact is at the French Ministry of Foreign Affairs in Paris.

⁴³ <https://www.wassenaar.org>. WA principles are included in the Initial Elements, at <https://www.wassenaar.org/app/uploads/2021/12/Public-Docs-Vol-I-Founding-Documents.pdf>

⁴⁴ They are based on informal agreements; they have export guidelines, control lists and a system of information exchange; they hold regular meetings. United States, Japan, Republic of Korea, Canada, Australia and most EU Member States are Participating Governments in all of them, forming a "hard core" of like-minded States. India and Russia participate in three of them (India in AW, AG and MTCR; Russia in AW, NSG and MTCR), while China is only member of the NSG.

⁴⁵ Some of these risks also emerge in the form of intangible technology transfers associated with digital transactions, and transfers of technical data in a non-physical form. Cloud-based technology has been gaining more interest and investment due to its efficiency in managing computer servers, data storage and networking. Unauthorised access to these clouds can also result in illegally transferring technology through intangible means.



3. *Developing new confidence-building measures.* Some weapons – such as nuclear weapons and their vectors - need a strict accounting and information exchange based on a legally binding agreement. The reduction of risks of incidents between armed forces and some degree of restraint in military planning and exercises will have to be addressed in the scope of future security and arms control talks. This will probably imply some kind of information exchange, transparency measures - including visits or inspections - and telephone hotlines. To enhance risk reduction measures in the missile and nuclear domains. A new incident prevention / CBM regime could also include political commitments at regional and sub-regional levels. CBM's agreements between US and the USSR have already existed in the past⁴⁶.

Some of these issues have already been discussed in arms control fora, at least until 2021. However, so far, there is no consensus on how a qualitative approach could be implemented in arms control and CBM agreements. Firstly, we need to identify which information on qualitative aspects would be relevant to strengthen CBMs and which information States are ready to share without undermining their national security. More importantly, to rebuild a lasting and stable security architecture in the Euro-Atlantic region, we would need to achieve a political accord able to settle the existing political, territorial and strategic disputes. Given the geopolitical complexity of some areas of Eastern Europe, specific sub-regional arrangements will be necessary to address Ukrainian legitimate security concerns.

4. *Addressing nuclear threats to non-nuclear states.* As mentioned above, the NPT is based on a fundamental commitment: non-nuclear-weapon states undertake not to acquire nuclear weapons in exchange for security assurances from nuclear-weapon states that they will not be subjected to a nuclear attack. The limited results of previous negotiations to progress towards a universal, legally binding commitment on negative security assurances in the form of a protocol to the NPT and the threats to use nuclear weapons in the context of ongoing armed conflicts pose a significant challenge to the non-proliferation regime. This, in turn, is linked to the risk of the nuclear club expanding.

All this is of the utmost importance, given that the affected regions – Europe and the Middle East - are precisely those without nuclear-weapon-free zones, and it is not realistic to believe it will be possible to establish them in the foreseeable future. We are therefore facing a significant challenge, the outcome of which could determine the future of the current nuclear non-proliferation regime and its legal framework as we know it today. But it is unacceptable to accept nuclear threats, even veiled and ambiguous ones, against a state that has voluntarily renounced its nuclear weapons, as Ukraine has done. Similarly, the nuclear asymmetry in the Middle East, its persistent armed conflicts, and the failure of the JCPOA require urgent solutions to be found.

The proposals already known on this issue appear to have reached a stalemate, as reflected in military doctrines. It may therefore be advisable to seek short-term, realistic alternatives, including renewing non-use/non-threat compromises within the framework of the UN Security Council, which would involve making more ambitious official pledges than those

⁴⁶ Such agreements were signed in the 1970's following the SALT I and ABM agreements: *Agreement Between the Government of The United States of America and the Government of The Union of Soviet Socialist Republics on the Prevention of Incidents On and Over the High Seas*, signed at Moscow on 25 May 1972, entered into force on 25 May 1972; *Agreement Between the United States of America and the Union of Soviet Socialist Republics on the Prevention of Nuclear War*, signed at Washington on 22 June 1973, at <https://treaties.un.org/doc/Publication/UNTS/Volume%20917/volume-917-I-13089-English.pdf>.; *Protocol to the Agreement Between the Government of The United States of America and the Government of The Union of Soviet Socialist Republics on the Prevention of Incidents On and Over the High Seas Signed May 25, 1972*, signed at Washington, on 22 May 1973, entered into force on 22 May 1973, at <https://2009-2017.state.gov/t/isn/4791.htm>.



set out in Resolution 984 of 1995. However, these alternatives may be complex and difficult to achieve in the current geopolitical context.

5. *Negotiating new nuclear arms control agreements in updated formats.* Bilateral USA–USSR / Russian Federation nuclear agreements have always been the standard bilateral format (SALT I, SALT II, INF, START, SORT, New START). Despite the current traditional “bilateral nuclear format”, a future transition to a multilateral format – engaging China - may become necessary at some point⁴⁷. Strategic weapons, launchers and stockpiles are the main elements to be taken into account, with a verification and information exchange mechanism⁴⁸. However, Russia has always rejected negotiations on tactical nuclear weapons, which would be desirable. Nuclear Weapon States could engage in risk-reduction measures and work towards establishing multilateral nuclear risk-reduction arrangements. There are some examples of notification regimes, both bilateral and multilateral. The US and the Russian Federation have had a bilateral notification agreement in force since 1988.

Arms control in the 20th century was characterized by a clear divide between conventional and nuclear forces. However, there are now elements that, being in different classical conceptual pillars, will affect each other: *tactical nuclear weapons*; *long-range precision-guided conventional weapons* make it possible to wage a large-scale war at the theatre level below the nuclear threshold⁴⁹.

We are far from the incident prevention/CBM goal mentioned before. A proposal of limitation or ban of *Space and anti-satellite weapons* is not likely to reach a consensus in arms control negotiations. Certain applications of robotics in space platforms might also fall into this category. This is a controversial issue that could have some influence on the nuclear-conventional domains.

4. Conclusion

Major political arrangements concerning security and military balance have sometimes followed historical periods of instability or war, giving way to multilateral peace agreements. Such system-shaping political arrangements tend to emerge when the costs of disorder become unacceptable for powerful actors. Historically, moments like the Peace of Westphalia, the Congress of Vienna, and the post-World War II order did arise because conflict and tensions exhausted existing systems and helped to clarify the relative power relations of key actors⁵⁰. Most of them reflected some converging factors, such as a clear distribution of power; a shared recognition that long-lasting instability was more costly than compromise; and an institutional framework or diplomatic mechanisms capable of structuring such agreements. All these factors suggest that any future “geopolitical arrangement” may not resemble past settlements. The negotiation of a new global security order is not likely to be based on a grand political

⁴⁷ Russia wants to engage the UK and France in nuclear weapons negotiations, without success. China, being a major military and nuclear power, it would make sense to also engage Beijing in future nuclear talks (either a trilateral agreement or two bilateral agreements, US-Russia / US-China). However, China is likely to be reluctant to accept

⁴⁸ Mike Albertson and Nikolai Sokov (<https://vcdnp.org/dr-nikolai-sokov/>) make an in-depth analysis of the prospects of future nuclear arms control negotiations in “Beyond New START: Two Forecasts for Future Russian–US Arms Control”, *op. cit.*

⁴⁹ These weapons are perceived as a bridge between the conventional and the nuclear domains, the division of short, intermediate and strategic-range weapons becoming less relevant. The dividing line between strategic and non-strategic missile defences is now less clear, as air defence capabilities become more efficient. In some countries, analysts consider long-range precision-guided conventional weapons as elements of a national deterrence force.

⁵⁰ In 1648, the Treaties of Westphalia; in 1815 the Final Act of Vienna Congress; in 1919 the Treaty of Versailles; in 1945 the Conferences of Yalta and Potsdam; in the 1990s the CFE Treaty, the Charter of Paris for a New Europe and the first Vienna Document.



agreement. Instead, it could emerge progressively through overlapping agreements, regional compacts, or issue-specific regimes, rather than a single defining agreement.

Historical evidence also shows that conflict and instability do not guarantee positive outcomes. Moreover, political settlements were not always achieved in predictable ways. Today's global tensions take place in a world where multiple major actors interact, and economic interdependence globally raises the cost of a nuclear arms race or outright war. While there is uncertainty about how and when such arrangements might emerge in response to current global tensions - without catastrophic escalation - there is no reason to believe that they would be impossible to achieve this time.

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