

# GLOBAL TRENDS ● ANALYSIS ●

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## The Future of Nuclear Arms Control: Time for an Update

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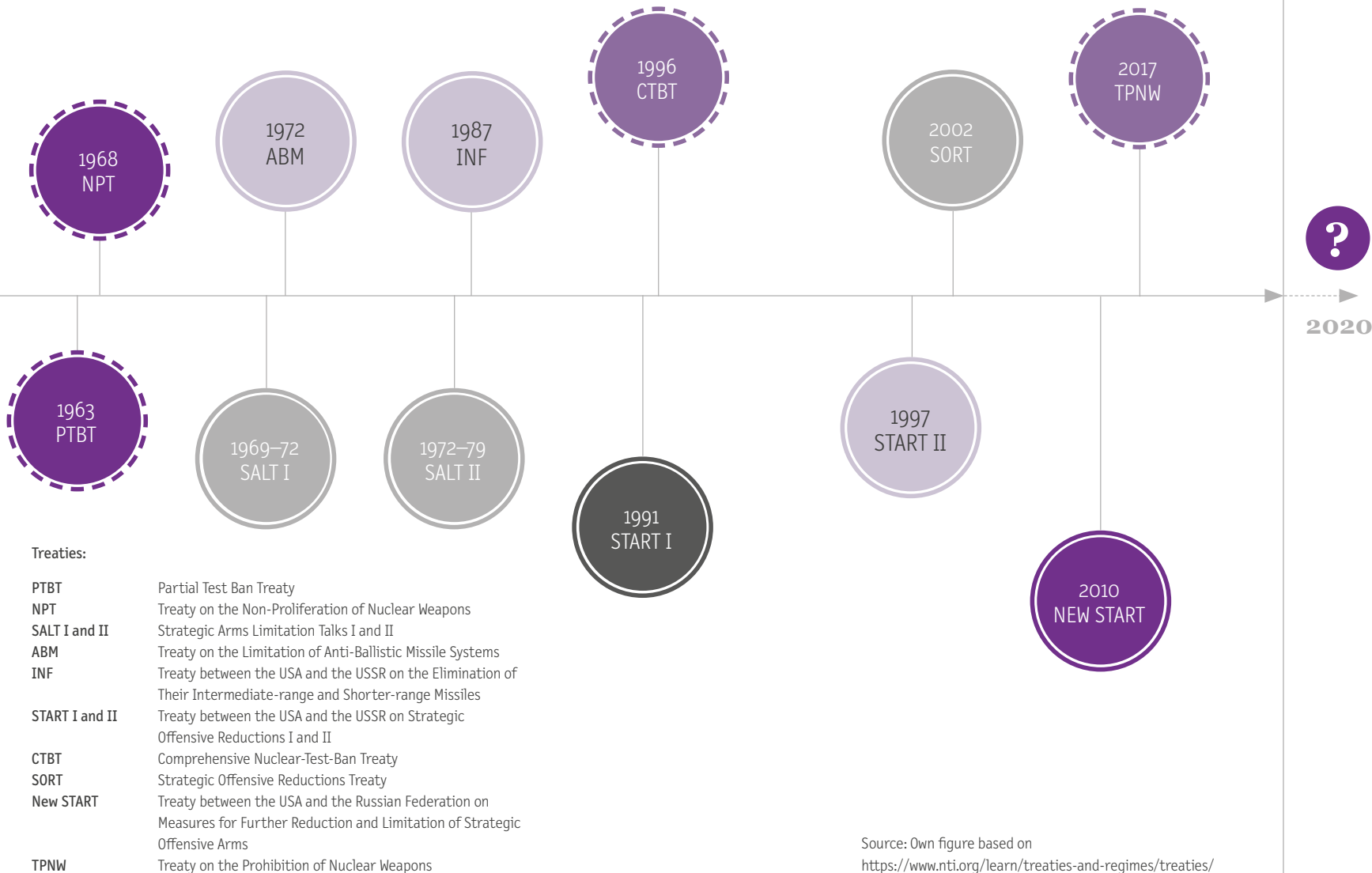
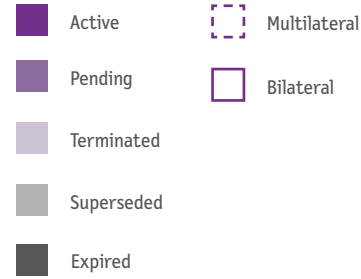
## INTRODUCTION

Many consider the Reagan-Gorbachev principle that “nuclear war cannot be won and must never be fought” (Joint Soviet-United States Statement 1985) to be the clarion call for arms control. With this, US and Soviet leaders put words to the fundamental understanding that arms control was sacrosanct in the context of other, unrelated issues in international security.

In 2020, we live in a different reality where arms control by some experts has been reduced to “nuclear identity politics” (Ford 2020) while others claim that it is “practically exhausted” (Yermakov 2020). Disconcerting as these sentiments may be, they contain a kernel of truth. Arms control in 2020 is still oriented to realities of the past. But if the arms race spirals into full force, it is humans who will be the losers. Hence, it is unhelpful to dismiss arms control as an obsolete manifestation of Cold War nightmares. But it is time for an update to address new global challenges, in particular quickly evolving geopolitical realities and emerging technologies. Furthermore, the silos in the debate on arms control need to be overcome.

FIGURE 1

# NUCLEAR ARMS CONTROL: CHANGING HISTORY, UNCERTAIN FUTURE?



## Challenges

- Changing geopolitical realities
- New technologies
- Silos in arms control debate



2020

Source: Own figure based on <https://www.nti.org/learn/treaties-and-regimes/treaties/>

# 1. FROM THE GOLDEN AGE OF ARMS CONTROL TO NUCLEAR IDENTITY POLITICS

It is useful to recall why arms control became an integral part of the global security architecture. Arms control was considered important because people understood that the alternative was unimaginable. The arms controllers of the past came from a generation that remembers the Cuban Missile Crisis and US President Kennedy's declaration that the policy of the United States would be "to regard any nuclear missile launched from Cuba against any nation in the Western Hemisphere as an attack by the Soviet Union on the United States, requiring a full retaliatory response upon the Soviet Union" (Kennedy 1962). This is not to negate the fundamentally dangerous practice of nuclear brinkmanship, but rather to say that arms control proceeded in spite of this practice.

Following the Cuban Missile Crisis, the United States, Soviet Union and United Kingdom ratified a treaty that banned nuclear testing in the atmosphere, outer space and underwater, as well as the foundational Treaty on the Non-Proliferation of Nuclear Weapons (NPT), which belayed fears of a proliferation chain that could result in 20 or 30 nuclear armed nations. The United States and Soviet Union engaged in two rounds of Strategic Arms Limitation Talks (SALT I and II) to reduce the risks posed by nuclear war. One result of those talks was a 1972 ban on anti-ballistic missile defence (ABM Treaty), based on the notion that one side might be able to resist a nuclear attack from the other, thus increasing the viability of a first strike.

When the now-famous Reagan-Gorbachev doctrine was coined in 1985, there were approximately 70,000 nuclear weapons in the world (Norris/Kristensen 2010). Since then, that number has come down to under 14,000 and the nations of the world have endeavoured to bring into force a comprehensive ban on nuclear testing (the CTBT) (Ploughshares Fund 2020) [see Figure 2]. The United States and Soviet Union agreed not to deploy short- and medium-range missiles in Europe (the INF Treaty) due to their detrimental effect on strategic stability and European security. The US and newly minted Russian Federation engaged in Presidential Nuclear Initiatives in 1991, intended to unilaterally limit and reduce nuclear weaponry (Corin 2004). The two countries have been through three Strategic Arms Reduction Treaties (START I, START II and New START), with the aim to make meaningful reductions in deployed nuclear weapons and the risk of their use.

In the early 2000s, with new leaders in the White House and the Kremlin, bilateral arms control began to stagnate. The United States withdrew from the ABM Treaty, which resulted in the Russian withdrawal from the START II Treaty (Boese 2002). In a course correction, the two countries signed the Strategic Offensive Reductions Treaty in 2002. It was superseded by the New START Treaty that entered into force in 2011. Other arms control and non-proliferation initiatives decelerated dramatically during this period. For example, efforts to dispose of excess, weapons-usable plutonium slowed to a crawl, a growing number of countries vocally questioned the US and Russian commitment to further arms reductions and allegations of violation of the INF Treaty began to surface.

As relations between the US and Russia worsened, notably due to NATO eastward expansion, the Ukraine Crisis and Russia's annexation of Crimea, arms control became a barb to throw *in the context* of other bilateral disagreements, rather than an important process to engage in despite those disagreements. The alleged violations of the INF Treaty, which might have been swiftly resolved under different political circumstances, became a narrative of confrontation even under President Obama.

In 2017, Donald Trump became President of the United States. Since the beginning of his run in the White House, he and his administration have shown marked contempt for arms control and non-proliferation, including withdrawal from the Joint Comprehensive Plan of Action with Iran, abrogating the INF Treaty (White House 2018; Pompeo 2019) and, most recently, announcing plans to withdraw from the 1992 Open Skies Treaty (White House 2020). These issues have been well documented, and thus will not be detailed here.

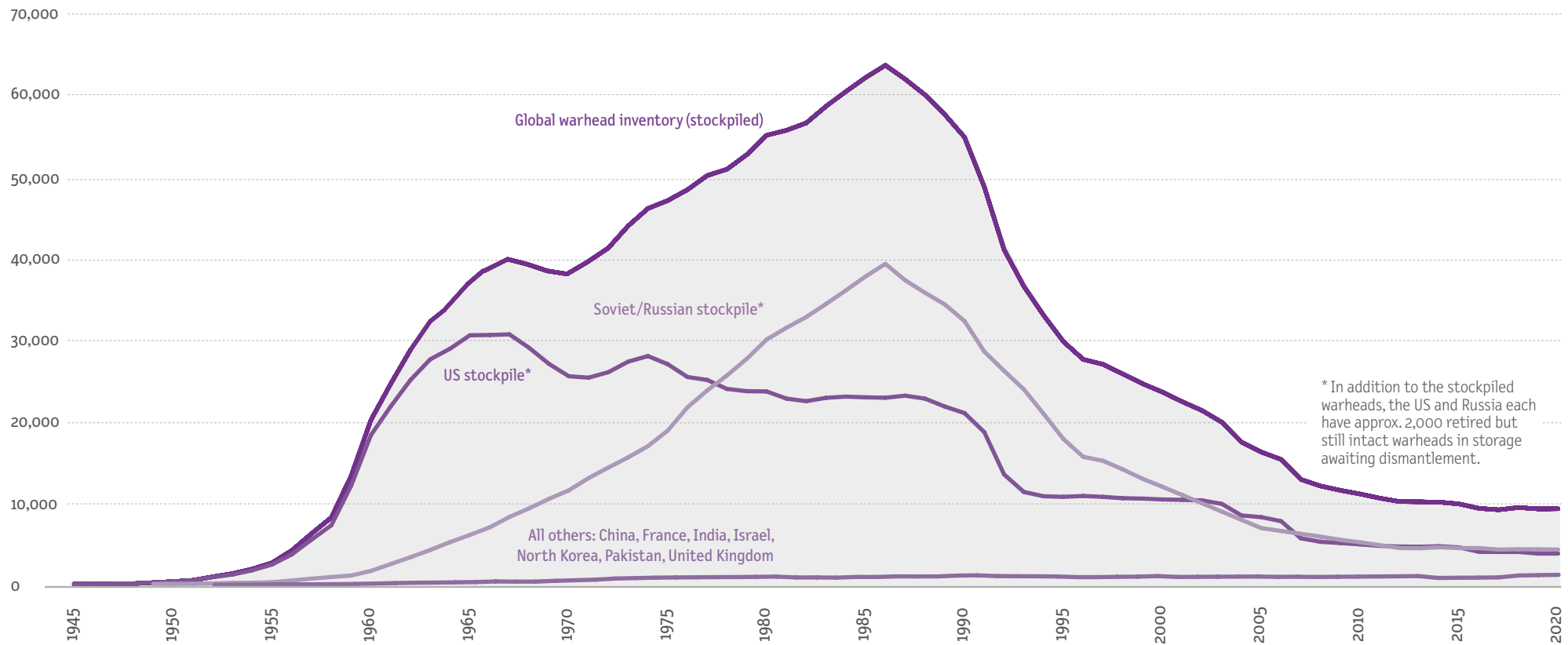
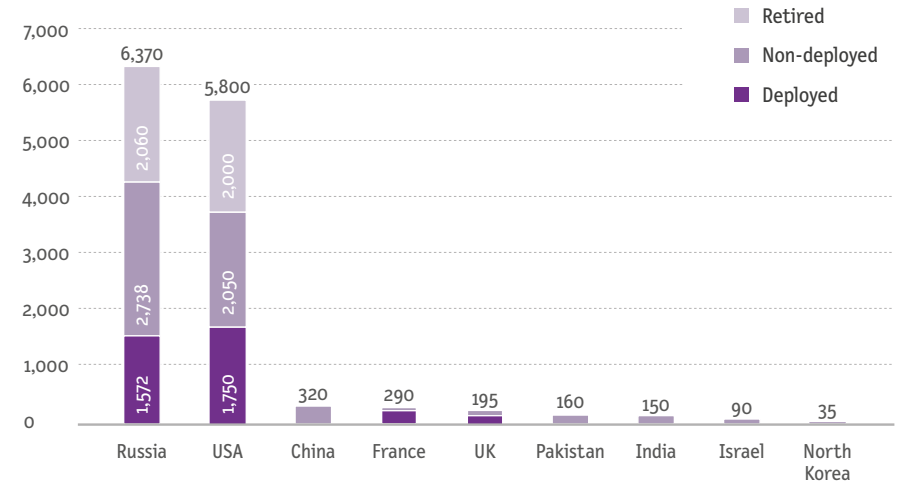
The last arms control agreement or limitation that still stands between the US and Russia is New START. Both countries have brought down their numbers of deployed warheads and delivery vehicles pursuant to the treaty, but the inspection provisions will expire on 05.02.2021 if not extended. This is important because the inspections under New START provide important insight and predictability regarding the intentions of the two countries vis-à-vis the deployment of new nuclear weapons systems.

Russia has advocated for the treaty's extension, but the US has stalled, signalling that its vision of the future of arms control is not bilateral, but multilateral. However, China, which has become a major player in the nuclear

FIGURE 2

# ESTIMATED GLOBAL NUCLEAR WARHEAD INVENTORIES 1945–2020

Estimated Global Nuclear Warhead Inventories by Countries, 2020



Source: Adapted from Kristensen/Korda 2020

field over the past decades, has been frank in its reluctance to take part in arms reductions while the US and Russia maintain such disproportionately higher arsenal numbers. The other nuclear-weapon states under the NPT, France and the UK, have expressed similar hesitation.

This is the impasse we see today. Arms control is no longer treated as a priority for the two nuclear superpowers and is vulnerable as collateral damage of other political conflict.

## 2. GEOPOLITICAL CHALLENGES IN THE 21<sup>ST</sup> CENTURY

### 2.1 A RESURGENT RUSSIA

The phases of US-Russian arms control roughly correspond to three periods: (1) the bipolar world order that defined much of the 20th Century, (2) the unipolar world order after the collapse of the Soviet Union and (3) the multipolar world order that has come with a resurgent Russia. But many arms controllers in Washington seem to cling to the unipolar conception, in which the United States is the sole leader. As Russia became again more assertive in the early 2000s, it was less willing to accept this as a fact of life.

An example of this is NATO expansion, which has resulted in a large number of countries in Russia's sphere of interest being absorbed into the Alliance [see Figure 6]. As Moscow has grown increasingly uncomfortable with the approach of this alliance – the expressed purpose of which was to contain the influence of the Soviet Union – it has reminded the international community of the informal promises made to it by Western leaders that NATO would not expand eastward. This issue boiled over in 2014 when, after years of feeling that its complaints on NATO expansion were ignored, Russia blocked the European integration process of Ukraine and annexed Crimea. Conflict in Ukraine has made US-Russian cooperation not impossible, but still markedly more difficult than it was before.

In a broader sense, Russia sees that it is not taken as a serious partner, equal in status to the US (Matlock 2017). It feels that much of the discourse on arms control is US-centric and comes with expectations for it to make choices that contravene its security interests. In order for a future paradigm of arms control and non-proliferation to enjoy the earnest participation of Russia, these perceptions must be taken into account and counteracted. Doing so may

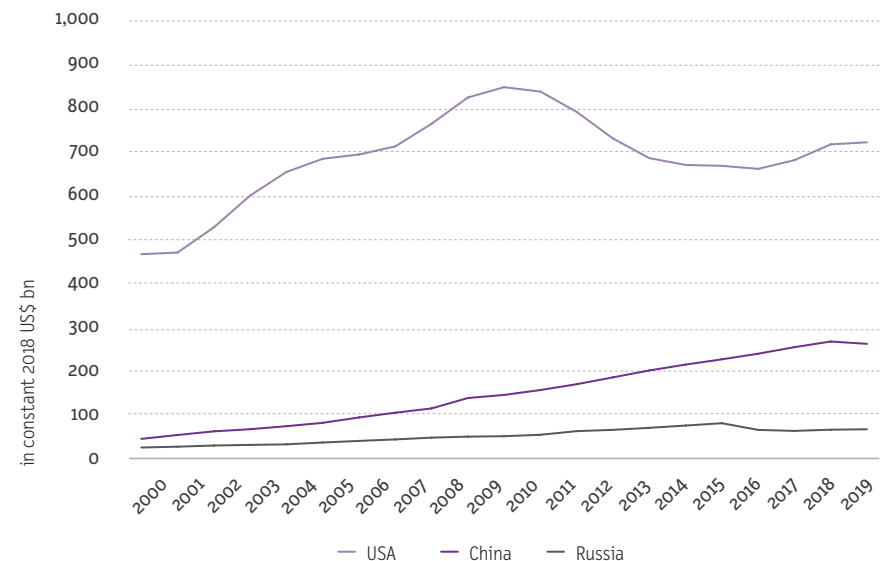
help to bring Russia to the table in future arms negotiations and ensure their sustainability. A refusal to do so will aggravate the current situation, in which Russia is increasingly isolated and unwilling to engage with the US on arms control and other issues.

### 2.2 THE RISE OF CHINA

China defines its nuclear policy by possessing the minimum capabilities needed to deter a first strike from a potential aggressor. It was the first state to declare a “no-first-use policy” and has always argued that it would not engage in negotiations with the US and Russian Federation until their numbers came down to China's level, estimated at 320 nuclear warheads (while the US and Russian stockpiles, including deployed and non-deployed warheads, are estimated at 3,800 and 4,310, respectively) (Kristensen/Korda 2020) [see Figure 2].

So what is China's role in arms control and strategic stability? China has always kept a low profile in arms control matters, yet concomitant with its

FIGURE 3  
US military expenditure still much higher than China's and Russia's  
*Military expenditure by country, 2000 – 2019*



Source: SIPRI 2020

rise as a major geopolitical actor has embarked on a military spending spree. Annual military spending rose from 31bn US\$ in 1998 to 250bn US\$ in 2018 (SIPRI 2020) [see Figure 3]. It has enabled China to modernise and expand its nuclear delivery systems, as well as purchase military hardware and multiply its conventional missile inventory. This latter aspect was cited by the US as contributing to the abrogation of the INF Treaty, in addition to the INF violations blamed on Russia.

President Trump has been outspoken in wanting China to take its seat at the arms control table. If it was expected that this would accelerate pressure on China to engage in trilateral arms control negotiations, that calculation proved profoundly wrong. China today is a powerful player, second only to the United States, and feels confident in stating its positions. The proposal by President Trump to transform New START into a trilateral agreement, for example, was firmly rejected by China (Ministry of Foreign Affairs of the People's Republic of China 2020) which accused the US of "covering up the serious damage caused by the United States' breaching of and withdrawing from multilateral agreements, as well as their unilateral acts of bullying" (Ministry of Foreign Affairs of the People's Republic of China 2019).

Why would China agree to become more transparent and engage in arms control negotiations? Sitting at the table with the US and Russia would confirm its status as a world power, but that is clearly not enough. No other inducements were offered, and it is unclear at this point what is the US roadmap for including China in trilateral negotiations or even if there is one. The asymmetrical nature of the nuclear arsenal would require other weapons and capacities to be drawn into the process. Capping nuclear arsenals at different levels would not be acceptable, as this would be seen simply as containing China's capacities while keeping US – and Russian – superior nuclear arsenals. No wonder China is rejecting this proposal out of hand.

### 3. CHALLENGES POSED BY NEW TECHNOLOGY

In addition to geopolitical considerations, new technologies pose challenges to arms control and the global security landscape. The emergence of offensive cyber capabilities in statecraft has raised disturbing questions about what cyberwar could mean, including threats to nuclear command, control and communication (NC3) systems. Lethal autonomous weapon systems (LAWS)

represent an entirely new class of weapons and the international community does not even share a definition of the term "autonomous". The US and Russia are developing a range of new weapon systems, some of which do not fit under limits defined by New START. In order to be effective, new approaches to arms control will need to take into account the risks posed by these new technologies.

#### 3.1 CYBER WARFARE, MISCALCULATION AND NC3 SYSTEMS

At the beginning of the 2000s, a number of major cyber incidents brought offensive cyber capabilities to the forefront of defence planners' minds. Notable among them was a series of cyberattacks against Estonia in 2007 that paralysed local and government infrastructure, which led to the development of the Tallinn Manual, meant to establish rules and practices in international law applicable to cyber warfare. Later, hacking against the US Democratic National Convention was meant to sabotage the candidacy of Hillary Clinton during the 2016 Presidential Elections. Russia has been implicated in both attacks, though it is not the only country that has engaged in offensive cyber activities. The use of the Stuxnet virus by the US in 2010 to sabotage Iranian centrifuges is another example. China, Iran, North Korea and non-state actors have also allegedly used cyberweapons.

Attempts to establish regulation in the cyber field have thus far been unsuccessful. The impact of the Tallinn Manual, first published in 2013 and updated in 2017, has been relatively limited, chiefly because the US and Russia cannot agree on how to define cyberwar or on what such a conversation even should encompass [see Box p. 16]. Various initiatives in the UN context have attempted to establish guidelines for responsible behaviour in cyberspace, including a concurrently running Open Ended Working Group (OEWG) backed by Russia and a 25-member Group of Governmental Experts (GGE) backed by the United States [see Figure 4]. There is little reason to believe that either process will conclude with consensus recommendations that have a chance of being adopted by the major cyber actors, despite consensus in the GGE in 2013 that international law and the UN Charter are applicable to cyberspace (UNGA 2013a; see also Kane 2014).

According to the UN, 23 countries have shown evidence of commanding offensive cyber capabilities and a further 30 have shown indications that they are developing such capabilities (GIP Digital Watch 2020). Just as the

FIGURE 4

## TWO UN-BASED PROCESSES TO ADDRESS RESPONSIBLE BEHAVIOUR IN CYBER SPACE





## CONTROVERSY ON CYBERSECURITY VS. INFORMATION SECURITY

The United States focuses on *cybersecurity*, defined in the US National Cyber Strategy as “effectively identifying, protecting, and ensuring resilience of their networks, systems, functions, and data as well as detecting, responding to, and recovering from incidents.” The Russian Federation sees the issue more broadly as *information security*, defined in the Doctrine of Information Security of the Russian Federation as “the state of protection of the individual, society and the State against internal and external information threats, allowing to ensure the constitutional human and civil rights and freedoms, the decent quality and standard of living for citizens, the sovereignty, the territorial integrity and sustainable socio-economic development of the Russian Federation, as well as defence and security of the State.” This fundamental difference in perspective on cyber issues has been a major barrier to agreement on governance.

The National Cyber Strategy of the United States of America is available here: [https://digital.library.unt.edu/ark:/67531/metadc1259394/m2/1/high\\_res\\_d/National-Cyber-Strategy.pdf](https://digital.library.unt.edu/ark:/67531/metadc1259394/m2/1/high_res_d/National-Cyber-Strategy.pdf).

The Doctrine of Information Security of the Russian Federation is available here: [https://www.mid.ru/en/foreign\\_policy/official\\_documents/-/asset\\_publisher/CptICk86BZ29/content/id/2563163](https://www.mid.ru/en/foreign_policy/official_documents/-/asset_publisher/CptICk86BZ29/content/id/2563163).

number of countries in this field is growing, so are the ways in which these capabilities can be utilised. The 2007 attacks against Estonia were distributed denial of service (DDOS) attacks, which essentially overwhelm servers until they shut down. DDOS attacks are disruptive and represent the majority of cyberattacks today. However, there is evidence to suggest that the major cyber actors are considering uses for cyberattacks in the nuclear field.

The risks of cyberweaponry in the nuclear field are primarily related to miscalculation and an absence of predictability and transparency. While the risk of a nuclear strike due to the use of cyberweapons remains seemingly out of reach today, state cyber capabilities are growing more robust by the day. On the one hand, because of the anonymity of the internet, a cyberattack on a nuclear installation may be perceived as a first strike by an opponent, or even masked to appear as such. On the other hand, the identity of perpetrators of a cyberattack – be they state or non-state actors – is difficult to find and more

difficult to prove, which could make response a dangerous calculation in the nuclear domain.

Since at least 2015, US officials have expressed the need for increased capabilities in missile defence “left of launch”, meaning non-kinetic defensive capabilities that would neutralise an enemy missile as soon as a launch was considered imminent. This includes “technological development efforts related to non-kinetic defensive capabilities, such as cyber warfare and directed energy” (U.S. Government Publishing Office 2015, pp. 10, 118).

To interfere with another state’s NC3 systems with cyber means would be to put the concept of credible deterrence at risk, which would be detrimental to strategic stability. In a situation where tensions are escalating, the perception that one’s first-strike capability is compromised might itself precipitate a pre-emptive strike. Hence, cyberattacks on NC3 systems should be something that the nuclear powers work to regulate and ban, rather than develop.

Developments like this exemplify the importance of the UN processes to establish widely, if not universally agreed upon guidelines and best practices in cyber governance, including in the arms control field. Nuclear-armed nations, especially the P5, should be leaders in the establishment of cyber governance in the nuclear field, rather than to slow the process down due to disagreements in the geopolitical sphere. Moreover, while agreement about definitions is important, it may be time to explicitly address the effect that cyber will have on the nuclear weapons space now, rather than develop offensive capability that will require regulation to catch up.

## 3.2 AUTONOMOUS WEAPON SYSTEMS AND ARTIFICIAL INTELLIGENCE

One area where technology, definition, ethics, law and society all come together is in the debate on LAWS. It is a debate that was kicked off in 2013 by the report of a UN Special Rapporteur on extrajudicial, summary or arbitrary execution, Christof Heyns (UNGA 2013b). It has brought out deep divisions between states. The deliberations on this issue are taking place in Geneva under the Convention on Certain Conventional Weapons (CCW). So far, no legally-binding or political actions have been adopted. In fact, past years have increased the gulf between those who wish to engage in negotiations to achieve a ban on LAWS and those who fervently oppose it.

Twenty-nine countries have explicitly called for a prohibition of LAWS, as has the Non-Aligned Movement. Twelve countries are opposed to a prohibition or a treaty (see for details Campaign to Stop Killer Robots 2019). Prominent AI scientists have signed declarations and letters to warn of LAWS; UN Secretary-General Guterres has called these weapons morally repugnant, as has Pope Francis.

What has become clear is that the trend towards increasing autonomy in military systems will continue and is likely to affect all domains of warfare, perhaps even the nuclear domain. Technological superiority is likely to decide who wins on the battlefield, and robots do not get tired or influenced by emotions or stress. It is an absolute must to consider the risks inherent in this development. Where lies the accountability for the actions of an autonomous weapon? With the innovator? The programmer? Who takes the responsibility for killing innocent civilians?

The debate about LAWS is not confined to the CCW meeting rooms in Geneva. The European Parliament, for example, adopted in 2018 a resolution that called on the EU “to develop and adopt, as a matter of urgency (...) a common position on lethal autonomous weapon systems” and “to work towards the start of international negotiations on a legally binding instrument prohibiting lethal autonomous weapon systems” (European Parliament 2018). The European Commission has indeed issued guidelines and standards for AI (most recently in February 2020), but none of these include any mention of LAWS, though ethics, excellence and trust feature prominently in the titles (European Commission 2020).

LAWS will continue to be developed – and once ready to be deployed, they will find customers, not only governments, but probably also non-state actors. The decision over life and death has to be one where international humanitarian and human rights law has to prevail. Human life and dignity has to trump all other concerns and meaningful human control has to be maintained, though how “meaningful human control” is defined has not been agreed by all.

## 4. UPDATING ARMS CONTROL: THE WAY FORWARD

### 4.1 WORKING WITH THE NEW GEOPOLITICAL REALITY

Arms control and non-proliferation discussions seem stuck in the 20th century. What worked then, no longer does. The US and the Soviet Union/Russian Federation are not alone on the world stage anymore. China is now a third dominant player, albeit one that is taking a more discreet role in arms control politics. A fourth player is new technology; it is unclear yet how dominance in technology will play out on the multilateral stage.

Discussions and negotiations on arms control have always been conducted in silos: nuclear here, conventional weapons there, other topics – such as LAWS or outer space, for example – equally separate. This division is no longer applicable, but that reality has not yet been reflected in the various disarmament fora. Another outdated concept is the focus on numbers: the yardstick of total number of nuclear weapons needs to be seen against deployment, against alert status, against size, against modernisation.

The NPT – still called the “gold standard of nuclear non-proliferation” – has lost its lustre. It enshrined the nuclear status of five countries and denied others party to the treaty from ever acquiring nuclear weapons, yet there are now four other countries outside the NPT possessing nuclear weapons. Except for North Korea (which is subject to severe sanctions), none of the other three (India, Israel, Pakistan) were punished or ostracised for their nuclear weapons possession.

The recognition of this double standard has long dodged the NPT deliberations. Stalemate in implementing accords and agendas – agreed in NPT Review Conferences by consensus – led in 2017 to the adoption of a new instrument, the Treaty on the Prohibition of Nuclear Weapons (TPNW) that now has 36 ratifications and 81 signatories, needing 50 ratifications to enter into force.

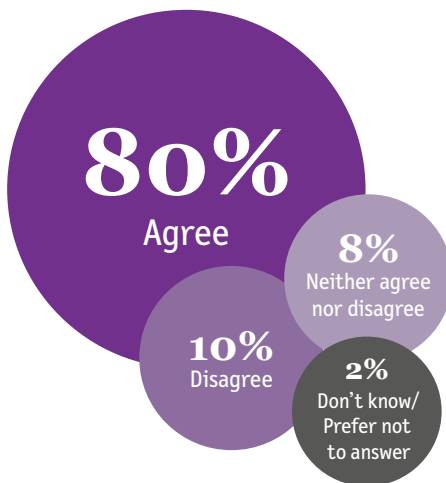
The dismissal of the TPNW by the five nuclear-weapon states and those under their nuclear protection is unfortunate and short-sighted, as the treaty will not disappear if ignored. Instead, the chorus of those arguing against the arms spiral, against modernising nuclear and other arms, against the massive spending on military weapons, is increasing.

FIGURE 5  
Millennials regard nuclear weapons as a threat to humanity

*Is the use of nuclear weapons in wars or armed conflicts acceptable under some circumstances, or is it never acceptable?*



*The existence of nuclear weapons is a threat to humanity.*



Note: Figures from the Millennials on War study, commissioned by the International Committee of the Red Cross in 2019. 16,288 millennials aged 20–35 were surveyed across 16 countries.

Source: Ipsos 2019, pp. 14 and 17

Pope Francis has long been a vocal opponent of nuclear weapons and is mobilising his followers all over the world to advocate for the abolition of nuclear weapons. UN Secretary-General Guterres has also been outspoken on this issue, as have other political leaders. Together with the tireless efforts of civil society, this chorus of voices is amplified by the younger generation, the millennials. In a poll conducted at the request of the International Committee of the Red Cross in 2019, 84% of the millennials believed that the use of nuclear weapons is never acceptable and 54% supported a nuclear weapons ban [see Figure 5] (Ipsos 2019, p. 6). This shows that politicians arguing for continued – or even enhanced – possession of nuclear weapons are out of sync with the population. The question now remains when the effect of these developments will change policies.

#### 4.2 ADAPTING ARMS CONTROL TO NEW TECHNOLOGY

New technologies are fundamentally changing the arms control landscape. Not only are lethal autonomous weapon systems on the horizon but the impact of developments in cyber weapons, new missile technology and other fields such as biotechnology are impacting arms control considerations.

There are currently no international rules in place for these new technologies. Many of these are developed, used and sold by private industry rather than government. A younger generation of government and military experts is needed to understand these challenges and to address them in negotiations which also has to include private actors. The challenge is compounded by accelerating at the same time as the US-Russian arms control architecture is breaking down.

An initiative to find solutions was launched in March 2019 by the Foreign Minister of Germany, Heiko Maas, who hosted a conference in Berlin that was also attended by the Foreign Ministers of the Netherlands and Sweden. “We must find solutions for the technological challenges of tomorrow. In a nutshell, we must re-think arms control”, Minister Maas said. “Our common systems of rules have almost always responded too late. They are not keeping pace with technological development and they therefore continue to be flawed”, he stated (German Federal Foreign Office 2019).

In this context, it is important not to demonise technology, most of which is beneficial. Many new and emerging technologies offer potential benefits

to arms control, especially in monitoring and verification. Distributed ledger technology (a combination of technologies and computing concepts that allows a network of participants to share and validate data across a tamper-evident ledger) could, for example, offer an authoritative record that would improve continuity of knowledge during the implementation of an agreement (Frazier et al. 2019). Similarly, satellite imagery and remote sensing technology could serve as confidence-building measures rather than a source of suspicion.

The difficulty lies in finding the right response to technologies that are or could be harmful. These responses must be tailored to the individual technological challenges: One approach is not enough, yet it is also true that some of the technologies interact, which makes it more complex to address the challenges.

New and innovative approaches coupled with serious efforts to advance arms control negotiations are required. Lack of leadership by the US and Russia make it difficult; it remains to be seen whether the German, Dutch and Swedish initiative can make meaningful progress, yet they are being cheered on by those of us who support enhanced engagement in arms control. A follow-on conference to this initiative is scheduled for November 2020, indicating that governments besides the US and Russia are taking steps to fill the vacuum in arms control leadership.

#### 4.3 RISK REDUCTION IN ABSENCE OF POLITICAL WILL

The last treaty limiting nuclear weapons was concluded ten years ago. No new negotiations are being conducted, nor are any envisaged. Instead, a new arms race is underway. In the absence of political will by the nuclear-weapon states to curb the arms spiral further, what can be done to reduce the risk of a nuclear explosion?

The effects of the explosions in Hiroshima and Nagasaki are well documented, yet these were small nuclear bombs compared to the arsenals available today. What would be the effects of a nuclear detonation on the human population, most of whom are now living in dense urban areas? What would be the climatic and environmental consequences?

The debate of forty years ago when “nuclear winter” was in the public consciousness has long faded. Most likely, the scenarios then foreseen were imprecise at best. Today, with technological advances in computing pow-

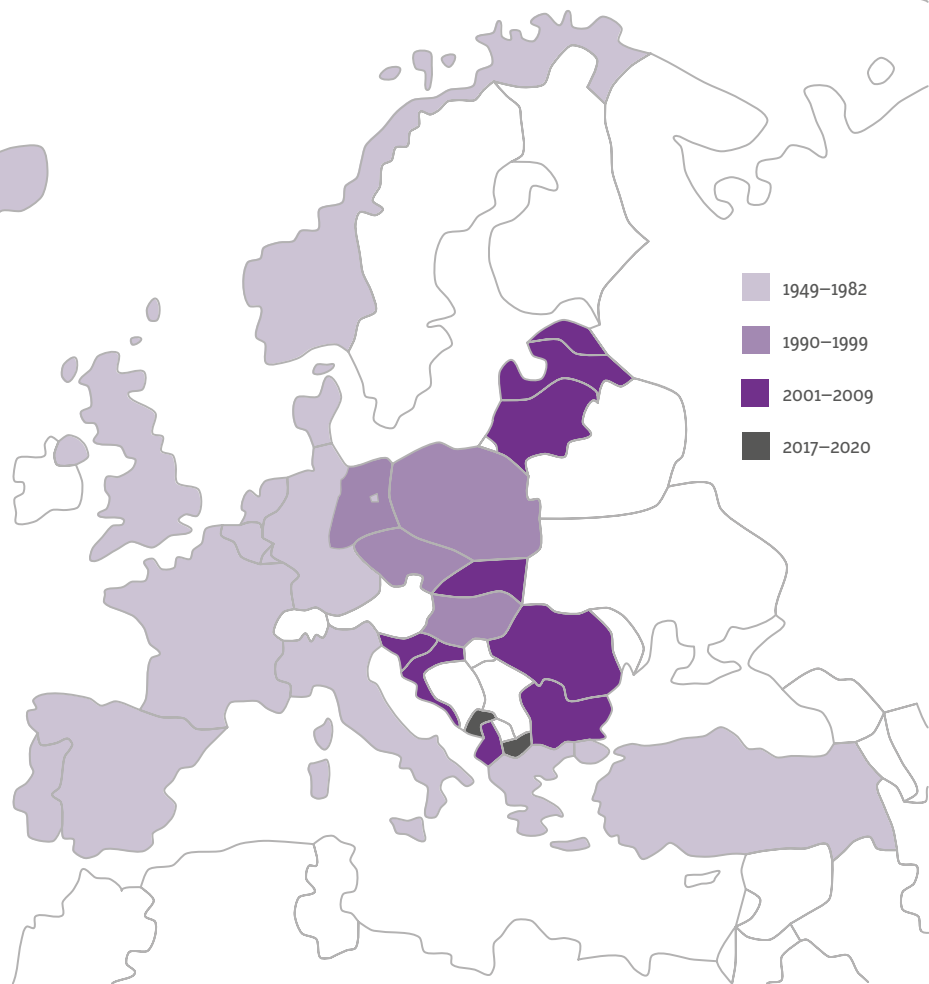
er, in availability of data and modelling, much more precise predictions are available. Scientists and AI specialists should be engaged to study the various possibilities of a nuclear explosion: the size and number of the nuclear weapon/s, the yield, directed at what target, with what consequences, for people and the environment.

Such fact sets would immeasurably enhance the quality of the discussion and force nuclear possessors to respond, not only to “Create an Environment for Nuclear Disarmament”, as put forward by the United States, but also to address the consequences of – and responsibility for – a nuclear detonation and its inevitable catastrophic result on humans and the environment. This responsibility should be put on the global agenda, as there is no “planet B”, a warning we often see on banners carried by young demonstrators.

Equally important are other measures to reduce risk: the US-initiated Nuclear Security Summits in 2010, 2012, 2014 and 2016 brought a focus on nuclear materials and led to a series of measures and commitments to strengthen nuclear security. Of the 53 countries participating, over 90% shared information and issued national progress reports explaining how they implemented their responsibilities in this field, a welcome step to increase transparency. A large quantity of highly-enriched uranium was recovered or removed from civilian use, training centres were established, and national laws on nuclear security were introduced or updated. Yet the Security Summits were seen as controversial by those countries that were not invited to participate in them and did not lead to increased cooperation in other fora, such as multilateral institutions like the United Nations or the International Atomic Energy Agency. Could a modified Security Summit be devised? With a larger group of countries, with gift baskets and voluntary commitments as the entrance ticket? Could such an initiative be spearheaded by the G-20?

NATO just admitted its 30th member, North Macedonia [see Figure 6]. It calls itself a nuclear alliance, but its strategic concept was agreed ten years ago. Would it not be time to discuss the changes in the global nuclear order and propose policy adjustments, especially on agreed best practices for emerging technology? Might policy adjustments prepare NATO for a return to a focus on crisis response, rather than collective defence? Could the working methods in the NPT conferences be changed to increase the accountability of nuclear-weapon states, to explain their non-implementation of measures agreed upon in earlier meetings by consensus? To explain their adherence to

FIGURE 6  
NATO Enlargement in Europe 1949–2020



Source: Own compilation

the policy of nuclear deterrence and what, in their opinion, is enough? Perhaps by considering these questions seriously – rather than dismissing them – the nuclear-weapon states, in particular the US and Russia, could help to reduce the growing tension in global order.

## 5. CONCLUSION

The past has shown that a calamity often changes the course of history. Not only through wars, but also through other events, such as a pandemic. After several years of a number of states increasingly turning inward and giving their national agenda priority over all other considerations, the COVID-19 pandemic reminds us that our world is interconnected, that problems do not stop at borders and that technology ties us even closer together than we ever imagined possible fifty years ago.

This could be a turning point in the assessment of nuclear weapons by those who possess them. Are these weapons a shield for security, for safeguarding populations? Or are they a status symbol of projecting power? And would the modernisation of strategic nuclear forces really be relevant to protect people and hence a priority at this time as suggested by US Secretary of Defense Mark Esper (Tweet of 04.04.2020)? Would the huge amounts of money spent on armaments not be better used to help the economy, to mitigate the effects of the pandemic on the population, to return to intensifying international coordination and cooperation?

We are both internationalists and for us, the answer is obvious: a pandemic can shift the focus, make us painfully aware that there are threats to security and well-being that are not related to weapons and armaments. But will states share this view and adjust their priorities? States remain the world's most important players and they control the actions to be taken. Just as it takes time to adjust priorities, it also takes time to build up relationships of cooperation, maybe even of co-management; let's push for it – and for nuclear disarmament.

## REFERENCES

- BOESE, WADE** 2002: U.S. Withdraws From ABM Treaty; Global Response Muted, in: Arms Control Today, Vol. 32, July/August 2002 (<https://www.armscontrol.org/act/2002-07/news/us-withdraws-abm-treaty-global-response-muted>, 18.05.2020).
- CAMPAIGN TO STOP KILLER ROBOTS** 2019: Country Views on Killer Robots, n.p. ([https://www.stopkillerrobots.org/wp-content/uploads/2019/08/KRC\\_CountryViews21Aug2019.pdf](https://www.stopkillerrobots.org/wp-content/uploads/2019/08/KRC_CountryViews21Aug2019.pdf), 18.05.2020).
- CORIN, ELI** 2004: Presidential Nuclear Initiatives: An Alternative Paradigm for Arms Control, Washington, DC (<https://www.nti.org/analysis/articles/presidential-nuclear-initiatives/>, 18.05.2020).
- EUROPEAN COMMISSION** 2020: White Paper On Artificial Intelligence – A European approach to excellence and trust (COM(2020) 65 final), Brussels.
- EUROPEAN PARLIAMENT** 2018: European Parliament resolution of 12 September 2018 on autonomous weapon systems (2018/2752(RSP)), Strasbourg.
- FORD, CHRISTOPHER A.** 2020: The Politics of Arms Control: Getting Beyond Post-Cold War Pathologies and Finding Security in a Competitive Environment (Speech at the International Institute of Strategic Studies, 11.02.2020), London (<https://www.state.gov/the-psychopolitics-of-arms-control/>, 18.05.2020).
- FAZAR, SARAH/VESTERGAARD, CINDY/LOEHRKE, BENJAMIN/KENAUSIS, LUISA** 2019: Evaluating Member State Acceptance of Blockchain for Nuclear Safeguards (Stanley Center for Peace and Security, Nuclear Weapons Readout & Recommendations December 2019), Muscatine (<https://www.stimson.org/wp-content/files/file-attachments/NWRR-EvaluatingBlkChainAcceptance12-20-20-1.pdf>, 18.05.2020).
- GIP** (Geneva Internet Platform) Digital Watch 2020: UN GGE and OEWG, n.p. (<https://dig.watch/processes/un-gge>, 18.05.2020).
- GERMAN FEDERAL FOREIGN OFFICE** 2019: Speech by Federal Foreign Minister Heiko Maas at the conference 2019 Capturing Technology. Rethinking Arms Control, 15.03.2019, Berlin (<https://www.auswaertiges-amt.de/en/newsroom/news/maas-conference-2019-capturing-technology-rethinking-arms-control/2199902>, 18.05.2020).
- IPSOS** 2019: Millennials on War. Topline Report for the International Committee of the Red Cross, Geneva. ([https://www.ipsos.com/sites/default/files/ct/news/documents/2020-01/ipsos\\_millennials\\_on\\_war\\_full\\_report\\_0\\_1.pdf](https://www.ipsos.com/sites/default/files/ct/news/documents/2020-01/ipsos_millennials_on_war_full_report_0_1.pdf), 18.05.2020).
- JOINT SOVIET-UNITED STATES STATEMENT ON THE SUMMIT MEETING IN GENEVA, NOVEMBER 21, 1985** (<https://www.reaganlibrary.gov/research/speeches/112185a>, 18.05.2020).
- KANE, ANGELA** 2014: The Rocky Road to Consensus: The Work of UN Groups of Governmental Experts in the Field of ICTs and in the Context of International Security, 1998–2013, in: American Foreign Policy Interests, Vol. 36/5, pp. 314–321.
- KENNEDY, JOHN F.** 1962: The Cuban Missile Crisis: President Kennedy’s Address to the Nation, 22 October 1962, in: Prologue Magazine, 2002, Vol. 34/3 (<https://www.archives.gov/publications/prologue/2002/fall/cuban-missiles.html>, 18.05.2020).
- KRISTENSEN, HANS M./MATT KORDA** 2020: Status of World Nuclear Forces (<https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/>, 18.05.2020).
- MATLOCK, JACK** 2017: US and Russia 1991–2017: Keynote Address with Ambassador Jack Matlock (Monterey Summer Symposium on Russia of Graduate Initiative in Russian Studies, 19.06.2017), Monterey (<https://www.youtube.com/watch?v=4TqvMoQMTdo>, 18.05.2020).
- MINISTRY OF FOREIGN AFFAIRS OF THE PEOPLE’S REPUBLIC OF CHINA** 2019: Statement by Ambassador Fu Cong, Director-General of the Department of Arms Control of the Ministry of Foreign Affairs of China, at the General Debate of the First Committee of the 74th Session of the UNGA, 12.10.2019, Beijing ([https://www.fmprc.gov.cn/mfa\\_eng/wjdt\\_665385/zyjh\\_665391/t1707314.shtml](https://www.fmprc.gov.cn/mfa_eng/wjdt_665385/zyjh_665391/t1707314.shtml), 18.05.2020).
- MINISTRY OF FOREIGN AFFAIRS OF THE PEOPLE’S REPUBLIC OF CHINA** 2020: Foreign Ministry Spokesperson Zhao Lijian’s Regular Press Conference on March 6, 2020, Beijing ([https://www.fmprc.gov.cn/mfa\\_eng/xwfw\\_665399/s2510\\_665401/t1753086.shtml](https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/t1753086.shtml), 18.05.2020).
- NORRIS, ROBERT S./KRISTENSEN, HANS M.** 2010: Global nuclear weapons inventories, 1945–2010, in: Bulletin of the Atomic Scientists, Vol. 66/3, pp. 77–83.
- PLOUGHSHARES FUND** 2020: World Nuclear Weapon Stockpile, n.p. (<https://www.ploughshares.org/world-nuclear-stockpile-report>, 18.05.2020).
- POMPEO, MICHAEL R.** 2019: U.S. Withdrawal from the INF Treaty on 2 August, 2019, Washington, DC (<https://www.state.gov/u-s-withdrawal-from-the-inf-treaty-on-august-2-2019/>, 18.05.2020).
- SIPRI** (Stockholm International Peace Research Institute) 2020: SIPRI Military Expenditure Database, Solna (<https://www.sipri.org/databases/milex>, 18.05.2020).
- UNGA** (United Nations General Assembly) 2013a: Report of the Group of Governmental Experts on Developments in the Field of Information and Telecommunications in the Context of International Security (A/68/98), New York.
- UNGA** (United Nations General Assembly) 2013b: Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns (A/HRC/23/47), Geneva.
- U.S. GOVERNMENT PUBLISHING OFFICE** 2015: Hearing on National Defense Authorization Act for Fiscal Year 2016 and Oversight of Previously Authorized Programs Before the Committee on Armed Services, House of Representatives, One Hundred Fourteenth Congress, First Session, Subcommittee on Strategic Forces, Hearing on Fiscal Year 2016 National Defense Authorization Budget Request for Missile Defense Programs, 19 March 2015, Washington, DC (<https://www.govinfo.gov/content/pkg/CHRG-114hrrg94227/pdf/CHRG-114hrrg94227.pdf>, 18.05.2020).
- WHITE HOUSE** 2018: President Donald J. Trump is Ending United States Participation in an Unacceptable Iran Deal (White House Foreign Policy Fact Sheet 08.05.2018), Washington, DC (<https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-ending-united-states-participation-unacceptable-iran-deal/>, 18.05.2020).
- WHITE HOUSE** 2020: Remarks by President Trump Before Marine One Departure, May 21 (<https://www.whitehouse.gov/briefings-statements/remarks-president-trump-marine-one-departure-92/>, 05.06.2020).
- YERMAKOV, VLADIMIR I.** 2020: Washington Should Return Home its Nuclear Weapons from Europe (Interfax; unofficial translation from Russian), Moscow (<https://www.interfax.ru/interview/694859>, 18.05.2020).

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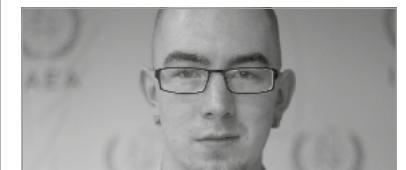
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