# The Status of Nuclear Deterrence Under International Law in Light of the Treaty on the Prohibition of Nuclear Weapons

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## Abstract

Nuclear deterrence is not illegal under international law but is being delegitimised, in part as a result of the adoption of the United Nations Treaty on the Prohibition of Nuclear Weapons. The Treaty prohibits not only possession, control over, threat of use, and use of nuclear weapons or other nuclear explosive devices; it also precludes a state party from encouraging and assisting anyone to engage in such prohibited activities. Moreover, artificial intelligence, offensive cyber operations, and enhanced non-nuclear weapons with strategic impact are combining to render nuclear deterrents ineffective while greatly increasing the risks of unintended or accidental use. Conflict in February 2019 between two nuclear-armed states, India and Pakistan, has shown the dangers and frailties of nuclear deterrence. Nonetheless, nuclear-armed states are engaging in major nuclear weapon modernisation programmes, resulting in a new nuclear arms race. This new race is characterised by the development and deployment of hypersonic missiles containing multiple independently targetable warheads as well as by variable-yield nuclear weapons. Nuclear disarmament, which was negotiated by statesmen at the height of the Cold War, is urgently needed.

## Keywords

Nuclear weapons Nuclear deterrence Treaty prohibition Nuclear disarmament International humanitarian law Conventional weapons

## 2.1 Introduction

The North Atlantic Treaty Organization (NATO)'s latest Strategic Concept, adopted in November 2010, commits the organisation to "the goal of creating the conditions for a world without nuclear weapons" while at the same time reconfirming that "as long as there are nuclear weapons in the world, NATO will remain a nuclear alliance."[1] The Strategic Concept further recalls that deterrence, "based on an appropriate mix of nuclear and conventional capabilities, remains a core element of [NATO's] overall strategy."[2] In 2016, however, prior to the negotiation within the United Nations of the Treaty on the Prohibition of Nuclear Weapons (TPNW),[3] the United States of America (US) drafted a "Non-Paper" on the ramifications it foresaw of the future treaty prohibition of nuclear weapons.[4] In it, the US

argued that the future treaty "could […] destroy the basis for […] nuclear extended deterrence".[5]

This chapter discusses the legality of nuclear deterrence under international law, taking into account the recently adopted TPNW as well as the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (NPT).[6] It considers whether deterrence amounts to an unlawful threat of force under the Charter of the United Nations (UN Charter)[7] or customary international law, mindful of the International Court of Justice (ICJ)'s 1996 Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons.[8] It further assesses whether the undertaking by each state party to the TPNW never under any circumstances to threaten to use any nuclear explosive device or to assist or encourage anyone to engage in prohibited activities (control, possession, stockpiling, transfer, or use of any nuclear explosive device, among others) would preclude continued membership of a nuclear alliance such as NATO. Before opening these discussions, however, it is necessary to define nuclear deterrence as it exists in defence doctrine in a number of states.

## 2.2 The Nature and Extent of Nuclear Deterrence

### 2.2.1 The Purpose of Possession of Nuclear Weapons

The possession of nuclear weapons is typically described not in terms of their hostile use[9] but as a form of shield to dissuade potential aggressors: the ultimate weapon as the ultimate insurance policy. This was articulated by NATO in 2016 in the following manner: "for the Alliance, nuclear weapons play a unique and specific role in its deterrence posture. Their role is to prevent major war, not to wage wars."[10] The strategic aim of deterrence is thus to prevent an armed attack against sovereign territory, especially—but not only—by foreign states. That said, however, the US plans not only to survive an initial nuclear exchange, but also to "win" the resultant conflagration, in an approach sometimes referred to as "counterforce strategy".[11]

In addition to the three nuclear-armed states within NATO (France, the United Kingdom, and the US), the other twenty-six members of the Alliance are all protected by what is often described as the US nuclear "umbrella".[12] So, too, are Australia, Japan, and the Republic of Korea. Armenia appears to be protected by the Russian Federation's nuclear umbrella.[13] As has been explained, "[t]he related concept of 'extended nuclear deterrence' may be understood as the intended effect of a nuclear umbrella."[14]

As Michael Mazarr has observed, the "challenge of deterrence—discouraging states from taking unwanted actions, especially military aggression—has again become a principal theme in U.S. defense policy." He cautions, however, that if "deterrent threats come to be perceived as a general policy of hostility, they may lose their ability to be applied to deter specific actions."[15] In his work for the RAND Corporation on the notion of "comprehensive deterrence",[16] Sir Lawrence Freedman observed that

> deterrence's positive aura was acquired during the Cold War when it is generally held to have worked well. Since 1990 there have been regular discussions of the possibility of achieving comparable results through reconceptualizing deterrence and applying it to the security challenges of the post–Cold War world. The two sets of circumstances, however, appear to be very different. Cold War deterrence was about superpower confrontations and nuclear exchanges. Now the threats are many and varied, posed by

states large and small, non-state actors, and even individuals, such as 'lone-wolf' terrorists.[17]

Indeed, NATO acknowledges that "minor" wars will not be deterred by the possession of nuclear weapons. As a consequence of this, if an (undefined) "major" armed attack occurs against a NATO member, deterrence has failed by the Alliance's own terms. The principal legal question in such a scenario is whether nuclear weapons may lawfully be used in self-defence against the attack or as a belligerent reprisal, and, if so, under which conditions.

### 2.2.2 The Size of the Global Nuclear Arsenal

In terms of global nuclear stockpiles, as of November 2018 the nine nuclear-armed states—China, France, India, Israel, the Democratic People's Republic of Korea (DPR Korea), Pakistan, the Russian Federation, the United Kingdom, and the US—were believed to possess a combined total of less than 14 500 nuclear warheads. Of this total, more than 5 000 weapons were awaiting dismantlement.[18] The vast majority of all nuclear weapons are in either Russian or American hands.

As a whole, the global arsenal of nuclear weapons has seen a dramatic and continued reduction in number since the estimated peak of around 70 000 warheads in 1986. This is the result of bilateral agreements between the Union of Soviet Socialist Republics (USSR)/Russian Federation and the US, beginning in the Cold War with the interim Strategic Arms Limitation Treaty (SALT I) signed by US President Richard Nixon and Soviet General Secretary Leonid Brezhnev in 1972.[19] This five-year agreement effectively capped the number of inter-continental ballistic missile (ICBM) launchers and submarine-launched ballistic missiles (SLBMs) that could be held by either side.[20] At the same time, because the SALT agreement limited only the number of ICBM launchers or missiles that the two superpowers possessed, both went on to develop ICBMs and SLBMs that incorporated several warheads: multiple independently targetable re-entry vehicles (MIRVs).[21]

The Treaty on the Reduction and Limitation of Strategic Offensive Arms (START I),[22] signed by US President George H. W. Bush and Soviet General Secretary Mikhail Gorbachev in 1991, imposed a ceiling of 6 000 strategic nuclear warheads. This represented a very significant reduction from highs of the Cold War. Short- and intermediate-range nuclear missiles were eliminated from Europe in the early 1990s following the signature of the Intermediate-Range Nuclear Forces Treaty (INF Treaty)[23] by Mikhail Gorbachev and US President Ronald Reagan in 1987. The Strategic Offensive Reduction Treaty (SORT),[24] signed by Russian President Vladimir Putin and US President George W. Bush in 2002, and the New START Treaty,[25] signed by US President Barack Obama and Russian President Dmitry Medvedev in 2010, further lowered strategic nuclear force levels to 1550 warheads.[26] In 2011, the US Department of State wrote that "the end of the Cold War-era nuclear arms race has permitted Russia and the United States to continue reducing their holdings of nuclear weapons to levels unthinkable just a few decades ago."[27]

But the total number of nuclear weapons in the world is only one dimension of the nuclear threat. Proliferation that is both vertical and horizontal in nature has occurred over the course of the last 50 years. With regard to horizontal proliferation, three states have become nuclear-weapons powers since the entry into force of the NPT: India and Pakistan in the late 1990s, and, more recently, DPR Korea. Israel, which is believed to have possessed nuclear weapons prior to the NPT's entry into force, expanded the arsenal after the NPT's entry into force.

Also integral to an assessment of the nature and extent of the global arsenal is vertical proliferation, which occurs not only in the number of warheads that states possess but also in the size of explosive yield of each of those warheads.[28] Moreover, at least eight of the nine nuclear-armed states are currently engaged in major nuclear-weapon modernisation projects (the status of DPR Korea's nuclear weapons development programme was unclear, as of writing).[29] The United States alone is expected to spend more than USD 1.2 trillion on the development and production of nuclear weapons in the coming three decades, while the United Kingdom is dedicating programme costs of some USD 230 million over the same period to its renewal of its submarine-based nuclear deterrent.[30] Variable-yield nuclear weapons are being incorporated to both Russian and US arsenals.[31]

In fact, rather than continuing to reduce nuclear stockpiles, instead the world finds itself on the verge of a new nuclear arms race, in potential violation of Article VI of the NPT.[32] This race is reflected less in terms of the total number of warheads and more in the sophistication of weapons delivery technologies, specifically those intended to defeat or overwhelm missile defences.[33] MIRV capabilities, combined with countermeasures (such as decoys designed to confuse sensors),[34] allow a single nuclear weapon's multiple warheads to each hit a distinct target. When hypersonic speed of weapon delivery is added into the mix, as is the case with Russia's new Avangard missile, which can reportedly glide down from the upper atmosphere at speeds of up to Mach 20,[35] no missile defence system in existence can effectively protect against a major attack.[36]

No one should be surprised at this renewed nuclear arms race: the roots can be tracked back to the US decision in 2001 to withdraw from the 1972 Anti-Ballistic Missile Treaty (ABM Treaty)[37] with the USSR, with the warning signs there for all to see on both sides of the East-West divide.[38] Announcing the Russian Federation's new nuclear weapons at the beginning of March 2018, President Putin again said they were a direct response to the US's withdrawal from the ABM Treaty and its continued development of ballistic missile defences—which the Russian government has argued undermine the strategic deterrent value of Russia's existing nuclear force. "No one has listened to us", said Putin. "Listen to us now."[39]

Later that month, Lawrence Korb, the erstwhile US Assistant Secretary of Defense, claimed that the Trump administration had "made the situation with Russia worse".[40] He observed that the latest (2018) US Nuclear Posture Review included the news that the US was not only modernising all three legs of its nuclear triad, but was also adding two new low-yield nuclear weapons that it would be prepared to use even against cyberattacks.[41]

The US' withdrawal from the bilateral 1987 INF Treaty with the USSR (and later the Russian Federation, its successor state), first announced in October 2018, is likely to lead to further production and deployments of short- and intermediate-range nuclear weapons, both in Europe and in Asia. The INF Treaty was the last remaining Cold War-era nuclear arms control agreement still in force. In addition, the US administration has recently rebuffed the offer by President Putin to extend the New START Treaty for five years beyond its impending expiration in February 2021.[42] This Treaty, which was signed in 2010, caps deployable strategic nuclear warheads and bombs at 1550[43] for each of the Russian Federation and the United States of America. No such limits will apply to either party once the agreement expires.

Given this new geopolitical environment, it must be expected that the Russian Federation will feel it has no alternative but to find trillions of Russian rubles to match US expenditure on its

own nuclear arsenal, out of fear that it faces an existential threat from US aggression. Concerned about Chinese expansionism in the South China Sea, the US may well seek to deploy short- and intermediate-range nuclear missiles in South Asia.[44] China will naturally respond by increasing the size of its nuclear arsenal.[45] India in turn will respond to China's greater nuclear power by increasing its own holdings of nuclear weapons, leading Pakistan to accelerate its own production schedule. Some of these new deployments may take place in space (treaty prohibitions notwithstanding).[46] At the same time, any faint vestiges of the prospects for a disarmed DPR Korea will fade away into oblivion, and the regime in Pyongyang will pursue further vertical nuclear proliferation. Iran and Saudi Arabia stand waiting in the wings. In late January 2019, it was reported in the media that a secret ballistic missile base had been detected inside Saudi Arabia, a possible precursor to the development of nuclear weapons.[47] In this way, deterrence yields to domino theory, spurring renewed vertical and horizontal proliferation. In such circumstances, those who laud the success of the NPT—the "cornerstone" of the nuclear non-proliferation regime[48]—may feel constrained to reassess their views.

### 2.3 The Legality of Nuclear Deterrence

Set against this backdrop of gargantuan weapons expenditure, it is appropriate to question to what extent it is lawful to possess an arsenal of weapons each of which is capable of killing hundreds of thousands of people in an instant? And, if it is, are there any constraints that are imposed on the development, maintenance, and application of these weapons by international law? This demands critical investigation of the law applicable both *ad bellum* and *in bello*.

#### 2.3.1 Threat of Use

At the heart of nuclear deterrence is the warning that nuclear weapons will be launched in a more or less well-defined set of circumstances against military objectives or civilian objects. The threat of use of nuclear weapons may violate the law on inter-state use of force (*jus ad bellum*) as well as the law of armed conflict (the mainstay of *jus in bello*). These branches of law are discussed in turn.

##### 2.3.1.1 The Legality of the Threat of Use of Nuclear Weapons Under Jus ad Bellum

As is well known, the bedrock of contemporary *jus ad bellum* is Article 2(4) of the UN Charter, which stipulates: "all Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations." This represents a general—and very broad—prohibition on the threat of force by one state against or on the territory of another.[49]

Not all threatened force, though, is unlawful under Article 2(4) of the UN Charter. The so-called Brownlie formula on the legality of a threat to use force holds that only if a government promises to use force "in conditions for which no justification for the use of force exists, the threat itself is illegal".[50] This doctrine has been endorsed by the ICJ. In its 1996 Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons, the Court stated as follows: "if the envisaged use of force is itself unlawful, the stated readiness to use it would be a threat prohibited under Article 2, para 4."[51] Later in the same paragraph of its Advisory Opinion, the Court returned to the same theme, affirming that:

> The notions of 'threat' and 'use' of force under Article 2, para 4, of the Charter stand together in the sense that if the use of force itself in a given case is illegal—for whatever reason—the threat to use such force will likewise be illegal. In short, if it is to be lawful, the declared readiness of a State to use force must be a use of force that is in conformity with the Charter.[52]

Most obviously, therefore, a threat by one state to defend itself by all lawful means following an armed attack by another state would not violate Article 2(4) of the UN Charter.[53] This demands compliance with the *ad bellum* principles of necessity and proportionality[54] and, by extension, if the *dicta* by the ICJ in the Oil Platforms case are correct,[55] that the threatened targets of force must also be lawful military objectives under the law of armed conflict.[56] That said, the majority decision of the Court in the 1996 Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons, whereby the Court was unable to "conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defence, in which the very survival of a State would be at stake", can be read in different ways.[57] In contrast, it is assuredly true that, as the ICJ has also observed, "it would be illegal for a State to threaten force to secure territory from another State, or to cause it to follow or not follow certain political or economic paths."[58]

But what act or omission, statement or implication, constitutes a threat, however, has never been the subject of either clarity or consensus. For Brownlie, a threat of force "consists in an express or implied promise by a government of a resort to force conditional on non-acceptance of certain demands of that government".[59] This is too narrow. A threat could equally well be gratuitous, vindictive, or punitive, pledging a certain course of action at the whim of the sovereign without making either general or specific demands on another state.[60]

In September 2017, for instance, following the tightening of UN Security Council sanctions against DPR Korea, the Korea Asia-Pacific peace committee, which oversees the nation's relations with the outside world, said in a statement: "the four islands of the [Japanese] archipelago should be sunken into the sea by the nuclear bomb of Juche." It also called for the US mainland to be reduced to "ashes and darkness". "Let's vent our spite, the statement continued, "with mobilisation of all retaliation means which have been prepared till now".[61] This was clearly an unlawful threat of force (and no demands were made of either Japan or the US). For, as the ICJ duly noted, "no State—whether or not it defended the policy of deterrence—suggested to the Court that it would be lawful to threaten to use force if the use of force contemplated would be illegal."[62]

In contradistinction, the ICJ's categorisation of what amounts to a threat was oblique, to say the least. The Court said that: "whether a signalled intention to use force if certain events occur is or is not a 'threat' within Article 2, para 4, of the Charter depends upon various factors."[63] It refrained, though, from elucidating on what the constituent elements might be of "a signalled intention to use force". While overt pledges of future force such as the North Korean example offered above clearly meet the criteria, in other cases it might not be so clear. What, for instance, is one to make of the question posed by a spokesperson for the Ministry of Foreign Affairs of the Russian Federation in March 2018, following the attempted murder of a former Russian double-agent and his daughter in Salisbury in the United Kingdom: "who does Britain think it is, issuing ultimatums to a nuclear power?"[64]

In the late 1980s, Sadurska described a threat as "an act that is designed to create a psychological condition in the target of apprehension, anxiety and eventually fear, that will

erode the target's resistance to change or will pressure it toward preserving the status quo".[65] The nature of the threat may be implicit as well as explicit. Sadurska describes an explicit threat as one that is "articulated […] orally or in a document or communiqué".[66] But so too may be an *implicit* threat, as Russia's rhetorical question demonstrates.[67]

More debatably, Sadurska suggests that adherence to a military alliance may in and of itself amount to such a threat.[68] Of course, it may be that a military alliance—and by extension its members—threatens the use of force in particular circumstances. It is not, however, the membership *per se* of that alliance that constitutes the threat, just as the possession of weapons does not automatically amount to a threat of the use of force under international law. Here, too, the ICJ's analysis in its 1996 Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons left a lot to be desired. The Court stated:

> Some States put forward the argument that possession of nuclear weapons is itself an unlawful threat to use force. Possession of nuclear weapons may indeed justify an inference of preparedness to use them. In order to be effective, the policy of deterrence, by which those States possessing or under the umbrella of nuclear weapons seek to discourage military aggression by demonstrating that it will serve no purpose, necessitates that the intention to use nuclear weapons be credible.[69]

But an intention is not a synonym for a threat: intention is substantially broader in scope. As also argued by Casey-Maslen,[70] a threat of use of a nuclear weapon occurs when it is averred or implied, by declaration or deed, that the weapon will be used *proximately in time*, against or on the territory of another state. This is so, whether or not action is required of the target state if use is ostensibly to be avoided. But the threat must indeed be credible. A state that is clearly engaging in empty political gesturing (for instance, because it does not itself have a nuclear weapon nor hold sway over its use by another) does not breach its international legal obligations.

A tacit threat may, as Dinstein affirms, exist through a demonstration of military capability in a provocative manner.[71] This would not, however, normally occur in a routine military operation or exercise.[72] Thus, in its judgment in the *Nicaragua* case, the ICJ held that US military exercises conducted jointly with Honduras near the border with Nicaragua "in the circumstances in which they were held" did not constitute an unlawful threat of force.[73] Similarly, in 1949, in the *Corfu Channel* case, the Court did not consider that certain actions at the time of the British Navy had amounted to "a demonstration of force for the purpose of exercising political pressure" on Albania, but as a legitimate protective measure.[74]

A clear instance of where acts related to nuclear weapons might amount to an implicit—and potentially unlawful—threat of force is in the nuclear tests conducted by India and Pakistan in 1998. While, arguably, India's tests were also intended as a warning to China,[75] India and Pakistan were sending a clear signal to each other through the multiple tests. Indeed, in the subsequent discussions on the tests in the UN Security Council, Ambassador Robert Fowler of Canada said that India and Pakistan had "returned the world to the dark threat of nuclear terror".[76]

India's Minister of Home Affairs, L. K. Advani, stated at the time: "Islamabad should realise the change in the geo-strategic situation in the region and the world. It must roll back its anti-India policy especially with regard to Kashmir. Any other course will be futile and costly for Pakistan."[77] Then on 2 June 1998, at a Special Session of the Conference on Disarmament,

Indian Ambassador Savitri Kunadi delivered a statement in which she said that her country did "not intend to use these weapons for aggression or for *mounting* threats against any country; these are weapons of self-defence, to ensure that India is not subjected to nuclear threats or coercion. We do not intend to engage in an arms race."[78] In response, Pakistan's Ambassador, said:

> For many years, Pakistan has been trying to draw the attention of the international community and of this body to the dangers of conflict, including the nuclear threat emanating from India.
>
> […]
>
> India conducted its tests on 11 and 13 May 1998. As we found, these tests were soon followed with provocative statements and threats against Pakistan. These threats culminated in reports of a planned pre-emptive strike against Pakistan's sensitive facilities in the night of 28 May 1998.
>
> […]
>
> Our decision to test, Mr. President, became virtually inevitable because of three factors: firstly, the steady escalation in the provocations and threats emanating from India. We were told that India is a nuclear-weapon state. We have just heard that repeated here today. We were told India would use nuclear weapons. We were told that the strategic balance had been altered by India's tests, and now India could teach Pakistan a lesson. We had to take that into account. Secondly, there was the weak and partial response of the world community to India's tests and threats. Obviously, no-one was—and no-one is—willing to underwrite Pakistan's security. We have to do it ourselves. Therefore, the criticism which has been voiced by some of our friends, who enjoy the NATO security umbrella, of Pakistan's testing; this we believe was not even-handed. The third factor relevant to our decision was the realization that, *given the nature of the Indian regime, we could not leave them in any doubt about the credibility of our capability to deter and respond devastatingly to any aggression against our country or pre-emptive [strike] against our facilities*.[79]

#### 2.3.1.2 The Legality of the Threat of Use of Nuclear Weapons Under the Law of Armed Conflict

*Denial of Quarter*

There are very few instances in which a threat of force (as opposed to its use) is addressed by the law of armed conflict. One such act *in bello*, however, is the denial of quarter—"we will be taking no prisoners"—where it is announced that all those who seek to surrender will be summarily executed. Rule 46 of the International Committee of the Red Cross (ICRC)'s Study of Customary International Humanitarian Law, published in 2005, holds that: "ordering that no quarter will be given, threatening an adversary therewith or conducting hostilities on this basis is prohibited."[80] This rule, the ICRC states, applies to all armed conflicts, whether international or non-international in character.[81]

It could be argued that threatening to use a nuclear weapon against a military garrison or a defended city (if one further assumes, for the sake of argument, that the city has been

evacuated of all civilians) is tantamount to threatening that there will be no survivors. This would be, though, to misconstrue the rule. As noted above, the rule is actually dictating that those taking a direct part in hostilities who seek to surrender must be allowed to do so and must be respected and protected. But it is not unlawful to kill such fighters before an attempted act of surrender, for instance by bombardment, and even potentially through the use of a nuclear weapon.[82]

*Terrorisation of the Civilian Population*

More problematic for the potential user of a nuclear weapon is the second rule that governs threatened use of force: the prohibition on threats of violence whose main aim is to spread terror among the civilian population. This rule, which applies to all armed conflicts, holds that: "acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited."[83] In its judgment in the *Galić* case, the Appeals Chamber declared its satisfaction that the prohibition of terror against the civilian population as enshrined in the two 1977 Additional Protocols to the Geneva Conventions was a norm of customary international law "from the time of its inclusion in those treaties".[84] While Judge Wolfgang Schomburg dissented from the majority's finding that the prohibition of terror attracted individual criminal responsibility under international criminal law, he did agree that there could be "no doubt" that the primary rule *per se* was part of customary international law.[85]

Perhaps surprisingly, the ICJ did not consider this prohibition in assessing which rules of the law of armed conflict could act to render nuclear weapons illegal (especially given its contentious finding that possession on its own may amount to a threat of use). A threat to use a nuclear weapon against a populated area, such as a city, would be highly likely to infringe the customary prohibition on threatening terror. The Special Court for Sierra Leone (SCSL) judged Charles Taylor, the former President of Liberia, for his involvement in the non-international armed conflict in Sierra Leone in the late 1980s and the 1990s. In dismissing his appeal against conviction for complicity, the Appeals Chamber declared itself satisfied that Revolutionary United Front (RUC)/Armed Forces Revolutionary Council (AFRC) used acts of terror as its "primary *modus operandi*":

> The RUF/AFRC pursued a strategy to achieve its goals through extreme fear by making Sierra Leone 'fearful'. The primary purpose was to spread terror, but it was not aimless terror. Barbaric, brutal violence was purposefully unleashed against civilians because it made them afraid – afraid that there would only be more unspeakable violence if they continued to resist in any way, continued to stay in their communities or dared to return to their homes. It also made governments and the international community afraid—afraid that unless the RUF/AFRC's demands were met, thousands more killings, mutilations, abductions and rapes of innocent civilians would follow. The conflict in Sierra Leone was bloody because the RUF/AFRC leadership deliberately made it bloody.[86]

Given the destructive power of nuclear weapons, whether in the kiloton or megaton range, what this means is that a threatened use of a nuclear weapon against a city could be a serious violation of the law of armed conflict, even if that threat does not materialise into use. The evidentiary threshold may, though, prove tricky to meet. First, it is not enough that spreading terror be a reasonably foreseeable consequence of the threat, it must be the primary purpose

(though not necessarily the sole purpose). The threat must also occur in the context of an armed conflict and with sufficient nexus to it.

*Belligerent Reprisals*

The further claim for potentially lawful use against a populated area, when the rules of distinction and proportionality are not complied with, is as a belligerent reprisal. Belligerent reprisals refer to acts by one party that would normally be unlawful under the law of armed conflict, but which are not prohibited on the basis that they seek, within defined conditions, to bring an adverse party back into compliance with the law. They are, in the words of the International Criminal Tribunal for the former Yugoslavia (ICTY), "inherently a barbarous means of seeking compliance with international law".[87] Nonetheless, they are one of the few means by which a party to an armed conflict may realistically seek compliance with the law of armed conflict while hostilities continue on the battlefield.

Regrettably, in its 1996 Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons, the ICJ declined to consider the legality of threat or use of belligerent reprisals, claiming that it did not "have to pronounce on the question of belligerent reprisals save to observe that in any case any right of recourse to such reprisals would, like self-defence, be governed, *inter alia*, by the principle of proportionality."[88] Given that the use of ICBMs is typically threatened against population centres in the context of belligerent reprisals, and that the Court was asserting that a threat of force could only be lawful if the force would itself be lawful if the threat were carried out (i.e. the Brownlie formula), the Court's reticence in this regard is hard to fathom.

There are six conditions that must all be fulfilled for a belligerent reprisal to be lawful. These conditions are as follows: (1) an act of reprisal by one party must be in response to a prior unlawful act by an adverse party, (2) the act of reprisal must be in response to serious violations of the law of armed conflict, (3) recourse to a reprisal must be necessary in the circumstances, (4) the primary intent of the reprisal must be to end the adverse party's serious violations of the law of armed conflict, (5) the act of reprisal must be proportionate to those serious violations, and (6) reprisals must not be committed against prohibited targets.

First, a reprisal may only be conducted in response to a prior act or acts that violate the law of armed conflict. Thus, the mass killing of combatants on the battlefield (including by a nuclear weapon) would not meet this test. A violation of *jus ad bellum*, even if it were serious, such as in the case of aggression, would equally not found the right to conduct a belligerent reprisal under the law of armed conflict. Moreover, the act or acts *in bello* must be clearly unlawful, meaning that they must be deliberate; a mistake in targeting would not suffice.

Second, a reprisal is only possible in response to serious violations of the law of armed conflict, such as war crimes. An individual violation will not suffice unless it is exceptionally grave, for instance when many civilians are intentionally killed in a single attack that is not targeted at a lawful military objective (which could of course be a nuclear attack on a city).

Third, the reprisal must be necessary, meaning that if other, less brutal means can reasonably be expected to achieve the aim of returning an enemy to compliance with the law of armed conflict they must first be pursued. Such measures would normally include a warning to the offending party to cease its unlawful behaviour, combined with a reasonable time period within which a commitment to renewed compliance must be confirmed. The warning should

identify clearly the acts that are the basis for a possible future reprisal and make explicit the potential consequences of a failure to respond positively to the warning.

Fourth, belligerent reprisals must be conducted with a view to bringing the adverse armed force back into compliance with the law of armed conflict. In its judgment in the *Martić* case, the ICTY Trial Chamber claimed that this aim must be the sole purpose of the acts taken.[89] There is only very limited state practice to support this position, and it must be considered an inexact appraisal of the law. Acts carried out purely in revenge or as a form of collective punishment remain unlawful. But ignoble secondary motivations would not serve to prohibit a lawful reprisal as long as its primary purpose is to promote renewed compliance with the law by the adverse party.

Fifth, as the ICJ observed, acts of belligerent reprisal must be proportionate to the original serious violations of the law of armed conflict (while also being such as to engender a return to compliance by the offending party). Excessive use of force is unlawful, and acts of reprisal must cease as soon as their objective, the return to compliance with the law of armed conflict, have been achieved. As Christopher Greenwood has asserted, reprisals "should exceed neither what is proportionate to the prior violation nor what is necessary if they are to achieve their aim of restoring respect for the law."[90]

Sixth, and finally, reprisals must not be committed against prohibited targets. Treaty and custom has designated certain persons (e.g., prisoners of war) or objects (e.g., hospitals) that may never be targeted with reprisals. Whether reprisals against civilians in enemy territory are prohibited, though; is contentious. There is a treaty prohibition in the 1977 Additional Protocol I, which provides that: "attacks against the civilian population or civilians by way of reprisals are prohibited."[91] In its 1987 commentary on this provision, the ICRC overreached in asserting that the prohibition "is not subject to any conditions and it therefore has a peremptory character."[92]

Given the strong opposition by a small number of specially affected states, however, voiced both at the time and subsequently, it is not possible to state with certainty that the norm is of a customary nature, let alone that it has attained the status of *jus cogens*. Indeed, the ICRC's own study of customary law, published in 2005, concluded that: "because of existing contrary practice, albeit limited, it is difficult to conclude that there has yet crystallized a customary rule specifically prohibiting reprisals against civilians during the conduct of hostilities. Nevertheless, it is also difficult to assert that a right to resort to such reprisals continues to exist based on the practice of only a limited number of States, some of which is also ambiguous. Hence, there appears, at a minimum, to exist a trend in favour of prohibiting such reprisals."[93]

Among relevant practice, the United States of America, a state not party to the 1977 Additional Protocol I, has expressed its view that the provisions in the Protocol on reprisals are "counterproductive" and that "they remove a significant deterrent that protects civilians and war victims on all sides of a conflict".[94] In 1998, the United Kingdom attached an "understanding" to its ratification of the Protocol whereby it would accept prohibitions on targeting civilians

> on the basis that any adverse party against which the United Kingdom might be engaged will itself scrupulously observe those obligations. If an adverse party makes serious and deliberate attacks […] against the civilian population or civilians or

> against civilian objects, […] the United Kingdom will regard itself as entitled to take measures otherwise prohibited by the Articles in question to the extent that it considers such measures necessary for the sole purpose of compelling the adverse party to cease committing violations under those Articles.[95]

France, also a state party to the 1977 Additional Protocol I, has declared that it will respect the prohibition on reprisals against enemy civilians insofar as it "does not constitute an obstacle to the use, according to international law, of the means which it considers indispensable to protect its civilian population against grave, clear and deliberate violations of the 1949 Geneva Conventions and of the Protocol by the enemy."[96] Egypt,[97] Germany,[98] and Italy[99] have also reserved the right to react to serious violations of the Protocol with any means permitted by international law to prevent further violations. The list of specially affected states seemingly precludes the existence of a customary prohibition on belligerent reprisals against civilians in enemy territory. However, can one truly say that a massive nuclear response targeted at cities in response to prior devastation of one's own population centres is actually intended to bring the enemy back into compliance with the law of armed conflict? Or is it not just an act of revenge, pure and simple?

### 2.3.2 Threaten to Use

No such reservations about the law apply with respect to the TPNW (not yet in force as of writing). Article 1(1)(d) of the Treaty obligates each state party "never under any circumstances to: […] threaten to use nuclear weapons or other nuclear explosive devices" while also outlawing their development, possession, stockpiling, and transfer. The nature of the undertaking "never under any circumstances" in the *chapeau* of Article 1(1) is all-encompassing, permitting no exception, even in response to aggression (*ad bellum*) or as a belligerent reprisal (*in bello*).

In the negotiation of the provision, a number of states had called for a prohibition on the "threat of use" of nuclear weapons. Such a construction would have been considerably wider, going to the heart of reliance on a nuclear umbrella, but would have fallen foul of the well-established principle against binding states not party to the treaty without their consent: *pacta tertiis nec nocent nec prosunt*.[100] Accordingly, the obligation never under any circumstances to threaten to use a nuclear weapon under Article 1(1)(d) of the TPNW is not transgressed by the mere fact of adherence to a nuclear alliance. It even does not occur *per se* owing to the fact of *possessing* a nuclear weapon. That much may be discerned from the wording of Article 2(1)(b) of the Treaty, which requires a state party to declare whether it owns, possesses or controls any nuclear weapons or other nuclear explosive devices, "[n]otwithstanding Article 1(a)". The absence of any reference to Article 1(1)(d) of the Treaty is notable, indicating that possession does not equate to a prohibited threat to use.[101]

To threaten to use a nuclear weapon is an act of only the state party itself, and not that of another state, entity, or actor threatening use against a designated target. As is the case with the general prohibition on the threat of use of force, discussed above, there does not need to be a demand for certain action to be taken for a violation to arise. Pure malevolence, for instance, or a desire to distract from political problems at home would suffice, even if no action was demanded on the part of the target state or states.[102]

### 2.3.3 Prohibited Assistance

This does not mean, however, that a state may adhere to the TPNW and continue to enjoy the protection it believes is afforded by extended nuclear deterrence. Under Article 1(1)(e) of the TPNW, each state party undertakes "never under any circumstances to: […] Assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Treaty".

This prohibition on assistance or encouragement is not an innovation in disarmament law. An undertaking not to assist, encourage, or induce, in any way, the conduct of activities prohibited to a state party was first included in Article III of the 1971 Biological Weapons Convention.[103] There, however, it was formulated in less restrictive terms, precluding assistance or encouragement only for manufacture or acquisition. Moreover, the scope of the restraint was specifically limited to "any State, group of States or international organisations" and thus did not explicitly outlaw such assistance when provided to natural persons (i.e. individuals) or legal persons, such as corporations.[104] A considerably broader construction was incorporated in the 1992 Chemical Weapons Convention, whereby each state party "undertakes never under any circumstances: […] To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention."[105] This wording was reproduced in the 1997 Anti-Personnel Mine Ban Convention[106] as well as in the TPNW itself.

The scope of the undertaking in Article 1(1)(e) of the TPNW is broad. This is evidenced by the phrase "in any way", which encompasses indirect as well as direct actions. Potentially, this pertains not only to prohibited activities with respect to an assembled nuclear explosive device, but also to its key components. This is so, at least where there was knowledge on the part of the state party of the recipient's intent. The word "anyone" is similarly to be construed broadly, as is the case with respect to the 1992 Chemical Weapons Convention.[107] In the TPNW, it means any natural or legal person[108] (including not only a company but also an international organisation)[109] as well as any state (whether party or not to the Treaty) and any non-state actor.[110] The term is intended to be comprehensive.[111]

The prohibited activities are those set out in the other subparagraphs of Article 1(1) of the TPNW, namely to: develop, test, produce, manufacture, otherwise acquire, possess or stockpile nuclear weapons or other nuclear explosive devices; transfer to any recipient whatsoever or control over such weapons or explosive devices directly or indirectly; receive the transfer of or control over such weapons or other devices directly or indirectly; use or threaten to use such weapons or devices; allow any stationing, installation or deployment of any nuclear weapons or other nuclear explosive devices in its territory or at any place under its jurisdiction or control; and to seek or receive any assistance, in any way, from anyone to engage in any of the above activities.

What is the nature of assistance for the purpose of Article 1(1)(e)? The notion of prohibited assistance by a state is well known under public international law as it pertains to state responsibility, even if the precise contours of the prohibition are disputed. Article 16 of the International Law Commission's 2001 draft articles on the Responsibility of States for Internationally Wrongful Acts[112] provides that:

> A State which aids or assists another State in the commission of an internationally wrongful act by the latter is internationally responsible for doing so if:

(a) that State does so with knowledge of the circumstances of the internationally wrongful act; and
(b) the act would be internationally wrongful if committed by that State.

In its judgment of 2007 in the case brought by Bosnia and Herzegovina against Serbia and Montenegro alleging responsibility for genocide, the ICJ found that draft Article 16 of the draft articles represented customary international law, and is therefore binding upon every state.[113]

With respect to the prohibition on assistance, the question of intent inevitably arises. Must the state party assisting another to engage in a prohibited activity *intend* that this other party so engage? The International Law Commission's Special Rapporteur, James Crawford, clearly believed so. He stated in his official commentary on draft Article 16 that: "[a] State is not responsible for aid or assistance under article 16 unless the relevant State organ *intended*, by the aid or assistance given, to facilitate the occurrence of the wrongful conduct and the internationally wrongful conduct is actually committed by the aided or assisted State."[114] I would respectfully submit that on this particular point Professor Crawford does not reflect extant international law. Such a threshold is not within the wording of Article 16, which talks only of "knowledge of the circumstances of the internationally wrongful act". This threshold is further evidenced by the views of the ICJ on such assistance. In its 2007 judgment in the Genocide case, the Court declared that:

> There is no doubt that the conduct of an organ or a person furnishing aid or assistance to a perpetrator of the crime of genocide cannot be treated as complicity in genocide *unless at the least that organ or person acted knowingly*, that is to say, in particular, was aware of the specific intent (*dolus specialis*) of the principal perpetrator.[115]

This is the correct test for complicity under international law: to be internationally responsible, a state assisting another party (the assistor) to commit an internationally wrongful act (the assistee), must at least be aware of the assistee's intent to engage in a prohibited activity. But the assistor does not need, itself, to actually intend that the assistee so engage: knowledge of what the assistee is planning to do suffices.[116] This is the same standard that applies in relation to activities prohibited under Article 1(1)(e) of the TPNW.

The types of activities that will amount to prohibited conduct are also broad in scope. A commentary on the corresponding provision in the 1992 Chemical Weapons Convention states that assistance "can be given by material or intellectual support […] but also financial resources, technological-scientific know-how or provision of specialised personnel, military instructions, etc. to anybody who is resolved to commit such prohibited activity or by support in the concealment of such activities".[117] Thus, for instance, providing technical or material or financial assistance for the enrichment of uranium-235 to weapons-grade purity or the equivalent reprocessing of plutonium, *where the future use of this fissile material in nuclear weapons is known by the assistor*, would constitute prohibited assistance for development and possibly also for production. Depending on the circumstances, it could also amount to assistance in threatening to use.

The same consequence would occur with respect to the provision of ballistic missile technology, again where it was known that the assistee's missile programme was intended for the delivery of nuclear weapons. It has been suggested that another case of "apparent non-compliance" is the Marshall Islands' hosting of the US Reagan Missile Test Site on

Kwajalein Atoll; the site—located on land that the United States leases from the Marshall Islands—is frequently used for ICBM tests. This could amount to assistance to develop nuclear weapons.[118]

Considerably trickier to assess is the case of adhering to a multinational alliance that explicitly foresees the use of nuclear weapons in a situation where the potential "encourager" does not allow nuclear weapons to be stationed, installed, or deployed in any place under its jurisdiction or control (and of course does not possess or stockpile them itself). This may occur with respect to NATO or to the Collective Security Treaty Organization (CSTO).[119]

The CSTO, formed under the framework of the Commonwealth of Independent States, serves as a mutual defence alliance among the Russian Federation, Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Tajikistan.[120] Article 4 of the 1992 Collective Security Treaty, as amended in 2010, which is its "key part", reads as follows:

> If one of the Member States undergoes aggression (armed attack menacing to safety, stability, territorial integrity and sovereignty), it will be considered by the Member States as aggression […] to all the Member States of this Treaty. In case of aggression commission […] to any of the Member States, all the other Member States at request of this Member State shall immediately provide the latter with the necessary help, including military one, as well as provide support by the means at their disposal in accordance with the right to collective defence pursuant to Article 51 of the UN Charter.

The CSTO has "been described as a nuclear alliance".[121] Indeed, the Secretary-General of the organisation has suggested that the Russian Federation has extended a "nuclear umbrella" over all members of the alliance.[122] In fact, three of the CSTO's members "have actively distanced themselves from nuclear deterrence."[123] Through their adherence to the 2006 Treaty of Semipalatinsk, Kazakhstan, Kyrgyzstan, and Tajikistan have committed never to "assist or encourage" the development, manufacture, or possession of nuclear weapons.[124] Kazakhstan has also signed and ratified the TPNW.

With respect to NATO, as noted above, the Alliance's Strategic Concept of November 2010 notes that deterrence, "based on an appropriate mix of nuclear and conventional capabilities, remains a core element" of the Alliance's overall strategy.[125] It is certainly lawful for a member of NATO to sign the TPNW. But would a NATO member state that ratifies or accedes to it be in violation of its obligations under the TPNW? In particular, would it be held to be encouraging others to engage in prohibited conduct (at least possession and stockpiling, and potentially also development and production)?

To encourage something is ordinarily to seek to persuade someone to do something, or to continue to do it, by the provision of support or advice.[126] It is not required that this encouragement be successful, for "to encourage" is not a synonym for "to persuade". Is membership of NATO therefore tantamount to endeavouring to persuade the US to continue to possess nuclear weapons and to maintain a nuclear weapon stockpile? In a respected commentary on the corresponding provision in the 1992 Chemical Weapons Convention it was said that the prohibition on encouraging or inducing "means contributing to the emergence of resolve of anybody to commit a prohibited activity by instigating, promising assistance."[127] This is materially narrower in ambit than is the understanding of the verb "to

encourage" in ordinary parlance. Thus, it may be that such an understanding is too narrow, at least with regard to the TPNW.

NATO's 2010 Strategic Concept explicitly envisages the possession and potential use by certain members of a "nuclear alliance". Indeed, the Strategic Concept stipulates that NATO members "*will ensure* that NATO has the full range of capabilities necessary to deter and defend against any threat to the safety and security of our populations. Therefore, we will […] maintain an appropriate mix of nuclear and conventional forces."[128] It is hard not to view this as an overt and official form of encouragement to continued possession and stockpiling by other members. That said, there is an argument that adhering to an international treaty overrides, as a matter of international law, commitment to an earlier political declaration, such as the 2010 NATO Strategic Concept. Indeed, there is a certain irony in the position that a nuclear-weapon state may adhere to the TPNW and be in conformity with it (subject, of course, to its compliance with the disarmament actions required by Articles 2 and 4 and most of Article 1), but an umbrella state would not. It would, though, be sufficient legally—and straightforward practically—for a nuclear umbrella state to disavow all support for nuclear weapons in a declaration appended to its instrument of ratification or accession and then to comply with the rest of the Treaty. This would represent good faith application of its international legal obligations.

State practice will also be relevant in relation to the interpretation of the notion "encourage" in Article 1(1)(e).[129] It is the position of Austria, for instance,

> repeatedly stated in the negotiations leading to the adoption of the Treaty, that 'assisting, encouraging or inducing' is to be understood as referring to measures taken by states parties with the object and purpose of actively supporting, in particular, the possession, use, or threat to use of nuclear weapons or other nuclear explosive devices.[130]

Austria also believes that the "mere fact of belonging to a military alliance together with nuclear weapons states or of participating in military manoeuvres with such states, without actively assisting in, encouraging or inducing the deployment of nuclear weapons, does not fall under the prohibition of Article 1(1)(e) of the Treaty."[131] This is certainly correct. In the context of the 1997 Anti-Personnel Mine Ban Convention,[132] the issue arose as to whether the corresponding prohibition on assistance or encouragement under that treaty would act to prevent a state from lawfully engaging in military cooperation with the United States. Several NATO members, in adhering to the 1997 Convention, made explicit their interpretation of the provision. The Czech Republic, for instance, stated its understanding as follows:

> [T]he mere participation in the planning or execution of operations, exercises or other military activities by the Armed Forces of the Czech Republic, or individual Czech Republic nationals, conducted in combination with the armed forces of States not party to the [Convention], which engage in activities prohibited under the Convention, is not, by itself, assistance, encouragement or inducement for the purposes of Article 1, para 1(c) of the Convention.[133]

Reservations to the 1997 Anti-Personnel Mine Ban Convention are expressly prohibited by its Article 19. But no state party to the 1997 Anti-Personnel Mine Ban Convention has objected to this understanding or otherwise suggested that it is unlawful.

Thus, in a similar vein, the armed forces of a state party to the 2017 TPNW could lawfully participate in the planning or execution of operations, exercises, or other military activities, where these were conducted in combination with the armed forces of a state not party to the Treaty that possesses nuclear weapons. Sweden, for example, were it to adhere to the TPNW, could lawfully pursue military exercises such as Aurora 17, which took place in Sweden on 11–29 September 2017 with the participation of the United States of America and other NATO states, including Germany (which hosts US nuclear weapons on its territory).[134]

Moreover, wording in the Strategic Concept whereby NATO members commit to ensuring "the broadest possible participation of Allies in collective defence planning on nuclear roles, in peacetime basing of nuclear forces, and in command, control and consultation arrangements" demonstrates that it is possible to be a NATO member without engaging in any of these activities, which would be unlawful for a state party to the TPNW. Whether a NATO member could disavow its support for nuclear weapons and remain a member of that "nuclear alliance" is a moot point. But it would always be open to a NATO member to adhere to the Treaty and await the reaction of the other states parties (and other NATO members).

Any state may, though, lawfully sign the Treaty, irrespective of whether it possesses nuclear weapons. Of course, signature of the Treaty has legal consequences. As the Vienna Convention on the Law of Treaties stipulates: "[a] State is obliged to refrain from acts which would defeat the object and purpose of a treaty when: […] (a) it has signed the treaty […] until it shall have made its intention clear not to become a party to the treaty".[135] Acts which would defeat the object and purpose of the Treaty[136] would certainly include any use of a nuclear weapon or other nuclear explosive device,[137] as would, in all likelihood, a test detonation.[138]

The departure from practice in allowing signature even after the Treaty's entry into force allows members of a nuclear alliance such as NATO to legitimately sign at any time without the need for any change in policy. In contrast, they would not, in all likelihood, be in full compliance with their international legal obligations if they were constrained to accede to the Treaty directly and without any action on their part to disassociate themselves from the US nuclear umbrella.

#### 2.3.3.1 The Prohibition on Assistance Under the NPT

In contrast to the TPNW, the NPT only prohibits the five nuclear-weapon states designated under the Treaty from assisting other states to acquire nuclear weapons.[139] No such comprehensive undertaking is imposed on the non-nuclear-weapon states parties. They are, however, precluded from providing fissile material to any other non-nuclear-weapon state unless it is for peaceful purposes and the recipient state has a safeguards agreement in place with the International Atomic Energy Agency (IAEA).[140] The NPT thus only prohibits certain forms of assistance with respect to horizontal proliferation and none with respect to vertical proliferation of China, France, the Russian Federation, the United Kingdom, and the United States of America.

### 2.4 The Effectiveness of Nuclear Deterrence

The Cuban Missile Crisis of 1962 provided a stark example of both the precariousness and, ultimately, the effectiveness of deterrence at the time. In 1983, the Soviet Union's leadership, and especially its ailing premier, Yuri Andropov, was becoming convinced that Reagan's

bellicose rhetoric, combined with the large-scale US military exercises in Western Europe codenamed Autumn Forge, meant that a US first strike was coming. One analyst has termed 1983 "the moment of maximum danger of the late Cold War".[141]

Despite the horrendous risks, deterrence did, though, serve to prevent all-out war between the United States and the Soviet Union during the Cold War. Since 1990, however, the nature of the nuclear threat has changed dramatically. Writing in 2012, Patrick Morgan argued that insufficient appreciation existed of "how and why Cold War conceptions of deterrence are of limited relevance now and also of the ways in which Cold War deterrence thinking remains relevant."[142] Since the end of the Cold War, he asserts, the dominant political relationships among leading states have become quite different in character: "[t]o the great powers, and most other states, deterrence is not an everyday necessity standing between them and disastrous attacks."[143]

One of the greatest nuclear fears today is that nuclear weapons find their way into the hands of terrorists or "rogue states", either through autonomous programmes of development or as a result of technology passed on from scientists in nuclear-weapon states.[144] But a policy of deterrence has been described as "useless" against terrorists.[145] It did not prevent al-Qaeda from attacking the United States on 11 September 2001.

The proven ability of a nuclear deterrent to prevent an armed non-nuclear attack by another state is also quite poor. It did not prevent Argentina's invasion of the Falkland Islands/Malvinas in 1981, for instance, despite the United Kingdom's independent deterrent. More recently, it did not preclude Turkey from deciding to shoot down a Russian plane engaged in the Syrian conflicts in 2015.[146] Nor did it prevent Russia from sending agents to kill Alexander Litvinenko in 2006 or to use a chemical weapon known as Novichok in Salisbury against a Soviet defector in 2018.[147] In late February 2019, India was bombing areas in Pakistani-controlled Kashmir:[148] one nuclear-armed state using considerable conventional force on the territory of another nuclear-armed state.

Large-scale intervention in the US presidential elections—not an armed attack of course, but nonetheless a violation of international law—were similarly not dissuaded by the United States' massive nuclear arsenal. In 2010, Colin Powell, who at one stage of his career had 28 000 nuclear weapons potentially under his authority, robustly assailed their effectiveness:

> The one thing that I convinced myself after all these years of exposure to the use of nuclear weapons is that they were useless. They could not be used. If you can have deterrence with an even lower number of weapons, well then why stop there, why not continue on, why not get rid of them altogether […]?[149]

Offensive cyber operations may also serve to reduce the effectiveness of the nuclear deterrent in the future. In September 2018, the Nuclear Threat Initiative (NTI) reported on the results of its Cyber-Nuclear Weapons Study Group, established two years earlier. The Study Group, which included high-level former and retired government officials, military leaders, and experts in nuclear systems and policy, drew the chilling conclusion that a successful cyberattack on nuclear weapons or related systems could have catastrophic consequences. Cyber threats to nuclear weapons systems increase the risk of use as a result of false warnings or miscalculation and increase the risk of unauthorized use of a nuclear weapon.[150] The report ultimately questions whether, in the age of cyberwarfare, nuclear deterrence has become dangerously obsolete.[151]

In 2016, Crispin Blunt, the Chairman of the Foreign Affairs Committee in the British Parliament—and a staunch defender of the United Kingdom's unilateral nuclear deterrent—voted against the renewal of the UK's continuous-at-sea deterrent as he believed that the system was, or would become, vulnerable to cyber attack.[152] He believed that the United Kingdom was committing £180 billion of programme costs for a deterrent that might simply be rendered useless. In the meantime, British armed forces are being starved of the resources necessary to fight a conventional war (making recourse to nuclear weapons more likely).[153] Even the United States recognises that its existing nuclear command-and-control systems may become vulnerable to cyber attack.[154] At the same time, Bruce Blair argues that between 30 and 50 per cent of US strategic targets in the event of conflict with Russia or China could be effectively neutralised by conventional or cyber attacks rather than nuclear weapons.[155]

## 2.5 Concluding Remarks

Nuclear deterrence is not illegal but it is, as the United States feared, being delegitimised. The regional nuclear-free zones and the global TPNW are indeed operating towards achieving this goal. Meanwhile, states continue to cling to outdated notions of nuclear deterrence just as there is increasing evidence of their looming ineffectiveness.

Ever-increasing artificial intelligence, offensive cyber operations, and enhanced non-nuclear weapons with strategic impact will one day combine to render the nuclear deterrent ineffective and the weapons obsolete. Until that time, states, including the United States, need to initiate negotiations for reductions in both arsenals and capabilities with the other nuclear-armed states. Instead, capabilities are being ramped up with eye-watering sums of money being expended in both state and private corporations. The starting pistols have been fired on a new nuclear arms race. Nixon, Carter, Brezhnev, Reagan, Gorbachev, Clinton, Obama, Medvedev, and others had, at crucial times, the foresight and the political courage to see that ever-greater numbers of nuclear weapons did not make anyone safer. Disarmament was a good path then, and it is an even better path now.

## Footnotes

1.NATO 2010, Preface and para 17.

2.Ibid., para 17.

3.Treaty on the Prohibition of Nuclear Weapons, opened for signature 20 September 2017, https://treaties.un.org/doc/Treaties/2017/07/20170707%2003-42%20PM/Ch_XXVI_9.pdf (not yet entered into force) (TPNW).

4.United States 2016.

5.Ibid., para 4.

6.Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature 1 July 1968, 792 UNTS 161 (entered into force 5 March 1970) (NPT).

7.Charter of the United Nations, opened for signature 26 June 1945, 1 UTS XVI (entered into force 24 October 1945).

8.ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, [1996] ICJ Rep 226 (*Nuclear Weapons Advisory Opinion*).

9.As NATO doctrine declares, for instance, “[t]he circumstances in which any use of nuclear weapons might have to be contemplated are extremely remote.” NATO 2010, para 17.

10.NATO 2016.

11.See United States Office of the Secretary of Defense 2018, p. 20. See also, e.g., Blair et al. 2018, in particular pp. 8–9.

12.According to one definition, a nuclear umbrella is a security arrangement under which the participating states consent to or acquiesce in the potential use of nuclear weapons in their defence. In turn, a “nuclear umbrella state” is a state without nuclear weapons but under the supposed protection of the nuclear weapons of another state. See International Law and Policy Institute 2016a. Switzerland may seek to add its name to the list of umbrella states. Switzerland has been a neutral state since the Treaty of Paris in 1815, holding the record for the longest uninterrupted period of neutrality of any modern nation. It joined the United Nations as a member state only in 2002. In its national assessment of whether or not to adhere to the Treaty on the Prohibition of Nuclear Weapons, published in August 2018, the Swiss Government decided to leave open the option of being protected by a nuclear alliance, presumably NATO: “as a party to the TPNW, Switzerland would reduce its freedom of action and abandon the option of explicitly placing itself under a nuclear umbrella within the framework of such alliances.” Swiss Confederation 2018, p. 6. Such a move would put a decisive end to Swiss neutrality. However, Switzerland has never publicly been offered, let alone accepted, a nuclear security guarantee from any state.

13.See, e.g., Norwegian People’s Aid 2018a, pp. 15, 36.

14.International Law and Policy Institute 2016a.

15.Mazarr 2018, pp. 1 and 9.

16.According to a 2015 draft joint United States (US) Army Special Operations Command (USASOC) and US Special Operations Command (USSOCOM) definition, “comprehensive deterrence” is the “prevention of adversary action through the existence of credible and proactive physical, cognitive and moral capabilities (loosely defined as willpower) that raise an adversary’s perceived cost to an unacceptable level of risk relative to the perceived benefit.” See Wasser et al. 2018, p. ix.

17.Freedman 2018, p. 25.

18.Kristensen and Norris 2018.

19.Interim Agreement Between The United States of America and The Union of Soviet Socialist Republics on Certain Measures With Respect to the Limitation of Strategic Offensive Arms, opened for signature 26 May 1972, https://www.state.gov/t/isn/4795.htm#treaty (entered into force 3 October 1972).

20.See, e.g., JRank 2018.

21.Ibid.

22.Treaty Between the United States of America and the Union Soviet Socialist Republics on Strategic Offensive Reductions, opened for signature 31 July 1991, https://media.nti.org/documents/start_1_treaty.pdf (entered into force 5 December 1994, terminated 5 December 2009).

23.Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles, opened for signature 8 December 1987, 1657 UNTS 2 (entered into force 1 June 1988). The Russian Federation is bound as the successor state to the Soviet Union.

24.Treaty Between the United States of America and the Russian Federation on Strategic Offensive Reductions, opened for signature 24 May 2002, https://www.state.gov/t/isn/10527.htm (entered into force 1 June 2003, terminated 31 December 2012).

25.Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, opened for signature 8 April 2010, https://www.state.gov/documents/organization/140035.pdf (entered into force 5 February 2011).

26.United States Office of the Secretary of Defense 2018, p. 1.

27.United States 2010, p. 6.

28.This yield is typically measured in kilotons (kt) or megatons (MT) of 2,4,6-Trinitrotoluene (TNT). The Hiroshima and Nagasaki bombs were less than 20 kt. Bombs in the megaton range are at least 100 times more powerful.

29.A second summit between President Trump and Chairman Kim to discuss denuclearisation of the Korean peninsula took place on 27–28 February 2019. While it did not end in any new agreement, the two parties were continuing to talk, and President Trump claimed that North Korea would not be pursuing further nuclear testing. See, e.g., Johnson J (2019) 'Sometimes you just have to walk': Trump, Kim fail to reach nuke deal at second summit. https://www.japantimes.co.jp/news/2019/02/28/asia-pacific/politics-diplomacy-asia-pacific/trump-says-hes-no-rush-nuclear-deal-second-meeting-north-koreas-kim/#.XH1USJBCfX5. Accessed 4 March 2019.

30.See, e.g., Blunt 2016.

31.See, e.g., Collina 2018. See also Schneider 2018. The Russian Federation tends to refer to "flexible" yield instead of variable yield.

32.NPT, above n 6, Article VI obligates all states parties to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament".

33.See, e.g., Hugo et al. 2017, in particular pp. 8–14.

34.See, e.g., Union of Concerned Scientists undated.

35.See, e.g., Campbell M (2018) Avangard and Poseidon: Russia's 15,000 mph missile and sea drone are too quick for the West. https://www.thetimes.co.uk/article/828c212a-ea9e-11e8-ae8b-93697427c437. Accessed 4 March 2019; Peck 2018.

36.See, e.g., Pifer 2015 and Becker R (2017) Could the US stop a nuclear missile attack? https://www.theverge.com/2017/5/30/15713966/ballistic-missile-attack-department-of-defense-pentagon-north-korea. Accessed 4 March 2019.

37.Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems, opened for signature 26 May 1972, 1977 UNTS 424 (entered into force 3 October 1972, US withdrawal 2002).

38.See, e.g., Daalder and Lindsay 2001; Korb LJ (2018) Putin's Exotic New Missiles Didn't Come From Nowhere. What Can the US Do in Response? https://thediplomat.com/2018/03/putins-exotic-new-missiles-didnt-come-from-nowhere-what-can-the-us-do-in-response/. Accessed 4 March 2019; People's Daily (China) (2001) Russia Responses to US Withdrawal From ABM. http://www.china.org.cn/english/FR/23599.htm. Accessed 4 March 2019; Russian Life (2001) Pres. Putin's Response to US ABM Withdrawal: Statement by Russian President Vladimir Putin. https://russianlife.com/stories/online/putin-abm-withdrawal/. Accessed 4 March 2019.

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41.United States Office of the Secretary of Defense 2018, pp. II–III and X–XIII.

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43.Each heavy bomber, however, is counted as one warhead even if its load bay in fact holds multiple warheads.

44.See, e.g., Savitsky A (2018) US Withdrawal from INF Treaty: Implications for Asia Pacific. https://www.strategic-culture.org/news/2018/10/23/us-withdrawal-from-inf-treaty-implications-for-asia-pacific.html. Accessed 4 March 2019; Kuo MA (2018) US Withdrawal From INF Treaty: Impact on China. https://thediplomat.com/2018/11/us-withdrawal-from-inf-treaty-impact-on-china/. Accessed 4 March 2019.

45.Moreover, there are discussions among Chinese policymakers about China moving to a "launch on warning" nuclear stance. Remarks at the European Union conference on non-proliferation and disarmament, Brussels, 18 December 2018, by Tong Zhao, a Beijing expert on cyber operations, (author's notes). Launch on warning is a "hair-trigger" alert designed to ensure a response to an incoming nuclear strike, but it also hugely augments the likelihood of a launch in error.

46.States parties to the 1967 Outer Space Treaty "undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner". Treaty on principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies, opened for signature 27 January 1967, 610 UNTS 205 (entered into force 10 October 1967), Article 4. The five permanent members of the UN Security Council are all party to the Treaty.

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48.United States 2010, p. 6. Affirmation repeated in TPNW, above n 3, Preamble.

49.Dinstein 2017, paras 255–258.

50.Brownlie 1963, p. 364.

51.*Nuclear Weapons Advisory Opinion*, above n 8, para 47.

52.Ibid.

53.Dinstein 2017, para 249.

54.ICJ, *Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v United States of America)*, Judgment (Merits), 27 June 1986, [1986] ICJ Rep 14 (*Nicaragua case*), para 194.

55.ICJ, *Oil Platforms* case (*Iran v United States of America*), Judgment (Merits), 6 November 2003, [2003] ICJ Rep 161, para 76.

56.See Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), opened for signature 8 June 1977, 1125 UNTS 3 (entered into force 7 December 1978) (AP I), Article 52(2). Dinstein 2017, para 490 dismisses the stance of the ICJ as wrongly crossing the frontier between *ad bellum* and *in bello*, but there is logic in the Court's approach.

57.*Nuclear Weapons Advisory Opinion*, above n 8, dispositif E.

58.Ibid., para 47.

59.Brownlie 1963, p. 364.

60.Dinstein 2017, para 252.

61.See, e.g., McCurry J (2017) We will sink Japan and turn US to 'ashes and darkness', says North Korea. https://www.theguardian.com/world/2017/sep/14/north-korea-threat-sink-japan-us-ashes-darkness. Accessed 4 March 2019.

62.*Nuclear Weapons Advisory Opinion*, above n 8, para 47.

63.Ibid.

64.See, e.g., Gourtsoyannis P (2018) Russia warns UK. https://www.scotsman.com/news/uk/russia-warns-uk-no-one-should-threaten-a-nuclear-power-1-4705019. Accessed 4 March 2019.

65.Sadurska 1988, p. 241.

66.Ibid., p. 242.

67.See, also with respect to implicit threats: PCA, *Award in the arbitration regarding the delimitation of the maritime boundary between Guyana and Suriname*, Award, 17 September 2007, XXX RIAA 1, paras 432–39. Surprisingly, however, the Court of Arbitration designated the rather opaque statement "the consequences will be yours" as an overt threat to use force.

68.Sadurska 1988, p. 243.

69.*Nuclear Weapons Advisory Opinion*, above n 8, para 48.

70.Casey-Maslen 2019, para 1.82.

71.Dinstein 2017, para 253.

72.See ibid., citing the Report of the Independent International Mission on the Conflict in Georgia.

73.*Nicaragua case*, above n 54, paras 92 and 227.

74.ICJ, *Corfu Channel case (United Kingdom v Albania)*, Judgment (Merits), 9 April 1949, [1949] ICJ Rep 4, p. 35.

75.See, e.g., Keck 2013.

76.United Nations (1998) Security Council Condemns Nuclear Tests by India and Pakistan. https://www.un.org/press/en/1998/sc6528.doc.htm. Accessed 4 March 2019.

77.Cited in Inderjit S (2017) Advani Tells Pakistan to Roll Back Its Anti-India Policy. Times of India. 19 May.

78.Acronym Institute 1998 (emphasis added).

79.Ibid. (emphasis added).

80.ICRC 2005b.

81.Ibid.

82.Provided, of course, that the use of weapon did not violate the rules of proportionality in attack and the prohibition on means and methods of warfare of a nature to cause superfluous injury or unnecessary suffering.

83.ICRC 2005a.

84.ICTY, *Prosecutor v Stanislav Galić*, Judgement, 30 November 2006, Case no. IT-98-29-A, para 86.

85.Ibid., Dissenting Opinion of Judge Wolfgang Schomburg, para 2.

86.SCSL, *Prosecutor v Charles Ghankay Taylor*, Judgment, 26 September 2013, Case No. SCSL-03-01-A, para 300.

87.ICTY, *Prosecutor v Zoran Kupreškić and others*, Judgment, 14 January 2000, Case No. IT-95-16-T, para 528.

88.*Nuclear Weapons Advisory Opinion*, above n 8, para 46.

89.ICTY, *Prosecutor v Milan Martić*, Judgment, 2 June 2007, Case No IT-95-11-T, para 465.

90.Greenwood 1989, p. 44.

91.AP I, above n 56, Article 51(6).

92.Sandoz et al. 1987, para 1984.

93.ICRC 2005c.

94.Sofaer 1987, p. 469.

95.United Kingdom 1998, para m.

96.France 2001, para 11. Moreover, both France and the United Kingdom do not believe that AP I governs the use of nuclear weapons.

97.Egypt 1992.

98.Germany 1991.

99.Italy 1986.

100.According the 1969 Vienna Convention on the Law of Treaties ("General rule regarding third States"): "[a] treaty does not create either obligations or rights for a third State without its consent." Vienna Convention on the Law of Treaties, opened for signature 23 May 1969, 1155 UNTS 331 (entered into force 27 January 1980) (VCLT), Article 34.

101.Cf. Stürchler 2007, pp. 83–85.

102.Casey-Maslen 2019, para 1.81.

103.Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, opened for signature 10 April 1972, 1015 UNTS 163 (entered into force, 26 March 1975).

104.Under Article III of the Convention, each state party "undertakes not … in any way to assist, encourage, or induce any State, group of States or international organisations to manufacture or otherwise acquire any of the agents, toxins, weapons, equipment or means of delivery specified in Article I of the Convention". Ibid., Article III.

105.Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, opened for signature 13 January 1993, 1975 UNTS 45 (entered into force 29 April 1997), Article I(1)(d).

106.Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, opened for signature 3 December 1997, 2056 UNTS 211 (entered into force 1 March 1999) (Anti-Personnel Mine Ban Convention), Article 1(1)(c).

107.Krutzsch and Trapp 1994, p. 18.

108.See, e.g., Portmann 2013.

109.An international organisation is defined by the International Law Commission, for the purpose of its 2011 draft articles on their responsibility under international law, as an "organization established by a treaty or other instrument governed by international law and possessing its own international legal personality. International organizations may include as members, in addition to States, other entities". International Law Commission 2011, Article 2(a). See also Vienna Convention on the Law of Treaties between States and International Organizations or between International Organizations, opened for signature 21 March 1986, UN Doc. A/CONF.129/15 (not yet entered into force), Article 2(1)(i), which defines an international organisation simply as "an intergovernmental organization".

110.UN Security Council Resolution 1540 defines a non-state actor, albeit for the purpose of that resolution only, as an "individual or entity, not acting under the lawful authority of any State in conducting activities which come within the scope of this resolution". UN Security Council (2004) Resolution 1540 (2004), UN Doc. S/RES/1540, unnumbered footnote.

111.With regard to non-state actors, Resolution 1540 decided "that all States shall refrain from providing any form of support to non-State actors that attempt to develop, acquire, manufacture, possess, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery." UN Security Council (2004) Resolution 1540 (2004), UN Doc. S/RES/1540, para 1.

112.International Law Commission 2001.

113.ICJ, *Case Concerning Application of the Convention on the Prevention and Punishment of the Crime of Genocide* (*Bosnia and Herzegovina v Serbia and Montenegro*), Judgment, 26 February 2007 (*Bosnia Genocide)*, [2007] ICJ Rep 43, para 420.

114.ILC 2001, p. 66, para 5 (emphasis added).

115.*Bosnia Genocide*, above n 113, para 421 (emphasis added).

116.This dilemma does not arise with respect to encouragement or inducement—at least to anything like the same degree—as it is far more difficult to envisage scenarios where one state encourages or induces another to, for example, produce or use a nuclear weapon without inevitably demonstrating the requisite intent.

117.Krutzsch and Trapp 1994, p. 17.

118.Norwegian People's Aid 2018b, p. 25.

119.Collective Security Treaty (as amended by the Protocol on amendments to the Collective Security Treaty, signed on 10 December 2010), opened for signature 15 May 1992, http://www.odkb-csto.org/documents/detail.php?ELEMENT_ID=1897 (entered into force, 20 April 1994), Article 4.

120.Global Security 2014.

121.See, e.g., Norwegian People's Aid 2018b, p. 10.

122.Reported in International Law and Policy Institute 2016b.

123.Norwegian People's Aid 2018b, p. 10.

124.Treaty on a Nuclear-Weapon-Free Zone in Central Asia, opened for signature 8 September 2006, 2970 UNTS 485 (entered into force 21 March 2009), Article 1(1)(c).

125.NATO 2010, para 17.

126."Encourage" as defined by English Oxford Dictionary (2018) Definition of *encourage* in English. https://en.oxforddictionaries.com/definition/encourage. Accessed 27 March 2019.

127.Krutzsch and Trapp 1994, p. 17.

128.NATO 2010, para 19.

129.VCLT, above n 100, Article 31(3)(b).

130.Amb. Thomas Hajnoczi, Head, Disarmament Department, Austrian Ministry of Foreign Affairs, 19 April 2018 (email to the author).

131.Ibid.

132.Anti-Personnel Mine Ban Convention, above n 106, Article 1(1)(c).

133.This and other relevant declarations of understanding with respect to the Anti-Personnel Mine Ban Convention, are available at United Nations 2019.

134.United States Department of Defense (2017) U.S. Forces Participate in Swedish Military Exercise. https://dod.defense.gov/News/Article/Article/1316420/us-forces-participate-in-swedish-military-exercise/. Accessed 1 March 2019. The exercises took place against the backdrop of bellicose statements by Russia's President, Vladimir Putin. In June 2017, President Putin told the Russian state news agency, Itar-Tass: "[i]f Sweden joins NATO this will affect our relations in a negative way because we will consider that the infrastructure of the military bloc now approaches us from the Swedish side. […] We will interpret that as an additional threat for Russia and we will think about how to eliminate this threat." Mortimer C (2017) Sweden to hold 'biggest military exercise in decades' with Nato amid fears over Russia. https://www.independent.co.uk/news/world/europe/sweden-nato-military-exercises-russia-tensions-baltic-states-putin-europe-a7858736.html. Accessed 4 March 2019.

135.VCLT, above n 100, Article 18.

136.Casey-Maslen 2019, para 13.4.

137.This is supported by the second preambular paragraph of the 2017 TPNW, see above n 3, which talks of the states parties' deep concern "about the catastrophic humanitarian consequences that would result from any use of nuclear weapons, and recognizing the consequent need to completely eliminate such weapons, which remains the only way to guarantee that nuclear weapons are never used again under any circumstances". It is further evidenced by the claim in the tenth preambular paragraph that "any use of nuclear weapons would be contrary to the rules of international law applicable in armed conflict, in particular the principles and rules of international humanitarian law", while in the eleventh preambular paragraph, states parties reaffirm that "any use of nuclear weapons would also be abhorrent to the principles of humanity and the dictates of public conscience".

138.In the sixth preambular paragraph of the 2017 TPNW, see above n 3, states parties are mindful "of the unacceptable suffering of and harm caused to […] those affected by the testing of nuclear weapons". Explosive testing is unequivocally prohibited under Article 1(1) of the Treaty.

139.NPT, above n 6, Article I.

140.Ibid., Article III(2).

141.See, e.g., Birch D (2013) The U.S.S.R. and U.S. Came Closer to Nuclear War Than We Thought. https://www.theatlantic.com/international/archive/2013/05/the-ussr-and-us-came-closer-to-nuclear-war-than-we-thought/276290/. Accessed 4 March 2019.

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143.Ibid., pp. 87–88.

144.Politics.co.uk undated.

145.Ibid.

146.See, e.g., Gibbons-Neff T (2015) The last time a Russian jet was shot down by a NATO jet was in 1952. The Washington Post, 24 November.

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150.Nuclear Threat Initiative 2018, p. 7.

151.Ibid., p. 29.

152.Blunt 2016.

153.United Kingdom House of Commons Defence Committee 2018. See also Sengupta K (2018) UK 'would struggle to match' military strength of countries like Russia unless it invests in defence, army chief warns. https://www.independent.co.uk/news/uk/home-news/british-army-military-strength-cyber-attacks-russia-defence-spending-general-sir-nick-carter-a8170996.html. Accessed 4 March 2019.

154.United States Office of the Secretary of Defense 2018, pp. XIII and 57.

155.Blair et al. 2018, p. 6.

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ICTY, *Prosecutor v Stanislav Galić*, Judgement, 30 November 2006, Case no. IT-98-29-A

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**Treaties**

Charter of the United Nations, opened for signature 26 June 1945, 1 UTS XVI (entered into force 24 October 1945)

Collective Security Treaty (as amended by the Protocol on amendments to the Collective Security Treaty, signed on 10 December 2010), opened for signature 15 May 1992, http://www.odkb-csto.org/documents/detail.php?ELEMENT_ID=1897 (entered into force 20 April 1994)

Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, opened for signature 10 April 1972, 1015 UNTS 163 (entered into force 26 March 1975)

Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, opened for signature 13 January 1993, 1975 UNTS 45 (entered into force 29 April 1997)

Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, opened for signature 3 December 1997, 2056 UNTS 211 (entered into force 1 March 1999)

Interim Agreement Between The United States of America and The Union of Soviet Socialist Republics on Certain Measures With Respect to the Limitation of Strategic Offensive Arms, opened for signature 26 May 1972, https://www.state.gov/t/isn/4795.htm#treaty (entered into force 3 October 1972)

Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), opened for signature 8 June 1977, 1125 UNTS 3 (entered into force 7 December 1978)

Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, opened for signature 8 April 2010, https://www.state.gov/documents/organization/140035.pdf (entered into force 5 February 2011)

Treaty Between the United States of America and the Russian Federation on Strategic Offensive Reductions, opened for signature 24 May 2002, https://www.state.gov/t/isn/10527.htm (entered into force 1 June 2003, terminated 31 December 2012)

Treaty Between the United States of America and the Union Soviet Socialist Republics on Strategic Offensive Reductions, opened for signature 31 July 1991, https://media.nti.org/documents/start_1_treaty.pdf (entered into force 5 December 1994, terminated 5 December 2009)

Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles, opened for signature 8 December 1987, 1657 UNTS 2 (entered into force 1 June 1988)

Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems, opened for signature 26 May 1972, 1977 UNTS 424 (entered into force 3 October 1972, US withdrawal 2002)

Treaty on a Nuclear-Weapon-Free Zone in Central Asia, opened for signature 8 September 2006, 2970 UNTS 485 (entered into force 21 March 2009)

Treaty on principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies, opened for signature 27 January 1967, 610 UNTS 205 (entered into force 10 October 1967)

Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature 1 July 1968, 792 UNTS 161 (entered into force 5 March 1970)

Treaty on the Prohibition of Nuclear Weapons, opened for signature 20 September 2017, https://treaties.un.org/doc/Treaties/2017/07/20170707%2003-42%20PM/Ch_XXVI_9.pdf (not yet entered into force)

Vienna Convention on the Law of Treaties, opened for signature 23 May 1969, 1155 UNTS 331 (entered into force 27 January 1980)

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