

17 Prospects for Operationalizing UN Charter Article 26

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The architecture of international treaties and organisations formed early in the 20th century to reduce deadly conflict and foster stability, with the UN system at its core, seems more strained than at any time in its history. In that era, several nations developing and using chemical, biological and nuclear weapons served as an impetus for that historical shift to a better world order. Today, new signs of nuclear arms racing are occurring as cooperation among nuclear-armed states is stagnating and as most of these nations are modernising and expanding their nuclear arsenals. The nuclear Non-Proliferation Treaty (NPT) and the Biological Weapons Convention Review Conferences the United Nations convened in 2022 made scant progress. Chemical weapons have been used numerous times into the 21st century. These are just a few signs of trends moving in the wrong direction.

Unfortunately, if the international system becomes strained enough to fully break—or, short of that, be rendered largely irrelevant—there is little hope today that most nations of the world will once again unite to create replacement agreements. It is, therefore, critical to strengthen the existing system governing weapons as much as possible, with urgent focus on those elements that govern nuclear, chemical and biological weapons.

It is easy to see why experts are renewing efforts to identify methods for strengthening the existing system as much as possible. One area of inquiry involves whether more can be done to enact Article 26 of the UN Charter or, short of actions directly tied to this article, more robustly pursue its intent. Article 26 states,

In order to promote the establishment and maintenance of international peace and security with the least diversion for armaments of the world's human and economic resources, the Security Council shall be responsible for formulating ... plans to be submitted to the Members of the United-Nations for the establishment of a system for the regulation of armaments.

(United Nations 1945)

While governance of armaments broadly is an important topic, in this chapter, we will focus mainly on the subject in the title of this book: *the need to manage and mitigate global catastrophic risks in the 21st century*. As such, we will focus mostly on governance of nuclear, biological and chemical weapons. This focus reflects these rising threats, the challenges to their collaborative governance that the world is witnessing and the existing foundation upon which to build in addressing these risks. Throughout, we aim to highlight how measures that meet the spirit of Article 26 are important to rebuilding trust in

international cooperation. It also argues that the best way to move towards the aim of Article 26 is for nations to double down on efforts to reinforce existing arms control and disarmament treaties; commit to specific steps towards their full implementation, such as Article VI of the NPT; and continue adding layers of cooperative measures to fill gaps across current treaties.

This chapter begins with background behind the early years in which implementing Article 26 was considered, followed by the status of the major current weapons of mass destruction (WMD)–related treaties. Throughout, we describe key trends in the global security environment today that are shaping the status quo, offer ideas for how to strengthen weapons governance in these areas and provide context for what has changed since the inception of Article 26 and what remains possible in terms of meeting its ideals.

The Early Years of the United Nations

The agreement that created the United Nations, and multiple preceding agreements aiming to reduce conflict and its brutality, stemmed from both significant destruction and enlightened thinking about how nations should be expected to behave in advancing their interests and settling disputes. While no precise totals exist, the best estimates indicate that around 15 million people died in World War I from 1914 to 1918, with an equal or greater number injured. The suffering from the war included extreme agony caused by the horrific use of chemical weapons on both sides of the war.

These effects contributed to an acceleration by diplomats, lawyers and political leaders of multiple countries who set about exploring designs for international agreements and organisations—such as the League of Nations and the Geneva Protocol of 1925—seeking to prevent warfare, outlaw the unchecked use of chemical and biological weapons, focus more resources on economic stability, and other objectives. As is well known to history, these efforts shaped some behaviours of nations, yet failed to meet their intended goals and ultimately were unable to stem the trends that contributed to the even more destructive World War II.

That conflict drove even more concerted attempts at similar goals, even as the war raged across much of the globe. Early into World War II, leaders of the Allied powers and other nations were devising ideas to accelerate towards a future in which most resources could be dedicated to economic growth and stability, and concepts for how warfare could be reduced. The clear pathway was set by nations creating cooperative bodies to address issues and set acceptable norms of behaviour that did not include widespread reliance on military force—of course, only after the Axis powers had been defeated.

The Charter of the United Nations was signed in June 1945, just weeks after the end of World War II in Europe, and entered into force in October of the same year, weeks after the end of the war in the Pacific. This world-changing diplomatic achievement provided a stark and hopeful contrast to the war's destruction. It is estimated that more than 75 million people died or were injured over the course of the war, including the 110,000–210,000 dead and likely far more than 100,00 injured in the Hiroshima and Nagasaki nuclear bombings alone (The National WWII Museum n.d.; Wellerstein 2020).

At this time, many nations planned to draw down defence forces from their large-scale wartime mobilisation levels. Others were left with little choice given their realities of devastated military capabilities, civilian populations, infrastructure, and economies. Stemming from these different but related conditions, nations around the world put faith in international collaboration on a grand scale to avoid future conflict and create

pathways towards peaceful development. The years proceeding from World War II saw stark rhetoric from leaders around the world positioning economic advancement and investments in military forces as zero-sum and opposing concepts. For the United States, this was clear in how its leaders described the importance of the massive economic development effort that would become the Marshall Plan in 1948.

Meanwhile, significant diplomatic energy went towards exploring ways to turn the UN Charter into action, including the regulation of armaments described in Article 26. Given the use of chemical, biological and nuclear weapons in both world wars, and the precedent set by the Geneva Protocol, the question of whether to govern these types of weapons separately from the wide range of conventional arms was always a central one from the start.

In January 1946, the first UN resolution set a strong precedent for unique governance of WMD by establishing an Atomic Energy Commission to begin working on ways to implement safeguards and ensure peaceful uses of this technology (United Nations 1946). When the United Nations established the Commission for Conventional Armaments in February 1947, it was explicit that its jurisdiction excluded the work of the Atomic Energy Commission (United Nations 1947). By the end of the year, the Commission confirmed that its mission encompassed all weapons and armed forces, aside from nuclear, radiological, biological, and chemical weapons, and ‘any weapons developed in the future which have characteristics comparable in destructive power’ to such weapons (United Nations 1948). The Soviet Union objected to this separation on the grounds that an all-out arms race would ensue without more explicit agreement on disarmament of nuclear, chemical and biological weapons—foreshadowing the Cold War in general and its first nuclear weapon test in August 1949 specifically.

While many Security Council members and UN Charter signatories professed hope in these pursuits, in deliberations of its working group, the Commission also noted that global cooperation in disarmament of conventional weapons and forces would only transpire in an environment of security and trust. In particular, they noted, progress would hinge on implementation agreements to advance Article 43 of the UN Charter, by which nations agreed to make armed forces available to the United Nations, and to the establishment of global governance of atomic energy and an end to national-level possession of nuclear, chemical and biological weapons (United Nations 1948).

Many participants in these proceedings appear to have taken the pursuit of these goals quite seriously. As World War II veteran and long-time UN leader Brian Urquhart described in a 1993 article, the United States pondered the potential of providing ‘over 300,000 troops—a very large naval force, 1,250 bombers and 2,250 fighters’ (Urquhart 1993). However, the emerging Cold War intervened. The Soviet Union effectively ended cooperation in the Commission on Conventional Armaments in 1950, and the United Nations voted to formally dissolve the Commission in January 1952 (United Nations 1952). Since that time, multiple efforts, albeit plodding, have carried forward the aim of regulating conventional arms, including having the United Nations establish a public Register of Conventional Arms and the Arms Trade Treaty, which finally entered into force in 2014. For the most part, since the earliest years of work to govern armaments, such work has proceeded separately from the extensive efforts to limit and seek disarmament of nuclear, chemical and biological weapons.

Indeed, to date, this separation has largely been productive for mitigating catastrophic weapons risks. Even during the height of the Cold War, the world saw progress in developing multiple treaties aiming to limit and, in some cases, eliminate nuclear, chemical and biological weapons, even with less progress towards the full vision set by the UN Charter.

Today, the core UN treaties regarding these weapons, and their related implementation bodies for nuclear and chemical weapons, are nearly universal and widely considered to be respected by nearly all nations of the world. However, many challenges to this regime and trends in the global security environment are calling into question what could or should change to reflect today's realities.

The issues at hand are extensive. Several nations have used chemical weapons in recent decades, including attacks carried out after the Chemical Weapons Convention (CWC) entered into force. UN Security Council members and other nations are concerned about others possessing biological weapons, and this issue remains at the heart of dramatic misinformation and disinformation campaigns. All bilateral nuclear arms control agreements between Russia and the United States but one have ended, with no replacements yet in sight. After decades of progress in reducing nuclear weapons arsenals, as required by the NPT, many nations have reverted to *expanding* the types of nuclear weapons they possess. Issues of offensive and defensive capabilities, and nuclear and conventional weapons, are intertwined in the security strategies and concerns of nations, as witnessed by Russia's desire to include missile defences in nuclear arms control discussions. These are just a few of countless worrisome security issues that nations are grappling with, and it has once again sparked consideration of whether more can be done to move back towards the spirit of Article 26 or pursue a more literal implementation of it.

The history summarised in this section provides important context to such questions. From the earliest years of the United Nations, progress on control and disarmament of WMD has been viewed as a cornerstone of global security and stability and is often considered a prerequisite to broader progress in reductions in conventional arms. Though these are neither universal nor permanent sentiments, they are deeply rooted and widely held. There were valid reasons why the first officials charged with giving life to the UN Security Council viewed nuclear, biological and chemical weapons as requiring special treatment, including the concerns expressed by the Soviet Union that these weapons held the power to drive arms-racing behaviour that would shape or hinder progress on all else.

The remainder of this chapter, therefore, focuses on the revival of cooperation regarding these categories of weapons. In considering nuclear, biological and chemical weapons issues and prospects for improving their governance, we seek to highlight the status today at a high level and offer ideas for progress.

Nuclear Weapons

Concepts for the governance of nuclear weapons featured bold ideas but no progress in the earliest years of both the nuclear age and the United Nations. The Atomic Energy Commission lasted only a few years before disbanding after lack of agreement over concepts such as putting all atomic energy technology in the hands of an international body. The United Kingdom, Soviet Union and France advanced nuclear weapons programmes as other nations explored the idea. When full global governance of the peaceful nuclear challenge failed, limiting proliferation became a rising concern: how to prevent dozens of nations from developing these weapons, in particular given that there was widespread interest in expanding nations' access to nuclear energy.

Through the early 1950s, diplomacy proceeded, aiming to govern nuclear materials and technology and preventing their use for military purposes—work which featured no shortage of disagreements and compromises. This work led to the establishment of the International Atomic Energy Agency (IAEA) in 1957. It was clear that other measures

would still be needed to prevent the spread of nuclear weapons, including what would become of the NPT, which opened for signature in 1968, entered into force in 1970 and was extended indefinitely in 1995. In addition to work conducted via its own cycle of activities, the objectives of the NPT have been further pursued in other fora, in particular bilateral United States-Soviet and United States-Russia nuclear arms control agreements.

Though by many measures it has been an effective treaty, multiple, longstanding issues surrounding the NPT are well known. It discriminates between nations accepted as possessing nuclear weapons and those that are not recognised as legitimate possessors (thereby leading to their not being states parties of the treaty). The NPT enshrines the obligation of nuclear weapons-possessing states to work towards disarmament of these weapons, yet sets no timeline for advancing or completing this work. States parties can withdraw from the treaty—which North Korea has done.

The review conference held every five years to oversee the treaty's progress and direction has had a mix of successes and challenges. The 1995 review conference cemented the treaty's indefinite extension—a monumental success, given some of the intrinsic issues with the treaty mentioned earlier. The review conference in 2000 included nuclear weapons states recommitting to the treaty's disarmament requirement. Since then, the 2010 review conference was the only one to produce a final consensus document, which included a 64-point plan for progress in implementing the NPT (Government of Canada 2010).

However, further agreement among nations regarding how to move the NPT forward has been set back since then, including by another resolution adopted in 1995 that set forth an agreement to establish a WMD-free zone in the Middle East. Years of valiant efforts went towards this objective, though ultimately, WMD issues stemming from Iraq, Iran and Syria, and Israel's suspected nuclear weapons programme have proven too high a hurdle. Multiple other issues continue to linger, including nuclear-armed states showing signs of expanding their nuclear arsenals in capability types and numbers. Many nations are increasingly frustrated with the behaviour of the permanent members of the UN Security Council (P5), as shown by their support for the Treaty on the Prohibition of Nuclear Weapons.

However, there are still positive signs for the NPT. At the 2022 review conference—held after a two-year delay due to the COVID-19 pandemic—all states except Russia agreed on the final document. Russia noted many objections but focused its lack of willingness to agree to the document on language noting grave concern for safety and the upholding of nuclear norms in the wake of the Russian takeover of the Zaporizhzhia Nuclear Power Plant in 2022 (Lederer 2022). Moreover, the final document showed many signs of international unity on key issues and signs that nations are agreeing to prioritise steps that move the world towards the treaty's vision—even though many such steps in past years were seen as insufficient and denounced. A few particular examples stand out:

- Either through national statements or the final document or both, every party to the NPT affirmed that it is the cornerstone of efforts to reduce nuclear weapons risks.
- In the final document, states agreed that the risks of nuclear weapons *use* were rising as a result of the deteriorating security environment. The open acknowledgement of this reality should be used as a pivotal moment for galvanising support for action.
- A major theme of the conference discussions and final document was *risk reduction*. This also represents a shift; for years, many parties viewed risk reduction as an excuse to reduce pressures on nuclear-armed states to meet their disarmament obligations.

Among many positive aspects of the 2022 review conference, this sharpened focus on preventing the use of nuclear weapons and reducing the risks of nuclear conflict, misinterpretations and miscalculations should help nations come together and prioritise actions in the coming years that will have a meaningful impact. At the same time, we believe this links to the most promising pathway for reinvigorating the pursuit of the NPT's nuclear disarmament objectives over time.

In our work, we and several colleagues advocate for nations to pursue specific steps in nuclear restraint, responsibility and reductions that are prioritised by two driving factors: the types of nuclear capabilities that are most likely to raise the risks of the use of nuclear weapons in the near term and the geopolitical realities that will allow for progress among various sets of nations (or all nations, if possible). In particular, we have described that rising risks of miscalculation and misinterpretation are coming from the expansion of certain nuclear weapon capabilities—in particular, those that increase ambiguity (for example, dual-capable delivery systems that may be nuclear or conventional), lower-yield nuclear options that are considered by some to be more acceptable for nuclear war-fighting, and new nuclear capabilities that may disrupt strategic stability perceived between nuclear-armed nations (Council on Strategic Risks 2022).

This formulation holds great potential for nations to make progress before the next NPT review conference. In particular, there are many options for steps to address these concerns. For example, nuclear cruise missiles increase ambiguity and disrupt strategic stability, yet only three nations are known to possess stocks of them (Russia, the United States and France). To end this entire class of nuclear weapons, others would have only to agree not to develop them, while the three possessors certainly have a common security rationale for their elimination by all nations (Weber and Parthemore 2019). Progress could be even narrower to start; for example, bilateral or multilateral agreements not to pursue intermediate-range, ground-launched cruise missiles. Today, no nation possesses them (because they were previously banned by the United States-Russia Intermediate-Range Nuclear Forces Treaty), yet all major nuclear-armed nations are concerned that others will develop them as dual-capable weapons at the same time that they are increasing deployment of conventional versions.

In the years ahead, strengthening international governance of nuclear weapons must include concepts like these. While it may be a slower path to nuclear disarmament than desired, that work must begin by stopping the growing arms race and by pressuring countries to agree not to expand their ranges of nuclear capabilities in ways that heighten risks even more. While there are significant indicators that nuclear states will be reluctant to find a workable path along these lines, our private conversations with officials from adversarial nations over the years indicate that the potential is there if political will can be found, and historically, early explorations of feasibility and mutual benefits contributed to the creation of the political will required for many major arms control and nuclear weapons reductions measures to be implemented, even in harrowing times.

Risk reduction steps, such as preventing further arms racing and the use of nuclear weapons, need not be seen as small steps. Moreover, steps in this category are likely to halt the action-reaction cycles we see emerging today that could further weaken the norms set by the NPT if they aren't stopped soon.

In addition to reducing arms-racing behaviour and reducing the risks of nuclear weapons being used, narrowing the types of nuclear capabilities that nations possess should have positive effects on general momentum towards disarmament, as they would further limit scenarios of nuclear weapons use and also limit nuclear planning and postures accordingly.

Biological Weapons

Biological weapons became the first category of WMD to be banned outright in international law when the Biological Weapons Convention (BWC) opened for signature in April 1972 and entered into force just under three years later. These weapons reached this milestone soon after the NPT's signature due to numerous factors. Negotiators viewed chemical weapons as involving far more complicated calculations and wrinkles. Though this was not a unanimous view, many experts also considered biological weapons to serve more for deterrent and retaliatory purposes than military utility in the types of conflicts envisioned as possible during the height of the Cold War, including that Europe could become the most likely geography of use and the potential civilian implications of that. Discussion of banning biological weapons carried on through the 1960s, with the United Kingdom issuing a formal proposal in 1969. It gained momentum later that year when U.S. President Richard Nixon renounced the nation's biological weapons programme, to some extent due to public pressure surrounding the U.S. war in Vietnam and use of Agent Orange, and the effects this had on civilians and the environment (Tucker and Mahan 2009). This helped smooth the way for U.S. support and that of others for the treaty.

Sadly, although this was a historical achievement and definitely set a strong norm against them, it did not end biological weapons programmes. Most starkly, the Soviet Union actually ramped up its biological weapons activities after signing the BWC, work which eventually included experiments to engineer and enhance pathogens and industrial-scale biological weapons production facilities. These efforts also remained well hidden and were mostly revealed only after the collapse of the Soviet Union provided access to sites of this work in newly independent states such as Kazakhstan.

At the same time, the BWC continues to struggle in practice due to structural gaps in the treaty. For one, countries have not fixed the absence of agreed verification mechanisms. It lacks a permanent secretariat, and today, implementation is supported by only a few staff members. Dozens of member states conduct confidence-building work and take other steps to implement the treaty's vision, although this is not yet widespread. Member states must drive progress via review conferences held every five years, which leaves a perpetual risk that activities could effectively grind to a halt or continue to gain traction based fully on the will of nations.

The characteristics of the biological weapons challenge also increase the difficulty of governance in this area. Biology presents perhaps the most extreme dual-use problems. While most nations have not pursued biological weapons, all countries hold the prospect of doing so from a technological perspective if political decisions move in that direction. They can be produced with a very small and extremely hard-to-detect footprint—for example, by misusing legitimate laboratories and materials. Indeed, as the U.S. *Amerithrax* case showed, biological weapons can be produced by certain actors within nations that are otherwise complying with their international legal obligations not to, and such activities may go without detection. The evolution of technologies that can contribute to biological weapons production, and the dramatically declining costs associated with such work, are deeply alarming.¹

Biological weapons are also perhaps the class of WMD that sees the greatest heights of mistrust among many nations (including most within the UN Security Council). The United States destroyed its biological weapons upon the programme's end in the earliest years of the 1970s, and this, unfortunately, became a fact used against it as the Soviet Union and others raised doubts about whether the programme had truly ended and the

arsenal destroyed. At the same time, several nations distort legitimate public health and biosecurity cooperation among nations as part of deliberate disinformation and misinformation campaigns.

In particular, in 2022, Russia took its falsehoods that Ukraine produced biological weapons with the United States to new heights alongside its invasion. This process forestalled BWC progress, as the efforts of diplomats were distracted from seeking agreement on strengthening BWC implementation to refute Russia's formal allegations. Unfortunately, while Russia's accusations have largely fallen flat, they have still had influence in sowing deeper distrust among many nations around the world.

This all means that strengthening the BWC and seeking its verifiable enforcement will remain complicated. More than ever before, resources should focus on (a) developing cooperative and trust-building mechanisms that both support BWC implementation and eventual verification and (b) options that can meet similar aims via coalitions of willing partners outside of the formal BWC channel.

One area of good news is that the technological potential for addressing this problem is much greater than ever before and growing even more so at an incredible pace. Many believe it is becoming a technological reality to implement systems that would produce early warning of new pathogen threats from all sources, and this would be game-changing for public health and addressing biological threats. Moreover, significant progress is occurring in platform technologies to rapidly develop new medical countermeasures along with advanced manufacturing systems to produce them immediately. If these and other systems expand sufficiently, and if they are designed to account for deliberate and potentially engineered biological agents, they hold the potential to halt damage from all pathogens quickly after their release—essentially, rendering biological weapons obsolete as a catastrophic or mass destruction threat (Parthemore, Singh and Weber 2020).

This goal may take years or even a few decades to achieve; however, wide-ranging experts have agreed that it is a feasible goal and the appropriate long-term vision for all nations to set. It will also build on past successes, such as the widespread global surge in bio-surveillance capabilities that stemmed from the World Health Organization's 2005 prioritisation for all nations to advance systems to detect and characterise disease outbreaks and openly share data for response. The methods of minimising the mass destruction threats of biological weapons largely overlap with what is required to prevent future outbreaks from reaching pandemic (and even catastrophic) scales.

Of course, increases in biosecurity and biodefence investments may also drive further suspicion among nations, even if they often take the form of public health and societal resilience initiatives. As such, increasing transparency regarding such activities, as envisioned by the BWC, must become a high priority among responsible nations. Filling additional gaps in current global architecture, such as limited governance and oversight of high-containment laboratories, will become imperative as well. These concepts are far from new, as they echo proposals made at the BWC's earliest review conferences, yet they remain largely unrealised and are becoming even more important over time. In sum, this could be game-changing for how nations cooperate to strengthen governance against such weapons.

Chemical Weapons

The extensive use of chemical weapons during the world wars helped to trigger nations' uniting to address WMD and broader goals in how peace and security are justifiably pursued. Moreover, since the Geneva Protocol banned the use of chemical and biological

weapons but not their possession, multiple nations developed stockpiles of chemical weapons larger in volume than nuclear or biological weapons stockpiles (albeit not necessarily matching their destructive power). Additionally, the use of these weapons has continued well after the world wars, including use in the Iraq-Iran War and the Iraqi government's use against Kurdish populations.

These factors created a unique backdrop as nations developed the CWC, which opened for signature in 1993 and entered into force in 1997, as compared to its much earlier-negotiated nuclear and biological weapons counterparts.

The history regarding efforts to end these weapons also differs in several ways, including in scale and in the multilateralism involved. In terms of scope, this work has featured large-scale operations to verifiably destroy old stockpiles and production facilities—work which is nearing completion for declared arsenals—and ongoing smaller-scale requirements to destroy legacy remnants of chemical weapons that turn up in fields across Europe, in Panama and elsewhere.²

Chemical weapons demilitarisation and disarmament efforts have also involved a wider range of nations than similar efforts to dismantle nuclear weapon components and biological weapons capabilities. Nations that declared stockpiles and worked to eliminate them upon joining the CWC included Albania, India, the United States, and Russia. Under different conditions, Libya, Iraq and Syria followed suit. Efforts to destroy chemical weapons in these nations featured the extensive involvement of the United Nations and the Organisation for the Prohibition of Chemical Weapons (OPCW), as well as direct support from Germany, Canada, the United States, Greece, Italy, Switzerland, the United Kingdom, Finland, and others. Indeed, the multinational collaboration involved in implementing the CWC has been a significant point of strength of this treaty.

Today, OPCW tracking indicates that 99 per cent of declared chemical weapons stockpiles have been destroyed (OPCW 2023), though concerns remain that potentially significant undeclared stockpiles remain in countries such as North Korea. Unfortunately, the use of chemical weapons by Syria, Russia, North Korea, and the Islamic State over the past decade serves as a reminder that the threat persists and is evolving.

This makes it imperative that work continue to keep the CWC and OPCW strong, including ongoing efforts to adapt the treaty as chemical weapons threats evolve. In an important example, in 2019, the parties to the CWC agreed to add Novichok to the schedules of banned chemical weapons substances (Weber and Parthemore 2019). This may seem basic given that Novichok was used in a chemical attack in the United Kingdom perpetrated by Russia, but it was far from preordained, given ongoing challenges in getting nations to agree on major steps. Put in terms of the counterfactual example, failure to include Novichok, which was developed specifically as a powerful chemical weapon, would have certainly been seen as a sign that the CWC was weakening.

As times change, the OPCW is also evolving positively, as it is expanding how it promotes the treaty's tenets beyond the task of eliminating chemical weapons. It is expanding its work to help countries exercise transparency and meet reporting obligations to keep norms strong and encourage trust as mechanisms for minimising the risks of future breakout chemical weapons programmes. It is evolving its verification roles to include far more work with industry, including understanding how chemistry is itself changing. As this work expands in the coming years, it will surely hold lessons for the nuclear and bio spaces as well.

Steps to promote the strength of the CWC must include the pursuit of accountability for past uses. As one of this chapter's authors stated in a 2022 speech to U.K. and U.S. chemical weapons demilitarisation and defence leaders,

Strengthening norms against chemical weapons use, and WMD possession broadly, requires that the world continues to push for truth and accountability for past uses of chemical weapons such as attacks in Syria. It may seem futile at times, but even attempts that are blocked by countries in breach of international treaties or others have a strong purpose in affirming that the CWC and other treaties are not just documents.

(Council on Strategic Risks 2022)

Finally, as efforts to destroy known chemical weapon stockpiles draw to a close, these milestones should trigger new activities. For one, nations, the OPCW and the United States should actively celebrate all such final milestones, using these occasions to remind the world of the need to strengthen norms against WMD and remain united in ending the threats they pose. Second, nations and international organisations will need to determine mechanisms for maintaining technical expertise and keeping skills fresh in chemical weapons elimination and verification, given that fewer and fewer knowledgeable experts work in this field; chemical weapons programmes may reemerge in the future, and a few nations may still harbour them today.

Cross-Cutting Themes and Concepts

In addition to specific issues regarding each WMD-related treaty, and the many options to address weaknesses, there are several overarching issues and lessons that are instructive.

First, the past several decades have highlighted that mechanisms tied to the UN Security Council will remain necessary but not sufficient for addressing WMD threats. Even if unity should be sought in nearly all cases, it cannot be taken for granted, and at times, action to reduce threats and save lives will have to take other forms. The cases of Iraq in the 1990s and Syria over the past decade are instructive.

Though it was not fully appreciated until later, action through the UN Security Council to push back Iraq's invasion of Kuwait in 1990 and efforts to disarm Iraq of WMD over the following decade were highly successful. The United Nations Special Commission (UNSCOM) and the IAEA led efforts to catalogue and oversee the elimination of Iraq's chemical, biological and nuclear weapons capabilities, as well as its ballistic missiles beyond short range. Later, the Security Council came together to establish the UN Monitoring, Verification and Inspection Commission to continue monitoring Iraq's compliance with its treaty obligations to forgo WMD. As it became clearer after the United States and coalition invasion of Iraq in 2003 to topple the Saddam Hussein regime, these efforts worked. Subsequent investigations by the U.S. Senate confirmed that this was not well recognised before the war was launched due to flaws and gaps in intelligence analysis and intelligence related to Iraq's supposed possession of WMD and the UN missions being mischaracterised by top officials of the Bush administration (U.S. Senate Intelligence Committee 2008).

More recently, unity in the UN Security Council has been more difficult, as evidenced by how efforts to end the threat of Syrian chemical weapons required various entities and mechanisms over time. They have variously involved ad hoc coalitions of nations and the

OPCW, the UN Security Council and continuing work under OPCW auspices. The diplomacy that led to Syria's accession to the CWC and the declaration of its stockpile information involved Russia, the United States, Syria, and the OPCW. The work to remove and destroy Syria's chemical weapons materials stemmed from extensive U.S. planning; then, when put into action, it required in-kind and financial support by more than a dozen nations and the OPCW.

Efforts behind accountability for the chemical weapons attacks in Syria also show the need to work through and around the UN Security Council at various times. The initial fact-finding mission was established in 2014 under OPCW auspices to investigate allegations of chemical weapons use in Syria. The UN Security Council then came together to establish the Joint Investigative Mechanism in 2015 to identify the perpetrators of attacks. However, the Council failed to agree to renew its mandate not long after. The OPCW is attempting to pick up the task again via its Investigation and Identification Team (Üzümcü 2021).

Of course, it is clear that the Security Council is not the sole body that meets with dysfunction when nations cannot come to agreement. The CWC, NPT and BWC have seen similar issues in recent years. This shows further that disarmament and the programmes for the prevention of nuclear, chemical and biological weapons will require use of all the tools available that the international community has built since the inception of the UN Charter. It also shows that progress cannot be fully reliant on mechanisms tied to the UN Security Council.

A second related point is the need to continue developing new, ad hoc mechanisms that support the goals of the UN Charter and augment official work through related treaties. Multilateral and unilateral initiatives have proven remarkably successful at driving progress towards specific goals that strengthen norms and governance, and tangibly reduce threats.

One long-running example has been the Global Partnership Against Weapons of Mass Destruction, operated via the G7. The Global Partnership has helped nations set goals and make investments towards tangible outcomes, as well as a range of activities designed for strengthening norms in general. Today, among many important efforts, it is assisting in revolutionising biodefence and health security in Africa by swiftly expanding pathogen early warning capabilities. Another historic example was the Nuclear Security Summits process, by which nations committed to specific actions and then cooperated in carrying them out. Examples included multi-nation exercises to improve secure transportation of nuclear materials and initiatives to remove highly enriched uranium from research reactors.

It is also noteworthy that the final document of the 2022 NPT review conference even explicitly mentioned the importance of such work, given that some efforts may include collaboration with nongovernmental organisations. As it stated,

The Conference notes the bilateral risk reduction agreements and arrangements between some nuclear-weapon States. The Conference recognises initiatives by States parties to develop elaborated measures that can contribute to building confidence and reduce the risk of the use of nuclear weapons, whether intentionally, by miscalculation, miscommunication, misperception, or accident in the context of achieving nuclear disarmament.

(United Nations 2022)

Third, across the range of weapon types, it is critical to continue developing and testing bold ideas. Indeed, the dire status quo makes this more important than ever. The time

burden of that same environment also means that many good ideas are likely to come from outside of official government channels.

For our organisation, we previously outlined a few examples we believe are important. This includes pursuing policies to make biological weapons obsolete as a mass destruction threat and pursuing a strong nuclear risk reduction agenda that includes eliminating entire classes of nuclear weapons.

Indeed, there is no shortage of grand ideas that could be influential in the near term and possibly game-changing over time. One promising and creative approach is seen in the United Nations Institute for Disarmament Research's (UNIDIR) 'evidence of absence' series of work carried out over several years. This work envisioned how nations would verify the absence of nuclear weapons in a range of scenarios—from agreements not to nuclear-arm dual-capable systems or ban specific classes of nuclear weapons to full international disarmament of nuclear warheads (Podvig, Snyder and Wan 2018). The Nuclear Threat Initiative (NTI) has produced several new ideas in the biological space, including proposing DNA synthesis screening. They and others have focused work in recent years on strengthening the UN Secretary-General's investigation mechanism for potential biological weapons events, including achievable ways to improve how investigative reports are produced and used (McLeish and Moon 2020).

Evolving Roles of Defence Organisations

Another trend over the past eight-plus decades is important to consider alongside the historical context of the creation of Article 26. Many nations are showing positive signs of conceptualising security in broader terms that encompass economic development and issues that get to the root of whether societies can stave off instability, fragility and conflict. And for many nations, their armed forces play important roles in this work. This is a proper reflection of decades of evidence regarding drivers of conflict and instability. It also requires reflection as we consider how Article 26 could provide inspiration or be pursued today.

The modern sets of skills and missions that defence organisations bring to the peace and security picture are significant; in nations all around the world, they often play central roles far beyond tools of potential warfare. In an important example, for states that armed themselves with nuclear, chemical or biological weapons before the related arms control and disarmament treaties were enacted, defence organisations in these nations have led the work of verifiably dismantling these weapons.

This extends far beyond weapons elimination work. In the biological space, in many nations, defence agencies house unique medical expertise and technological capabilities that are critical to addressing disease threats and which contribute to both public health and biodefence. For example, for decades, Ebola was on the list of priority agents of concern for improving biodefence, including the fact that it was part of the Soviet Union's biological weapons experimentation. Investments by defence organisations from several countries became critical to developing vaccines, other countermeasures and diagnostic tests for Ebola that are now actively used to quash outbreaks. Likewise, many militaries are now actively contributing military knowledge, science and engineering expertise to addressing the climate crisis and environmental degradation. Across dozens of nations, their armed forces are advancing work to project climate change impacts and enhance resilience. In another example, the new president of Brazil recently announced plans for potentially using the nation's armed forces to address environmental crimes; this comes

after Brazil (like many other countries) mobilised its armed forces to help address major disease outbreaks. The list goes on.

The UN Charter was drafted at a time when, in the old-world order that reigned, settling political disputes through armed conflict was not only acceptable but expected. The context in which Article 26 came about has been positively shaped by over a century of efforts to build international norms meant to change that fact and foster cooperative bargaining towards mutual security goals among nations. This has shaped defence strategy, doctrine, training, etc., in ways that reflect the spirit of the Charter. As a result, armed forces today have a different relationship to the UN Charter's concepts than they did at the time of its inception.

Some past discussions of Article 26 have cast its implementation as a simplistic 'economic versus defence spending' equation, as described in the earlier section of this chapter. It is appropriate now to ensure that defence expertise is well represented in the conversation and that the full range of armed forces' roles in peace and security be reflected.

Indeed, deliberations of the Commission on Conventional Armaments linked implementation of Article 26 to nations aligning their defence forces to what is needed for the effectiveness of the UN Charter. While this did not occur at the time and arms racing moved in the opposite direction during the Cold War, defence forces are now increasingly involved with efforts that support the UN Charter in both deed and spirit.

Shaping the Conditions for Progress

As described earlier, in the early years of the United Nations, discussions of Article 26 implementation acknowledged that progress would require a conducive global security environment generally, in addition to direct cooperative actions by nations. The hope that such an environment would persist after the world wars lasted only a few years—just about as long as the commission tasked to determine how Article 26 might proceed.

There are signs that many nations are returning to this concept, with mixed implications. In 2018, for example, the U.S. Department of State announced an initiative called Creating an Environment for Nuclear Disarmament, or CEND. In early statements about CEND, diplomatic officials noted that work needed to be done to generally improve the strategic environment in order to make further progress towards disarmament. Specific conditions mentioned included '(i) robust and reliable non-proliferation assurances, (ii) successful curtailment of other WMD threats, (iii) verification of disarmament, (iv) stability after zero by non-nuclear deterrence, and (v) alleviation of the range of regional and global tensions' (Kurosawa 2020). Later, officials mentioned specific steps such as the verifiable disarmament of North Korea, the implementation of a fissile materials production moratorium and a build-up of verification capabilities.

Many ideas presented via the CEND work were promising and appropriate to the time—and perhaps better than ending all pursuit of disarmament given the grim outlook that has developed. It also included multiple measures that could be supported and monitored by nongovernmental organisations and non-nuclear weapon states. However, many viewed this work as a tactic to delay action towards NPT treaty commitments, including because the Trump administration was simultaneously pursuing an expansion of the U.S. nuclear weapons arsenal to include new types of capabilities.

Still, it is likely true in the near term that efforts to build trust, confidence and practical capabilities to implement full treaty aims and strengthen norms will be extremely important. As the CEND experience showed, this work must be matched by good-faith steps

towards progress, lest efforts to set conditions for peace be taken as merely steps to forestall progress towards disarmament. For the United States, an important step was the Biden administration beginning to cut back the nuclear weapons capability expansion plan and promoting a deterrence strategy directly linked to arms control. This is a first step in the right direction and serves as an example to all nations that improving conditions and concrete risk reduction steps can still occur even at times of the highest tension and conflict without being a detriment to the security of individual nations.

Conclusion

Strengthening global cooperation and governance of nuclear, chemical and biological weapons will be essential for mitigating catastrophic risks through this century. It is absolutely imperative, and there are many paths forward for such work.

Moreover, progress against WMD will almost surely have implications for whether nations can unite in addressing a far broader range of global risks and seeking fuller implementation of the vision set forth by the United Nations. As noted by many leaders who contributed to the founding of the United Nations, the catastrophic risks and arms-racing behaviour that are driven by these weapons heavily shape whether nations have trust in collaboration over wide-ranging issues, with implications for global governance contributing to fighting the climate crisis, avoiding ecological calamity or seeing large-scale conventional conflicts spread further.

Over the longer term, there may be even broader applications of Article 26, including expansion into conventional arms. The world continues to change in dramatic ways. Some stem from devastation from environmental degradation and the impact of climate change, which may prove irreversible. It is also being reshaped by machine learning, artificial intelligence, quantum computing and other emerging technologies that will alter the dynamics of deterrence and security so fundamentally that nations may have fresh incentives to fast-track disarmament efforts. It is a certainty that the 21st century will see incredible changes from forces that are already creating a different world than what existed a century ago. As such, the continuing examination of how to bring life to the UN Charter and keep its ideals strong will remain pressing if this changing world is to be tilted away from catastrophic outcomes.

Notes

- 1 The blurred nature of this field has featured heavily in the ongoing debates and uncertainty regarding whether the origin of COVID-19 was a natural event or the result of a lab accident. See, for example, Stolberg, Mueller and Zimmer (2023).
- 2 The chemical weapons found in Panama were remnants of U.S. research and testing conducted on a leased island across several years after World War II (Holl 2018).

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