

The Alva Myrdal Centre for Nuclear Disarmament

Working Group on Nuclear Disarmament
in Policy and International Law

EXPANDING PERSPECTIVES ON NUCLEAR DISARMAMENT

Working Paper Compendium
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About the Compendium

This compendium of working papers features contributions by the members of the AMC Working Group on Nuclear Disarmament in Policy and International Law, and by students and early-career professionals selected following an open call for abstracts. The first part of the collection—from the Working Group members—features scene-setting pieces which reconsider the notion of ‘nuclear disarmament’ and relevant concepts in the contemporary strategic context. The second part of the collection—from the selected students and early-career scholars—feature original research on an array of topics. These have been sorted into four broad thematic areas: 1) the role of nuclear-armed states in the disarmament space, 2) key processes and mechanisms that can help facilitate disarmament progress, 3) potential impacts of technological advancements, and 4) frameworks and perspectives that can help recast disarmament concepts. Together, the compendium represents an effort to expand the current understanding of the topic, with view to reinvigorating efforts towards a world free of nuclear weapons.

About the Alva Myrdal Centre

The Alva Myrdal Centre (AMC) for Nuclear Disarmament was established in 2021 at Uppsala University, Sweden, to provide teaching, research, and policy support on nuclear disarmament issues. In cooperation with other stakeholders, AMC coordinates six interdisciplinary working groups. AMC Working Group 5 is chaired by the Stockholm International Peace Research Institute (SIPRI) and focuses on the range of issues related to nuclear disarmament in the context of policy and international law.

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INTRODUCTION

WILFRED WAN

'Our world is hovering at the edge of an abyss, driven there by man's unreason.'

- Alva Myrdal, *The Game of Disarmament*, 1976

Global nuclear stockpiles are expected to grow for the first time in decades, reversing trends since the end of the Cold War.¹ The strategic context has driven the persistent—and growing—role of nuclear weapons in security strategies, with expansive modernization programmes taking place across all of the nuclear-armed states, and further 'significant investment' recommended in some cases.² Deteriorated relations have also contributed to stagnated stockpile reductions, accompanied by the collapse of bilateral arms control between Russia and the United States and poor prospects for future agreements.

The role of nuclear weapons appears intractable in the present moment, not just in nuclear-armed but allied states, especially in the wake of 24 February 2022 and the Russian war in Ukraine. Finland has expanded the NATO nuclear umbrella with Sweden to follow, while South Korea obtained a stronger extended deterrence commitment from the US. Poland is pushing to host nuclear armaments on its territory; Russia has moved non-strategic nuclear weapons to Belarus. Given these actions and other expressed views, there exist legitimate concerns about the achievability of nuclear disarmament in the foreseeable future.

Narratives about nuclear weapons inform policy choices. This compendium of working papers aims to contribute to further nuance in the conversation. The first part of the collection features scene-setting pieces from distinguished scholars in the field. They consider the notion of nuclear disarmament and related concepts, with view to identifying means to revitalize disarmament efforts. Some have outlined familiar topics and themes that have taken on new resonance; others are relatively underexplored.

- Andrew Futter and Nick Ritchie highlight the complex and multifaceted nature of the nuclear weapons challenge and call for stakeholders to consider what it means to invent, or reinvent, disarmament as a 'collective human enterprise.'
- Karim Haggag and Oliver Meier posit potential positive impacts of enacting a wider array of policy options—including interim and non-inclusive measures, as well as the fleshing out of the nascent TPNW regime.
- Anastasia Malygina and Tanya Ogilvie-White identify a work program for the concept of ensuring 'irreversibility' in nuclear disarmament, a principle that has gained prominence in recent years among the policymaking community.
- Sharon Squassoni and Gaukhar Mukhatzhanova make the case that ethical, political, and societal considerations have been overlooked as potential drivers in disarmament, in some cases enabling progress despite military-technical barriers.

The list of themes presented is not exhaustive, but they suggest clear paths for further research. How can global nuclear disarmament be operationalized in the current context? What factors

¹ SIPRI Yearbook 2022.

² America's Strategic Posture, *The Final Report of the Congressional Commission on the Strategic Posture of the United States*, October 2023.

impact the degree and pace to which the requisite next steps will be taken? What can individual actors do to take those steps?

The bulk of the compendium features working papers that seek to address these and other questions, developed from selected abstracts submitted in response to an open call to students and early-career professionals. The first set of papers considers **the role of nuclear-armed states** in the disarmament space, both a) as it pertains to their own programmes and b) in their impact on bilateral and multilateral disarmament regimes. Douglas de Quadros Rocha considers how France reconciles its deterrence policy with broadly expressed disarmament principles and suggests that values of transparency and confidence-building could be leveraged to the latter end. Aswathy Madhukumar retraces the narratives that drove India's nuclearization, seeking to find openings in the opposite direction. Expanding outward, Razy Aman Eddine disentangles evolving Russian attitudes towards positive and negative obligations in arms control agreements. Meanwhile in Sajjad Ahamed's piece, China's nuclear expansion is examined through its potential impact on Southeast Asia.

The next set of papers considers **key processes and mechanisms**, in some cases involving new stakeholders, that can help facilitate disarmament progress. Alice Spilman makes the case that rebuilding confidence as means to manage uncertainty can bolster perceptions of irreversibility and sustain arms control and disarmament. While her paper considers relational aspects, Joel Christoph turns to the transactional, arguing that economic incentives can effectively complement diplomatic efforts. Magritte Gordaneer posits a blueprint for youth engagement as means to take forward disarmament; Mahmoud Javadi turns to transnational parliaments as undervalued forces of change, focusing on universalization of the TPNW.

The next set of papers examines potential **impacts of technological advancements**. Océane Van Geluwe examines the potential that blockchain can play in disarmament verification, including as means to operationalizing irreversibility. Philipp Sauter considers opportunities and challenges brought about by prevalence of nuclear fusion technologies.

The final set of papers considers **frameworks and perspectives** that can help recast disarmament concepts. Lena Wittenfeld examines the potential for feminist foreign policy to advocate for disarmament, while pointing to limitations in its approach linked to its human security origins. Ines Grange parses gendered language and the performative nature of nuclear rhetoric, with view to overcoming the hold of nuclear weapons in the popular imagination. Nicolò Miotto considers discourse in another context, in particular tracing how Pope Francis has dramatically shifted the Catholic Church's treatment of disarmament. Ethical framing is key in Vincenzo Poti's paper as well, which deploys the approach as means to delegitimize nuclear deterrence.

Together, this compendium represents an initial effort to reconsider what nuclear disarmament means in the contemporary context, to expand understanding of the topic during a period that appears as a nadir. Disaggregating the dynamics behind perspectives of deterrence and disarmament, understanding the ways in which these are developed as well as how they can translate into policy, may help us more effectively reformulate and redirect these—to reinvigorate the concept of nuclear disarmament, and bolster, as Alva Myrdal once foresaw, the 'flood of mighty protests against the acceptance of nuclear weapons.'³

³ Alva Myrdal, 'Nobel Speech and Lecture,' 11 December 1982, <https://www.nobelprize.org/prizes/peace/1982/myrdal/lecture/>.

I. SETTING THE SCENE

1. Deconstructing ‘Nuclear Disarmament’

ANDREW FUTTER & NICK RITCHIE

Notwithstanding the recent agreement and entry into force of the Treaty on the Prohibition of Nuclear Weapons (TPNW) and a burgeoning disarmament-focussed global NGO community, the political reality is that we are probably as far away from the goal of complete disarmament today than at any time for a generation. Perhaps more than this, we have seen the return of nuclear rhetoric, nuclear threats, and nuclear competition between the major powers, alongside concerns about both horizontal and vertical nuclear proliferation, and growing fears about civilian nuclear installations being targeted. At the same time, interest in the possible benefits of nuclear technology for domestic power generation, net zero aspirations and economic development appear to be on the rise. This is especially the case in the Global South and for members of the Non-Aligned Movement. For many states, there is a feeling that a Western focus on non-proliferation and nuclear security has prevented the ability for many other members of the international community, particularly those in the developing world from realising their ‘unalienable rights’ to such technologies under the NPT. The net result, whether one likes it or not, is that nuclear weapons and nuclear technologies appear to be becoming more rather than less important in global politics.

However, at the time of writing the dialogue between the major stakeholders across the nuclear order has become increasingly strained, combative, and in many cases non-existent. Conferences, events, and even international agreements focused on nuclear issues writ large that don’t include the nuclear-armed states or achieve universal applicability, or that don’t also address the thorny issues of ‘peaceful’ uses of nuclear technologies, are unquestionably well meaning, but in reality, make little progress when it comes to engaging states and leaders that continue to see nuclear weapons or nuclear technology as central to their national security. There is a growing risk that the disarmament, development, and deterrence communities simply talk past each other (even more so than currently), and only share ideas with those of a similar mind. Whatever your political proclivity, this is not a healthy way to go about ensuring that nuclear weapons are not used—however you believe we should seek to achieve that goal.

These dynamics are playing out—and will play out—in a changing, dynamic, and fluid global nuclear order. This is not to say the previous periods of our nuclear history have not been characterised by major changes or worries, but that today the challenge seems to be much more complex and multifaceted than before.

At the heart of this new epoch is rapid technological change in nuclear and non-nuclear weapons and support systems which may be facilitating new strategic missions and driving new uncertainties, which together could undermine conceptions of regional and global stability. Technological change is reflective of a geopolitical move away from a generation where the United States was the most important shaper of the global nuclear order, to one where global nuclear politics increasingly reflects the interests of other peer competitors and influential ‘middle’ powers in other parts of the world. This in turn is challenging established processes that underpin alliance commitments and especially extended deterrence guarantees. But what perhaps makes this new nuclear age notably different to what has come before is the widening gap between how the major stakeholders within the global nuclear order view the best ways to achieve their security in this evolving strategic environment.

In previous nuclear eras, the interests of states that prioritise deterrence for immediate security requirements; those who prioritise access to restricted nuclear technologies to facilitate economic

and societal development; and those that prioritise other mechanism to reduce nuclear risks and move to a nuclear-disarmed world have just about been balanced. The bipolar structure of international politics during the Cold War and the significant reduction in nuclear stockpiles and in the 1990s and 2000s just about kept a lid on these three divergent interests. But today it is far from clear that this balance or compromise can be maintained. This is why we urgently need thinking about how to manage the nuclear condition and make progress towards disarmament in what might become termed the global 'Third Nuclear Age'.

In this context, the prevailing wisdom in nuclear-armed states and their supporters is that nuclear disarmament is either not necessary, possible, sustainable, or all three. But this argument radically restricts potential nuclear futures to those of permanent nuclear armament and with it, the inevitability over time of the use of nuclear weapons.

Nuclear disarmament is not 'impossible', but if nuclear disarmament happens at a regional or global scale, it will need to be 'invented' as a collective human enterprise. This means inventing the discourses, practices, agreements, and the actions that follow by networks of people. The 'people' part of this might seem obvious, but the role of people can often get lost in analysis of states, histories, doctrines, weapon systems, organisations, wars, bureaucracies, and other structures of power that shape who we think we are and how we think we should act. But the fundamental role of human agency in inventing things like the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), New START, Nuclear-Weapon-Free Zones (NWFZs), the Comprehensive Nuclear-Test-Ban Treaty (CTBT), and the Treaty on the Prohibition of Nuclear Weapons (TPNW), for example, is abundantly clear.

Inventing nuclear disarmament will almost certainly be a contingent and reversible process involving a plurality of initiatives, actors, and ideas as well as tensions and contradictions. It will be part of a much broader process of multilateralism in global politics, not only to place limits on arbitrary and excessive violence, but to address the cascading ecological crisis, and the revolutionary changes anticipated by AI and quantum computing.

A central feature of inventing nuclear disarmament will be the 'unmaking' of nuclear weapons complexes through structural disarmament and social change that shifts the meaning of nuclear weapons in societies. Science and Technology Studies provide useful frameworks for thinking about this. The starting point is to understand a nuclear weapons complex as a social-technical system comprising a diverse set of actors, including people, organisations, material objects, physical sites, knowledge, practices, and so on, all of which have been shaped and assimilated into a network; and then second, to understand nuclear disarmament as the 'unmaking' of this socio-technical system.

These frameworks enable us to see that being a nuclear-armed state means sustaining a nuclear weapons complex over time because it won't endure by itself. It takes organisational effort, knowledge, money, and political will to bring a nuclear weapons complex together and sustain it. If these things dilute over time, then nuclear weapons complexes as socio-technical systems will start to come apart to the extent that the time, cost, and difficulty of reversal becomes politically prohibitive and 'structural disarmament' sets in.

Studies of technology phase-out, and the destabilisation and discontinuation of socio-technical systems show that these processes involve more than just undoing, they also require inventing new governance processes, what is called a 'governance of discontinuation'. So, irreversibility is about two processes: unmaking a socio-technical system and inventing the governance of the discontinuation process.

A good example of this is the Cooperative Threat Reduction programme established by the US Congress in 1991 prompted by the disintegration of the Soviet Union and its nuclear, chemical, and biological weapons programmes. This resulted in a web of agreements and initiatives that constituted the invention of a system of discontinuation governance.

Changes in the meaning of nuclear weapons within a society in relation to ideas of security, power and the state will also be crucial. In particular, relinquishing nuclear weapons and staying that way will require nuclear weapons to be marginalised, delegitimised or even stigmatised (as the most powerful type of prohibitory norm). In fact, studies of the destabilisation and discontinuation of socio-technical systems highlight the importance of delegitimising the technology to be abandoned.

The starting point here is that the meanings of nuclear weapons are socially constructed insofar as there are no objective meanings that are innate to nuclear weapons as material things outside of their social-historical context. It is a shared system of meanings within a society that makes sense of nuclear weapons, makes them what they are understood to be.

We know that the meanings that constitute nuclear weapons have become deeply embedded in strategic cultures, shared ideas of national identity in nuclear-armed states and their understandings of nuclear order. These are difficult to shift, but history shows us that the meanings associated with weapons and violent practices can change. And there are good examples of how the meaning of nuclear weapons has shifted in different societies in different social and historical contexts in terms of their salience, value, and legitimacy in relation to changing ideas of security and identity. For example, the meaning of nuclear weapons in South Africa, Kazakhstan and Ukraine in the early 1990s and how the negotiation of the NPT shifted understandings of nuclear weapons in the 1960s and 70s in states that were developing nuclear weapon programmes and then rolled them back, for example Sweden.

If we think about nuclear disarmament as invention, then some of the key concepts are:

- collective agency
- multi-causality
- contingency and non-linearity
- contestation and (ir)reversibility
- institutions and governance
- power and power structures
- structural disarmament and the practical 'unmaking' of nuclear weapons complexes
- systems of meaning and devaluing and delegitimising nuclear weapons
- security and identity in changing global context

Unpacking these concepts and examining how they can explain past nuclear choices across different contexts will inform thinking about the possibilities and practices of regional or global nuclear disarmament processes.

2. From Unilateral to Multilateral: Tackling Nuclear Disarmament from Both Ends of the Spectrum

KARIM HAGGAG & OLIVER MEIER

Taking practical steps forward

Over the last twenty years, it has become increasingly difficult to negotiate and ratify inclusive and legally binding nuclear arms control and disarmament agreements. The reluctance of the nuclear weapon states to limit their military potential has led to a blockade of large parts of the multilateral disarmament machinery.

Russia's war against Ukraine has accelerated that trend and aggravated the crisis in the nuclear arms control architecture. Russia argues that 'business as usual' is no longer possible and has turned away from arms control, including nuclear arms control.¹ Moscow single-handedly blocked agreement at the NPT Review Conference and the decision to suspend implementation of the New START treaty puts at risk the last remaining bilateral agreement with the United States that limits nuclear capabilities.² These developments were preceded by a series of decisions by both Washington and Moscow prior to the war in Ukraine that resulted in either the suspension of certain treaty commitments or the withdrawal from treaties altogether; the Open Skies treaty, the Intermediate Range Nuclear Forces Treaty, the Anti-Ballistic Missile Treaty and the Conventional Forces in Europe Treaty among others.

Moreover, other nuclear weapon states are also increasing the salience of nuclear weapons in their defence postures, further complicating arms control. All nuclear weapon states are investing heavily in the modernization of nuclear weapons and often integrating nuclear and conventional deterrence capabilities. Domestic opposition to new nuclear arms control, let alone disarmament, further dampens the prospects for future progress on nuclear arms control.

As a result of these trends, the nuclear weapon states are unlikely to live up to the disarmament 'gold standard' any time soon. That standard describes several benchmarks of universal, legally-binding and effectively verifiable accords that mandate irreversible reductions of the role and number of nuclear weapons.³ This raises the prospect that progress towards reductions in the role and number of nuclear weapons will also have to take place through steps that the nuclear weapon states take unilaterally or voluntarily.

Yet, arguing that unilateral and non-binding steps are currently the only feasible option given the arms control deadlock does not help to answer important questions about the desirability of such measures. What is the value of such less-than-perfect nuclear disarmament steps in achieving a world free of nuclear weapons? How sustainable are they? Under what circumstances will such measures facilitate subsequent agreement on stronger accords or complement existing multilateral frameworks?

Two different areas can be looked at separately. First, it is useful to try to assess the value unilateral and nonbinding steps the nuclear weapons states have been taken to reduce the overall number of nuclear weapons and their salience in the defence postures of nuclear weapons states. Secondly,

¹ "Business as usual' with US no longer possible — MFA, TASS, 22. März 2023, <https://tass.com/politics/1593111>.

² Hanna Notte, 'U.S.-Russian relations can still get worse', 22 February 2023, <https://warontherocks.com/2023/02/u-s-russian-relations-can-still-get-worse/>.

³ Anatoly Antonov and Rose Gottemoeller, 'Keeping Peace in the Nuclear Age', *Foreign Affairs*, 29 April 2020, <https://www.foreignaffairs.com/articles/united-states/2020-04-29/keeping-peace-nuclear-age>.

the Treaty on the Prohibition of Nuclear Weapons (TPNW) provides for a nascent treaty framework that, despite its shortcomings, places nuclear disarmament firmly within a global multilateral context.

Unilateral and non-binding arms control steps

Amy Woolf has pointed out, ‘even if the United States and the Russian Federation return to [an arms control dialogue] when the conflict in Ukraine ends, they may not have enough time to negotiate a new treaty before New START expires in 2026. They could agree, informally, to maintain their forces at the levels mandated in New START, but they would be likely to lose access to much of the data and other cooperative measures and inspections mandated by the treaty.’⁴

To date, the track-record of steps the nuclear weapon states have taken unilaterally or reciprocally outside of negotiated nuclear arms control agreements is mixed. Woolf has taken stock of related steps the United States has taken and concludes that ‘on balance, it appears that unilateral measures may offer the opportunity for more rapid and comprehensive reductions than bilateral treaties. But treaties—if they contain precise definitions, detailed restrictions, and cooperative monitoring provisions—may do more than unilateral measures to promote and ensure stability.’⁵ The value of voluntary transparency and risk reduction measures can be assessed more positively because they provide ‘evident benefits for stability and greater predictability’ and ‘in many cases ... states will likely find that it bolsters, rather than detracts from, deterrence.’⁶

There is also an emergent consensus that against the increasingly dangerous competition between the nuclear weapon states, reducing the risk of nuclear war has to be the priority. While ‘formal, legally binding treaties (when complied with by both parties) have a good record of ... providing arms race stability’, they ‘have been less effective in ensuring crisis stability.’⁷ Therefore, many argue that ‘the nuclear-armed states need to move toward a global regime of nuclear restraint and responsibility: a set of principles and goals that would provide a broad framework for reciprocal political agreements among nuclear powers to reduce nuclear dangers.’⁸ Such a regime of restraint could therefore include ‘minimal, declaratory initiatives and unilateral measures, and proceed to steps that require action, not just words.’⁹

Non-inclusive arms control: the TPNW

The entry into force of the TPNW marks the first time the issue of multilateral nuclear disarmament has been raised since the first debates dating back to the early 1960s in the Conference on Disarmament under the agenda item of ‘General and Complete Disarmament’. Among the principles agreed upon by both superpowers that guided these early debates was the requirement to anchor the implementation of nuclear disarmament in a dedicated body with broad powers:

‘To implement control over the inspection of disarmament, an international disarmament organization including all parties to the agreement should be created within the framework of

⁴ Amy Woolf, ‘The Past and Future of Bilateral Nuclear Arms Control’ (UNIDIR, March 2023), <https://unidir.org/publication/the-past-and-future-of-bilateral-nuclear-arms-control/>, p.7.

⁵ Amy Woolf, ‘Arms Control and Strategic Nuclear Weapons: Unilateral Vs. Bilateral Reductions.’ CRS Report RL31222, Congressional Research Service, Washington, D.C., May 16, 2002. <https://crsreports.congress.gov/product/pdf/RL/RL31222>, p. 22.

⁶ See for example Olga Oliker, Franziska Stärk, Dmitry Stefanovich, Maren Vieluf. ‘Truth or Dare: Transparency, Ambiguity, and Prospects for New International Commitments in the Nuclear Realm’, Deep Cuts Working Paper #15, January 2023, <https://deepcuts.org/publications/working-papers/wp-15>, p. 17.

⁷ Linton F. Brooks, ‘The End of Arms Control?’, *Daedalus* 149, Nr. 2 (1 January 2020): 84–100, https://doi.org/10.1162/DAED_a_01791.

⁸ Nina Tannenwald. ‘Life beyond Arms Control: Moving toward a Global Regime of Nuclear Restraint & Responsibility’, *Daedalus* 149/2 (2020): 205–21, https://doi.org/10.1162/DAED_a_01798, p. 207.

⁹ Tannenwald, op.cit, p. 210.

*the United Nations. This international disarmament organization and its inspectors should be assured unrestricted access without veto to all places as necessary for the purpose of effective verification.*¹⁰

Since then, the issue of multilateral nuclear disarmament has been largely marginalized with respect to both the policy debates and the research agenda related to global non-proliferation and disarmament. Consequently, the development of the global multilateral nuclear regime has focused mostly on the non-proliferation of nuclear weapons and related technologies, thus largely shaping the evolution of institutional framework (International Atomic Energy Agency, IAEA), verification standards (nuclear safeguards), and legal treaty instruments (NPT, CTBT and NWFZs). By contrast, nuclear disarmament has largely remained the preserve of the bilateral superpower arms control framework outside of the global multilateral regime.

The TPNW in effect picks up where the early debates on nuclear disarmament left off. The treaty provides a comprehensive framework for nuclear weapons disarmament, and as such, constitutes a significant advancement in the development of the global multilateral regime related to weapons of mass destruction. However, given the rudimentary and as of yet still-evolving nature of multilateral nuclear disarmament, many of the policy issues related to the implementation of the TPNW present a host of diverse challenges.

Several of these issues have already been the subject of a growing body of analysis and research. In particular, the verification requirements for the nuclear disarmament provisions of the treaty have received considerable attention.¹¹ The importance of the treaty in the context of the evolving process of norm development related to nuclear weapons and nuclear deterrence has also been the focus of much critical analysis, especially given the close association between the TPNW and the humanitarian disarmament movement.¹² Perhaps the greatest shortcoming of the treaty is the fact that it excludes the Nuclear Weapon States and most of the nuclear umbrella states that insist that the TPNW will only serve to undermine the NPT, and therefore weaken the already fragile global non-proliferation regime.

Notwithstanding these shortcomings and given that several key aspects of the TPNW framework are still evolving, the development of the treaty presents an opportunity to explore a host of issues that can contribute positive to the overall agenda of nuclear disarmament. Foremost of these is the institutional design, organizational structure, and mandate of the 'Competent International Authority'.¹³ As specified by the treaty (Article 4(6)), the Competent International Authority (or Authorities) shall be designated by the states parties with a mandate to 'negotiate and verify the irreversible elimination of nuclear-weapons programmes, including the elimination or irreversible conversion of all nuclear-weapons-related facilities...' This would require that the proposed body combines both a high standard of scientific objectivity, as well as institutional independence needed to instil confidence in the integrity and completeness of the disarmament process.

¹⁰ Referenced in Alva Myrdal. 'Verifying Disarmament and Internationalizing Knowledge' in Peter Wallensteen, Armend Bekaj (eds) *Alva Myrdal: A Pioneer in Nuclear Disarmament*. (Springer, 2022), p. 189.

¹¹ See for example Tamara Patton, Sebastien Philippe, and Zia Mian. 'Fit for Purpose: An Evolutionary Strategy for the Implementation and Verification of the Treaty on the Prohibition of Nuclear Weapons' *Journal of Peace and Nuclear Disarmament* vol 2, no. 2 (2019); Tamara Patton. 'An International Monitoring System for Verification to Support Both the Treaty on the Prohibition of Nuclear Weapons and the Nonproliferation Treaty' *Global Change, Peace & Security* vol. 30, no. 2 (2018).

¹² Nick Ritchie, Alexander Kmentt. 'Universalising the TPNW: Challenges and Opportunities' *Journal for Peace and Nuclear Disarmament*. vol. 4, no. 1 (2021).

¹³ A notable exception is the proposal put forward by former nuclear inspector Thomas Shea regarding the establishment of an 'International Nuclear Disarmament Agency' (INDA). See Thomas Shea. *Verifying Nuclear Disarmament*. (Routledge: New York, 2019), pp. 21-33. A summary of Shea's INDA proposal can be found here: <https://vcdnp.org/verifying-the-treaty-on-the-prohibition-of-nuclear-weapons/>

The TPNW also entails the potential of enhancing the role of the IAEA in nuclear disarmament. The treaty assigns a key role for the IAEA in ensuring effective verification of the non-divergence of declared nuclear material for non-peaceful purposes. Any state party possessing nuclear weapons that undertakes to disarm under the provisions of the treaty is required to sign a safeguards agreement with the IAEA upon completion of the disarmament process. However, the role of the IAEA in conjunction with the Competent International Authority in the context of TPNW implementation, raises the possibility of the Agency undertaking verification functions directly related to the process of nuclear disarmament such as dismantlement and destruction of nuclear weapons, or whether its role will be confined strictly to its core safeguards function. The challenge in this regard lies in the much greater verification burden associated with nuclear disarmament in comparison with nuclear safeguards; a challenge that the proposed Competent International Authority may find difficult to implement on its own.¹⁴

Finally, with a sufficiently broad mandate the Competent International Authority can potentially undertake a role in disarmament arrangements that may not relate directly or indirectly to the TPNW. Although the legal basis for the establishment of the Authority would be anchored in the TPNW, this would not necessarily preclude a mandate that would effectively render the Authority a global intergovernmental body for nuclear disarmament, with a role not strictly confined to implementation of the treaty.

Particularly relevant in this regard could be the potential involvement of the Competent International Authority in verifying the nuclear disarmament provisions of a future Middle East WMD-Free Zone. Given the lack of regional capacity and the absence of a multilateral nuclear disarmament framework, this leaves states of the region with a number of undesirable options for addressing the task of nuclear disarmament within the zone: devising a regional body charged with implementation of nuclear disarmament; relegating this task to a special international arrangement involving the nuclear weapon states; or opting to exclude nuclear disarmament provisions from the zone arrangement altogether.

The establishment of the TPNW Competent International Authority with a sufficiently broad mandate to address non-treaty related cases of nuclear disarmament could thus potentially change the parameters of the debate regarding the Middle East zone, as well as with respect to other nuclear disarmament contexts (South Asia, North Korea).

Conclusion

Given the current prolonged stalemate in the strategic arms control process between the United States and Russia, alongside the inability to expand this process to include other nuclear weapons states, there is a pressing need to explore alternative disarmament approaches, both unilateral and multilateral. The case for using nonbinding, unilateral or other imperfect practical measures as interim steps to address the greatest nuclear risks is strong. To some degree, such measures remain a default option because the nuclear weapon states are renegeing on their political obligations under the NPT to pursue and implement binding, irreversible and effectively verifiable disarmament steps. At the 10th NPT Review Conference, states parties agreed that nuclear risk

¹⁴ Dismantlement of a nuclear weapons program entails undertaking an array of activities that reach across a states' nuclear energy and military industrial complex. These include the dismantlement and destruction of the nuclear weapons themselves, the decommissioning of nuclear-weapons related infrastructure, the proper disposition of nuclear material, a thorough understanding of the integration of nuclear weapons into the states' military force structure, procurement systems tied to both the civilian and military nuclear programs, research and development programs related to nuclear weapons design and engineering, as well as the bureaucratic apparatus responsible for the overall administration of the program. A useful template for the constitutive elements of a nuclear weapons program can be found in Toby Dalton, Wyatt Hoffman, Ariel E. Levite, Li Bin, George Perkovich, and Tong Zhao. 'Toward a Nuclear Firewall: Bridging the NPT's Three Pillars.' Carnegie Endowment for International Peace, March 2017.

reduction measures are 'neither a substitute nor a prerequisite for nuclear disarmament'.¹⁵ But clearly suspicions remain that further discussion would distract from the need for disarmament.

Exploring the prospects for developing the nascent regime embodied in the TPNW is an alternative approach that addresses the challenge of disarmament from a multilateral context. Notwithstanding the admittedly glaring shortcomings of the TPNW as an inherently non-inclusive framework, its entry into force marks the first real advancement in multilateral nuclear disarmament.

What is needed is more research on how efforts in this area (and other disarmament approaches) would and could 'contribute to forward movement in and complement the implementation of Article VI obligations and related nuclear disarmament commitments.'¹⁶

Together, both approaches present a rich but challenging research agenda could entail the following elements:

- What elements of unilateral and nonbinding measures have been incorporated in more binding agreements at a later stage?
- How can interim and non-inclusive measures bolster the effectiveness of existing multilateral regimes?
- What are respective roles and responsibilities of nuclear weapons states and non-nuclear weapons states?
- What are the potential disarmament scenarios that can be envisioned in the context of the TPNW?
- How can emerging nuclear disarmament verification regimes be adapted to the multilateral context of the TPNW?

Such research could aim to provide a menu of elements that make can strengthen unilateral arms control measures and a checklist against which to judge the value of such steps for nuclear disarmament. The contributions to this volume in many ways provide guidance for such future research.

¹⁵ 2020 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, "Draft Final Document" (New York, 25 August 2022), https://reachingcriticalwill.org/images/documents/Disarmament-fora/npt/revcon2022/documents/CRP1_Rev2.pdf, para 187(36).

¹⁶ *Ibid.*

3. The Principle of Irreversibility: Origins, Status, and Pathways – A Work Program

ANASTASIA MALYGINA & TANYA OGILVIE-WHITE

The principle of irreversibility, which has been relatively neglected in the scholarly literature and policy debates on nuclear non-proliferation and disarmament, is starting to attract more attention from the expert community. There are good reasons for this. Chief among these is the widespread concern over the increasingly tense and divided NPT review process and growing uncertainty over its future, which has led scholars and officials to search more deeply for initiatives that could strengthen the Treaty and the broader non-proliferation regime. Crucially, the principle of irreversibility has been identified as an under-explored area of the disarmament debate that could constitute an area of common ground between the ‘nuclear haves’ and the ‘have nots’, helping to build bridges within and between the NPT and the TPNW. The fact that key nuclear-armed states are willing to constructively engage on the subject is positive and offers hope in an otherwise gloomy arms control and disarmament landscape. Furthermore, revived interest in the principle by NPT champions who possess institutional memory of the treaty’s origins and negotiating history, combined with the fresh thinking of emerging scholars, improves the prospects for launching a successful program of study that will be intellectually rigorous and make a concrete contribution to nuclear disarmament scholarship and policy debates.

The purpose of this short paper is to outline, in broad terms, a work program to help guide and inspire those interested in exploring the principle of irreversibility in theory and practice. It begins with a brief overview of the existing literature, which is currently very limited. It then explores the origins, history and current status of the irreversibility principle in the NPT context, identifying controversies and knowledge gaps and their consequences. The paper’s main focus then turns to the subject of creating pathways for operationalizing the principle of irreversibility, not only in the context of nuclear disarmament, but more broadly in the arms control and non-proliferation regime.

The scholarly literature

It remains unclear why, where and when the notion of irreversibility first appeared in the non-proliferation and disarmament literature. Movement from notion to conception is still under way. In the 1980s, negotiators of the Chemical Weapons Convention recognized that irreversibility was closely linked to the principle of undiminished security. They converted this understanding into the principles of sustainability and resilience integrated into the draft Convention and the associated arrangements it establishes. In the nuclear domain, the elimination of nuclear weapons in South Africa in the early 1990s was rich in lessons for verification but has limited relevance for the notion irreversibility. However, the case was unique, with elimination undertaken voluntarily by South Africa prior to joining the NPT as a non-nuclear weapon state. It did not require entering into a collective commitment, with, inter alia, international inspectors not invited to observe munition dismantlement, and details provided to inspectors about the country’s nuclear program rather constrained.¹ The issue of irreversibility appeared during IAEA discussions on how to deal with Iraq’s clandestine nuclear activities when they were originally made public following the 1991 Gulf War.² It has also been suggested that the term might first have been used during the mid-

¹ Kelley, Robert E. “Verifying Nuclear Disarmament: Lessons Learned in South Africa, Iraq and Libya.” (SIPRI, 2023): https://www.sipri.org/sites/default/files/2023-01/0123_verifying_disarmament_kelley_0.pdf.

² See for instance: Pomper, Miles A., Paul Kerr, Daryl G. Kimball, and Hans Blix. “Getting It Right the Next Time: An Interview with Hans Blix.” *Arms Control Today* 34, no. 6 (2004): 14–17. Findlay, Trevor. “The lessons of UNSCOM and

1990s, during early negotiations over the DPRK's nuclear program. As far as we are aware, no evidence-based research has been published on the origins of the term, which constitutes a major gap in the literature. Filling this gap is important because it could help the expert community understand the early evolution of the principle, including its original scope and purpose, which could provide important context for current debates on IND.

Most of the literature on the principle of irreversibility has been policy-focused and has been produced by Western governments and European think tanks. In 2011 VERTIC introduced an irreversibility scale to evaluate situations where nuclear disarmament had already been achieved and no nuclear weapons remained.³ Later in 2011, SIPRI facilitated expert dialogue which studied political, societal, legal and military-technical aspects of irreversibility in nuclear disarmament.⁴ Among other valuable discoveries, the SIPRI report put the problem of irreversibility in the context of the security dilemma and strategic stability. The report concludes that 'States will be most likely to close their nuclear weapons option irreversibly if they are confident that they understand the conditions under which they might be vulnerable to an external threat of the use of force and if they feel that they have an effective non-nuclear response' and made a conclusion that 'if force is going to be used fairly frequently, which appears to be the tendency, then an updated and agreed set of rules describing the conditions on which force is (a) legitimate and (b) likely will be needed.' In 2018 IPNDV studied irreversibility as a broader concept of reaching and maintaining global zero.⁵ IPNDV presented a set of measures to facilitate progressive, gradual, and coherent movement towards nuclear disarmament as well as measures for preventing re-armament. IPNDV focused on irreversibility as a principle for developing and implementing verification mechanisms which will signal non-compliance at different stages.

Most recently, the governments of Norway and the UK launched an initiative in the lead up to the 2022 NPT Review Conference, bringing together experts from government and civil society to explore nuclear irreversibility as a project that could help keep the goal of abolition alive and reduce some of the tensions between NWS and NNWS. To date, the initiative has helped fund two Wilton Park conferences, held in March 2022⁶ and March 2023⁷, and generated a CSIS report consisting of a series of think pieces.⁸ The latter describes the IND principle as 'relatively underexplored' despite its usage in the nuclear parlance, and argues that operationalizing the principle is beset by challenges, including: the lack of a shared vision of what IND means and what it entails, despite decades of agreed international references and commitments to it; a common perception that IND is impossible to achieve because nuclear weapons knowledge cannot be rolled back and new technological developments make it easier to acquire; and rising great power tensions and the collapse of nuclear arms control, pushing IND even further down the list of great power priorities.

UNMOVIC," in *Verification Yearbook 2004*, edited by Trevor Findlay (London: VERTIC, 2004), 65–86.
https://www.vertic.org/media/Archived_Publications/Yearbooks/2004/VY04_Findlay.pdf.

³ David Cliff, Hassan Elbahtimy, and Andreas Persbo, Irreversibility in Nuclear Disarmament: Practical steps against nuclear rearmament, 2011, <https://www.nonproliferation.eu/wp-content/uploads/2018/09/davidcli64256hassanelbahtimvandandreaspersbo4ece48257c33b.pdf>

⁴ Ian Anthony, Irreversibility in Nuclear Disarmament—Political, Societal, Legal and Military-Technical Aspects, SIPRI, 2011, <https://ext.d-nsbp-p.admin.ch/NSBExterneStudien/externestudien/590/it/2398.pdf>

⁵ Achieving Irreversibility in Nuclear Disarmament, IPNDV, Food-for-Thought Paper of Working group 1, 2018, <https://www.ipndv.org/wp-content/uploads/2018/01/IPNDV-WG1-FFT-Irreversibility-Final.pdf>

⁶ Irreversibility in Nuclear Disarmament, Wilton Park, Conference Report, 16-18 March, 2022
<https://www.wiltonpark.org.uk/app/uploads/2021/12/WP2019-Report.pdf>

⁷ Irreversibility in nuclear disarmament. Wilton Park, Concept note, 8-10 March, 2023
<https://www.wiltonpark.org.uk/app/uploads/2023/01/WP3125-Concept-note.pdf>

⁸ Heather Williams, Jessica Link and Joseph Rodgers, Irreversibility in Nuclear Disarmament, CSIS, 2023, [Irreversibility in Nuclear Disarmament \(csis.org\)](https://www.csis.org/analysis/irreversibility-in-nuclear-disarmament)

The origins and status of IND in the NPT

Much of the current discourse on the principle of irreversibility ignores its history, treats it as a future-focused concept, or unhelpfully subsumes it in more technical discussions on disarmament verification. But the principle has an important and separate provenance, is in fact decades old and—crucially—is already enshrined in the nuclear non-proliferation regime via the NPT review process. The clearest evidence of this can be found in the Final Document of the 2000 NPT Review Conference, which was adopted by consensus, and included unambiguous language detailing a shared commitment to the general principle.⁹ The means of irreversibility as identified there were linked to ‘initiatives on the verification, management and disposition of fissile material declared excess to military purposes.’ The key language can be found in the 13 practical steps for the systematic and progressive efforts to implement Article VI, step 5 of which stated that ‘the principle of irreversibility to apply to nuclear disarmament, nuclear and other related arms control reduction measures’. This was separate from transparency (step 9b) and verification (step 13) and was intended as an immediate rather than a future focused agreement among NPT states parties that *nuclear disarmament, arms control, and other reduction measures, once made, must not be reversed unless replaced by measures that are equivalent or go even further* (emphasis added).¹⁰ The reasoning behind this, which was set out in an EU working paper (NPT/CONF.2000/MC1/SB1/WP.2), was that achieving consensus commitment to this broad and general principle would help ensure that the progress that had already been made toward nuclear arms control and disarmament—whether unilateral, bilateral or multilateral, and whether negotiated or not—would not be undone, and that future steps would build progressively toward the ultimate goal of eliminating nuclear weapons. At its core, the principle of irreversibility thus expressed a common good: a shared commitment to ensure that disarmament momentum, once generated, would continue and that backsliding—which would not be in any state's interest or in the interest of humanity—would not occur.

Subsequent developments, however, suggest that some states parties did not make the commitment in good faith, as they appear to have reinterpreted the language once the conference ended to give it a narrower scope, and began engaging in activities that clearly undermine the principle.¹¹ Obvious examples include the testing and deployment of new weapons systems by some of the nuclear-armed states, causing the weakening and then collapse of key arms control agreements, beginning with the ABM Treaty. The purpose of the irreversibility principle was to prevent this very behaviour, recognizing that the reversal of any part of the complex non-proliferation regime's related components, including bilateral arms control, could have destructive, unintended consequences for a regime that was already decades in the making and that plays a foundational role in promoting international security. Indeed, more than 20 years later, much of the arms control architecture now lies in ruins, the future of the NPT is in doubt, arms-racing dynamics have re-emerged, debates on resuming nuclear weapons testing have revived, and IND has lost its meaning except as a distant and abstract goal.

There is scope for significant research on how and why the principle of irreversibility was able to garner consensus support in 2000 and yet unravel so quickly after the Review Conference ended. Key questions for research include:

⁹ Tanya Ogilvie-White, Ben Sanders, and John Simpson, *Putting the Final Document into Practice: Possible Ways to Implement the Results of the 2000 NPT Review Conference* (Southampton, UK: Mountbatten Centre for International Studies, 2002).

¹⁰ Gareth Evans, Tanya Ogilvie-White and Ramesh Thakur, *Nuclear Weapons: The State of Play* (Canberra, Centre for Nuclear Non-proliferation and Disarmament, 2014)

¹¹ Hiroshima Report 2023 (CDAST and JIIA), March 2023, <https://hiroshimaforpeace.com/en/wp-content/uploads/sites/2/2023/04/HR2023-ES-E.pdf>

- How far back can the origins of narratives about irreversible disarmament be traced? Are assumptions that the notion first entered policy debates in the 1990s in response to the Iraq or DPRK nuclear challenges correct?
- How did different states interpret the principle when it first emerged in diplomatic discourse, what influenced this, and how and why did these interpretations differ within and between states and how and why did they change over time?
- Did shocks to the international system, such as the 9/11 terrorist attacks, cause a backlash against the irreversibility principle based on a reconceptualization and reordering of national and international security priorities?
- Why was the international response to backsliding on irreversibility so muted?
- How did different states' assessments of the costs and consequences of non-fulfilment of the irreversibility principle differ and why? What alternatives to sanctions or other coercive measures—legal, technical and political—could have bolstered the political commitment and made it more resilient?
- How and why did the principle of irreversibility become subsumed by discussions on disarmament verification and other technical questions?
- How might the methodology of analysis and the epistemology of disarmament theory be improved? For instance, could resilient nuclear weapons elimination be a more realistic objective than absolute irreversibility? And to what extent can the habit of cooperation, the practices of consultations and reciprocal confidence-building contribute to resilience?

It would be useful to develop specific case studies to help answer some of these questions. For example, it would be instructive to examine how the principle of irreversibility was impacted by key events and developments in the nuclear landscape. Additional factors that require in-depth examination concern the shortcomings of the NPT regime, including limitations and different interpretations of the legal commitments set out in Article VI, different attitudes to subsequent political commitments reached by consensus at the Review Conferences, uncertainties surrounding the withdrawal clause and concerns about future breakout, failure to effectively address known and suspected cases of non-compliance in the 1990s and 2000s; obstacles to universality and the emergence of de facto nuclear weapons states outside the NPT. The indefinite extension of the NPT in 1995 and its impact on subsequent Review Conferences (including in the context of the non-fulfilment of the 1995 decision documents, on which the agreement on indefinite extension hinged) has also not been studied thoroughly yet. Moreover, unhealthy international practices emerging in arms control diplomacy field, including but not limited to divisions in the UN Security Council or the emergence of coalitions of the willing, need scholars' attention.

Pathways for moving forward with irreversible nuclear disarmament

Interest in the principle of irreversibility has recently reignited, including at the official level. In a working paper submitted to the 2022 NPT Review Conference, the UK invited all states to join a UK and Norway-led initiative to 'deepen our understanding of irreversibility and what it means in practice.' The draft final document of the 2022 NPT Review Conference reflected some of the working paper's language, stating that 'some parties recognize that further work is required to ensure the irreversibility of nuclear disarmament and, as a first step, are encouraged to build an understanding of the application of irreversibility measures in attaining and maintaining a world free of nuclear weapons and to exchange information on the application of the principle of irreversibility in relation to the implementation of Treaty obligations.'

However, the historical record suggests that the main problem is not that the principle itself is unclear or that it is difficult to implement. Rather, the highest obstacles to implementation of the principle seem to be geopolitical rather than technical. More research is needed on this, but the problem can be summarized in the following way, that a) the states with the greatest responsibility to apply the principle of irreversibility to disarmament, arms control and other related measures have lacked the will to do so; b) multilateral arrangements have failed to respond effectively to state actions that have undermined the principle; c) the post-cold war arms control architecture has lacked resilience in the face of great power rivalry. This raises some interesting questions for further exploration:

- How can the international community's response to the erosion of the irreversibility principle be explained? To what extent is a lack of regime credibility amid major changes in the international order and uncertainties surrounding the impact of new technologies on deterrence and disarmament responsible?
- How and in what ways would it be possible to make reversals in arms control and disarmament - whether they have taken place via unilateral, bilateral or multilateral processes - more difficult to reverse?
- What are the ways to amplify cohesion between irreversibility and the principle of indivisible security for all states?
- How can principles agreed to by consensus in the NPT review process be accorded more political weight?
- Is it feasible and desirable to strengthen the NPT review process to give certain core principles legal standing?
- To what extent would closer involvement of political leaders and defence experts and officials in the NPT review process increase understanding of the value of the principle of irreversibility and the unintended consequences of undermining it?
- What is the relationship between ethical debates on nuclear disarmament and the origins, history and current status of principle of irreversibility in arms control and disarmament?
- What role has international civil society played in shaping the fate of the irreversibility principle (for example, what explains civil society's failure to hold states to account for undermining it over the past 20+ years?).

Conclusion

Currently, global affairs are passing through a period of dramatic turbulence. The emerging security environment promises to be confrontational, with arms build-ups provoking new dangers. However, fifty plus years of progress in arms control and disarmament must not be abandoned. The history of disarmament diplomacy proves that concrete steps can occur even during periods of geopolitical confrontation. It was the collective recognition of the devastating consequences of nuclear war that originally generated arms control and disarmament momentum, and in today's unstable world, it is essential that cooperative efforts continue. The seriousness of existential threats requires national governments to exercise their agency and push nuclear arms control and disarmament forward in a way that makes it more difficult to reverse the process. Revitalizing expert dialogue on irreversible nuclear disarmament through diversifying the research agenda and critically thinking about the past and present of nuclear arms control and disarmament will help us identify ways to strengthen the resilience of the NPT and discover mechanisms to help it adapt to the evolving strategic environment.

4. Nuclear Disarmament Facilitators

SHARON SQUASSONI & GAUKHAR MUKHATZHANOVA

Military, technical, and economic drivers are commonly identified as the factors most strongly influencing arms control and disarmament progress. Ethical, political, and societal considerations, however, also have influenced progress in disarmament. In some cases, ethical, political, and societal influences have been able to break up logjams created by military-technical disputes.

The US opposition to a ban on biological weapons folded when it became clear that the United States could not protect its population from attacks, leading to the end of the US offensive program and a willingness to actively engage in negotiations that ultimately produced the Biological and Toxin Weapons Convention. In the case of the Ottawa Convention that bans anti-personnel landmines, humanitarian interests championed by civil society created a groundswell of support to negotiate a landmine ban treaty. While military, technical and economic rationales for landmines still exist among the 35 countries not party to the Ottawa Convention, the treaty arguably has created a strong norm against the indiscriminate use of landmines. For example, while not joining the mine ban, the United States announced in 2014 and again in 2022 that it would bring its landmine use policy in line with the Convention, albeit with exceptions.¹

In nuclear disarmament, a campaign to highlight the humanitarian impact of nuclear weapons has led to the successful negotiation of the Treaty to Prohibit Nuclear Weapons (TPNW), known also as the nuclear ban treaty. Although states with nuclear weapons and those protected by other states' nuclear weapons did not participate in the negotiations, and have declared their explicit opposition to the treaty, it is worth asking how and why international humanitarian law (IHL) and its interpretation, as well as emerging customary law, can influence thinking around nuclear weapons.

The question of whether any use of nuclear weapons can be compatible with international humanitarian law has long concerned states and non-governmental experts. In its 1996 opinion, the International Court of Justice stated that the use of nuclear weapons 'would *generally* be contrary to the rules of international law applicable in armed conflict, and in particular... humanitarian law.'² However, the ICJ could not conclude whether nuclear weapons use 'would be lawful or unlawful in an extreme circumstance of self-defence, in which the very survival of a State would be at stake,' leaving some room for interpretation and debate.

At the 2010 Review Conference, states parties to the Nuclear Non-Proliferation Treaty (NPT), including the five nuclear-weapon states (NWS), adopted a final document that reaffirmed 'the need for all States at all times to comply with applicable international law, including international humanitarian law.'³ The question then is, how do the NWS make sure their nuclear doctrines and targeting policies are indeed compliant with the IHL? Given the catastrophic and indiscriminate

¹ See 'Factsheet: Changes to US Anti-Personnel Landmine Policy,' The White House, 23 September 2014, <https://obamawhitehouse.archives.gov/the-press-office/2014/09/23/fact-sheet-changes-us-anti-personnel-landmine-policy> and 'Factsheet: Changes to US Anti-Personnel Landmine Policy,' The White House, 21 June 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/21/fact-sheet-changes-to-u-s-anti-personnel-landmine-policy/>.

² Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion of 8 July 1996, International Court of Justice, <https://www.icj-cij.org/sites/default/files/case-related/95/095-19960708-ADV-01-00-EN.pdf> (emphasis added).

³ Conclusions and Recommendations for Follow-on Actions, Final Document of the 2010 NPT Review Conference, Volume I, May 2010.

effects of nuclear weapons, how do the NWS envision meeting the requirements of proportionality and distinction, as well as necessity, in case of nuclear use?

US President Obama's nuclear employment guidance, released in 2013, directed that 'plans must also be consistent with the fundamental principles of the Law of Armed Conflict (LOAC). The guidance further states that plans will 'apply the principles of distinction and proportionality,' and the United States would not 'intentionally target civilian populations or civilian objects.'⁴ Scholars have questioned, however, whether US nuclear targeting policy can be considered LOAC compliant, pointing to definitions and interpretations that are too broad to effectively prevent massive civilian casualties.⁵

Very little is known about how other nuclear-armed states incorporate IHL considerations into their nuclear planning and targeting. France and the United Kingdom, who are considered to have nuclear deterrence policies similar to the United States,⁶ state that they would consider the use of nuclear weapons only in extreme circumstances and would not do so contrary to international law.⁷ Both countries, however, have made reservations on their accession to the Additional Protocol I of the 1977 Geneva Convention, arguing that the rules set out in the Protocol 'apply exclusively to conventional weapons... In particular, the rules so introduced do not have any effect on and do not regulate or prohibit the use of nuclear weapons.'⁸ How do military planners and civilian leadership in these and other nuclear weapon possessors conceive of nuclear weapon use that is compliant with international law? How can they be moved to apply IHL principles more directly to nuclear planning?

In the United States and other states, would more careful examination of nuclear targeting and potential impact, particularly on civilian population, lead to severe limitation of potential scenarios and targets for use? Would this constitute a meaningful reduction of the role of nuclear weapons in security doctrines and translate into progress towards their elimination? Would a serious debate on the meaning of 'legitimate military targets' lead the nuclear-weapon states (NWS) to a conclusion that they cannot effectively minimize harm to civilians in any realistic scenario of nuclear weapon use?

To be sure, most non-nuclear weapon states (NNWS) already consider any use of nuclear weapons incompatible with international law, a position they codified in the nuclear ban treaty. TPNW advocates acknowledge that a goal of the treaty is to create a norm of illegitimacy for nuclear weapons.⁹ A key question in this regard is how do international norms develop and persist? What are the chances of the TPNW as a widely established norm? What can be learned from the evolution of the norm against nuclear testing and the nuclear taboo against first use? How strong is the anti-testing norm now and what could overturn the more than twenty-year long moratorium on nuclear testing among all but one nuclear possessor?

⁴ U.S. Department of Defense, *Report on Nuclear Employment Strategy of the United States Specified in Section 491 of 10 U.S.C.* (Washington, D.C.: Department of Defense, June 12, 2013), pp. 4–5, uploads.fas.org/2013/06/NukeEmploymentGuidance_DODbrief061213.pdf.

⁵ Discussed, for example, in Jeffrey G. Lewis and Scott D. Sagan, 'The Nuclear Necessity Principle: Making U.S. Targeting Policy Conform with Ethics & the Laws of War,' *Daedalus*, Vol. 145 (4), Fall 2016.

⁶ Similarities between the nuclear deterrence policies of the three states discussed in Bruno Tertrais, 'A comparison between US, UK and French nuclear policies and doctrines,' *Science Po*, February 2007, https://www.sciencespo.fr/cei/sites/sciencespo.fr/cei/files/art_bt.pdf.

⁷ See, for example, UK Statement to the Main Committee I of the 2015 NPT Review Conference, 1 May 2015, https://reachingcriticalwill.org/images/documents/Disarmament-fora/npt/revcon2015/statements/1May_UK.pdf.

⁸ Text of UK declarations and reservations upon ratification: <https://ihl-databases.icrc.org/en/ihl-treaties/api-1977/state-parties/gb>; text of France's declarations and reservations: <https://ihl-databases.icrc.org/en/ihl-treaties/api-1977/state-parties/fr>.

⁹ Discussed, for example, in Beatrice Fihn, 'The Logic of Banning Nuclear Weapons,' *Survival*, Vol. 59, No. 1 (January 2017).

It is obvious in the nuclear disarmament field that some existing rules of international governance have hindered progress toward nuclear disarmament. The fact that the five NPT 'official' NWS are the veto wielding powers on the UN Security Council is a particular problem. Not only is each NWS able to prevent any UNSC action against itself for non-proliferation, arms control or disarmament related violations, but the concepts of P5 and NWS have nearly merged symbolically over the past five decades, adding to the prestige and status value of nuclear weapons.

Another example of a systemic problem is the consensus rule at the Conference on Disarmament, which has for decades prevented the adoption of work programs at the CD to begin negotiations or discussions on key issues. Several successful negotiations, including the Ottawa Convention and the TPNW, took place outside the CD for this reason. Would procedural and structural reforms in the multilateral institutions help advance progress on nuclear disarmament?

A less obvious question is whether different national styles of governance might hinder or encourage progress toward nuclear disarmament. For example, are authoritarian regimes less sensitive to ethical, political or societal factors shaping disarmament than governments in countries that have greater representation and transparency? Is nuclear disarmament more likely in states with stronger civil society? Indeed, some of the criticism of the TPNW at the start of its negotiation included concern that the future treaty would have a disproportionate impact on Western 'nuclear armed democracies' due to their governments' accountability and greater susceptibility to societal pressure.¹⁰

Theorizing about the sources of nuclear weapons pursuit and restraint, Etel Solingen has considered the influence the nature of domestic regimes has on nuclear decisions. However, rather than focusing on the distinction between democracies and autocracies *per se*, she has argued that a ruling coalition's economic orientation can shape a country's nuclear choices: economically inward-looking regimes that emphasize self-sufficiency are more likely to pursue nuclear weapons.¹¹ Can this nuclear logic be adapted to also apply to nuclear disarmament?

The rise of the Humanitarian Initiative has drawn renewed attention to the catastrophic consequences of nuclear weapons and lack of effective response capacity in case of their use. Associated questions about how different states bring their nuclear deterrence policies and planning in line with the IHL—or not—have so far received limited treatment in academic literature and deserve further examination. As disagreements on the humanitarian and ethical imperatives for nuclear disarmament persist, it is also important to examine other factors with a potential to facilitate or hamper progress on nuclear disarmament.

¹⁰ Matthew Harries, 'The Real Problem with a Nuclear Ban Treaty,' Carnegie Endowment for International Peace, 15 March 2017, <https://carnegieendowment.org/2017/03/15/real-problem-with-nuclear-ban-treaty-pub-68286>.

¹¹ Etel Solingen, *Nuclear Logics: Contrasting Paths in East Asia and the Middle East* (Princeton University Press, 2007) or Etel Solingen, 'The Political Economy of Nuclear Restraint,' *International Security*, Vol. 19, No. 2 (Fall 1994), pp. 126-169.

II. THE ROLE OF NUCLEAR-ARMED STATES

5. The French Nuclear Posture and Nuclear Disarmament: Credibility, Confidence, and Transparency

DOUGLAS DE QUADROS ROCHA

Abstract

As a nuclear weapon state, France has been resistant to the idea of global nuclear disarmament. Nevertheless, it has proposed progressive disarmament based on transparency and confidence-building measures to increase trust, predictability and reduce strategic risks. This paper analyses the French ‘step-by-step’ approach to disarmament, examining France’s political and diplomatic initiatives in multilateral frameworks such as Conference on Disarmament and NPT Review Conferences to highlight its political and comprehensive understanding of disarmament. It argues that France has tried to conciliate deterrence and disarmament by adopting a minimal nuclear deterrence approach while reducing its nuclear arsenals and promoting unilateral and multilateral transparency and confidence-building measures; it also suggests that verification has enabled dialogue and cooperation to increase general trust. Overall, the paper considers the value of minimal nuclear deterrence and broad transparency and confidence-building measures in contributing to progressive disarmament in a competitive environment.

1. Introduction

International relations have been characterized in the last years by strategic competition and a persisting crisis of disarmament and arms control mechanisms. Experts have highlighted the need to reconsider the role of nuclear weapons in the 21st century and to find more suited strategies to advance nuclear disarmament in a competitive environment (Paul & Ingram, 2023; Williams et al., 2023; Péczeli et al., 2021; Borrie & Dunn, 2020). Among these new strategies, transparency and confidence-building measures have received attention to address strategic rivalry and reverse the erosion of nuclear regimes and treaties (Kühn & Williams, 2023; Dunn, 2021; Schepers & Thränert, 2021; Bowen et al., 2018). Discussions have also emerged from both nuclear-weapon states (NWS) and non-nuclear-weapon states (NNWS) to reduce strategic risks and develop broader trust and confidence within multilateral frameworks such as the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) Review Conferences and the Conference on Disarmament.¹ They demonstrate a growing awareness of the risks and consequences of a nuclear conflict, especially considering the possibility of a world without nuclear disarmament and arms control mechanisms. It is even more salient in the context of the war in Ukraine (Falconbridge, 2022).

Like the other NWS, France has proposed a progressive and ‘step-by-step’ approach to promote nuclear disarmament. This approach is based on security considerations, which highlight the role of transparency and confidence-building measures as instruments to reduce strategic risks and create the conditions for progressive disarmament. After the end of the Cold War, France took action to reduce its nuclear arsenal by half, suppress its land-based leg, dismantle its nuclear test sites in the Pacific and fissile materials production facilities. Since then, Paris has supported the universalization of the 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT) and the negotiation

¹ Among these initiatives are the P5 Process between the five NPT-recognized nuclear weapon states—United States, Russia, China, United Kingdom and France—which was created in 2009 as a transparency and confidence-building forum, and the Stockholm Initiative for Nuclear Disarmament created in 2017 to promote stepping stones for a progressive disarmament. At the Conference on Disarmament, discussions have focused especially on norms, rules of behaviours and nuclear verification to reduced risks and increase broader trust and confidence. For instance, working groups and Groups of Governmental Experts (GGE) have stimulated discussions at the Conference on Disarmament amid the enduring blockage of formal negotiations.

of a Fissile Material Cut-off Treaty (FMCT) (Tertrais, 2007). Notwithstanding, France has also been pictured as a 'conservative power' attached to nuclear deterrence and hostile to disarmament (Grand, 2010; Tertrais, 2007). Since the first nuclear test in 1960, French authorities have indeed accorded symbolic and strategic importance to nuclear weapons as the ultimate instrument of national political independence and strategic autonomy based on a minimal nuclear deterrence strategy. Therefore, Paris has paradoxically conciliated deterrence and disarmament in its nuclear policy so as not to be insulated in the evolution of the nuclear order.

What are the main characteristics of France's 'step-by-step' approach? And how it can contribute to nuclear disarmament in a competitive environment? Official documents and discourses of French presidents and diplomats at the Conference on Disarmament and NPT Review Conferences demonstrate that France pursues a balance between deterrence and disarmament in order to create the necessary conditions for a 'progressive, realistic, and verifiable disarmament'. Despite its conservative stance, France should contribute to the promotion of disarmament from its national perspective, which is primarily political rather than military and confers an important value to transparency and confidence-building measures. Although France and the other NWS have similar positions on 'step-by-step' disarmament, the French perspective can shed light on how disarmament can be promoted by other nuclear-armed states with entirely independent nuclear forces.²

Section 2 analyses the French concept of deterrence of 'strict sufficiency' for defensive purposes and considerations on nuclear use and no-first use policy. Section 3 analyses the role of transparency and confidence-building measures in the French progressive approach to disarmament. Section 4 analyses the French perspective on verification as an important instrument to promote progressive and irreversible disarmament in the long term. Finally, the concluding remarks highlight some potential French contributions to the promotion of nuclear disarmament and opportunities for bridge-building between NWS and NNWS in the nuclear order.

2. Minimal nuclear deterrence, strict sufficiency, and security at the lowest possible level

To understand France's approach to disarmament, it is important to understand its relationship with nuclear weapons and deterrence. French nuclear deterrence dates to the 1950s at the beginning of the Cold War, when international relations were framed by increasing competition between the United States and the Soviet Union and by initial discussions on nuclear non-proliferation and disarmament.³ On February 13, 1960, France undertook the *Gerboise Bleue* nuclear test in the sands of the Sahara Desert in Algeria, becoming the fourth nuclear power alongside the United States, the Soviet Union, and the United Kingdom.⁴ The French decision to acquire nuclear weapons can be understood by its past traumatic experiences such as the Nazi invasion in 1940, the military defeat in Dien Bien Phu in 1954 during the Indochina War, and finally the Suez Crisis in 1956 (Grand, 1998). In all three experiences, France found itself alone and dependent on its allies that did not come in aid to defend it from attackers and limited its liberty of action on the international stage (Mongin, 1997). Years after the first nuclear test, this understanding is still present in the French mindset as stated by former President Jacques Chirac

² One might consider the other NWS but especially India, Pakistan, Israel, and North Korea which are not parties to the NPT but should be somehow included in disarmament discussions.

³ The first decade of the Cold War was marked by discussions about nuclear weapons and two conflicting strategies — deterrence and disarmament. Some nuclear disarmament initiatives can be mentioned such as the 1946 Acheson–Lilienthal Report, the 1946 Baruch Plan and the 1958 Rapacki Plan.

⁴ For an analysis of the origins of the French nuclear program from one of its founders, the Colonel Charles Ailleret, see: Ailleret, C. (1968). *L'aventure atomique française. Comment naquit la force de frappe*. Grasset.

in 2006: 'nuclear deterrence remains the fundamental guarantee of our security. It also gives us [...] the power to be the masters of our actions, of our policy, [and] of our democratic values' (Chirac, 2006). France considers its nuclear weapons an essential means for national autonomy in strategic affairs, the ultimate guarantee of self-defence, and a source of diplomatic influence in international relations (Ailleret, 1968).

Although France joined the 'nuclear club' in 1960, its participation in strategic and disarmament affairs distinguished it from the United States and Russia due to its strategic status as a 'medium nuclear power' (Poirier, 1996). Since France has no direct strategic competitor, it maintains relatively small nuclear forces compared to US and Soviet arsenals. The French approach to deterrence is fundamentally defence-oriented so as to ensure the protection of the national territory and population by adopting a deterrence doctrine based on 'strict sufficiency' (Gallois, 1960, p. 143). This concept is equivalent to the idea of a 'minimal nuclear deterrence', which is generally defined as the smallest level of arms forces required for deterrence and the defence of the country (Erästö, 2022). Nuclear weapons are then seen as the ultimate guarantee of defence of the 'vital interests'⁵ and the existence of the country (Beaufre, 1964a; Danon, 2010). This defensive orientation has been regularly reiterated by French political and military authorities throughout the last decades. In 2020, President Emmanuel Macron reaffirmed the defensive orientation of French nuclear deterrence 'to extreme circumstances of self-defence', and underlined that nuclear weapons must not be seen 'as tools of intimidation, coercion or destabilization', but instruments to prevent war (Macron, 2020).

According to French strategic culture, deterrence is also considered fundamentally political and exclusively strategic, which means that nuclear weapons must be restrained to strategic purposes. Since the nuclear explosions in Hiroshima and Nagasaki, there has been a consensus in France that the atomic bomb represented a revolution in international relations and in the conception of modern war (Castex, 1945; Ailleret, 1954; Beaufre, 1960). Due to the devastating power of nuclear weapons, deterrence is considered a psychological and political relation that aims to prevent offensive actions by the enemy through the virtual threat of retaliation (Beaufre, 1964b; Poirier, 1988). In this sense, nuclear weapons are thus limited to extreme security situations and must not be perceived as equivalent to conventional weapons; they are instruments to 'avoid [major] war, not to win it' (Mitterrand, 1994). According to French nuclear doctrine, there is no continuity between conventional and nuclear weapons, therefore the employment of these weapons can only be envisaged in situations when the 'vital interests' and the survival of the country itself are threatened, which raises the threshold for nuclear use and refuse the notion of escalation (Ailleret, 1954; Gallois, 1960, 1984).

The consequence of this reasoning is that nuclear weapons can be used in response to attacks that put the national 'vital interests' at risk, regardless of their nature. From the French perspective, the *scope* of the threat would be more important than the *nature* of the attack, which means that nuclear weapons can be employed in response to a nuclear attack but also to biological, chemical, or even conventional ones. As a result, France has rejected no-first use (NFU) policies since Paris considers that they would be incompatible with its deterrence strategy and would limit its capacity to self-defence (Grand, 1998). From a disarmament point of view, this stance contrasts with those from other NWS: China adopts an unconditional no-first use policy and the United Kingdom restricted nuclear use to attacks with strategic capabilities—such as chemical and biological

⁵ According to the French doctrine, the 'vital interests' of the country are defined by the President, which means that they can evolve, but they generally comprise the national territory and the population.

weapons or emerging technologies—from NNWS that do not comply with the NPT obligations.⁶ Despite its opposition to no-first use policy, France considers all nuclear weapons strategic and has rejected any idea of a graduated-style nuclear response⁷ that entails the idea of nuclear warfighting and the use of tactical nuclear weapons (Tertrais, 2004). In 2022, the French Military Review also highlighted the supporting role of conventional forces to nuclear deterrence, which might suggest an intent to raise the nuclear threshold and limit it to very extreme situations (France, 2022a).

2.1 Identifying the potential nexus between nuclear deterrence and disarmament

The French understanding of nuclear deterrence impacts its approach to disarmament in two complementary ways. First, since the French approach to nuclear deterrence is founded on a political understanding of strategic relations other than military aspects, disarmament must also be comprehensive and adapted to the political environment. War and conflict are rooted in political causes; therefore, the mere reduction of armaments is not a clear guarantee of peace (Poirier, 1990; Aron, 1968). Disarmament may also include conventional weapons, which are important in the strategic equation despite the centrality of the nuclear weapons. Therefore, disarmament and arms reduction measures require the consideration of both political aspects, such as the levels of trust and confidence in relations, and the balance of non-nuclear capabilities. This argument is frequently raised by French diplomats to criticize the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW), which is considered disconnected from the ‘deteriorating strategic context and the role that nuclear deterrence continues to play as a policy for preserving international and regional security and stability, particularly in Europe and Asia’ (Guitton, 2018). Among the NWS, Paris is one of the most hostile to the TPNW and the Humanitarian Initiative, which has unfortunately prevented further dialogue on nuclear disarmament with TPNW supporters and reinforced its perceived nuclear ‘conservative’ image.

Secondly, the French ‘minimal nuclear deterrence’ doctrine based on the concept of ‘strict sufficiency’ has permitted Paris to take disarmament measures in the last decades. France has cut by half its nuclear arsenal, dismantled its deterrence land-based leg (S-3 D Intermediate Range Ballistic Missiles) and its tactical nuclear missiles (*Pluton* and *Hadès* missiles), and reduced its remaining sea-based and air-based legs of its deterrence forces by a third (France, 2008). French authorities have also reaffirmed since 1997 that nuclear weapons are not directed to any specific state (de-targeting) and reduced twice their alert level (1992 and 1996) to reduce nuclear instability. These decisions were mainly motivated by financial savings from arsenal reductions but also followed a broader trend undertaken by the other NWS in favour of nuclear disarmament and transparency during the 1990s and early 2000s.⁸

France has rejected arms race rationales, which can intensify competition between states and increase military spending. Its arsenal has been stable since the stockpile declassification in 2008 when former French President Nicolas Sarkozy declared that France had less than 300 warheads deployed (Sarkozy, 2008). Declarations in this sense were also made in 2015 and 2020 during presidential speeches (Macron, 2020; Hollande, 2015). To demonstrate the French rejection of arms races, President Sarkozy declared that ‘France has never developed all the types of weapons that its technological capabilities would have enabled it to design’, preferring, in contrast, to apply

⁶ The United States, after having restricted nuclear use to attacks with biological weapons in 2010, has since then avoided restricting the conditions under which they would use nuclear weapons.

⁷ Instead, France has adopted a ‘ultimate warning’ (*ultime avertissement*) doctrine, which entails a single, non-renewable limited strike to restore deterrence, for nuclear signalling purposes (Zajec, 2022).

⁸ For example, the U.S.–Russia nuclear arms control treaties (START I and SORT) which allowed important reductions in both nuclear arsenals after the Cold War. In Europe, the United Kingdom decided to withdraw its last air-based nuclear weapons in 1998, preferring to rely only on its sea-based component and to reduce the operationally available warheads to less than 200.

'the principle of strict sufficiency [which] maintains its arsenal at the lowest possible level' (Sarkozy, 2008). However, the 'lowest possible level' of deterrence forces is determined by considerations of the national authorities on the strategic environment, which means that the French arsenal could evolve in the future in an environment framed by 'great powers' competition and deep mistrust and arms race⁹ (Roche, 2017, p. 58).

This sequence of policy measures demonstrates that deterrence policies are not necessarily inconsistent with arsenal reductions. They can be complementary and provide the conditions for progressive disarmament in the long term. In 2017, the Commission for Foreign Affairs, Defense and Armed Forces of the French Senate declared in a rapport on French deterrence forces that 'France must demonstrate that modernizing its deterrent is not incompatible with its commitments under the NPT, and that it remains determined to defend the idea of a world without nuclear weapons, at the end of a gradual and pragmatic process' (French Senate, 2017, pp. 104–105). Notwithstanding, the idea of progressive disarmament has its limitations, as NWS have not clearly stipulated any timeframe to accomplish their disarmament obligations stipulated by Article VI of the NPT. This absence paves the way for critiques from TPNW supporters, who consider the NWS initiatives 'to create conditions to general and complete disarmament' a diversion from the goal of a world free from nuclear weapons. It thus raises doubts about France's real interest in a world free from nuclear weapons,¹⁰ preferring on the other hand arms limitations and strategic stability—a goal more suited to arms control than disarmament.

3. Transparency and confidence-building measures and progressive disarmament

From a political understanding of strategic relations, the French approach to disarmament is based on its close interrelation with security. The progress of disarmament needs to be conditioned to its impact on general security and stability, besides the reduction of the probability of war (Klein, 1986). This understanding has its origins in the discussions on disarmament in the interwar period when French diplomats used to have '*Sécurité d'abord*' (security first) as their main slogan (Vaisse, 1981). It means that security requirements need to be achieved first to pave the way for disarmament measures because security depends on both political and military relations.

From the French perspective, arms race and conflict are by-products of the interrelation of perceptions among states. Since international relations are characterized by anarchy and the dilemma of security, the evolution of the defence forces of a state can be perceived in an offensive way by another state, which then increases its defence forces and initiates an arms race (Herz, 1950; Jervis, 1978). In this sense, France has highlighted the role of transparency and confidence-building measures to lessen the effects of the security dilemma and create the necessary conditions for progressive disarmament (Kohl, 1972). States need thus to work for the resolution of political conflicts and the balance of military forces because disarmament should not be seen as an end in itself but it must reinforce general stability and security at the end (Aron, 1968, pp. 622–653; Schelling & Halperin, 1961). The nuclear disarmament decisions taken by France and other NWS in the 1990s and 2000s are seen as possible thanks to the improvement in the strategic environment and in trust and confidence at the end of the Cold War.

⁹ Some examples include the United Kingdom's announcement in 2021 about the decision to raise the ceiling of its nuclear stockpile to 260 warheads, and the current Chinese nuclear force expansion discovered in 2021 (Korda & Kristensen, 2021; Reif & Bugos, 2021).

¹⁰ In fact, French authorities were particularly reluctant and suspicious when American President Barack Obama preached for a 'world without nuclear weapons' during his Prague speech in April 2009. At that time, French President Nicolas Sarkozy declared at the UN Security Council: '[...]we will enhance our commitment to a world with fewer nuclear weapons in the future, and perhaps, one day, without nuclear weapons' (Sarkozy, 2009).

The French approach has also underlined the interaction between nuclear and conventional weapons. Since security is comprehensive and indivisible, any discussion concerning nuclear disarmament should then consider the balance between conventional forces and their impacts on collective security, especially in Europe. For instance, during the discussions about the Mutual and Balanced Forces Reductions in Europe (MBFR), France proposed to launch negotiations in a multilateral format among all European states, as independent actors, for the implementation of transparency and confidence-building measures as a starting point to nuclear and conventional disarmament (Klein, 1987). At the 1978 first special session of the United Nations General Assembly devoted to disarmament, former President Valéry Giscard d'Estaing highlighted the French stance in favour of a multilateral negotiation to address the imbalance of conventional forces, which constituted an obstacle to any further nuclear disarmament in Europe (Giscard D'Estaing, 1978). This conventional-nuclear nexus in the French approach can be illustrated, for example, by its support of strategic risk reduction measures and non-proliferation instruments such as the Hague Code of Conduct (HCoC), whose objective is to increase transparency and confidence related to the spread and launching of ballistic missiles (Diepen, 2022).

If security involves the comprehensive consideration of political and military factors, disarmament should be conducted progressively, through intermediate and consecutive steps, considering the prevailing political and military conditions of the international environment and the opportunities it offers for arms reductions (Klein, 1964; Vaïsse, 1981). This 'realistic' understanding of disarmament has been the main argument of the French perspective on the topic, which is based 'on the principle of undiminished security for all' and considered the 'only credible path towards a nuclear-weapon-free world' (Petit, 2023b). For that reason, France has supported arms control negotiations between the United States and Russia to further reduce their nuclear arsenals and the continuation of the New START Treaty (Hwang, 2022). However, as a medium nuclear power, France has historically refused to participate in US-Russia arms control negotiations as long as the imbalance between nuclear arsenals persists (Klein, 1986, p. 195; Mitterrand, 1988). Paris has traditionally been reticent to arms control negotiations, as such treaties could constrain the President's autonomy to adapt national forces to changes in the strategic environment.

In contrast, Paris has supported the universalization of the CTBT and the negotiation of a FMCT as progressive and concrete steps that would limit the qualitative and quantitative evolution of nuclear weapons. However, both processes have been in a stalemate since the 1990s: the United States and China have not ratified the CTBT, nor have other nuclear-armed states (India, Pakistan, Israel, and North Korea), and Pakistan has blocked further negotiations of a FMCT at the Conference on Disarmament (Kimball, 2014; Reif, 2015). France has thus been frustrated with the lack of interest of some states in negotiations of these treaties, which it considers essential to advance progressive nuclear disarmament (Hwang, 2021; Simon-Michel, 2015).

3.1 Transparency and confidence in military forces and doctrines

If a favourable strategic environment is necessary for disarmament, transparency and confidence-building measures can play an important role during the process. They can reduce the effects of the security dilemma and the probability of misperception. This category of measures includes the exchange of information, declarations, and imposing military constraint actions, with the objective of improving communication, understanding, and trust among participants (Goldblat, 2002). France has thus engaged in transparency and confidence-building initiatives, especially within multilateral frameworks, which has its origins in the already mentioned 1978 Giscard d'Estaing's speech at the UN General Assembly. From the French perspective, these measures could contribute to the creation of the material and political necessary conditions for nuclear disarmament according to the 'step-by-step' approach. It is especially relevant in the current international

environment, which is framed by renewed strategic competition between great powers and the prospect of a new arms race.

In the last decades, France has promoted two main forms of transparency and confidence-building measures. The first form is related to initiatives for transparency of military forces and doctrines among NWS. France has been one of the most transparent NWS, alongside the United States, since Paris has detailed the composition of its nuclear forces, the budget allocated to them, and has promoted discussions on its doctrine (Kristensen et al., 2023). These measures are frequently highlighted by French authorities and diplomats as actions in line with its nuclear responsibilities as a nuclear weapon state under the NPT (France, 2009; Hollande, 2015; Sarkozy, 2008). However, this relative transparency can be further enhanced to include the history of the overall nuclear weapons stockpile, the number and history of nuclear warhead dismantlement since 1960, in addition to the publication of annual reports on this topic (Kristensen, 2023, 2016). Some experts also highlight the lack of transparency about deterrence forces vulnerabilities and past 'close calls' and nuclear accidents concerning nuclear weapons (Pélopidas, 2022; Ritchie & Pélopidas, 2015). This stance might be a result of the French attachment to deterrence and the absence of broad public debate about nuclear forces, a consequence of the bureaucratic structure of the state (Maitre, 2020a; Grand, 2003).

Transparency and confidence in military postures have also spurred discussions within the P5 Process. France, in cooperation with the United Kingdom and the United States, has actively promoted transparency and confidence-building discussions on military doctrines, nuclear forces, and risk reduction measures among the five NWS (France, 2022b). These initiatives are particularly important regarding Russia and China, whose nuclear doctrines and forces have been marked by a growing opacity (Acton et al., 2021; Williams & Adamopoulos, 2022). Transparency levels have decreased in the last years among NWS, including the United States and the United Kingdom¹¹ (Kristensen, 2023). Considering the increased strategic competition at the international level and rising nuclear threats, President Emmanuel Macron emphasized the importance of transparency of deterrence doctrines to prevent conflict and 'to stop any attempts to exploit this strategy for the purposes of coercion and intimidation' (Macron, 2020). Nonetheless, these perspectives can raise doubts about the real interest of France in constructing a world free of nuclear weapons, since they are perceived more as arms control and risk reduction initiatives than genuine disarmament actions.

3.2 Transparency and confidence for an efficient and effective multilateralism

Another category of transparency which France has put forward is related to fissile materials production and nuclear test sites. Within the 'step-by-step' approach, stopping the production of fissile materials and the testing of nuclear weapons are considered necessary actions for further reduction of arsenals. From 1992 to 1996, the French government made major decisions to halt plutonium production and to dismantle the fissile material production facilities for military purposes¹². The highly enriched uranium production facilities in Pierrelatte were completely dismantled in 2010 and the plutonium production facilities in Marcoule have been progressively dismantled in an irreversible way (Tertrais, 2007). Moreover, French authorities decided in 1996

¹¹ Since 2021, the United States has rejected the declassification of warhead stockpile data. The United Kingdom also stopped giving information in 2021 about its stockpile, deployed warheads and deployed missiles. Russia has suspended New START collaboration and data sharing. China stopped reporting on its civilian plutonium data to the International Atomic Energy Agency. Among the five NWS, France is the only country that has maintained its transparency levels since 2008.

¹² Since 2008 Sarkozy's speech, France has been in favour of nuclear transparency through visits of diplomats and experts to Pierrelatte and Marcoule facilities, the Pacific nuclear test site, but also the former ground-to-ground nuclear missiles in Albion plateau and the Luxeuil air base (France, 2020).

to dismantle the Pacific Test Centre sites located in French Polynesia after the last nuclear tests that same year. These measures were taken in the context of French accession to the NPT in 1992, to regional nuclear-weapon-free zone treaties (NWFZ)¹³ and especially to the CTBT in 1996, which was signed after a broad international opposition from several NNWS and non-governmental organizations that criticized French nuclear tests (Johnson, 2009). In part due to its resistance to further arms reductions, France has supported the entry into force of the CTBT and the negotiation of a FMCT as logical steps to promote progressive disarmament and to increase ‘transparency, trust and reciprocity [which are the] basis of collective security’ (Macron, 2020).

France has also supported discussions on codes of conduct¹⁴ and transparency and confidence-building measures that could eventually allow the negotiation of international treaties (Petit, 2023a; Simon-Michel, 2014). These discussions take place in an adverse environment since negotiations at the Conference on Disarmament have been blocked by the lack of consensus among its members and by the growing great power competition. Notwithstanding, French diplomacy has been active in discussions on the CTBT¹⁵ and the FMCT at the Conference on Disarmament but also under the P5 Process framework, where it has led the working group dedicated to the FMCT (Hwang, 2022; Maitre, 2020b). Despite these multilateral initiatives, there is an absence of concrete disarmament measures from French diplomats, whose interventions have been characterized by general principles and past disarmament decisions taken thirty years ago.

Finally, strategic risk reduction measures have also received great interest from France as an important step for progressive disarmament. During their presidencies in the P5 Process, France and the United Kingdom promoted strategic risk reduction discussions on mechanisms to reduce risks of inadvertent escalation and nuclear conflict, but also to create favourable conditions for disarmament (R. Paul, 2020). These include discussions on nuclear doctrines and postures, military-to-military dialogue, hotline agreements, missile launch notifications and data exchange that can increase transparency and confidence among states, and reduce risks of nuclear use provoked by misperceptions, misunderstandings, or miscalculations (Brustlein, 2021; Topychkanov, 2021; Wan, 2019). As highlighted by France, risk reduction measures must be ‘strategic’, which means that they must be comprehensive rather than just nuclear due to the growing interconnection between nuclear and non-nuclear weapons (conventional, biological, chemical and emerging technologies) (Rosselet, 2022). This interest is not exclusive to France since strategic risk reduction has also been present in other initiatives led by both NWS (Creating an Environment for Nuclear Disarmament) and NNWS (Stockholm Initiative for Nuclear Disarmament and the Non-Proliferation and Disarmament Initiative). Even though strategic risk reduction contributes to creating the conditions for a progressive disarmament, critical voices argue that they express the unwillingness of NWS to engage in concrete arms reductions in the current international environment.

4. Verification as a potential topic for international cooperation for disarmament

Verification has been an important part of the French approach to disarmament. Based on the understanding of security as a political concept, which is strongly influenced by perceptions, France considers verification measures essential in strengthening trust and confidence between

¹³ They are the 1967 Treaty of Tlatelolco, the 1985 Treaty of Rarotonga, the 1996 Treaty of Pelindaba, and the 2006 Treaty on a Nuclear-Weapon-Free Zone in Central Asia. Since 1982, then reaffirmed in 1995, France gives also negative and positive security assurances to NPT NNWS Parties (France, 1995).

¹⁴ For example, discussions about norms and responsible conduct and behaviours in Outer Space activities.

¹⁵ During the negotiations of the CTBT in August 1995, France was the first NWS to propose the ‘zero-yield option’ for a ban on ‘any nuclear-weapon test or any other nuclear explosion’. Notwithstanding, France accepted the comprehensive ban in the midst of international opposition against its last nuclear tests campaign from September 1995 to May 1996 (Conference on Disarmament, 1995).

states. In simple terms, verification can be understood as a mechanism for gathering information to identify the degree of compliance of the parties with their commitments (Bowen et al., 2018; Krass, 1985). Although verification measures are frequently considered objective and evidence-based, they are rather influenced by subjective aspects concerning the political and human perceptions of intentions of the parties. Research on verification suggests for instance the influence of the broad context of the relations and the trust—or mistrust—between host and inspectors (Bowen et al., 2018). This perspective contrasts with the overanalysed technical aspects that have dominated US-Russia nuclear arms control treaties in the past (Woolf, 2023; Podvig & Woolf, 2019). In short, verification can ensure confidence, strengthen trust between states and contribute ultimately to the necessary conditions to a progressive and controlled disarmament.

France's perspective on verification differs from those of the United States and the Soviet Union/Russia. These differences were identified during the multilateral discussions about General and Complete Disarmament, which took place in the 1940s and 1950s. At that time, the United States argued that verification measures of armed forces should come first, followed by the reduction of conventional armaments, and finally the prohibition of nuclear weapons. For the US, verification would thus constitute a mechanism to confirm compliance of the other party, who is perceived as untrustworthy. On the other hand, the Soviet Union perceived verification measures as a source of mistrust and a potential mechanism to gain intelligence information about its armed forces (Krass, 1985). The Soviets thus proposed to first prohibit nuclear weapons, then reduce nuclear and conventional forces, and apply verification measures at the end of the process (Klein, 1986). Trying to conciliate both positions, France sought to propose an intermediate approach based on the simultaneity of disarmament and verification in which conventional and nuclear weapons reductions were interlinked. The progressive process would ensure the balance of forces while verification would strengthen confidence at each step between the parties (Klein, 1964). This approach paved the way for the 1954 Anglo-French memorandum of a 'phased' disarmament programme at the United Nations Subcommittee of the Disarmament Commission¹⁶ (Z. X. Y., 1955). Since then, French diplomacy has thus adopted the motto 'neither control without disarmament, nor disarmament without control, but, progressively, all the disarmament which can be controlled' (Moch, 1961, pp. 508–509).

In the last few years, verification has become a significant topic for international cooperation between NWS and NNWS. France has participated in multilateral discussions about this subject at the Conference on Disarmament, especially in the Groups of Governmental Experts to further consider nuclear disarmament verification issues from 2021 to 2023. Moreover, French diplomats have aimed to promote clear and verifiable rules to build trust and confidence among states and create the conditions for nuclear disarmament, an endeavour shared with other NWS (France et al., 2022). Verification is an essential piece in the process because without a consistent verification mechanism, progressive and irreversible disarmament cannot be sustained¹⁷ (Williams et al., 2023). In this sense, France has participated since 2015 in the International Partnership for Nuclear Disarmament Verification (IPNDV), an informal forum gathering NWS and NNWS to overcome technical and procedural challenges of disarmament verification and increase trust and

¹⁶ The Anglo-French memorandum consisted of three phases: 'first, a 'freeze' or limitation on armed forces and military budgets; secondly, a reduction of conventional armaments and armed forces by one-half of an agreed figure, followed by the prohibition of production of nuclear weapons; and thirdly, the remaining one-half reduction of conventional armaments and armed forces, followed by the complete prohibition and elimination of nuclear and other weapons of mass destruction'. A verification body would ensure the successful completion of each stage and the compliance of the parties during the disarmament process. (Z. X. Y., 1955, p. 338)

¹⁷ For instance, in the French FMCT draft that was presented at the 2015 NPT Review Conference, the verification mechanism was a central aspect of the text. The French proposal was the first state-sponsored draft that was consistent with the 'Shannon Mandate' (CD/1299). Moreover, it also diverged from the 2006 U.S. draft, which did not contain provisions for international verification (Podvig, 2016, p. 2).

confidence between states (France, 2023). These initiatives demonstrate possible venues of cooperation and shared interest between both categories of states in the nuclear order, despite some reluctance from the French military and the nuclear establishment regarding verification of strategic assets (Grand, 1998).

Finally, France has made verification an issue for cooperation with some European states. For political and strategic reasons, France has developed a European dimension in its nuclear disarmament strategy (Grand, 2010). It can be explained by the historical French ambition to set an example and present itself as a leader in the continent. In the words of President Macron, the future of disarmament and nuclear arms control must include the interests of European states 'because it's our soil and a discussion that shouldn't go over our heads' (Macron, 2020). In this sense, the bilateral exercise of Nuclear Disarmament Verification (NuDiVe), which was launched in 2017 between France and Germany, constitutes another initiative to strengthen trust and confidence related to concrete measures for progressive and verifiable disarmament between a NWS and a NNWS¹⁸ (Hwang, 2020). Although Paris has tried to formulate a common European stance on disarmament and arms control issues, as expressed by President Macron, it has faced important resistance from European states who have preferred to align themselves to US and NATO initiatives or to support TPNW and the ban of nuclear weapons.

5. Conclusion

The international environment is currently characterized by growing competition between great powers and the salience of nuclear weapons as instruments of leverage and coercion in international relations. Consequently, disarmament and nuclear arms control are in a challenging moment that challenges the pillars on which the nuclear order was built. Disarmament needs thus to be adapted to this new international configuration in order to further reduce nuclear weapons, and, most importantly, to prevent their use for the first time since 1945. To achieve this goal, broad trust and confidence need to be reconstructed among states to create the political and military conditions for progressive disarmament in the future.

In an international environment that favours arms race motivations, the French 'minimal nuclear deterrence' doctrine can contribute to current discussions as a concept to be adopted by other NWS and nuclear-armed states while bringing together the necessary conditions for nuclear disarmament. This model of deterrence seeks to ensure national security at the lowest possible levels, which reduces incentives for an arms race and restraint deterrence to defensive missions—especially when coupled with a no-first use policy. Although minimal deterrence concerns primarily nuclear possessor states, it seems equally important to consider its consequences on the security of NNWS allies. Therefore, NNWS and civil society can play a role in igniting this kind of discussion to try to overcome the current polarization in the nuclear community. Discussions on minimal nuclear deterrence and no-first use policy can also increase the participation of academia, think tanks, non-governmental organizations, and government and military officials in these discussions. Finally, minimal nuclear deterrence can be a valuable starting point integrate nuclear-armed states that are not parties to the NPT (especially India and Pakistan) in discussions about disarmament.

In the light of the strategic international environment, disarmament discussions should consider its connection with national security requirements and within defence alliances. The current

¹⁸ Both the 2019 and 2022 editions of the exercise gathered up to 13 other countries and focused on the dismantlement of a nuclear warhead within a disarmament process. The exercise aims to produce expertise on the disarmament process and the absence of diversion of nuclear materials within a treaty-related verification regime (France & Germany, 2022).

international context shows little room for major disarmament measures or a ban on nuclear weapons by the NWS, especially after the outbreak of the war in Ukraine and the growing insecurity of some European and Asian states regarding Russia and China. Therefore, future proposals for nuclear disarmament must ponder the current state of strategic relations and the potential consequences for the security of some states, especially NATO allies. To avoid further divisions regarding the TPNW, NWS and NNWS should thus reinvigorate discussions based on the Action Plan adopted by consensus at the 2010 NPT Review Conference.

Based on a comprehensive understanding of security and disarmament, it is also important to consider the close relationship between conventional and nuclear weapons. Due to the historical significance of the US-Russia nuclear arms control negotiations, nuclear disarmament is sometimes considered in isolation from conventional forces. In this sense, governmental and actors from civil society from both NWS and NNWS should also promote further discussions about conventional arms control that were suspended in the last years (Vienna Document, Treaty on Conventional Armed Forces in Europe, and the Treaty on Open Skies). They should also be led in tandem with nuclear disarmament and arms control negotiations. It would be an opportunity for NNWS to participate more actively in discussions, share their security concerns and increase general confidence.

Transparency and confidence-building measures seem to play an important role in creating conditions for disarmament while new international treaties seem unlikely. France's initiatives on this topic have encouraged transparency of nuclear forces and doctrines, besides the irreversible dismantlement of fissile material production facilities by NWS. They aim to strengthen trust and confidence among states and increase predictability in strategic relations to avoid a nuclear conflict. In this sense, regular transparency reports and further discussions on strategic risk reduction measures should take place between NWS and NNWS—since they would also be impacted by an atomic conflict.

Finally, verification constitutes an important mechanism to increase confidence among states and a condition for an irreversible nuclear disarmament agreement in the future. Based on French experiences, verification can be a potential topic for cooperation between NWS and NNWS in disarmament issues. It would facilitate building bridges between both categories of states in nuclear discussions, especially within NPT Review Conferences. In this regard, it would also be an opportunity for European states to propose shared norms and initiatives in order to overcome the current disarmament and arms control crisis on the continent.

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6. Real Weapons, Imagined Security, and Abstract Values: Tracing the Past of Indian Nuclear Weapons Policy for a Future of Sustainable Disarmament

ASWATHY MADHUKUMAR

Abstract

This paper examines the trajectory of India's nuclear weapons policy, tracing the conflict of abstract values and practical (perceived) security concerns. It argues that its policy has corresponded with changes in political power in New Delhi. Further, despite its own calls for nuclear disarmament, India has refrained from becoming a Party to the Treaty on the Prohibition of Nuclear Weapons (TPNW), taking a political stance in insisting that the Conference on Disarmament must be the 'single, multilateral, disarmament negotiating forum'—reflecting an anxiety that arguably stems from concerns of national security. This paper contrasts this practical (and imagined) stance with the earliest stance adopted by India on values that include non-violence and total abstinence from WMD. It attempts to deconstruct the national-security narratives supporting the maintenance of nuclear arsenal, establishing them as merely imagined and not real. It makes the case for respecting core values of international law to create and sustain nuclear disarmament at the global level.

1. Introduction

The Russia-Ukraine conflict has once again added momentum to the nuclear weapons question in public debates and policy analysis. While the world watches closely to ensure that a nuclear catastrophe is avoided, security and policy implications of nuclear weapons once again intersect with questions of ethics. This turmoil brings into focus the need to enforce sustainable and verifiable global nuclear disarmament. As Squassoni and Mukhatzhanova point out in their piece, ethical, political, and societal influences have played a major role in deciding the trajectory of nuclear weapons policies. This paper looks at how political and ethical concerns—more than military concerns—have driven India's nuclear weapons policy. India has had an interesting trajectory of philosophical and political perspectives on nuclear weapons, and it has attempted to hold on to the 'old' norms even while adapting its policy to newer geopolitical challenges. This paper explores this ideal and how this can be used as a point of departure for global nuclear disarmament.

Reducing the quantity and severity of the world's arsenal is one of the most important goals of the United Nations,¹ and is a major concern of *jus in bello* (the law regulating armed conflicts, or International Humanitarian Law). Though means and methods of warfare are limited by law, weapons (especially nuclear) have always been as much a political statement as a military one, if not more. (Leonard, 1966) Pervasive mutual suspicion engulfs States despite global reiterations of peace and non-aggression. Continuous negotiations on nuclear disarmament have been partially successful in reducing the quantity of armaments but have failed so far in achieving its ultimate goal of complete elimination. India has made a commitment towards elimination of nuclear weapons, but explicitly hesitated to be a part of efforts outside the Conference on Disarmament

¹ UNGA Resolution 1(1) was the very first General Assembly resolution, entitled 'Establishment of a Commission to Deal with the Problems Raised by the Discovery of Atomic Energy', adopted on recommendation by the First Committee on 24 January 1946, in London.

(CD), including as demonstrated by its not engaging the Treaty on the Prohibition of Nuclear Weapons (TPNW) (India's Statements before the Conference on Disarmament, 2018-2022).²

It is thus important to dissect the peculiar principles that guide India's weapons policies in contrast with the global trend. Through this, this paper tries to arrive at a possible international consensus on effective disarmament based on political-ethical foundations without prejudice to national security, by fostering an ecosystem of mutual trust.

2. A trajectory of India's nuclear weapons policy

2.1 The beginnings of a 'Nuclear India'

India, with its history and philosophy of pacifism, even having led its independence struggle against the strong imperial Britain using *ahimsa* (non-violence), began considering nuclear weapons just a few years after independence. In some sense, the foundation had been laid down even before the attainment of independence. This was through the work of Homi Bhabha, who, from his emerging interest in nuclear technology in the 1930s to his death in 1966 remained the spearhead of India's nuclear science and policy. The effects on Indian policy began in the 1940s with the establishment of Tata Institute of Fundamental Research (TIFR) with Bhabha as the director, meant to promote nuclear research in India.³ On the scientific front, it was his knowledge that influenced and drove research in India; while it was his close relationship Prime Minister Nehru which had an impact on India's nuclear policies. Post-independence, Nehru sanctioned the establishment of the Department of Atomic Research headed by Bhabha in 1954, with the initial aim of researching and harnessing nuclear energy for peaceful purposes such as energy generation. The Office was directly under the Prime Minister and was not required to report to any other authority, vesting it with great autonomy and minimal scrutiny.

The personal beliefs, politics and convictions of Nehru and Bhabha were thus the foundations of India's nuclear development and policy in its nascent stage. Personal correspondence between the two laid the foundation for India's political position on nuclear weapons, as revealed, for instance, in a letter written by Bhabha to Nehru in 1963 when China was expected to carry out a nuclear test (Bhabha, Letter, 1963). Bhabha wrote that it was unlikely that China's imminent demonstration of its nuclear capacity would have any military significance, owing to the fear of strong repercussion from the West. But he emphasized the psychological and political impact of this breaking the 'white man's monopoly' on nuclear arsenal. He suggested that India must demonstrate its own nuclear capability within a few months of China. His idea was for India to sign the 1963 Test Ban Treaty but making it clear that its decision to not develop nuclear weapons was subject to review if a neighbour tests a nuclear weapon. The letter also spoke of nuclear deterrence, without ever using the term but elaborating the same in speculation of the international community's response (especially South Asian States') to India becoming a nuclear power. Seeds of a reactionary arms-race can be seen in this correspondence, fuelled by the fear of the 'enemy' securing a new weapon, and the sense that nuclear capability and an open weapons-

² In the Statements made before the First Committee, India has expressly stated its concern of States resorting to fora outside of the Conference on Disarmament to arrive at disarmament agreements and has urged that it considers the Conference as 'the world's single multilateral disarmament negotiating forum, as mandated by the final document of the First Special Session of the General Assembly devoted to Disarmament (SSOD-I)'. This concern is repeatedly reflected in Statements made over the years.

³ The Institute was established after Bhabha wrote a letter to Tata Trust for this purpose. It may be noted that Bhabha was the nephew of Sir Dorab Tata by marriage, a factor which contributed to his quest to develop nuclear science in India which otherwise had limited financial resources.

option could guarantee some security. This fear-fuelled imagination of national security did later propel India towards weaponization.

Nehru was reportedly ambivalent to the weapon-potential of nuclear science, though his personal belief was firm in Gandhian ideals and his public posture was against heavy militarization and strictly against nuclear weapons. (Cohen, 1967; Nehru, 1995; Ganguly, 1999) He had a general aversion to rampant militarization and was also predisposed against the use of military strength to address international issues. His general perception of national defence also influenced his perception on nuclear weapons. He was not in favour of aggression *per se*; but was also ambivalent in the sense that he understood that military and weapons are necessary for the State's security given external factors (Cohen, 1999). Bhabha, in contrast, was more open to the possibility that India may have to develop nuclear weapons for practical military strength. Nehru insisted on developing nuclear energy for peaceful purposes and 'away from war', indicating that harnessing atomic energy was necessary—but it need not be thought of in the context of war (Nehru, Constituent Assembly of India (Legislative), 1948 on The Atomic Energy Bill).

Nehru's position on nuclear arsenal was expressed at the international front as well, including through his public appeal of 1957 urging the USA and the USSR to stop their nuclear tests and proceed towards disarmament (Jawaharlal Nehru's Speeches, 1964). This garnered a public response from the then-US President Eisenhower, who stated that [all nuclear powers] must denuclearize in a concerted process (Eisenhower, 1957). This evidences how the US seemed to have concerns about the security risk posed by other states if it unilaterally disarmed first. Notably, the then-US position is somewhat similar to India's own current appeals in the CD—nuclear disarmament must be *global* and not unilateral. Even then, Nehru seems to have been aware that the future governments might not maintain India's nuclear abstinence. He did not bind any future government to the peaceful-purpose ideology, possibly being aware that foreign relations need flexibility as circumstances change (Nehru, Lok Sabha, 1960).

Bhabha's security concerns and Nehru's Gandhian values seem to have counter-balanced each other to a great extent. Consequently, India's civilian atomic energy program had 'dual-use capacity',⁴ while a clear no-weapons political stance was taken. This paved the way for India's extraction of nuclear energy while keeping the weapons potential unused for the moment.

2.2 The national security concern: threats imagined and real

Nehru had a categorical disfavour for the institutionalization of defence and did not desire for India to be a major military power.⁵ These ideals came to be challenged in the emerging geopolitical situation around India in the 1960s. Nehru's notion of minimum militarization and disarmament faced a blow when China invaded the Himalayan border in 1962, amplifying domestic voices to strengthen military and arms. There was a general sense that ideals cannot guarantee security when there is an 'enemy' in the picture—the country needed more practical solutions such as military strength and weapons. Nehru's attitude towards China had been passive, but the Chinese invasion put Nehruvian policy under suspicion (Sharma, 2005) Still, Nehru remained unfazed. A week before his death, he reaffirmed his position against weapons, particularly nuclear weapons.

⁴ The first stage of Bhabha's envisioned '3-stage nuclear process' produced plutonium. There was a built-in weapons option, in the sense that this plutonium could be diverted to be used as the core for weapons instead of the intended use as fuel for second-stage reactors.

⁵ It is reported that when the first commander-in-chief of the Indian Armed Forces, Mr. Lockhart, proposed the expansion of the Army, Nehru replied that he foresaw no threats. He reduced the personnel strength significantly post-independence.

China's nuclear weapons test in 1964 had a great impact on India's nuclear posture. Almost immediately, India's Defence Minister affirmed that India would modernize its defence capability (Mirchandani, 1968). While Nehru died in May 1964, the test had been anticipated during his lifetime (see Letter correspondence with Bhabha above). Past statements suggest he would not have wanted India to become a nuclear power in retaliation. In the Lok Sabha in August 1960, he had expressed that it was wrong to assume that India's defence would be strengthened by producing a bomb—adhering to ideology even in the face of possible external threats (Statesman, Calcutta, 1964).

In the heightening security anxiety, in 1964, Nehru's successor Lal Bahadur Shastri attempted to secure nuclear guarantees⁶, urging other nuclear power States to vow to protect non-nuclear States (New York Times, Dec. 5, 1964). He repeated his commitment that India has no intentions of developing nuclear weapons and stated that the matter needed to be taken up in the United Nations. However, this effort appeared to India's hitherto steadfast non-alignment stance—another concrete foreign-policy mandate of Nehru. Shastri held the view that if China were to threaten India with nuclear war, nuclear powers in the West would not be indifferent (Ganguly, 1999). Some commentators believed that India had to demonstrate its resolve even in the face of looming nuclear threat, as means to reinforce its position to lobby for nuclear disarmament (Nehru, RK, 1965). Regardless, despite the plea of protection, none of the nuclear powers—US, UK or USSR—provided a nuclear guarantee to India. Shastri ultimately seems to have presented a less-categoric 'no-nukes' stance, internationally and domestically. While he publicly defended the non-nuclear policy, he allowed Bhabha to make scientific progress so that India could weaponize in relatively lesser time if required (Wohlstetter et. al, 1978).

During negotiations of the NPT, India held that non-nuclear States should have access to nuclear technology for peaceful purposes; that non-proliferation would be a path towards the goal of universal nuclear disarmament; and that non-nuclear States must be permitted to carry out 'peaceful nuclear explosions'; the last of which was opposed by nuclear powers. In 1965, India faced further geopolitical threats, with the Chinese providing assistance to Pakistan in a war over Kashmir. Though the war eventually ended in the 1966 Tashkent Declaration,⁷ India had become aware of the potential risks with adversaries on both sides. Shastri was already under tremendous pressure to reconsider India's nuclear policy, and he indicated that India would have to consider what to do if China further develops its nuclear capability. However, Shastri stood by the stance that India must rather focus on its conventional military capability. There was mounting pressure within the country, including by several Lok Sabha members to Shastri urging him to reconsider India's nuclear weapons option (Parliament Questions, 1965). While Shastri reiterated that India pursues nuclear disarmament and is not keen to manufacture weapons of its own, he also stated that India's integrity is of utmost importance (Rajya Sabha, Nov. 16, 1965).

Amidst the worsened security situation in South Asia, Shastri died in 1966 after signing the Tashkent Declaration. Indira Gandhi succeeded Shastri as the Prime Minister, but her stance was not as adamant as that of her father (Nehru) when it came to nuclear weapons. Under her leadership, India continued seeking a nuclear guarantee from current nuclear powers, but not with desired results (Noorani, 1967). China exploded its third atomic bomb in 1966, further amplifying the pro-bomb faction's anxieties (Rajya Sabha Questions, 1966). India was also disillusioned as offers from the nuclear powers did not satisfy what India was seeking. They

⁶ For more on nuclear guarantees, see Tytti Erästö, 'The Role of Umbrella States in The Global Nuclear Order' 23/06 *SIPRI Insights on Peace and Security* (2023).

⁷ USSR acted as a neutral party, promoting the agreement between India and Pakistan to revert to the pre-war status quo. This was signed by Shastri and Ayub Khan on January 10th, 1966, at Tashkent, a then-USSR province, after a cease-fire had been achieved pursuant to Security Council's involvement.

expected that non-nuclear states would remain in abstinence but did not reciprocate with effective protection and nuclear elimination guarantees. India's stance on disarmament and abstinence evolved over time (Sullivan, 1972). It was unwilling to sign the NPT when it opened for signatures in 1968—an indication that it felt the need to keep the nuclear option open. The Indo-Pakistani war of 1971 further cemented the newly emerging resolve to strengthen India's position as a military power.

The preceding decades had revealed a practical difficulty in adhering to moral principles in the face of imminent danger and dilemma; each subsequent leader could not hold out with as much determination as Nehru did. With mounting anxiety that the State might be at peril if the leadership chooses to adhere to its moral stance despite repeated changes in geopolitics, India also began to change its stance to the 'practical'. Indira Gandhi who had initially held up the 'no nuclear bombs' stance now shifted significantly in her position (Bidwai, 2006). She authorized a nuclear test in early 1971. The first test of May 1974 known as *Pokhran-I*, however, was officially not a military endeavour but declared as a 'peaceful explosion'. Official versions by the Prime Minister, Defence Minister as well as the scientists associated with the test all maintained that it was meant to explore peaceful possibilities only. Ms. Gandhi is quoted saying that India's neighbours had nothing to worry about (*Le Monde*, 1974). India was party to the Partial Test-Ban Treaty and had been careful to stay within the permitted limits by carrying out the explosion underground, instead of any locations prohibited by the Treaty. (*New York Times*, May 19, 1974).

India might have hoped the international response to be muted, since no binding principle was violated. However, the response was predominantly critical. The US officially cut off military assistance by passing legislation that curtailed aid to States that received assistance outside the scope of the International Atomic Energy Agency (IAEA) mandate. Canada was displeased as the CIRUS reactor (Canada-India Reactor US) it had supplied in the 1960s was used in building the bomb. Responses from China and the USSR were less severe but not positive. France was the only member of international community that congratulated India (*New York Times*, May 22, 1974). These reactions, coupled with the restrictions imposed on acquiring nuclear technology, slowed further pace of India's nuclear pursuit. US-Canada withdrawal of nuclear technology cooperation led India to depend on and enhance its own capabilities. The Bhabha Atomic research Centre had also been developing its own capabilities. Notably, Bhabha had claimed in 1965, three months prior to his death, that India would be able to make a nuclear bomb in 18 months, a process previously held back by Nehru's and Shastri's stance and his own sudden demise (Perkovich, 2000).

The nuclear question was raised during the negotiations of the Additional Protocols to the Geneva Conventions, in the context of discussing weapons and their effects. The United Nations had also urged that the conference could consider weapons that caused unnecessary suffering or indiscriminate effects. (28th Session UNGA Resolution 3076). However, the Committee could not expand its scope to cover non-conventional weapons, or those of mass destruction including nuclear weapons.⁸ India expressed at the Committee that it was in favour of discussing the prohibition or restriction of use of inhuman and indiscriminate weapons, especially against civilian populations and targets. (*Official Records of ICRC*, 1974-77, vol. 5). However, it is notable that India also reiterated that the said Committee would not make any decisions of its own.

⁸ Some states like Romania and China wanted that the word 'conventional' to be deleted in the discussion mandate of the ad hoc committee on weapons, so that the scope would cover WMDs as well. This was, however, not accepted by other States.

Clearly, India wanted that the decision be retained at the domestic level, though it acknowledged the need for an international deliberation on weapons.

On top of the international backlash of 1974, domestic political turmoil in India also led to a 180-degree turn in India's policy when the country saw a new Gandhian prime minister, Morarji Desai.⁹ Once again, the personal moral convictions of a current head-of-State would drive India's nuclear fate. Desai was adamant on his Gandhian, pacifist principles, and ensured that India would not proceed to nuclearization under his rule. His anti-nuclear views had long been clear, and he seems to have reservations in 1974 when India carried out a nuclear explosion as well (Interview with Desai, 1987). His view was against any State developing or possessing nuclear weapons at all. He criticized the nuclear superpowers' lack of commitment to nuclear disarmament and elimination and saw the NPT as an insincere attempt where 'two robbers' are asking [others] not to 'do robbery'. Similarly, he felt it was 'double standards' when India went ahead with its own nuclear testing in 1974.

India's nuclear plans were thus in imposed slumber till 1979, when the political landscape in South Asia again altered with the USSR invasion of Afghanistan and the countermeasure by US, supporting Pakistan with military aid (Singh, New York Times, 1979). Indian security analysts once again lobbied for a revamp of the country's nuclear capabilities, fearing cooperation between China and Pakistan. Indira Gandhi returned to power in 1980, and the domestic anxiety for a nuclear bomb was strong as ever. By the 1980s, India had shifted significant research to missile technology under the DRDO (Defence Research and Development Organization; Perkovich, 2000). Apart from the scientific shift towards rockets, not much was overtly done during these years to develop nuclear weapons. During this period, Ms. Gandhi was a part of the six world leaders who made a public appeal to end the nuclear arms race in the backdrop of Cold War, in what is widely known as the 'Five Continents (Six Nations) Peace Initiative' (Grimson and Dunlop, 1985). This seems to have been a time of policy ambivalence.

Ms. Gandhi was assassinated in 1984, and her son Rajiv Gandhi ascended to the Prime Minister position. During his tenure, India acquired further capability to weaponize, but also pursued diplomatic means to denuclearize. In that sense, the practical and theoretical stances adopted were contradictory. The Rajiv Gandhi Action Plan (RGAP) of 1988, for instance, presented an ambitious plan to go nuclear-weapons-free by 2010; but India was also building up a considerable stockpile of plutonium at this time, per some reports (Srinivasan, New York Times, 1988). In his speech at the UN General Assembly in 1988, he spoke of nuclear weapons as 'monstrous machines' and urged the UN to 'put a stop to this [nuclear arms race] madness'. This was said at a time when India was considering strengthening its nuclear arsenal (Srinivasan, New York Times, 1988). Still, he pointed out that the concept of deterrence was 'based on the assumption that international relations are frozen on a permanently hostile basis'. He also pointed out the bizarre logic of mutually assured destruction. This marked a shift in language and approach on India's part—with the elimination of nuclear arsenals now to be made on strategic foundations rather than ideological appeals. India's perception of national security no more placed ideals above a militarized sense of security.

⁹ Some domestic political context is warranted here. Indira Gandhi had become embroiled in electoral malpractice issues in her elections and the Allahabad Court declared her election void after a case was filed by Raj Narain whom she defeated in 1971 elections. This was amidst the issue of her Govt.'s persistent alleged interference with the judiciary as well. When internal political support became tumultuous, she urged the President to impose a Nation-wide Emergency which lasted 21 months from June 1975 until March 1977. The period of Emergency had severely affected Gandhi's hold on India, since dissenting voices from opposition, civilians and even Congress leaders were crushed by jailing them. The elections post-Emergency displaced Ms. Gandhi from her position of PM. The Janta Dal came to power, and Morarji Desai became the PM.

Nevertheless, RGAP emphasized that international community must work towards an action-plan for the elimination of nuclear weapons; a notable step considering actual practical steps were being discussed for the first time. He proposed (i) a binding commitment by all States to eliminate nuclear weapons with (ii) the participation of all States in this process, with (iii) elimination through progressive steps, all supplemented by a (iv) reimagination of national security beyond States' aggressive mindsets (RGAP, 1988). He criticized the claim of nuclear States being 'responsible powers', but since India's own nuclear test, it has called itself a 'responsible nuclear power' as well. The RGAP was not followed up with practical steps but continues as a part of India's normative stance on nuclear weapons arsenals.

2.3 The real weapon: final shift in policy

It was in the 1990s that India shed off the last of its moral inhibitions and began weaponizing its nuclear resources. Between 1992 and 1994, India began weaponizing its nuclear capabilities, though the official nuclear weapon explosion test only happened in 1998 in what is known as Pokhran-II, under A.B. Vajpayee.¹⁰ (Subrahmanyam, IDSA, 2004). After India successfully tested and officially declared itself a nuclear weapons state, it drafted its declaratory policy in 1999, and published an abridged form in 2003 (Cabinet Committee on Security, India's Nuclear Doctrine, 2003). The doctrine highlighted that there would be no first use, only a credible minimum deterrent of arsenal would be maintained, and that if retaliatory attack is required, it would impose unacceptable damage to the enemy. This underlined that India was keen to prevent situations of any actual use of nuclear weapons but considered it essential to possess nuclear weapons to deter its enemies from attacking it using nuclear weapons. India was also confident of its conventional weapons capabilities and required nuclear weapons only to a limited quantity ensuring deterrence (Tellis, 2022). The path to weaponization reveals that India almost felt it necessary to have nuclear weapons at least for the sake of its political significance, rather than its actual military potential. Subsequent leaders after Nehru progressively gave into the dominant security narrative.

India has remained committed to its policy despite several conventional confrontations of varying degrees from Pakistan as well as China since 1998, including the Kargil war of 1999. It has continued with the same doctrine, though very little about the doctrine is unclassified. Although there have been occasional doubts regarding India adhering to the policy, such as the cryptic 2019 statement of its Defence Minister (See India Today, August 16, 2019)¹¹, it appears unlikely that the state would change the policy. Current power-peace balance cannot be disturbed without incurring huge risks from practical and strategic perspectives, and India could not afford to take any politically devastating steps that could jeopardize its international image and relations. In short, now that India has nuclear weapons, it must reimagine its security strategies around the weapon's role—making it more of a political statement than a military tool.

3. Policy and politics at play: India on nuclear disarmament

While retaining its own arsenal, India continues to push for global, verifiable, and non-discriminatory nuclear disarmament at the CD. It has been in favour of nuclear disarmament through complete elimination of nuclear weapons, though it categorically denied the call made by non-nuclear States for the TPNW. India's reasons there were more technical/diplomatic. While

¹⁰ It was under the National Democratic Alliance under Atal Bihari Vajpayee as the Prime Minister, that India officially became a nuclear power. However, it was later revealed (in the Kargil Review Committee Report and by Mr. K Subrahmanyam particularly) that Narasimha Rao had, during his premiership, already laid down the foundations for weaponization to a great extent.

¹¹ Mr. Raj Nath Singh said, '*what happens in the future depends on the circumstances*' [regarding No-First-Use] This was said during a visit to Pokhran, the small village in Rajasthan where both of India's Nuclear weapons tests were held. No policy-level statements have been made by the Nuclear Command Authority.

reiterating its position in support of nuclear disarmament and elimination, India pointed out that it is not bound by the TPNW since it was negotiated outside the CD and ‘in no way constitutes or contributes to the development of any customary international law’ (Statement by India in UN First Committee, 2021). India however pointed out its willingness to work with all countries to achieve nuclear disarmament, terming it as a shared goal. This is demonstrated mostly in its lobbying within the UNCD, though various Draft Conventions.

India supports a Comprehensive Nuclear Weapons Treaty (UNGA Resolution A/C.1/75/L.17 of 2020); and tabled a resolution for a Convention on the Prohibition of the use of Nuclear Weapons (UNGA, A/S-12/AC.1/L.4, India’s Draft Resolution, 1982), urging the international community to prohibit the use and threat of use of nuclear weapons under any circumstances. In the CD of October 2022,¹² India again tabled its resolution on ‘Convention on the Prohibition of the Use of Nuclear Weapons’, ‘Reducing Nuclear Danger’, along with others—‘Measures to Prevent Terrorists from Acquiring Weapons of Mass Destruction’ and ‘Role of Science and Technology in the context of International Security and Disarmament’. Lobbying for international consensus, however, has not resulted in any major international policy shift. India has also expressed its willingness to convert the ‘No First Use’ and ‘non-use of nuclear weapons on non-nuclear States’ policies into multilateral legal arrangements.

India has reiterated its commitment to the Chemical Weapons Convention and Biological Weapons Convention. It clarified its position on seeking complete elimination of nuclear weapons, under ‘universal, non-discriminatory and verifiable nuclear disarmament’ (Statement, 2022). This is in line with the agreement arrived at the UN General Assembly (UN Resolution 48/75), laying down a step-by-step process to achieve this, as envisaged in the Working Paper submitted to the CD in 2007 (Working Paper, 2007). The scheme of nuclear disarmament that India seeks to achieve follows from the mechanism laid out in the First Special Session of the UNGA (SSOD-I). It regarded the process of disarmament with multiple steps, focusing on States not producing, not improving, and reducing nuclear weapons.¹³ The scheme of elimination in the SSOD-I was balanced and progressive, placing relative responsibility on States in accordance with the quantity of nuclear arsenal possessed by each State, with the progressive reduction and eventual elimination of nuclear weapons ensuring States’ security.

4. Lessons from legacies: recommendations and conclusion

This paper has charged India’s massive shifts in its nuclear weapons policy, beginning with an absolute ideological position, to ambivalence, to submission to security pressure, to passive acceptance. However, India continues to reiterate its goal of complete nuclear disarmament, though no realistic measures are taken towards this, apart from the assertions made in UN CD. Clearly, the Gandhian notion of absolute *ahimsa* even in the face of potential violence to self, does not hold appeal to policymakers anymore, with weapons policy not solely informed by moral and philosophical notions.

¹² See UN GA, ‘Statement by Ambassador Dr Anupam Ray, Permanent Representative of India to the Conference on Disarmament, Geneva during the General Debate of the First Committee of the United Nations General Assembly, October 2022’ available at <https://pminewyork.gov.in/IndiaatUNGA?id=NDc4MQ> (Last visited on Oct. 27, 2022).

¹³ The SSOD-I, as reiterated by the Working Paper, mentioned the process to happen in three stages - (i) the cessation of the qualitative improvement and development of nuclear weapon systems; (ii) the cessation of production of all types of nuclear weapons and their means of delivery and of the production of fissionable material for weapon purposes; and (iii) a comprehensive, phased programme with agreed timeframes, whenever possible, for progressive and balanced reduction of stockpiles of nuclear weapons and their means of delivery, leading to their ultimate and complete elimination at the earliest possible time.

Faced with political and defence pressure from within and without, different Indian premiers wavered (or not) in their positions on weaponization. From Nehru's abstinence to Ms. Gandhi's partial will to Rao's and Vajpayee's practicality, India came a long way from 'no-nukes' to 'some-nukes'. This shift can be characterized as one from philosophy to 'realism' –denoting national security threats that needed answers beyond philosophy. In the final stages before weaponization, a shift to the 'practical' had already happened. For instance, Narasimha Rao (PM before Vajpayee) stopped a test in 1995 and refused to sanction a nuclear-weapons instructional course for soldiers, both for practical reasons. (Subrahmanyam, IDSA, 2004). In the former, there was no consensus to enable a successful test; and in the latter, the Course may have spread information on India's potential weaponization before the weapons were in fact ready. This is in stark contrast with the ethical position adopted by Nehru.

India must now re-engage with its initial philosophical stance and problematize contemporary 'nuclear deterrence' and 'MAD' narratives, including its own. It must reconsider the ethical as well as practical utility of the perceived national security advantage granted by nuclear weapons. It must actively revive its earlier philosophy and translate them into practical steps, using them to push for global disarmament. Some of these potential steps are described below.

Building mutual trust and cooperation, initiating multilateral progressive-disarmament in the subcontinent

As noted by the preceding premiers of India under whom nuclear weaponization slowly evolved, the root cause for continued arms race, conventional as well as nuclear, is the pervasive fear and distrust between States. Any effort for sustainable disarmament and peace must essentially eradicate inter as well as intra-State inequalities (Rajiv Gandhi Action Plan, 1988). Bilateral and multilateral agreements between States, like the New Strategic Arms Reduction Treaty (New START), could be taken as a point of departure, where States keep a mutual check on each other. This must be taken a step forward, to ensure collective, verifiable and scaled disarmament, as pushed by India in international forums time and again (Nuclear Doctrine, 2003). Like the RGAP, this must be made time-bound, ensuring that all States stick to their internationally prescribed timelines to permanently destroy their arsenal. As a first, India could initiate negotiations for multi-lateral agreement on progressive nuclear disarmament in the Indian subcontinent, involving China and Pakistan. This can then be taken up in the CD to persuade other nuclear weapons States to follow suit as well.

Formulating national-level policies to ensure civilian control of military and all arsenal

One of the most lauded (and controversial) policies of Nehru post-independence was the stripping down of military's powers in India and bringing it under civilian control (Wilkinson, 2015). Decisions in respect of nuclear weapons are also placed under a two-level Office comprising of elected representatives (headed by the Prime Minister) as well the Executive.¹⁴ Ensuring that the military is kept from the decision-making part, vesting it in the people (through their elected representatives) brings more accountability and reduces chances of military invasions upon the State itself.¹⁵ Civilian control also increases the scope for politically initiated decision to progressively disarm, with the political heads being answerable to the people rather than the military. This also ensures that any one party's agenda or power cannot influence or change

¹⁴ Per the Nuclear Doctrine, the Nuclear Command Authority of India is made of a Political Council and an Executive Council. The Political Council is chaired by the Prime Minister and has the sole power to authorize use of nuclear weapons. The Executive Council is chaired by the National Security Advisor. It provides inputs for decision making by the Nuclear Command Authority.

¹⁵ It may be noted here that the decision to bring Indian military under strict civilian control is considered as a factor that protected the State from even attempted coups while its neighbours saw coups and attempted coups multiple times.

nuclear policy abruptly. As a step augmenting this, India must declassify its nuclear doctrine and bring it under academic and democratic scrutiny—citizens must be able to analyse and critique the country's stance and the costs and risks involved. Increased transparency at the domestic front is necessary to ensure safety of the existing arsenal as well.

Pursuing global and verifiable, scaled disarmament through International Humanitarian Law (IHL)

India must use the IHL narrative to garner international support for nuclear disarmament. Since its specific interest is to ensure that disarmament is global and non-discriminatory, it could build on the IHL's restrictions on WMDs and weapons of indiscriminate attacks. Attempts that were unsuccessfully pursued in the drafting of the Additional Protocols of the Conventions could be reignited, for instance, inviting all UN members to collectively initiate negotiations.

Realizing the Fissile Material Cut-Off Treaty

Another major agenda India pushes in the CD meetings is the realization of FMCT. There can be no hope for sustainable disarmament unless it also ensures that raw materials for weapons-production are also controlled and/or eliminated. Though India pushes for the FMCT, it also is believed to have ongoing production of Highly Enriched Uranium (HEU) and a considerable stockpile of fissile materials (International Panel on Fissile Materials: India, 2023). An effective FMCT would have to not only restrict non-possessing States' access to fissile materials, but also the quantity with States already in possession. India could initiate here by showing its goodwill and commitment by revealing and reducing its own fissile material reserves.

India appears almost 'forced' to change its philosophical outlook to a 'practical' one informed by national security concerns. If, for the sake of ethical concerns, India had stood adamant on non-weaponization and absolute *ahimsa*, it is possible the state might have faced threats from the geopolitical instability in its neighbourhood. At the same time, weaponization by succumbing to this security narrative, as established in this paper, has only led to political security rather than increasing actual defence. Becoming a nuclear weapon State seems to be a decision that lucratively waves a false sense of 'security' in the face of States, only to subsequently trap it in a loop of arms-race, increasing threat thresholds, and global distrust. It is in this light that this paper calls for the need to translate philosophical notions into policy decisions. This requires addressing non-nuclear weapon States' concerns, creating a culture of powerful diplomacy, and reimagining national security in ethical terms to ensure 'peace' that is based not on mutual fear, but on trust. The Indian experience serves as a lesson on the political psyche behind relatively 'not-so-well-off' States enter the arms-race—one that world powers, now including India, must stop from repeating.

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7. Searching for Strategic Arms Control Obligations amidst the Suspension of the New START Treaty

RAZY AMAN EDDINE

Abstract

For over 50 years, US-Russia strategic armaments have been controlled by bilateral treaties, with New START being the latest example. However, amidst escalating tensions, the last remaining nuclear arms control treaty between the world's two largest strategic arsenals was suspended in February 2023. Both states declared their continued adherence to the treaty's warheads numerical limits, notwithstanding their rejection of on-site inspection activities. This study analyses how passive and active obligations of arms control are perceived. It scrutinises the contemporary status of quantitative limits either as a political declaration or continued binding obligation. It then explores the concerns behind the rejection of on-site inspections amid ongoing current strains of war, considering whether they could represent a broader shift in stance instead. Finally, it attempts to offer some 'surprise-free projections' on the future of US-Russia arms control obligations. Overall, the paper aims to expand understanding of the complex nature of arms control treaty-based commitments.

1. Introduction

'Of all the emotions arising from strategic arms control, the most profound is disappointment.'

– Kenneth Adelman (1984, 240)

Amidst the irony of a world where humanity engineered the blueprints for its own annihilation multiple times over, treaties have long served as the backbone of the bilateral strategic arms control between the proud parents of the world's most volatile sandbox. The latest of half a century of arms control treaties, dating back to the Strategic Arms Limitation Talks (SALT I) of 1969-1972, is the 'Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms', known as the New START Treaty (2010). Upon its signing in Prague in 2010, both delegations celebrated 'the foundation for qualitatively new bilateral relations in the strategic military field and, in effect, marks the final end of the 'Cold War' period' and pledged reductions in their strategic arsenals on the limit 'when the nuclear arms race began' (Note verbale 2010).

However, a mere decade after the establishment of such hopeful prospects, the enduring bilateral arms control regime seems to have fallen apart. With the mutual withdrawal from the Intermediate-Range Nuclear Forces Treaty of 1987-88 (INF) in 2019, New START became 'effectively the only [remaining] mechanism of arms control and limitation in relation to the strategic weapons of [the] two countries' (Lavrov 2020). New START, too, is navigating turbulent waters; following the 'temporary' exemption of Russian facilities from inspection activities in August 2022, Russia declared the United States in material breach of the treaty and suspended its participation in February 2023. Hence, it appears that the owners of the two most potent strategic arsenals are retracing steps to a time reminiscent of the inception of the nuclear arms race—prior to the inception of stringent arms control obligations and rigorous verification mechanisms. Global nuclear risk, symbolically represented by the 'Doomsday Clock', currently surpasses the tensions of that or any other era, ticking ominously at an unprecedented 90 seconds to midnight (Mecklin 2023). Nonetheless, no arms race seems to be looming. Both parties have, in fact, demonstrated commitment to the quantitative restrictions of the suspended treaty, either through political

declarations or continued perceptions of obligation. Coupled with differing positions regarding on-site inspections, this illustrates the intricate dynamics through which arms obligations operate amidst escalating tensions.

This paper analyses the series of events preceding and succeeding the suspension of the New START treaty, attempting to expose the perceptions of its parties concerning their strategic arms control obligations under current circumstances. It starts by dissecting arms control obligations broadly, distinguishing between what can be classified as active and passive obligations. The paper subsequently scrutinises the foundations of ongoing compliance with quantitative limits to discern whether such compliance is perceived as a continual bilateral legal obligation or a unilateral political commitment. It then investigates concerns surrounding active obligations to permit and facilitate on-site inspections in the prevailing geopolitical context. This analysis considers whether these apprehensions are indicative of temporary constraints or signify a fundamental shift in stance. Finally, the study presents what can be considered 'surprise-free' projections, a term borrowed from Dunn et al. (2022, 2), where a given course of events may not necessarily be likely but would not be surprising if they did occur. Overall, this study aims to enhance understanding of the complex nature of treaty obligations, offering both practical and theoretical insights into the evolution and potential paths of arms control agreements in an unstable geopolitical environment.

2. Literature review

The discourse on arms control treaties and their function during periods of tension has long been coloured by a paradoxical juxtaposition of optimism and scepticism. Brodie and Dunn (1946, 4-5) present two views on atomic 'limitation agreements' that range between 'a tendency to believe that practically any international problem can be solved if only the nations concerned can be cajoled into signing a treaty [and, in contrast, insistence] that governments, in general, are very casual about their international obligations and will disregard them whenever they are inconvenient.' Kahn (1961, 169) wonders how a system could function if any party could announce that 'the agreement has been denounced temporarily for some overwhelming reason, and promising that as soon as conditions have returned to normal they will be glad to return to the fold. In the meantime [they would] throw out the inspectors and their equipment'. Such debates mirror broader arguments on the function of international law amidst political interest. Theorists like Kocs (1994), Coplin (1965), Slaughter (1995), and Henkin (1979) highlight the role of norms, international institutions, and the rule of law in promoting cooperative behaviour among States through international agreements. In contrast, many assert that the absence of a central enforcing authority makes these treaties less effective and potentially subject to the interests of individual States (Posner and Goldsmith 2005, Mearsheimer and Alterman 2001).

Analysis of the suspension of New START can paint a broader picture with implications for the future of US-Russia strategic arms control. While many works have been published over the years with titles including words like 'rise,' 'fall,' or 'demise' of arms control (Bohlen 2003, Arbatov 2019, Troitskiy 2022, Krepon 2021, Anami 2011, Brooks 2020, Rumer 2018, Nye Jr 1986, Kühn 2020, Delvoie 2020), the case might just as well paint the picture of the persistence of arms control even after the suspension. The post-New START literature yields diverse projections, from renewed arms races, extensions or subsequent treaties to a stable arms control status based on political commitments (Klotz 2020, Geller 2020, Russell 2021, Albertson and Roberts 2021, 81). The literature surrounding the early stages of the war also tracked gaps in perceptions. For instance, one popular perspective was that both parties would still uphold New START (Bugos 2022), and that 'neither State is likely yet to take the step of withdrawal from the treaty or of stopping implementation of its residual verification obligations' as it serves as an increasingly needed

stabilising mechanism (Dunn et al. 2022). Contrarily, some foresaw potential escalation and suspension of the treaty, possibly triggering a nuclear arms race (Dunn et al. 2022, Notte 2023, Albertson and Roberts 2021, Rogers, Korda, and Kristensen 2022). Given the current dichotomous state of New START commitments, where residual verification obligations are rejected, but an arms race has not ensued, the analysis of the recent events surrounding the treaty suspension could expose critical insights into the evolving perceptions into its different obligations.

3. New START Treaty

3.1 Case overview

With the unfolding COVID-19 pandemic, New START's inspection regime was mutually paused in March 2020. However, what was initially perceived as a temporary suspension eventually required a challenging process of re-initiation. In June 2021, the US attempted to diplomatically reinstate inspection activities through bilateral meetings, phone calls, and written correspondence, but Russia insisted on maintaining COVID-19 restrictions, even adding additional prerequisites. A similar attempt and result occurred in June 2022 (US Presidential Office 2023, 8). During this time, both the US and Russia continued to affirm mutual compliance and downplayed concerns of strategic imbalance.

Instead of initiating another attempt to restart inspections, the US formally communicated its intention to Russia in August 2022 to conduct a short-notice on-site inspection (US Presidential Office 2023, 8). These unanticipated, short-notice inspections are a vital component of the treaty's verification regime, as allowed under Article XI of the treaty, section VI of the protocol, and the annex pertaining to inspection activities within the protocol. The randomness and short notice of these inspections are designed to 'provide the parties with a chance to detect an effort by the other party to deploy a missile with more than its listed number of warheads' and consequently 'deter efforts to conceal extra warheads on the deployed force' (CRS 2022, 17, US Presidential Office 2023, 8). However, the Russian Foreign Minister responded unequivocally the next day by temporarily exempting all its facilities from treaty inspection obligations, still citing COVID-19, but also explicitly mentioning the diplomatic manner of the attempt made 'without prior arrangement [and not taking] into account existing realities' (MID 2022a). Russia also referenced 'difficulties for Russian inspectors and Russian flights [...] due to stricter visa requirements in transit countries along potential routes,' a position that was repeatedly emphasised (Putin 2023, Ryabkov 2022). In return, the US considered Russia in noncompliance with its obligations to facilitate inspections activities without making a definitive determination of numerical noncompliance with the warhead limit (US Presidential Office 2023, 5, 6).

Again in February 2023, NATO (2023) issued a statement demanding the reinstatement of on-site inspections, and Russian President Vladimir Putin responded the next day by announcing the suspension of the New START treaty (Putin 2023), soon endorsed by the State Duma (2023). Official suspension notice was formally presented to the US (TASS 2023, Price 2023), which classified the suspension as illegal, invalid, and in violation of the treaty (Wood 2023, Office of the Spokesperson 2023, Plumb 2023, Turner 2023). The US Department of State and NATO later announced a set of countermeasures on June 1, 2023: withholding its biannual data exchange, withholding notifications on US ICBMs and SLBMs launchers, refraining from facilitating on-site inspections on US territory, and not providing telemetric information (DOS 2023b, NATO 2023).

3.2 Disaggregating treaty obligations

The recent status of New START obligations illustrates the divergent ways in which different arms control obligations operate under the same treaty regime: Bilateral Consultative Commission (BCC) meetings were denied, while the on-site inspection quantitative limit remains observed. This polarity propels reflecting on how different obligations are perceived amidst tension. Borrowing from legal studies (e.g. Dinah Shelton and Gould (2013), treaty obligations could be disaggregated into two categories: active (positive) obligations to act or actively facilitate and passive (negative) obligations to abstain.

In the case of New START, the principal commitment under article II, namely the reduction and limitation of strategic offensive arms, was initially an active obligation requiring affirmative actions for conversion and elimination. After meeting the quantitative limitations in February 2018 (DOS 2023a), the only obligation left is to refrain from building up beyond these limits for the treaty's duration. The obligations of the verification framework are multifaceted. They include passive measures not to conceal equipment or interfere with National Technical Means (NTMs) (Article X); no such concern has been raised. It also entails active obligations like allowing and facilitating on-site inspections, engaging in biannual data exchanges, and sharing telemetric information (Articles IX, XI). Active obligations also include meeting at the BCC (Article V, VII).

While the passive obligations remain acknowledged, the active obligations were suspended. Decisions to suspend or uphold an obligation are fundamentally influenced by a variety of complex political and strategic factors. Nonetheless, a general observation can be drawn. Active obligations, requiring a high degree of cooperation, become less viable under political hostility due to the requisite positive cooperation diminishing in tense situations. Conversely, passive obligations, which are inherently non-cooperative and aimed at maintaining the status quo, function more effectively when minimal collaboration is possible, as long as there is no sufficient rationale to abandon the status quo.¹ The rest of this paper focuses on two key treaty obligations: quantitative compliance with the warhead limit (as a passive obligation) and on-site inspections and verification methods (active obligations).

4. Quantitative compliance amid suspension: a legal analysis

When Russia announced the suspension of the New START Treaty, it emphasised that it was 'not withdrawing' but 'suspending participation' (Putin 2023). 'Suspension', an international legal concept defined as 'the temporary cessation of all or part of a treaty' (Cameron, 2), momentarily releases the parties from their obligations under the treaty, as per Article 72 of the Vienna Convention on the Law of Treaties (VCLT 1969) – to which Russia is party–without altering the legal relationships it establishes. It could be invoked on one or more grounds, corresponding to articles 57-64 of the VCLT. While the main reason to sustain the qualitative limits, the backbone of the treaty, stems from a broader strategic interest to 'maintain the necessary level of predictability and stability' (Lavrov 2023a), it is important to ask whether this suspension has valid legal underpinnings, as perceived by Russia. This distinction is critical: If Russia perceives itself legally obliged to comply with the passive obligations of the treaty, this naturally carries a higher expectation of self-compliance.

¹ This idea finds resonance with prospect theory in behavioural economics, positioning status quo bias as a decision-making reference point (Edwards 1996, Schmidt 2003). Deviations from the status quo necessitate compelling reasons, illustrating the 'endowment effect' (Thaler 1980). This notion extends to international relations, where states, treating the status quo as a default, adhere to it unless confronted with sufficient rationale for change (Levy 1992, Boettcher III 2004, Levy 1997).

One mentioned legal grounds for the Russian stance is the 'change of circumstances' (cf. (Lavrov 2023a, b), which allows suspension under Article 62 (VCLT). Previous analysts such as Gottemoeller and Brown (2023) and Albertson and Sokov (2023) focus on the alleged fundamental change of circumstances, citing Russian Senator Kislyak (2023, 18:30-42:00), former Russian Ambassador to the US, who suggests that the suspension grounds are the US's alleged 'intent to defeat Russia'. In response, Gottemoeller and Brown (2023) argue that the US activities concerning Ukraine were never noted as relevant circumstances during the negotiations, ratification process, or within the treaty text, including its preamble, concluding the invalidity of basing the suspension on Article 62 VCLT.

However, Russian letters to the UN explicitly state an alleged US 'direct violation' as the main reason for the suspension (Nebenzia 2023, 3-4, Russian Federation, 6). Lavrov (2023a) invokes the concept of a material breach, linking it to 'extreme hostility, undermining Russia's security, NATO's anti-Russia stance, missile defence developments, violations of quantitative restrictions, and impeding verification procedures. A material breach is not just an instance of noncompliance, violation, or failure to adhere to the terms. Instead, it is defined under 60.3 VCLT and Article 57.3 of the Draft Articles on the Law of Treaties with commentaries (ILC 1966), as either an arbitrary 'repudiation of the treaty' or a 'violation of a provision essential to the accomplishment of the object or purpose of the treaty'. The International Law Commission (1966, 255) unanimously acknowledges that the material breach in question 'must be limited to cases where the breach is of a serious character.'

Irrespective of their veracity, these allegations shed light on Russia's intention to consider itself continuously bound by warhead limits. In contrast to other grounds like a change in circumstances, which only offer total treaty suspension, as dictated by Article 44 VCLT or Article 41 DARS, suspension based on a material breach under Article 60 VCLT or Article 57 DARS can be partial. In other words, the State may choose to continue adhering to the remainder of the treaty. This could be a crucial point: if a purported material breach is the primary basis for the Russian suspension, then the suspension could potentially be partial, even though it is not explicitly stated. Hence, the Russia could be still considering itself bound by a bilateral legal obligation to observe the warhead limit, beyond merely a unilateral political commitment, and would naturally expect the US to reciprocate. Furthermore, it could still consider a quantitative build-up unlawful despite the suspension, as Article 72(2) VCLT prohibits 'acts tending to obstruct the resumption of the operation of the treaty'. In this instance, any such build-up would preclude the resumption of the treaty. This is because the deadline for reductions under Article II had already expired by February 2018. The Russian declaration of a formal suspension, as opposed to withdrawal or an informal declaration, could be an attempt to maintain the legality of the warhead limits while foregoing other treaty obligations, while still maintaining some deliberate ambiguity of some sort, perhaps warning that withdrawal is not out of the question in INF-like circumstances. The assumption that international legal procedure holds such influence in Russian foreign policy, however, is made under the assumption that it persists in following its formalistic tradition to avoid appearing in breach of international law, even when denouncing its substantial instruments. In a way, it resonates with the conclusion made by Mälksoo (2015, 187) on international law as a key instrument of Russian foreign policymaking:

'In the conditions of anarchy prevailing in international relations, if a government is violating or going to violate international law, it may be in its interest to confuse its peers by rhetorically insisting on the importance of 'international law', and pointing out that it is others that violate it.'

The interest in preserving the status quo of the quantitative restrictions seems to be shared by the US, which has responded by countermeasures, withholding its obligations regarding inspections, notifications, and telemetry, yet repeatedly classifying the suspension as invalid (Wood 2023, Office of the Spokesperson 2023, Plumb 2023, Turner 2023, DOS 2023b). In its 2023 Strategic Posture Report, the bilateral Congressional Commission recommended the US to ‘respect treaty limits until the [it] determines that it is no longer bound by New START or the treaty expires’ (Creedon et al. 2023, 45). Invalidity under the law of treaties is a non-recognition of any resulting legal effects or changed legal relationship (Gianelli 2011). However, it is also used in the context of invalidating a treaty as a whole under articles 46—53 (VCLT 1969) and Article 43—50 (ILC 1966). Instead, the standard procedure against a declared suspension under article 65 VCLT is raising an ‘objection’, followed by an attempt to ‘seek a solution through the means indicated in Article 33 of the Charter of the United Nations’ such as ‘negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice’. In the meantime, the suspending State should have awaited no less than three months to carry out the suspension. This is an obligation even towards the US, a non-party to the VCLT, as considered to reflect customary international law by the International Court of Justice (ICJ 1997, paragraph 109), representing the broader obligation of peaceful settlement of disputes under articles 2(3) and 33 of the UN Charter (1945).

It remains unclear, however, why this procedure was not attempted. One explanation could be that despite adhering to the formalities of officially notifying the US (TASS 2023, Price 2023), Russia did not formalise the aforementioned three-month minimal waiting period. Furthermore, the US could have not expected real result from seeking dispute settlement measures that would expectedly involve the UN. This could be because New START was never registered at the UN Secretariat, as confirmed by inquiry to the UN Office of Legal Affairs, Treaty Section. Registration is not a precondition for the treaty’s legal and binding status and capability to formulate binding obligations, as it is not required the definition of a treaty under article 1(a) VCLT, as ‘an international agreement concluded between States in written form and governed by international law’. This was confirmed the ICJ Maritime Delimitation and Territorial Questions between Qatar and Bahrain (1994) case, affirming that ‘nonregistration [...] does not have any consequence for the actual validity of the agreement, which remains no less binding upon the parties’. However, the Court affirms that ‘an international agreement or treaty that has not been registered with the Secretariat of the United Nations may not, according to the provisions of Article 102 of the Charter, be invoked by the parties before any organ of the United Nations’ (ICJ 1994, ¶29). Indeed, Article 102(2) of the Charter states that ‘no party to any such treaty or international agreement which has not been registered [...] may invoke that treaty or agreement before any organ of the United Nations’. For instance, the question of the legality of the suspension could not be even invoked for discussion before the General Assembly, at least in principle, contrary to the general perception that ‘if compliance concerns could not be met, there was always the option of taking matters to the United Nations’ (Krepon 2021, 461-492). This is not to say that registration necessarily saved the INF from withdrawal, but at least attempts were made to negotiate compliance and the treaty’s future prior to withdrawal (Press 2018). No such attempts were made regarding New START.

The reason behind the non-registration of New START remains ambiguous, notably when Article XVI mandates such registration. If this omission symbolises a deliberate attempt to maintain the matter strictly bilateral between the involved States and to minimise any multilateral interaction, then opting not to follow procedural treaty law—which would invariably entail such interaction—reflects a consistent stance against multilateralism.

In short, it seems that both States are interested in preserving the quantitative limits as a legal obligation, which could display some strategic considerations beyond the scope of this study. Otherwise, even without the full verification mechanisms, perhaps the symbolism of these limits meets the disarmament trend, especially in the West. To Russia, they could also symbolise parity with the US, despite military setbacks in Ukraine. After all, Russia's official foreign policy declares its global standing to be, in part, based on its role as "one of the two largest nuclear powers" (MID 2023a).

5. On-site inspections in times of crisis

On-site inspections seem to be a key point of concern surrounding the suspension of New START: the exemption of facilities from inspection in August 2022 and suspension in February 2023 both occurred just a day after a call to resume inspections. They also seem to be the most notable casualty, as the quantitative limits appear to be still perceived to be binding. Hence, this section analyses how inspections are perceived in periods of high tensions, as opposed to periods of mutual trust and cooperation.

First, while inspections are naturally perceived as significant for verifying compliance in general, during periods characterised by political cooperation, mutual trust is assumed even when they are not strictly functioning. They were 'temporarily' discarded as part of COVID-19 safety regulations, already exposing the flexibility in their perceived significance during that era. Notably, in its National report submitted in March 2021 to the 2020 NPT Review Conference, Russia reported 'a high level of mutual transparency', affirming that 'notifications are exchanged, displays of new arms are carried out and inspections are conducted' (Russian Federation 2021), while affirming that 'mechanism must be maintained and must remain viable' (Russian Federation 2020), even though they had not been taking place. Similarly, the US consistently stated that Russia is in compliance with the terms of New START and there is no risk of strategic imbalance, in a language similar to previous reports, even though no inspections were ongoing (US Presidential Office 2021, 2022). In contrast, deteriorating relationships and the ongoing war might have given rise to key concerns against inspections, which could be refused beyond 'an attempt to hide illegal activity' (Krass 1985, 217).

First, the discourse analysis above emphasises the perceived intrusive nature of inspections amidst the ongoing conflict. Demands for inspections were seen not just as an "outright provocation" (Ryabkov 2022), but perhaps an intrusion on national sanctity: "Are they going to poke their nose there as well?" (Putin 2023). Hence, compliance with US demands may be perceived as a humbling obligation, potentially undermining the regime's standing before internal stakeholders. This sensitivity echoes Cold War-era perceptions of national sovereignty and foreign intervention, which have been traditionally viewed to range 'from the mildly annoying to the deeply humiliating [but] never pleasing or flattering' (Krass 1985).

Second, Russia explicitly stated its concern over using these inspections 'as a cover, for immediate access to these and other Russian strategic facilities', in a context of 'explicit military, technical and intelligence assistance' from the US to Ukraine (Lavrov 2023b, a, Nebenzia 2023). Moscow later reiterated: "How can we allow the Americans to visit our nuclear facilities [...] when they are providing long-range weapons to the Ukrainians, which have already been used in attempted attacks on our strategic basis, including those hosting strategic nuclear bombers?" (Lavrov 2023c). These statements could echo Cold War fears of espionage, which were amplified after the 1960 U-2 incident where an American spy plane was shot down over Soviet territory (Office of the

Historian 1960). This would resonate with broader Russian accusations of US intelligence assistance to Ukraine (MID 2023b).

Third, apprehension could arise from the potential exposure of Russia's strategic vulnerabilities. This concern also has roots in the Cold War era, with speculations that the Soviets 'substantially inflated claims of their arsenal of deliverable nuclear weapons' (JFK Library 2023). Evidently, contemporary Russian military engagements in Ukraine have exposed weaknesses in their conventional military capabilities. A potential speculation could be made regarding the potential vulnerability in Russian strategic capabilities, perhaps due to possible reallocation of missile budget, equipment, and expertise towards sustaining conventional capabilities and potentially using nuclear-capable missiles with non-explosive warheads (Lukiv 2022). Hence, inspections risk revealing more than mere treaty compliance, making them an even more sensitive issue for Russia's national security and strategic deterrence. After all, the connection between nuclear power and national morale and pride is well established in literature (Freedman and Michaels 2019). This could explain Russia's stated willingness to discuss the resumption of New START if the strategic environment shifts. This conclusion, however, was not suggested in the 2023 US Strategic Posture Report (Creedon et al. 2023).

Finally, it would not be unreasonable to hypothesise that Russia's persistent objections to inspections could signal a shift in its perspective on inspections. The Soviet position prior to the INF has historically rejected on-site inspections (Beghhoefler 1962, Savranskaya and Blanton 2019), which has otherwise long been a US demand in arms control treaties (Office of the Historian 1945, The Baruch Plan 1946, Services and Communication 1952, Eisenhower 1960, Rentmeester 2004).² The shift during the INF could have been a step in Gorbachev's plan for total elimination (Gorbachev 1986). It could have otherwise stemmed from a pragmatic realisation of the need for thorough verification with the advent of Multiple Independently Targetable Re-entry Vehicles (MIRVs), with inspections the only way to count warheads (Gottemoeller 2021). Hence, as the US has decided to 'de-MIRV' all deployed ICBMs (Nuclear Posture Review 2010), Russian necessity to access US ICBM sites has naturally decreased, perhaps affecting its position towards inspections. While the Russian position had once considered the New START verification regime as the 'gold standard' (Lavrov 2011, Russian Embassy in USA 2022), more recent discourse on verification in arms control otherwise insists that there is no 'one size fits all', 'mandatory essentials', or 'best practices' in arms control verification, which should take into account, 'first of all—non-interference into internal affairs of a State' (Leontiev 2019, 2). A possible shift back against inspections would also align with the broader argument that the demise of arms control began with Putin's inclination to disregard treaties that reflected the Soviet Union's weakness and dissolution (Krepon 2021).

6. Looking forward: projections on the future of US-Russia strategic arms control

This study has thus far scrutinised how Russia and the United States interpret their respective obligations under the current terms of the New START Treaty, both the 'passive' obligations concerning warhead limits, and the 'active' obligations related to on-site inspections and verification methods. This section builds on the previous sections' findings to project possible future trajectories for US-Russia strategic arms control, particularly in environments where enforcement mechanisms may be either ineffective or absent.

² Reflecting on such early proposals, the word 'inspection' generally referred to what is now 'verification', including both onsite inspections and national technical means (Colton 1981).

6.1 Future possibilities for the duration of New START

A "surprise-free projection" suggests that both Russia and the US will likely adhere to the warhead limits under New START for its remaining duration. As discussed in Section 5, both countries continue to consider themselves bound by the treaty despite having the option to withdraw. This paper hypothesises that this insistence on adhering to warhead limits amid suspension as a legal obligation perhaps indicates that the limit aligns with the parties' different interests. Moreover, absent a compelling reason to deviate, maintaining the status quo carries intrinsic value. In other words, reason is normally required to change the status quo, which eventually gains normative significance.

Nonetheless, as the US had already declared the suspension to be a treaty violation (Wood 2023, Office of the Spokesperson 2023, Plumb 2023, Turner 2023, DOS 2023b), it would be unsurprising should the US go further and label it 'material breach' in the subsequent New START implementation report, considering it meets the definition of an arbitrary 'repudiation of the treaty' under customary international law reflected in article 60.3 VCLT and 57.3 ICL Articles (ILC 1966). A declared material breach would stain the treaty's survivability. For instance, the US withdrawal from the INF in 2019 was grounded upon a detected material breach (Pompeo 2019). However, a US withdrawal from New START appears unlikely, considering the US insistence on preserving the limit as an obligation, even disregarding treaty law procedure in the process, and with the treaty already set to expire in 2026. Moreover, restrictions on US presidential withdrawal authority are more limited in New START. In contrast to the lack of restrictions on the Presidential withdrawal authority in the INF (US Congress 1988), New START senatorial advice and consent to ratification only permits withdrawal if 'the President determines, after consultation with the Director of National Intelligence, that the Russian Federation intends to break out of the limits in Article II' (US Congress 2010). Not just any material breach would justify withdrawal, but the particular material breach of the quantitative limits is required.

The resumption of on-site inspections seems improbable as the war in Ukraine continues. Russia's reluctance could be attributed to fears of intelligence mishandling or the exposure of strategic vulnerabilities, which could damage national pride and prestige. Even after the conflict's resolution, a period of strategic recovery may be necessary before inspections could resume. However, if Russia's refusal of inspections represents a shift in its broader strategic perspective, even the end of the Ukraine conflict might not reinstate on-site inspections, and Russia could use on-site inspections as a bargaining chip in the future, including a more limited form with constraints on what can be inspected and how the sites could be reached. The precedent of rejecting on-site inspections and suspending the treaty could make any future agreements on inspections vulnerable in similar political climates.

6.2 A newer START?

An extension of New START appears procedurally unfeasible due to the treaty's language and Russia's legal requirements. Given that the invasion of Ukraine has further strained relations, and the approaching treaty expiration date in February 2026, the likelihood of a follow-up treaty is questionable. In fact, the Report of the Congressional Commission on the US Strategic Posture, states that 'there is no prospect of a meaningful arms control treaty being negotiated with Russia in the foreseeable future', 'formal arms control agreements are unlikely in the near future', and 'the prospects for agreements on nuclear arms control with Russia or China appear bleak' (Creedon et al. 2023, 82, 83, 85). If negotiations for a new treaty were to transpire, the US emphasis on on-site inspection and Russia's reservations about inspections would be critical factors in determining its viability. Russia could potentially use on-site inspections as a bargaining chip that could be used to

extract concessions from the US. However, in contrast to the 2010 Nuclear Posture Review, which mandated any new treaty to be 'verifiable' (Nuclear Posture Review 2010, ix, 12, 20), and the 2018 version that required treaties to be both 'verifiable' and 'enforceable' (Nuclear Posture Review 2018, XVI, 70, 72, 73), the brief declassified version of the 2022 Nuclear Posture Review omits both (Nuclear Posture Review 2022). Furthermore, the recently released 2023 US Strategic Posture repeatedly emphasised the potential role of new and emerging technologies in arms control verification (Creedon et al. 2023, x, 86, 110), making no reference to the more traditional inspections. This might be mirroring the practical realities and possibilities, raising the broader questions about whether the United States might accept a new treaty without provisions for inspections, despite long insistence. If so, a treaty devoid of inspections, similar to SALT I, might not be entirely implausible.

One possible trajectory is the formation of a non-legally binding arms control regime akin to SORT. Such a regime would naturally lack an inspection component. However, the findings of this paper show that both parties may prefer some form of legalised bilateral commitment over-reliance on unilateral political declarations. Here, the potential for an executive agreement, while still unexplored in US-Russia strategic arms control (Rogers, Korda, and Kristensen 2022), could be raised. This would likely exclude inspections, considering the Russian insistence on 'a full, legally-binding treaty, duly approved by their State Duma and Federation Council, in order to override their domestic law and permit foreign inspectors' (Gottmoeller 2021, 85–86). The impending expiration of New START also provides an opportunity to think beyond bilateral agreements and consider a multilateral framework that includes other nuclear powers, such as China. These projections are vulnerable to the contemporary uncertainty around the war in Ukraine and international tensions.

7. Conclusion

Following an 'unbroken period of 55 years, verifiable and legally binding measures for arms control [that] have helped to prevent war' (Guterres 2018, 10), the New START treaty seems poised on a precipice. The present study presents a dichotomous picture of the treaty. Vestiges of the quantitative constraints seem to endure against the backdrop of a shifting geopolitical stage, not just as political gestures but holding the legal weight of binding obligations within a '*partial*' suspension. This was concluded by examining the grounds upon which the Russian suspension was announced, which seem to be an alleged material breach rather than just a change in circumstances. Continued legality of the limits also arises from the prohibitions surrounding the procedural notion of suspension from actions that would obstruct future resumption. Those responsible for Russian foreign policy appear adept at navigating legal nuances to avoid appearing to disregard the formalities of procedural international law. While reassuring for the duration of New START, the legal foundation of these skeletal quantitative limits is nonetheless bound for eventual expiration in early 2026. At the same time, residual verification mechanisms, particularly the on-site inspections long seen as tangible markers of trust and cooperation, seem to be rejected when they seem to be most needed. The concerns Russians raised during political and military crisis, from the historical fear of espionage and exposed vulnerabilities to political sensitivity, all revive Cold War era suspicions, make their return unlikely as the war in Ukraine persists. There is also the possibility of witnessing a broader shift back to the pre-INF Soviet stance, particularly as the technical and political motivations that once led to Soviet acceptance appear to be diminishing.

The omission of New START from being registered with the United Nations Secretariat—a process to which all treaties are normally subjected—appears to have further hindered any attempts to intervene and settle the procedural dispute stemming from the suspension, leaving it a purely

bilateral dispute with no role for multilateral discourse. Consequently, a recommendation within the theme of the present volume is the imperative of registering arms control treaties to allow, at least in principle, a procedural role for multilateral actors in preparations for potential procedural impediments. The crisis around New START offers a chance to reconceptualise arms control within the never-ending Sisyphean human cycle of dismantling and reconstruction. It holds the potential to develop into an opportunity for reform, much like how the Partial Nuclear Test Ban Treaty (1963) followed the Cuban Missile Crisis over 50 years ago. Insights into the resilience of the status quo, intrusiveness, and potential procedural avenues garnered from this and related research strive to offer not merely an analysis of prevailing situations but also envision proactive pathways toward a more secure global environment.

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8. The Impact of China's Nuclear Expansion and Prospects of the Southeast Asian Nuclear-Weapon-Free Zone Treaty

SAJJAD AHAMED

Abstract

Since its entry into force in 1997, the Southeast Asian Nuclear-Weapon-Free Zone (SEANWFZ) Treaty has played a significant role in maintaining a nuclear-free Southeast Asia. However, China's recent nuclear expansion and assertive military posture in the South China Sea have raised concerns about the treaty's future and regional security dynamics. This paper examines the security challenges faced by ASEAN countries to evaluate the potential consequences of China's nuclear expansion on the SEANWFZ Treaty and regional stability. It posits that China's rapid nuclear expansion destabilizes the regional security structure of Southeast Asia, which may have a potential impact on nuclear non-proliferation and the status quo of nuclear-weapon-free Southeast Asia. In addition, the study emphasizes potential policy implications, including diplomatic engagement and collaborative security strategies, which may alleviate the security dilemma and curb nuclear proliferation in Southeast Asia.

1. Introduction

The Southeast Asian region has significant importance in the world economy and holds crucial security implications in global politics. The organization of countries in this region has been a staunch advocate of nuclear non-proliferation and established Southeast Asia as a nuclear-free region through the 1997 Southeast Asian Nuclear-Weapon-Free Zone Treaty, also known as the Bangkok Treaty. In addition, most of the Association of Southeast Asian Nations (ASEAN) states are also signatories to other nuclear disarmament and non-proliferation treaties. However, the People's Republic of China's recent nuclear modernization and assertive military posture have become pivotal concerns for Southeast Asian countries. China has been engaged in territorial disputes with some of its ASEAN neighbours. Amid this tension, its changing nuclear posture creates a sense of vulnerability for Southeast Asian countries. This article will discuss the impact of Chinese nuclear modernization on the regional stability and security balance of Southeast Asia and the risk of nuclear proliferation surrounding the geopolitical changes that undermine the objectives of the SEANWFZ treaty.

China's nuclear modernization efforts have been a cause for concern for many countries. China has been increasing its nuclear arsenal and developing its nuclear triad capabilities, including hypersonic missiles and nuclear-powered submarines (Office of the US Secretary of Defense, 2022). Additionally, its occupation of islands in the South China Sea by defying international maritime law has created a risk of arms race and conflict escalation in the region (Kuok, 2019). While Japan, South Korea, and Taiwan have security assurance commitments from the US, ASEAN countries do not enjoy comparable formal security. Moreover, ongoing Chinese military assertiveness and regional competition between China and the US in the Indo-Pacific region led to a trilateral security partnership among Australia, the UK, and the US, also known as the AUKUS agreement enticing military competition between China and the US, making the security structure of Southeast Asia and South China sea region much more crucial and oscillating.

By analysing existing data and literature on Southeast Asian security, the South China Sea, the SEANWFZ treaty, the Chinese nuclear program, and the concept of nuclear deterrence, this article posits that Chinese assertive military posture and rapid nuclear weapon expansion will increase

mistrust and lack of confidence among its neighbouring countries, which can potentially impact the regional stability and lead them seeking security assurance from the United States or fragment ASEAN in their stance on nuclear non-proliferation.

2. The SEANWFZ Treaty

The SEANWFZ Treaty was signed on December 15, 1995, and came into force on March 28, 1997. This treaty seeks to support regional and global nuclear non-proliferation norms, addressing specific regional factors that may incentivize states to pursue nuclear capabilities. It prohibits signatories from developing, owning, transporting, testing, or using nuclear weapons. Additionally, this treaty upholds the right of states to utilize nuclear technology for peaceful objectives.

Establishing SEANWFZ was one of the major initiatives of the Zone of Peace, Freedom, and Neutrality in Southeast Asia (ZOPFAN). The context and idea of establishing ZOPFAN was to practice neutrality through impartiality and autonomy to restrain the influence of great powers during the Cold War (Emmers, 2018). During that period, as great power rivalry intensified, South America and the South Pacific countries sought to avoid the pressure of nuclear weapons deployment by the superpowers and maintain security balance in their region by establishing nuclear weapons-free zones. This inspired ASEAN leaders, as the region's bitter experiences in longstanding colonialism, wars, and aggressions justified the creation of its nuclear-weapons-free security structure. Meanwhile, the disintegration of the Soviet Union and the end of the Cold War created a favourable political environment for Southeast Asia.

However, the process of creating SEANWFZ was delayed for many years due to multiple factors. While Indonesia emphasized its neutrality from great power rivalry, the Philippines, Singapore, and Thailand wanted to rely on the US for extended security in case of an invasion by the regional power China (Emmers, 2018). After several years of negotiations, the Southeast Asian nations unanimously signed the SEANWFZ treaty on December 15, 1995, at the fifth summit of ASEAN (Acharya & Boutin, 1998). Unlike the other NWFZ, this treaty includes continental shelves and Exclusive Economic Zones (EEZ) of treaty parties. No nuclear weapon state agreed to sign the protocol of this agreement (Zhao, 2017). The United States expressed concern that the treaty might conflict with the United Nations Convention on the Law of the Sea (UNCLOS), particularly the rights to navigate and fly freely over 'exclusive economic zones.' Similarly, China expressed concerns about the geographical area of the treaty, especially around disputed areas in the South China Sea. The US also wanted to keep the option of using nuclear weapons against on-NWS countries that are not a member of the NPT, such as Myanmar, or which it suspected would not adhere to the NPT or fulfil its non-proliferation obligations (Zhao, 2017).

3. Southeast Asia in global and regional non-proliferation

Regardless of reservations and misperceptions of nuclear weapon states on the SEANWFZ treaty, ASEAN countries have been the strongest advocates of nuclear disarmament in international forums for many years. Many of them signed and ratified most of the international treaties relevant to nuclear non-proliferation and disarmament (Caballero, M. & Trajano; J. C., 2022). At the 30th ASEAN regional forum meeting, member states reiterated their pledge to adhere to the global commitment to non-proliferation, arms control, and disarmament. They urged the nuclear weapon states to uphold their commitments, particularly under the Nuclear Non-Proliferation Treaty (NPT), and emphasized the need for international cooperation toward eliminating weapons of mass destruction while highlighting the need for disarmament and non-proliferation objectives to be in line with international regulations and the UN guidelines. They urged for the creation of a favourable atmosphere for nuclear disarmament, aiming for a world without nuclear weapons and

giving importance to the even-handed and transparent execution of the NPT's main principles: nuclear disarmament, non-proliferation, and the peaceful use of nuclear energy (ASEAN Regional Forum, 2023).

ASEAN countries have also engaged in advocacy efforts with nuclear weapon states and international organizations to strengthen nuclear non-proliferation. In 2007, ASEAN states sought cooperation with the International Atomic Energy Agency (IAEA), regional entities, NWFZs, and other stakeholders to develop a legal framework aligning with global nuclear safety standards. They have prioritized establishing early nuclear accident notification networks, a regional emergency response strategy, and bolstering regional nuclear safety capacity-building (Commission of the SEANWFZ Treaty, 2007). Also, ASEAN states have tried to maintain a balance with China and the USA to de-escalate tension regarding nuclear proliferation and arms control in the region. In 2022, ASEAN countries released joint statements with both China and the USA from separate special summits in alignment with the ASEAN Charter, the Treaty of Amity and Cooperation in Southeast Asia (TAC), ZOPFAN, and SEANWFZ principles. Moreover, in the regional disarmament and non-proliferation meeting, ASEAN states called upon the NWS to adhere to their obligations stipulated in Article VI of the NPT, recognizing that only the complete eradication of nuclear weapons ensures their non-use while concurrently emphasizing ASEAN's unwavering commitment to collaborate with the NWS to address outstanding issues in accordance with the SEANWFZ Treaty's objectives and principles (ASEAN, 2022).

4. Shifting dynamics

4.1 China's evolving nuclear posture

In the initial post-Cold War period, there was not any hegemonic rivalry between superpowers, and China was focused on developing a good relationship with the West. China also followed a defensive and limited nuclear deterrence posture with a small arsenal since 1964, which reduces any arms race in the Southeast Asian region. However, China's recent nuclear modernization effort and rapid militarization sparked the tension of a nuclear arms race between the USA and China in the post-Cold War period (Malik, 2000).

China's shift in nuclear strategy comes from multiple factors. The trade war with the US and its growing ambition in the South China Sea and Indo-Pacific region led Chinese leadership to reassess its military and deterrence capability. In assessing its nuclear deterrence capability against the US and Russia, it found itself in a highly asymmetrical position (Jane, 2022). The war in Ukraine presents an example for China as Russia emphasized its nuclear deterrence as a counterbalance to the conventional military strengths of the US and NATO (Goldstein & Waechter, 2023). Given NATO allies' reluctance to confront Russia directly due to its sophisticated arsenal of conventional hypersonic missiles, China might perceive growth in its own missile capabilities as a compelling deterrent against challenges to its interests in the Indo-Pacific region. As Kroenig suggests, states with nuclear superiority can have an advantage in counterforce exchanges, potentially lowering nuclear conflict costs, and a shift from nuclear inferiority to superiority enhan-

Table 1. Status of Southeast Asian countries in relation to nuclear non-proliferation treaties¹

✓ = Ratified
S = Signatory
✗ = Non-Party

	CTBT	CPPNM	IAEA	ICSANT	NPT	Outer Space Treaty	SACT	SEANWFZ	TPNW
Brunei	✓	✗	✓	✗	✓	✗	✓	✓	S
Cambodia	✓	✓	✓	S	✓	✗	✗	✓	✓
Indonesia	✓	✓	✓	✓	✓	✓	✓	✓	S
Laos	✓	✓	✓	✗	✓	✓	✓	✓	✓
Malaysia	✓	✗	✓	S	✓	S	✓	✓	✓
Myanmar	✓	✓	✓	✗	✓	✓	S	✓	S
Philippines	✓	✓	✓	S	✓	S	✓	✓	✓
Singapore	✓	✓	✓	✓	✓	✓	✓	✓	✗
Thailand	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vietnam	✓	✓	✓	✓	✓	✓	✓	✓	✓

Sources: UN Treaty Collections 2023, Nuclear Threat Initiative 2023, UNODA Treaties Database 2023

ces a state's likelihood of victory in crises (Kroenig, 2013). The Chinese ambition of integrating Taiwan, or its demographic interests in the East and South China Sea, may require expanding and modernizing its nuclear force to a level symmetrical to that of its prime challenger, the USA (Tellis, 2022).

Notably, there is a lack of transparency in sharing any official information about its current nuclear capabilities (Cunningham, 2023). The Stockholm International Peace Research Institute (SIPRI) estimated that China possesses a stockpile of 410 nuclear warheads, marking an increase of 60 warheads from the prior year. Allocated to land and sea-based ballistic missiles, along with nuclear-ready aircraft, these warheads serve as a testament to China's advancing nuclear capabilities. While projections suggest that China's inventory of ICBMs might exceed that of either Russia or the USA in the forthcoming decade, the aggregate number of nuclear warheads is anticipated to remain lower than that of those nations (Kristensen & Korda, 2022).

Table 2. Estimated Chinese nuclear capabilities, January 2023

¹ CTBT: The Comprehensive Nuclear-Test-Ban Treaty (CTBT); CPPNM: Convention on the Physical Protection of Nuclear Material (CPPNM); IAEA: International Atomic Energy Agency Convention on Nuclear Safety; ICSANT: International Convention for the Suppression of Acts of Nuclear Terrorism; NPT: Treaty on the Non-Proliferation of Nuclear Weapons; Outer Space Treaty: Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies; SACT: Seabed Arms Control Treaty; SEANWFZ: The Southeast Asian Nuclear-Weapon-Free Zone Treaty; TPNW: Treaty on the Prohibition of Nuclear Weapons.

Type/Chinese designation (US designation)	Range (km)	No. of launchers	No. of warheads
Aircraft	3,100	20	20
H-6K (B-6)	3,100	10	10
H-6N (B-6N) H-20 (B-20)	3,100	10	10
H-20 (B-20)			
Land-based missiles	600-13,000	382	318
DF-4 (CSS-3)	5,500	6	
DF-5A (CSS-4 Mod 2)	12,000	6	6
DF-5B (CSS-4 Mod 3)	13,000	12	60
DF-5C (CSS-4 Mod 4)	13,000		
DF-15 (CSS-6)	600		
DF-17 (CSS 22)	>1,800	54	
DF-21A/E (CSS-5 Mod 2/6)	>2,100	24	24
DF-26 (CSS-18)	>3,000	162	54
DF-27(..)	5,000-8,000		
DF-31 (CSS-10 Mod 1)	7,200	6	6
DF-31A/AG (CSS-10 Mod 2)	11,200	84	84
DF-41 (mobile version) (CSS-20)	12,000	28	84
Sea Based Missiles (SLBMs)	>7,000->10,000	6/72	72
JL-2 (CSS-N-14)	>7,000		
JL-3 (CSS-N-20)	>10,000	72	72
Total Stockpile		474	410

Source: SIPRI Yearbook 2022

Additionally, the current pace of Beijing's nuclear weapons expansion indicates it will possess a stockpile of 1500 nuclear warheads by 2035 (Office of the US Secretary of Defense, 2022). In 2021, China pursued constructing three solid-fuelled intercontinental ballistic missile (ICBM) silo fields, which are expected to accommodate at least 300 new ICBM silos, largely DF-31 and DF-41 class ICBMs, for their nuclear force (ibid.). The 2021 DoD report mentioned that the Chinese DF-41 missiles with fixed or mobile ICBM with multiple independently targetable re-entry vehicle (MIRV) capabilities would carry up to three nuclear warheads per missile. Moreover, China is increasing its ground-launched, mid-range DF-26 missile inventory, which can carry both nuclear and conventional warheads to the targets in the western Pacific, the Indian Ocean, and the South China Sea (Acton, 2020). This indicates its strategy to consider not only the mainland of its rival, the US, but also areas closer to the Chinese mainland.

China's regional ambitions and territorial disputes with Japan, Taiwan, and several Southeast Asia countries have a crucial significance of sea-based nuclear forces for its nuclear strategy (Geller, 2022). The Pentagon suspects China started sea deterrence patrols with its six operational Jin-class nuclear-powered submarines, which can carry up to 12 SLBMs. Its anti-access solid/area-denial (A2/AD) capabilities are highly effective within the First Island Chain to the Philippine Sea, and it is trying to go farther to the Pacific Ocean (Karadag, 2022). China is also developing the capability of target detection and identification systems, missile guidance systems, and autonomous weapons systems for air, sea, and ground forces using artificial intelligence; its hypersonic technology has also improved in speed, manoeuvrability, and projections (Bugos & Klare, 2023).

In a statement at the August 2023 Preparatory Committee to the 2026 NPT Review Conference, the Chinese delegation reiterated its commitment to a 'no first use' policy, however, it mentioned upholding strategic balance and stability and promoting nuclear disarmament in a 'rational and

pragmatic manner, while calling the countries with the largest nuclear arsenals to reduce their stockpiles in a significant and substantive manner' (Ministry of Foreign Affairs of the People's Republic of China, 2023). Giving emphasis on strategic balance and stability indicates China's intention of maintaining a symmetrical security order with its regional counterparts, mainly the USA.

According to experts, China's recent modernization of its nuclear force suggests it is transforming from a no-first-use nuclear policy to a strategy of launch-on-warning posture (Holmes, 2020). It appears China is modernizing its deterrence capability by using the United States' capability as a reference point; suggesting its objective to maintain symmetric and mutual deterrence to the US (Cunningham, 2021). As the competition between China and the USA is intensifying day by day, there is a risk of fundamental changes as the Indo-Pacific countries including ASEAN members may seek nuclear deterrence or extended deterrence capabilities.

4.2 Impacts on Southeast Asian security

In the ZOPFAN and SEANWFZ initiatives, the ASEAN countries expressed their intention not to participate in great power rivalry or any regional arms competition. These countries were also strong advocates of non-aligned movements and in maintaining neutrality. Though not codified in international law, this concept of neutrality supports the idea of nations relying on their military strength for deterrence and self-defence. It also requires them not to enter security alliances or establish foreign military bases in their territories (Emmers, 2018). In the past, the primary security concern of ASEAN countries was not the Chinese military expansion but human security threats and domestic disputes. Despite having various national interest priorities, positive economic interdependence and dealing with transnational threats to development were the common issues these countries wanted to deal with together (Kraig, 2023). Nevertheless, the recent series of events concerning China's assertive military posture, rapid nuclear expansion, and the North Korean nuclear program have become a serious security concern for SEA nations.

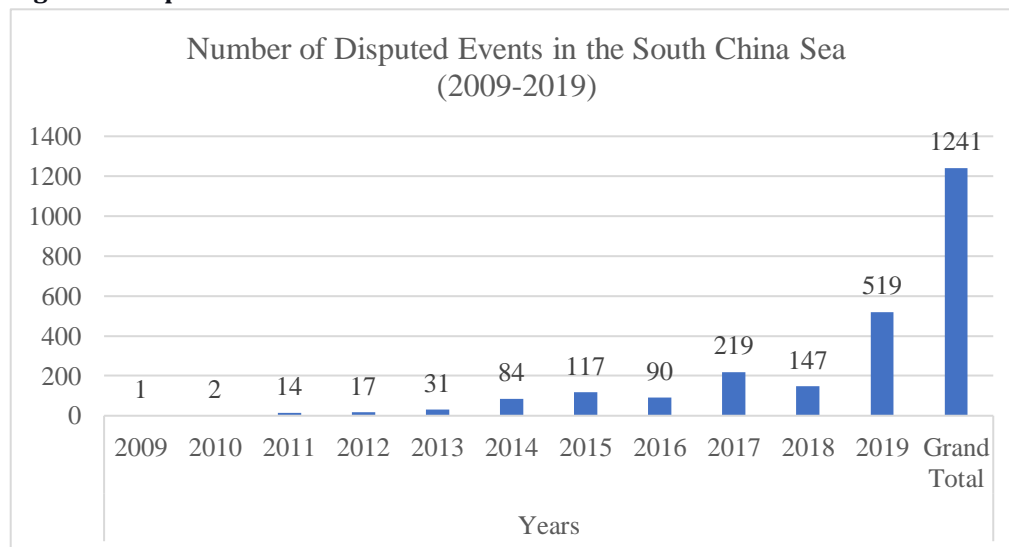
The most significant security concern for Southeast Asian countries concerns the disputed South China Sea. In 2014, China started to build artificial islands in the disputed Spratly Islands in the South China Sea, with ports, military and air bases, and anti-aircraft guns. The Philippines, Vietnam, Brunei Darussalam, Malaysia, and Taiwan are the claimants of these islands. China extended its occupation using salami tactics, which refer to the strategic use of repeated, limited actions (*faits accomplis*) to incrementally gain influence and territory without provoking significant retaliation from adversaries (Maass, 2021).

Amid international pressure, in 2015, Chinese President Xi Jinping gave the assurance that China does not intend to pursue militarization (Page et al., 2015). However, China shortly after rapidly militarized these occupied islands. It built runways and installed aircraft, missiles, military equipment, and other advanced weaponry systems in 27 Paracel and Spratleys Islands outposts without resolving disputes with other claimants (Panda, 2016). The installation of military facilities in this disputed region indicates China's intention to gain control over the archipelago and critical maritime routes. For these claimants, China's behaviour is considered a violation of their sovereignty and territorial integrity.

In 2016, the Philippines brought the matter to the Permanent Court of Arbitration in the Hague, where the ruling went against China. However, China boycotted the tribunal and refused to recognize the verdict. Later, it declared the airspace above the disputed land a defensive air Identification zone and issued a notice that aircraft flying through would need Chinese permission. If China establishes its claims on the Spratly Islands, it can extend its EZ up to 200 nautical miles

and claim more territories of the South China Sea, which puts the territorial integrity of adjacent nations, in particular Brunei, Malaysia, Philippines, Taiwan and Vietnam, in danger.

Figure 1: Disputed events in the South China Sea



Source: *South China Sea Data Initiative 2022 (Sexton et al., 2022)*

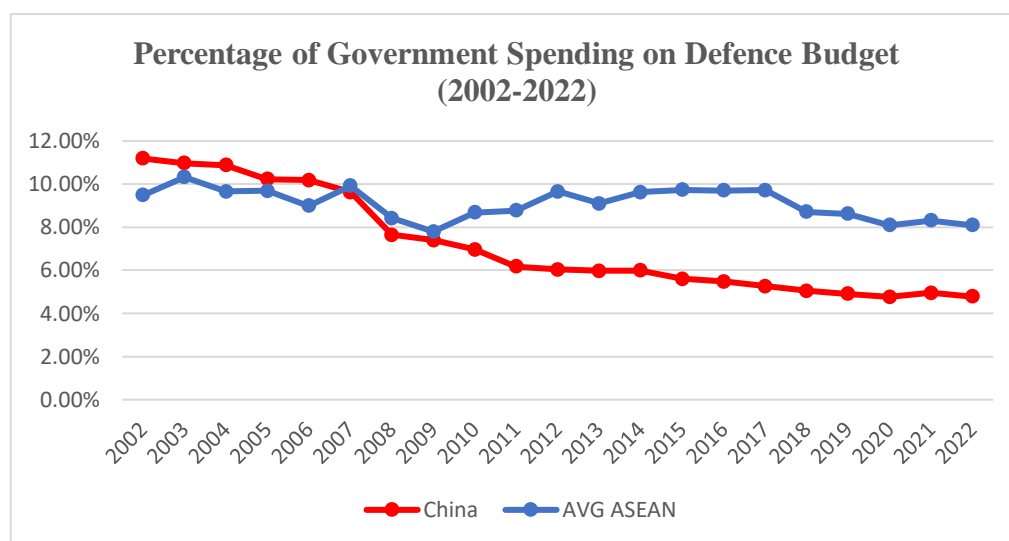
The number of confrontations or accusations of territorial violation in the South China Sea, both intentionally and unintentionally, have increased in the last few years (Sexton et al., 2022). In the majority of cases, Chinese warships were involved in incidents of violating territorial waters and illegal movement. In 2011, ASEAN countries and China reached preliminary guidelines for the Declaration of Conduct (DoC) in the South China Sea to resolve disputes (ASEAN, 2011). They actively pursued a Code of Conduct (CoC) in the region, which, among other stipulations, prohibited building on unoccupied reefs. Despite these efforts, unexpected land formations at the northern Spratleys' coral reefs have disturbed regional stability. The South China Sea holds immense strategic value, with substantial oil and natural gas reserves and facilitating one-third of global shipping, valued at \$3.37 trillion (China Power, 2017). China's assertive moves, driven by its vast export interests and global ambitions, have intensified territorial disputes and exacerbated US-China tensions. Furthermore, China's augmented patrolling by Type 094 SSBNs and nuclear enhancements in the South China Sea reflect its strategic intent against US interests, and the deployment of JL-3 missiles underscores a regional 'bastion strategy' (Honrada, 2023).

Southeast Asian nations have increasingly reflected their defence and security concerns in their official policies, with a particular emphasis on the rising tensions in the South China Sea. Brunei Darussalam's National Defence Strategy underscores the challenges in balancing its ties with superpowers, the US and China, amidst rising regional tensions across various domains (Ministry of Defence of Brunei Darussalam, 2021). Cambodia, in its defence white paper, emphasizes its commitment to regional peace, highlighting the emerging confrontations stemming from superpower alliances (Ministry of National Defence - Kingdom of Cambodia, 2022). Malaysia underscores the strategic significance of secure sea and air lanes, especially between Peninsular Malaysia and Sabah and Sarawak. Simultaneously, it acknowledges China's pivotal role in Southeast Asia, advocating for diplomatic solutions in territorial disputes, notably around the Spratly Islands (Prime Minister's Office of Malaysia, 2020). Meanwhile, Thailand's National Security Policy underlines the threats posed by nuclear proliferation, the regional tug-of-war between the US and China, and maritime challenges stemming from territorial disputes and broader geopolitical concerns (Office of the National Security Council of Thailand, 2019).

The Philippines, in its National Defense Strategy Plan, explicitly denotes China's military activities in the South China Sea as a significant defence concern. It emphasizes regional territorial disputes, especially with China's creation of artificial islands challenging the Philippines' sovereignty, despite the 2016 Arbitration award favouring the Philippines' rights over the West Philippine Sea (Department of National Defense of the Philippines, 2018). Vietnam's National Defence Policy from 2009 to 2019 has seen an evolved stance, initially emphasizing peaceful resolutions to territorial disputes in the East Sea and championing global peace (Ministry of National Defence of Vietnam, 2009). By 2019, Vietnam explicitly cited the need for collaboration with China on maritime boundary issues (Ministry of National Defence of Vietnam, 2019). Both the Philippines and Vietnam, facing territorial disputes with China, have integrated more direct references to China in their defence policies.

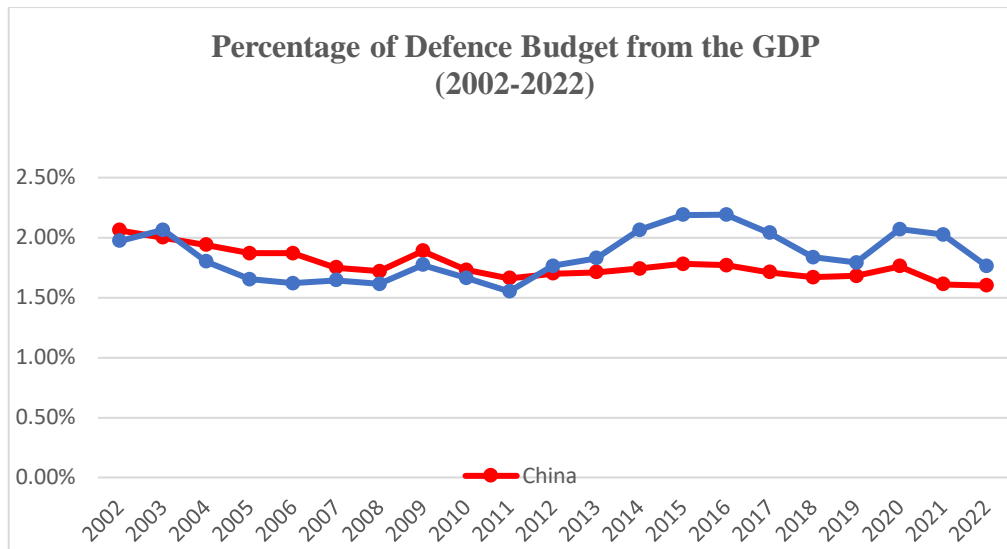
In 2022, China's military expenditure ranked second globally, accounting for 13% of the total global defence spending (SIPRI 2022). Despite China's vast economy dwarfing that of individual Southeast Asian countries, several ASEAN nations, including the Philippines, Indonesia, Vietnam, Singapore, and Thailand, have augmented their defence capabilities amid growing regional security concerns. Comparing percentages of GDP and government spending on defence provides insight into disparities given the varied economic sizes within Southeast Asia. ASEAN's collective defence expenditure has been consistently higher relative to China.

Figure 2: Government spending on defence



Source: SIPRI, 2023.

Figure 3: Percentage of defence budget



Source: SIPRI, 2023.

5. Limits of the nuclear-weapon-free zone

5.1 Hegemonic rivalry

NWFZs aim to enhance regional security, taper off tensions among the nations, and promote dialogue for dispute resolutions (Mendenhall, 2020). Establishing NWFZ can be an effective approach to arms control in a region. Such mechanisms and agreements can decrease the chance of war and technical misunderstandings (Kahn, 1960). Herman Kahn argues that establishing nuclear-free zones should be a part of the long-term anti-nuclear policy. It will prevent countries from arousing ambitions to change the status quo through nuclear proliferation and conflict escalation (Kahn, 1966). Confidence building among states is important to make the arms control mechanism successful. Strong multilateral political institutions in a region facilitate this effort where states can trust each other in committing themselves to disarmament and arms control agreements (Nemov, 2011).

Nuclear irrelevance theory is appropriate for analysing the security relationship between China and ASEAN countries. According to this perspective, nuclear weapons are not as crucial in maintaining deterrence stability as they are often believed to be (Muller, 1988). In a dispute between nuclear and non-nuclear dyads, obtaining nuclear weapons has little leverage against non-nuclear weapon states. Also, having nuclear weapons does not bring any advantage for a nuclear weapon state in confrontation with a non-nuclear state (Geller, 2017). Using nuclear weapons against a non-nuclear opponent might increase the risk of nuclear proliferation and create international criticism, which nuclear states seek to avoid (Huth, 1988). And there is no precedent of NWS providing extended deterrence to NNWS in the form of extended deterrence commitments so far. Accordingly, the strength of conventional military power is the decisive factor in the outcome of a conflict in asymmetric dyads (Geller, 2017). From the security balance perspective then, the limited Chinese nuclear stockpile with no-first-use policy has never been a concern for regional security instability in Southeast Asia, leading to the adoption of the SEANWFZ Treaty.

However, recent technological advancements and shifting international politics have complicated understanding nuclear deterrence concepts in the modern age. Advanced missile defence systems challenge the traditional concept of mutually assured destruction (MAD) and second-strike

capability (Harvey, 2003). Recent nonstrategic nuclear weapons capabilities and their impact on nuclear stability make the countries reconsider the strategic stability management for nuclear and non-nuclear threats (Futter & Zala, 2021). While some theorists, like Kenneth Waltz, contend that nuclear proliferation can bolster international stability due to the devastating repercussions of nuclear warfare, as evidenced by the restrained superpower confrontations during the Cold War, others argue that this Cold War restraint may not apply to developing nations with smaller nuclear arsenals (Geller, 2003).

The evolving global political landscape and the intensifying hegemonic rivalry between the USA and China for nuclear parity and dominance threaten this non-proliferation framework. The SEANWFZ treaty stands as a pivotal tool in the anti-nuclear movement within the Indo-Pacific. Yet, the shifting geopolitical tensions heighten the potential for regional divides among ASEAN nations as they strive to safeguard their national sovereignty.

According to different theoretical frameworks in international relations, the escalating scenario of Sino-American relations suggests a heightened risk of major war. From the lens of Organski's Power Transition theory (Organski & Kugler, 1980), if China's rise challenges US supremacy, it will intensify tensions and could naturally escalate, potentially leading to confrontation. Gilpin's Hegemonic Decline Theory parallels this view by suggesting that the dominant power's waning influence signals an unstable period of rivalry and discord (Gilpin, 1981). The Long Cycle Theory further supports this possibility, indicating a shift toward a multipolar world order that could disrupt existing alliances and power balances (Modelski, 1987). Collectively, these theories underscore the potential for a significant geopolitical shift, with the growing possibility of a US-China conflict that could profoundly destabilize the international system. If a major war spills over between the US and China, the Southeast Asian region will be affected directly, and its regional security structure will be in a more precarious state.

5.2 The AUKUS effect

Amidst rising tension between China and the USA in the Indo-Pacific region, the AUKUS agreement deepened the regional competition. This trilateral agreement between Australia, the UK, and the US aims to bolster defence capabilities, notably through the provision of nuclear-powered submarines to Australia. While equipping Australia with such submarines and potential access to Highly Enriched Uranium (HEU) does not violate the NPT, it raises ASEAN's non-proliferation concerns, given these submarines' proximity to Southeast Asian waters (Supriyanto, 2022). Indeed, this deal reveals a loophole in IAEA guidelines, suggesting that states could exploit HEU access for rapid nuclear weapon development (Acton, 2021).

Surprisingly, there are mixed reactions from Southeast Asian countries. While Indonesia and Malaysia criticize AUKUS for its prospect of a nuclear arms race in the region, Vietnam, and the Philippines welcome this defence agreement, and the rest of the ASEAN countries either support or avoid opposing publicly due to the broader concerns about the Chinese assertive military posture in the region (Grossman, 2023). This suggests fragmentation of opinions of SEANWFZ treaty parties to a security pact that has the potential of nuclear proliferation in the Indo-Pacific region. China condemned the AUKUS agreement and claimed it further worsens the regional arms race (BBC News, 2021). In its aftermath, and in a reversal of longstanding policy, China showed formal support for the SEANWFZ protocol, with President Xi Jinping expressing readiness to sign 'as early as possible' (Siow, 2023). With China rapidly modernizing its nuclear arsenal, there is doubt cast on China's intention, as to whether it is just a countermove against the US and its allies (Hoang Thi, 2023).

6. Implications for the Security Balance in Southeast Asia

Recent shifts in China's nuclear approach pose increased risks for regional security (Hiim et. al, 2023). Compounding these challenges are heightened tensions in the Taiwan Straits, the establishment of the AUKUS pact, assertive moves in the South China Sea by Chinese defence forces, and the growing China-US rivalry. Such dynamics place ASEAN nations in a difficult position to maintain neutrality and uphold the SEANWFZ treaty. In addition, the AUKUS arrangement positions Southeast Asia as a potential flashpoint between China and the US-aligned bloc geographically. While countries like the Philippines, Thailand, and Singapore maintain security agreements with the US, other nations do not have any robust security ties with the US. The opacity surrounding China's military and nuclear advancements, coupled with US countermeasures, places added strain on Southeast Asian nations, potentially destabilizing the region.

However, to maintain a robust security structure and stability in the region, ASEAN members need to strengthen their partnership with both China and the USA to absorb the heat of hegemonic rivalry. One of the strategies these small states can take is to adopt a 'goldilocks' approach by combining strong deterrence and progressive engagement to balance China's dominance in the region (Heydarian, 2020). Also, a multilateral "containment" strategy where ASEAN, with other regional countries, can collectively use economic, diplomatic, and security countermeasures to maintain a balance. Lastly, like-minded powers can collectively safeguard a free and open Indo-Pacific by conveying to China that the international community will defend its interests through incentives for positive behaviour, deterrence against negative actions, and appropriate consequences when deterrence fails (Heydarian, 2021).

In a 2023 ASEAN-China joint statement on the 20th Anniversary Of China's Accession to the Treaty of Amity and Cooperation in Southeast Asia, both parties reaffirmed the principles outlined in key international agreements such as the Charter of the United Nations, the ASEAN Charter, and other pivotal documents rooted in universally recognized principles of international law (ASEAN-China Joint Statement, 2023). Southeast Asian countries have to ensure that China keeps its commitment through establishing trust and partnership. At the same time, ASEAN also needs to strengthen security ties with the US in a defensive manner which does not provoke tension in the region but maintains a security balance against the growing Chinese military strength. Efficiently maintaining such balance will guide the superpowers to prioritize maintaining the nuclear free status quo in Southeast Asia.

The 30th meeting of the ASEAN Regional Forum (ARF) emphasized the commitment to regionalism, multilateralism, and core international principles. There was a notable emphasis on concerns about global commitments to non-proliferation, disarmament, and the need for Nuclear Weapon States to honour their obligations. Additionally, the importance of maintaining peace and security in the South China Sea was stressed, with a push for peaceful dispute resolution, adherence to international law, especially the 1982 UNCLOS, and progress in the Code of Conduct in the South China Sea (COC) negotiations. The Meeting recognized the significance of trust-building, maritime cooperation, and ensuring that the South China Sea remains a region of peace, stability, and prosperity. The ASEAN members need to include both China and the USA in diplomatic efforts and encourage open communication to lessen regional tension. During the Cuban Missile Crisis, the Kennedy administration followed the strategy of open communication, the pursuit of creative, mutually beneficial solutions, and the courage to take risks for peace (Allison, 2012). These approaches can be some viable options, though cooperation from all the parties is essential in this process.

Meanwhile, the United States can prioritize strengthening the defence capabilities of its regional allies to address transnational threats and counterbalance Chinese expansion. It includes enhancing partner nations' defence capacities, establishing base agreements for hosting expeditionary forces, improving disaster response infrastructure and capabilities, equipping allies for better forward defence positions, and encouraging Beijing to adopt a more risk-averse approach (Chalk 2023). US diplomacy should also strategize navigating complex bilateral relations and disputes and identify mutually beneficial opportunities for Southeast Asian states to compete with China (Kraig, 2023).

In 2014, the US and the Philippines signed the Enhanced Defense Cooperation Agreement (EDCA), which gives the US access to five military bases in the Philippines where it can build military facilities and move its troops, expanding to four more bases in February 2023 (Lema, 2023). The US also has security agreements with Singapore and Malaysia and has bolstered its defence and security ties to Vietnam. Strengthening these security instruments will be vital for ASEAN states in a threat of security instability. To achieve a peaceful South China Sea, ensuring the implementation of UNCLOS that takes into account the interests of all stakeholders beyond ASEAN and China is necessary. It requires sincere dialogue among claimants and bilateral discussions between ASEAN and China on a CoC.

At the Boao Forum for Asia annual conference in April 2022, Chinese President Xi Jinping unveiled the Global Security Initiative (GSI), rooted in "six fundamental commitments." These pledges advocate for a holistic, cooperative, and enduring security framework; reinforce the sovereignty and territorial integrity of all countries; and underscore commitment to the guiding views of the UN Charter. In essence, the GSI highlights the imperative to genuinely consider every nation's security apprehension, endorses the amicable resolution of international disputes via dialogue, and promotes stability in both conventional and emergent security dimensions. To build trust in China's GSI, Southeast Asian countries must put diplomatic efforts on China to address South China Sea disputes constructively, demand transparency in its security strategy and supports the SEANWFZ treaty's goals, particularly regarding nuclear non-proliferation and disarmament.

7. Conclusion

The SEANWFZ treaty has been a remarkable tool since 1997. Besides prohibiting nuclear weapons in Southeast Asia, the ASEAN nations have consistently championed nuclear disarmament in global forums and upheld international disarmament treaties. They have regularly been vocal to nuclear weapon states to honour their commitments, especially under the NPT, emphasizing the goal of a nuclear-free world and the importance of comprehensive cooperation in nuclear non-proliferation and disarmament. However, China's ambiguous nuclear policy, modernization program, territorial disputes with its Southeast Asian neighbours, and coercive military approach toward them have created a situation of security dilemma in the region.

Regional stability is persistently tested by China's overarching territorial ambitions, notably its claims over the Spratly Islands and vast expanses of the South China Sea. It, coupled with the simmering tensions regarding Taiwan between China and the US, makes regional security more unsettling. China's recent announcement of supporting the SEANWFZ protocol might be seen as a success. Still, the lack of transparency in China's nuclear program raises concerns about its commitment to the treaty. China has also yet to resolve the territorial disputes with its neighbours and lessen the assertive military behaviour in the South China Sea. A protocol endorsement will be inconsequential for ASEAN states if China does not reduce the regional arms race.

Southeast Asia has important strategic value for the global economy and security and has long been vulnerable to superpower influences. Still, despite security challenges, ASEAN has become one of the world's strongest, most effective, and most resilient regional organizations. The SEANWFZ treaty stands as an effective measure of its commitment to preventing nuclear proliferation in the region. But as security paradigms shift, precipitated by China's military and security strategy and the burgeoning superpower contest between the US and China, ASEAN faces a serious challenge to maintain regional stability and a nuclear-weapon-free Southeast Asia.

The silver lining, however, lies in ASEAN's potential role as a diplomatic bridge. The consortium can use diplomatic channels, dialogues, and medication to de-escalate the Sino-US rivalries. It can reduce burgeoning security tensions by maintaining a power balance and ensuring that the SEANWFZ treaty remains functional and effective. The primary approach should be to strengthen the partnership with both the US and China and work as a mediator between these two superpowers. Meanwhile, these SEA countries can utilize a 'goldilocks' strategy and collective 'constrained' to maintain a security balance in the region so that the expected utility of conflict looks unaffordable for China. Amidst this geopolitical whirlwind, it is crucial for ASEAN to maintain the status quo in the context of the SEANWFZ treaty despite rising tensions to secure the region for a future of stability and non-proliferation.

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III. PROCESSES AND MECHANISMS

9. Irreversibility in a World of Unresolvable Uncertainty: The Role of Trust and Confidence

ALICE SPILMAN

Abstract

How can the concept of irreversible nuclear disarmament (IND) be reconciled with the existential condition of unresolvable uncertainty? This paper argues that sustaining disarmament is about managing uncertainty over others' current and future intentions concerning (re)armament. As uncertainty is experienced in the mind, the psychological strategies of trust and confidence, as ways of managing uncertainty, may be particularly useful in helping progress towards irreversible nuclear disarmament. The purpose of this paper is to bring the trust and confidence literature into conversation with the work on IND to further develop the concept. In doing so, the paper clarifies the difference between trust and confidence and highlights why recognising this difference is important. While neither trust nor confidence can resolve the uncertainty issue inherent in disarmament, both strategies present a way in theory to mitigate the anxiety caused by this uncertainty.

1. Introduction

Uncertainty is a permanent feature of human life. At the individual and international level, 'the problem of the other mind' and the shadow of the future mean that certainty about the future is impossible (Booth and Wheeler, 2008: 4). While unavoidable, uncertainty creates a significant problem when it comes to nuclear disarmament; how is State A to feel comfortable disarming if they can't be sure that State B will also disarm, and remain unarmed in the future?

Motivated by this challenge, scholars and practitioners have developed an interest in the concept of 'irreversibility' and how it might be applied to nuclear disarmament (Cliff et al, 2011; Anthony, 2011). Acknowledging that irreversibility in this context is a misnomer (because the technical knowledge to build nuclear weapons will remain in reach of humankind), scholars and practitioners have generally come to the conclusion that nuclear disarmament is 'irreversible' when the costs and difficulty of reversal are high. The focus then is on developing a set of measures and/or steps which increase the difficulty of rearmament. These measures are often conceived of along technical, legal, political and societal lines.

The concept of IND, however, remains relatively underexplored and one significant omission to the literature is an exploration of how other strategies for managing uncertainty could be useful in understanding how to make nuclear disarmament 'irreversible'. This paper argues that sustaining disarmament, which is what is really meant by irreversible nuclear disarmament (IND), is all about managing uncertainty over others' current and future intentions concerning (re)armament. As uncertainty is experienced in the mind, the psychological strategies of trust and confidence, as ways of managing uncertainty, may be particularly useful in helping progress towards irreversible nuclear disarmament. The purpose of this paper, therefore, is to bring the trust and confidence literature into conversation with the work on IND to further develop the concept. In making this argument, this paper also highlights the inherent subjectivity in judgements concerning how 'irreversible' nuclear disarmament is, showing how important perception is in international relations and encouraging scholars to avoid the idea that they can derive objective conclusions regarding irreversibility from subjective data.

Before continuing, it is useful to clarify that this paper treats the idea of irreversible nuclear disarmament as a *global* endeavour towards achieving and *sustaining* a disarmed world, but there are other levels and contexts in which other authors might discuss irreversible nuclear disarmament. For example, at the national level, irreversible nuclear disarmament could concern dismantlement of a state's nuclear program, whilst at the international level, irreversible nuclear disarmament could be discussed in relation to arms control treaties and reductions in a dyadic relationship. Part of the complexity when it comes to discussing irreversible nuclear disarmament is that the referent object and level of analysis are not always made clear.

Moreover, scholars have previously noted a difference between ensuring disarmament has taken place 'irreversibly' in the technical sense, and efforts to sustain a disarmed world once disarmament has been achieved (Cliff et al, 2011: 11). The former refers to the process of disarmament which follows a number of steps, including dismantlement and renunciation of weapons. Verification, defined as 'the process of gathering and analysing information to make a judgement about parties' compliance or non-compliance with an agreement' (UNIDIR and VERTIC, 2003:1) is a particularly useful tool used to assure others that disarmament has taken place as described and in an irreversible manner. Sustaining disarmament, on the other hand, is a much broader forward-looking practice, one which is difficult to verify because it involves more than a technical process of dismantlement. The practice of sustaining disarmament includes a much larger set of more and less well-defined activities that contribute towards the shared goal of maintaining a disarmed world. It is in this practice of sustaining disarmament that the legal, political, and societal dimensions are particularly important. Verification still plays an important role in sustaining disarmament, but verification alone cannot mitigate concerns regarding other's intentions and future uncertainty.

The rest of the paper proceeds in two parts. Part one briefly examines the existing literature on irreversible nuclear disarmament and from that develops a revised conception of irreversible nuclear disarmament for use in this paper, which highlights the relational and subjective elements of irreversibility. Part two then moves to examine strategies for managing uncertainty, with a focus on trust and confidence. The differences between trust and confidence, two often conflated terms, is explained before a discussion on how the two strategies apply to the concept of irreversibility in relation to nuclear disarmament. The paper concludes with a set of recommendations for taking forward the framing proposed.

2. Understanding irreversible nuclear disarmament

2.1 The state of thinking

The language of irreversibility first entered the Nuclear Non-Proliferation Treaty (NPT) lexicon in 2000 as part of the 13 Practical Steps towards nuclear disarmament as outlined in the final document of the Review Conference (NPT/CONF.2000/28). Step five commits states to 'The principle of irreversibility to apply to nuclear disarmament, nuclear and other related arms control and reduction measures' (ibid.). No definition of irreversibility is provided, but supporting working papers suggest that the purpose of step five was to help ensure progress toward nuclear arms control and disarmament, in any form, would never be undone (NPT/CONF.2000/MC1/SB1/WP.2). Despite step five, the rest of the final document links irreversibility quite narrowly to

materials, suggesting ‘verification, management and disposition of fissile material declared excess to military purposes’ as disarmament measures contributing to irreversibility (ibid.).¹

In more recent years, however, academics and practitioners have returned to the broader application of irreversibility and have explored the possible definitions and dimensions of irreversible nuclear disarmament in political, legal, and social, as well as technical terms (Cliff et al, 2011; Anthony, 2011; NTI, 2014; Williams and Link, 2023; Arguello, 2023; Spilman, 2023). More work has also been done on examining the history of irreversibility (Ogilvie-White, 2023) and how international relations theories can offer different approaches to disarmament (Davis Gibbons, 2023). While there is no one definition of irreversible nuclear disarmament used by these authors, there are a handful of core characteristics of the principle of irreversibility on which they agree.

Firstly, irreversibility (as per the dictionary definition) in relation to nuclear disarmament is a misnomer. It is difficult to conceive of a world in which disarmament could not be undone, largely because the technological know-how to build nuclear weapons will persist for generations (Cliff et al, 2011: 11). Therefore, disarmament can be considered ‘irreversible’ when ‘costs and difficulty of reversal’ are high.² Secondly, and relatedly, irreversible nuclear disarmament is not binary. There is no end state for an irreversibly disarmed world; making disarmament irreversible ‘is a continuous and iterative effort’ (Spilman, 2023: 20). Therefore, irreversibility is better viewed as a spectrum with varying degrees of irreversibility (Cliff et al, 2011). The more measures in place that increase the costs of rearmament and incentivise restraint, the higher the degree of irreversibility (Spilman, 2023: 20). Thirdly, there is consensus that technical, legal, and political measures will all be important to sustain disarmament in such a way that it may be deemed irreversible. Others also emphasise the importance of social and/or cultural measures or change to sustain disarmament,³ but this is less widely accepted.⁴

2.2 Revised understanding of irreversible nuclear disarmament

This general conception of irreversibility, although agreeable, lacks recognition of the relational aspect of irreversibility and gives a false sense that the status of irreversible nuclear disarmament can be judged objectively. The literature summarised above asks what can be done to make nuclear disarmament more irreversible but does not consider according to whom it is irreversible. Just as verification is designed to give assurances of compliance to an involved party, judgements of irreversibility are also relational and thus require an ‘interested party’. This interested party, however, cannot objectively determine the status of irreversible nuclear disarmament when irreversible nuclear disarmament is viewed as a global endeavour towards sustained disarmament. They can only form a perception of the status based on interpretation of the measures designed to sustain disarmament and the available information. Perceptions of others’ commitments, compliance and intentions will always be subjective. They are shaped by identity, history and a number of cognitive biases (Rousseau, 2006; Holsti, 1967; Jervis, 1976).

For example, political commitments to sustained disarmament will be perceived differently by different actors depending on their relationship to the actor making the commitment and the

¹ Similar statements concerning irreversibility were repeated in the 2010 Review Conference final document (NPT/CONF.2010/50) and again in the 2022 draft final document (NPT/CONF.2020/CRP.1/Rev.2).

² Spilman, 2023 suggested expanding this definition to also include incentives for restraint as well as costs into an understanding of what makes disarmament irreversible.

³ Societal factors could include ‘the decoupling of weapons and great power status, decoupling of weapons and national identity, and development of domestic or international norms condemning ‘hostage holding’ through nuclear deterrence, all of which would serve to make national possession of nuclear weapons less popular.’ (Spilman, 2023: 21).

⁴ For example, the United States Bureau for Arms Control, Verification and Compliance (AVC) recently issued a call for proposals in which irreversible nuclear disarmament was a topic for consideration. The measures the AVC listed included technical, legal, and policy related, but did not include societal.

assimilation of information to pre-existing beliefs. Of course, certain technical measures are more objectively verifiable than political measures, such as the dismantling of warheads and ceasing fissile material production for weapons, but as has been previously argued, sustaining global disarmament requires more than technical measures (Anthony, 2011; Spilman, 2023).

Based on these reflections, this paper suggests that irreversibility in relation to nuclear disarmament can be broadly conceived of as a set of measures, steps, and/or conditions which decrease the likelihood that a state will rearm, and/or contribute to the perception (of an interested party) thereof. This conception highlights that the status of 'irreversibility' must be judged by some entity (it is relational), and that these judgments will often be subjective (based on perception).⁵

What underpins this conceptualisation of irreversible nuclear disarmament is the inherent uncertainty in sustaining disarmament. Imagining we have achieved global disarmament; how do we ensure states will not (re)arm themselves in the future? With no global power capable of enforcing compliance there can be no certainty. The challenge of irreversible nuclear disarmament is that it combines the problem of the 'other minds' and future uncertainty which makes it particularly complex (Booth and Wheeler, 2008: 4, 40-41). However, there are strategies for managing uncertainty within international relations that may be useful. The following section will explore these.

3. Approaches to managing uncertainty in international relations

This paper assumes that international actors and the relationships they seek to manage will continually be under pressure from uncertainty generated both by the state of anarchy and the condition of being human (Keating and Ruzicka, 2014, p.760). The Collins Dictionary describes something as uncertain if it is 'not known or definite' (Collins, n.d.). While uncertainty is pervasive, there must always be a referent point for this uncertainty towards which anxiety is felt. Capelos, Cervasio and Wheeler (2019) refer to this as the uncertainty object '(which could be an event, a collective or an individual)'. In the international sphere, an actor can have uncertainty over another's capabilities, another's intentions, another's perceptions and interpretations, and in particular, the future. In this case the uncertainty object is the 'irreversibility' of disarmament; that is, uncertainty over others' intentions to sustain disarmament, or to rearm, now and in the future. This section will briefly outline how IR theory deals with uncertainty and introduce often-overlooked psychological strategies for managing uncertainty.

3.1 International Relations theory approaches

The concept of uncertainty is pervasive in the study of international relations (IR), acting as a 'micro-foundation' in all strands of IR theory (Rathbun, 2007). As Rathbun examines, these strands of IR theory each assign a slightly different meaning to the concept of uncertainty, and thus each prioritise different strategies for managing this existential condition of uncertainty.

For realists, uncertainty materialises as 'fear induced by anarchy and the possibility of predation' (Rathbun, 2007: 533). Based on the Hobbesian view of the state of nature, state leaders are tasked with ensuring the survival of their nation state within an 'a brutal arena' of self-help 'where states look for opportunities to take advantage of each other' (Mearscheimer, 1994-1995). Realists, therefore, propose managing the condition of uncertainty with the accumulation of power and the establishment of military alliances (Rathbun, 2007: 538).

⁵ Thank you to Wilfred Wan for helping me to pull out the relational element in this definition.

Depending on available resources, state leaders may pursue strategies of superiority, or may engage in various forms of hedging. Nuclear weapon possession is an example of hedging against uncertainty (Mills, 2019).

Theories of liberalism (of which there are many variants) broadly share the view of realists that the international system is anarchic, but unlike realists do not equate uncertainty with fear and reject the power politics of the realist perspective (Bloor, 2022). For liberals, uncertainty is not a driver of conflict, but can still be mitigated through international institutions, a move towards collective security and economic interdependence.

Constructivists, on the other hand, conceive of uncertainty as 'the indeterminacy of a largely socially constructed world that lacks meaning without norms and identities.' (Rathbun, 2007: 533). As such, they focus on the development of 'shared norms, understandings and identities' (ibid: 550) under the assumption that 'common knowledge' reduces uncertainties.

3.2 Psychological approaches

Often ignored in the security space are the psychological strategies for dealing with uncertainty. Trust, confidence, faith, and hope are all psychological strategies employed by humans to manage uncertainty (Capelos et al, 2019). The concepts of faith and hope contribute little to developing understandings of how to sustain disarmament. Governments, despite being constituted of people, have little room for faith. Trust and confidence, however, both deal with the issue of future behaviour that arises out of uncertainty, both can facilitate cooperation, and both are commonly used in the diplomatic lexicon (Earle and Siegrist, 2006: 386). The words trust and confidence are banded about in diplomacy with very little prescriptive quality and frequently used synonymously. To use them synonymously, however, underestimates the complex nature of trust and 'removes the ideational nature of trust that might make it a distinct social phenomenon' (Keating and Ruzicka, 2014: 757). Moreover, to confuse the terms also creates confusion as to the conditions necessary to build trust, or to build confidence at the international level.

Understanding the differences between trust and confidence is particularly important in this case because they present two distinct strategies that may help to deal with the uncertainty problem embedded in the concept of irreversible nuclear disarmament. The following sections are devoted to unpacking the concepts of trust and confidence, their differences, and how they relate to irreversible nuclear disarmament.

3.3 Confidence and trust

This paper understands confidence as a calculation based on an actor's perception of the other's intentions and the predictability that the other will behave as expected. This rational decision is made based on prior knowledge, information, and experience of the other. Confidence arises under conditions of uncertainty, but actors looking to build confidence will seek out as much information as possible, relying on their interpretation of the information to determine what risks to take, not on their relationship with the other. Relations of confidence are more likely to occur when states are 'constrained' by international structures, institutions, and legally binding instruments. Under these conditions, states are more likely to cooperate because the risks of defection are higher, and therefore an actor is likely to have more confidence in them.

Trust, on the other hand, is understood as a psychological state whereby a reciprocal positive relational attachment mitigates anxiety caused by uncertainty. Trust goes beyond the rational calculations of confidence and incorporates a social bond. The highest form of trust can come about when an actor replaces the desire for more information with a positive relationship with another

actor, where a personal bond and belief in shared interests or identity replace the need for rational calculations of risk. This is sometimes referred to as ‘trust as suspension’ (Möllering, 2006). However, this level of trust understood as the ‘transformation of identities and interests between two actors’ is rare and difficult to build, so much so that Möllering described it as fiction (Wheeler, 2018: 8-9). Positive relational attachment does not always lead to trust as suspension. Scholars, therefore, have suggested that, in practice, the type of trust that can develop between state leaders depends on both a mix of calculation and affect/bonding (Wheeler, 2018: 8-9). In such a relationship, uncertainty and anxiety remain over a certain object, behaviour, or eventuality, but the feeling of safety created from the positive relational attachment balances that anxiety.

These definitions draw on a number of distinctions made between trust and confidence by sociologists and psychologists. Sociologist Niklas Luhmann was one of the earliest to make an explicit distinction between trust and confidence. In 1988 he claimed that the lack of theoretical development of trust is likely to have caused scholars to confuse issues of trust with other concepts such as hope, familiarity and confidence (Luhmann, 1988: 94-95). Luhmann’s distinction is based on perception and attribution. He wrote:

‘if you do not consider alternatives (every morning you leave the house without a weapon!), you are in a situation of confidence. If you choose one action in preference to others in spite of the possibility of being disappointed by the action of others, you define the situation as one of trust’ (ibid: 97).

As such, a situation of trust is distinguished from a rational calculation because the costs, or potential damages one faces may outweigh the advantage one seeks (p.98). Luhmann was not suggesting that trust and rationality are mutually exclusive, but that in a trusting relationship, rational calculations are not required. Because the choice you make may result in greater harm to one’s interests, it is a decision one may come to regret if that trust is misplaced, a feeling not applied to a situation of confidence. Trust, therefore, is inherently tied up with risk.

The issue of agency is also raised by psychologists Earle and Siegrist (2006; see also Earle, Siegrist and Gutscher, 2002) who suggest that it is the ‘contrast between agency and objectivity’ that distinguishes between trust and confidence. Whilst both trust and confidence support cooperation, trust is defined as ‘the willingness to make oneself vulnerable to another based on a judgement of similarity of intentions or values’. Confidence on the other hand is defined ‘as the belief, based on experience or evidence, that certain future events will occur as expected’ (Earle and Siegrist, 2006: 386). Confidence, therefore, like Kydd’s (2007) rational choice ‘trust-as-confidence’ is based on predictability of certain behaviours; it possesses a performance criterion, whereas trust does not. Trust gives the other freedom of action, whereby the trustor believes the other will act based on shared values and an interest in the trustor’s interests. Trust therefore is a relation between two agents (taken to be individuals, institutions, states) where emotions are central (Earle, Siegrist and Gutscher, 2002: 7-8). As Capelos et al note ‘an individual who decides to trust has high levels of agency, in contrast to an individual who feels confident, who is passive.

Moreover, trust decisions are guided by affect, whilst confidence by rules and norms (Earle, Siegrist and Gutscher, 2002: 8-9). This is emphasised by Capelos et al who define trust as ‘an affective ambivalent psychological state that blends anxiety about the motive inconsistent uncertainty object with the positive feelings towards the motive consistent trust object experienced through a process of relational attachment.’ (2019: 9). Capelos et al make an important distinction between the ‘uncertainty object’ and the ‘trust object’ which is also noted in Earle and Siegrist’s work. The uncertainty object refers to an event, collective or individual, which will henceforth be referred to as the object, over which actors experience anxiety, the trust object

is the other agent with whom one forms a trusting relationship. The trusting relationship, which comes from a positive relational attachment to the other agent, creates an affective ambivalence towards the uncertainty object. This means that the actor can still have anxiety over the uncertainty object, for example over a state's nuclear doctrine about which they know very little, but that trust, i.e. their positive relational attachment, can be used as a substitute for the lack of structures and information (Capelos et al, 2019: 10). This affective ambivalence is not present in states of confidence. A summary of the differences between the two concepts is presented in Table 1.

Table 1. Differences between trust and confidence

Trust	Confidence
Information is not available, trust is used to facilitate cooperation in place of knowledge and information.	Calculation based on experience of the other, information available and structures, institutions and norms which guide behaviour
Freedom of action	Performance criterion
Based on affective information	Based on performance information
Emotions play a central role	Does not involve emotions
Occurs between two agents	Concerns behaviour over a certain object/role/action - is between an agent and an 'object'
High levels of agency	Low levels of agency
Seeks a positive relational attachment; focus is on relationship management	Focus is on risk management and more knowledge

4. How do these concepts apply to irreversibility in nuclear disarmament?

Distinguishing between trust and confidence is not just an exercise in conceptual clarity. As the discussion highlights, the development of trust and the building of confidence have different path dependencies, although they are not mutually exclusive. The biggest difference between trust and confidence, as defined above, is that trust goes beyond a rational calculation. Trust building, therefore, is all about relationship development, longstanding processes of social learning, and movement towards a collective identity. Wheeler (2018) suggests that positive relational attachments required for trust are best built through a process of social bonding developed through face-to-face interaction. Face-to-face interactions allow actors to judge the trustworthiness of another, exercise empathy in the form of security dilemma sensibility, and infer the intentions based on non-verbal aspects such as body language (Holmes, 2018: 6; Wheeler, 2018). According to Wheeler (2018: 292) social bond is developed through a process of humanization and positive identification of shared interests whereby actors note the human factor in the other and come to realise the strength of the interests that bring them together. In such a process enemy images are broken down and actors can develop a personal bond. Face-to-face

interactions also enable actors to distinguish between the trust object (the other) and the uncertainty object that allows them to separate feelings of anxiety and safety (Capelos et al, 2019).

Despite widespread calls for trust building between nuclear weapon states (NWS), it is important to note that trust is not applicable in every situation. If an adversary truly has malign intent, the pursuit of trust would be highly dangerous, and even if an adversary starts without malign intent, intentions are not fixed. Where scholars have argued that trust building is appropriate in seemingly adversarial relationships, is when actors find themselves stuck in an action-reaction spiral (Jervis, 1976; Booth and Wheeler, 2008). In Jervis' spiral model, states without aggressive intent towards each other falsely interpret each other's actions as hostile and, driven by fear and insecurity, continue to act in ways that further drive fear and insecurity in the other (Booth and Wheeler, 2008: 45). In these situations, efforts towards trust building through the exercising of empathy (Booth and Wheeler, 2008: 237), frame breaking conciliatory moves (Osgood, 1970), and/or costly signals (Kydd, 2000: 326) can go some way towards transcending the security paradox.

In the case of sustaining nuclear disarmament, more trusting relationships between the nuclear powers could go a long way in mitigating the future uncertainty problem, but unfortunately, cultivating the level of trust required to truly transcend the uncertainty problem in the context of sustaining disarmament faces a number of challenges.

Firstly, much of this work on trust at the international level focuses on interpersonal trust between state leaders. The trust developed by two individuals is often not shared by officials at all levels or between the publics of two adversarial states. Even if two leaders can develop some level of trust, it does not automatically trickle down and transform state relations. This is known as the aggregate problem (Justwan, Bakker and Berejikian, 2018).

Secondly, the multipolarity of the situation is challenging. Research on trust almost exclusively focuses on bilateral relationships, which means we know little about the opportunities for developing true trusting relationships in multilateral settings. For trust to develop between a group such as the nine nuclear-armed states (N9), the disruptive mistrustful relations between all of the dyads would need to be overcome. As has been observed in studies on deterrence in a multipolar world, one move taken in the context of one dyadic relationship can have unintended consequences in another, making this a particularly difficult feat. There are suggestions that irreversible nuclear disarmament could be done sequentially; that is to say, that not all of the N9 need engage initially (the UK-Norway initiative currently only engages with the N5 recognised within the NPT). While in preliminary stages (as now) of discussing what an irreversibly disarmed world would look like, how to get there and how to sustain it, that is not necessarily problematic. However, precisely because of the challenges of multipolarity, as most nuclear powers have more than one nuclear armed adversary, it is difficult to conceive of an environment in which any one state, or two states in a nuclear dyad would give up their nuclear weapons until there is a global commitment to do so.

Thirdly, a trusting relationship doesn't appear out of the blue in an historically distrustful relationship. It takes political will on both sides to begin reducing distrust before there is any hope of building trust which is something that is significantly lacking in the current security environment. This is not to say that trust building efforts are futile. Quite the opposite. Distrust reduction and trust building efforts which encourage the exercise of empathy, and specifically security dilemma sensibility, can significantly contribute to reducing risks of misperception. These efforts, however, are unlikely to lead to transformative trusting relationships which mitigate the anxiety caused by uncertainty.

Confidence, on the other hand, is central to irreversible nuclear disarmament. The principle of irreversibility is quite simple—it is about ensuring disarmament isn't reversed. What is complicated is how to provide sufficient confidence that nuclear disarmament will not be reversed? How can confidence be employed to manage anxiety caused by the uncertainty object?

Practitioners have already linked the language of confidence in irreversibility, but this relationship has not been explored by scholars and think tankers. In one of the earliest uses of irreversibility language within the nuclear weapon space, the United States, in a non-paper sent to Russia in 1994 described irreversibility as follows:

'The measures should build each side's confidence that the nuclear arms reductions being carried out are irreversible, and in particular that fissile materials declared excess to military needs (including civilian weapons-usable material) are not being used to build new nuclear weapons.' (US Department of Energy, 1997).

Moreover, in their 2019 PrepCom report, the United Kingdom stated:

'Beyond the dismantlement of individual warheads, we also need to understand what monitoring and verification procedures may be required across a State's nuclear and defence sites to provide sufficient confidence that nuclear disarmament has taken place irreversibly.' (United Kingdom, 2019).

5. Reframing irreversibility around confidence

Despite practitioners linking confidence and irreversibility in their speeches (and possibly their thinking), nothing has been done in the research community to unpack this relationship. Given that irreversible nuclear disarmament is itself a misnomer, it is difficult to conceive of something being 'more' or 'less' irreversible, but far easier to comprehend the notion of being 'more' or 'less' confident that another will behave as expected. Framing the question of irreversible nuclear disarmament under conditions of uncertainty as 'how do we build confidence between interested parties that nuclear disarmament will not be reversed?' rather than 'how do we make disarmament irreversible' has several benefits.

Firstly, reframing the question broadens the scope of possible measures. Definitions of irreversibility that centre on making the reversal of disarmament 'costly' and 'difficult' focus more narrowly on disincentivizing rearmament and miss opportunities for incentivising restraint. By linking irreversibility and confidence, scholars and practitioners interested in the concept of irreversibility can draw on the history and existing literature on confidence, and confidence building measures (CBMs), which can be both positive (call to action) and negative (call for restraint). Holst and Melander define CBMs as involving 'the communication of credible evidence of the absence of feared threats' (1977: 147). Meanwhile, the P5 have defined CBMs as 'Unilateral or agreed actions taken by a state for the purpose of reducing uncertainties and concerns of other states about its intentions, making the states behaviour more predictable to other states, and promoting the reduction of tensions between states' (P5 glossary, 2019: 199). Note that neither of these definitions are narrowly focused on military intentions only. Both definitions fit closely to the purpose of the irreversible nuclear disarmament initiative, which includes political and societal elements of irreversibility. Although theorising on CBMs is somewhat lacking (Berzins, 2004: 41) the typologies, case studies, and longlists of CBMs can provide a useful springboard for thinking about measures to sustain disarmament. Practitioners and scholars should look beyond CBMs in the military space and explore opportunities to develop economic, environmental, and societal CBMs also (see OSCE, n.d.). No single CBM can resolve the uncertainties inherent in irreversible

nuclear disarmament, but the combined impact of CBMs in both the military and political space can mitigate some of these uncertainties and contribute to the lessening of tensions. In pursuing confidence building efforts, policy makers must remember that measures need to be tailored to the geographical, political, and cultural environments of the interested parties.

Secondly, and relatedly, engaging in the confidence literature facilitates a better understanding of the role of transparency and verification in relation to irreversibility. In the CBM literature, communication, constraint, transparency, and verification measures are typically considered the primary CBM 'tools' (Stimson, 2012). As the Stimson Centre explains,

'These tools are designed to make the behaviour of states more predictable by facilitating communication among states and establishing rules or patterns of behaviour for states' military forces, as well as the means to discern and verify compliance with those patterns.' (ibid.).

Monitoring and verification are tools which help to build confidence by providing information—without information it is difficult to have confidence, but as the discussion on confidence above outlined, information is not the only thing that enables relations of confidence. Norms, rules and institutions as methods of constraint also help to build confidence.

Thirdly, engaging in confidence as a psychological strategy to manage uncertainty highlights more clearly than the previous research on IND does, the importance of intentions and perceptions to sustained disarmament. Perceptions matter in international relations, sometimes more than the objective truth, because it is the perception of others' capabilities, their intentions and their resolve that drive behaviour. Political psychologists have long highlighted that threat perceptions are rarely based on objective assessments of material power alone (Stein, 2013) Instead, threat perceptions are influenced by several factors including identity (Rousseau, 2006) security dilemmas (Jervis, 1978), emotions (Stein, 2013: 382-383) and inherent bad faith models (Holsti, 1967). In the context of irreversible nuclear disarmament, even if there is no material evidence that a state intends to rearm, that does not mean that all others will believe that state is acting in a benign manner. While measures designed to build confidence also suffer from the challenges of subjective interpretation, acknowledging this early in discussions on irreversible nuclear disarmament can help encourage design of the right kind of confidence building measures. In particular, acknowledging the challenge of subjective interpretation of performance encourages interested actors to think about what information, if any, would give them confidence that their adversary was committed to disarmament. Some further research on how to break down enemy images and prevent the assimilation of information to pre-existing beliefs would be particularly helpful here.

Finally, while confidence and trust are two distinct (but related) concepts, confidence building measures can assist in the breakdown of distrust (a first step to building trust). Through confidence building measures, actors can demonstrate to each other good faith, integrity, and reliability. While a positive relational attachment is also required for trust to develop, demonstrating integrity and reliability is an essential first step for an actor to be viewed as trustworthy (Booth and Wheeler, 2008: 243).

It is important to note, however, that measures designed to build confidence, like trust, do not get rid of the uncertainty problem. Uncertainty in sustaining disarmament is unavoidable. What confidence building measures can do is chip away at some of the manageable uncertainty and increase the confidence of an interested party that another actor will behave as expected, but there will always be a risk of deception.

6. Conclusion and recommendations

This paper has (re)put uncertainty at the heart of the irreversibility issue. This paper's central argument is that sustaining disarmament at a global level, which is what is really meant by the term irreversible nuclear disarmament, is a broad, forward-looking practice which at its core deals with managing uncertainty regarding others current and future intentions. In response to this argument, the paper has drawn out psychological strategies for managing uncertainty and placed them in conversation with the concept of irreversibility. In doing so, the paper clarifies the difference between trust and confidence and highlights why recognising this difference is important. While neither trust nor confidence can resolve the uncertainty issue inherent in disarmament, both strategies present a way in theory to mitigate the anxiety caused by this uncertainty. True trust building, the kind that would result in a transformation of relations and the suspension of risk calculations, is inconceivable right now, but continued efforts towards distrust reduction as a minimum will be required, alongside confidence building efforts, in moving towards an irreversibly disarmed world.

What do these arguments mean for practitioners and scholars? In the current security environment, focusing on confidence building measures appears the most appropriate place to start, and the central recommendation of this paper is that scholars and practitioners begin to seriously explore the relationship between confidence and irreversible nuclear disarmament. Existing research on CBMs can provide a useful starting point for thinking about measures to sustain disarmament. Appropriate CBMs can be developed at multiple levels, formally or informally, unilaterally, bilaterally, or multilaterally and need not always be state-to-state. However, both practitioners and scholars need to take seriously the role of intentions and perceptions when considering appropriate CBMs and avoid the idea that objective conclusions can be drawn from subjective interpretations. Sustained disarmament will require more than verification; the increasing attention on political, legal, and societal dimensions of irreversible nuclear disarmament are well warranted. Based on this argument, the paper concludes with some specific recommendations for taking irreversible nuclear disarmament forward, organised into three groups.

6.1 Track I engagement on irreversible nuclear disarmament and confidence building efforts

Given the importance this paper has lent to the role of perceptions when making confidence calculations, the first set of recommendations focuses on perception mapping and the evaluation of confidence building measures at the Track I level in both minilateral and multilateral formats.

Despite the current security environment, the P5 process has continued to meet at the expert level to discuss risk reduction and doctrines. At a time when it is politically viable, the P5 could expand the topics of discussion to include an iterative P5 expert level meeting on confidence building in relation to nuclear disarmament. Just as the doctrines conversation is designed to help the P5 better understand each other's thinking and reduce the possibility of misperception, a conversation of this kind on confidence and disarmament could also help the P5 understand each other's concerns about the possibility of achieving and sustaining a disarmed world.

A second possibility is to set up a sister initiative to the International Partnership for Nuclear Disarmament Verification (IPNDV) that examines other confidence building tools in the political and/or legal realm. Efforts to collectively develop adequate verification measures through initiatives like IPNDV are a vital component of confidence building, but equal attention should be paid to what else might be required or useful. In the legal domain, for example, an international

partnership of states could examine the components of international humanitarian law, international criminal law and national criminal law that would be needed to develop a legal framework that's most likely to constrain states who might consider rearmament.⁶

6.2 A track II mechanism for exploring irreversible nuclear disarmament

A global track II mechanism to discuss confidence building in relation to irreversible nuclear disarmament, conduct research and explore creative and inclusive solutions would be useful, particularly in the current security environment where track I engagement is difficult. This could look something like an expanded version of the International Group of Eminent Persons for a World without Nuclear Weapons. While there are groups working on the issue of irreversible nuclear disarmament, such as the UK-Norway initiative, which has funded two Wilton Park conferences on the topic (Wilton Park, 2022, 2023), there is no initiative that is representative of the global population. One of the biggest future challenges to the irreversible nuclear disarmament initiative as it stands is that it is embedded within the NPT. That is not necessarily problematic at this early stage, as the language of irreversibility did originate within the NPT, but as the conversation progresses, the exclusion of four of the nine nuclear-armed states becomes problematic. Sustaining a disarmed world (ignoring how to get to a disarmed world) will require equal buy-in from these states, many of whom already take issue with the Western led non-proliferation regime. The operationalization of the principle of irreversibility needs to be co-developed, even if not at a track I level (yet).

Possible research could include:

- Examination of case studies where CBMs have been implemented to reassure adversaries of current and future intent. This can be done in conjunction with case studies on previous efforts to make political decisions irreversible.
- Re-examination of measures proposed by states during negotiations for general and complete disarmament during the early 1960s.
- Study of the effectiveness of different uncertainty management strategies used historically in conventional and nuclear spaces (such as hedging, arms control, norm development etc.).
- Investigation of whether confidence building and hedging are compatible strategies for managing uncertainty.
- Survey of state officials for what they would need to have confidence that another was not going to rearm.

6.3 Unilateral signs of good faith

While the previous two sets of recommendations emphasised the importance of co-developing CMBs in relation to nuclear disarmament, unilateral efforts to demonstrate sincere interest in, and commitment to, disarmament can be equally useful. As explained above, confidence in another actor develops based on performance information over time. For the rest of the world to take seriously the idea that the nuclear possessing states are genuinely interested in the concept of irreversible nuclear disarmament, it would be helpful if those states demonstrated their good faith through unilateral measures demonstrating their commitment to Article VI of the NPT. Such measures could open the door to further progress on irreversible nuclear disarmament by building confidence that the actors in question are committed to disarmament and not just trying to placate the NNWS with empty words. Measures could include but are not limited to the following: the United States ratifying the Comprehensive Test Ban Treaty (CTBT); nuclear-armed states offering

⁶ A suggestion not dissimilar from Anthony (2011) who suggested the need for an integrated legal framework.

negative security assurances to the non-nuclear weapon states; and the United States reviving negotiations on a fissile material cut off treaty (FMCT).

None of these measures alone, or even taken together, offer a panacea for the problem of uncertainty in nuclear disarmament. Unilateral signs of good faith will always be subject to challenges of signal interpretation, and dialogue, both at the Track 1 and Track 2 level provides no promises of coming up with effective solutions to the problem of distrust and uncertainty incumbent in the current security environment. But that is not reason to give up on the idea of irreversible nuclear disarmament. The hope of this paper is that, by starting a conversation on how different strategies for managing uncertainty could be applicable to sustaining disarmament, we can begin to uncover what might be needed to achieve a world free of nuclear weapons.

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10. Economic Incentives for Nuclear Disarmament: Bridging Normative and Pragmatic Approaches for a Safer World

JOEL CHRISTOPH

Abstract

This paper examines the potential of economic incentives to facilitate global nuclear disarmament. First, it analyses the hidden costs of nuclear armaments, including opportunity costs and risks. It then outlines possible economic benefits from disarmament such as cost savings and investment redirection. The paper explores leveraging international cooperation and development aid to incentivize disarmament. It also proposes innovative approaches like a global disarmament fund and market. However, it acknowledges that economic tools must be applied cautiously alongside security reassurances. Managing transition costs and overcoming political/security barriers pose challenges too. Ultimately, the paper argues that appropriate economic incentives can serve as pragmatic, complementary tools to aid traditional diplomatic efforts for nuclear disarmament. But they are not a panacea. Multifaceted cooperation emphasizing common security is essential for progress. This perspective can help foster an environment encouraging states to pursue disarmament as the rational choice.

1. Introduction

The legacy of nuclear arsenals, originating in the tumultuous years of World War II, still casts a shadow over global stability. Beyond the evident moral and military concerns, these formidable weapons of mass destruction embody an economic domain that, though significant, remains relatively under-explored. When discussing the costs of nuclear armaments, it is paramount not only to focus on the immediate expenditure but also to contextualize it within the broader economic milieu. Unlike other areas of military spending, nuclear weapons carry unique tangible and intangible costs that have ripple effects on both domestic and international economies.

Drawing from historical lessons and the insights of contemporary scholars, this paper delves into the intricate financial landscape surrounding nuclear weapons programs. It reviews the multifaceted expenditures related to nuclear arsenals, considering both the direct costs and the often-overlooked opportunity costs. Notable cases, like the US nuclear modernization program and the economic implications of the nuclear arms race, will be scrutinized. However, this economic exploration is not merely a tally of costs. It is a window into possible economic strategies that might motivate and catalyse disarmament actions. Insights from fields such as development economics, international trade, and market-driven societal change will be employed to uncover these strategies.

The path to disarmament is anything but straightforward. Nuclear capabilities are enmeshed in a web of strategic, political, and economic interests, which this paper aims to dissect. The goal is not to propose a simplistic shift of resources from nuclear projects to other sectors but to analyse the nuanced interplay of security, strategy, and economics in the disarmament equation.

This paper is structured as follows: Section 2 delves into the costs of nuclear armaments, Section 3 considers paths towards disarmament including economic considerations, Section 4 presents policy recommendations. This research makes the case for nuclear disarmament not solely as a military or moral directive but an economically enlightened choice, in which states can redirect resources from a path of potential destruction to avenues of sustainable global growth.

2. The economic calculus of nuclear armaments

2.1 Hidden costs

The economic dimensions of nuclear armament have occasionally been overshadowed by the more dominant discourses of political, military, and ethical considerations. Yet, as organizations like the International Campaign to Abolish Nuclear Weapons (ICAN) emphasize, understanding economic implications is fundamental to the broader conversation on nuclear disarmament (ICAN, 2023). This paper seeks to elucidate these costs, going beyond procurement to delve into hidden costs, opportunity costs, and the larger implications for national and global economies.

Monetary investments channelled into nuclear programs are vast, often going beyond mere surface-level assessments. These investments encompass research and development, testing, production, maintenance, decommissioning, and clean-up. For instance, the US Congressional Budget Office (CBO) reported in 2017 a projected expenditure of \$1.2 trillion over the upcoming three decades for modernizing its nuclear capabilities (Congressional Budget Office, 2017). This estimation, however, might not capture the full financial burden when considering costs associated with nuclear waste management, health implications and other related externalities.

The potential for nuclear catastrophes, whether accidental or deliberate, presents another layer of economic considerations. For example, the Chernobyl incident, while tied to nuclear power rather than weaponry, serves as a testament to the potential costs of nuclear accidents. Despite differences, the economic implications of such incidents remain extensive. There are also subtler costs linked to military spending. These encompass interest on debt acquired for defence, extended medical care for veterans, and socio-economic ramifications for communities impacted by testing or potential use (Stiglitz & Bilmes, 2008). Such facets suggest that the actual economic burdens of nuclear programs might be significantly underrepresented.

Additionally, the competitive nature of nuclear acquisition intensifies global geopolitical tensions. Such tensions can induce volatility in global financial markets, leading to economic repercussions. This phenomenon, termed "political risk" by economic historian Niall Ferguson, captures market uncertainties resulting from geopolitical events (Ferguson, 2006).

Importantly, allocating substantial resources to nuclear programs brings to light the issue of opportunity costs. These costs denote potential benefits sacrificed when selecting one alternative over another. The "guns vs. butter" model exemplifies the societal trade-offs between military and civilian investments (Samuelson & Nordhaus, 2010). Specifically, each dollar dedicated to nuclear developments could have instead been allocated to vital sectors like health, education, or innovation. The reverberations of this trade-off extend beyond economics, having profound social implications.

So, why the sustained allure of nuclear armament despite these multifaceted costs? The drivers intertwine with desires for power, global prestige, security assurances, and strategic deterrence. Still, the economics of nuclear weaponry is intricate, merging explicit costs, concealed expenditures, opportunity costs, and the dynamics of power and global perception. Comprehending these nuances is vital when exploring economic routes that might further disarmament efforts.

2.2 Economic benefits of disarmament

Nuclear armament and its economic implications are multifaceted. Yet, these same economic principles can be harnessed to incentivize disarmament. These incentives present logical, mutually

advantageous reasons for nations to consider reducing their nuclear arsenals. Drawing from the game theory perspective, Schelling (1960) postulated that nations might perpetuate armament cycles because of fear and perceived necessity, despite the economic burden. However, he argued that by altering incentives, disarmament could become a more economically attractive option.

One of the primary economic drivers for disarmament is the prospect of cost savings. Reallocating the financial resources assigned for the upkeep and enhancement of nuclear weapons can significantly influence a nation's economic trajectory. Given the growing budgetary pressures and increasing economic volatility, disarmament surfaces as a practical strategy to redirect resources to sectors such as health care, infrastructure, or even debt management. Consider the US nuclear modernization program, estimated at \$1.2 trillion over three decades; a partial disarmament of 10% could free up around \$120 billion. This allocation could invigorate sectors like healthcare or education, leading to job creation, boosting economic growth, and improving the quality of life. It is worth noting though that the economic landscape surrounding disarmament is nuanced. A later section considers decommissioning and transition costs more extensively. However, limiting the risk of a catastrophic nuclear event safeguards nations from the resultant economic aftermath and significant human loss.

Direct economic benefits also manifest when nations disarm. For instance, post-disarmament, countries might enjoy augmented foreign aid, enhanced trade relations, or even debt forgiveness. South Africa's experience is a case in point: after its nuclear disarmament, the country experienced considerable economic and diplomatic gains upon its reintegration into the global order.

Moreover, disarmament might herald indirect economic benefits. An enhanced national reputation could attract foreign investments and tourism. Additionally, reduced military expenditure might decrease the risk of armed confrontations, creating a more favourable investment environment. Related, political scientists posit that economic interdependency can deter conflict (Barbieri, 1991). Applying this theory to nuclear disarmament, reduced geopolitical tensions because of disarmament can spur international trade, fortify economic resilience, and bolster investor confidence. However, the outcomes are dependent on individual economic perspectives and methods. For some nations, disarmament could mark a pivot toward increased self-reliance, possibly distancing them from global economic systems.

It is undeniable that the economic path of disarmament has its challenges. Transition costs, including decommissioning expenses, workforce reorientation, and potential job deficits within the military-industrial ecosystem, are significant. An adeptly designed economic transition strategy, filled with safety nets, retraining programs, and investments in new industries, is crucial to replace the jobs displaced from the armament sector. As Joseph Stiglitz emphasized, sustainable economic growth is rooted in human capital, infrastructure, and innovation (Stiglitz, *Inequality and Economic Growth*, 2016). Redirecting resources from nuclear armament to these areas can reshape the economic narrative, casting disarmament as the financially sensible choice, fostering a safer, more prosperous global community.

2.3 Leveraging international cooperation and development aid

International cooperation and development aid can play a significant role in bolstering economic incentives for nuclear disarmament. By refocusing resources traditionally allocated to nuclear weapons programs toward sustainable development and peaceful endeavours, there is potential to reshape the global economic trajectory.

Historical evidence supports the power of international collaboration in this arena. A salient example is the Cooperative Threat Reduction (CTR) program, spearheaded by US Senators Sam

Nunn and Richard Lugar after the Soviet Union disintegrated in 1991. This initiative targeted the securing and eventual dismantling of weapons of mass destruction across former Soviet states, aiming to reduce the risk of these weapons being accessed by unauthorized entities. The CTR program's achievements are remarkable—by 2012, over 7,600 nuclear warheads had been deactivated (Lugar, 2012).

The case of South Africa warrants attention as it stands as the only nation to date to willingly decommission its nuclear arsenal. Following disarmament, South Africa experienced enhanced economic and political ties on the global stage. To assert that international sanctions were exclusively lifted due to the country's disarmament might be an oversimplification. However, international aid and endorsements were crucial for South Africa's metamorphosis from an isolated nation to an esteemed member of the global consortium.

Existing paradigms of international collaboration and assistance can be potent motivators for nuclear disarmament. However, more work is needed to fully realize the grand bargain of the NPT—where nuclear-armed states disarm while also aiding and facilitating access to peaceful uses of nuclear energy for non-nuclear states. The Paris Agreement's approach to climate change offers a model for cooperation, with industrialized nations aiding developing nations' transition to sustainability. Similarly, the NPT vision requires nuclear weapon states to earnestly pursue disarmament while robustly supporting the developmental and energy needs of non-nuclear states. Fulfilling this bargain necessitates concrete action like financial and technical support for non-nuclear states' development goals and energy programs. A reinvigorated commitment to realizing the NPT's vision through economic and technical assistance can serve as a powerful motivator for further disarmament progress.

Development assistance extends beyond mere financial support. Aid can help fortify capacities in beneficiary countries, positioning them to be more proactive in disarmament dialogues. This aid spectrum encompasses technical guidance, human capital development, institutional enhancement, and infrastructural growth. The conceptualization of a universally backed initiative which channels the financial surplus from disarmament to socio-economic growth could act as a potent disarmament stimulus.

An economic perspective also cannot ignore the devastating financial implications of potential nuclear conflict. A hypothetical nuclear altercation between India and Pakistan, involving 50 nuclear detonations on each side, might plunge global temperatures to levels observed during the Little Ice Age. The resultant climatic aberration could imperil global food security by curtailing the agricultural calendar (Robock & Toon, 2012).

3. Towards disarmament

3.1 Innovation through a disarmament market and fund

Market-based mechanisms have consistently been explored as potential solutions to various global challenges, leveraging economic incentives to drive behavioural changes that align with broader social goals. For instance, carbon credits, which permit a specific quantity of carbon dioxide emissions, have been introduced to economically incentivize environmental sustainability (Stavins, 2008). Drawing from such mechanisms, this paper proposes the establishment of a global market for nuclear disarmament, where countries are rewarded with tradable certificates for every nuclear warhead dismantled.

This proposal integrates economic incentives with traditional diplomatic and arms control approaches, aiming to accelerate global disarmament efforts. While carbon markets operate on the 'polluter pays' principle, the proposed nuclear disarmament market champions a 'dismantler gets paid' approach. For each decommissioned nuclear warhead, a country would accrue a 'disarmament credit,' which could subsequently be traded in an international marketplace.

Entities such as affluent nations, NGOs, international agencies, or even private individuals could purchase these disarmament credits. The revenues from these transactions would aid the disarming countries in offsetting disarmament-related expenses, managing economic transitions, and channelling investments into domains like education, healthcare, and environmental conservation. An international body could be instituted to oversee this trading process, ensuring transparency, and bolstering the system's credibility. This could either be a newly established organization or an existing one like the IAEA, expanded to accommodate these responsibilities. Clear rules must also be set to dictate participants and prevent nations from accumulating weapons only to disarm later for more credits.

There exists a precedent for such market mechanisms promoting peace and security. The Ottawa Convention, which prohibits anti-personnel mines, demonstrates this approach's potential. Financial incentives have played a key role in the destruction of over 55 million stockpiled landmines under the Ottawa Convention. Specifically, the Convention created mechanisms for donor countries and organizations to provide financial resources to assist countries lacking the means to clear landmines within their borders. This funding helped cover the costs of mine clearance operations and acquire clearance equipment. For example, between 1999-2019, international financial support amounted to over \$4.5 billion, enabling extensive landmine destruction. With this aid, 31 out of 50 affected countries accomplished mine clearance by 2020 (ICBL, 2020). Such success underscores the feasibility of extending similar principles of financial assistance to incentivize progress in the realm of nuclear disarmament.

Nevertheless, there are challenges. Beyond political hurdles stemming from deeply rooted security considerations, there is the risk of a 'moral hazard'—countries might inflate their arsenals to reap more credits when disarming. This necessitates the implementation of stringent regulations, rigorous monitoring, and adept management of the credit system.

However, the benefits, if realized, could be transformative. Economically, it would transform dormant assets into significant revenue sources. Politically, it paves a collaborative path to disarmament, and socially, it holds the promise of diverting substantial resources from warfare to sectors like education and healthcare, underscoring sustainable development. This proposed market-based approach has the potential to recontextualize nuclear warheads as burdens rather than power symbols. By integrating disarmament with everyday market transactions, it might amplify public engagement, fostering a global consensus for nuclear non-proliferation and disarmament.

3.2 Cautious use of sanctions and trade incentives

Economic sanctions and trade incentives serve as critical mechanisms in the broader landscape of international diplomacy, especially when considered within the context of nuclear disarmament. Through these financial instruments, states might adjust their inclinations, shifting from nuclear ambitions to paths that emphasize sustainable, peaceful progress.

Sanctions, acting as economic deterrents, are designed to impose tangible consequences on states, nudging them towards desired behaviours. Their application in addressing nuclear proliferation is emblematic of their potential utility. For instance, prior to 2018, international sanctions targeting

Iran's nuclear ambitions, facilitated by entities such as the United Nations, European Union, and the United States, severely affected its economy (Nephew, 2018). However, it is imperative to underscore the multifaceted nature of the Iran deal (JCPOA). While sanctions played a part, elements like domestic politics, regional security considerations, and diplomatic efforts also factored into Iran's decision to limit its nuclear program. The impact of sanctions also varies based on factors like the target state's economic magnitude, the international community's commitment to enforcement, and the sanctions' rigor. Larger economies with diversified portfolios, such as Russia, may not feel the same brunt as smaller states (Hufbauer, Schott, & Elliott, 1990).

Conversely, trade incentives function by dangling economic opportunities as a 'carrot', encouraging states to choose paths that are beneficial both economically and diplomatically. The case of Libya serves as an illustrative example. The early 2000s saw Libya opting for disarmament, facilitated by the allure of economic integration and sanctions removal (Braut-Hegghammer, 2017). The subsequent influx of foreign investments and intensified trade highlights the compelling nature of trade incentives. Similarly, the European Union's Generalized Scheme of Preferences (GSP+) links trade benefits to policy transformations, encompassing disarmament, human rights, and labour rights, thereby presenting an intricate web of incentives (European Commission, 2022).

Historical precedents, like bilateral agreements between the US and states like Ukraine, Kazakhstan, and Belarus in the 1990s, utilized trade to champion disarmament. Still, events such as the conflict in Ukraine prompt reflection on the durability and long-term viability of such agreements. Further, it is essential to recognize trade incentives are not without their challenges. Their effectiveness is intertwined with a nation's perceived economic versus security advantages. States like North Korea—which oscillates between provocations and negotiations—also underline the risk of states exploiting these incentives (Ong, 2012). The political landscape, both domestic and international, can influence the acceptance of these incentives.

3.3 Managing transition costs

The journey towards nuclear disarmament requires an understanding of its associated costs and benefits. Transitioning from a nuclear-armed world to a disarmed one is complex. Primary costs linked with disarmament encompass the decommissioning of nuclear arsenals, the accompanying security implications, and the economic impacts on regions that heavily rely on nuclear industries. Recent studies indicate that the price for dismantling and disposing of a single nuclear warhead lies between \$1-2 million (Kopte, Renner, & Wilke, 1996). Given the vast number of warheads owned by nuclear-powered nations, the cumulative costs can surge into billions.

Nevertheless, these numbers should be compared to the continuous expenses tied to the upkeep and modernization of nuclear arsenals. For example, projections show that the US's nuclear modernization initiative is poised to incur a \$1.2 trillion cost over three decades (Congressional Budget Office, 2017). When juxtaposed with the costs of disarmament, the latter appears as a relatively modest investment towards ensuring global safety.

Economic challenges can also emerge from job losses in the nuclear domain. Many regions heavily rely on the nuclear sector, and they may encounter economic setbacks. However, redirecting investments to areas such as healthcare, education, and renewable energy can generate more employment opportunities compared to military spending, creating an avenue for smooth economic transition (Pollin & Garrett-Peltier, 2009). Investments in these domains can produce significant returns. Research by Heidi Garrett-Peltier suggests that funds invested in clean energy and healthcare yield 50% and 100% more jobs respectively than identical military investments (Garrett-Peltier, 2017). Moreover, the lesser-known expenses tied to nuclear weapons, like

healthcare costs for nuclear workers and charges for environmental clean-up, should be factored in (Stiglitz & Bilmes, 2008). The path of disarmament halts these "hidden costs" from accruing.

Addressing the potential security concerns of disarmament is also crucial, as nuclear deterrence forms the backbone of numerous nations' security policies. Yet, influential figures like former US Secretary of Defense William J. Perry advocate that the contemporary threats linked with preserving nuclear arsenals overshadow their intended deterrence benefits (Perry, 2015). The possibility of unintentional launches, nuclear terrorism, or the escalation of conflict to the nuclear realm are profound threats that cannot be ignored.

The potential for nuclear accidents, as showcased by catastrophes like Chernobyl and Fukushima, present financial burdens that reverberate across generations and transcend national borders (Schneider & Froggatt, 2021). A world free of nuclear arms would inherently be free of such risks. The transition towards disarmament also provides a unique platform for enhancing international collaborations. This collective effort could rejuvenate international alliances, fostering trust and establishing a robust international monitoring system to oversee disarmament commitments. Additionally, the ethical dimension of nuclear disarmament cannot be sidelined. Historical events, like the calamities of Hiroshima and Nagasaki, spotlight the profound human cost tethered to nuclear weaponry. Embarking on disarmament reflects a global commitment to valuing human life, ensuring a safer future.

While the pursuit of nuclear disarmament has its challenges, the overarching benefits—spanning economic gains, global security enhancement, political stability, progress towards Sustainable Development Goals, and ethical considerations—are undeniable. Such a path necessitates collective action from all nuclear nations and global stakeholders. Embracing this course offers a vision of a world where resources are not squandered on instruments of mass destruction but are invested in fostering human development and prosperity.

3.4 Overcoming political and security barriers

The journey towards global nuclear disarmament, while economically rational in many respects, must reckon with deeply entrenched concerns that are grounded in historical, strategic, and political contexts that have traditionally steered nations' nuclear policies. By acknowledging and addressing these barriers head-on, the global community can aspire to a disarmament strategy that is both pragmatic and holistic.

For instance, the intricate web of distrust, stemming from historical legacies like the Cold War, casts a long shadow over any contemporary nuclear disarmament talks. Any meaningful economic incentive for disarmament must be complemented by robust confidence-building measures. Transparent disarmament processes and internationally recognized third-party verification mechanisms may provide reassurance to wary states.

Questions about the efficacy of sanctions and economic measures present another legitimate concern. While these tools can be potent, they are often most effective when imposed by a broad coalition of states. Sanctions regimes imposed unilaterally or solely by nuclear-armed states risk being perceived as a form of asymmetric economic coercion (Mastanduno, 1992). North Korea's continued nuclear development despite multilateral sanctions illustrates these limitations, especially when the targeted state has significant geopolitical backing. Specifically, China's ongoing economic and diplomatic support is seen as a key reason why sanctions have failed to halt North Korea's nuclear program. This exemplifies why wide multilateral cooperation is essential for sanctions to achieve their goals. Absent broad unity, sanctions may falter. In such complex

scenarios, diplomatic avenues, fostered through multilateral frameworks, may yield more sustainable outcomes than purely economic measures.

Another compelling concern is the transition from the normative to the pragmatic in disarmament discussions. While idealistic arguments for disarmament have their place, states often act on tangible, pragmatic rationales (Ritchie & Futter, 2022). Therefore, economic incentives should be presented within a broader framework of security assurances and geopolitical considerations. The post-Cold War era, which saw a redirection of some defence expenditures to developmental programs, can serve as an exemplar of the potential pragmatic gains from disarmament (Brauer & Dunne, 2010).

Moreover, the economic discourse around disarmament should not be overly simplistic. The termination of nuclear programs does promise substantial financial savings, but these are offset by significant costs associated with the decommissioning and clean-up of nuclear sites. Comprehensive economic perspectives on disarmament must account for these realities, balancing short-term costs against the long-term savings and benefits.

Lastly, the role of public sentiment and advocacy cannot be understated. Movements that target the economic pillars of the nuclear industry, such as divestment campaigns against companies engaged in nuclear production, can alter the political calculus of states (Smith, 2014). These movements, by making nuclear programs both economically and politically untenable, can provide a strong undercurrent to the formal economic and diplomatic initiatives for disarmament.

4. Policy recommendations

Drawing from the above discussion, this section outlines a series of policy recommendations that aim to employ economic incentives as potent tools to further nuclear disarmament. They are grouped under three overarching themes of economic redirection and reinvestment, international collaboration and incentives, and market innovations and education.

1) Economic Redirection and Reinvestment:

- It is essential for governments to revise their budgetary allocations, diverting a substantial portion of funds from nuclear weapon programs to areas that boost human welfare and spur economic growth, such as education, healthcare, infrastructure, and R&D.
- Governments should prioritize the development of holistic economic transition strategies to navigate the potential costs linked with disarmament, such as employment shifts in the defence sector and costs associated with decommissioning. These strategies must encompass social safety nets, worker retraining modules, and investment blueprints for emerging industries.
- Leading financial institutions and investors worldwide should contemplate a nation's stance on disarmament when making investment choices, thereby applying economic pressure on nations to diminish their nuclear arsenals.

2) International Collaboration and Incentives:

- Nations should collectively pledge to curtail their nuclear weapons, adhering to a mutually accepted verification process, while simultaneously redistributing the resultant financial savings to sustainable development endeavours. The Paris Agreement on climate change might serve as a valuable blueprint.

- Suitable international bodies should proffer economic lures such as aid packages, debt alleviation, and trade perks to nations showing commitment to disarmament.
- States should consider establishing a global fund, fuelled by voluntary contributions from the global community, to assist nations in transitioning from a nuclear-centric economy to a civilian one. This fund could finance nuclear clean-up initiatives, worker reskilling, and foster industries to fill the economic void resulting from disarmament.

3) Market Innovations and Education:

- A market-driven approach, reminiscent of the carbon credit framework, can promote disarmament. Nations dismantling warheads could earn tradable credits, facilitating resource exchange between countries keen on backing disarmament endeavours.
- A synergistic effort spanning governments, global entities, academia, and civil society can amplify public cognizance about the fiscal repercussions of nuclear weapons and the prospective economic dividends of disarmament.
- A pressing need exists to channel more resources towards nuclear economics research. Probing the obscured costs of nuclear armament, discerning the probable economic merits of disarmament, and ideating efficacious economic incentives for disarmament can underpin evidence-led policymaking.

In a world riddled with complexities, nuclear armament stands as a testament to humankind's dual capacity for innovation and destruction. While the topic is often framed in the shadows of political manoeuvring and moral imperatives, its economic implications are both profound and pervasive. This paper illuminates the striking fiscal burden of maintaining nuclear arsenals and underscores the transformative potential of reallocating such vast resources towards holistic societal advancement. By reframing disarmament as an economic boon, nations can transcend the stasis of historical precedent and ideological resistance, forging a path towards a prosperous, secure, and nuclear-free global future. The economic compass, when properly understood and harnessed, can indeed point towards a more harmonious world.

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11. The Role of Youth in Advancing Nuclear Disarmament

MAGRITTE GORDANEER

Abstract

Young people, as inheritors of the atomic age and the legacy of nuclear weapons, have gained prominence in civil society and nuclear disarmament organizing through the introduction of various programs and organizations. However, their importance within nuclear policy and advocacy spaces has been minimally interrogated or considered for its benefits to regimes of disarmament broadly. This paper makes the case for the essential role of youth engagement in nuclear policy, including the strategic benefits towards longer-term prospects of disarmament and agenda setting. It also considers existing models of youth engagement in nuclear disarmament spaces and programming and identifying barriers to young people entering nuclear fields. Overall, the paper finds that humanitarian-focused perspectives, alongside effective program implementation and empowerment, normalized and internalized by younger generations could yield more progressive models for nuclear disarmament.

1. Introduction

Research on nuclear disarmament has largely neglected the role of young peoples' involvement and its potential for ensuring disarmament remains prioritized in international fora. Organizations working towards nuclear disarmament on various levels have been known to incorporate youth-oriented perspectives, programs, and initiatives. The impact of these approaches has been overlooked as a driver for humanitarian disarmament-focused progress and agenda setting. Young people—defined by those who are in a certain age range¹ and are often students, at the start of their careers in nuclear spaces, or perhaps just individuals interested in nuclear fields—offer an important means for disarmament-focused organizations and networks to maintain momentum and solidify disarmament-focused futures based on humanitarian and intersectional concerns.

Youth-based disarmament movements have, through transnational coalition building, created key spaces where individuals can develop their knowledge about nuclear weapons. Engagement of newer generations and young people in topics of nuclear weapons through a disarmament-focused lens may help maintain humanitarian-centred narratives within these movements and international fora for years to come. This is the case despite various challenges to youth organizing in anti-nuclear spaces. Accordingly, international coalition-building initiatives among youth present essential case studies for interested observers in understanding and ensuring the advancement of nuclear disarmament and priority in future agendas, especially because there exists evidence of sustained past-youth interest in the humanitarian and multi-dimensional impacts of nuclear weapons. This paper considers these models to youth participation and argues that young people's introduction and involvement with disarmament has the potential to largely benefit prospects of nuclear disarmament in the future if properly implemented and addressed. Ultimately, focusing on youth engagement in nuclear disarmament is essential to ensuring enduring progress in the movement and must be seen as an important next step in advancing these issues.

2. Existing models for youth and disarmament engagement

¹ For purposes of clarity within this paper in discussing youth groups and individuals, the United Nations Office on Disarmament Affairs' #youth4disarmament program defines young people as individuals between the ages of 12 and 30.

In a world engulfed by the existential crisis of climate change, young people today are often socially engaged in issues pertaining to global health and humanity (UN Press, 2022). Through the climate movement, for example, young people have demonstrated their ability to organize on mass scales towards a common goal through the support of their peers, elevating the importance of the climate crisis (Heejin and Sang, 2020). However, despite this success, still there are many challenges and barriers to organizing young people around the issue of nuclear weapons. This could largely be due to lack of capacity and organizing spaces for younger generations; especially as nuclear weapons and disarmament remain a fringe social issue compared to the climate crisis and gender equality. They are also less regionally accessible to those living in areas seemingly not affected by nuclear weapons, therefore decreasing the accessibility for engagement in these topics. These considerations as well as the general exclusivity of nuclear weapons forums can make nuclear spaces difficult for younger generations to permeate. This is further demonstrated by Carol Cohn's study of the language of exclusivity persistent in nuclear weapons fora (Cohn, 1987). Despite these barriers to youth engagement, a recent study by the International Committee of the Red Cross found in 2020, 84% of millennials believe the use of nuclear weapons is never acceptable (ICRC, 2020). While this study has not been replicated with a group younger than millennials, those who in this study could be considered to be born after 1999, it shows the great potential for younger generations' engagement in nuclear weapons and disarmament issues. There exist models that demonstrate how some of these barriers to entry have been overcome.

2.1 Youth for TPNW: a model for youth by youth

Youth for TPNW is a network of young people aged between 18 and 30 engaging in nuclear disarmament work and the promotion of the Treaty on the Prohibition of Nuclear Weapons (TPNW). The organization's network spans regions and disciplinary backgrounds and works to promote the humanitarian consequences of nuclear weapons centring affected communities and survivors of nuclear weapons and testing (Youth for TPNW, 2023). Additionally, the organization, as the name suggests, is run by individuals under the age of 30, making it directly created for and by young people with the common interest in addressing the threat of nuclear weapons through the TPNW. In 2022, the organization was launched alongside the first TPNW Meeting of States Parties with a parallel youth meeting of states parties including 127 young people from around the world (Youth for TPNW, 2022).

Ideologically humanitarian focused

An important organizing feature of the group is the centring of nuclear disarmament around humanitarian concerns. This approach to nuclear disarmament campaigning has grown in popularity over the past decade such as through the work of International Campaign to Abolish Nuclear Weapons (ICAN), International Physicians for the Prevention of Nuclear War (IPPNW), and other organizations raising concern over the possession of nuclear weapons based on humanitarian effects (Sanders-Zakre, 2020). Humanitarian considerations are not a new tool in disarmament campaigning; however, the growth and legitimization of these concerns in the nuclear space is especially notable including the 2017 Nobel Peace Prize awarded to ICAN. Using this approach, by interjecting humanitarian concerns into nuclear spaces and young people's introduction to them, these perspectives permeate foreign policy more effectively and gain prominence and theoretical influence especially in the longer term. They do so by destabilizing narratives surrounding nuclear weapons which have yielded limited progress for disarmament. By valuing the experiences and traumas caused by nuclear weapons especially through their intersectionality with racial, environmental, and gendered impacts, young professionals become embedded into this rhetoric and approach to the nuclear paradigm (Camilleri & Hamel-Green, 2018). This process of normalization into humanitarian and disarmament perspectives in early

professionals' careers as they enter dialogues on nuclear weapons and disarmament could be influential in maintaining the permeation and prominence of those perspectives in international fora.

Organizational conditions

Transnational coalition building is another key aspect of the approach taken by the Youth for TPNW. Geographic distribution and the building of a comprehensive digital and multi-regional network and community for members are essential. As nuclear disarmament compared to other social issues and movements tends to be less regionally accessible, this approach is essential to creating and growing community in youth activism against nuclear weapons. Youth for TPNW has done this by organizing online networks and creating community in these digital spaces through designated roles such as the Community Coordinators, thus creating more meaningful connections across the world for young campaigners and anti-nuclear activists (Youth for TPNW, 2023). In increasingly digital spaces, such networks and communities are important to foster because they encourage accountability among members and individuals even if no physical organizing space can permanently exist.

2.2 #Youth4Disarmament and the UNODA: mainstreaming young voices

Another approach to youth engagement is a project organized by the United Nations Office of Disarmament Affairs (UNODA), called the #youth4disarmament campaign (Youth 4 Disarmament, 2023). This campaign is aimed at engaging young people with issues of disarmament, largely to do with nuclear weapons and other weapons of mass destruction and indiscriminate harm. The General Assembly Resolution 76/46 established the project under UNODA in 2019, giving a considerable platform to the engagement of young people in these issues, while also using digitized spaces (Youth 4 Disarmament, 2023). It is aimed at supporting young people in the field of peace and security, including through the promotion of youth-led projects and advocacy for youth involvement in disarmament in events and online initiatives (UNODA, 2023). This focus is slightly dissimilar from the community-building and youth-created centred approach Youth for TPNW has taken. The prominence of this program in being associated with the UNODA, however, demonstrates the increasing attention paid within UN bodies to the role of young people in ensuring paths towards disarmament are fulfilled in the long term.

UNODA observes that young people 'have a critical role to play in raising awareness and developing new approaches to bring about change to reduce threats from weapons of mass destruction and conventional arms, including their proliferation' (UNODA, 2023). An important feature to recognize is the mainstreaming of young people's engagement and influence in disarmament narratives. Platforms like #youth4disarmament support narratives that re-focus young people's perspectives, showing critical engagement with the future's leaders along with their concerns and ideas. This mainstreaming can encourage more youth participation in disarmament-related topics, while providing legitimacy to the young people taking part. In effect, more programs like this can reduce the barriers felt to young people's participation in nuclear disarmament activism by increasing network popularity and visibility and providing necessary outlets for youth organizing in online spaces.

3. The potential of long-term youth support in disarmament

The models of relevant and productive youth participation presented establish how engagement in disarmament issues can be harnessed, even despite barriers and challenges in involving young advocates, campaigners, and professionals. After all, in civil society and government sectors, disarmament needs advocates who can maintain the work currently being done in the sector to re-

centre humanitarian impacts of weapons of mass destruction or indiscriminate harm like nuclear weapons. Young people will be inheritors of positions of power in the international community and constitute a key resource for the spread of humanitarian discourses. The entry of a generation focused on the objective of nuclear disarmament into nuclear spaces may well lead to better advancements towards common goals within the nuclear weapons sector. Reaching out to young people and providing space for them within for armament fora could help to combat frameworks about security have hindered advancements towards complete nuclear disarmament since the Cold War (Camilleri and Hamel-Green, 2018).

This section theorizes on the potential positive outreach of the effective implementation of youth engagement in the medium and long term. Some studies have addressed the impact of younger generations activism within the climate movement, which can be relevant for this analysis (Heejin and Sang, 2020). But three key opportunities exist if youth engagement is effectively implemented by the nuclear disarmament movement. First, there is potential for future agenda-setting in international fora. Second, strengthening and prioritizing humanitarian-focused narratives within the movement could potentially overtake deterrence perspectives, eventually shifting norms of deterrence to those of disarmament. Third, the influence of intersectional or multi-dimensional approaches can mainstream nuclear issues into other intersecting issues, including the climate crisis, gender equality, colonialism, and more.

3.1 Agenda setting

While the agenda for nuclear disarmament has grown in recent years, including with UN Secretary General Antonio Guterres's 2018 Agenda for Disarmament, this does not ensure or guarantee humanitarian disarmament a space in international fora in the future (Rydell, 2019). Young people's initial engagement with nuclear weapons from a humanitarian and disarmament-focused perspective can thus potentially provide future agenda-setting advantages. Initial contact with nuclear weapons not only from the vantage point of disarmament movements, but the features of youth-focused organizing spaces, provide solid, transnational bases for young people to further pursue the issue area and bring these perspectives with them into future positions. If disarmament cannot be achieved within the short-term, policymakers should next consider the potential of younger generations in redefining nuclear-policy spaces as disarmament spaces in the future. This type of redefining of nuclear weapons spaces could bolster progress towards complete nuclear disarmament, if effectively implemented.

Through their support networks in disarmament, young people could become more attuned to disarmament agendas, facilitating their entry into various professional roles in the future which have the capacity to set agendas. This could result in greater focus in presenting disarmament as a legitimate, necessary, and inevitable option for the international community and in advancing global security. Agendas, like the one from the UN Secretary-General in 2018, are influential in shifting dialogues on certain issue areas (Rydell, 2019). Moreover, if there exists a generation deeply rooted in humanitarian concerns over nuclear weapons permeating impactful roles in the nuclear field, there could emerge a new era of collaboration in working for disarmament. Having nuclear-policy leaders pre-disposed and normalized into disarmament spaces within nuclear weapons scholarship could also ensure the greater resilience of disarmament discourses and goals, regardless of external circumstances. This could help maintain momentum in spite of uncertainty that could be associated with future events. For instance, some have highlighted the spectrum of outcomes that could be linked to the war in Ukraine in swaying foreign policy for or against nuclear disarmament (Bollfrass and Herzog, 2022).

The community building aspect of youth engagement, as seen in the Youth for TPNW model, can further contribute to the advancement of future agendas on disarmament. While there is a relative time limit on being young, meaning these spaces will not always be accessible to those becoming more established in the field of nuclear weapons policy, the communities being built socially and professionally in these disarmament-focused spaces provide supports for furthering the advancement of their shared goals as framed by that. This form of coalition building serves to have potentially enormous impacts on how agendas among think tanks, institutions, governments, and organizations could be set in the future.

3.2 Maintaining humanitarian focus

Another feature of disarmament campaigning which has been adopted by numerous organizations is the framing on the humanitarian effects of nuclear weapons. Youth-based coalition networks and organizations have similarly adopted humanitarianism lenses to rationalize the need for disarmament. This humanitarian-focused approach centres the catastrophe and loss of human life over any practical or military use of nuclear weapons, rendering these armaments incompatible with morality and international law broadly now with the adoption of the TPNW (Val, 2022). This approach, previously seen in initiatives and treaties to ban other weapons such as the 1997 Mine Ban Treaty, features the testimonies of survivors of these indiscriminate weapons (Docherty, 2020). In the 2017 negotiations on the TPNW, prominent survivors of atomic weapons were featured and heard. When ICAN won the Nobel Peace Prize later that year, Setsuko Thurlow, a survivor of the Hiroshima bombing, co-accepted the prize on behalf of the organization (ICAN, 2017). This framing of nuclear weapons through a humanitarian and effects-focused lens has seen prominent uptake for the TPNW around the world, with momentum amongst non-nuclear-armed states.

Young people entering nuclear spaces that focus on humanitarian impacts, with organizations that specifically actively seek to promote youth engagement through this narrative, will likely continue to embody these sentiments even in future positions and contexts. This approach to disarmament recentres people and human impact within policy conversations which had been previously lacked this representation (Val, 2022). The maintenance and continuance of humanitarian-focused objectives within disarmament is important as it ensures the final goal of zero nuclear weapons, while also including the acknowledgement and remediation of peoples and environments affected by their use, production, and testing (Docherty, 2020). This victim assistance and environmental remediation approach is embodied in Article 6 and 7 of the TPNW, making the treaty a necessary component of a humanitarian-based approach to nuclear weapons. Young people involved in nuclear issues and topics generally support this message of humanitarianism and victim assistance, as demonstrated by the G7 Youth Statement organized by ICAN in May 2023 which consistently references the role of survivors and victims of nuclear weapons as essential to achieving effective disarmament (ICAN, 2023).

Humanitarianism, when continually centred, could be a catalyst for future generations to shift oppressive conversations about nuclear weapons and arms control towards human-oriented and impact driven perspectives. When young people enter the realm of nuclear weapons policy, including organizing or education, through the perspective of those harmed by these weapons, it can hold deep and lasting impact. An initial introduction through the impact of nuclear weapons rather than their supposed security utility could leave a generation of future leaders more likely to pursue disarmament than their predecessors. Moreover, the shift from deterrence-based security paradigms to humanitarian ones which understand nuclear weapons as a barrier to global security is a notable step that has been taken in nuclear disarmament campaigning. The maintenance of

this perspective through the involvement of young people in these discourses ensures the movement's capacity to maintain these narratives in the longer term.

3.3 Intersectional priorities

A third aspect of youth coalition building in nuclear disarmament centres on the intersectional dimensions of nuclear weapons, including in their effects. Like humanitarianism, intersectionality in the context of nuclear weapons impacts chooses to address and acknowledge the interlocking effects of these weapons on different groups. Key pieces of this approach include addressing the colonial nature of nuclear testing or gendered impacts and effects of radiation (Acheson, 2022). These perspectives, which have also been addressed by organizations like ICAN and Youth for TPNW, can link the issue of nuclear weapons to other social justice areas, further expanding youth coalition building's impact and network. This, along with newer generations who have more sustained interests in various social justice issues ranging from gendered to racial dynamics, can be a key entry point for young people.

It should also not go unmentioned the climatic impact of nuclear weapons and overlap between the climate crisis as an issue area for young people and nuclear weapons (UN Press, 2022). The climate crisis, often seen as the greatest existential threat facing younger generations, can create the opportunity for young people to engage nuclear weapons and disarmament simultaneously. Nuclear disarmament as it relates to the climate crisis is something many youth-based organizations have been taking into consideration. Whether focusing on the spending associated with nuclear weapons instead of sustainability, or the radiological contamination of environments as a result of production and testing, climate remains a key part of youth-based approaches to disarmament (ICAN, 2022). This demonstrates young people's ability to view problems like nuclear weapons not only in multifaceted ways, but also disarmament as a necessary consequence to reduce harm environmentally.

An intersectional approach to nuclear weapons and youth transnational coalition network organizing is important because it necessitates securing wide cross sections of interest in the movement. Because of the transnational nature of youth organizing as discussed, colonialism, racism, and sexism impacts those in these movements, creating more comprehensive and nuanced perspectives and understandings of the harms of nuclear weapons. By centring these experiences and the layered harms of nuclear weapons, these movements attempt to mend some of the harms done to peoples which have long been ignored by arms control communities in the past (Docherty, 2020). The involvement of affected communities in these discourses is essential to the progressive development of disarmament, and it is notable that this has been a prominent aspect for younger generations. This could end up being a significant benefit for disarmament mainstreaming, given nuclear weapons' intersections with various other areas of social justice issues and crises, and ensure better representation within movements of those uniquely affected by nuclear weapons.

4. Tokenism and youth representation

While keeping in mind the opportunities and potential afforded through young people's involvement in nuclear disarmament issues, it is essential to not tokenize the group. As argued in this paper, youth engagement in nuclear disarmament dialogues will not be effective unless meaningful participation is afforded. Acknowledgement or listening to the opinions of young people without genuine and accountable implementation of their thoughts and ideas is not enough to reap the long-term rewards for nuclear disarmament campaigning. If young people do not have their thoughts and ideas truly heard and actualized, they may be discouraged from further pursuing the field or feel pressure from the existing status quo based in arms control to conform

to conservative approaches to nuclear weapons. Additionally, it is essential to recognize that young people are not a monolith in their opinions and outlooks and should be treated with nuance in their perspectives and experiences. Simply because young people have the potential to frame a strong shift towards disarmament in international fora does not mean it is inevitable due to the dynamism and variation within these groups. Therefore, attempts to predict the variability and perspectives of young generations, including approaches within this paper, should be interrogated.

In many circumstances young people often experience forms of ageism as a result of their youth through the proliferation of adult power and youth subordination structures (Gordon, 2007). This has an effect on how social movements are created and fought among youth, making youth-specific spaces a key place where individuals can collectively respond to oppressive power regimes (Gordon, 2007). Youth spaces for social organizing are important points of initial contact for those entering various fields because it provides individuals with cohorts who similarly may experience forms of ageism within their chosen profession or movement. In anti-nuclear spaces, it should also be noted that disarmament as a feminized theory is often tactically belittled by deterrence or other arms control schools of thought, and can be characterized as naive or credulous (Acheson, 2019). Therefore, disarmament as a theory can experience some of the similar derogatory sentiments as those who propagate it. Anti-nuclear youth movements are often fighting for more than just nuclear disarmament, but also for their position and legitimacy within international fora and arms control spaces.

At the same time, conversations on young people's involvement in these fields should in no way shift responsibility for disarmament away from existing leaders and actors. Responsibility for disarmament should remain on those in power and should not be shifted to young people in a generational pass the buck. However, while disarmament must remain a priority for today's leaders, anti-nuclear movements should realize the potential of young people in establishing a strong normative foundation for the future. The long-term benefits from an engaged youth network working on these issues is not the only solution to nuclear disarmament but can demonstrate the changing of the tide. If nuclear disarmament cannot be achieved in the present, effective youth engagement can make it inevitable for the future.

Still, young people are in no way prohibited from enacting change in current nuclear regimes at present. While this paper focuses on the future of the movement, and younger generations potential in shifting nuclear regimes to favour disarmament, this does not mean that young people are barred or lack the ability to make change in these spaces now. Youth agency should not be discredited or relegated only to possible futures but supported and believed in in the present.

5. Barriers and challenges facing nuclear disarmament today and tomorrow

Challenges across the international landscape have risen that can create pessimism among leaders for disarmament agendas. The war in Ukraine has further destabilized the existing non-proliferation regime, especially considering the recent suspensions of existing arms control treaties between the United States and Russia (Bollfrass and Herzog, 2022). This backdrop has posed new challenges for disarmament campaigners and advocates, as heightened tensions between some of the world's nuclear-armed states makes disarmament appear further than ever. This backsliding in arms control agreements among nuclear states poses extreme risk and with that affects disarmament campaigning and progress (Miall, 2022). If such events continue and revitalize narratives of deterrence, then long-term bids for disarmament through young people's engagement today may serve more essential than ever to the movement.

In May 2023, G7 states gathered in Hiroshima and despite being in a historic place for nuclear weapons and disarmament campaigning, largely failed to address and plan effectively for the next steps in disarmament (ICAN, 2023). This systemic inaction demonstrates the immense challenges in moving forward and the need to address the nuclear-armed states. Sustained momentum for disarmament among publics even in the face of crumbling arms control regimes can help mitigate these seemingly backsliding events. It is clear that young people are still willing to maintain focus on nuclear disarmament, as seen in the G7 Youth Summit Statement produced from a summit of 50 young people in Hiroshima weeks before the state leaders' meeting (ICAN, 2023). While next steps in disarmament remain important to immediately seize, a generational toehold and anti-nuclear predisposition may reap progressive rewards.

6. Conclusion and recommendations

Nuclear disarmament movements and organizations have in recent years progressively engaged with concepts of youth empowerment (Sanders-Zakre, 2020). Continuing to do this is important to maintaining momentum in anti-nuclear spaces as well as to establishing longer term benefits for disarmament movements. Organizations such as Youth for TPNW and other projects made specifically for young people entering nuclear weapons policy and arms control spaces have been successful in establishing an emerging cohort focused on disarmament issues, signalling an important shift in international fora. These organizations and programs also provide key models for genuine youth representation and engagement that should not be overlooked by organizations or institutions planning to increase their programming to support efforts for youth participation. Fostering online community and genuinely implementing the ideas, experiences, and perspectives of young people is key to ensuring disarmament maintains a frontline concern in these individuals' professions both in the present and future. Youth for TPNW has provided a model of organizing young people which encourages representation and leadership as well as progressive issues in disarmament including humanitarianism and intersectionality. The prioritization of these values suggests that disarmament that includes genuine representation of survivors and disproportionately affected communities may be inevitable.

Addressing the importance of young people's engagement in these fields is essential to maintaining momentum for disarmament now and in the future. The impact of today's young people goes beyond current assessments of this group and should be understood as multifaceted in potentially shifting narratives from past deterrence regimes to more progressive humanitarian ones in nuclear disarmament. Beyond young people's current capacity for change, they have the potential to set agendas in future international arms control and nuclear weapons fora, and to place primacy on nuclear disarmament discussions and the humanitarian effects of nuclear weapons. They also could continue to uphold stories and perspectives of more diverse and transnational communities in future settings. If nuclear disarmament can be established as a legitimate and necessary option in global security within youth movements in these spaces, then the goals of this movement can be achieved as young people make their way into positions of leadership. However, this requires young people to receive the support and education necessary within disarmament networks and movements.

Organizations, as well as states, should pursue programs and activities that support both young people emerging and learning in the field of nuclear disarmament, and those working on nuclear topics. This includes both new programs within existing disarmament organizations and institutions geared towards young people, as well as supporting separate youth-specific organizations that build networks on their own accord and are organized by youth. This sustained support could foster community networks within young people's peers and mentors and create

more cohesive and cooperative environments in nuclear policy in the future. These programs must ensure young people are genuinely supported and that their ideas and perspectives are legitimized whether through structural resources, mentorship and guidance, or platforms for advocacy. This would additionally combat the tokenism of youth activism. Giving legitimacy to the voices of youth in these movements positively impact the outcomes and goals of disarmament.

In accordance with increased youth engagement and genuine representation, states and organizations should consider the challenges facing young people's engagement with disarmament issues and seek to increase membership in disarmament programs and organizations working with youth. Additionally, with the rise of numerous social justice issues gaining in general awareness and popularity, this presents an opportunity for nuclear disarmament movements to address the intersections between disarmament and climate, gender, colonialism, among other issues. This is additionally important to understanding the barriers to youth engagement in the movement, seeing the complexity of issues facing this generation and divisions that often exist between them. Therefore, states and organizations should pursue the mainstreaming of nuclear disarmament issue among young people, as well as connecting its features to other challenges facing younger generations.

The next generation, as inheritors of an atomic world, should have their perspectives in nuclear weapons spaces heard, implemented, and legitimized. There are various challenges which face youth organizing in these spaces, which is why states and other organizations must step in and continue to offer support to youth networks, coalitions, and individuals. Young people as a group should not be underestimated in their capacity for change within this movement, and continued fostering of their involvement in nuclear disarmament could have a profound impact on nuclear weapons fora in years to come. Organizations like Youth for TPNW have set models which can be replicated and supported. If states and other nuclear disarmament organizations fail to follow suit, the challenges facing this generation of disarmament campaigners, students, and professionals, may prevent some of the positive potentials for shaping space for disarmament in the future.

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12. Transnational Parliamentary Governance: A Catalyst for ‘TPNW Universalization’ Discourse

MAHMOUD JAVADI

Abstract

The supporters of the Treaty on the Prohibition of Nuclear Weapons (TPNW) face a twofold challenge: establishing an effective treaty infrastructure (vertical approach) and convincing more states to join (horizontal approach). This paper argues that the horizontal approach should take precedence in the short term, as universalizing the Treaty can maximize the TPNW’s authority, norms, and principles—which can also serve the vertical approach. To achieve TPNW universalization, various discourses and narratives on the Treaty’s utility are needed. In accordance with Article 7 of the TPNW, the paper proposes that transnational parliamentary governance could be a compelling and effective driver for universalizing the Treaty. Transnational parliamentary governance involves numerous regional and global parliamentary bodies that can develop a distinct supportive TPNW narrative with a significant outreach to and impact on the UN member states’ legislative bodies. It focuses on the Inter-Parliamentary Union as the case study, illustrating its potential to foster a parallel TPNW discourse worldwide that aligns with the Treaty’s vertical approach.

1. Introduction

The movement for international control of nuclear weapons reached a momentous milestone on July 7, 2017, during the United Nations General Assembly, with the approval of the Treaty on the Prohibition of Nuclear Weapons (TPNW). The Treaty did not receive unanimous support from all states. The five permanent members of the United National Security Council (UNSC), for instance, issued separate statements in which they rejected the Treaty while reiterating their unwavering dedication to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (NPT) (See e.g.: UK Foreign and Commonwealth Office, 2017). Despite opposition from the nuclear-armed states and most of their allies, the Treaty came into effect on January 22, 2021 (Werkhäuser, 2021).

As of December 2023, 93 countries have signed the Treaty, which has also been ratified by 69 of them (UN Office of Disarmament Affairs, n.d.). Additionally, 43 states, which have neither been party to nor signed the Treaty, are considered supporters of the TPNW as they have voted in favour of its adoption on 7 July 2017 or subsequent annual UN General Assembly resolutions on the TPNW (Nuclear Weapons Ban Monitor, 2023). A total of 136 out of 197 states endorse the Treaty in various ways, accounting for almost 70 percent of all UN member states/observers. Among the remaining 61 states, 15 (8% of the global total) are undecided, indicating their abstention or non-participation in the vote for the Treaty’s adoption in 2017 or subsequent annual UN General Assembly resolutions on the TPNW (ibid.). The remaining 37 allied states of the United States, along with all nine nuclear-armed states (the US, the UK, France, Russia, China, India, Pakistan, North Korea, and Israel), maintained their opposition to the TPNW.

This paper posits that the status of TPNW membership is best illustrated in *red*, *green*, and *grey* zones. The green zone comprises the 93 signatory states of the TPNW who have demonstrated a commitment to uphold the Treaty and actively utilize their resources to expand its reach and reinforce its authority. The grey zone encompasses 43 states who express their support for the Treaty (supporters), along with 15 undecided countries. Membership for these is anticipated but contingent upon domestic political dynamics and external influences, including engagement from

states within the green zone and other non-state entities actively involved in the pursuit of nuclear disarmament. Lastly, the red zone encompasses 46 states for which various domestic and external factors render any immediate prospects of membership highly unlikely, at least in the near future.

As statements within the UN General Assembly's First Committee exhibit, discussions regarding the potential erosion of the NPT have further discouraged the red zone from embracing the TPNW, intensifying debates about its gloomy prospects for universalization. Nevertheless, it is noteworthy that the Second Meeting of States Parties to the TPNW reaffirmed the complementarity between the two treaties (UN Office of Disarmament Affairs, 2023c), challenging the official stance articulated by the red-zone states in the First Committee and other multilateral forums. Furthermore, in the wake of the Ukraine War, there has been a growing willingness among the European public to contemplate the use of nuclear weapons by their respective governments against potential adversaries (Onderco, Smetana, and Etienne, 2023). Nonetheless, the rather pessimistic view regarding the TPNW universalization should not be seen as a barrier to the potential inclusion of new members from the grey zone (58 states) who might eventually consider joining the Treaty. During the timeframe between the first and second Meetings of States Parties (June 2022 and November 2023), seven states signed the treaty, three states completed the ratification process, and Sri Lanka formally acceded to the TPNW (UN Office of Disarmament Affairs, 2023b).

The TPNW itself, in conjunction with the Vienna Action Plan, a comprehensive report stemming from the Treaty's first Meeting of State Parties in June 2022, explicitly urges its parties to 'make universalization efforts a priority' (UN Office of Disarmament Affairs, 2022). However, while the Vienna Action Plan allocates 14 out of 50 action points to the cause of universalization, its primary focus remains centred on diplomatic initiatives undertaken by governments. This emphasis overlooks the crucial contribution of other influential state and non-state actors and stakeholders in the pursuit of universalizing the TPNW.

This paper aims to address this gap in the existing literature and policy discourse by shedding light on the significance of transnational parliamentary governance in expanding the Treaty's horizontal coverage—and establishing an effective treaty infrastructure (vertical approach). Recognizing that there is no single short-term solution to the universalization question of the TPNW, the paper seeks to justify the cardinal role of discourse canonization and securitization in the Treaty's expansion and considers how transnational parliamentary governance can contribute to this endeavour. To illustrate the argument, the paper takes the Inter-Parliamentary Union (IPU) as a case study.

2. Why TPNW's universalization is vital

Supporters of the TPNW should view its universalization as a strategic approach to maximize the influence of the Treaty's values, norms, and principles on the nuclear weapons policies of the nine nuclear-armed states and the states that fall under their nuclear umbrella, ultimately pushing them towards nuclear disarmament (Ritchie and Kmentt, 2021).

In this context, the text of the TPNW explicitly calls for universalization. Article 12 of the Treaty states that 'Each State Party shall encourage States not party to this Treaty to sign, ratify, accept, approve or accede to the Treaty, with the goal of universal adherence of all States to the Treaty' (United Nations, 2017). Furthermore, the Vienna Action Plan outlines commitments by States Parties that include conducting diplomatic outreach visits to countries that have not yet joined the Treaty, appointing a government representative (contact point) responsible for this task within 60 days, emphasizing the importance of the TPNW in statements at the UN and garnering more countries' support through UN General Assembly resolutions, as well as coordinating efforts with

relevant partners. Since the First Meeting was held, the 2022 report of the Nuclear Weapons Ban Monitor, a research project managed by Norwegian People's Aid, has tracked the UN member states/observers and other entities' efforts to promote universal adherence to the Treaty in the course of 2022 (Nuclear Weapons Ban Monitor, 2023).

In addition to the direct commitments outlined in the Treaty and its relevant documents, universal adherence to the Treaty entails two aspects: vertical and horizontal. The primary focus of this approach has been on the vertical aspect, seeking to enhance the political authority and effectiveness of the Treaty among the existing States Parties (Ritchie and Kmentt, 2021). In other words, universalization is not an end in itself; rather, it acts as a means to integrate and incorporate the Treaty's fundamental norms and justifications into the existing global (security) order. This order is one where nuclear-armed states and the majority of their allies, who rely on nuclear deterrence, advocate for the legitimacy and necessity of nuclear weapon development and their potential use.

Despite the TPNW's overarching purpose, doubts persist regarding the practicality of applying the Treaty to nuclear-armed states and their allies in the foreseeable future, in addition to the diverging perspectives among the TPNW's advocates, and a growing inclination towards the use of nuclear weapons within European nations. While these challenges may significantly impede the vertical progress of the TPNW, it is essential not to neglect the horizontal aspect. Horizontality, in this context, refers to increasing the number of supporters, signatories, and parties to the Treaty, recognizing that nuclear-armed states and their allies may remain unyielding. Nonetheless, expanding membership showcases the Treaty's legitimacy and global desirability, while also providing momentum for gradually mounting pressure against nuclear-armed states and proponents of nuclear deterrence in the context of bilateralism and multilateral governance. Former elected judge and section president at the European Court of Human Rights, Mark Villiger, underscores this perspective by stating:

'The number of parties to a convention may indicate whether the State community regards the convention as the desirable law for its organization. This political authority increases with a greater number of States participating in the drafting of the convention and expressing themselves in favour of the draft . . . and finally accepting the instrument' (Villiger, 1985).

TPNW universalization is based on the principle of maximizing the influence and impact of the Treaty on a global scale. A key aspect of achieving this objective in the short term involves expanding the membership, thereby increasing the number of states that recognize the Treaty's norms and obligations as valid and collectively mandated under Article 12. By cultivating an inclusive global network of actors, universalization enhances the treaty's impact and facilitates its worldwide promotion. The subsequent section delves into the dynamic relationship between this global reach and the (potential) role of transnational parliamentary governance.

3. Transnational parliamentary governance and TPNW

Transnational parliamentary governance encompasses organizations or frameworks that engage national parliaments from multiple nations, operating at either an international or regional level. These entities are purpose-built to foster cooperation, dialogue, and coordination among parliamentarians hailing from diverse countries. They collaborate on a range of common-interest matters, including but not restricted to politics, economics, and global challenges like disarmament. For instance, Parliamentarians for Nuclear Non-proliferation and Disarmament

(PNND), a non-partisan platform for parliamentarians at both national and international levels, ideally demonstrates the extent of global parliamentary cooperation on disarmament (PNND, n.d.).

Transnational parliamentary governance comes in diverse forms, spanning formal organizations with established structures, rules, and membership criteria to more casual forums and networks. Furthermore, the entities within the transnational parliamentary governance exhibit diversity in terms of their missions. While most are oriented by geography, some are dedicated to specific thematic issues. For instance, the Parliamentary Forum on Small Arms and Light Weapons (PFSALW) stands out as the sole international organization exclusively serving parliament members focused on reducing and preventing violence related to Small Arms and Light Weapons (PFSALW, n.d.).

The universalization of the TPNW faces significant challenges, particularly when it comes to engaging states that remain opposed to it (red zone). Nevertheless, there is potential for territorial expansion if states in the grey zone eventually decide to join the Treaty. Transnational parliamentary entities play an often-underestimated role in advancing the values, practical applications, and, most importantly, the narratives and discourses surrounding the TPNW.

They bridge the gap between the will of the people, domestic politics, and the international stage. They foster cooperation, build alliances, and collaborate with civil society, all while promoting accountability and transparency. Transnational parliamentary entities bring a global perspective and diverse viewpoints to the TPNW universalization effort, making it more inclusive and reflective of the complex geopolitical landscape. Their involvement is not only beneficial but also necessary for achieving the ultimate goal of a world free from the threat of nuclear weapons (PNND, 2023). Therefore, recognizing the role of these parliamentary bodies and actively involving them is essential in the ongoing pursuit of global nuclear disarmament through the TPNW. The following section seeks to explore the fundamental factors that confer legitimacy upon a transnational parliamentary governance's role in advancing nuclear disarmament and promoting the TPNW universalization.

4. TPNW canonization via transnational parliamentary governance

The narrative and discourse surrounding the TPNW are crucial in maintaining states' commitment and encouraging them to ratify the Treaty. A number of actions in the Vienna Action Plan emphasize the need to amplify the Treaty's discourse. Action 9, for instance, urges State parties to 'highlight the importance of the Treaty in statements, including at the political level, through joint regional or cross-regional statements, resolutions, and in all relevant forums, including United Nations disarmament organs' (UN Office of Disarmament Affairs, 2022).

Although discourse alone cannot instantly accelerate the expansion of membership, it possesses the potential to foster an environment where the values and benefits of the TPNW gradually gain recognition, while also challenging the discourse of its opponents. Given the limited potential for immediate geographical expansion of the Treaty, Advocates of the TPNW should finetune their strategy to achieve a dual objective: canonizing their arguments and securitizing the counterarguments raised by nuclear-armed states and their beneficiaries.

Canonization in the humanities can be understood as the glorified image of oneself and of their values. When it comes to the canonization of subject matters, the process is lengthy and involves first 'reiteration' by its proponents and then 'recognition' from the specific target groups. The ultimate aim is to strengthen the position of the canonized subject matter within the broader sphere (Renner, 2021). In the context of the TPNW, the concept of canonization draws upon the

glorified discourse surrounding the humanitarian approach as a logical and persuasive tool for stigmatizing nuclear weapons (Lennane and Moyes, 2021). Furthermore, canonizing the Treaty highlights its positive impact on global security and how universal adherence to it could shape and solidify key aspects of the evolving global security order, particularly as championed by proponents primarily from the Global South.

In addition to the canonization of the TPNW's discourse, there exists a complementary element that targets its opponents: *securitization*. According to the Copenhagen school of security studies, security should be viewed as a speech act, where the focus lies not on the reality of threats but on the social construction of certain issues as threats (van Munster, 2012). In the context of the prohibition of nuclear weapons, counterarguments coalesce around the role of nuclear posture in global strategic stability and the position of the NPT in preventing the spread of nuclear weapons and achieving disarmament (Rubin and Stulberg, 2018). To undermine the contentions put forth by opponents, supporters of the TPNW, including state parties, must not only promote the values and benefits of the Treaty but also challenge the exclusionary and violent framework that sustains the current nuclear status quo through promoting a narrative within different platforms including transnational parliamentary entities. Beyond the cardinal humanitarian discourse, a 2023 paper illustrates how small and middle power states, predominantly from the Global South and proponents of the TPNW, have challenged the war traditions perpetuated in nuclear discourse, enabling them to assert agency within nuclear politics by disrupting dominant power configurations (Panico, 2023).

Both canonization and securitization can serve as catalysts for the universalization of the TPNW and are reflected in the discourse and narratives surrounding the nuclear weapons prohibition. While the text of the TPNW and the Vienna Action Plan primarily call upon States Parties to amplify universalization narratives, they are not the only entities qualified and capable of doing so. Multiple non-governmental organizations and civil society actors have worked towards the global ban on nuclear weapons. Among them, the International Campaign to Abolish Nuclear Weapons (ICAN), the recipient of the Nobel Peace Prize in 2017, has effectively amplified the TPNW discourse through its active participation and advocacy at numerous regional and international gatherings. In general, depending on their missions and resources, non-state actors have sought to raise public awareness and generate discourse at the national and international levels. However, transnational parliamentary entities, despite Article 7 of the TPNW broadly calling for their cooperation and assistance (UN Office of Disarmament Affairs, n.d.), have been largely absent from these efforts aimed at facilitating the implementation of the Treaty.

In examining the significance and relevance of transnational parliamentary governance in promoting the core principles of the TPNW, the next section delves into the International Parliamentary Union (IPU), its historical achievements, and its capacity to reinforce the TPNW's core message and its potential to counter the arguments put forth by nuclear-armed nations and their advocates. The paper considers how TPNW supporters can be empowered to progressively garner support from states in the grey zone and foster the broader adoption of the Treaty.

5. How IPU catalyses TPNW's universalisation

National law-making bodies play an irrefutable role in the signature and ratification of international treaties such as the TPNW. Depending on the political system of the state, parliaments assume distinct roles and wield varying levels of influence in the process of international treaty ratification. Furthermore, domestic rivalries and policy differences between ruling and opposition parties in (quasi)democratic systems, as well as the country's foreign policy

priorities and geopolitical situations, all contribute to either expediting or prolonging the process of international treaty approval (Beetham, 2006). Nevertheless, the approval of the national parliament is undeniably a prerequisite for any treaty to be enforced nationwide.

Amidst the growing prevalence of regionalism, globalism, and multilateralism that drive countries towards increased transnational collaboration on shared challenges and opportunities, national parliaments have also stepped up their efforts to connect and cooperate with their counterparts both regionally and globally. Just as governments utilize the United Nations as a platform for dialogue, agenda-setting, and collective decision-making, national parliaments have sought to define and strengthen transnational parliamentary governance as a complementary but crucial layer to multilateral transnational governance (Marschall, 2007).

Since the mid-twentieth century, there has been a significant popularity and recognition in transnational parliamentary governance. It started in 1957 with the establishment of the European Parliament. Subsequently, the Latin American Parliament came into existence in 1964, followed by the Andean Parliament in 1979, among other assemblies. Predating these developments is the Inter-Parliamentary Union (IPU), an international organization of national parliaments that was founded in 1889. Currently, the IPU boasts a membership of 179 national parliaments, along with 14 associate members such as the European Parliament and the Arab Parliament. Additionally, it includes 70 permanent observers, which consist of UN specialized agencies and all regional parliamentary assemblies (Schimmelfennig et al., 2021).

As a participant in the first Meeting of State Parties to TPNW, the IPU has been instrumental in advocating for the TPNW and nuclear disarmament through its commitment to fostering dialogue, building consensus, and advocating for change. According to the IPU's Secretary-General:

‘Engagement of parliamentarians from across the political spectrum is vital to take forward disarmament measures in order to enhance peace, security, democracy and economic well-being of people around the world, and to protect the planet. The importance of disarmament has become even more self-evident in light of the COVID-19 pandemic. Good public health systems, science and evidence-based policies, international cooperation, informed civil society and peace are the ‘weapons’ to combat pandemics, not guns or bombs’ (Baruah, 2020).

The IPU plays a pivotal role in advancing the canonization and securitization of TPNW's narratives, all with the overarching goal of achieving universal adoption of the Treaty. This objective can be actualized through a series of strategic actions, a few of which have been employed by the IPU, while others represent potential avenues for exploration. These steps encompass:

1. **Parliamentarians' Awareness and Engagement.** The IPU is uniquely positioned to raise awareness of parliamentarians about the consequences of nuclear weapons and encourage them for interactions with their respective government and constituencies. Through direct access to parliamentarians who make laws at national levels, IPU can educate parliamentarians the consequences of nuclear arms proliferations and what responsibilities and positions they should take once the nuclear debates emerge at the national parliaments. For instance, the IPU collaborated with other transnational parliamentary entities to publish the ‘Handbook on Parliamentary Action for Disarmament’ in 2020 (Ware, 2020). The Handbook offers a comprehensive collection of practical toolkits and recommendations designed to help parliamentarians prioritize nuclear disarmament in their parliamentary discussions. Although the Handbook was published prior to the entry into force of the TPNW, the Treaty has lent increased significance and purpose to the Handbook since the

recommended actions outlined in the Handbook are now substantiated by the support of the Treaty.

2. **Humanitarian Approach.** In addition to raising awareness and engaging with parliamentarians, IPU can play a crucial role in advancing the central tenet of the TPNW, which focuses on the humanitarian consequences of nuclear weapons, through a range of initiatives. For example, on the first anniversary of the TPNW's entry into force, the IPU organized a series of webinars for parliamentarians across geographic regions, delving into the intersection of nuclear disarmament and human security (IPU, 2022). This effort exemplifies the IPU's commitment to institutionalizing the TPNW discourse among influential stakeholders (i.e., parliamentarians) in furthering the Treaty's goals and turning them into the dominant narratives at the national level.
3. **Compartmentalization.** The IPU is geographically divided into six geopolitical groups¹ some of which advocate for the Treaty, while others do not. Since the IPU and its Secretariat have officially endorsed the Treaty's entry into force in an official statement (IPU, 2021), it is crucial for the Union to compartmentalize its efforts using both horizontal and vertical approaches to promote the TPNW. For instance, groups such as the African Group and the Group of Latin America and the Caribbean (GRULAC), whose members already demonstrate full compliance with the TPNW, can take the lead in integrating the Treaty into their internal agendas. They can work towards enhancing the authority of the Treaty and engage non-parliamentary individuals and entities to support and reinforce the narratives surrounding the TPNW. Furthermore, these groups can leverage their own capacities and capabilities—and those of like-minded entities who are proponents of the Treaty—to exert pressure on member parliaments whose respective countries are either hesitant to ratify the Treaty or explicitly oppose it. While presenting the Treaty within the IPU's Plenary/Assembly sessions may encounter immediate opposition from parliamentarians representing nuclear-armed states and their allies, a more nuanced and compartmentalized approach, involving specific geopolitical groups, along with the engagement of like-minded non-parliamentary entities, can gradually pave the way for the integration of the Treaty into the IPU's main agenda. This can begin by proposing an emergency item² or by urging the President of the IPU and its Executive Council to issue a statement on the salience of the TPNW. This measured approach acknowledges that opposition to the TPNW can impose moral costs on its opponents over time. A similar approach is notably observed in the context of Israeli-Palestinian relations. The Palestinian question has become a recurring theme in discussions during each biannual IPU Assembly. During the 147th Assembly in October 2023, two of the four emergency items on the agenda were dedicated to addressing the challenges faced by the Palestinian people following the deadly attacks by Gaza-based Hamas during a music festival inside Israel on October 7, 2023 (IPU, 2023). The format provides each geopolitical group and member parliament with the opportunity to advocate for or against the subject matter of the emergency items and engage in public discourse on the issue.
4. **Promoting Dialogue.** The IPU provides a platform for parliamentarians to engage in open and constructive dialogue about nuclear disarmament. By facilitating discussions, sharing

¹ African Group (52 members); Twelve Plus Group (47 members); Asia-Pacific Group (36 members); Group of Latin America and Caribbean (24 members); Arab Group (21 members); Eurasia Group (10 members).

² According to the IPU statute, any Member of the Union may request the inclusion of an emergency item in the Assembly agenda. Such a request must be accompanied by a brief explanatory memorandum and a draft resolution which clearly define the scope of the subject covered by the request.

knowledge, and fostering understanding, it helps build the necessary political will to support the TPNW.

The expansion and strengthening of transnational parliamentary governance have been driven by the recognition that national parliaments and parliamentary institutions are vital for achieving good governance. As essential pillars of democracy, they fulfil significant functions in legislation, oversight, and representation. Moreover, their role in representation encompasses guaranteeing that citizens and various stakeholders have a voice at both national and regional levels, thus ensuring their involvement in global governance and agenda-setting matters (Ogbonnaya and Ogujiuba, 2015).

Promoting parliamentary diplomacy and empowering parliaments and parliamentarians to foster peace at regional and global levels are two shared goals in transnational parliamentary governance. These objectives are fully aligned with the efforts to achieve universalization of the Treaty on the TPNW. The Vienna Action Plan emphasizes that the concept of universalization should be 'understood broadly' to encompass not only increased signatures and ratifications but also a wider acceptance of the fundamental rationale behind the complete elimination of nuclear weapons due to their inherent risks and catastrophic humanitarian consequences (UN Office of Disarmament Affairs, 2022). As mentioned earlier, this desired acceptance can be achieved by canonizing the discourses surrounding the TPNW and securitizing the anti-TPNW narratives.

Each transnational parliamentary entity has the ability to focus on the nuts and bolts of the TPNW as it is a legally binding international agreement with support from various regions. However, the IPU can hold a relatively unique position as the UN of parliaments, with all transnational parliamentary entities being members. Therefore, the IPU is an appropriate platform to foster discussions and discourse on the values and benefits of the Treaty for global security and the safety of nations whose interests are represented by parliamentarians at both national parliaments and the IPU.

6. Conclusion

Given the aspirations of transnational parliamentary entities to bolster their legitimacy, create a significant positive impact on people's lives, and influence regional and global agendas, it is crucial to recognize these entities as a means to amplify the humanitarian approach of the TPNW and challenge the stances of the Treaty's opponents. Among these entities, the IPU holds a central and leading position in transnational parliamentary governance, but it also faces limitations in fully gauging the interests and priorities of its member states. Similar constraints are not unique to the IPU, as most international organizations, including the UN, possess their own strengths and weaknesses.

While transnational parliamentary governance cannot easily solve the universalization issue of the TPNW, like other intergovernmental organizations, the opportunity it presents through the IPU allows for the dissemination of the TPNW's values to national representatives. This opportunity should be seized by the state and non-state supporters of the Treaty. However, efforts to promote the TPNW's discourse and counter the anti-TPNW narratives should not be restricted solely to the IPU. The 80 subregional, regional, transregional, or geopolitical parliamentary assemblies/associations spanning the world can serve the same purpose for the TPNW. While some of these entities may not allow debates on the Treaty (red zone), advocates of the TPNW in regions more open to its principles (green and grey zones) can utilize regional parliamentary assemblies to showcase the specific benefits of the Treaty for the region. This empowerment can assist individuals in effectively engaging with opponents at the IPU or other international forums.

Moreover, debates at the regional level can seamlessly transition to the national level, providing greater influence for its supporters at the national level. This, in turn, fosters discussions on the TPNW within national parliaments, where objective knowledge and expertise about the treaty may be lacking or the ratification progress may be hindered due to party politics.

In this particular context, at the second Meeting of State Parties to the TPNW in November 2023, a delegation comprised of 23 parliamentarians from 14 countries collectively delivered a resolute message. Guillaume Defossé, representing the Belgian parliament, presented a joint statement on behalf of the delegation, expressing their unwavering commitment to the universalization of the TPNW. The statement emphasizes the importance of the commitment undertaken by more than 2000 incumbent parliamentarians who have pledged to work for their country's signature and ratification of the Treaty (ICAN, n.d.). In upholding this commitment, the parliamentary delegation to the TPNW has undertaken to initiate parliamentary discussions on the treaty, propose resolutions in its favour, scrutinize national government stances, and engage with their constituents in public discourse concerning the pressing necessity for nuclear disarmament (UN Office of Disarmament Affairs, 2023c).

In the absence of a dedicated international authority specifically assigned to the TPNW, and considering the limited prospects for expanding the TPNW's reach geographically, all efforts to promote the Treaty should primarily focus on hegemonizing the discourse across all institutions. Of particular importance are national parliaments, which play a crucial role in either accepting or ratifying the TPNW at the national level. Accordingly, transnational parliamentary governance can serve as an ideal platform for equipping national parliaments and parliamentarians with robust justifications and rationales regarding the Treaty's utility and effectiveness. Such an approach aims to foster a shared understanding and commitment to the TPNW's principles and objectives, regardless of geographical location or political context. By empowering national parliaments with sufficient information and persuasive arguments through the advocacy of the TPNW's state and non-state supporters, the path towards universalization of the Treaty can be more effectively paved in the long run.

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IV. IMPACT OF TECHNOLOGICAL ADVANCEMENTS

13. From Transparency to Irreversibility: The Role of Blockchain in Nuclear Disarmament

OCÉANE VAN GELUWE

Abstract

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) plays a crucial role in promoting disarmament and preventing nuclear proliferation. Effective verification of disarmament commitments remains a challenge, often hindered by trust issues and the need for transparency. This paper explores the potential application of blockchain technology in enhancing the verification process within the framework of the NPT. It suggests blockchain's inherent characteristics, such as transparency, immutability, and decentralization, can enhance trust among signatory nations, reduce verification costs, and streamline the sharing of nuclear-related information. Through a comprehensive analysis of the literature and potential avenues of introduction, this paper outlines key advantages and challenges associated with integrating blockchain into the NPT verification mechanisms. Furthermore, it discusses the importance of international cooperation and consensus-building to ensure the successful implementation of blockchain technology in the pursuit of a nuclear weapon-free world. The paper aims to provide policymakers, diplomats, and experts with insights into the transformative potential of blockchain technology in strengthening the NPT's effectiveness and advancing the cause of global nuclear disarmament.

1. Introduction

War and catastrophe begin with forgetting. Is the memory of disasters a lever for collective resilience? In May 2023, leaders of the G7 countries reunited for their annual summit in Hiroshima, Japan (Kuhn, 2023). Many disarmament activists hoped they would listen to the *hibakusha*,¹ take stock of the lessons learned from Hiroshima and Nagasaki, face the escalating dangers of nuclear war and the threat it poses to mankind, and commit to concrete nuclear disarmament steps (Nikolic Hughes, 2023). However, critics considered the statements released as not reflecting the reality of the experience nor the contemporary urgency, further implying those discourses were written long before visiting the memorial (ibid.).

Nuclear disarmament has been a long-standing goal of the international community. Or it is the common narrative. If history can be forgotten, rewritten, and re-interpreted, so can words; and the common statement wishing for the elimination of nuclear weapons in a transparent, verifiable, and irreversible manner seems to follow this rule.

Ensuring a continuous common understanding of disarmament vocabulary and processes has been a significant challenge that has worsened State parties' foundations of mutual trust and reliability to engage in further discussions (Meyer, 1984). This is the priority that needs to be addressed within the nuclear non-proliferation and disarmament cornerstone, i.e., the Nuclear Non-Proliferation Treaty (NPT).

Some stakeholders are perplexed as to what innovation could bring to nuclear disarmament, and others are worried about the security risks, ethical implications, and unintended consequences it

¹ 'The surviving victims of the atomic bombs which fell on Hiroshima and Nagasaki. While these individuals survived the immediate effects of the blasts, the *hibakusha* have suffered from the effects of radiation sickness, loss of family and friends, and discrimination. (UNODA, 2023).'

could bring. This paper argues that innovation has the potential to be used as a tool to invigorate discussions on disarmament and challenge the current deadlock on verification, transparency, and irreversibility in nuclear disarmament. Blockchain technology is a promising example to open avenues in verification and transparency concerns while achieving accountability and, thus, irreversibility in the nuclear field (Bufford, 2020; Onderco and Zutt, 2021; Rockwood et al., 2018).² In other words, blockchain has the potential to cover the transparency, verifiability, and irreversibility components of nuclear disarmament.

This essay draws on previous reports and studies demonstrating the potential technical use of blockchain technology in nuclear disarmament. It proposes avenues within the political field to implement this technology within the international forums. This article is not an attempt to reinvent the wheel nor fall into solutionism but rather seeks to reopen the conversation and give it more visibility while informing those who may have little previous knowledge of blockchain but are curious about its promises.

As debated in this volume by Malygina and Ogilvie-White, the term irreversible has been under less scrutiny than its two other companions, making its linguistic morphology uncertain and its meaning interpretable.³ It is crucial to highlight that while Cambridge establishes that irreversible is the notion designating something that is 'not possible to change; impossible to return to a previous condition,' there are other definitions. Similarly, in blockchain, irreversibility refers to the property that once a transaction or data is added to a blockchain, it becomes extremely difficult or practically impossible to alter or reverse that transaction. Semantics gets trickier when non-proliferation and disarmament practitioners comprise broader interpretations ranging from a concept of reaching and maintaining global zero to a process or a scale to assess progress (Cambridge, 2023; INPDV, 2018; Anthony, 2011). Therefore, and for the purpose of this discussion, the article will understand irreversibility as mentioned in the first and second definitions, the third could impact and be impacted by a potential blockchain implementation.

First, this paper presents the basics of blockchain technology, including its technicalities and case studies, also delving into the key concepts that underpin blockchain technology and its functioning principles. This consists of a literature review on the use of blockchain in disarmament centred on *The Trust Machine Blockchain in nuclear disarmament and arms control verification* (Bufford, 2020). Space will be given to explore previous and ongoing research on blockchain applications in other nuclear industries.

Second, this article aims to analyse the potential role of blockchain in nuclear disarmament verification within the pre-existing legal and political structure and examine the opportunities available for potential implementation. The numerous challenges and concerns associated with implementation and policy will be outlined for further discussion.

2. Blockchain: trust machine, technicalities, and case studies

² Generally speaking, a blockchain consists of a distributed database that is shared between the nodes of a computer network (Meunier, 2018). They are best known for keeping secure and decentralized records of transactions in cryptocurrency systems. However, they are not limited to cryptocurrencies (Justina, 2019). Data can be immutable with blockchains in any industry, which describes an inability to replace. As such, blockchain provides a transparent and secure method of storing and sharing information and recording transactions across multiple computers. Its characteristics, such as transparency, immutability, and tamper resistance, make it an attractive technology for various applications, including nuclear disarmament and arms control verification.

³ This paper posits that the non-proliferation and disarmament fauna and flora took for granted that there was a common understanding that would not be de/re-constructed across time and translations. Furthermore, as professionals were concentrating on verifiability and transparency, irreversibility seemed to be a premature problem to focus on. Finally, perhaps irreversibility does make sense only combined with transparency and verification in nuclear disarmament. It is an open discussion.

2.1 The trust machine

Blockchain appears for the noninitiated as an abstruse concept, a combination of two common words that illustrate an idea. However, the inherent technology sometimes remains out of grasp. For this reason, this part will first review what is *not* blockchain.

First, blockchain is *not* a cryptocurrency. Cryptocurrencies are a manifestation of blockchain, a type of electronic cash based on the concept of cryptography rather than being governed by a central authority, which was developed in 2008 in response to the merging of multiple computer technologies and concepts. (Yaga et al., 2019).

Second, blockchain is *not* a programming language in itself. What is referred to as blockchain programming is managed by a person-to-person networking—or peer-to-peer (P2P) network⁴—as a publicly distributed ledger (DLT), where nodes follow a specific set of protocols (Ahram et al., 2017).

Third, blockchain is *not* a cryptographic codification. Blockchain networks use cryptographic techniques at two levels to secure data (Taherdoost, 2023). Key encryption⁵ is one method, and hashing⁶ is another. Encrypting key pairs ensures that information can be sent from one place to another without being intercepted, essentially protecting against external threats (ibid.). Hashing protects the internal layer, meaning that a data block is encrypted irreversibly through hashing with the SHA256 algorithm encrypting all the data in the block irreversibly (Alfredo-Badillo, 2022). Therefore, a blockchain network is theoretically secure due to the current impossibility of reverse engineering it, tampering with it without being noticed, or the consensus protocol in which the nodes in the network agree on a shared history (Gazdecki, 2018; Orcutt, 2018).

Also, blockchain is *not* an Artificial Intelligence (AI) or Machine Learning (ML) technology.⁷ While the two technologies are considered the most innovative, AI/ML can assist humans and make decisions. In contrast, blockchain technology facilitates secure, transparent, and tamper-proof data management and exchanges (Ahram et al., 2017). They do not have the same functionality or process; however, an intersection of both could impact many spheres of society.

Blockchain is a technology that operates on a network of computers, also known as nodes. These nodes can be owned by individuals or organizations and are connected via the internet. Each node maintains a copy of the entire blockchain, ensuring the decentralization and redundancy of the data. Transactions are grouped in blocks, which build the blockchain.

Figure 1 - Blockchain basic representation

⁴ Peer-to-peer network is one in two or more computers act as both a server and a client—supplying and receiving files—with bandwidth and processing distributed among all members of the network.

⁵ Encryption Key: typically, a random string of bits generated specifically to scramble and unscramble data. Encryption keys are created with algorithms designed to ensure that each key is unique and unpredictable. The longer the key constructed this way, the harder it is to break the encryption code.

⁶ Hash function: Data of arbitrary size can be mapped to fixed-size values using hashing. A hash function can return a hash value, hash code, digest, or simply a hash. A hash table is usually indexed by the values in a fixed-size table.

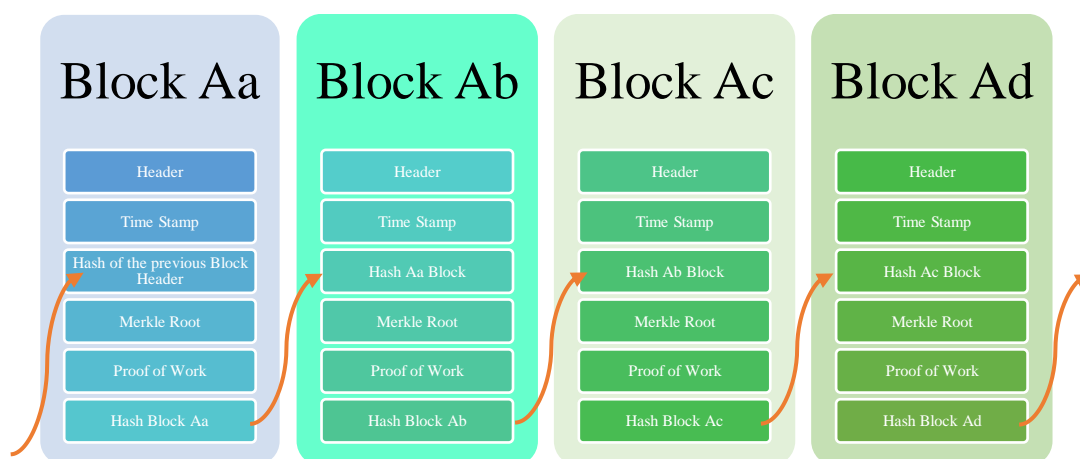
⁷ Note: Machine learning differs from AI in that it does not take into account a machine's ability to mimic human intelligence. In machine learning, patterns are identified to teach a machine how to perform a particular task.



Each block contains a list of transactions, a timestamp, and a unique hash identifier (Alfredo-Badillo, 2022). The hash is a digital fingerprint generated through a cryptographic hash function, ensuring the block’s integrity. Hash functions are fundamental as they take an input (here, the data in a block) and produce a fixed-size, hash output. The hash is unique to the input data, meaning even a slight change in the input will result in a completely different hash (ibid.). This property makes it extremely difficult to modify the contents of a block without changing its hash.

A reference to the previous block’s hash in the chain is present in each block, forming a linked structure (See Figure 2). This linking ensures the chronological order and integrity of the digital ledger. If someone tries to tamper with a previous block by altering its contents, the hash of that block will change, breaking the chain of hashes and alerting the network to the tampering attempt.

Figure 2 - Blockchain representation with inside components



After each transaction, blockchain networks use consensus algorithms to agree on the validity and order of transactions (Harris, 2019). Consensus is achieved through a process where nodes in the network collectively reach an agreement on the state of the blockchain (Wang et al., 2020).⁸

Before a transaction is added to a block, it needs to be verified by the nodes in the network (ibid.). The verification process may vary depending on the blockchain implementation and the type of information being recorded. For example, in a cryptocurrency transaction, the network checks if the sender has sufficient funds and if the transaction adheres to the rules of the blockchain protocol. Once a block is added to the blockchain, altering or deleting its information becomes extremely difficult. As the blockchain is distributed across multiple nodes, an attacker would need to control an absolute majority of the network’s computational power (in Proof of Work) or stake (in Proof of Stake) to manipulate the blockchain, making it highly secure.

⁸ Different consensus mechanisms, such as Proof of Work (PoW) or Proof of Stake (PoS), have algorithms to validate and add new blocks to the chain. In summary, PoW requires nodes to solve a complex mathematical puzzle, and the first node to find the solution broadcasts it to the network, and if other nodes verify it, the block is added; meanwhile, In PoS, blocks are created by validators based on the amount of cryptocurrency they own or are willing to stake (Cong et al., 2019). Validators propose blocks, and other validators confirm their validity. Compared to PoW, this mechanism uses less power.

In short, blockchains are shared databases that store information in blocks linked together by cryptography rather than traditional databases. A blockchain can store different types of information, but transactions that have been stored on it were most frequently as ledgers. Decentralized blockchains are immutable, which means that the data entered is *irreversible*. For instance, with Bitcoin, transactions are permanently recorded and viewable to anyone.

Since blocks theoretically cannot be changed, trust is particularly needed when a user or program enters data when initiating a new block. The benefit of this aspect is that it reduces the need for trusted third parties, potentially reducing costs, mistakes, or data distortion or interpretation (Ahram et al., 2017). Blockchain is often called the "trust machine" (Winter, 2018) because it can transform trust in digital interactions and enable a trust-enhancing environment. There are a few reasons behind this label: trust through transparency, trust through decentralization, trust through consensus, and trust through immutability.

2.2 Previous studies and case studies

Speaking about the trust machine, in 2020, L. Burford published through the Centre for Science & Security Studies at King's College London a study called *The trust machine: Blockchain in nuclear disarmament and arms control verification machine*, one of the few available resources at the intersection of blockchain and disarmament given the relative nascence of thinking on the topic. Early scepticism has been drawn on the theory vs. the practice of blockchain use in general, not to mention in the nuclear businesses (Orcutt, 2018). This is perhaps a function of the techno-hype solutionism trap, the human component, its existing application only in cryptocurrencies, the limitations of disarmament verification, and the secrecy of nuclear weapons-related data. Still, in a recent interview (Keeler, 2022), Burford pushed for the creation of a global group of citizen scientists to use off-the-shelf technology to monitor nuclear signals and feed them into the blockchain. The aim would be to go around what the professor denounces as a profitable industry with no incentives for disarming by inventing a new profitable industry: disarmament (ibid.).

The *Trust machine* report emerged with the recognition that disarmament agreements are extremely difficult, if not impossible, to enforce, so building trust in the verification process is more important than enforcing the results (Burford, 2020: 6). Also, while States possess an interest in disarmament and arms control, lack of trust prevent them to work together to reduce nuclear risks (ibid.). The report argues that using blockchain technology to verify disarmament and arms control agreements can create practical cooperation, leading to a strengthening of the NPT process and a debate revitalization through the management and generation of new data (Leetham, 2023). Further, public-key cryptography could be used for encrypting stockpile declarations, giving the declaring party the right to determine who can access the data and allowing recipients to authenticate its source with assurance it was not altered in any way (ibid: 12).

The report argued that the use of smart contracts could benefit cooperation and has the potential to build confidence, as participation in a database that cannot be secretly changed or tampered with, which reports on nuclear weapons stockpiles and dismantlement, could demonstrate the conduct in good faith of disarmament obligation under Article VI of the NPT. A smart contract refers to a piece of code defining the rules by which transactions in a shared ledger are executed (Harris, 2019). When smart contracts are executed, new blocks are appended to the blockchain. Contracts can be pre-programmed to execute at a certain time when certain conditions are met or when a participant orders a transaction (Taherdoost, 2023). They would be compared with legal contracts since they could modify the ledger and be initiated on predetermined terms. Smart contracts then enforce the uniformity of blockchain transaction logic for all nodes, even though it is decentralized regarding data storage. Blockchains are not technically required for smart

contracts but could reduce the likelihood that the contracts or the data they manage to be hacked (Burford, 2020: 7). Still, notable cases of smart contract hacks have occurred, the most famous being the DAO Hack in 2016 (Orcutt, 2019).

There exists additional research on the potential role of other blockchain technologies in strengthening nuclear security, nuclear safeguards, and general military logistics. In 2017, a pilot study was conducted at the Pacific Northwest National Laboratory in the US and found that blockchain could improve the reporting of IAEA safeguards (Frazar, 2021), as DLT could offer tamper-evident records. This study addressed the IAEA budgetary stress to conduct its safeguards functions in light of increasing responsibilities and other budgetary requests (ibid.).

Furthermore, the Stimson Centre and the Finland's Radiation and Nuclear Safety Authority (STUK), and the University of New South Wales (UNSW) in Sydney, Australia, launched a blockchain project nationwide for the accounting and control of nuclear materials called SLAFKA (Vestergaard et al., 2020). With the participation of three regulators and three operators, SLAFKA aimed to be a small-scale prototype based on the Common regulation available in Finland and accommodated users with a Human Machine Interface (ibid.). The study concluded that the current unidirectional safeguards reporting is hierarchical and takes time to verify information between operators and regulators and the IAEA. In contrast, SLAFKA utilizes digital transacting to exchange and verify transactions between holders/operators instead of reporting directly to regulators, thus encouraging greater transparency and greater participation among stakeholders. As part of blockchain decentralization, multiple participants are given a role in maintaining the ledger, thereby creating a trusted environment. This innovation allows the SLAFKA participants to participate in the nuclear material supply chain (ibid.). The research suggested that DLT application could meet the essential requirements for nuclear material accounting and calls for further research were made.

Outside disarmament affairs, the blockchain consensus mechanism could enhance risk reduction by replacing the physical keys in a dual-key missile launch system (Burford, 2020). Concretely, this could take the shape of carrying many more keys and alerting the whole system if someone tries to turn on their own, enhancing security and transparency for nuclear weapons systems. Finally, it is worth mentioning that military from NATO countries and the European Union are eyeing blockchain technologies to manage combat data, or communications to assess its viability and application to defence management (Munoz, 2021; Simerly & Keenaghan, 2019; Ministère des Armées, 2023; European Defense Agency, 2023; Rumelioglu, 2022).

3. Nuclear disarmament verification & the trust machine: a way forward?

3.1 Potential introduction of the blockchain technology in the NPT-related realm

Although complete, *The trust machine* aimed at conceptualizing the use of DLT in nuclear disarmament, and did not address its political or technical implementation. This section attempts to draft steps that could authorize this concept to take life.

Nuclear disarmament is understood as reaching global zero. Nuclear disarmament needs to balance the need for trust-building with the necessity of thorough verification, which represents a delicate task in disarmament negotiations. One of the main obstacles is the inherent lack of trust between nuclear-armed states, which have been accused repeatedly of hindering cooperation and information sharing. Secrecy around nuclear arsenals for the sake of strategic stability makes it difficult to verify the number and types of weapons possessed. Gaining access to sensitive military sites and facilities for inspections can be a contentious issue in disarmament negotiations.

Verifying nuclear disarmament requires advanced technology and expertise, including monitoring and inspection of nuclear facilities and stockpiles. As nuclear weapon technologies evolve, so do the methods needed for verification, which can lead to verification gaps. The establishment of robust enforcement mechanisms to ensure compliance with disarmament agreements can be complex and contentious. Finally, the loss or unavailability of dismantlement data in the context of nuclear disarmament has been a significant challenge before.⁹

Addressing these challenges requires diplomacy, technology development, and international cooperation to make progress towards nuclear disarmament. Following the previous statement that ‘building trust in the verification process is more important than enforcing the results,’¹⁰ this paper advocates first taking advantage of the pre-existing system. It would allow some states parties to engage non-nuclear weapon states (NNWS) and allow implementation of previously agreed steps or measures.

Reports on the implementation of Article VI of the NPT were called at first with Practical Step 12 (NPT, 2000):

‘12. Regular reports, within the framework of the NPT, strengthened the review process by all States parties on the implementation of Article VI and paragraph 4 (c) of the 1995 Decision on "Principles and Objectives for Nuclear Non-Proliferation and Disarmament" and recalling the Advisory Opinion of the International Court of Justice of 8 July 1996.’

Furthermore, it was reinforced and specified under Actions 5, 20, and 21 of the 2010 NPT Review Conference 64-point action plan (NPT, 2010):

‘Action 5: The nuclear-weapon States commit to accelerating concrete progress on the steps leading to nuclear disarmament, contained in the Final Document of the 2000 Review Conference, in a way that promotes international stability, peace, and undiminished and increased security. [...] The nuclear-weapon States are called upon to report the above undertakings to the Preparatory Committee in 2014. The 2015 Review Conference will take stock and consider the next steps to implement article VI fully.’

Those two measures accepted in previous consensus documents are a source of irritation to NNWS as some nuclear weapon states (NWS) have failed to implement them in the past review conference.¹¹ Certainly, many would argue that those reports are just political statements and do not have much value. However, the failure to implement them further divides the NWS and the NNWS, leading the latter to perceive that what they consider a simple task already agreed upon in previous final consensus documents is not complied with.

As such, successfully introducing blockchain reporting to the previous obligations stated under Article VI and agreed upon in previous final documents could contribute to building confidence between the NWS and NNWS and the blockchain system. Should it prove relevant, the conversation could turn to negotiations on a systemization in other negotiation forums, like the Conference on Disarmament. Initiating blockchain technology in nuclear disarmament reports and verification,

⁹ When South Africa disarmed and reported to the IAEA, the investigation was made difficult due to the lack of Comprehensive Records, the secrecy and non-disclosure, the use of inadequate verification mechanisms that contributed to data loss, the change of regime or leadership disrupting the continuity of data retention and sharing, the technical challenges, or missing classification standards, credible and experienced inspectors (Kelley, 2023). All of this point out to an inadequate reporting mechanism, which comes as no surprise as South Africa was the first to disarm, there was no standardize reporting system.

¹⁰ See p. 6.

¹¹ Note: if all NWS submitted report on implementation of the Action 5, 20, 21, and the 2000 NPT 12th Step at the Third Preparatory Committee in 2014. For the X Review Conference, only the [United Kingdom](#) (2019) and the (2022) submitted a report.

even to previous reporting obligations under the NPT, would require careful planning and coordination among relevant stakeholders. Here are some draft steps that could be considered for proponents of blockchain technology to implement it in this context:

Preparation stages

- *Define Objectives and Scope:* Proponents should clearly articulate specific objectives of using blockchain technology in nuclear disarmament reports and verification systems. This could centre on first reporting on current stockpiles (active and inactive warheads), retired warheads, warheads going through modernization,¹² and those planned for retirement.¹³ There exists space for this through a smart contract authorizing to disclose information at the next NPT Review Conference, which could enhance transparency and provide an incentive for NWS to enter data.
- *Stakeholder Engagement:* Proponents should engage key NPT stakeholders, including member states, disarmament experts, international organizations, and technical specialists. Blockchain experts should seek their input and address concerns to ensure broad support and collaboration throughout the implementation process. Building a coalition of member-States from different regions could tip the balance, and also help to define, engage, and advocate for creating a group of experts. Regional groupings could organize coordination meetings or attempt to pass this group with the United Nations General Assembly. Supporters of the Treaty on the Prohibition of Nuclear Weapons (TPNW) could support blockchain implementation both within the NPT and the TPNW, thus advocating for harmonization of the reporting and verification between the two treaties.
- *Design Blockchain Architecture:* Proponents should determine the most suitable blockchain architecture for the specific needs of nuclear disarmament reports and verification systems. They should consider privacy requirements, data storage and retrieval mechanisms, consensus mechanisms, and interoperability with existing systems. Collaboration between experts in blockchain technology and those in nuclear disarmament is crucial to ensure the alignment of the DLT with the legal, technical, and policy considerations of disarmament and verification processes.
- *Data Collection and Recording:* Proponents should establish a standardized data collection and reporting format that can be stored on the blockchain. This can include defining the types of information to be recorded, such as the status and location of nuclear weapons, dismantlement activities, and verification procedures. They can also look to ensure the accuracy and integrity of the data by incorporating mechanisms such as digital signatures or hash functions; while establishing space for condition-based reporting with the smart contracts. By integrating monitoring devices or sensors with the blockchain, data can be automatically fed into the smart contract. If any predefined thresholds or anomalies are detected, the smart contract can trigger alerts or notifications to relevant parties, ensuring prompt attention and action.¹⁴

¹² Although ambitious, it would be necessary to define the scope of modernization. Still, it remains a redundant subject in the discussions, i.e., the increase of capability qualitatively.

¹³ Excluding it from modernization, if a weapon is retired and a modernized version appears, it needs to be reported.

¹⁴ By utilizing the special contract function of blockchain, the implementation can leverage automation, transparency, and trust provided by smart contracts to enhance the efficiency, accuracy, and effectiveness of nuclear disarmament reports and verification systems under the NPT.

Testing and Implementation

- *Verification Process Integration:* Proponents should integrate the verification process with the blockchain system. They can define the criteria and protocols for verifying the data recorded on the blockchain, such as inspections, monitoring, or auditing procedures. They should also explore the potential for using smart contracts to automate certain verification tasks, reducing the risk of human error.
- *Security and Access Controls:* Proponents should implement robust security measures to protect sensitive information stored on the blockchain, use encryption techniques to secure data transmission and storage, and define access controls to ensure only authorized parties can access and update the information.
- *Compliance and Legal Considerations:* Proponents should ensure that the implementation of blockchain technology aligns with the legal and regulatory frameworks of the NPT. This includes addressing issues such as compliance with international agreements, data privacy regulations, and jurisdictional considerations. They should also seek legal expertise and collaborate with relevant international organizations to ensure compliance.
- *Testing and Pilot Programs:* Proponents should conduct thorough testing and pilot programs to validate the effectiveness and efficiency of the blockchain system in nuclear disarmament reports and verification. They should also collect feedback from participants and make necessary adjustments before scaling up the implementation.
- *Training and Capacity Building:* Proponents should provide training and capacity-building programs for stakeholders using the blockchain system, while ensuring that relevant personnel are knowledgeable about the technology, its functionalities, and its integration into the existing nuclear disarmament and verification processes.
- *Continuous Evaluation and Improvement:* Proponents should regularly evaluate the blockchain system's performance and gather user feedback, identify areas for improvement and refine the system accordingly, stay updated with advancements in blockchain technology, and adapt the implementation to leverage new features or capabilities.

3.2 Challenges: It is not a panacea...

'Blockchain is not a panacea' (Burford, 2020, p. 18). There will still be several concerns here about verification systems, compliance, and trust between state parties. To achieve the desired objective, blockchain technology must be implemented carefully in order to be able to enable confidence-building measures and reduce the risk of fraud.

This section reviews technical and political challenges that will most likely impose resistance to the use of this tool:

- *Emerging new technologies:* The pace of innovation, what some call a cyber arms race, and security breaches within DLT's smart contracts will influence stakeholders to argue that this system is not viable, especially with the development of quantum computing. It can potentially pose security problems to the cryptographic algorithms commonly used to secure blockchain networks. The security concerns that could occur include private key exposure, a double-spending attack that could undermine the consensus algorithm, and

chain reorganization. While quantum computers are still in their early stages of development and are not yet available, it is important to consider this risk before implementation. However, research is underway to develop quantum-resistant cryptographic algorithms, also known as post-quantum cryptography (PQC), to resist attacks by classical and quantum computers. Furthermore, the military of many countries uses blockchain, suggesting the security risk can be mitigated.

- *The different status with NWS and the possessors:* NWS will likely argue that blockchain cannot be implemented due to the current security environment and would be irrelevant as the proliferation risk remains with the four possessor nuclear states outside the NPT.
- *Trust at the first input:* The only place where trust is needed is when a user or program enters data. Considering current geopolitical dynamics, this is unlikely to occur easily.
- *Need for complementarity:* Without an inspection regime or complementary input, some stakeholders will still accuse other parties of not declaring everything and cheat the system.

Undoubtedly, there are more challenges, requiring assessment by analysts and policymakers in accordance with their needs and objectives.

4. Conclusions: ... but a mithridatization

In the context of nuclear disarmament, blockchain can enhance transparency and build trust among the parties involved. It can provide a secure and verifiable platform for recording and sharing information related to nuclear weapons, their dismantlement, and verification processes. Using blockchain, authorized parties theoretically can securely store and access the data while preventing unauthorized tampering or modification.

The use and study of the DLT within other nuclear security, nuclear safeguards, and the military makes a case for its potential legitimate use. The peer-to-peer nature of blockchain allows for the creation of a trusted network where participating entities can securely share information and validate each other's actions.

This paper argued for the need to take advantage of existing structures and treaties, specifically the NPT. A proposal to achieve the agreed-on reporting that cannot be tampered with and would provide up-to-date information on disarmament efforts surely would reinvigorate the NPT. Steps to achieve this include the following.

- Projects such as the International Partnership for Nuclear Disarmament Verification and the Quad Initiative of Norway, Sweden, the UK, and the US should explore how blockchain can enhance nuclear disarmament and arms control verification (Burford, 2020).
- NPT states parties should gather academia on the theme.
- Blockchain proponents should meet NPT stakeholders and arrange a coalition for the next Review Cycle.
- NPT stakeholders should establish a group of experts and a subsidiary body to negotiate the terms of the potential integration of blockchain.
- The group of experts should meet regularly with blockchain, information, and communication professionals to establish feasibility and best approach, seek a trial for usage at the next review cycle, and if approved, develop a blockchain architecture and secure funding.

Implementing blockchain in nuclear disarmament verification would require overcoming several challenges. These include addressing data privacy and security concerns, ensuring the participation and cooperation of all relevant stakeholders, and establishing international standards and frameworks for blockchain-based verification systems. However, its implementation could help the NPT confront a growing loss of legitimacy that could emerge should international security deteriorate. We do not necessarily search for a cure against the poison, but rather a way to tolerate it for now.

'All of humanity's problems stem from man's inability to sit quietly in a room alone.'

- Blaise Pascal, *Pensées*.

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14. The Emergence of Nuclear Fusion Energy: A New Nuclear Technology, a New Chance for Nuclear Disarmament?

PHILIPP SAUTER

Abstract

Nuclear fusion is expected to revolutionize global energy production, as it has the potential to provide humanity with an inexhaustible, clean, and sustainable source of energy. Both state and non-state actors promise the commercial availability of fusion within the next decade. This paper explores how this emerging nuclear technology also has the potential to support the development of nuclear weapons, as thermonuclear weapons are partially powered by fusion processes and future fusion power plants could be used to produce fissile material. It makes the argument that neither existing safeguards nor disarmament instruments are prepared for a fusion powered world. The advent of fusion energy will require a rethink of approaches to nuclear disarmament and nuclear non-proliferation. It observes that the scientific community and the IAEA have begun considering adapting the non-proliferation regime to nuclear fusion and considers how this can serve as a basis of and catalyse new momentum for nuclear disarmament.

1. Introduction

Today's discussions in nuclear disarmament are largely confined to nuclear fission. As nuclear fission has for decades been the physical process that powers nuclear power plants and is the most essential component of nuclear weapons, nuclear weapons law has focussed only on this dual use technology. However, nuclear fission is on the verge of becoming a commercially viable energy source. The emergence of nuclear fusion raises new issues towards nuclear safeguards and disarmament. A thorough nuclear safeguards regime is an important prerequisite for the acceptance of nuclear disarmament, especially by the nuclear weapon states (NWS). Nuclear safeguards that are applied to non-nuclear weapon states (NNWS) and former NWS are an essential part in the verification of compliance with existing or future disarmament instruments. This paper will first emphasise the role of nuclear fusion for nuclear weapons (Section 2). It then explores the relationship between safeguards and disarmament (Section 3). The paper proceeds to argue that the current framework of nuclear safeguards is inadequate to address these fusion specificities (Section 4) before analysing the steps that need to be taken to support nuclear disarmament with a fusion-compatible safeguards regime (Section 5).

2. Nuclear fusion—a new nuclear technology?

Today's nuclear power plants are powered by nuclear fission. However, this may change in the coming decades as understanding of nuclear energy extends beyond nuclear fission to include nuclear fusion. While in nuclear fission an atomic nucleus of a heavy isotope is split into at least two lighter nuclei while releasing a significant amount of energy, nuclear fusion uses an opposite physical property of atomic nuclei. When light atomic nuclei are brought close together, they can fuse to form a larger nucleus, releasing energy in the process. In fact, nuclear fusion is what powers the stars, including the Sun, and what created most of the matter on Earth.

The idea behind most fusion power plants concepts is to fuse two different hydrogen isotopes to make one isotope of helium. Deuterium (also ^2H), which is what makes heavy water called heavy, fuses with tritium (also ^3H), a radioactive super-heavy hydrogen isotope, into ^4He , the standard isotope of helium. This reaction releases enormous amounts of energy and a high-energetic

neutron. To illustrate the potential of nuclear fusion: A bottle of water contains about as much fusion energy as can be produced from burning an entire trainload of coal. Fusion has the potential to power the world with practically inexhaustible resources while being safe without producing radioactive waste that needs to be stored for thousands of years.

However, because nuclear fusion occurs at energies of 150 million degrees Celsius (or 270 million degrees Fahrenheit), it poses enormous challenges to both physicists and engineers. Indeed, nuclear fusion is not necessarily a new nuclear technology. In fact, fusion has been known since 1933 (Oliphant & Rutherford, 1933), five years before the discovery of fission (Hahn & Strassmann, 1939; Meitner & Frisch, 1939). While research has been going on for decades however, recent progress has shown that fusion could be a viable energy source in the next decades (US Department of Energy, 2022). As a result, fusion start-up companies have seen an increase in funding, and some have promised to commercialise fusion within the next decade. Others expect fusion energy to be available on the electricity grid in the second half of this century (EUROfusion, 2018).

As with most discoveries of reactions that release huge amounts of energy, such as the discovery of TNT (Häussermann, 1891) or nuclear fission, fusion is also used for military purposes in thermonuclear weapons. In nuclear weapons, fusion plays both direct and indirect roles. Fusion adds to the devastating capacity of nuclear weapons.

In terms of the direct role, modern nuclear weapons rely, at least in part, on fusion processes. Most nuclear weapons are not based only on uranium or plutonium as *Little Boy* and *Fat Man* were but are boosted by fusion processes. The devastating effect of fusion-based weapons has been demonstrated by the most-powerful nuclear weapons ever detonated, such as the *Tsar Bomba* which had a yield of about 50 megatons of TNT equivalent. This corresponds to ten times the combined yield of all conventional explosives used during World War II. These thermonuclear nuclear weapons use fusion reactions of tritium with deuterium. Not all thermonuclear weapons use the gaseous tritium directly, some produce tritium by irradiating the rare lithium isotope ${}^6\text{Li}$ with neutrons produced during the detonation. The same tritium breeding process is also being considered for use in fusion power plants.

Another direct role for fusion in nuclear weapons is the transport of energy within thermonuclear weapons, also called hydrogen bombs—with the name stemming from the use of hydrogen isotopes in fusion. In order to ignite fusion-boosted thermonuclear weapons, it is important to understand the physics of energy transport via X-ray radiation. This is where nuclear weapons research and energy research meet directly. Both the US and France have built laser-based research facilities to conduct studies on so-called inertial confinement fusion in order to examine the physics of this transport without further testing of nuclear weapons. While these facilities play an essential role in fusion energy research, they are also integral parts of both the US and French nuclear weapons programmes. This type of fusion is the only type that has so far been able to produce more energy from fusion than needs to be put into the process, or 'ignition'. The close link between research in inertial confinement fusion and nuclear weapons was highlighted by the US Department of Energy following the breakthrough of ignition in December 2022, which highlighted military benefits over benefits for energy (US Department of Energy, 2022):

*'The U.S. Department of Energy (DOE) and DOE's **National Nuclear Security Administration (NNSA)** today announced the achievement of fusion ignition at Lawrence Livermore National Laboratory (LLNL) - a major scientific breakthrough decades in the making that **will pave the way for advancements in national defense** and the future of clean power. [...] This historic, first-of-its kind achievement will provide **unprecedented***

capability to support NNSA's Stockpile Stewardship Program and will provide invaluable insights into the prospects of clean fusion energy.' [Emphasis added]

Fusion can also indirectly contribute to nuclear weapons by producing fissile material via the production of neutrons during fusion processes. The fusion reaction most likely to be used is the fusion of tritium and deuterium, which produces a helium nucleus, energy and a neutron. The neutron produced carries an energy at which it is able to transmute U-238, or depleted uranium, into Pu-239, a fissile material. Simulations show that a single medium-sized fusion power plant could have the potential to produce more than a hundred significant quantities of Pu-239 per year (Glaser & Goldston, 2012).

These proliferation risks are limited when compared to the proliferation potential of fission. In fission, the relation between civilian and military use is significantly closer. If a state possesses natural uranium and enrichment facilities, a weapon is theoretically in reach. However, the understanding of fusion, the availability of fusionable material and fusion facilities alone are not enough to build a nuclear weapon. Fusion can be part of a nuclear weapons programme as a supporting or facilitating factor for fission-based weapons. Only if fusion is combined with fissile material can states use this technology for military purposes. However, once they do, the effects are devastating.

3. Safeguards and disarmament

Nuclear safeguards and disarmament go hand-in-hand. Although safeguards and disarmament are often viewed separately, there are close relations in both directions. Progress in disarmament supports progress in strengthening safeguards while strong safeguards measures can support progress in disarmament.

This two-way relation is apparent in the NPT itself: Accepting safeguards restrains the sovereignty of a state. As a general rule in international law, this restriction is only possible by a sovereign decision of the state.¹ In 1968, when the NPT opened for signatures, non-nuclear weapon states (NNWS) only accepted safeguards as part of the grand bargain which included—next to the inalienable right to the peaceful uses of nuclear energy—the objective of nuclear disarmament and a nuclear weapons free world following article VI promised by the nuclear weapon states (NWS). Both non-proliferation with its safeguards regime and disarmament are, in principle, equal pillars of the NPT.

The first relation—progress in disarmament supports progress in safeguards—became apparent during both the negotiations of the Additional Protocol to the Comprehensive Safeguards Agreement (CSA) as well the Treaty on the Prohibition of Nuclear Weapons (TPNW). Some NNWS are reluctant to accept strengthening the safeguards provisions while NWS show no progress at all towards nuclear disarmament. CSAs are in place with 178 states while Additional Protocols are only in force with 139 states. Similarly, although the diplomatic conference negotiating the TPNW considered making the Additional Protocol mandatory for all state parties, it decided against it (Hilgert et al., 2021). The reluctance to accept the strengthened safeguards provisions of the Additional Protocol is often attributed to the lack of progress with regard to disarmament by the NWS (Gibbons & Robinson, 2022; Spektor et al., 2019).

The second relation—strong safeguards support progress on nuclear disarmament—is apparent within the TPNW. The safeguarding of nuclear material is an important part in the verification of

¹ This principle is called the *Lotus Rule*, following the Judgment of the *Permanent Court of International Justice* of 7 September 1927, The Case of the S.S. 'Lotus', Series A—No. 10.

the compliance with this nuclear disarmament instrument. Article 3 requires all NNWS to maintain their safeguarding level already in existence and to conclude a CSA with the IAEA. For NNWS, the TPNW considers the existing IAEA framework as sufficient to prevent them from acquiring nuclear weapons. Article 4 of the TPNW provides similar requirements for former nuclear weapons possessing states (NWPS). This article requires NWPS to conclude IAEA safeguards in order to verify that nuclear material is not diverted from peaceful nuclear activities and the absence of undeclared nuclear material. Furthermore, this article contains the obligation of specific verifications of the irreversible elimination of nuclear weapons programmes. These two articles show that the verification of nuclear disarmament is twofold. First, to maintain the existing safeguards provisions for NNWS and extend them to former NWPS. Second, to verify the irreversible elimination of nuclear weapons programmes. Without a thorough safeguards system to ensure that neither former NWPS rearm with nuclear weapons nor NNWS start a nuclear weapons programme clandestinely, achieving nuclear disarmament is increasingly difficult.

4. Fusion and Nuclear Safeguards

Like fission, fusion has dual use characteristics that could be used by a state or even non-state actors to support a nuclear weapons programme. Notably, fusion alone is not enough to build a thermonuclear weapon, it is always necessary to also have a fission primary. Where fusion can be used to produce plutonium, it is difficult to do so covertly. The presence of the smallest amount of plutonium within a fusion facility would indicate a breakout scenario. While scientists have regularly addressed the proliferation potential of fusion over the past decade (Franceschini & Englert, 2013; Glaser & Goldston, 2012; Goldston & Glaser, 2011; Westervelt & Pollock, 2020), it is only recently that other disciplines, in particular international law, have begun to focus on this issue. So far, only two papers, both still to undergo peer-review, that address the legal aspects of non-proliferation (Hua et al., 2022; Sauter, 2023). The Princeton Plasma Physics Laboratory together with the US Department of Energy also organised an interdisciplinary workshop on fusion energy and non-proliferation in 2023. In addition, the International Atomic Energy Agency (IAEA) has started to look at fusion's proliferation potential and a potential regulatory answer.

The current nuclear safeguards regime does suffer from different shortcomings and has several gaps. These flaws are intensified by the prospects of the commercialisation of fusion energy.

4.1 Current Safeguards System

The system of nuclear safeguards is multidimensional, with the IAEA as the most important actor. It consists of various legal instruments designed to deal with the dual-use capacity of fission. Based on the 1968 NPT, which refers to the 1957 Statute of the IAEA, this system is further developed in CSAs that are based on INFCIRC/153 (Corrected). The majority of countries with a nuclear infrastructure have also ratified an Additional Protocol as set out in INFCIRC/540 (Corrected). In addition, the Nuclear Suppliers Group (NSG), a club of 48 nuclear supplying states, has a non-binding export controls regime in place. This soft law instrument is set out in INFCIRC/254.

4.2 Shortcomings in the current safeguards system

The current nuclear safeguards regime has several shortcomings. The most obvious flaw comes from the fact that when the NPT was adopted, five states possessed nuclear weapons. Since then, five more countries have built nuclear weapons, even though some of them were bound by safeguards instruments. For example, nuclear safeguards and IAEA inspections could not prevent India from acquiring nuclear weapons. In fact, IAEA inspectors were present when India conducted its first nuclear test in 1974 and were caught by surprise (Röhrlich, 2022, p. 1). The IAEA was also

unable to detect Iraq or South Africa's nuclear weapons programmes. The North Korean programme also remained undetected for years. The international safeguards system has primarily acted retroactively. As a response to India's acquisition of nuclear weapons, the NSG with an export control regime was established. Yet, the NSG's export control system is porous. Experiences in Iraq and North Korea led to the adoption of the Additional Protocol (International Atomic Energy Agency, 1998).

4.3 Fusion in the IAEA's safeguards regime

The international nuclear safeguards regime administered by the IAEA is **not** applicable to fusion. The NPT's safeguards of Article III apply only to *source or special fissionable material* that is in *principal nuclear facilities*. While a fusion facility is to be considered a principal nuclear facility under certain circumstances, the fusionable material used in fusion facilities is under no circumstances regarded as fissionable material (Sauter, 2023). Some states even specifically noted in their ratification notes that the NPT should not cover fusion (Ambassador Goldberg, 1969; Federal Republic of Germany, 1969). Similarly, the CSA and its Additional Protocol refer only to fissionable material. The reason for this is that all these instruments refer to the definition of source and special fissionable material in Article XX of the IAEA Statute, which specifically lists certain isotopes of uranium, thorium and plutonium.² While in law the wording is usually open to interpretation, various historical and teleological arguments preclude any interpretative approach to also include fusion in this definition (Sauter, 2023). The same is true for safeguards within nuclear-armed states. There, voluntary safeguards agreements and item-specific agreements focus only on material within fission facilities. No fusion research facility in NWS is object to any of these agreements.

There are several possibilities to adopt the safeguards system to fusion. They range from amending the IAEA's Statute and the NPT to adopting a Second Additional Protocol to the CSA. While treaty changes are not foreseeable, a Second Additional Protocol might be a feasible way to address the safeguards problems of fusion. Such action would provide for the unique opportunity to adapt the legal framework pre-actively. However, as representatives from the IAEA's Office of Legal Affairs stated during discussions at the 2023 Fusion for Energy Roundtable, none of these approaches are currently pursued by the IAEA Board of Governors nor the General Conference. Currently, the IAEA wants to maintain its integrated safeguards approach as it is and focuses on the universalisation of the existing Additional Protocol to strengthen fission-focused safeguards. Rather than addressing the proliferation risks within this system, the IAEA intends to let export control regimes act, especially the NSG.

4.4 Fusion and the Nuclear Suppliers Group

Although legally not binding, the NSG Guidelines are an important source as they *de facto* specify and sometimes even exceed the export control regime required by Article III.2 of the NPT. The NSG guidelines are not limited to source or special fissionable material but also include fusionable

² Article XX of the IAEA Statute reads: As used in this Statute:

1. The term "special fissionable material" means plutonium-239; uranium-233; uranium enriched in the isotopes 235 or 233; any material "containing one or more of the foregoing; and such other fissionable material as the Board of Governors shall from time to time determine; but the term "special fissionable material" does not include source material.

2. The term "uranium enriched in the isotopes 235 or 233" means uranium containing the isotopes 235 or 233 or both in an amount such that the abundance ratio of the sum of these isotopes to the isotope 238 is greater than the ratio of the isotope 235 to the isotope 238 occurring in nature.

3. The term "source material" means uranium containing the mixture of isotopes occurring in nature; uranium depleted in the isotope 235; thorium; any of the foregoing in the form of metal, alloy, chemical compound, or concentrate; any other material containing one or more of the foregoing in such concentration as the Board of Governors shall from time to time determine; and such other material as the Board of Governors shall from time to time determine.

material. These guidelines are divided into two parts. The first part—the so-called Trigger List (INFCIRC/254, Part 1)—includes materials whose main purpose is to be used in nuclear technology. The second part—the so-called Dual Use List (INFCIRC/254, Part 2)—covers materials, equipment and software that could contribute significantly to the development and/or construction of nuclear explosive devices, but which also have peaceful uses. If a state wishes to import material listed on either list from an NSG member state, the NSG member state must apply export controls. The specific export control procedure depends on the specific list.

If a particular material is on the Trigger List, the recipient state must give formal assurances that three conditions are met: the material will not be used for ‘nuclear explosive activities’, the material should be placed under physical protection, and the material will only be transferred to NNWS if the material is subject to IAEA safeguards. However, neither tritium nor ${}^6\text{Li}$ is listed on the trigger list. Only depleted uranium, which could be used to breed weapons-grade plutonium, is on this list. Fusion considerations have not yet been a reason to update the guidelines.

For dual use items, the procedure is more lenient. If a recipient state wishes to receive an item on this list, the state usually may only export that material to a NNWS if a CSA is in place with the IAEA and if there is no unacceptable risk of diversion to nuclear-weapons purposes. This list includes both tritium and ${}^6\text{Li}$. Due to the material’s role in thermonuclear weapons this material is listed since the first version of the guidelines.

However, these provisions are inadequate for four reasons:

First, tritium, the material with the highest proliferation potential within fusion, will likely not be transferred between states once fusion power plants exist.³ Because of its high price and the huge quantities required, it is intended to be bred within the fusion vessel itself from ${}^6\text{Li}$. However, lithium has a wide range of applications. It is therefore difficult to assess whether the supply of lithium or lithium isotope separation equipment poses an unacceptable risk of diversion.

Second, the guidelines do not provide a definition of an unacceptable risk of diversion. In this absence, it is left to the discretion of each individual nuclear supplier state whether it considers the above-mentioned risks to be acceptable or unacceptable (Chayes & Chayes, 1994). In the absence of clear definitions and binding rules, states sometimes tend to favour political and economic considerations instead of proliferation concerns (Chayes & Chayes, 1994).

Third, as the NSG guidelines were developed in the context of article III.2 of the NPT, they have their focus on the development of pure fission bombs. While this makes sense in a fission-driven nuclear industry, it leaves gaps in a nuclear-world including fusion. An export can take place if the recipient state has concluded a CSA with the IAEA. However, as argued above, the existing safeguards system does not cover the risks of fusion. The purpose of this requirement is to ensure that the intended use is controlled by the IAEA. But this intended use is not controlled because fusionable material is not safeguarded by the Agency.

Fourth and finally, The NSG export controls regime is already under criticism as there are a number of member states ignoring these provisions. The US supplies India with material on the Trigger List even though India has not accepted comprehensive safeguards and is not a member state to the NPT (Meier, 2006; Weiss, 2007). This is mainly due to the guidelines being non-binding and the lack of legal obligation to apply them. While in general soft law can support the development of customary law (Boyle, 2014; Thürer, 2009), it is not possible to assume that the NSG guidelines are part of customary international law (Viski, 2010). Due to the regular examples of states not

³ An exception must be made for the start-up of a fusion power plant. In order to get the neutrons to produce tritium in situ, it is necessary to start with tritium in the first place to initiate the tritium breeding.

complying with the guidelines, there is lack of state practice as a constituent of customary international law according to article 38 (1) (b) of the Statute of the International Court of Justice.

5. Fusion and Nuclear Disarmament

The existing safeguards system does not ensure non-proliferation of nuclear weapons in a fusion powered world. Rethinking and adapting safeguards for fusion is a catalyst for approaches to nuclear disarmament. Especially with regard to the concept of irreversibility in nuclear disarmament, the rethinking of fusion safeguards plays an essential role.

As recent discussions have made clear, nuclear disarmament, especially for the NWS, is only achievable if it is irreversible (Williams et al., 2023). No NWS will abolish its nuclear weapons arsenal if it fears that another country might covertly engage in nuclear rearmament. Malygina and Ogilvie-White (this volume) point out the potential of irreversible nuclear disarmament (IND) to build bridges between the NPT and the TPNW. It has also been emphasised that IND consists of a combination of political, legal, and technical factors (Spilman, 2023). Fusion is at the heart of these factors. Fusion will lead to a rethinking of political, technological and legal factors towards nuclear disarmament.

5.1 Political and Technological Factors of Fusion

While today's nuclear (fission) energy is considered a high-risk dual-use technology, fusion will lead to a shift. Squassoni and Mukhatzhanova (this volume) point out the effects that societal changes can have in facilitating nuclear disarmament. Nuclear power plants today are only found in technologically advanced countries. Apart from the high cost of building a nuclear power plant, which is likely the case for fusion power plants as well, future fusion power plants have the potential to be built in countries too that do not have a nuclear infrastructure today. Although fusion power plants will be technologically complex machines, the reduced safety and security risks of these plants will make it easier for more countries to produce energy using nuclear technology (Willis & Liou, 2021; Wu et al., 2016). Large scale accidents such as seen in Chernobyl or Fukushima cannot happen in fusion. Fusion relies on the constant stream of new particles and heat. In the worst-case scenario where control over the nuclear processes is lost the supply of new fuel would stop and the plasma would cool down. While this might destroy the facility and release some radiation, the effects would be limited locally without the risk of transboundary effects (White, 2021).

A proliferation of nuclear fission energy makes irreversible nuclear disarmament more challenging due to the inherent dual-use capabilities of fission. If more countries have a nuclear infrastructure, the willingness of the NWS to eliminate their nuclear weapons arsenals might also be reduced. Fusion, however, changes this political perspective. While more countries may have nuclear infrastructure and handle nuclear material, the global risk assessment will shift. Today, few countries have a (fission-based) nuclear infrastructure where they handle nuclear material with a high risk of being used for nuclear weapons. In a few decades, many countries may have a (fusion-based) nuclear infrastructure where they handle a different type of nuclear material, then with a limited risk of being used for nuclear weapons. Here the political aspects are influenced by the technological aspects of fusion. These considerations, however, are only true if the legal aspect of fusion is properly addressed.

5.2 Legal Aspects of Fusion's Role in IND

The risks of fusion to be used for nuclear weapons will only be limited if and when the legal framework of safeguards provides a sufficient level of risk management. The political will for

irreversible nuclear disarmament will only be achieved if the technological and legal aspects reduce the risk of nuclear rearmament to such a low level that it becomes acceptable for the NWS to eliminate their nuclear weapons. As pointed out by Squassoni and Mukhatzhanova, developments within legal regimes can foster and facilitate nuclear disarmament. Important steps in this context include the adoption of a Second Additional Protocol to the CSA and an update of the NSG Guidelines, as detailed in this section. Addressing the proliferation risks of inertial confinement fusion could catalyse approaches to IND.

Adopting a Second Model Additional Protocol

Through an exercise of international public authority (von Bogdandy et al., 2010) by the IAEA, the adoption of a Second Additional Protocol to the CSA appears to be a viable option.

In this context, the IAEA's Board of Governors first has the authority to establish a special committee supported by the Secretariat to draft the text, similar to the First Model Additional Protocol (International Atomic Energy Agency, 1998). The Board of Governors could request the member states to participate in these negotiations. Second, it has the authority to adopt a Second Model Additional Protocol and third, to instruct the Director General to conclude such a protocol with NNWS. In order to enter into force, this protocol would have to be adopted bilaterally between the IAEA and the member states. The IAEA's General Conference also plays a role in this process. Extending safeguards is a question of resources, both of finances and personnel. The budget is decided by the General Conference following a recommendation by the Board of Governors, article V.E para. 5 of the IAEA Statute. Given the IAEA's history of a zero-growth budget, this will be a challenge (Findlay, 2012).

This protocol could change the definition of nuclear material by specifically mentioning tritium. Although tritium was deliberately left out of the negotiations on the First Model Additional Protocol in order to achieve consensus (Mayhew & VCDNP, 2022), the views of many states may change as fusion activities, and hence the use of tritium, increase. Alternatively, or cumulatively, ${}^6\text{Li}$ as an essential material to breed tritium could be addressed as well. Moreover, such a protocol could be the baseline for safeguards in any non-proliferation and disarmament treaty. This could become part of the safeguards regime referred to in the TPNW the NWFZ treaties, or any other future instrument for the elimination of nuclear weapons.

Updating the NSG Guidelines

A realistic revision of the NSG Guidelines in the context of securing IND requires finding a compromise that will still allow commerce to take place without too many burdens, while giving the (former) NWS confidence that the level of safeguards remains high enough. To this end, the Dual Use procedure could be updated to account for the rearmament potential of inertial laser confinement and the availability of tritium.

In the case of inertial confinement fusion, one approach could be to amend the NSG's Trigger List to include high performance lasers and the components needed to build them. Lasers are the critical component of inertial confinement fusion, as they heat the fusion fuel while simultaneously provide insight into energy transfer in hydrogen bombs. Today, only lasers and laser systems used for uranium separation and enrichment are included in the list (INFCIRC/254/Rev.14/Part 1, at para. 5.7, in particular at 5.7.13.). Amending the IAEA's safeguards procedures to include inertial confinement fusion facilities is also necessary.

Such an update could also include addressing tritium. Today, both tritium and ${}^6\text{Li}$ are on the Dual-Use list. However, as noted above, the mechanisms of the Dual List alone are rather weak and

porous to prevent rearmament risks related to thermonuclear weapons. To strengthen this framework, one option would be to extend the requirements for the export of both tritium and ^6Li . While today the conclusion of a CSA between the IAEA and an NNWS is sufficient, this additional requirement could be to provide the NSG with detailed reports on tritium accounting and the end-use of ^6Li . Such a combination would allow the NSG to get an overview whether tritium from a fusion facility could have been used for military purposes. As tritium itself is extremely expensive, such thorough accounting is done regardless of legal requirements. This change would not completely eliminate the proliferation problem, but it is a feasible option because of the limited horizontal proliferation risks.

While today member states only share general observations of the enforcement of the guidelines during the Licensing and Enforcement Experts Meeting, the information exchange mandate could also be extended to detailed reporting. Focussing more on this meeting has also been part of a recent proposal to reform the NSG (Reitmann, 2023). Although the instrument is non-binding, an NSG assurance system could be one of many constituents within the web of measures to bring NWS on board.

Complementary approaches

Other options, used in the context of strengthening safeguards in a fission-based world, could also help in strengthening safeguards for fusion. In 2009, the UN Security Council called upon all states to sign, ratify and implement the existing Additional Protocol with UN Security Council Resolution 1887. Another possibility lies in the context of the NPT. Although treaty change is unlikely, a Review Conference could encourage states to focus on fusion safeguards. In 2010, the Review Conference 'noted that the implementation of measures specified in the model additional protocol provides [...] increased confidence about the absence of undeclared material' (NPT/CONF.2010/50 (Vol. 1), at 4.). Although this is only a soft law instrument, it could help strengthening the safeguards system vis-à-vis fusion.

Safeguarding inertial confinement fusion

Finding an enduring solution to the nuclear weapons potential of inertial confinement fusion is difficult. Fusion has the potential to radically transform energy production and to halt or reverse the adverse effects of climate change. However, only inertial confinement fusion has demonstrated the potential to actually produce energy. It is a general observation in international law that states are very reluctant to accept limitations on their sovereignty when it comes to an issue as close to national interests such as energy (Viñuales, 2022, p. 21 ff.). While the NPT proved that states could accept certain limitations on their energy production by imposing mandatory safeguards on nuclear fission power plants, the NPT also provided for technical assistance (article V) and the promise of a future free of nuclear weapons (article VI). States accepting safeguards for inertial confinement fusion may require a similar grand bargain of a disarmament commitment as in 1968 with the adoption of the NPT. However, the lack of progress on article VI of the NPT will lead to the need for hard obligations rather than the soft obligations currently found in the NPT.

6. Conclusion

Nuclear fusion will reshape our thinking of nuclear safeguards and nuclear disarmament. In coming decades, the focus on risks of nuclear technology will shift from fission to fusion. While most nuclear weapons are primarily based on fission technology, fusion plays an auxiliary role in today's nuclear weapons arsenals. Tritium as a core-component of fusion technology is used to boost nuclear weapons and to increase their yield. The neutron production from fusion reactions

can also be used to convert depleted uranium into fissile material. Moreover, research into inertial confinement fusion is being used to support nuclear weapons programmes.

Irreversibility in nuclear disarmament requires that verification systems are based on a thorough safeguards regime to ensure that former NWS and current NNWS remain free of nuclear weapons. A strong system of nuclear safeguards is a prerequisite for nuclear disarmament. However, the existing safeguards regime is not adapted to the specific risks of a fusion-powered world. Without this, progress towards nuclear disarmament, especially in an irreversible form, is unlikely. It is therefore essential to adapt the existing system of nuclear safeguards to the specificities of fusion. A multi-pronged approach is recommended. One, the Comprehensive Safeguards Agreements need to be amended by a Second Additional Protocol to include safeguarding fusionable material. Two, the NSG Guidelines and its Dual-Use Procedure need to be reviewed and updated to include material and control mechanisms to ensure that fusionable material is not misused for military purposes. Finally, addressing the proliferation potential of inertial confinement fusion provides an opportunity to move countries towards hard obligations of nuclear disarmament.

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V. FRAMEWORKS AND PERSPECTIVES

15. Feminist Foreign Policy's Potentials and Obstacles to Critically Re-Imagine Nuclear Disarmament

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Abstract

Several states have adopted a Feminist Foreign Policy (FFP) in recent years. As a multidimensional and critical approach, FFP challenges major paradigms and their genderedness by questioning underlying 'traditional' foreign policy concepts. Aiming to sustainably include marginalized experiences and voices and to deconstruct existing power dynamics and structures, FFP embodies individual-based normative assumptions and redirects agency to the individual-level by applying, among other things, a human security approach. Assessing the potentials and obstacles of FFP's framework to re-imagine nuclear disarmament, this paper intends to provide theoretical considerations by building upon critical feminist theory and by exemplarily relating its findings to state FFPs. It argues that FFP bears the potential to advocate for disarmament despite tensions between FFP's individual- and rights-based conception of security and the international, (neo-)realist construction of security. However, a critical adoption of a human security approach is necessary to counteract human security's gender blindness and restrictiveness as well as to ensure the enforcement of FFP's principles. Emphasizing self-critical and -reflective policies, this analysis reveals state FFPs' need to critically question their involvement with (re)armament, related masculinized constructions and nuclear weapons and discourses.

1. Introduction

[...] nuclear weapons symbolise much more than military apparatus and primarily function as symbols of power, strength, reason, and masculinity. Understanding these dynamics through a feminist lens, which is attentive to power inequalities, is particularly useful. It means questioning the extent that marginalised voices have been included and taken seriously in policymaking (Fuller et al. 2021, p. 9)

With the Russian invasion of Ukraine in February 2022 and the attack of a nuclear weapon state on a non-nuclear-weapon state, debates surrounding nuclear weapons and nuclear deterrence have experienced a boost in media and politics (CFFP 2022) and re-raised consciousness of the dangers and threads of nuclearism¹ (Acheson 2022a). Currently, there are nine states possessing nuclear weapons, of which approximately more than 9000 are potentially usable (Kristensen/Korda, 2022). These are neither solely instruments nor merely weaponry but embody further meaning and symbolism for individuals, states and the international system that have been constructed since their development in the 1930s and 1940s (Considine 2022). Hence, not only their destructiveness and quantity are threatening but also their socially constructed character and their crucial role in upholding power structures. The deep embeddedness of security and nuclearism in gendered²

¹ Here, nuclearism is understood the process and manifestation of nuclear weapons and related technology as the ultimate instrument and political means for the maintenance of peace and (national) security. As 'an ontological discourse' (Ritchie 2022, p. 5), nuclearism entails 'what the nuclear world comprises' (ibid.), describes the linkages between its notions and 'constructs a set of nuclear practices as plausible and necessary' (ibid.) including nuclear deterrence. As an ideological notion, nuclearism brings discourse(s) and systematic dominations together while framing them as 'normal' and 'common' (ibid.)

² In this paper, gender is understood in differentiation to sex following de Beauvoir and as a constructed notion. While the biological sex is bound to one individual's biologically given features. Gender depicts a more fluid and dynamic concept unfolding an individuals' (gender) identification and including social constructions such as gendered attributes and behaviour patterns (de Beauvoir 2020). Further, gender is profoundly embedded in social actions, constructions and (interdependent) relations that are socially (re)produced. However, gender cannot be used synonymously to women as it includes all possible genders including men and non-binary individuals as well as notions of femininity and masculinity

constructions and power hierarchies has received increasing attention in feminist³ research and related debates (Cohn 2019; Egeland and Taha 2023).

The increasing significance of Feminist Foreign Policy (FFP) and its relation to an individual-based concept of security has also contributed to this shift of perspective. Since Sweden's announcement of a FFP in 2014 (Tausendfreund 2021), several states⁴ have adopted a feminist approach to their foreign policy. As an alternative, normative approach, FFP's multifaceted framework⁵ emphasizes the needs, experiences and well-being of each individual and transforms the underlying subject of foreign policy. No longer focusing on the state as its primary agent, FFP challenges 'traditional' paradigms and approaches of foreign policy including a traditional understanding of security as national security and in relation to militarism and nuclearism (Adebahr and Mittelhammer 2020). Thus, and not only by being feminist, FFP enables for a critical questioning and challenging of highly masculinized constructions within traditional foreign policy and in international relations. While early scholarship focuses on FFP's key objectives and often draws on Sweden's FFP as a role model (e.g. Aggestam and Bergman-Rosamond 2016; Egnell 2016), later works also take other (national) FFPs into account and comprise case studies with various methodological approaches (e.g. Adebahr and Mittelhammer 2020; Gill-Atkinson and Pradela 2021; Reyes and Velázquez 2021; Thompson et al. 2020). Though and due to its novelty, research on FFP offers room for further empirical and theoretical consideration (Achilleos-Sarll et al. 2023).

Reflecting upon current research on the intersection of FFP and nuclear weapons (further outlined in Sections 2 and 3), a research gap can be identified as theoretical reflections on this intersection are largely absent. This paper makes a first attempt to close this gap by assessing the potentials and obstacles of FFP's theoretical framework to re-imagine nuclear disarmament examining: To what extent is a FFP approach able to re-imagine potentials and obstacles to nuclear disarmament and to facilitate the inclusion of feminist perspectives? In this regard, the conducted analysis seeks to provide theoretical considerations by building upon critical feminist theory and by exemplarily relating its findings to state FFPs arguing that a thorough rejection of nuclear weapons, armament and deterrence must take place to lay the foundation for sustainable human security and a comprehensive FFP approach. Moving forward, the paper firstly defines FFP for its purpose and in differentiation from FFP as a state policy practice as well as broadly outlines the concept of human security in relation to FFP. Subsequently, it examines critical feminist stances towards the international system, security and nuclear weapons. Taking FFP's objectives and practices into account, the paper then brings together its findings by sketching FFP's potentials and obstacles towards a re-imagination of nuclear disarmament.

2. Feminist foreign policy and its application of a human security approach

(cf. Brabrandt 2017; Brabrandt et al. 2002; Cohn et al. 2010; Peterson 1992; Tickner 1997; Tickner et al. 2004). Drawing on poststructuralist approaches and the concept of the 'heterosexual matrix' (Butler 2019), Butler further notes that not only gender but also sex is constructed through discourses, discursive power relations and heteronormative notions (ibid.) which will be included in this paper's understanding.

³ In this paper, feminism is regarded in its plurality and diversity as feminism can neither be defined unitarily nor homogenously due to its various strands and partially even contradictory conceptions. Hence, feminism is understood as feminisms and explicitly differentiated if necessary.

⁴ Following, Sweden's implementation of a FFP, among others, Canada (2017), France (2018), Luxembourg (2019), Mexico (2020), Spain (2021), Libya (2021), Germany (2021), Chile (2022) and Colombia (2022) as well as the Netherlands (2022) have adopted or announced to adopt a FFP approach (CFFP 2021; Cheung et al. 2021; Federal Foreign Office 2023; Gill-Atkinson/Pradela 2021; Global Affairs Canada 2017; Government of the Netherlands 2022; Lunz 2022; Ministry of Foreign Affairs 2022; UN Women 2022). Eventually, it is important to observe that Sweden's new conservative government has decided to step back from the term FFP after their election in 2022 (Bengtsson 2022).

⁵ It must be noted that FFP embodies a theoretical framework as well as a practical policy approach. This distinction is further elaborated in the following section.

Reflecting momentum for feminist peace activism, the first International Congress of Women took place in The Hague in 1915. Condemning World War I and its embodiment of male destructiveness and rapacity (Lunz 2022), the congress challenged male-dominated and patriarchal structures of foreign policy and the international sphere. The application of a feminist perspective to war and security since then has offered an alternative that rejects exclusionary and masculinized conceptions and acknowledges gender as an integral notion and principle of order of the international system (Scheyer and Kumskova 2019; Thompson et al. 2021). Moreover, the application of feminism gives room to transformative approaches as well as provides a critical perspective by advocating for essential norms such as equality, justice, peace, diversity, and solidarity upon which FFP has been constructed.

While there is no unified definition of FFP due to FFP's heterogeneity (Scheyer and Kumskova 2019), certain fundamentals are present in various definitions. In line with, for instance, Aggestam and Bergman-Rosamond (2016), the Centre for Feminist Foreign Policy (n.y.), or Egnell (2016), FFP embodies a multidimensional framework that fundamentally emphasizes the well-being, experiences, and needs of marginalized individuals and groups as illustrated in, for example, Canada's or Germany's approach. Further, FFP presents a feminist and intersectional⁶ lens that critically questions and dismantles systems of power as well as underlying dynamics and hierarchies built upon oppressive (societal) structures (Haastrup et al. 2020; Thompson et al. 2021). Here, tensions become apparent due to FFP's partial ambiguity and two-fold differentiation. On the one hand, FFP embodies a practical policy approach and hence a framework for policy-making that contains a 'toolbox' to enable for a critical view on foreign policy, its practices and measures. For instance, Sweden introduced its toolbox containing of 3 'Rs'⁷ (Ministry for Foreign Affairs 2019) which has been largely adopted and extended by Germany⁸ (Federal Foreign Office 2023) or modified by, for instance, Luxembourg's three 'Ds'⁹ (JCA 2021). Serving as constitutive pillars for policy action, policies' specific design depends on distinct national FFP frameworks that may differ significantly.

On the other hand, there is an academic concept and theoretical framework to FFP emphasizing the need for an alternative approach to foreign policy that derives from (neo-)realist and 'traditional' constructions of security, diplomacy, and the international order. As a normative, (human) rights-based and horizontal framework (Cheung et al. 2021), 'feminist foreign policy is a complete, consistent and coherent approach to a body of work encompassing all auspices of foreign policy and international relations' (Thompson et al. 2021, p. 26) which strongly advocates governments to go beyond their toolbox design—including in the context of nuclear policy. For instance, while Germany states in its strategy that it will strengthen 'humanitarian arms control and advocate for a safe world without nuclear weapons' (Federal Foreign Office 2023, p. 27), it neither provides concrete policy actions nor further explanation. Here, inconsistencies and tensions become visible. As FFP's theoretical framework expands on more radical feminist approaches, ideas of deterrence, arms race and dominance are rejected (Abé 2022; Conway 2019) as well as an international system that is built on an ideal of negative peace. While a fundamental feminist perspective is seen as essential for a secure and just world (Bernarding and Lunz 2019)—

⁶ As a concept, intersectionality was coined by Kimberlé Crenshaw and describes the overlapping of multiple discriminations and discriminatory categories like gender, class, race, sexual orientation, faith and other. Further, intersectionality reflects the impact of the intersection of various discriminations on individuals, groups, society and institutions as well as in regard to power relations and structures. Hence, intersectionality describes a critical multi-perspective and interdisciplinary theoretical approach (Crenshaw 1989; Davis 2008).

⁷ The 'R's in Sweden's FFP stand for representation, rights and resources and are supplemented by a fourth 'R' referencing to 'reality check' (research) (Ministry for Foreign Affairs 2019).

⁸ Germany has added a 'D' to the Swedish 3+1 'Rs' approach. In the German FFP 'D' stands for diversity.

⁹ The three 'D's in Luxembourg's FFP approach are abbreviations for diplomacy, development, defense (JCA 2021).

and hence for the undertaking of nuclear disarmament, state FFPs must re-shape and intensify their actions.

Building upon FFP's fundamentals, certain key characteristics can be identified in academic debate that would further enhance government approaches to FFP if implemented thoroughly. Drawing on, among others, Aggestam and Bergman-Rosamond (2020), Cheung et al. (2021) and Scheyer and Kumskova (2019), these interdependent features include political dialogue, empathy and care, inclusiveness¹⁰ and intersectionality, system- & power-critical approach(es) as well as human security. FFP sees political and inclusive dialogue as an important part to counteract realist construction of the international system due to its ability to centre marginalized perspectives and experiences and to enable equal participation and representation. Here, notions of dominance and rivalry are replaced by (multilateral) partnerships, cooperation and forums which create spaces for dialogue on eye level between various actors (Bernarding and Lunz 2019; Scheyer and Kumskova 2019). However, it rejects an essentialization of women and their supposed peacefulness as well as an uncritical 'add-women-and-stir' approach (e.g. Newby and O'Malley 2021), as patriarchal norms, gendered assumptions and related power dynamics would be unchallenged and blindly reproduced (Lunz 2022; Scheyer and Kumskova 2019). Following, FFP's alternative approach towards representation and dialogue offers a new perspective to nuclear policy for states emphasizing bottom-down and non-hierarchical instruments as well as inclusive practices that are not only adaptable to already existing forums but also fundamental to the establishment of new spaces.

Intertwiningly, notions of empathy and care play a crucial role as FFP urges states to interact respectfully, justly, trustingly, transparently, and across borders (Scheyer and Kumskova 2019). Comprising a feminist ethics of care approach, FFP acknowledges locality, situatedness as well as sensitivity in various terms and values notions of global justice while rejecting a 'set of fixed, absolute principles based on Western liberal notions of human rights or 'justice'' (Robinson 2021 p. 33). Inherent to FFP's normative-based conception, ideas of inclusiveness and intersectionality are imperative. Thereby, the entanglement of various forms of discrimination and the multidimensionality of oppression is recognized as well as the interdependency of the local and the international. Through this intersectional and inclusive lens, FFP is able to detect systemic impediments and subordination as well as structural obstructions that hinder the comprehensive and equal enforcement of human rights and diverse justices (Aggestam and Bergman-Rosamond 2020; Scheyer and Kumskova 2019). Adopting such imperatives through comprehensive policies, state FFPs engage with feminist ideas going beyond inconstant and empty FFP frameworks and comprehensively work towards a feminist vision that can be further deployed for nuclear policy practices.

This 'normative reorientation of foreign policy that is guided by an ethically informed framework based on [...] global justice and peace' (Aggestam and Bergman-Rosamond 2016: 323) is interlinked with FFP's system- & power-critical approach(es). Various interdependent and hierarchy-(re)producing patterns and discriminatory structures¹¹ as well as gendered essentializations are inherent to foreign policy and to international structures (CFFP n.y.; Cheung et al. 2021; Thompson et al. 2021). As FFP aims to fundamentally rethink and reframe foreign policy, it needs to deconstruct these existing power structures and related inequalities as well as

¹⁰ The terms inclusiveness and inclusive entail the inclusion of various entities from diverse backgrounds and levels and regardless of age, origin, gender, class etc. This includes non-state actors as well as civil society from the local, regional, national, supranational, and international level.

¹¹ Due to the complexity of the system and the interdependence of its structural components, these patterns and structures can neither be separated nor independently regarded as they include, for instance, patriarchal, capitalist, (neo-)colonial, racist, and heteronormative notions.

their systematic manifestations, for instance, in forms of gendered power relations or in the traditional, state-based concept of security including nuclear weapons policy (Bernarding and Lunz 2019; Conway and Herten-Crabb 2019). Therefore, FFP's shift to a human security approach attempts to encourage these efforts. Holistically centring the individual and building upon human rights, human security enables a critical reflection and deconstruction of 'traditional' conceptions of security and its interlinkages to, among other things, militarism, nuclearism, deterrence, dominance and violence as well as their impact on international relations (Arostegui 2015; Conway and Herten-Crabb 2019; Daase 2010). By applying a human security approach, FFP further devalues violence and notions of negative peace and stresses the importance of sustainable, positive peace.

Building upon feminist International Relations (IR), researchers have started to bring these issues of human security and nuclearism together with FFP. For instance, Conway (2019) utilizes a FFP lens to critically question the US justification of its new low-yield nuclear warhead, arguing that such an enterprise would undermine FFP's objectives and strengthen unequal power dynamics. Taking up the case of Canada and its opposition to the Treaty on the Prohibition of Nuclear Weapons (TPNW), Broadhead and Howard (2019) reveal the discrepancy between the Canadian government's public commitment to a FFP approach and its actions. Moreover, Fuller et al. (2021) examine feminist activism's impact on nuclear policymaking by concentrating on the cases of Mexico and South Africa intending 'to share knowledge, expertise, and historically marginalised perspectives [...] to identify successful paths to policy influence and change.' (p. 9f.) Focusing on Germany, Kappelmann (2023) reveals the direct relation of FFP and nuclear weapons policy by sketching feminist nuclear policies strengthened by FFP's objectives.¹²

While theoretical considerations of FFP offer critical accounts to the human security approach (Cheung et al. 2021; Scheyer and Kumskova 2019), state FFP approaches still have to recognize and further incorporate feminist critiques on the concept of human security, including its gender-blind construction of the individual and its implicit reproduction of masculinized hegemonic norms. Acknowledging these critiques, states should adapt an accountable feminist lens to their foreign policy to strengthen and to critically complement the concept of human security. Thereby, state FFP frameworks would enable a comprehensive feminist analysis of, for instance, masculinized norms within the international system, militarized masculinity and of nuclear weapon's genderedness—as outlined in the next section. The insufficient intersectional approaches of Germany's, Sweden's, or Canada's FFPs (see below) present examples of states' FFP's inability neither to counteract the reproduction of masculinized norm and ideas nor to serve as an inclusive base for a comprehensible and feminist definition of 'human' or the individual. Therefore, governments have to re-address their understanding and construction of the individual reproduced in their FFP's approaches by consulting feminist IR.

3. Feminist critiques on the international system and the construction of security

While IR as a field of 'high politics' (Narain 2014, p. 182) appears as gender-neutral, feminist IR scholarship has revealed its gendered and hence masculinized construction(s) (e.g. Sylvester 2004; Tickner 1988). By asking 'where are the women' (Enloe 2014, p. 355), feminist IR enables a critical feminist perspective which embodies a diversity of feminist views—including critical views on nuclear weapons—and which has grown in the last decades (Egeland and Taha 2023; Tickner 1997). Despite its multifaceted nature, certain key challenges including the disclosure of IR's

¹² Further research in the intersection of FFP and nuclear weapons can be found in, for instance, Bernarding/Lunz (2019) on the general significance of FFP, Bernarding/Lunz (2020) on the linkage of arms export and gender-based violence or in Hastrup et al. (2020) on the role of the UN Security Council's five permanent, nuclear weapons states.

exclusionary and biased nature, the invisibility of women in IR's multidimensional subjects, the exclusion of marginalized experiences and knowledges in IR and the international system, the analysis of the intertwined gendered inequalities in everyday practices, the revelation of situated knowledge¹³ as well as the critical questioning and consequential deconstruction of existing power structures and relationships (Steans 2003; Wibben 2004). Regarding nuclear disarmament, feminist IR's attempts to deconstruct dichotomies within IR and its interrelation to the domination of (neo-)realist narratives and constructions are especially valuable.

Drawing on feminist epistemology, opposing dichotomies have been identified that lay the foundation for the construction of hierarchical power structures due to their dependence and reciprocal relativity. Fundamentally, (neo-)realists construct a dichotomy between the state, its institutions and norms and the so-called anarchic international system which lacks a monopoly on the use of force treating Hobbesian assumptions as paradigmatic (Christophersen 2009; Elshtain 1985). Thus, the predominance of these paradigms leads to the assumption that states must rely on themselves to 'survive' in the seemingly anarchic international sphere, to prevail over other states and hence to counteract possible security threats (Elshtain 1985; Stirk 2015). Further, (neo-)realist dichotomous constructions are immanently gendered as masculine connotated notions are constructed as universal standard, while all non-masculine notions are devaluated and constructed as a subordinated 'Other' in IR. Attributes such as passive, emotional, soft, or subjective are associated with femininity while masculinity is connotated with opposite adjectives like active, rational, strong, or objective. Shaping conceptions of the world, gendered constructions have a political impact on the conception of security (Choi and Eschle 2022; Cohn et al. 2010). In an international sphere that is built upon masculinized and (neo-)realist 'structural imperatives [...] conflict is inevitable' (Elshtain 1985, p. 40). Consequently, the apparent rationality of nation states to protect themselves against others is not only seemingly essential but also grounded on masculinized constructions.

Emphasizing states as the international system's primary actor, their necessity for a balance of power, the conception of an international zero-sum game and the therewith growing security dilemma is inevitable (Baldwin 1997). Expanding on feminist IR, 'neo-realism as 'common sense' also served to marginalise or dismiss as 'utopian' alternative positions or perspectives.' (Steans 2003: 433) By marking certain interests, ideas, and concerns especially of 'alternative' concepts to security—like nuclear disarmament—as feminine, they are devaluated and rejected by (neo-)realist-based national security policies as well as by traditional security conceptions and discourses due to their seemingly irrationality and insubstantiality (Cohn et al. 2010; Cohn 2019). Accordingly, an interrelation between militarism and masculinity can be observed building upon the constructed transcendental aggressiveness and forcefulness of masculinity societally and historically (Jones 1996). Hence, masculinity is militarized and vice versa, making notions of hegemonic masculinity and hypermasculinity a contributory cause and related assumptions the norm (Elshtain 1987; Sjoberg 2014). As a result, women are rendered invisible not only from militarism but from security conceptions in general. Crucially, the gendered bias of security further impacts what is constructed as a security issue and concluded in a masculinized situatedness of securitization (Sjoberg 2016). Here, not only does gender have to be considered but also notions of coloniality and Western, White biases in their intersectionality (Cohn 1987). Bringing these observations together, it can be stated that 'current principles of foreign policy are highly dependent on gender norms, roles, and structures, and that all institutions are inherently

¹³ This paper refers to Haraway's concept of 'situated and embodied knowledges' (1988, p. 583) that opposes assumptions of seemingly objective (scientific) knowledge. Acknowledging the partiality of knowledge, the concept advocates for a critical questioning of knowledge producers' as well as science's own positionality and situatedness. Thereby, a poststructuralist and subject-critical position has been introduced to feminist epistemology (ibid.; Hoppe 2021).

gendered' (Scheyer and Kumskova 2019, p. 59) which also mirrors in nuclear policy. Thus, security has to be defined multidimensionally and in its variety including not only threats to states but also various forms of violence (structural, physical, ecological, etc.) and their embeddedness in (gendered) power hierarchies (Tickner 1997)¹⁴.

Bringing these findings together and understanding human security as a multidimensional individual-based approach, an uncritical and unadjusted human security approach is insufficient as it would be blind towards oppressive structures of injustice that rely on an intersection of discriminatory elements (Acheson and Rees 2020), and thus would likely reproduce power structures and global hegemonies. FFP has to integrate security into a wider context and must incorporate feminist perspectives on (nuclear) disarmament. Thereby, FFP would further reveal the close linkage of power, gender, and armament if it overcomes a reproduction of existing security constructions and their biases as well as a mere treatment of systematic symptoms by recognizing broader oppressive structures. While Acheson states that frameworks like FFP 'gain more traction in international and national discourse and policy' (2022c, p.6), Acheson further argues that 'these concepts are being increasingly co-opted to justify and even help advance anti-feminist objectives and practices' (ibid.) due to their lack of critical questioning and their subliminally reproduction of multiple forms of power structures. Ensuing, the next section examines FFP's relation and re-imaginary potential towards nuclear weapons by also including possible improvement proposals for individual state FFPs.

4. Feminist foreign policy and its (ambiguous) relation to nuclear weapons and disarmament

While FFP's shift to human security lays the foundation for its alternative approach to foreign and security policy, human security approaches are difficult to pursue. As state security is constructed as the fundamental norm in the international system, the reproduction of narratives of deterrence and consequently of hegemonic power structures are essential to notions of security. Arguing that the mere possession of nuclear weapons acts as a deterrent and avoids conflict, state security-based, (neo-)realist narratives construct nuclear weapons as 'magical instruments' that provide security and stability nationally and globally (Acheson 2019; Acheson 2022b). Justifying harmful behaviour of those in power, the concept of nuclear deterrence is a product of patriarchy and is interdependent to the reproduction of gendered norms that devalue disarmament and non-proliferation due to their connotation with femininity (Acheson 2018a; Acheson 2019).

'By reframing nuclear weapons as a threat to human security, rather than a source of protection' (Bolton 2017, p. 7), FFP offers a new perspective on deterrence and nuclear armament. Hence, the application of a human security approach not only redirects agency to the individual level but also makes it possible for states to embody individual-based normative assumptions in distinct interdependence to the necessity to thoroughly reject nuclear weapons and nuclear armament. Located in a constant negotiation process between individuals' security, national interests and the international system, these processes become visible in international formats such as the UN, NATO or meetings concerning the TPNW, where states including those that have adopted a FFP like Germany and civil society organizations struggle for a comprehensive approach. Even though Germany's FFP strategy advocates for a nuclear weapons-free world (Federal Foreign Office,

¹⁴ The issues and approaches outlined above are further examined and researched by Feminist Security Studies scholars including Sjoberg, Enloe, Tickner or Wibben. Hence, Feminist Security Studies as a sub-discipline of feminist IR can give deeper insight into issues like militarized masculinity, gender-based violence, the centrality of the state in conceptions of security, the role of women in war, conflict and post-conflict settings as well as the continuum of violence that is neither spatially nor temporarily bound but deeply interwoven in multifaceted power structures (Cohn/Ruddick 2004; Williams 2021).

2023), the strategy lacks precise policy actions and is obstructed by national interests like deterrence, partnership with nuclear-weapon-states and its status as a nuclear weapon host.

While a Janus-faced positionality of states bear the potential to transform the international system and international relations, it is restricted by the constant reliance on the nation state as its constitutive entity. Consequently, Achilleos et al. (2023) argue that 'FFP is not as boundary pushing as the feminist moniker might suggest and suffers from silences and erasures on critical issues' (p. 23), although FFP's critical and transformative approaches enable more critical action—also in the context of nuclear disarmament. Thus, FFP has the ability and framework to promote nuclear disarmament and non-proliferation and hence offers a strong standpoint for analysis and action if understood and utilized comprehensively and critically. Drawing on the above-named example, Germany has to modify its strategy by formulating national interests that are in line with human security and do not contradict its objectives. Moreover, Germany must re-think its acting in international forums such as the UN Security Council (UNSC) by thoroughly centring individuals and experiences of marginalized groups and hence by comprehensively adopting a human security approach.

Human security further emphasizes human rights and acknowledges the individual's universality in the international system while stressing global pluralities and heterogeneities. Incorporating various angles including human rights perspectives, FFP approaches should ask 'whose purpose do nuclear weapons serve? Who uses them? Whose security benefits from them?' (Acheson 2010b), intertwining states' commitment to universal human rights and a human security approach. While, for instance, Canada's, Germany's, or Mexico's FFPs reference related phrases,¹⁵ these are neither related to human security nor to concepts such as global or 'nuclear' justice (Acheson 2018a). Hence, FFP is not linked to international humanitarian law in the context of nuclear weapons. However, a linkage would be crucial as nuclear weapons pose a massive threat to humanity and norms crucial to human rights upholding global injustices, colonialism, and oppression.

FFP is not 'necessarily pacifist' (Foster et al. 2019, p. 1) as armed interventions may be supported, though non-violent, diplomatic resolutions are preferred (ibid.; Abé 2022). Hence, FFP's position towards violent conflict can result in a tension between short-term needs for action and long-term goals of disarmament and non-violent resolution. This tension was evident in German debates regarding arms exports to Ukraine. Having recently adopted a FFP approach, German politics had to balance its commitment to feminist ideals of disarmament and the short-term need for arms exports to Ukraine. Delivering arms to Ukraine, Germany neither violated international law nor gravely contradicted its FFP. However, to enable for a comprehensive long-term solution, Germany and state FFPs in general have to consider the impact of their actions on marginalized groups and must permanently question their involvement and standing towards armament and arms supply (Böhm 2022). A focus on short-term actions is only justified if reinforced by a comprehensive long-term plan for disarmament, which is absent in all state FFPs to date. Additionally, FFP's efforts towards a gender-sensitive and humanitarian armament and arms export policy are insufficient as

¹⁵ In Canada's references to human rights can be found directly as well as in phrases such as 'women's rights', 'human dignity' or 'humanitarian principles'. Here, the keyword 'human' comes up 93 times (Global Affairs Canada 2017). However, it is not brought together with security or human security. In Germany's FFP strategy the same pattern can be observed. While 'human rights' are mentioned 31 times and related keywords such as 'rights of women' (or similar) are referred to 9 times, human security's references occur thrice and are not directly related to human rights nor humanitarian actions. However, human security is once mentioned in relations to 'arms control and disarmament' (Federal Foreign Office 2023, p. 27) and thereby also connected to the civil populations and its vulnerable groups (ibid.). Lastly, an official press release on Mexico's FFP from January 2020 states that 'Mexico's feminist foreign policy focuses on human rights and applies a gender perspective across all sectors.' (Secretaría de Relaciones Exteriores 2020). Though, no other mention or reference exists.

'arms control continues to be the dominant paradigm through which to address the bomb, rather than disarmament.' (Acheson 2022c, p. 1) This is also applicable in terms of a comprehensive and sustainable FFP approach towards nuclear weapons' elimination (CFFP 2022; Conway and Herten-Crabb 2019). As an immediate nuclear disarmament and hence a short-term resolution is not applicable, FFP should draw on instruments like the TPNW and 'step-by-step' approaches. Though, it is crucial that states and their FFPs exceed a rhetoric commitment by designing practicable action plans and strategies based on FFP's objectives like inclusive political dialogue and by utilizing various (international) forums to advocate resolutely for nuclear disarmament. These measures must further be accountable and measurable.

Being caught between short-term necessities and long-term aims, FFP needs to further question why seemingly inevitable short-term actions are constructed as such and has to deconstruct possible root causes and explanations that have led to situations calling for immediate (violent) action. In nuclear policy, instruments such as the Nuclear Non-Proliferation Treaty (NPT), the utilization of safeguards or the approval of nuclear activities for peaceful purposes and technological advancement should be critically regarded by FFP as their existence neither counteracts (neo-)realist narratives nor leads to an abandonment of nuclear weapons. Subsequently, FFP should also address dilemmatic cases in which states' non-action would counterfeit FFP's objectives and norms while action would simultaneously uphold and reproduce gendered power structures and related assumptions. This dilemma is especially visible in cases of humanitarian action or situations that fall under the UN's framework of the Responsibility to Protect or in regard to nuclear deterrence as part of the construction of a zero-sum game like observable in the Russian war against Ukraine. On the latter, as nuclear armament and deterrence draw on constructed assumptions, gendered dichotomies, and narratives of global anarchy rather than on explicit threats and tangible conflicts, the deconstruction of nuclearism's argumentation and its interwovenness with colonial and patriarchal structures supplies FFP with the tools necessary to a transformative approach towards nuclear disarmament.

Moreover, symbolism plays a crucial role as phallic metaphors and imagery are interwoven with arms and armament constructing a narrative of sexual dominance (Acheson 2017; Cohn 1987). In her study, Cohn (1987) unfolds various notions through which nuclear weapons are linguistically gendered, abstracted, rationalized, embellished, and downplayed: 'Sanitized abstraction and sexual and patriarchal imagery, even if disturbing, seemed to fit easily into the masculinist world of nuclear war planning.' (p. 697) Accordingly, language endorses the connotation of masculinity and nuclearism and of femininity and disarmament (Choi and Eschle 2022). State FFPs must acknowledge this interwovenness as, for instance, Kappelmann argues that 'Germany could help change the discourse' (2023, p. 4). Consequently, FFP has to first reveal the symbolic and linguistic constructions surrounding nuclear weapons. Situated knowledge and epistemological biases must be critically questioned and deconstructed. Thereby, governments must avoid the reproduction of biased language while addressing its utilization in various settings and on various levels. Moreover, nuclear-weapon states that simultaneously adopted a FFP like France have to self-critically engage with their language use and positionality towards nuclear weapons. If addressed consistently, paradoxes and biases will not only become visible but can also be re-verses and hence can serve the advocacy for nuclear disarmament.

Constructed as a narrative of Western, male dominance, modernity and development, the 'myth' of the origin of nuclear weapons consolidates dominant narratives of power and deterrence while making the 'Other' as well as the multiple harmful and violent implications of nuclear weapons and related practices—including nuclear testing—and actions invisible (Acheson 2010a; Considine 2022). In this regard, FFP's coloniality has to be deconstructed as well as its embeddedness in

Western narratives that determine and facilitate the construction of nuclear weapons' further reproduction of colonialized power dynamics and Othering¹⁶ processes. Through their FFPs, states may be able to make (neo-)colonial practices in nuclear policy visible while actively challenging 'nuclear colonialism' (Kappelmann 2023). For instance, nuclear testing and its impacts on local and Indigenous communities must enter the debate and states have to be held accountable for their actions as well as for reparations. Ensuring visibility of (neo-)colonial practices and Othering processes can lead to further deconstruction of White, Western arguments that are contemptuous, racist, and patronizing (Cohn et al. 2010). Hence, it is crucial for FFP to adapt a postcolonial perspective on their re-imagination of nuclear disarmament as a postcolonial approach to FFP 'can provide the impetus to drive forwards a more inclusive world, whilst looking backwards to acknowledge colonial legacies when foreign policy is produced' (Achilleos-Sarll 2018, p. 46)—while the latter also includes processes that led to the current hegemony of nuclear power(s). Accordingly, the critical questioning and deconstruction of the UNSC and the hegemonic positioning of its permanent five members—China, France, Russia, UK, US, which are all nuclear powers (Conway/Herten-Crabb 2019)—can also occur through the application of a postcolonial FFP approach.

Besides colonialism, neoliberal structures can be identified as an additional and interlinked oppressive dimension that should be addressed through FFP. Armament is inherent to capitalist logics of profit while a correlation exists between extensive military spending, global inequalities, and human rights violations (Acheson 2014). While once committed to FFP, Sweden's arms export has not only been one of the largest in Europe but also exported to regimes in which weapons contribute to gender-based violence (Irsten 2015). Further, the abolishment of arms exports stands in contrast to states' neoliberal foundation wherefore Sweden's, Germany's, or Canada's FFPs are contrasted by profit-driven actions that undermine FFP's objectives. Moreover, Germany's FFP strategy promotes a 'humanitarian arms control' (Federal Foreign Office 2023, p. 27) without addressing the concept's inherent contraction of arms' inability to be thoroughly humanitarian even if utilized in seemingly humanitarian actions. The domination of neoliberalism also plays a crucial role in nuclear policy as private companies profit largely from their production, maintenance and development (ICAN 2023). To become comprehensive approaches and counteract nuclear armament, state FFPs have to address their embeddedness in neoliberal structures and paradigms as well as their involvement with armament. Furthermore, FFP's self-understanding of feminist narratives and practices within neoliberal structures needs to be scrutinized. Concerning Egeland/Taha's findings (2023), liberal feminism has been instrumentalized to 'purple-wash' companies' and institutions' reputation regarding their involvement in nuclear armament. While feminist approaches have traditionally driven for nuclear disarmament and the stigmatization of nuclear weapons, this new trend utilizes liberal and neoliberal feminist values to strengthen recognition of nuclear weapons, to superficially construct nuclearism in more gender-equal terms and to counteract critiques of nuclearism's masculinity (ibid.). Hence, state FFPs have to critically question their feminist standpoint to avoid its instrumentalization.

An intersectional approach to nuclear weapons is necessary to ensure a comprehensive analysis and deconstruction that emphasizes not only gendered norms and perceptions but also notions of coloniality and capitalism, as well as to include all marginalized individuals and communities

¹⁶ Othering is a concept developed in postcolonial theory. It describes the construction of the Self that is related to the Other and which is composed through negation and the related marginalization of certain entities. The Self cannot exist independently from the Other as both entities draw on an interdependent relation. Hereby, the Self constructs and defines itself as superior (Dhawan 2015; Reckwitz 2008). In regard to nuclear weapons and nuclearism Othering occurs in the constructed distinction between the 'civilized', 'modern' and rational West and the non-Western 'Other' that is constituted as being unable to take up the role of a nuclear power.

(CFFP 2022). Only in this manner can constructions of Othering, that further reproduce global power structures, be addressed and challenged (Cohn et al. 2010). Moreover, this intersectional approach can be strengthened by notions of empathy and care to enable for global justice and solidarity across borders, and by challenging narratives of national security and nuclear policy. Drawing on a feminist ethics of care approach, FFP values and recognizes a critical view on situatedness and locality while advocating for a sensitive approach to global justice to confront 'power dynamics that create silences and structural violence' (Fröhlich 2022, p. 29). Hence, FFP's normative frame makes an intersectional and inclusive perspective imperative also by re-imagining nuclear disarmament holistically, justly and empathically. While these theoretical assumptions entail intersectionality comprehensively, policy-practices reveal the utilization of 'intersectional' as an empty buzzword (Davis 2008). Even though 'intersectional' is often referenced in state FFPs¹⁷, an intersectional approach is absent as the term 'intersectional' mostly equates 'female', 'women and girls' or 'feminist'. Therefore, governments have to evaluate their strategies and approaches to account for a truly intersectional approach that can be applied to their FFP-based, feminist nuclear policy.

Incorporating intersectionality and a postcolonial approach into FFP's multilateral efforts, FFP may be able to re-value global norms due to its normative, rights-based and humanitarian foundation (Vishwanath and Mukund 2022). As a horizontal rather than vertical approach (ibid.), FFP's potential to transform international relations would then affect nuclear disarmament as the need for deterrence and self-defence would disappear and the prevention of conflict through non-violent (re)solutions, and communication on eye level would become an international, universal norm. Through their FFPs, governments have the opportunity to thoroughly address existing multilateral structures like the UN, or NATO whereas explicitly NATO as a so-called nuclear alliance and NATO members' involvement in its nuclear activities must be critically regarded, as it reproduces (neo-)realist constructions of deterrence and militarization. For instance, Germany's FFP does not address its role as a nuclear weapons host nor has Sweden's former government revealed the contradictions that arise with its membership application to NATO and how this application can conform with a power-critical FFP approach. Addressing, for instance, NATO's conflicting role, a FFP approach can re-imagine multilateral alliances (like NATO) and the paradox that nuclear weapons' destructiveness should guarantee safety.

FFP's approach to political dialogue and equal participation and representation may also allow for the inclusion of more nuanced views of the gendered consequences of nuclear weapons' testing and usage (Menninger and Hofer 2019) by including marginalized communities, civil society organizations and non-state actors. However, FFP is confronted with an 'add-women-and-stir' approach as the sole and uncritical addition of women to, for instance, non-proliferation processes neither questions the existing structural obstacles nor the various experiences of women in their diversity (Brown and Considine 2022; Conway and Herten-Crabb 2019) assuming that all women are feminists. Consequently, governments and their FFPs must ensure to question who is included or excluded, exceeding a mere quantitative approach. Coupling collaborative and inclusive policy decision-making with measurable indicators, states are able to include marginalized voices and critical approaches—also to nuclear non-proliferation and disarmament, while accountably preventing the reproduction of power structures or gendered, Western narratives. Adopting, for instance, intersectionally-constructed instruments of gender mainstreaming, gender analysis or

¹⁷ The German FFP strategy refers to intersectionality six times (Federal Foreign Office 2023) while the German Federal Ministry for Economic Cooperation and Development's policy makes 13 references to intersectionality including a detailed text box offering a thorough definition (Federal Ministry for Economic Cooperation and Development 2023). In addition, an intersectional lens is also present in Canada's (Global Affairs Canada 2017), Sweden's (Zilla, 2023), and Mexico's FFP approach (Delgado 2020).

evaluation, participation and representation are qualitatively strengthened enabling for the application of a humanitarian, normative approach to, for instance, negotiations for a holistic reconstruction of the 'negotiation table' (Abé 2022).

5. Conclusion

Nuclear weapons are the ultimate symbol of injustice. They bring death and destruction, but also inequality and manipulation. They are the ultimate patriarchal tool [...]. (Acheson 2018b)

FFP has the potential to critically address many of the issues linked to nuclear weapons through its alternative, inclusive and feminist as well as system- and power-critical approach to foreign policy. Yet, FFP's advocacy for disarmament is embedded in a tension between the individual- and rights-based conception of security and the international, (neo-)realist construction of security that reproduces inequalities, hegemonic power structures and related dynamics. Caught in this tension, FFP is grounded in the state and its constructiveness while having to overcome state-based, (neo-)realist constructions. This analysis identifies the need for state FFPs to critically question their involvement with (re)armament, related masculinized constructions and their reproduction of nuclear discourses, including through self-critical and -reflective policies. Moreover, an uncritical adoption of a human security approach would undermine FFP's objectives like inclusiveness and intersectionality as FFP must address and counteract human security's short-comings and blind spots.

As current practices of FFP seem to have 'no capacity to challenge political economies of war, exclusion, militarized security, sovereignty, and hierarchy' (Scheyer and Kumskova 2019), states should critically question their positionality and practices as well as consult non-state actors and civil society to build sustainable capacities and to make their FFP approach(es) accountable. As a transformative approach, FFP embodies the capacity and potential to incorporate inclusive feminist perspectives into nuclear disarmament and to challenge nuclear narratives and policy on the international level. Revealing biased, oppressive structures and practices, FFP would be able to, for instance, take away the P5's argumentative ground for nuclear deterrence and to advocate for horizontal and multifaceted cooperation based on notions of positive peace including nuclear disarmament. In order to accomplish this, state FFPs must re-evaluate their approaches and incorporate actions plans and mechanisms advocating for nuclear disarmament.

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16. Spaces and Silences: Gendered Performances of Power and Opportunities for Nuclear Disarmament

INÉS K T GRANGE

Abstract

The global increase in world military expenditure to record levels in 2022 makes disarmament, let alone nuclear disarmament, difficult to imagine as a plausible scenario for policymakers. This paper considers feminist perspectives on peace and conflict in order to expand analysis of nuclear (dis)armament. It focuses on two notions: spaces and silences. Uncovering who gets to be included in spaces of nuclear policy making enables understanding of ways in which the composition of those spaces influences how power is performed. Using discourse analysis, this paper looks at selected examples from the Korean peninsula to uncover the gendered dynamics in state discourse on nuclear armament. An analysis of spaces in which nuclear policy is made allows for an inquiry into how key actors perform their authority—often in gendered terms. This paper observes that the current legitimate performance of state power as exhibited in state discourse on nuclear armament is one that further encourages armament and constrains possibilities for peace.

1. Introduction

'I couldn't feel any warmth or even pulse in the G7 leaders' statements', declared Setsuko Thurlow, 91, at the conclusion of the G7 Hiroshima summit earlier this year (Miyano and Ota, 2023). Thurlow, a prominent nuclear disarmament activist and A-bomb survivor, expressed her disappointment about the vision of the meeting—echoing other disarmament activists. The location and schedule of the G7 2023 Summit in Hiroshima was full of symbolism as despite rising tensions, there seemed to be a disconnect with the commitment proclaimed by G7 leaders. 'A nuclear war cannot be won and must never be fought,' they nevertheless reaffirmed, followed by the guarantee that nuclear weapons should only 'serve defensive purposes, deter aggression and prevent war and coercion' (2023). To G7 leaders, despite being instruments of destruction, nuclear weapons can prevent war. As military expenditure rises and nuclear armament grows over the globe, ensuring peace in an increasingly tense world gearing towards armament appears crucial (Béraud-Sudreau et al, 2023; SIPRI, 2023).

Recent reports highlight that Iran is currently enriching uranium to 60% and is said to have enough fissile material for more than one bomb (Motamedi, 2023) and North Korea continues to develop its ballistic missile and nuclear weapons arsenal (McCurry, 2023)—all against the backdrop of Russia's war of aggression against Ukraine, which has been riddled by nuclear anxiety (Faulconbridge, 2023). Why, when activists and non-governmental organisations have campaigned for a world free of nuclear threats for more than seventy years, is disarmament so difficult to achieve? This paper turns to feminist readings of the situation in the hope to shed a different light on the issue. Building upon Carol Cohn's work, this essay aims to uncover the gendered dynamics at play in those spaces and evaluate what this means for perspectives of disarmament. This paper first details strategies of nuclear deterrence and contrasts them with alternative discourses such as the one put forward by feminist theorists of peace. It then gives attention to how the performance of power is gendered in nuclear strategic and diplomatic circles, and how this shapes perspectives for peace. In line with those conclusions, this paper concludes by providing suggestions to further peace in the current nuclear order.

2. Setting the scene: a world safeguarded by nuclear deterrence, and the emergence of alternative discourses

Despite World War II and the tragedies of Hiroshima and Nagasaki, nuclear weaponry experienced a significant rise in the following years. Within twenty years, the level of perceived danger became sufficient for states to encourage a stalemate between nuclear powers. Such strategy came to be known as 'nuclear deterrence'—that is, the repartition of nuclear weapons in a manner that no nuclear-armed state uses the weapons for fear of retaliation (Siracusa, 2008). In other words, deterrence is the strategy used by states to dissuade one another from using military force by persuading the other that the costs of using force would be greater than the gains (O'Neil, 2011). Nuclear deterrence became increasingly prominent with the rise of thermonuclear weapons and nuclear-tipped long-range ballistic missiles in the late 1950s, which increased the level and range of destruction implied by the weapons (Siracusa, 2008). An array of terms and strategies corollary to that of nuclear deterrence became produced by defence analysts. Those included the concepts of 'first strike', 'pre-emptive strike' and later, 'mutually assured destruction'—all those relatively incomprehensible without prior knowledge about deterrence theory and the catalogue of weapons available to states (Cohn, 1987).

Nuclear deterrence has been challenged since its inception, yet the idea that one must live in a world in which nuclear weapons exist remains taken for granted. One powerful alternative telling of international relations can be found in feminist theories. As a sub-discipline of international relations (IR), it is grounded in both international relations and feminist theories as it attempts to reflect lived realities at the local, regional and global levels. To some scholars trained in conventional IR traditions, feminist analysis of international relations seemed to be merely a critique instead of a fully-fledged theory (Tickner, 1997). However, this seems to be a judgement that is both reductive in its assessment of the field as well as the opportunities for research that a feminist analysis opens. Rather, feminist scholars have developed their theories on the assumption that gender not only permeates the private sphere but also the public realm (Tickner, 2005).

What, then, is gender and does it influence international politics? Gender in this paper is defined as 'the structure of social relations that centres on the reproductive arena, and the set of practices that bring reproductive distinctions between bodies into social processes' (Connell and Pearse, 2015:11). There is thus a tension between the individual and collective levels in the experience of gender—as one's identity simultaneously interacts with relations among society. Building upon this, gender can be understood in a number of ways. Some interpretations of gender, such as the one above, emphasise the element of difference as a core part of the concept. Other scholars prefer to emphasise the element of power, in the sense that power dynamics can be found in social interactions (Backman and d'amico 1994, in Maruska 2017). It is understood here that if gender is exclusively considered as a difference, the analysis runs the risk of keeping intact a binary approach and preventing scholars from uncovering the deep-seated power relations contained within and between societies.

Seeing gender through the lens of power helps further decipher the structure of the system of meaning sustained by gender (Cohn 1993, in Tickner 1997). The effect of gender goes beyond the meanings given to male and female bodies, as it also operates as a symbolic system that influences ideas about politics or conflict (Cohn et al, 2005). In this system of meaning, one may find mutually exclusive pairs of characteristics such as strong/weak, thought/emotion, active/passive. Within those pairs, the characteristics people tend to value more highly—being strong, rational, active—are identified with masculine attributes, while those less valued—weak, emotion, passive—are identified with femininity (Cohn et al, 2005). Such association between symbolic attributes and

status have far-reaching practical consequences in the international realm. State behaviour is indeed to some extent partially driven by those deep-seated symbolic associations: rather than exhibiting passivity and weakness, it appears that states want to put forward an image of (masculine) strength and power (Cohn et al, 2005). Those processes are part of the ones being investigated by feminist theories of international relations.

Yet such exploration may prove complex: as male subjectivity tends to stand in for a universal perspective and is not coded as subjective, the values associated with 'being a man' are understood to be the standard by which norms are decided (Hooper, 2001). Everything from everyday practices to institutions—including academia—is permeated with gendered dichotomies, which become taken for granted as they are naturalised. Because masculinity is not 'problematized' (Kronsell, in Ackerly et al 2006:140), it thus becomes especially difficult to research alternatives to a world structured by those dichotomies. In order to find alternatives, one then needs to question what is assumed to be the norm and what features are considered neutral within a society. Such a move is in fact a core method used by feminist theorists and has been coined by Annica Kronsell as 'deconstructing silences' (Kronsell, in Ackerly et al 2006:110). Deconstructing silences is an ambitious and difficult task, as it not only asks the researcher to trace what has been constructed as a norm but also involves a very limited dataset (Moon in Tickner, 2005).

Using a gendered lens to study conflict allows for conflict and peace to be recast in a number of ways.

A first takeaway from feminist security and peace studies relates to delimiting what are 'war' and 'peace' altogether. In the light of the lived experiences of women and other minorities and the everyday violence they are more likely to face, the definition of war can be problematized (Cohn, 2013). Rather than a breakdown of what would otherwise be a context free of all violence, such experiences point to the experiences of violence during 'peacetime' by some individuals. Because it may be happening in the private sphere, or through indirect violence such as the one embedded in the structures of society (Galtung, 1969), it has been delegitimised as a form of violence not worth accounting for when labelling a society 'in conflict'. However, bringing this lived experience and knowledge from the margins into theories of conflict may help recast the latter as a continuum. The boundaries of war and peace therefore seem to be less clear-cut than conventional literature may assume. Many scholars have pointed to experiences of gender-based violence to reconsider conflict as a continuum rather than an episode of violence between periods of peace (Kostovicova et al, 2020). In this sense then, the boundaries of conflict become more permeable, and war is not understood as a breakdown of a peaceful context but rather a product of it (Cohn, 2013).

A second takeaway from feminist studies of peace is the idea that war is inherently a social phenomenon (Cockburn, 2008). Instead of a disruption of all social relations, war implies some form of interaction between allies as well as between warring parties. Wartime is not a period out of time that is void of social dynamics—the same power dynamics present within a state during 'peacetime' may occur during 'wartime'. Furthermore, the latter may also be a site where other social dynamics are created and then maintained during 'peacetime'.

War and the institutions involved can be a space of socialisation, which may in turn be subject to power relations. As in civilian society, some of these power relations may be gendered, such as the hierarchy between performances of gender and its connection to military institutions. At the top of this hierarchy of gender performances rests hegemonic masculinity—the ideal of masculinity which enjoys the most prestige in society (Hooper, 2001; Connell and Messerschmidt, 2005). Below this performance, one may then find other masculinities, followed by femininities.

For an ideal form of masculinity to be imagined and understood as the one performance of manhood one should aim to emulate, there exists multiple other ways to perform masculinity (Hooper, 2001). Masculinity in this sense is neither a monolithic ideal nor one that is performed by all men in a society—rather, a number of masculinities coexist. At the national level, it has been argued that the nation-state can be considered a site of hegemonic masculinity, in which gender differences are entrenched while simultaneously being erased in the face of the universal ‘citizen’ (Kaplan et al, 1999). For instance, ‘universal conscription’ as it is experienced in Sweden is undoubtedly gendered—only men are expected to participate in military service—yet there is little material specifying that only men will engage in the activity. There seems to be a disparity between the use of ‘universal’ and the expectation that all men will participate. In other words, the male citizen is understood as the citizen ‘a priori’ (Kronsell, in Ackerly et al 2006:114) whose gender does not need to be specified, unlike women.

The idea that gender is culturally constructed has an important impact on military institutions, as they rely on cultural constructions to mobilise individuals as representatives and protectors of the nation. Despite being culturally specific, a feature that remains relatively stable across contexts is that of male civilians being shaped into combatants through the appeal to hegemonic masculinity as they enter training (Goldstein, 2001). As they do so, they equate the idea of becoming a good soldier with performing traits that are characteristic of hegemonic masculinity. More precisely, soldiering relies on those traits for soldiers to engage in fighting. For instance, bravery and self-discipline are required for men to willingly undergo the traumatic experience of war (Goldstein, 2001). Those traits are also valued within civilian society, in which ‘to be a man’ implies not shying away from dangerous situations to be able to protect others (Tuailon, 2021). The interaction of violence and masculinities among military institutions can be encapsulated in the phrase ‘making men, making war’ (Duriesmith, 2016:24), which underlines how both phenomena are constructed as well as how interdependent they are.

Following a similar process of neutralisation, hegemonic masculinity has been naturalised as the ideal performance of masculinity while simultaneously being hierarchically superior to femininities (Cohn et al, 2005). Through this process of naturalisation, the ideas that war and its practice are deeply gendered is eventually taken for granted: men are expected to serve their nation through participation in the military as well as perform specific traits of hegemonic masculinity, while women are expected to remain outside of military institutions altogether. The assimilation of those ideas has a number of consequences. It prevents attempts to look into the system in which gender and war interact as it is assumed that the outbreak, practice and resolution of conflict will follow gendered scripts. It also has practical consequences—as can be observed in nuclear policy circles. The lack of diversity in decision-making has been reported to lead to less original solutions, while the meaningful inclusion of minorities into the process helps challenge the idea that everyone in the room has the same needs (D’allarche, 2020). Thus taking for granted that war is a ‘man’s world’ may prevent reaching innovative solutions that could foster sustainable peace. Besides, it may perpetuate the cycle of armament and conflict in which states are engaged in: if negotiating, acknowledging interdependence and depending on others are culturally devalued in the Western symbolic system, then it appears counterintuitive for states to do the former (Cohn et al, 2005). This in turn constrains the possibility for peace, non-proliferation, and disarmament to emerge.

3. Spaces and Silences: how the gendered performance of power comes to influence perspectives for peace

Attention to the human factor remains scarce in nuclear strategic discourse, with references to human behaviour in relation to the safety of nuclear facilities (Hobbs and Moran, 2022) or the

possibility of human error in strategic calculations (Siracusa, 2008). Similarly, gender is rarely acknowledged, although it has been found that nuclear explosions disproportionately affect women (Guro Dimmen, 2014). This echoes an argument voiced by Cohn in the 1980s, in her article *Sex and Death in the Rational World of Defence Intellectuals*, a seminal paper in the field of feminist inquiry into nuclear armament. In it, Cohn underlines that when using technostrategic language, it is difficult to vocalise, and even think of, the catastrophic consequences on the environment and human lives involved by the weapons. Such language does not account for the destruction caused. Similarly, technostrategic language constrains the possibility of thinking about peace: Cohn could not find a synonym for ‘peace’, whose closest synonym was ‘strategic stability’. Considering the large diversity of literature produced on the idea of peace, strategic stability—the balance between numbers and types of weapon systems—seems too limited to encompass the wide-ranging factors involved by peace. Cohn observes the reference point in technostrategic language is the weapons themselves, rather than human beings—the latter being referred to as collateral damage.

Furthermore, when references to gender are made in technostrategic spaces, they perform a hierarchising role (Cohn, 1987): by saying ‘I felt like a woman’, the wording used by the defence intellectual interviewed by Cohn whose concern about the number of casualties alludes to the idea that he felt as an outsider because he did so. Similarly, the numerous gendered and sexual metaphors witnessed by Cohn in this space indicate that despite not being thought of as relevant, ideas about masculinity and femininity matter in international security.

A gendered, constrained language is not only present in strategic circles, but also in state discourse. One of the most glaring examples of the latter may be found in the 2017-2018 diplomatic crisis between North Korea and the United States. During the episode, Kim Jong-un emphasised ideas of strength and independence (BBC, 2017). In another statement, he referred in another statement to Trump as ‘deranged’ (BBC, 2017). By alluding to a potential mental illness, Kim Jong-Un appealed to the idea that Trump was not a responsible leader and that his judgement was not only inaccurate but also irrational. Trump’s replies conveyed similar feelings. In the words of Cohn (2018),

‘When Mr. Trump tweeted, “I too have a Nuclear Button, but it is a much bigger & more powerful one than his, and my Button works!” the nuclear sabre-rattling at Kim Jong-un of North Korea sounded a lot like, well, penis-measuring.’

Kim’ and Trump’s statements were enthusiastically relayed by Western media. As they did that, it could be argued that readers were witnessing a show that could be akin to a farce. The extent to which the two men were willing to go as they described and reacted to one another led many to consider the discussion as something ultimately unserious, which became implicitly apparent in the coverage of the event. However, it would be a mistake to focus exclusively on the somewhat comical nature of the exchange between Kim and Trump and overlook its content. There is value in analysing what the two protagonists were saying—and in understanding why the dialogue bears resemblance to a theatre play altogether.

Those two ideas will be developed below, starting with the theme of insanity developed throughout Trump and Kim’s exchanges. Kim Jong-un’s comment describing Trump as ‘deranged’ (BBC, 2017) is especially interesting to analyse using a feminist lens. As he describes his counterpart, Kim goes beyond criticising his rhetoric and policies as he challenges Trump’s very ability to make rational decisions. This seems congruent with the fact that rationality enjoys a hegemonic status in the nuclear realm. The emphasis on the concept of rationality in strategic circles (Cohn, 1987) appears mirrored in public discourse. Trump’s response demonstrates this, through the direct link created between ideas of national strength and madness. Consider his quote, ‘The US has great strength and patience’ (Borger, 2017) and the nickname given to Kim Jong-un—‘Rocket Man’ (Borger, 2017).

Using such a term is demeaning, especially when placed next to the assertion that the US has great strength—as if Kim Jong-un was facing the whole nation alone. The two themes interact as Trump attempts to position the United States as a strong nation that is able to and willing to defeat North Korea in the military domain.

In those statements, the lexicon of insanity is combined to an explicitly gendered language. Metaphors around ‘nuclear buttons’ are powerful as they shape one’s perspective (Cohn in McIntosh and Mendoza-Denton 2020). Metaphors shape military decisions (ibid.). The comical aspect of the exchange perhaps only helps to further this point. This episode of ‘missile melodrama’ (Graham, 2018:0) can be considered the most extreme form of performance of politics yet. In this performance, the peninsula becomes the ‘theatre’ where actors exchange shocking replies quickly, which may eventually lead the region to be engulfed in a ‘sea of fire’ (Graham, 2018). The two main protagonists of the play do their best to ‘own the stage’ (Graham, 2018)—that is, behave to be at the centre of the audience’s attention. Ultimately, commanding attention here means to be taken seriously by the other party and the audience.

Framing the event as a theatrical performance can help make sense of the event. Indeed, if looked at with the dominant lens of deterrence and rationality, the 2017-2018 crisis between the US and DPRK is difficult to make sense of—and perhaps this is why the event was easily dismissed as a rhetorical farce in some media. However, when the event is framed as a performance in which Trump and Kim Jong un appeal to a ‘showmanlike’ behaviour to establish their legitimacy, it holds a lot more meaning (Graham, 2018). The idea of performance highlights the gendered dynamics at play in the dialogue. Further, the same framing also provides insight as to the role of the ‘madman’ and rationality within nuclear deterrence theory.

First, framing the confrontation as a performance helps underline its gendered drivers, including not only obvious gendered metaphors but Butler’s idea of performativity (Butler, 1990). This has been a core idea in feminist theory, which establishes gender as something that is performed. Here, it seems that both Trump and Kim Jong-un attempt to perform the role of the strong leader of the nation—although they do so in different ways in line with domestic audiences and their own ideologies. Such a performance includes appealing to the figure of the father of the nation whose strength protects the state and challenging his opponent’s claims that he is too weak to succeed. Such a performance of hegemonic masculinity was obvious in this example—both in terms of the intensity by which it is performed and the theatricality of exchanges.

Second, such a performance shows the limitations of the logic of deterrence. Yet nuclear deterrence theory has attempted to account for irrationality, through the concept of ‘calculated irrationality’ (Graham, 2018). This goes beyond calculation: Machiavelli mentioned in his writings on political theory the ‘rationality of irrationality’ (Rehaim, 2020) by which acting with no seeming logic leads one’s enemy to fear the worst. More contemporary proponents of the idea include Schelling and his ‘madman theory’. While the logic behind the ideas—instilling fear in an opponent—may make sense, the idea that irrationality can be rational seems difficult to comprehend to those thinking outside the framework of nuclear deterrence.

Language does not have to be highly technical and produced in a relatively exclusive space to be a space in which gendered performances of power can unfold. The realm of nuclear diplomacy is equally gendered: nuclear diplomacy is one of the most male dominated fields of foreign policy (Brown and Considine 2022). Although this seems to be changing, as reported by Egeland and Taha (2023), gendered norms continue to shape nuclear policymaking. Yet, a greater inclusion of women in the field of nuclear defence does not necessarily improve how nuclear policy making is approached. As mentioned, gender is understood as something that can be performed (Butler,

1990), rather than being an essential trait tied to bodies. As a consequence, masculinities may be performed by all genders alike (Egeland and Taha, 2023). Women too can use language and display behaviour that eventually undermines nuclear disarmament. In this view, a greater inclusion of women in the field—while beneficial in some ways—would not necessarily tackle the patriarchal structures reflected in strategic discourse.

Despite those shortcomings, challenges to such language and performances appear to be difficult to establish. Much of the mobilisation against nuclear weapons has been done in the non-governmental space—with examples ranging from civil society campaigning in the 1980s (Eschle, 2013) to the paramount role of nongovernmental organisations such as the International Campaign to Abolish Nuclear Weapons in the lead-up to the Treaty on the Prohibition of Nuclear Weapons (TPNW). The role of civil society in campaigning for nuclear disarmament has been instrumental but testifies as well of the lack of space available for the latter within the state realm. That does not mean that the two do not interact, nor that states themselves may not play an important role in the disarmament process. However, despite local, regional and global mobilisation, the realm of nuclear policy remains dominated by logics of deterrence; the ownership of nuclear weapons by some countries therefore remains unchallenged. Nuclear capabilities are still considered to exclusively belong to the state realm rather than something that could be yielded by non-state actors too despite the growing access of the latter to nuclear technology. This can be observed in the way the increasing fear of non-state entities such as terrorist groups accessing nuclear weapons mobilises a discourse of threat from states, who position terrorists as ‘madmen’ (Williams, 2011).

Yet, even then, not all states are considered equals in the ownership of nuclear weapons. The notion of ‘proliferation’ for instance goes beyond describing the increasing number of nuclear weapons. Rather, it constructs some weapons as problematic while overlooking others, depending on their owners (Cohn et al, 2005). In doing so, it assumes legitimate owners that are entitled to those weapons, while non-nuclear states attempting to build a nuclear arsenal are understood as threats to be countered (Acheson, 2021). Furthermore, even the use of ‘feminist-coded’ language through appeals to gender equality by relevant military and nuclear actors may not always challenge existing power structures but rather further legitimise the pursuit of armament (Egeland and Taha, 2023). While this shift underlines the importance of discourse, it constrains opportunities for nuclear disarmament, as the ability to speak for and to women becomes a space of contested claims to legitimacy (Considine, 2019).

Perhaps the difficulty to find significant opposition to nuclear armament suggests it is situated in a wider, deeper-rooted framework. To Egeland (2021), discourses and practices produced in the nuclear policy space can be recast as a political ideology that presents nuclear disarmament as an imperative that nevertheless remains a long-term perspective. Such ideology entrenches existing power structures, in which the legitimate nuclear powers protect the status quo. On the Korean peninsula, this coincides with another process: militarisation. At the end of the Cold War, Enloe (1993) warned that the end of superpower rivalry does not mean the end of the militarised understanding of identity and security, which builds upon masculinities to establish itself. State- and nation-building in both North and South relied heavily on the gendered process of militarisation. Gender featured heavily in North Korean narratives through cultural production and the framing of party leaders (Kim, 2014). In South Korea, the militarised construction of an anti-communist nation was deeply gendered by the connection between compulsory military service and employment (Moon, 2005). A focus on the militarisation of societies as an issue to tackle to ensure genuine and sustainable peace is therefore facilitated by a gender-sensitive analysis. In the event of a formal peace process, both countries would have to engage in the difficult yet crucial

process of demilitarisation—from the demilitarised zone to the minds of their citizens. As a first step, the re-politicisation of the nuclear order may help recognise the extent to which societies can be militarised and ensure nuclear disarmament in the peninsula.

4. Recommendations

A feminist inquiry into the nuclear realm invites scholars and civil society to:

1. *Enrich scholars' definition of peace*
Starting with the short-term, practical aspects of peace, to the long-term, invisible goals, such as demilitarisation of society.
2. *Analyse critically the global nuclear order*
By re-politicising the global nuclear order, civil society can consider nuclear disarmament as a plausible, and desirable, solution and organise for it.
3. *Bring back the human factor into the nuclear equation*
Through the use of humanitarian discourse, as it has been done throughout the campaign leading up to the TPNW, civil society can re-politicise the global nuclear order to design nuclear disarmament as a collective human enterprise.
4. *Invent nuclear disarmament*
Researchers, with the support of other civil society, can continue studying and enriching key concepts, including power and power structures, systems of meaning and how to delegitimise nuclear weapons.

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17. 'A World Free From Nuclear Weapons': The Catholic Church and Nuclear Discourse under Pope Francis

NICOLÒ MIOTTO

Abstract

Since the 1945 nuclear bombings of Hiroshima and Nagasaki, the Catholic Church has engaged in the strategic and moral debates surrounding nuclear weapons. Initially, it developed a conditioned rejection of nuclear deterrence, condemning any first use of nuclear weapons but acknowledging its role in maintaining the balance of power and its viability as a temporary step towards total disarmament. Over the years, however, the Catholic Church has shifted its position. During Pope Francis' papacy, it firmly condemned the possession and threat of use of nuclear weapons for the first time, thus ruling out the morality of nuclear deterrence as a whole. In articulating a comprehensive rejection of nuclear deterrence, Pope Francis has encouraged policy actions to advance the global nuclear disarmament agenda. This paper contributes to ongoing reflections on deterrence and disarmament by exploring how the Catholic Church has reframed the issue of nuclear deterrence and disarmament and advanced the global disarmament agenda through discursive practices during Pope Francis' papacy.

1. Introduction

Religion plays a meaningful role in society and politics and has been widely studied as a factor fuelling conflicts (Deitch, 2022). Nonetheless, religious actors can also be agents of positive change favouring dialogue and peace (Appleby, 2000; Welty & Chalk, 2020). Among others, the Catholic Church has played a key role in promoting global security by criticising nuclear deterrence and supporting nuclear disarmament efforts (Hrynkow, 2019).

Since the 1945 bombings of Hiroshima and Nagasaki, the Catholic Church has engaged in the debate on nuclear deterrence, reflecting upon its strategic, theological, and moral implications (Foradori, 2014). Especially during the Cold War, when nuclear deterrence was argued to be the factor maintaining the balance of power and preventing a Third World War, the Catholic Church and its affiliated bodies addressed the moral validity and strategic effectiveness of nuclear deterrence (see Heirman, 1983; Everts, 1984; Klein, 1984; Risse-Kappen, 1984).

Initially, the Catholic Church developed a qualified acceptance of nuclear deterrence as a temporary step to ensure global stability and progressively move towards nuclear disarmament and the elimination of nuclear weapons. Nonetheless, with the end of the Cold War, its discourse has shifted, leading to an open condemnation of nuclear deterrence as a whole (Lonsdale, 2012; Cusimano Love, 2020). Pope Francis (2013-present) has strongly influenced this progressive evolution as he has condemned the possession and threat of use of nuclear weapons (Cusimano Love, 2020). His views profoundly challenge long-established and emerging conceptions of nuclear deterrence, including mutual assured destruction (MAD) (see Schelling, 1958; Wohlstetter, 1959) and minimal nuclear deterrence (see Erästö, 2022).

Because the Russian war against Ukraine has brought back on top of the international agenda the issue of nuclear weapons and the potential impacts of nuclear warfare, reflecting upon nuclear deterrence and disarmament is of utmost importance. The erosion of nuclear arms control, the heightened tensions between nuclear powers, and the recently established nuclear sharing agreement between Russia and Belarus (see Glod & Meier, 2023) have re-ignited discussions on

the effectiveness of nuclear deterrence and the viability of nuclear weapons as means to ensure national security. In such a deteriorated strategic context, researchers and policymakers are called to engage in the debate and elaborate on new means to mitigate tensions and avert nuclear escalation.

This research paper aims to contribute to these reflections by exploring the Catholic Church's discourse on nuclear deterrence and disarmament during Pope Francis' papacy. In particular, it will answer the following research questions:

- How has the Catholic Church's discourse on nuclear deterrence and disarmament evolved during Pope Francis' papacy?
- How does it challenge mainstream and emerging conceptions of nuclear deterrence, including at the time (2013-2023)?
- How does it encourage policy actions supporting global disarmament efforts and how effective has it been at doing so?

The essay is structured as follows. Section 2 discusses the literature about the role of discourse in nuclear politics, showing how different actors have used it to either preserve or challenge the nuclear status quo. Section 3 outlines the terminology adopted, the scope of the research, and the study's research and design methodology. Section 4 briefly analyses the Catholic Church's discourse before Pope Francis. Section 5 explores the Catholic Church's discourse during Pope Francis' papacy, dedicating attention to the way it challenges nuclear deterrence. Section 6 explores the policy relevance of the Catholic Church's discourse, focusing on its influence on nuclear disarmament agreements, especially the Treaty on the Prohibition of Nuclear Weapons (TPNW). The essay concludes with reflections on avenues for future research.

2. The power of discourse in nuclear politics

Since the beginning of the Cold War, governments, and social movements, especially pacifist organisations and religious institutions, have employed discursive practices to either legitimise or challenge the strategic utility of nuclear weapons and the logics of deterrence. They have often engaged in fierce debates, developing contrasting views on nuclear deterrence's role in maintaining peace or potentially leading to the ultimate destruction of humankind (Mehan et al., 1990). In policymaking circles, discourse influences nuclear deterrence doctrines and military strategy, providing tools to legitimise states' nuclear status and the ownership of nuclear weapons (Hook, 1985). Through discourse, policymakers can convey collective ideas on national identity and perceived national security threats to craft nuclear policies and justify the acquisition of nuclear capabilities and the development of nuclear weapons (Das, 2010).

While discourse has been employed to legitimise the development and maintenance of nuclear arsenals, numerous actors, including non-nuclear weapon states, international organisations, and non-governmental organisations (NGOs), have developed discursive strategies to advance the global nuclear disarmament agenda. Since 2010, these actors have been reframing the issue of nuclear weapons by emphasising the potential catastrophic humanitarian consequences of a deliberate or accidental atomic detonation (Minor, 2015; Kmentt, 2022). This 'deliberate strategy of reframing' has had the objective to undermine the validity of the doctrine of nuclear deterrence, introducing moral dilemmas, questions of legitimacy, and legal problems concerning not only the use but also the possession and threat of use of nuclear weapons (Minor, 2015: 721).

The humanitarian discourse has not merely questioned the utility and legitimacy of nuclear weapons. Indeed, it has shifted the conception of security from state-centric to human-centric,

challenging the nuclear-armed states' normalisation of nuclear deterrence (Kmentt, 2022) and shedding light on the humanitarian, environmental, and economic costs of nuclear weapons. Furthermore, it has challenged established power dynamics in nuclear politics, allowing non-nuclear weapon states to subvert the hegemonic role of nuclear-armed states in either advancing or constraining global nuclear disarmament and question the effectiveness and legitimacy of existing arms control, disarmament, and non-proliferation regimes (Kmentt, 2022; Panico, 2023).

Adopting a certain perspective on nuclear deterrence and disarmament is not a mere rhetorical strategy. It can have major policy implications as it can either legitimise or delegitimise policy courses, focusing political efforts and resources on the maintenance of certain international regimes or the promotion of new ones. While the humanitarian discourse has been embraced by numerous countries, nuclear-armed states have cast doubts on its actual contributions to nuclear disarmament, considering it a detrimental polarising narrative that does not account for the realities of international security (Egeland, 2020). In so doing, these countries have reaffirmed the centrality of the Non-Proliferation Treaty (NPT) to pursue the objective of disarmament through a step-by-step approach and the role of nuclear weapons as instruments of global stability.

The significant influence of discourse in nuclear politics encourages further research. In particular, it is necessary to analyse how contemporary discursive practices can challenge the status quo in nuclear politics and advance global nuclear disarmament in a time of erosion of international arms control and heightened tensions between nuclear powers. As the Russian war against Ukraine has revived arguments in favour of nuclear deterrence (Erästö, 2022; Onderco et al., 2023), alternative views on the utility and legitimacy of nuclear weapons in international politics can balance these detrimental dynamics by keeping the goal of total disarmament high up on the agenda.

3. Terminology and scope of the research

This essay is concerned with the Catholic Church's discourse on nuclear deterrence and disarmament, especially with its evolution during Pope Francis' papacy. While the Catholic Church and the Holy See are two separate entities under the legal profile (Cumbo, 1948), the Holy See represents a key institutional channel the Catholic Church employs to convey its messages at the policymaking levels. Indeed, the Holy See's diplomatic representatives act as representatives of the Pope and often pronounce statements and speeches which are, directly or indirectly, based on his words, views and thinking. Therefore, when investigating the Pope's discourse, it is also necessary to look at the Holy See's views on nuclear deterrence and disarmament.

Moreover, the Holy See plays a crucial role at the policymaking level in the nuclear field (Powers, 2018; Cusimano Love, 2020). It is part of pivotal regimes such as the NPT, the Comprehensive Nuclear-Test-Ban Treaty (CTBT) and the TPNW and a member of the International Agency for Atomic Energy (IAEA). Such a status allows the Holy See's representatives to take part in meetings, conferences, and negotiations where nuclear disarmament is discussed.

In order to answer the research questions, this essay employs discourse analysis. Following previous literature about discourse and nuclear deterrence and disarmament, this paper explores language as 'an active political force' (Mehan et al., 1990: 135) and 'a strong legitimising tool in nuclear politics' (Panico, 2023: 1198). It looks at nuclear deterrence as 'a socially constructed and historically contingent set of concepts and practices' (Sinovets & Budjeryn, 2017: 1). It conceives the discursive practices of the Catholic Church as a 'deliberate strategy of reframing' (Minor, 2015: 721) aimed at challenging established norms and behaviours concerning nuclear deterrence and advancing the nuclear disarmament agenda.

As Lonsdale (2012) has noted, the lack of a formal single document detailing the position of the Catholic Church on nuclear deterrence and disarmament makes it necessary to analyse numerous sources to assess its views on such issues. Therefore, this essay analyses several official documents, statements and speeches delivered by the Catholic Church, Pope Francis, and the Holy See's representatives in the period 2013-2023, focusing on nuclear weapons, nuclear deterrence, and nuclear disarmament.

Drawing upon previous studies on the Catholic Church's position on nuclear deterrence and disarmament, this essay pays particular attention to the Pope's Encyclical Letters which are 'the most authoritative form of teaching given by the Bishop of Rome' and 'binding upon a Catholic's conscience' (Hrynkow, 2019: 59). Nonetheless, emphasis has been placed upon other forms of communication as well, including official statements at international organisations and initiatives (e.g., the United Nations (UN), and the Conferences on the Humanitarian Impact of Nuclear Weapons) and messages delivered on other occasions (e.g., World Day of Peace, and Apostolic Journeys).

4. The Catholic Church's discourse on nuclear deterrence and disarmament from Pope Pius XII to Pope Benedict XVI

Since the 1945 nuclear bombings of Hiroshima and Nagasaki, the Catholic Church has actively engaged in the debate on nuclear deterrence and disarmament. While it has always maintained that the use of nuclear weapons cannot be accepted on the basis of any legal and moral doctrine, including the just war theory's principles of self-defence and proportionality (see Langan, 1988; Cohen, 2020; Harris, 2020: 6-7), its position on nuclear deterrence has gradually shifted over the years.

As the first pope to enter the nuclear age, Pope Pius XII (1948: 2; 1955) defined the atomic bomb as 'the most terrible weapon that the human mind has, to date, ever conceived' and called on states to suspend nuclear testing, refrain from any first use of nuclear weapons and engage in nuclear arms control. His successors further reinforced these views, promptly reacting to the most dramatic moments of the Cold War. In particular, the 1962 Cuban missile crisis deeply influenced Pope John XXIII's thinking on nuclear deterrence and disarmament (Hrynkow, 2019: 58). In his Encyclical Letter *Pacem in Terris*, written a few weeks after the crisis resolution, Pope John XXIII (1963: 12) acknowledged the potential deterrent power of nuclear weapons, stating, however, that 'nuclear weapons must be banned.'

Pope John XXIII's discursive shift, focused on the necessity to, eventually, ban nuclear weapons, was echoed by his successors. In the Pastoral Constitution *Gaudium et Spes*, Pope Paul VI (1965: 77) recognised that the 'accumulation of arms [...] likewise serves, in a way heretofore unknown, as deterrent to possible enemy attack', arguing, however, that

'the arms race [...] is not a safe way to preserve a steady peace, nor is the so-called balance resulting from this race a sure and authentic peace.'

Years later, in a similar manner, at the UN General Assembly (GA), Pope John Paul II (1982: 6) declared that while 'deterrence based on balance [...] may still be judged morally acceptable,' it should be regarded 'certainly not as an end in itself but as a step on the way toward a progressive disarmament.' While these statements testified to the Catholic Church's firm condemnation of nuclear use and strong support for global disarmament efforts, they left some room for ambiguity, especially because they did not clearly state for how long deterrence could be regarded as a temporary step. Moreover, they did not explicitly condemn the possession and threat of use of

nuclear weapons, key underlying features of nuclear deterrence, thereby leaving a margin of morality for it to exist as an ordering principle prior to disarmament progress.

Nonetheless, the end of the Cold War led the Catholic Church to re-assess its conditional acceptance of nuclear deterrence. Since the 1990s, its discourse has been characterised by a growing scepticism towards nuclear deterrence and an increased emphasis on the need to eliminate nuclear weapons (Lonsdale, 2012). Pope John Paul II (1996: 4-5) praised the conclusion of the 1996 CTBT, emphasising that ‘in the sphere of nuclear weapons, the banning of tests and of the further development of these weapons [...] must be achieved as quickly as possible’ and adding that ‘these are steps towards a general and total disarmament which the international community as a whole should accomplish without delay.’ In a similar vein, at the 2010 NPT Review Conference, his successor, Pope Benedict XVI, encouraged ‘the initiatives that seek progressive disarmament and the creation of zones free of nuclear weapons, with a view to their complete elimination from the planet’ (Archbishop Celestino Migliore, 2010: 1).

Although the Catholic Church’s discourse has progressively shifted towards a strong emphasis on the need for total nuclear disarmament and the elimination of nuclear weapons, the lack of a detailed rejection of nuclear deterrence left some crucial matters untouched. For example, observers have argued that, while nuclear weapons’ first use, especially against counter-value targets, was ruled out by the Catholic Church, their possession, threat of use and, potentially, limited use against counter-force targets¹ might be judged morally acceptable (Langan, 1988; Lonsdale, 2012; Foradori, 2014). Nevertheless, these observations have been radically questioned during Pope Francis’ papacy. Indeed, Pope Francis has marked a decisive shift in the Catholic Church’s discourse on nuclear deterrence and disarmament, openly stating the immorality of the development, possession, and threat of use of nuclear weapons.

5. Pope Francis: a turning point in the Catholic Church’s discourse

5.1 The geopolitical, humanitarian, and cultural factors leading to the change in the Catholic Church’s discourse

To understand the shifts in the Catholic Church’s discourse during Pope Francis’ papacy, it is necessary to explore what factors favoured their emergence. While a thorough analysis of these dynamics is beyond the scope of the paper, the evaluation of three key factors—geopolitical, humanitarian, and cultural—can shed light on the core elements underpinning Pope Francis’ discourse.

Since the first 2000s, geopolitical tensions have been negatively affecting nuclear disarmament. Especially, the deterioration of the relationships between the US, Russia, and China and regional powers like Iran and North Korea have led to the modernisation of nuclear arsenals and the withdrawal from pivotal agreements (Portela, 2021; Kühn, 2022; Kane & Mayhew, 2022). Notable negative trends include the US withdrawal from the Anti-Ballistic Missile Treaty in 2002; from the Joint Comprehensive Plan of Action (JCPOA) in 2018; from the Treaty on Intermediate-Range Nuclear Forces in 2019; the 2023 Russian suspension of its participation in the New Strategic Arms Reduction Treaty (START) (Portela, 2021; Kühn, 2022; Idarand et al., 2023). Such tensions have been further reflected in the stagnation in the negotiations for a Fissile Material Cut-off Treaty and in the de-ratification of the CTBT by Russia (Portela, 2021: 4; Chalmers 2023).

¹ In military strategy’s jargon, ‘counter-value targeting’ refers to non-military targets, including civilian populations and infrastructures, while ‘counter-force targeting’ refers to military targets.

These geopolitical dynamics have cast doubts among states and the international public opinion on the effectiveness of existing nuclear arms control regimes and the willingness of nuclear powers to move forward with nuclear disarmament. As a result, since 2010 NGOs and governments of non-nuclear-weapon states have developed the so-called humanitarian initiative (Minor, 2015; Kmentt, 2015, 2022). By hosting conferences and pronouncing cross-regional diplomatic statements, these actors have reframed the issue of nuclear weapons from a humanitarian perspective, challenged nuclear deterrence and encouraged more decisive steps towards nuclear disarmament (Kmentt, 2015). In playing a crucial role in the negotiations for the TPNW, this 'humanitarian movement' has put forward the moral stigmatisation of nuclear weapons to change people's views and mobilise public opinion and pursued their delegitimization to undermine their perceived policy relevance in strategic thinking (Kurosawa, 2018; Løvold, 2021).

The geopolitical dynamics and the humanitarian initiative played a key role in shaping the Catholic Church's discourse. The Holy See has been actively engaged in the NPT review conferences, the initiatives linked to the CTBT and the IAEA General Conferences in the last decades, thus witnessing the deterioration of nuclear arms control regimes and the stagnation of diplomatic negotiations from within. In addition, by participating in the Conferences on the Humanitarian Impact of Nuclear Weapons between 2013 and 2022, the Holy See has been immersed in the discursive dynamics of the humanitarian initiative, promoting the humanitarian perspective, and being likely influenced by other actors' discourse.

In addition to these factors, Pope Francis' cultural background had a fundamental role in the Catholic Church's discursive shift. While living and preaching in Argentina, as well as in other Latin American countries, Pope Francis witnessed the deep social crises affecting the region, experiencing first hand their profound human consequences (Berryman, 2016; Gustafson, 2018; see also Franco, 2013). The injustice and violence that often characterise the Latin American region affected his approach to global politics, especially his spiritual attention to the most vulnerable and marginalised communities (Scannone, 2016).

These life experiences and cultural background influenced his theological perspectives and made him convinced that 'politics (and economics) can and should promote the common good' (Gustafson, 2018: 202). Such a perspective looks at peace not as 'the mere absence of violence resulting from the domination of one part of society over others' but rather as 'just peace' (Cusimano Love, 2023). Just peace is obtained when 'integral development' and 'integral ecology' (Pope Francis, 2013: 69, 2015a) are achieved. These encompass numerous interconnected social, political, environmental, and economic goals, including, among others, the respect for human rights, the fight against poverty, exclusion, and marginalisation, the diplomatic initiatives to avoid war and solve conflicts, and the mitigation of climate change.

It is through these lenses that Pope Francis has re-shaped the Catholic Church's discourse on nuclear deterrence and disarmament. His approach reflects many of the concerns raised by the humanitarian movement in response to the geopolitical dynamics in the nuclear sphere. In particular, the attention to the most vulnerable communities, which would be disproportionately affected by nuclear explosions, and the emphasis on the ecological disasters, which nuclear weapons have produced and would cause, represent key commonalities. As the final sections of this paper will show, these similarities allowed the Holy See to actively participate in the humanitarian movement and contribute to the framing of the TPNW.

5.2 Towards the condemnation of the development, possession, and threat of use of nuclear weapons

The particular stances of Pope Francis made his papacy a turning point. While he has maintained and strengthened key principles and arguments made by previous Popes, he has stated a detailed and non-conditional rejection of all aspects of nuclear deterrence by condemning the development, possession and threat of use of nuclear weapons (Powers, 2018).

Since the beginning of his papacy, Pope Francis (2014: 7) has made nuclear disarmament a key priority, reconnecting his discourse to the general views of the Catholic Church:

'I make my own the appeal of my predecessors for the non-proliferation of arms and for disarmament of all parties, beginning with nuclear and chemical weapons disarmament.'

His message was soon diffused at the global level by his representatives. At the 58th General Conference of the IAEA, Msgr. Antoine Camilleri (2014) further developed the Pope's vision emphasising that 'a world free of weapons of mass destruction is the final aim of this process of disarmament.' Likewise, at the Third Conference on the Humanitarian Impact of Nuclear Weapons held in Vienna, Austria, Archbishop Silvano Maria Tomasi (2014b: 2) noted that:

'the desire for peace and fraternity planted deep in the human heart will bear fruit in concrete ways to ensure that nuclear weapons are banned once and for all, to the benefit of our common home.'

He (2014a: 1) further emphasised that:

'If it is unthinkable to imagine a world where nuclear weapons are available to all, it is reasonable to imagine a world where nobody has them.'

Pope Francis' call for global nuclear disarmament and the banning of nuclear weapons is rooted in the Catholic Church's views on the broader impacts of the development, possession, threat of use, and use of nuclear weapons. Archbishop Tomasi (2014a: 2) condemned the investments in nuclear weapons as a 'misallocation of resources' that could rather be spent 'in the areas of integral human development, education, health and the fight against extreme poverty.' The emphasis on the trade-off between investments in nuclear weapons and integral human development became a prominent feature of Pope Francis' discourse. In his Encyclical Letter *Laudato si': on Care for Our Common Home*, Pope Francis (2015: 41) drew attention to the detrimental effects of war on the 'environment' and the 'cultural riches of people,' emphasising that such risks are 'magnified when one considers nuclear arms.'² He further noted the

'waste of resources spent on nuclear issues for military purposes, which could instead be used for worthy priorities like the promotion of peace and integral human development, as well as the fight against poverty, and the implementation of the 2030 Agenda for Sustainable Development' (Pope Francis, 2017b: 2).

Pope Francis's Encyclical Letter '*Laudato si'*' and his observations reframe the issue of nuclear weapons as a matter of 'holistic moral equilibrium,' providing a theoretical framework that analyses their impacts by including both environmental and social costs (Barbieri, 2023: 60). Pope Francis' views also note the theological implications stemming from the maintenance and

² This passage also recalls the statements and observations of his predecessors, in particular Pope John XXIII's (1963: 12) Encyclical Letter *Pacem in Terris* which highlights that 'the very testing of nuclear devices for war purposes can, if continued, lead to serious danger for various forms of life on earth.'

modernisation of nuclear weapons, which are considered at odds with the Catholic obligations for the care of God's creation (64-65). The emphasis on the environmental implications of nuclear weapons has been accompanied by warnings against their physical costs for humanity. In his Encyclical Letter *'Fratelli Tutti'*, Pope Francis (2020: 65) highlighted that weapons of mass destruction, due to their disproportionate impact, give war an 'uncontrollable destructive power over great numbers of innocent civilians' and that 'it is very difficult nowadays to invoke the rational criteria elaborated in earlier centuries to speak of the possibility of a just war.'

While these principles expanded on the positions of previous Popes, in 2017 the Catholic Church's discourse was marked by an unprecedented shift with Pope Francis' condemnation of the possession and threat of use of nuclear weapons. In his message to the Holy See-organised international symposium 'Prospects for a World Free of Nuclear Weapons and for Integral Disarmament,' Pope Francis (2017a: 1-2, emphasis added) stated:

*'If we also take into account the risk of an accidental detonation [of nuclear weapons] as a result of error of any kind, **the threat of their use, as well as their very possession, is to be firmly condemned.***

This ground-breaking statement was further reinforced by the Pope during his 2019 Apostolic Journey to Thailand and Japan. In his visit to Nagasaki's Atomic Bomb Hypocenter Park, Pope Francis (2019a: 1, emphasis added) declared:

*'**The possession of nuclear and other weapons of mass destruction** is not the answer to [human heart's longing for security, peace and stability]; indeed, they seem always to thwart it.'*

On the same day, at the Peace Memorial in Hiroshima, he once more highlighted that 'the use of atomic energy for purposes of war is immoral, just as *the possessing of nuclear weapons is immoral*' (2019b: 2, emphasis added). Recently, he has strongly reaffirmed to the members of the diplomatic corps accredited to the Holy See that 'the possession of atomic weapons is immoral' (2023a: 2). These statements, and Pope Francis' previous reflections on the broader dangers and risks posed by nuclear weapons, have had a deep impact on the Catholic Church's discourse, leading to a detailed and non-conditional rejection of nuclear deterrence in all its forms.

5.3 A detailed and non-conditional rejection of nuclear deterrence

Already in February 2014, at the Second Conference on the Humanitarian Impact of Nuclear Weapons held in Nayarit, Mexico, Archbishop Christophe Pierre (2014: 1) noted:

'The doctrine of nuclear deterrence is the chief obstacle to meaningful progress on nuclear disarmament. This military doctrine is leading to the modernization of existing stocks of nuclear systems, thus preventing genuine nuclear disarmament.'

While this statement could be regarded as a critique of nuclear deterrence rather than its firm rejection, subsequent announcements dissipated any doubts. In December of the same year, at the opening ceremony of the Third Conference on the Humanitarian Impact of Nuclear Weapons, Archbishop Silvano Maria Tomasi (2014b: 2), on behalf of Pope Francis, stated that:

'Nuclear deterrence and the threat of mutually assured destruction cannot be the basis for an ethics of fraternity and peaceful coexistence among peoples and states.'

Within this ethical framework, Pope Francis (2015b: 1-2; 2023b: 2) questioned nuclear deterrence as a 'false sense of security' and 'an illusion of peace' and 'the threat of mutual destruction' as 'contradictory to the very spirit of the United Nations.'

Although these statements testify to an overt and firm criticism towards nuclear deterrence, they lack the explicit moral condemnation of the possession and threat of use of nuclear weapons. Pope Francis has been filling this gap since 2017 by articulating a more comprehensive and explicit rejection of all aspects of nuclear deterrence. Because credible deterrence is based on nuclear weapons as instruments of strategy and the ability and willingness to use them (see Lonsdale, 2012), the Catholic Church's position challenges any doctrine which presupposes these elements. Indeed, Pope Francis (2017a, 2019ab; 2023a) has firmly condemned the possession and threat of use of nuclear weapons. In so doing, he has explicitly ruled out the legitimacy of MAD (Archbishop Silvano Maria Tomasi, 2014b: 2; Pope Francis, 2015b: 1-2; 2023b: 2) and implicitly challenged other conceptions of deterrence like minimal deterrence. Such a condemnation is a strong moral and spiritual encouragement to actively pursue total disarmament in a more decisive manner and not through slower step-by-step approaches.

Minimal deterrence is viewed as a doctrine to facilitate nuclear arms control and disarmament while maintaining nuclear deterrence as a viable policy option to ensure strategic stability. Defined as 'the smallest possible nuclear weapons arsenal perceived to be sufficient for the purpose of deterrence,' minimal deterrence has gained traction in academia (Erästö, 2022:3; see also Nalebuff, 1988; Lewis, 2008; Cimbala, 2011; Payne & Schlesinger, 2014), being regarded as a realistic approach to progressively change the status quo without disrupting it and move towards total disarmament.

However, Pope Francis' reflections on the trade-off between investments in nuclear weapons and integral human development strongly challenge doctrines like minimal deterrence. While Pope Francis has not explicitly used the term 'minimal deterrence,' he has cautioned against 'short-sighted approaches to the problems surrounding national and international security' (Pope Francis, 2017b: 2). Not only are the possession and threat of use of nuclear weapons immoral, but their development also dissipates fundamental economic and environmental resources, thus posing incommensurable threats to society, especially to the most vulnerable groups (Welty & Chalk, 2020: 127-128; Christiansen, 2023). This has been strongly emphasised by the Pope's recent letter to the bishop of Hiroshima which highlights 'the waste and poor allocation of human and economic resources involved in [nuclear weapons'] development' (Pope Francis, 2023b: 2).

This vision, centred on the very rejection of nuclear deterrence in all its parts (i.e., development, possession, threat of use, and use), encourages 'to go beyond nuclear deterrence' and 'to adopt forward-looking strategies to promote the goal of peace and stability' (Pope Francis, 2017b: 2). To achieve these objectives, the Catholic Church has promoted some key policy actions at international fora, in an attempt to influence policymakers and promote new norms in nuclear politics.

6. The policy relevance of the Catholic Church's discourse during Pope Francis' papacy

The Catholic Church has played a prominent diplomatic role in preventing nuclear warfare and raising awareness of its risks during and after the Cold War. Examples include the mediation attempt by Pope John XXIII during the Cuban missile crisis (Hrynkow, 2019: 58); Pope Paul VI's diplomatic meetings with both Western and Communist leaders (62); the influence exercised over US critical Republican senators for the ratification of the New START in 2010 (Cusimano Love, 2020: 8).

Pope Francis has further led the Catholic Church's diplomatic activities towards this historical direction, creating opportunities to influence policymakers in the nuclear field. The policy relevance of the Catholic Church's discourse can be effectively analysed through Cusimano Love's (2017; 2022: 6, 9-10) conception of 'resurrection politics.' This consists of actions to revive policy issues considered moribund and bring them again on top of the international agenda. To achieve this objective, the Catholic Church brings together a coalition of numerous actors, including NGOs, scientists, scholars, survivors of nuclear weapons like the Hibakusha,³ as well as retired military and government officials.

Since 2014, the Catholic Church has drawn the attention of policymakers to the need to fully implement the commitments of key nuclear arms control, disarmament, and non-proliferation agreements. In so doing, it has reiterated specific legal interpretations of these regimes, contributing to the solidification of norms. For example, at the Third Conference on the Humanitarian Impact of Nuclear Weapons, Archbishop Silvano M. Tomasi (2014a: 1) noted that 'some positive steps have been made towards the goal of a world without nuclear weapons (NPT, CTBT, START, NEW START, etc.)' The NPT has often been mentioned as a pivotal legally binding instrument to achieve the goal of full disarmament. In addressing the UN GA, Pope Francis (2015b: 6) highlighted the

'urgent need to work for a world free of nuclear weapons, in full application of the non-proliferation Treaty, in letter and spirit, with the goal of a complete prohibition of these weapons.'

These statements reflect the Catholic Church's views on the NPT and its legal reading of Article VI.⁴ Regarding this, during the '*UN Conference to negotiate a legally binding instrument to prohibit nuclear weapons, leading towards their total elimination*' Archbishop Bernardito Auza (2017, emphasis added) emphasised that:

'it is incumbent on every State to do all it can to eliminate nuclear weapons, as mentioned in Article VI of the NPT: its double obligation of nuclear non-proliferation and nuclear disarmament requires a clear obligation to destroy stockpiled nuclear weapons.'

While global multilateral diplomacy has been a trending topic in the Catholic Church's discourse, regional nuclear issues have also been the focus of its 'resurrection politics.' In advocating for the elimination of nuclear weapons, Pope Francis (2015b: 6) recalled the JCPOA, also known as Iran nuclear deal, as a 'proof of the potential of political good will and of law, exercised with sincerity, patience and constancy.' Recently, due to the uncertainties surrounding the resumption of the JCPOA, he has underlined its importance to the diplomatic corps accredited to the Holy See, emphasising that 'particular concern is raised by the stall in the negotiations' and hoping for 'a concrete solution [...] as quick as possible' (Pope Francis, 2023a: 2).

Similarly, Pope Francis has endorsed diplomatic initiatives to reduce nuclear risk and escalation on the Korean peninsula. In a 2018 message to the members of the diplomatic corps accredited to the Holy See, Pope Francis (2018a: 5) highlighted the need to 'support every effort at dialogue on the

³ The hibakusha are the survivors of the 1945 nuclear attacks on Hiroshima and Nagasaki.

⁴ NPT's Article VI reads: 'Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.' Solicited by the UN GA, in 1996, the Court of Justice rendered its advisory opinion on the legality of the threat of use and use of nuclear weapons. Among several points raised, the Court of Justice concluded that Article VI of the NPT states an obligation to pursue in good faith and to conclude negotiations leading to nuclear disarmament (see Chesterman, 1997). The legal meaning and implications of the article, especially the potential disarmament obligations it could entail, are much debated by both scholars and practitioners (see Ford, 2007; Joyner, 2014).

Korean peninsula' to increase 'mutual trust' and ensure 'a peaceful future for the Korean people and the entire world.' Following up on the 27 April 2018 Inter-Korean Summit, he praised the 'courageous commitment assumed by the Leaders of both Parties to create a path of sincere dialogue for a Korean Peninsula free of nuclear weapons' (Pope Francis, 2018b: 2). As the talks between North and South Korea are currently at a deadlock, in 2022 Pope Francis renewed the Catholic Church's support to potential diplomatic initiatives by re-affirming its desire to visit Pyongyang and promote peaceful dialogue (Vatican News, 2022).

Pope Francis has also offered more general reflections on how to achieve global disarmament goals. He has highlighted the need for 'multilateral and cooperative security' and a dialogue which includes 'nuclear states, countries which do not possess nuclear weapons, the military and private sectors, religious communities, civil societies, and international organizations' (Pope Francis, 2017b: 2-3). These broader reflections are aimed at emphasising the effectiveness of partnerships between state and non-state actors as well as the role international organisations play in facilitating dialogue and cooperation. Moreover, they further reframe the issue of nuclear weapons shifting the focus from a state-centric vision to a human security perspective, thus aligning with the humanitarian movement's views and reflecting Pope Francis' approach to world politics. As noted by Panico (2023), this strategy aims to subvert the hierarchy of established nuclear regimes, especially the NPT, allowing non-nuclear weapon states and non-state actors to challenge nuclear-armed states' conceptions of nuclear deterrence and disarmament as perpetuating the security threats posed by nuclear weapons.

While these statements point to some key policy courses the Catholic Church supports and favours, its discourse has recently brought about a major policy achievement. By actively participating in the negotiations for the TPNW through the Holy See, the Catholic Church has strongly influenced the overall discourse shaping the treaty's wording as well as its adoption (Welty & Chalk, 2020). In particular, the TPNW conveys many of the views expressed by the Catholic Church and its leadership, including the focus on the humanitarian risks posed by nuclear weapons, the trade-off between investments in nuclear weapons and integral human development and the ethical imperative of nuclear disarmament.

In addition, the Holy See, together with other like-minded actors, actively shaped the TPNW's language by, for example, advocating for the removal of the qualifier that only 'states in a position to do so' should engage in victim assistance under Article 6 'Victim Assistance and Environmental Remediation' of the TPNW (129). It also called on renaming the Article 'International cooperation' as 'International cooperation and assistance', which is the current title of Article 7, to connect Articles 6 and 7 (United Nations, 2017: 46).

Such a choice likely reflects the observations of Pope Francis' Encyclical Letter *Laudato si'* on the broader impacts of nuclear weapons as well as the phrasing from existing documents, in particular nuclear-weapon free zone treaties. Numerous countries and NGOs acknowledged the role of the Holy See and religious leaders in framing the TPNW's wording and supporting its adoption (129-130). For instance, Morocco welcomed the participation of the Holy See in the negotiations for the TPNW (H. E. Ambassador Omar Hilale, 2017: 3). Similarly, in outlining its proposed amendments to Articles 6-10 of the TPNW, Brazil emphasised that 'we can work with elements that have been put forth by Egypt and the *Holy See*' (United Nations, 2017: 41, emphasis added).

7. Conclusions and avenues for future research

Since the nuclear bombings of Hiroshima and Nagasaki in 1945, the Catholic Church has engaged in the debate on nuclear deterrence and disarmament. Over the years, its position has progressively

shifted from a conditional acceptance of nuclear deterrence to its overt and firm rejection. Notably, Pope Francis' papacy has played a noteworthy role in this evolution, condemning the development, possession, threat of use, and use of nuclear weapons in light of the catastrophic humanitarian dangers they pose. His views have deeply challenged key doctrines of nuclear deterrence, including MAD and minimal deterrence, encouraging more decisive efforts towards global nuclear disarmament and the banning of nuclear weapons.

The Catholic Church's discourse also offers some key policy reflections. Through their statements, Pope Francis and his representatives have highlighted the need to revive efforts for nuclear arms control, disarmament, and non-proliferation, encouraging policymakers to engage in multilateral cooperative diplomacy and address pivotal global and regional issues (e.g., NPT, and JCPOA). Recently, the Catholic Church has actively supported and favoured the development and adoption of the TPNW by participating in the treaty's negotiations through the Holy See. The wording of the TPNW reflects many of the observations of the Catholic Church on the broader impacts of nuclear weapons, including its humanitarian, environmental, and economic consequences. The fundamental role the Catholic Church played, through the Holy See, in the negotiations for the TPNW has been widely acknowledged by many states and civil society organisations.

Future research should further explore the contributions of the Catholic Church and other Christian movements and institutions in the nuclear sphere. In particular, academics should research the contributions of other key Catholic institutions, organisations, and movements such as the episcopal conferences, *Pax Christi* and the Catholic Peacebuilding Network.⁵ Scholars should also assess the impact of the Catholic discourse on the public opinion by conducting evidence-based research through interviews and surveys. According to the latest statistics of the Vatican's news agency *Agenzia Fides* (2022), as of December 31, 2020, Catholics in the world numbered 1.359.612.000 units. Demographics can facilitate the spread of Catholic views, shaping a transnational common vision on nuclear deterrence and disarmament.

Moreover, researchers should look at the views of other Christian traditions (e.g., Protestant, and Orthodox)⁶ and other religions (e.g., Judaism, and Islam) to provide a more comprehensive overview of the relationship between religious activism and advocacy and global peace and security. The Russian war against Ukraine and the erosion of the nuclear arms control regime are bringing about unprecedented tensions in the nuclear sphere, seriously challenging global stability. Often overlooked actors such as religious actors could play a positive role to ensure the peaceful settlement of disputes and facilitate the preservation of key regimes and agreements in the nuclear field.

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⁵ These contributions are important and worth noting as they also provide a national perspective on the issue of nuclear deterrence and disarmament. Episcopal conferences in the US, France, Germany, and other countries have actively engaged in the debate on nuclear deterrence and disarmament by producing important pastoral letters (see United States Conference of Catholic Bishops (USCCB), 1983; Heirman, 1983; Klein, 1984). Similarly, Catholic NGOs and Peace Movements have strongly contributed to the debate by organising conferences and events hosting policymakers (see Powers, 2021: 9-10; Coode, 2022).

⁶ For example, Protestant churches and their representatives have much contributed to the debate on nuclear deterrence and disarmament (see Federal Council of the Churches of Christ in America, 1950; Raj, 1983).

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18. Revitalizing Nuclear Disarmament: A ‘Delegitimizing’ Ethical Framework for Evaluating Nuclear Deterrence

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Abstract

This paper aims to contribute to the debate over the ethics of nuclear disarmament mechanisms by putting forward a posthuman ethical framework that delegitimizes the practice of nuclear deterrence as inherently incompatible with a ‘human’ and ‘more-than-human’ understanding of security. The framework proposed attempts to revitalize the disarmament effort by filling the gaps left by traditional ethical approaches, as well as by other views such as the ‘just war’ doctrine. The analysis shows how unethical nuclear deterrence is in terms of accountability. The proposed framework is applied to the notion of the ‘Cold War’. The idea is to provide committed civil society with a conceptually solid framework reconnecting (more-than-) human security and nuclear disarmament.

1. Introduction

The 1983 report from the Brandt Commission, established by Robert McNamara, the president of the World Bank, and named after the former German chancellor who presided over the group, proposed a radical reconceptualization of security, shifting away from a ‘purely defensive concept’ to include a wider variety of threats to human wellbeing, ‘with people foremost in mind’ (Independent Commission on International Development Issues, 1983). The Report represents a significant milestone in the elaboration and diffusion of the notion of human security. The latter entails a strong philosophical and perspective shift: the referent object of security is no longer an abstract and reified entity as the state (Abrahamsen, 2016) but the individual ‘as the bearer of inalienable rights’ (Arienzo, 2016). The main concerns of the Report are the different dimensions of development, understood as the material and social basis for the enjoyment of their own rights by individuals. The Report establishes a nexus between development and disarmament by identifying the arms race as the source of a significant burden on national economies, the cause of the diversion of resources from peaceful development, and a danger to world stability.

This paper tries to reconnect disarmament and human security by highlighting the radical incompatibility between any human conception of security and the presence of nuclear weapons, capable of annihilating humankind and provoking unprecedented damage to the planet. It argues that nuclear disarmament is essential for the enjoyment of individual rights (Booth, 1999) considering not only the problems created by the arms race, but also by the principle of hostage-holding underpinning the idea of nuclear deterrence and balance of terror (Edwards, 1986; Lee, 1985; Walzer, 1977). Individuals and communities that are threatened as part of reciprocal countervalue¹ deterrence cannot fully enjoy their rights and, therefore, cannot be defined as ‘secure’ under a human security lens. Moreover, the threat nuclear detonations pose to the planet in ecological terms rules out, from a posthuman security perspective, any counterforce² targeting as well since, in this case, the hostage is the planet itself (Dalby, 2013; Latour, 2015; Haraway, 2018). The proposed framework aims to reinforce the ‘conceptual toolbox’ available to antinuclear activists engaged with the stigmatization of nuclear weapons, identified as the first step towards

¹ ‘Countervalue targets include industry, civilian infrastructure, and other assets valued by a society including, obviously, the lives of its citizens’ (Kristensen et al., 2009)

² ‘The dominant mission for U.S. strategic weapons has been counterforce, that is, the attack of military, mostly nuclear, targets and the enemy’s leadership’ (Kristensen et al., 2009)

their complete elimination by the 2016 First Committee 'humanitarian pledge'³, promoted by the International Campaign to Abolish Nuclear Weapons (ICAN) and incorporated in the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW).

This paper proceeds as follows. Section 2 provides operative definitions of concepts, and connects the international legal framework of disarmament, arms control, and non-proliferation with its historical evolution, stressing that these practices are not the contingent byproduct of the Cold War. Section 3 accounts for traditional theoretical paradigms used to evaluate nuclear deterrence and disarmament ethically and politically, exposing the flaws and the paradoxes that their application entails. To overcome these issues, a 'mixed' perspective that accounts for issues of accountability and human and more-than-human security is put forward in Section 4. This framework is then applied to the notion of 'Cold War' in Section 5 to problematize the term. Relevant 'lessons' for contemporary activism and advocacy are outlined in the concluding Section 7.

2. Nuclear context

2.1 Concepts and framework

Nuclear deterrence exists as a 'policy of threats' in which state A expresses an intention to do something harmful to state B if state B undertakes a certain action (Lee, 1985). The harmful action here is the use of nuclear weapons against a target state B considers valuable. In other words, deterrence is the capacity to 'discourage an opponent from taking an unwelcome action' through the threat of force (NATO 2015). During the nuclear era, the bipolar system was, according to many, e.g. Waltz (1964) and Mearsheimer (1990), kept stable by the mutual assurance that both the US and the USSR would suffer unbearable consequences in nuclear exchange: the concept of Mutual Assured Destruction (MAD), which entails that both states must have the capacity to launch a second strike if attacked, in order to deter their opponent to initiate the attack.

If policymakers assume that MAD, i.e. full-scale nuclear war, is the only possible outcome of nuclear use, then it is likely that state A and state B fall into the trap of the arms race, a 'chicken game' in which both sides asymptotically increase their nuclear arsenal as a guarantee of their second strike capabilities. However, worst-case reasoning is not universal. States developed counterforce strategic plans (Groarke, 1988), i.e. the idea of striking military targets with nuclear weapons without indiscriminately killing hundreds of thousands of people living in its biggest urban centres. Here as well, nuclear deterrence can hold only if both states have the capacity to retaliate, thus making a first attack less rational.

Considering the destructive potential of a single crack in this unstable security architecture and the horrific effects nuclear bombs had on Hiroshima and Nagasaki, the Cold War era saw the birth of a wide variety of (national, international, and transnational) movements advocating for disarmament. The Ban-the-Bomb campaigns of the 1950s followed the use of the bomb in 1945, paving the way for civil society engagement with nuclear disarmament. For most 'orthodox' disarmament movements, the term refers to the either radical or progressive reduction of nuclear weapons, leading to their elimination and ban. However, the latter was deemed to be at best utopian, due to the security dilemma between nuclear-armed states: which government would ever sacrifice part of what it considers critical for its 'national security' without the ironclad assurance that any counterpart identified as a threat would do the same?

³ [The Humanitarian pledge for the prohibition and elimination of nuclear weapons'](#)

The regulation of nuclear weapons came instead primarily through arms control, which 'includes any agreement among several powers to regulate some aspects of their military capability or potential' (Bowie, 1960) and generally entailed the reduction of the number of warheads (e.g. START I 1991) or the ban of certain delivery systems (e.g. INF 1987). Additionally, (horizontal) non-proliferation looked to limit the number of nuclear-armed states: as the Non-Proliferation Treaty states that 'each nuclear weapon state party (...) undertakes not to transfer to any recipient whatsoever nuclear weapons' (art. I NPT). In other words, the NPT aimed to prevent the development and possession of nuclear weapons in order to reduce the 'fingers on the trigger' and, by consequence, the risk of miscalculation.

2.2 A history of management

Arms control contributed to the preservation and growth of administrative and policymaking machinery: despite its transformative premises (and promises), it became a conservative technomanagerial project aimed at safeguarding both a particular configuration of the international system (Bull, 1976) and the Weberian monopoly of force by the state, within and outside its borders, to reduce the risk of violence and the threats to what is deemed 'appropriate' to protect (Krause & Latham, 1998; Krause, 2011; Dalby, 2011). The strong effort put by proponents of arms control in stressing their departure from the disarmament paradigm—which was considered a matter for naïve peace movements rather than a real political concern and objective—highlights how weapons were considered a state-only matter, far from any form of human security conception (Krause, 2011; Erickson, 2018): by holding the exclusive control over means of violence, the Weberian state could preserve and reinforce itself without the necessity of eliminating nuclear weapons, no more than another pillar of their sovereignty.

In addition, many arms control measures were informed by cost reduction and budget management logic more than by ethical and humanitarian concerns (Krause, 2011). This is the case of the Intermediate-Range Nuclear Forces Treaty (INF 1987) which, following the 'Euromissiles' crisis, banned the production and possession of intermediate range ballistic and cruise missiles, thus essentially reducing the cost of deterrence (*ibid.*). By reciprocally eliminating a specific kind of delivery means, the two superpowers' policymakers bargained the cost of their states' security and ensured their own political significance and legitimacy.

On the other hand, the non-proliferation regime developed under the aegis of the two superpowers reflect the willingness to preserve the geopolitical hierarchy established among international actors according to post-world war power relations (Bull, 1976; Dalby, 2011). The Non-Proliferation Treaty (NPT 1970) basically establishes a caste system ensuring a particular international social order in which nuclear weapons' possession is considered legitimate or not according to the state holding them. Just like the Missile Technology Control Regime (MTCR 1987) and other export control mechanisms, the NPT formalizes patronage relations that can foster the emergence of doctrines such as 'extended deterrence'⁴ and the linked concept of 'nuclear umbrella'.

These treaties, however, do not account for the legality and legitimacy of nuclear deterrence *per se*: they lie on the *a priori* assumption that the 'balance of terror' is a well-established rule of the game (Edwards, 1986; Adler, 1992). The humanitarian connotation of disarmament advocacy, although successful in ruling out some weapons on humanitarian bases (e.g. anti-personnel landmines) (Cooper, 2011; Bourne, 2018), failed in pushing international courts to declare nuclear weapons illegal on the same grounds (Williams, 2016). Indeed, the 1996 Advisory Opinion by the

⁴ i.e. 'a commitment to deter and, if necessary, to respond across the spectrum of potential nuclear and non-nuclear scenarios in defence of allies and partners (...). Extended deterrence also serves as a non-proliferation tool by obviating the need for allies and partners to develop or acquire and field their own nuclear arsenals' (US Air Force 2020).

International Court of Justice⁵ (ICJ) only reinforced the ambiguity about the legality and legitimacy of nuclear weapons, without providing a solid legal and ethical basis for nuclear disarmament and even ‘protecting nuclear deterrence’ (ibid.). Indeed, the Court declared that it was not able to determine whether there would be an exception for the ‘general illegality’ of nuclear weapons ‘in the extreme circumstance of self-defence, when the very survival of a state was at stake’. The Court added that ‘the practice referred to as a ‘policy of deterrence’ cannot be ignored due to the adherence of a wide part of the international community to its principles.

This ruling is generally in line with the idea that nuclear deterrence prevented major-power conflict during the Cold War era and beyond and guaranteed every nuclear state an overall significant degree of security from invasions and military attacks (Tertrais, 2011). Despite this (rather paradoxical) conceptualization of nuclear weapons as means to guarantee peace and stability, the ‘hostage-holding’ component of nuclear deterrence—explored later in this paper—seems to be at odds with the provision enshrined in the art.11 and art.26 of the UN Charter (1945) that maintain ‘disarmament and the regulation of armaments’ as preconditions for cooperation in the maintenance of international peace and security⁶.

Although not often linked to the issue of nuclear deterrence and disarmament, the Universal Declaration of Human Rights (1948) provides some basic notions informing understandings of human security. In particular, art. 3 entails the right to life, liberty, and personal security, all concepts that clash with the condition of (nuclear) hostages. The issue becomes even more prominent when considering art.2 that prohibits any form of discrimination in the application of the Declaration: even assuming that nuclear deterrence provided enough security to superpowers and their associates’ citizens, it did so at the expenses of many others.

3. Beyond deontological and consequentialist approaches: the ‘just war’ theory

Use of a different theoretical framework, informed by ethics, can provide further insight as to the complex relationship between nuclear deterrence and nuclear arms control and disarmament. Although often neglected as a paradigm, ‘just war’ theory, a doctrine existing in both the Catholic and Western philosophy and Confucianism, is a rather complex approach that may help enlarge and relativize our ethics by demonstrating how different cultures and material conditions gave birth to different versions of the same concept and providing another perspective (the Confucian one) on a problem that is often faced with Western theoretical lenses. Indeed, the two versions of the ‘just war’ theory are quite different: the Western version employs a series of criteria to establish when alternatives to war are more harmful than war itself (Hayashi, 2015), while the Confucian formulation by Mencius provides some justifications for war pivoted on the notion of ‘human ruling’, i.e. the legitimate ruling of a sovereign that rightfully possess the ‘Mandate of Heaven’⁷ (Bell, 2006).

To apply the latter to nuclear deterrence, four conditions shall be considered.

1) The existence of a polity, or a state, is justified only by its ‘human rule’, thus requiring the sovereign (being it a person or a political body) to not maximize state prosperity or power but the people’s well-being (Cockayne, 2022). The relation that arises between the ruler and the people is a one of mutual trust and loyalty: the ruler ensures people’s welfare and protects its subjects from

⁵ <https://www.icj-cij.org/public/files/case-related/95/095-19960708-ADV-01-00-EN.pdf>

⁶ <https://www.un.org/en/global-issues/disarmament>

⁷ The Chinese philosophical concept of the circumstances under which a ruler is allowed to rule. Good rulers would be allowed to rule with the Mandate of heaven, and despotic, unjust rulers would have the Mandate revoked by disasters or revolution.

external aggression through the maintenance of a sufficiently powerful military while the people support the ruler with trust and legitimacy. Under this condition, a posture of nuclear deterrence seems justified as long as nuclear weapons are the only means through which a ruler can protect its state from potential nuclear-armed external aggressor.

2) There exists a dual system of accountability of the ruler 'combining popular consent with supreme oversight' (ibid.). The ruler can be removed in case of failure in its duties by the people, i.e. the expression of Heaven's judgment over human behaviour. Avoiding war and destruction is, indeed, one of these duties and this condition does not rule out the reliance on deterrence rather than traditional diplomacy to pursue this objective. This condition is not met only if the ruler proves unable to avoid the conflict, thus jeopardizing the immediate safety of the people, especially in case of a nuclear war.

3) As written in the *Xunzi*⁸, 'a true king carries out punitive expeditions but he does not make war'. Wars of aggression are strictly prohibited, and 'moral force' is the preferable means for Confucian rulers. This assumption seems compatible with the nature of nuclear deterrence: nuclear weapons' main function is to prevent war, not to be deployed in actual warfighting scenarios. However the management of nuclear arsenals through techno-managerial practices and social technologies often served statesmen's interests first, and only incidentally popular well-being (Krause, 2011). Hence, Confucian 'just war' theory seems to legitimize the maintenance of a barely sufficient nuclear arsenal that does not divert more public funds than needed from other budgetary items for bureaucrats and rulers' own benefit.

4) The last (anti-Machiavellian) parameter for identifying a war as 'just' derives from the latter: a 'punitive expedition' is legitimate provided that it serves no other purposes but 'peace and benevolence' (Bell, 2006). Under this logic, can nuclear retaliation in response to a nuclear attack be the harbinger for the spreading of peace? Can the morality of a 'just war' balance the destruction potentially brought even by a single nuclear exchange? Mencius adds that a 'punitive expedition should only be launched if the conquering ruler can make a plausible claim to have the world's support' (ibid.): does this apply to nuclear war? Can the use of nuclear weapons foster a sort of 'regime change' with the emergence of a new more virtuous ruler for the state that launched the first strike? The scale of damage brought by nuclear weapons may exceed the principle of leaders-only punishment due to the inevitable damage ordinary people and the environment would suffer (Turner, 1993).

It is difficult to ethically evaluate war, peace, and deterrence in a world with nuclear weapons by employing the Confucian 'just war' theory. It seems to endorse a 'minimum deterrence' situation in which, despite the constant threat of being annihilated, people enjoy an acceptable degree of (negative) peace; however, nuclear use would be probably ruled out by a strict application of the doctrine, being nuclear weapons incapable of generating a state of 'positive peace' (Galtung, 1969) if used to carry 'punitive expeditions'.

This idea can also be applied to the Western conception of 'just war': 'these weapons explode the theory of just war. They are the first of mankind's technological innovations that are simply not encompassable within the familiar moral world' (Walzer, 1977). This point can be reinforced by applying some Western 'just war' parameters to nuclear use.

First, is there any 'reasonable prospect of success' (Enemark & Michaelsen, 2005) in a nuclear war? Under a strict Mutual Assured Destruction model, any nuclear exchange would escalate towards

⁸ (Xunzi & Hutton, 2016). The *Xunzi* is a collection of philosophical writings from the III century BCE attributed to their homonymous author, Xunzi, a traditional Confucian thinker.

the deployment of the whole arsenal of warring powers, leading to their destruction and to devastating consequences for the planet. Even if nuclear war can be somehow limited, the ‘mass destruction’ brought even by lower-yield warheads (Tannenwald, 2022) still makes doubtful whether success and victory are achievable.

The ‘proportionate cause’ criterium (ibid.) is satisfied if and only if nuclear use is understood as a form of retaliation to a first nuclear strike and the same idea is equally valid for the ‘last resort’ (ibid.) principle. If the same criteria is applied to nuclear deterrence, the ‘reasonable prospect of success’ and the ‘proportionate cause’ principles are satisfied: even if it is risky—and inherently problematic—to trace back 70 years of relative peace among nuclear states, policymakers can reasonably assume that nuclear deterrence works and that the possession of nuclear weapons by a threatening actor is a sufficient and proportionate justification for the establishment and maintenance of a nuclear arsenal. However, the fact that deterrence must be credible to work⁹ (Mazarr, 2018) requires that decisionmakers would, in case of first strike, abandon any ‘just war’ criterium and strike back.

By entailing the possibility of nuclear use in ‘extreme circumstances’ and not only as a retaliatory measure against a nuclear attack (US Department of Defense, 2022), the US nuclear posture is probably in conflict with a (Western) ‘just war’ theory. Meanwhile, the Chinese doctrine¹⁰ seems more consistent with a (Confucian) ‘just war’ approach as long as the necessity of second strike’s credibility is not morally equated to actual nuclear use. However, whose (supposed) security is ensured by nuclear deterrence: citizens’ or the state’s? Under a human security perspective, even nuclear postures that are consistent with a ‘just war’ approach are ‘unjust’ due to the consequences of their potential use and the constant need for ‘hostages’, unless there is morality in the destruction of a state (and other human and non-human actors) for the sake of another state’s survival and, therefore, the prevalence of states’ security over people’ well-being. This exposes the conundrum of nuclear deterrence: the acceptance of a status of maximum insecurity for the sake of a fragile security architecture that is far from serving individuals and communities’ interests.

One may be tempted to resort to the rich body of literature that analyses the ethical issue of nuclear deterrence and disarmament through consequentialist and deontological lenses (Nye Jr, 1986; Groarke, 1988; Hashmi & Lee, 2004; Doyle II, 2015) but may still find unsatisfactory answers. After all, ‘consequentialist claims are incapable of verification and, in fact, merely favour any workable status quo’, as Hayashi (2015) argues. A deontological approach may likewise lead to paradoxical results: whose security will be protected in case of unilateral nuclear disarmament by a nuclear threatened state? Shall states adopt suicidal behaviours on morally absolutist grounds? The only world in which a deontological approach can work is one made of actors who altogether reject the legitimacy of nuclear deterrence independently of its utility. Such consensus has been reached—quite paradoxically—on nuclear use and is embodied by the so-called ‘nuclear taboo’ (Doyle, 2010; Tannenwald, 2009). According to Hayashi (2015), a similar process of delegitimization has occurred with torture. The delegitimization in this case came gradually from the increasing importance attached to human dignity.

4. Proposing an ethical framework

Having problematized the outcomes of most used theoretical paradigms and drawing on this ‘delegitimizing’ deontology, this paper proposes an ethical framework based on the key notions of

⁹ i.e., all nuclear states expect certain nuclear retaliation in case of first strike

¹⁰ <http://eng.mod.gov.cn/defense-policy/index.htm> - China adopts a ‘no first use’ policy under which nuclear weapons are only meant to deter an attack and would never be used under any circumstances but self-defence.

accountability, human and posthuman security (Dalby, 2013; Latour, 2015; Haraway, 2018). Indeed, the core assumption is that a deontologically immoral and 'unjust' mechanism as nuclear hostage-holding is unjustifiable even from a consequentialist perspective if adopting a human-centred and more-than-human-centered (Endres, 2018; Mitchell, 2023) approach that establishes the enjoyment of individual and collective rights as a requirement for security. Lee (1985) points to several elements that justify the definition of citizens of states involved in deterrence mechanisms as hostages, i.e. threatened third parties (*ibid.*), or 'persons threatened with harm without their consent in order to control the behaviour of some other person or group' (*ibid.*). Hostages usually do not have any significant degree of control over the behaviour of people whose actions are meant to be deterred. This is precisely the case of nuclear deterrence: citizens of state B are (remotely) kept captive by state A to deter state B from undertaking offensive actions and they have little to no power over state B's defence decision-making, especially at the nuclear level (Cooke & Futter, 2018). Furthermore, 'no nation seeks the consent of its opponent's citizens before instituting a policy of nuclear deterrence' (Lee, 1985).

As a form of hostage-holding, nuclear deterrence can be classified as profoundly insecure under a human security perspective and, by consequence, unethical even from a consequentialist point of view. Further, nuclear deterrence suffers from a problem of accountability: within deterrence architectures, nuclear weapons entitle certain governments to undertake certain actions, being it the invasion of a country, the diversion of huge public budget shares, or nuclear testing (Stark & Kuhn, 2022), not least due to their framing as essential for the survival of the state and the subsequent socialization of the public to this idea (Lupovici, 2016). Governments are rarely accountable for the actions they undertake under the 'nuclear shield': e.g., if a nuclear state invades another country, it can adopt a posture of nuclear blackmailing¹¹ to force other powers not to intervene.¹² Moreover, 'nuclear governments' can avoid scrutiny over their 'nuclear behaviour' by concealing decision-making procedures, involved actors, and actual policies thanks to the 'national security matter' justification, thus increasing the secrecy that characterizes military organizations and reducing their degree of accountability vis-à-vis global public opinion (Birchall, 2011; Ericson & Wester, 2022). This seems particularly true when considering nuclear 'close calls'¹³, often intentionally underreported or undisclosed to the public (Bennett, 2021), whose in-depth study and scrutiny could potentially raise public awareness on the fragility of the deterrence architecture.

Finally, the framework put forward seeks to account for another form of 'nuclear injustice' (*ibid.*) that derives from the practice of nuclear testing. Despite the attempts made to constrain this practice, nuclear testing was a usual practice during the Cold War era, when it represented a manifestation of both military and scientific power (Merlin & Gonzalez, 2010) as well as a tool for reinforcing the credibility of state actors involved in nuclear deterrence mechanisms. The establishment of 'national sacrifice zones' (Endres, 2018) and practices of 'nuclear colonialism' (Jacobs, 2013) as well as other significant consequences of nuclear testing jeopardized the security of thousands. A posthuman view on the issue makes nuclear disarmament even more urgent and may help deconstruct narratives maintaining that nuclear testing is a 'necessary evil'. In particular, nuclear testing can be seen as a form of 'colonialism' and injustice at the detriment of both human and non-human communities. Under this lens, nuclear testing is also an essential component of the

¹¹ 'The threat of the use of nuclear weapons as a means of inducing an opponent to accede to the will of the nation issuing the threat.' (Oxford Reference: <https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100241200>)

¹² The possession of nuclear weapons by Russia, for instance, is one huge hurdle to any kind of Western direct intervention in the war in Ukraine.

¹³ The expression 'close call' is used here to subsume all those historical instances in which the use of nuclear weapons has been contemplated by state leaders or nuclear weapons might have been used accidentally or without leaders' authorization.

chaotic reconfiguration of the Earth system (Biello, 2015; Dalby, 2022; Matzko, 1994; Waters et al., 2015).

Considering the damage nuclear weapons testing, development, and maintenance have brought to 'more-than-human communities' (Endres, 2018) and applying the framework proposed above, this work argues that any (more-than-)human understanding of security is incompatible with the acceptance of nuclear deterrence as an ethical security architecture. This is presented here in conceptual terms and incorporates the rationale of contemporary antinuclear activism, drawing on the humanitarian principles promoted by multiple transnational civil society organizations engaged with the 'stigmatization' of nuclear weapons¹⁴ (Ruff, 2018).

This approach reconnects nuclear disarmament to (more-than-)human security and allows the development of a stronger ethical stance in favour of a nuclear weapons ban for the good of a wide array of actors whose voice, agency, and security are not taken into account when evaluating nuclear practices (Abbot, 2016). By 'flattening the ontology'¹⁵ underpinning our ethical and political evaluation of actions (Callon, 1986; Latour, 2005), advocates can look to 'revitalize' the disarmament effort by truly democratizing and broadening the understanding of security underpinning initiatives promoting the ban of nuclear weapons.

5. Debunking the notion of 'Cold War'

The ethical framework presented in the previous section can be employed to debunk the notion of 'Cold War', itself arguably more a hegemonic narrative more than a factual reality (Wallerstein, 2010). However, an ethical evaluation of the defining political feature of the 1945-1991 period, i.e. the fragile 'balance of terror' (Edwards, 1986) based on nuclear deterrence and bipolarity, is useful to further understand the network of elements making this notion flawed.

The term 'cold' tends to assume an evaluative character by which the superpower competition is defined as relatively well managed in the sense that, despite multiple crises, the US and the USSR never had a direct military confrontation and, in particular, nuclear weapons were not used against valuable assets of any state. The framework challenges this view in two ways. First, the 'hostage-holding' principle underlying nuclear deterrence makes it incompatible with any form of human security, as explained above. Moreover, the supposed security brought by nuclear weapons was 'Global North-centered' in the sense that nuclear deterrence contributed to the destabilization of the Global South through the polarization and militarization of decolonizing processes (Duara, 2011)¹⁶. By applying the notion of human security, analysis can decouple states' and individuals' security, thus overcoming a limited Eurocentric perspective entailing a positive connotation of the term 'cold' (van Munster & Sylvest, 2021).

It is widely believed that the avoidance of nuclear confrontation and the maintenance of international stability are the direct consequences of practices of arms control and non-proliferation (Zoppo, 1966; Bull, 1976; Lodgaard, 2019). Although the importance of arms control practice in setting the boundaries of the nuclear (and conventional) Cold War era competition cannot be denied, this work argues that more relevance should be attached to the issue of governments' accountability when analysing the historical period at hand. Indeed, public scrutiny on nuclear governments' actions was compromised by the practice of secrecy in relation to military and nuclear issues, at both the internal and diplomatic levels. With opacity as the norm,

¹⁴ See, for instance, ICAN, 2023; Maclellan, 2014.

¹⁵ I.e., by stopping discriminating against non-human actors, thus starting to recognize their agency.

¹⁶ The actual result of such a process was the outbreak of proxy wars, the proliferation of coups and anti-democratic regimes supported by the two superpowers. See Early & Asal (2018) about the nuclear stability-instability paradox.

governments found little constraints to their strategic action. At the bilateral level, secrecy enabled self-serving actions. Bilateral negotiations took into account only the centre's interests and neglected peripheries' security concerns (Wallerstein, 2010).

Finally, the establishment of a sustained practice of nuclear testing¹⁷ provoked irreversible damages to multiple ecological landscapes all over the world (Endres, 2018; Jacobs, 2013; Matzko, 1994; Merlin & Gonzalez, 2010; Yan, 2019) and deepened the effects of the Anthropocene on the biosphere (Simon & Bouville, 2015; Waters et al., 2015). Such a practice was deemed necessary by all nuclear states due to concerns over weapons' reliability and to ensure the credibility of the nuclear threat, and in the case of proliferating states, to signal the acquisition of the nuclear deterrent. This proves the unconcerned character of the Cold War competition. 'Nuclear colonialism' studies expose the inherent colonial nature of the competition and the harm it has done to 'the most' for the sake of the security of 'the few'. Indeed, as said, a more-than-human approach to the issue shows how ethically flawed and partial the use of the term 'cold' is. As Endres (2018) underlines while referring to the infamous Nevada Test Site, the Cold War can be defined as 'an 'undeclared war' on the people, the flora and fauna, the land, and the ecology of the American West' and the same notion is valid for other bombed landscapes at a global level.

6. New paths for disarmament: ethics and activism

The understanding of nuclear issues through new composite ethical frameworks can potentially 'revitalize' nuclear disarmament and open new pathways towards its achievement: indeed, the application of a traditional delegitimizing deontology may be naïve given the socio-material conditions of the international and transnational system. Instead, a shift of perspective (from state to human security) reinforces this kind of deontology by exposing the fundamental incompatibility between nuclear deterrence and individual and community security rights. Empowering the 'people' to contribute to the disarmament effort by exposing such incompatibility seems crucial in time of international fragmentation and uncertainty in this domain. This might help further promoting the TPNW as a future cornerstone of international and planetary security (Ruff, 2022), adding new layers of legitimacy to its claims and broadening the array of ethical positions on nuclear weapons consistent with them. In addition, a conceptually solid ethical stance on disarmament might help in the establishment of a 'discontinuation governance' (Stegmaier, 2022): making disarmament irreversible and expanding the stigma over nuclear weapons still pertain to a hypothetical future of now hard-to-imagine international consensus, but such objectives can and should already be pursued by transnational actors committed to nuclear disarmament in order to make such discontinuation feasible and imaginable.

Considering the arduousness of persuading nuclear-armed states to adopt such an ethical stance, activists represent the true engine for a policy and paradigm shift. By recognizing the dignity of more-than-human communities, this framework helps connect the struggle for a nuclear-free world with the growing ecological movement: issue-linking might be one of the keys to 'revitalize' anti-nuclear activism by granting access to material and, more importantly, social resources allocated to more 'burning' issues like the climate crisis. In addition, a decolonization of the ethical parameters of evaluation of nuclear deterrence may help reconnect it with globally shared concerns for planetary security challenges, thus promoting a holistic understanding of security as a form of collective 'emancipation' (Booth, 1999).

The proposed framework decolonizes such parameters in both geographical and ontological terms. First, while not universal, it tries to shift away from Eurocentric understandings of global security:

¹⁷ <https://www.atomicarchive.com/almanac/test-sites/testing-chronology.html>

understanding the partial nature of the apparent security guaranteed by nuclear deterrence during the 'Cold War' and today means encompassing the security concerns and goals of a broader portion of the world, which is not by chance heavily committed to the goals of complete disarmament, including within the TPNW framework. Second, an understanding of security as a more-than human notion helps link the nuclear disarmament to other planetary security issues while legitimizing the disarmament effort in a time of growing sensitivity towards the rights of the planet. Advocating a shift in both these senses can be a significant goal for civil society actors addressing both the 'people' and governments, promoting a renewed shared understanding of security eventually identifying nuclear weapons purely and simply as an unethical threat.

In a world made of human and non-human right-bearers yet still threatened by the apocalyptic danger of nuclear use, promoting a widely shared and encompassing ethical understanding of nuclear deterrence is crucial to contrast *Realpolitik* narratives that reinforce state-centered interpretation of security while endangering the integrity of those prevented from speaking. Anti-nuclear activism should embrace principle-based approaches as an empowering tool rather than coming to terms with the hard-nosed pragmatism some actors are guided by. Starting to debunk well-established historical and political notions may be a first relevant step towards a reconceptualization of 'unethically' normalized international dynamics threatening the most for the apparent benefit of the few.

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