

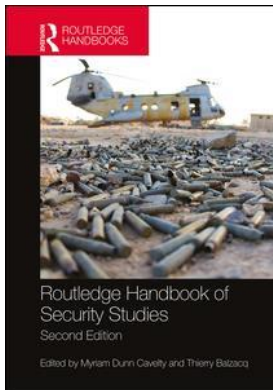
This article was downloaded by: 10.3.97.143

On: 01 Apr 2023

Access details: *subscription number*

Publisher: *Routledge*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



Routledge Handbook of Security Studies

Myriam Dunn Cavelty, Thierry Balzacq

Nuclear non-proliferation

Publication details

<https://www.routledgehandbooks.com/doi/10.4324/9781315753393.ch35>

Wilfred Wan

Published online on: 13 Jul 2016

How to cite :- Wilfred Wan. 13 Jul 2016, *Nuclear non-proliferation from:* Routledge Handbook of Security Studies Routledge

Accessed on: 01 Apr 2023

<https://www.routledgehandbooks.com/doi/10.4324/9781315753393.ch35>

PLEASE SCROLL DOWN FOR DOCUMENT

Full terms and conditions of use: <https://www.routledgehandbooks.com/legal-notices/terms>

This Document PDF may be used for research, teaching and private study purposes. Any substantial or systematic reproductions, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The publisher shall not be liable for an loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

35

NUCLEAR NON-PROLIFERATION

Wilfred Wan

The Nuclear Non-Proliferation Treaty (NPT) has served as the centrepiece for global nuclear governance since opening for signatures in 1968. Regulating an issue that stands at the core of security considerations, the treaty counter-intuitively has become one of the most long-lasting and widely adhered-to cooperative arrangements at the international level. At the same time, the nuclear landscape is rife with challenges, with ‘legacies, reiterations, or reincarnations of problems that the regime has failed over many years to tackle effectively’ (Johnson 2010: 429). These include twin issues of security and safety, non-compliance sagas in Iran and North Korea (the latter still unresolved), and the lingering status of treaty non-parties. The inability of parties to reach consensus on a final document at the 2015 Treaty Review Conference suggests fundamental discord with the arrangement. How do we reconcile this image of a troubled and long-ineffective non-proliferation campaign with its longevity, and what does it mean for its future?

This chapter examines the NPT regime’s place in the global security order. It has four parts. First, it parses the International Relations (IR) literature for varying perspectives on the regime’s contributions to preventing proliferation. Second, it synthesizes existing empirical analyses of this security arrangement, with particular attention devoted to how different scholars and analysts measure its successes and failures. Taking stock of past challenges, the chapter then links the evolution of the regime to changes in the character of proliferation itself in a third part. It argues that the proliferation pathways in the post-Cold War era require more drastic action on the part of the international community – some of which has already taken place. In the fourth part, I argue that the character of nuclear governance must evolve if it is to remain effective at combating proliferation, and include instruments that are more flexible, more focused, and more regionalized.

Preventing proliferation in theory

Despite the durability and prominence of the NPT, there remains a spectrum of opinions – and a healthy dose of scepticism – regarding its impact over state nuclear decision-making. For some, the treaty is a massive success, as fears of widespread proliferation and nuclear chain reactions from the 1950s and 1960s have proved unfounded. For others, it is insignificant, a largely hollow document with no direct impact in modifying state behaviour. The absence of a strong empirical foundation linking the regime to nuclear decisions compounds the difficulties of judgement in

either direction. This discussion links to a broader theoretical debate in political science regarding the power and limitations of international institutions.

Existing explanations for nuclearization have been grounded in the major approaches in IR. How each school of thought generally perceives international institutions filters down to how they do – and would – define the role of the NPT regime. Realists point to the assurance provided to states, albeit temporary, that their neighbours will refrain from proliferating. Neoliberal institutionalists highlight the rules in place to govern all nuclear programmes. Constructivists underline the normative movement that has seen such weapons defined as unacceptable. Meanwhile, domestic approaches offer explanations as to why particular states might be more or less susceptible to the above influences, while supply-side analyses shed light as to the technical dimension of nuclear policy.

Realism

The conventional explanation for proliferation is informed by realist theory. From this view, states pursued the ultimate weapon in order to secure their survival in a world characterized by competition, uncertainty, and anarchy. With self-help as the guiding principle of state behaviour, stronger states would logically seek to develop their own weapons capabilities, while weaker states – faced with more limited choices – would seek out alliances with nuclear powers, as means of access to extended deterrence. The security-based model of nuclear motivation views the NPT as a tool that can mitigate deterrence strategies among the non-nuclear-weapon states. After all, the arrangement granted each state greater assurances that their neighbours would refrain from weapons capabilities, so long as they did the same (Sagan 1996).¹

This rationalistic interpretation of the NPT jibed with the expectations of neorealist scholars who focused on the role of external threats in determining state behaviour. Yet the NPT only represents a temporary solution. The underlying assumption of anarchy and the primacy placed on state security imposes inherent limitations on the ability of any arms control agreement to affect long-term state behaviour. The credibility of any commitment must be questioned, as ‘at the very core of realism lies the notion that friends today may become enemies tomorrow’ (Hymans 2006: 456). From this security-centric approach, proliferation is ultimately not just inevitable, but rational.

The realist school of thought would also call into question the independent standing of the treaty and regime altogether. The two-class system established by the NPT, the general inattention to the issue of nuclear disarmament, and the increasingly stringent safeguards agreements placed upon non-nuclear-weapon states suggest that the arrangement stands as a mere extension of Western power, an instrument with which strong states can perpetuate the status quo. Any impact the NPT has in preventing states from nuclearizing therefore represents not institutional effects but hegemonic ones: coercion by other means. Ultimately, from the realist perspective, security considerations serve as the driving force to nuclear decision-making, with institutions secondary (Hecker 2010; Mearsheimer 1994; Paul 2000).

Neoliberal institutionalism

The import of security arrangements such as the NPT regime figures more prominently in neoliberal institutionalism. Scholars from this school rejected the vision of the world presented by realists, positing that the character of anarchy and the resulting predominance of self-help strategies could be tempered. While strategic considerations remain at the centre of state decision-making, this perspective highlights the role of institutions in preventing conflict ‘by facilitating

secure and equitable agreements' (Jervis 1999: 50). Central to their impact was the idea that state interactions were not one-offs, with the expectation of repeated and continuous interactions. This iterative element – the 'shadow of the future' – provided incentive for parties to engage in long-term, meaningful cooperation (Axelrod and Keohane 1985).

While again offering a rationalistic perspective, a neoliberal institutionalist approach would note the positive externalities of the NPT regime.² Regular review conferences and preparatory committees lower transaction costs for the discussion of nuclear issues, while providing information about policy preferences of state signatories. The safeguards agreements under the International Atomic Energy Agency (IAEA) comprise a critical information system, compliance monitoring, and defection detection mechanisms, while its board of governors and the UN Security Council are tasked to enforce them. The treaty's explicit rules and guidelines offer consistency for member-states, perpetuating shared expectations about non-proliferation, disarmament, and nuclear energy, constraining behaviour as a result (Keohane 1982; Koremenos, Lipson, and Snidal 2001; Lipson 1984).

Yet, for these myriad benefits offered by the NPT regime, the direct impact it has on nuclear policy remains uncertain. Some argue that state decisions to nuclearize (or not) are made independently of the treaty, with membership in and compliance with the regime as symptoms rather than causes of policy. For instance, domestic considerations and hegemonic coercion represent potential determinants of subsequent state decisions vis-à-vis the NPT (Solingen 2007). That systematic empirical evidence to date has been limited to a dichotomous treatment of the regime (defined by treaty membership) has proved especially problematic for neoliberal institutionalism. How the presence of rules and the promise of benefits actually alter incentive structures for and against nuclearization remains severely understudied (Ruble 2008; Sagan 2011).

Constructivism

It was with the constructivist approach that scholars departed altogether from the rationalistic treatment of international institutions. The sociological prism at its heart shifts attention to non-material factors in explaining state decision-making. Institutions such as the NPT regime must not be looked at as state creations, subject to the whims of great powers, nor as standing completely on their own, but as a phenomenon that reflects and perpetuates the shared beliefs and collective identity of member states. These entities also actively produce information: offering classifications, fixing meanings, and diffusing norms – all of which helps to develop and extend their cognitive frameworks further (Barnett and Finnemore 1999; Finnemore and Sikkink 1998; Johnston 2001).

This perspective underscores the role of the NPT regime in the diffusion of 'deeper norms and shared beliefs about what actions are legitimate and appropriate' (Sagan 1996: 73). Current views about nuclear weapons date to the aftermath of Hiroshima and Nagasaki, as a host of anti-nuclear grassroots movements emerged to shape public discourse about the use of nuclear weapons. These views in turn filtered into national security postures and operational policies in the 1950s and 1960s, with the Cuban Missile Crisis a pivotal event in this process. Policy-makers came to regard nuclear weapons as inherently different from other types of weapons, not just unconventional but altogether unethical. The possibility of horizontal proliferation was therefore viewed as highly undesirable. US–Soviet arms controls agreements and test bans in the midst of the Cold War reflected the emerging taboo, eventually leading to the NPT.

The significance of the NPT regime thus centres on the 'internalized belief among its participants that [nuclear weapons are] illegitimate and abhorrent' (Tannenwald 2007: 334). The centrepiece treaty simply prohibits states from moving towards nuclearization. Recent

review conferences have specified that non-parties India, Pakistan, and Israel can accede to the treaty *only* as non-nuclear-weapon states, thus protecting the NPT's delegitimization of nuclear weapons. Regime components such as the Nuclear Suppliers Group, the IAEA safeguards agreements, and the Convention on the Physical Protection of Nuclear Material uphold these beliefs by regulating transfers of nuclear-related technologies and equipment even for peaceful usage. It is in the context of this environment that state nuclear decision-making takes place (Ruble 2009).

Domestic considerations

Another thread of the proliferation literature weighs the primacy of domestic political considerations in decision-making. Scholars in this tradition look to those actors with, or seeking to retain, political power. They pinpoint bureaucrats within the scientific-military-industrial complex, coalitions seeking greater integration into the global political economy, even individual leaders and their unique personalities and psychologies. Notably, these domestic-oriented perspectives do not discount the impact of external threats, of global norms, or of international institutions. Rather, the domestic political context serves as a critical prism that determines the degree to which the aforementioned variables affect nuclear decisions (Fuhrmann and Li 2008; Hymans 2012; Liberman 2001; Solingen 2007).

The domestic politics approach thus interprets state support for the NPT regime as a corollary of those considerations. Yet, the perspective does not preclude a causal role for the regime in nuclear policy. On the contrary, the treaty's long life has created 'a well-placed elite in the foreign and defense ministries with considerable bureaucratic and personal interests in maintaining the regime' (Sagan 1996: 72). The same is true in the technical arena, given the extensive safeguards and export controls systems that comprise the regime's main enforcement mechanism. A move to proliferate for any leader or ruling group jeopardizes political support from these sources. Additionally, the regime's health can itself shape domestic debate, its strength providing additional justification for actors inclined towards internationalizing to forgo the nuclear option.

Supply-side: an additional perspective

All of the works above coalesce around one question: what are the driving forces behind state decisions to nuclearize (or not)? These authors engage in demand-side analyses, parsing the nature of political will. A second set of works in the proliferation literature centres on supply-side considerations, examining the opportunities that state actors have to follow through and obtain such weapons. These works have been primarily quantitative in nature. They offer measurements of technical capability both in terms of domestic capacity and international assistance. Notably, supply-side studies – what Hymans (2014) terms *techno-centric analyses* – do not claim to present the entire picture. As with the domestic approach, the state of affairs on the supply-side may merely increase or decrease actors' receptivity to external factors.

Works informed by the supply-side approach offer a unique reading of the NPT regime. After all, some argue that 'the diffusion of nuclear knowledge and technology eases opportunity barriers to the proliferation of programmes and nuclear weapons' (Jo and Gartzke 2007: 186). Given the 'inalienable right' to pursue nuclear energy outlined by the NPT, that parties are pledged 'to facilitate . . . the fullest possible exchange of equipment, materials and scientific and technological information' may in fact be enough to foster proliferation as well (*Treaty on the Non-Proliferation of Nuclear Weapons* 1968: Article IV.2). However, not enough evidence exists to confirm this relationship. For some, the link applies only with the provision of sensitive nuclear

assistance – the type strictly prohibited by the NPT.³ Others suggest that even general forms of nuclear aid would suffice. Whether the treaty has facilitated even that, and lived up to its grand bargain, provides another point of contention (Fuhrmann 2009).

Nuclear governance is rarely the focal point of the proliferation literature. But by parsing explanations for state nuclear decision-making, we can see the openings granted to the international community to prevent nuclearization. In the next section, I consider how scholars and analysts interpret the arrangement's place in nuclear governance, and define the successes and failures of the regime aimed to prevent nuclear proliferation.

Preventing proliferation in practice

That the NPT regime has been discussed in the proliferation literature has not translated to a wealth of empirical studies. Reflective of this is the lack of clear delineation even of the regime's boundaries. As mentioned, some scholars implicitly equate membership in the NPT regime to membership in the NPT. Others focus on related treaties and agreements, guiding principles, or themes (e.g. energy, disarmament, regional zones, etc.). The definitional ambiguity has hindered the ability of works to talk to one another. The fact is that the NPT regime encompasses all of these items, its fluidity being a byproduct of the lack of a singular, permanent organizational apparatus. The treaty – in terms of both Article content and underlying normative elements – stands as the consensus core component around which all linkage exists.⁴

Regime successes

While few espouse the NPT regime as an unqualified success, those who herald its achievements do settle on some common themes, covering the range of theoretical approaches discussed above. Focusing on proliferation outcomes, they refer to the general lack of new nuclear states in the past four decades: just Israel, India, Pakistan, and North Korea. This modest increase is significant in light of widespread predictions in the 1950s and 1960s that the number of nuclear-weapon states could reach as high as fifteen to twenty (expressed most famously by John F. Kennedy). Proponents also refer to the number of states that at one point considered the nuclear option but chose to abstain, including Brazil, Japan, and Egypt, among others. The overall proliferation rate is especially impressive given the presence of thirty to forty nuclear latent states in the post-Cold War era.⁵

NPT supporters also highlight its persistence, reach, and structure. The treaty is the most widespread arms control agreement in existence, with no comparable global nuclear convention or treaty, and provides the legal foundation for a vast network of supply restraints and export controls. Only 12 of the 184 non-nuclear-weapon states do not have comprehensive safeguards agreements with the IAEA in force (as required by the NPT), and 7 of those 12 have signed agreements. The NPT's near-universality 'is truly extraordinary' given the nature of the bargain and the unequal status granted to non-nuclear-weapon states (Miller 2007: 50). Supporters refer to the indefinite extension and strengthened review process that emerged in 1995. IAEA growth, the Comprehensive Test Ban Treaty, and nuclear-weapon-free zones further demonstrate the extension of goals and principles outlined in the NPT.

For proponents of the NPT then, the July 2015 conclusion of the Joint Comprehensive Plan of Action (JCPOA) between the permanent five members of the UN Security Council plus Germany (P5 + 1) and Iran reflects the sum of its various contributions, a 'crucial test' that the NPT regime has evidently finally passed (Shaffer 2003). Back in 2002 and 2003, it was a series of IAEA inspections and queries that raised questions about the veracity of

Tehran's past declarations as treaty party. International pressure then led Iran to suspend its uranium and enrichment activities, and to negotiate and implement an Additional Protocol. When Iran ceased cooperation with the IAEA after diplomatic progress stalled in 2005, the Board of Governors adopted a resolution that found Tehran to be in non-compliance with its safeguards agreement. The subsequent referral of the case to the Security Council in 2006 paved the way for the imposition of the expansive sanctions regime credited with eventually bringing Tehran back to the negotiating table under President Hassan Rouhani (Monshipouri and Dorraj 2013). That the JCPOA ultimately reinstates the Additional Protocol underscores the centrality of the NPT's verification, monitoring, and enforcement mechanisms in the resolution of the Iranian case.

Besides such institutional features, proponents of the NPT underscore its normative contributions. The nature of discourse, attitude, and behaviours around nuclear weapons has been irrevocably altered because of the treaty's impact on the costs and benefits of nuclearization. One prominent study explores the psychological mechanisms through which the regime affects state nuclear decision-making; the featured case study underlines how Japanese commitment to the treaty coloured subsequent debate about military strategy even when faced with aggression from nuclear-armed neighbours (Ruble 2009). Quantitative studies have compared state behaviours before and after the non-proliferation norm and suggested a process of 'deproliferation in absolute terms' as states sought to be seen as appropriate, a 'good citizen' (Muller and Schmidt 2010: 147–8). However, whether such normative variables drive policy absent of other security, economic, or political variables remains debatable.

Regime failures

Those who express concern about the NPT regime offer a host of criticisms. To begin, they call into question the causal impact of the arrangement. That four of the five NPT holdouts have nuclear weapons reveals the clear limitations of the regime. Treaty membership also did not prevent Iraq, North Korea, or Libya from developing clandestine nuclear weapons programmes. That Libya ultimately rolled back its programme was a decision entirely unrelated to its long-standing NPT obligations. Similarly, South Africa dismantled its weapons programmes prior to treaty accession. Sceptics would suggest that domestic politics, external threats, and other considerations are better suited than the regime – or even the international social environment for non-proliferation – in explaining the timing of denuclearization.

Non-compliance cases in the post-Cold War era suggest problems in treaty implementation as well. Experts point to the ambiguity and inconsistency that have characterized safeguards cases, with no clear-cut definition or procedure applied even when the IAEA Board of Governors has determined non-compliance (Carlson 2009). The protracted nature of the Iran and North Korea cases highlights difficulties in enforcement. Even the successful conclusion of the JCPOA with Iran must be taken with a grain of salt, as it comes nearly a full decade following the initial non-compliance ruling by the IAEA Board of Governors; furthermore, the collapse of the Agreed Framework with North Korea in the 1990s serves as a cautionary tale about the execution of such complex agreements. Some express concern that those two states could present a model for future would-be proliferators, with NPT signatories achieving 'nuclear breakout' capability under the arrangement. That the Security Council failed to pass a resolution against the clear breach of treaty protocol in the aftermath of North Korea's 2003 withdrawal – it bypassed the required three months' notice – further exposes the loophole.

Fears of latent proliferation tap into more fundamental concerns about the principles undergirding the NPT regime. For some, the 'inalienable right' to peaceful development has run

amuck, granting states access to the whole of the fuel cycle and thus placing them on the verge of a weapons programme. This inherent tension between the treaty's non-proliferation and energy provisions has led some to call for greater controls on civilian programmes. Criticism has come from the opposite direction as well, with the nuclear-weapon states accused of falling short in fulfilling their obligations to facilitate energy access or move towards disarmament. The feeling of 'unequal rewards for disproportionate sacrifices' undertaken by the non-nuclear-weapon states has been reinforced by recent benefits offered to non-treaty signatories India and Pakistan, in the form of a Nuclear Suppliers Group exemption for the former, and bilateral nuclear cooperation deals with the US and China, respectively (Tannenwald 2013: 313).

A final line of criticism looks broadly at the current nuclear landscape, identifying the presence of non-state actors, black markets, terrorist threats, and loose fissile materials. While these elements fall outside the jurisdiction of the NPT itself, it is impossible to truly separate them from the global regime tasked with the prevention of nuclear proliferation (Walsh 2005). In the next section, I examine the impact these new pathways have had on the overall non-proliferation campaign, as well as the changes brought about by previous critical events.

The evolution of proliferation

When the NPT opened for signatures in 1968, parties were primarily concerned with a select group of advanced industrial and industrializing states with research and production capabilities. As such, they specified one means of proliferation in the final text: the 'diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices' (*Treaty on the Non-Proliferation of Nuclear Weapons* 1968: Article III.1). The treaty thus established a safeguards system that was aimed almost exclusively at diversion: specifying nuclear materials rather than facilities, stressing the importance of domestic accountability and control, and creating an authenticating, supervisory role for the IAEA. In the decades that have elapsed, however, the character of proliferation has changed – and the NPT regime along with it.

Select shocks

India's 1974 explosion of a nuclear device did not reflect a new pathway of proliferation, but an expanded conception and clear model thereof. Its use of a Canadian research reactor and an American heavy-water supply highlighted the difficulty of filtering peaceful from weaponizable nuclear materials, especially in the long run.⁶ That the early 1970s were characterized by a burgeoning nuclear trade reinforced fears about the diversion threat. Exporting states had already expressed concern about the threat stemming from state-to-state transfers, discussing technical issues in an informal series of meetings (as the Zangger Committee) beginning in 1971. India spurred immediate action. The Zangger Committee published a trigger list of equipment and material to be encompassed by safeguards agreements. In 1975, the Nuclear Suppliers Group emerged with self-imposed, stringent controls for supplier states, while the IAEA established the Standing Advisory Group for Safeguards Implementation. The regime was reconceptualized, tightening the application of safeguards, and setting forth common – and detailed – export controls.

While India circumvented the NPT regime as an outsider, Iraq simply defied it. Its concealment of undeclared nuclear material and willing deception – uncovered in 1991 – represented the first such acts by a signatory state. Iraq's clandestine programme thus symbolized a new proliferation pathway, one that extended beyond the concept of diversion

targeted by the NPT regime. The 1993 non-compliance finding in North Korea echoed this concealment blueprint. An intensive review followed, aimed to 'facilitate the early detection of undeclared nuclear activities.'⁷ The result was a new legal foundation for safeguards, with the Additional Protocol allowing the IAEA a more comprehensive view of a state's nuclear programme via the use of special inspections, increased access to broad-based information, and expansion in other reporting requirements. The shift from a 'correctness' principle to one of 'completeness' was bolstered by activity outside the NPT review process, as the Nuclear Suppliers Group and Zanger Committee published trigger lists for dual-use equipment, materials, and technologies.

An unprecedented wave of safeguards breaches reported by the IAEA Secretariat in 2003 and 2004 provided another proliferation shock for the international community. However, no corresponding system-level changes came to the NPT regime. While this may seem surprising at face value, the cases of Iran, Libya, Egypt, and South Korea ultimately did not represent new pathways of proliferation. As with Iraq and North Korea, they concerned clandestine efforts: with inspectors uncovering the presence of undeclared materials, facilities, and fuel cycle activities. That none of the countries had Additional Protocols in place at the time suggested that the institutional solution to these cases already existed – it just needed to be disseminated among regime members. That each country took decisive, corrective action and cooperated with the IAEA investigation helped to further quell any concern at the time.⁸ These were issues of execution, not conceptualization.

Beyond the state

In the past decade, however, proliferation has become reconceptualized in a manner exceeding even the India and Iraq shocks. While nuclear material security had reached the agenda of the international community in the past, it had done so in a limited fashion. For instance, the 1980 Convention on the Physical Protection of Nuclear Materials (CPPNM) impressed upon national governments the obligation to protect materials in use, storage, and transport, but that applied only to materials involved in international shipments – a part of the post-India agenda targeting state-to-state transfers. Meanwhile, the 1992 Cooperative Threat Reduction Programme provided standards for long-term safe and secure storage for fissile materials, but its focus was on dismantling existing stockpiles in the post-Soviet satellites. But the issue of nuclear security came to take on a different, independent tenor in the early stages of the twenty-first century.

Revelations of al-Qaida's nuclear aspirations in the aftermath of the 11th September attacks brought the spectre of nuclear terrorism to the forefront of the global security agenda (the US' 2002 National Strategy to Combat Weapons of Mass Destruction as a primary example). Problematically, existing instrumentation in the NPT regime simply did not encompass non-state actors. The IAEA moved quickly to create the Nuclear Security Fund in 2001, and then the Office of Nuclear Security in 2002 – symbolically removing the latter from its previous confines within the Safeguards Department. These actions constituted a response to the new players in nuclear proliferation. And in contrast to policy changes following previous proliferation shocks, these actions had no connection to the NPT.

The limitations of the existing regime became further manifest with the 2003 uncovering of the A. Q. Khan network. The so-called father of the Pakistani atomic bomb admitted to running a proliferation ring, having sold weapons technology to Iran, North Korea, and Libya beginning in the 1980s. These revelations about the reach and complexity of the nuclear black market thus reaffirmed the significance of non-state actors in proliferation.

Beyond the NPT regime

The beginning of the twenty-first century was marked by the development of a nuclear-security-centric non-proliferation apparatus. A 2002 incident involving a North Korean ship bound for Yemen with ballistic missile parts reflected the strength of the black market, spurring President George W. Bush to establish the Proliferation Security Initiative (PSI) in 2003. Eleven developed countries committed to a series of interdiction principles aimed to dismantle proliferation rings. Following the Khan confession, the US pushed for UN Security Council Resolution 1540 in 2004, imposing legislative obligations for all 193 member states – an unprecedented manoeuvre – on the issue of non-proliferation. Both it and PSI explicitly targeted non-state actors in addition to state actors.

The multifaceted activity on the issue of nuclear security was buttressed by other actions aimed to deter smuggling: the US commenced the Global Threat Reduction Initiative in 2004 to target nuclear material at high-risk civilian sites, the CPPNM was amended in 2005 to include national material transfers, while the Nuclear Security Summit was convened in 2010 to secure political commitments on the part of states regarding nuclear terrorism. Calls for a global system to address the issue of nuclear security have emerged, with the NPT's narrow focus on diversion and state-to-state transfers ill-suited for this purpose. Issues of illicit trafficking and nuclear security were kept off the NPT Review Conference agenda entirely, with no mention of PSI or 1540 in the final declaration, and minimal reference to non-state threats within the proceedings.⁹ It seems that states recognize the need to move beyond the NPT regime to address the evolving nature of proliferation.

Conclusion: the future of non-proliferation

Over the course of the past four decades, the non-proliferation regime has evolved into an intricate system of global, regional, and national instruments. The Nuclear Non-Proliferation Treaty stands as its cornerstone: its Article III is the foundation for a reformulated IAEA safeguards system and the Additional Protocol, while trigger lists from the Nuclear Suppliers Group and the Zangger Committee have expanded the parameters around those agreements. Without any amendments to the text, the character of the NPT review process itself has also expanded: the establishment of a third main committee and subsidiary bodies, the adoption of barometers for progress, the overall shift to a more prescriptive approach. The treaty's history is also intertwined with, and responsible for, the spread of nuclear-weapon-free zones, the negotiation of the Comprehensive Test Ban Treaty, and the establishment of the first international fuel banks.

Yet, despite the expansive reach of the NPT regime, the character of its foundational treaty has become somewhat of a detriment in the new global order. With the treaty's two-class system, its far-reaching aim of nuclear disarmament, and its lack of detail on the means of facilitating peaceful development, nuclear non-proliferation has become too often entangled in North–South politics. That the treaty is legally equipped to target only a particular pathway of proliferation underlines its antiquated nature. The regime has previously evolved in sync with the character of proliferation, as demonstrated in the aftermath of India's 1974 test explosion and the 1991 discovery of Iraq's clandestine activity. In the post-Cold War era, the regime has shifted again, in response to emerging concerns over the involvement of non-state actors, as encapsulated by issues of nuclear terrorism and materials security. This time however, the shift has necessarily moved outside the NPT.

The NPT-IAEA safeguards agreements and related export controls systems remain the arbiters in state proliferation. But the segmentation of the non-proliferation regime is a welcome process. The involvement of non-state actors in new proliferation pathways suggests the need to

cultivate and maintain the emergent nuclear security structure.¹⁰ Other arenas under the broad jurisdiction of the NPT could use further development as well: the regional nature of security conflicts suggests a greater role for nuclear-weapon-free zones, which have the advantage of localized origins and verification regimes. An accelerated process of institutionalization there could bolster existing non-proliferation instruments, while redressing the security conflicts that underlie consideration of the nuclear option.¹¹ Meanwhile, long-standing NPT stagnation in disarmament suggests that more varied activity there is merited: perhaps a fourth Special Session on Disarmament, or an ad-hoc committee to discuss the dormant Fissile Material Cut-Off Treaty.

The theoretical promise of the NPT can be achieved only with more specialized, decentralized, and localized components in the non-proliferation regime. Regardless of perspective, there is consensus that the arrangement has little value if signatory states lose faith in its ability to deter states from nuclearization, its ability to provide information and set expectations about nuclear behaviour, and its ability to delegitimize nuclear weapons. Proliferation in any shape or form undermines all of these. The change in the nature of proliferation means that the nature of non-proliferation must too. In the past, the NPT has been sufficient. But the limitations of the treaty have become impediments to its adaptive prowess; meanwhile, its very structure and overarching scope breed stagnation and resentment. In the current and future nuclear landscape, the role of other structures – complementary but separate – is key to delivering on the lofty ambitions set forth by the treaty. A pivot from the NPT will help to preserve it, and maintain the whole of the nuclear non-proliferation regime.

Notes

- 1 See Lebow's chapter in this volume for more on deterrence strategies.
- 2 Despite being a seemingly natural fit, the NPT regime has served as the empirical case for few neoliberal institutionalist works.
- 3 Kroenig (2009) lists weapons design and construction, weapons-grade fissile material transfers, and uranium-enrichment or plutonium-reprocessing facility construction as examples of sensitive nuclear assistance contributing to proliferation (all prohibited by the NPT).
- 4 I thus distinguish the 'NPT regime' from the broader 'non-proliferation regime', which would include the Missile Technology Control Regime, the START and SALT treaties, and so forth.
- 5 States with the industrial and scientific capabilities to proliferate.
- 6 While India was not a NPT member, its interest in a weapons programme was public knowledge; its programme was in fact one that the NPT was established to prevent. That it far outstripped expectations in its development suggests regime failure on some level. Additionally, India's claim of a peaceful nuclear explosion exposed the loophole in the treaty on the topic.
- 7 Hans Blix, Statement to the 46th Session of the UN General Assembly, 21 October 1991; United States, IAEA General Conference, September 1991, GC(35)/OR.333, para. 128–30.
- 8 As mentioned in this chapter, Iran's cooperation with the IAEA dissipated, and it was found in non-compliance by the Executive Board in 2005.
- 9 Prior to the Review Conference, Dunn (2009) argued that a recognition of 1540 would have sent a unifying message, rendering interchangeable non-proliferation norms among state actors and non-state actors. That parties chose not to do so suggests they perceive the arenas as separate.
- 10 The global nuclear safety regime can serve as a model. Safety is centered on national governments and industry stockholders, but reinforced by multilateral agreements – many of which are incorporated as requirements in the non-proliferation campaign.
- 11 The convening of the Conference of States Parties and Signatories to Treaties that Establish Nuclear-Weapon-Free Zones is a positive step from this perspective, enabling future assistance and coordination.

References

- Axelrod, R. and Keohane, R. O. (1985) 'Achieving Cooperation under Anarchy: Strategies and Institutions', *World Politics* 38(1): 226–54.

- Barnett, M. and Finnemore, M. (1999) 'The Politics, Power, and Pathologies of International Organizations', *International Organization* 53(4): 699–732.
- Carlson, J. (2009) 'Defining Noncompliance: NPT Safeguards Agreements', *Arms Control Association*, 8 May. Online. Available HTTP: <http://www.armscontrol.org/act/2009_5/Carlson> (accessed 10 August 2015).
- Dunn, L. A. (2009) 'The NPT: Assessing the Past, Building the Future', *The Nonproliferation Review* 16(2): 143–72.
- Finnemore, M. and Sikkink, K. (1998) 'International Norm Dynamics and Political Change', *International Organization* 52(4): 887–917.
- Fuhrmann, M. (2009) 'Spreading Temptation: Proliferation and Peaceful Nuclear Cooperation Agreements', *International Security* 34(1): 7–41.
- Fuhrmann, M. and Li, X. (2008) *Legalizing Nuclear Abandonment: The Determinants of Nuclear Weapon Free Zone Treaty Ratification*, Cambridge, MA: Harvard Kennedy School.
- Hecker, S. S. (2010) 'Lessons Learned from the North Korean Nuclear Crises', *Daedalus* 139(1): 44–56.
- Hymans, J. E. C. (2006) 'Theories of Nuclear Proliferation', *The Nonproliferation Review* 13(3): 455–65.
- Hymans, J. E. C. (2012) *Achieving Nuclear Ambitions: Scientists, Politicians, and Proliferation*, New York: Cambridge University Press.
- Hymans, J. E. C. (2014) 'No Cause for Panic: Key Lessons from the Political Science Literature on Nuclear Proliferation', *International Journal* 69(1): 85–93.
- Jervis, R. (1999) 'Realism, Neoliberalism, and Cooperation: Understanding the Debate', *International Security* 24(1): 42–63.
- Jo, D.-J. and Gartzke, E. (2007) 'Determinants of Nuclear Weapons Proliferation', *Journal of Conflict Resolution* 51(1): 167–94.
- Johnson, R. (2010) 'Rethinking the NPT's Role in Security: 2010 and Beyond', *International Affairs* 86(2): 429–45.
- Johnston, A. I. (2001) 'Treating International Institutions as Social Environments', *International Studies Quarterly* 45(4): 487–515.
- Keohane, R. O. (1982) 'The Demand for International Regimes', *International Organization* 36(2): 325–55.
- Koremenos, B., Lipson, C., and Snidal, D. (2001) 'The Rational Design of International Institutions', *International Organization* 55(4): 761–99.
- Kroenig, M. (2009) 'Importing the Bomb: Sensitive Nuclear Assistance and Nuclear Proliferation', *Journal of Conflict Resolution* 53(2): 161–80.
- Lieberman, P. (2001) 'The Rise and Fall of the South African Bomb', *International Security* 26(2): 45–86.
- Lipson, C. (1984) 'International Cooperation in Economic and Security Affairs', *World Politics* 37(1): 1–23.
- Mearsheimer, J. J. (1994) 'The False Promise of International Institutions', *International Security* 19(3): 5–49.
- Miller, S. E. (2007) 'Proliferation, Disarmament, and the Future of the Non-Proliferation Treaty', in M. B. Merli and S. Lodgaard (eds.) *Nuclear Proliferation and International Security*, New York: Routledge, 50–69.
- Monshipouri, M. and Dorraj, M. (2013) 'Iran's Foreign Policy: A Shifting Strategic Landscape', *Middle East Policy* 20(4): 133–47.
- Muller, H. and Schmidt, A. (2010) 'The Little-Known Story of Deproliferation: Why States Give up Nuclear Weapons Activities', in W. C. Potter and G. Mukhatzhanova (eds.) *Forecasting Nuclear Proliferation in the 21st Century: The Role of Theory*, Stanford, CA: Stanford University Press, 124–58.
- Paul, T. V. (2000) *Power versus Prudence: Why Nations Forgo Nuclear Weapons*, Montreal: McGill Queens University Press.
- Rublee, M. R. (2008) 'Taking Stock of The Nuclear Nonproliferation Regime: Using Social Psychology to Understand Regime Effectiveness', *International Studies Review* 10(3): 420–50.
- Rublee, M. R. (2009) *Nonproliferation Norms: Why States Choose Nuclear Restraint*, Athens: University of Georgia Press.
- Sagan, S. D. (1996) 'Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb', *International Security* 21(3): 54–86.
- Sagan, S. D. (2011) 'The Causes of Nuclear Weapons Proliferation', *Annual Review of Political Science* 14(1): 225–44.
- Shaffer, B. (2003) 'Iran at the Nuclear Threshold', *Arms Control Association*, 1 November. Online. Available HTTP: <http://www.armscontrol.org/act/2003_11/Shaffer> (accessed 11 August 2015).
- Solingen, E. (2007) *Nuclear Logics: Contrasting Paths in East Asia and the Middle East*, Princeton, NJ: Princeton University Press.

- Tannenwald, N. (2007) *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons since 1945*, New York: Cambridge University Press.
- Tannenwald, N. (2013) 'Justice and Fairness in the Nuclear Nonproliferation Regime', *Ethics and International Affairs* 27(3): 299–317.
- Treaty on the Non-Proliferation of Nuclear Weapons (1968), opened for signatures 1 July 1968, entered into force 5 March 1970.
- Walsh, J. (2005) *Learning from Past Success: The NPT and the Future of Non-Proliferation*, Stockholm: Weapons for Mass Destruction Commission.