

The background of the cover is a composite image of Earth from space. The left side shows a bright, curved horizon of the planet, with swirling white and grey cloud patterns over dark blue oceans. The right side shows a dark, starry space background with a dense, glowing spiral of golden-yellow city lights, representing a global view of human civilization at night.

# AN ANTHOLOGY OF GLOBAL RISK

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Digital material and resources associated with this volume are available at <https://doi.org/10.11647/OBP.0360#resources>

ISBN Paperback: 978-1-80511-114-6

ISBN Hardback: 978-1-80511-115-3

ISBN Digital (PDF): 978-1-80511-116-0

ISBN Digital eBook (EPUB): 978-1-80511-117-7

ISBN XML: 978-1-80511-119-1

ISBN HTML: 978-1-80511-120-7

DOI: 10.11647/OBP.0360

Cover image: Javier Miranda, Alien planet, June 18, 2022, <https://unsplash.com/photos/nc1zsYGkLFA>

Cover design: Jeevanjot Kaur Nagpal

# 20. The Stepping Stones Approach to Nuclear Disarmament Diplomacy<sup>1</sup>

*Paul Ingram*

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## Highlights:

- This chapter provides a personal and reflective account of the author's efforts in the field of nuclear disarmament diplomacy. It focuses on the development of the Stepping Stones Approach.
- The Stepping Stones Approach is an iterative approach that starts from the point of radical visions for the future, striving towards common security and greater collaboration. Through dialogue and the iterative development of proposals and agreements, the approach builds towards incremental action.
- The Stepping Stones Approach is an effort to transform diplomacy away from zero-sum confrontational and positional negotiation, towards more adaptable and exploratory engagements. It uses a form of incrementalism to develop ambitious proposals for change. It has emerged because power in the international system in relation to nuclear diplomacy is highly concentrated in the hands of the nuclear armed states.
- The approach may well carry lessons for other fields of catastrophic risk — where extant modes of political or institutional engagement are frustrated by power competition, political disagreement or seemingly irreconcilable priorities.

This chapter was specially written for this volume and sets out a roadmap for how change can be enacted in contested global diplomatic efforts to respond to extreme global risk. A further guide to engaging with policy-makers and stakeholders is contained in Chapter 18.

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## Introduction

The Stepping Stones Approach (the Approach) was developed by the author and first adopted by a coalition of sixteen governments in June 2019 in order to break the deadlock in nuclear disarmament diplomacy.

The Approach arises out of frustration and some desperation. The ambition for complete nuclear disarmament is articulated in Article VI of the nuclear Non-proliferation Treaty (NPT), as well as the more recent Treaty for the Prohibition of Nuclear Weapons.<sup>2</sup> Yet all nine nuclear armed states are modernising their nuclear weapons. Having exercised significant strategic restraint, China is now expanding its arsenal.<sup>3</sup> There is a well-established US view that strategic competition and war with China may well be inevitable.<sup>4</sup>

The international community last agreed to an integrated nuclear disarmament strategy at the 2010 NPT Review Conference.<sup>5</sup> This opened the door to three international conferences on humanitarian consequences of nuclear weapons in 2013–14 and indirectly to negotiations on the Treaty for the Prohibition of Nuclear Weapons (TPNW) adopted on 7th July 2017.<sup>6</sup> As of November 2022 this treaty had 91 signatories and 68 state parties, but no nuclear armed states or any state in alliance with one.<sup>7</sup> This may have turned up the heat but progress on achieving actual disarmament has been absent.

Most efforts to drive disarmament diplomacy tend to focus on the dangers, ethics and legal obligations arising from previous agreements, but fail to account sufficiently for the attachment to the security and influence that nuclear weapons are perceived to convey. These in turn are built upon assumptions that bear some scrutiny. These include that possession and threat delivers effective and unique deterrence, that the risk is acceptable, that great powers have responsibilities to control global outcomes, and that strategic competitors will contemplate extreme measures for advantage. Successful moves to drive disarmament require

states to address these competing assumptions and commitments, and to find alternative less dangerous means to achieve their objectives.<sup>8</sup>

When entering international nuclear weapon negotiations, officials prepare for a confrontational experience as they weigh up their opposition and the competing interests involved. More often than not they carry a scepticism around the prospects for progress. The Approach seeks to change this negotiating culture. It involves officials seeking out opportunities to explore possible futures as a means to collect ideas for early interventions, even as they accept the complexities that resist solutions. These ideas are then used to prompt open dialogue between key stakeholders with a view to attempting to settle on early, modest action.

Taking a systems view of change, the Approach grew out of a desire to escape polarised debate and build concrete improvements in nuclear disarmament diplomacy. The Approach arises out of an awareness that states co-exist in interdependent common security relationships, and that efforts to improve relationship and reduce fear benefit security. It thus draws states into *a process that moves towards* an alternative paradigm of common security.<sup>9</sup>

This chapter begins by explaining the method of the Stepping Stones Approach. It then outlines the essential ingredients of the associated culture, based upon an appreciation of:

- systems, emergence and complexity;
- polarity management in which binaries that drive conflict come to be seen as framings that can bring people together; and
- relationship and process being critical to outcomes.

## 1. The Method

The Approach involves a number of elements or steps in a non-linear iterative process (illustrated in Figure 1):

1. **Radical visions for the future**, striving towards common security and greater collaboration.
2. **Analysis, acceptance, and pluralism**, understanding the complexities using an inclusive dialogue.

3. **Proposals and dialogue**, view to triggering further iterations of proposals and ideas.
4. **Early, modest action** that is incremental, usually taken by nuclear weapon states.
5. **Review, evaluate and adapt**, as transformation emerges in a non-linear and unpredictable manner.

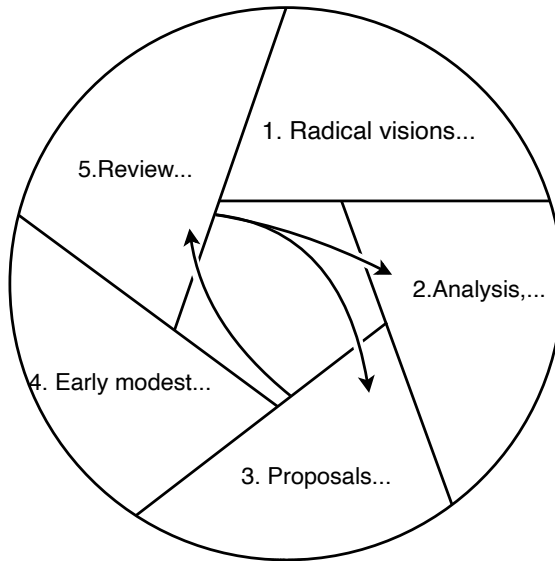


Fig. 1: Diagram of the Approach.

### 1.1 Visions for the future

The Approach starts much like any strategy, contemplating the desired qualities of the world we seek to inhabit. But this is not a settling on a particular outcome. Effective and sustainable action comes from inspiration around potential futures rather than a rejection of the present. The Approach encourages those looking for change to develop and communicate constructive visions for how things could be, but to hold them lightly. If we attach too strongly to a particular vision we are very likely to seek the means to drive the system in our direction, to be inflexible and to drive conflict with others who do not share it or our perspective. These visions are not manifestos, commitments, or targets, but rather guide-stars — ideas that help develop and communicate a

desirable direction of travel, elements of progress and the values that underpin them. They will adapt as the international context evolves, as we discover new directions that could better meet our collective objectives. An important challenge when we engage in such visioning is to retain that sense of adaptability.

Talking about the visions helps us better communicate with each other about our shared purpose and values and assists in the exploration of initial steps in those directions. By distinguishing those visions from the more modest immediate policy actions that are to be implemented in the immediate term, we can draw the sting from some of the conflicts that stymie progress and give explicit encouragement to those who advocate radical visions.

When we advocate for common values such as equity, justice, human rights, and responsive governance we need to do so from a place of openness and respect, understanding and owning our own failings and drawing the other into dialogue. This search for common ground in fundamental values lies at the heart of international society. Genuine and admirable attempts have been made in the last century to articulate and develop such values, formalised after World War II in the Charter of the United Nations and the Universal Declaration of Human Rights, and more recently in the UN's Sustainable Development Goals for 2030.<sup>10</sup> Recognition of the power of shared values is a critical lubricant in the machinery of international dialogue that is weakened most by cynicism or the view that there only exists self-interest.

## 1.2 Analysis and acceptance of the situation, adopting pluralism

The Approach has at its core an appreciation of the contribution diversity has to sustainable change when engaging stakeholders, an acceptance of the complexities involved and a resistance to the ubiquitous temptation to over-simplify and rush to judgement.<sup>11</sup> Decisions are stronger, richer, and more sustainable when a variety of perspectives are engaged.

Seeking out and engaging with diverse views is an antidote to the righteous group-think tendencies and confirmation bias that so often harms genuine dialogue and effective policy creation.<sup>12</sup> No one person

or state has a monopoly on the truth, which is dynamic, multi-faceted, with tensions, polarities, and contradictions.

If nuclear disarmament is to come from diplomacy and improvements to global security, it will require constructive and voluntary steps by the nuclear weapon states, taken in good faith and with confidence. Disarmament proposals made in this context must be considered in relation to existing nuclear deterrence postures.

Pursuit of a belief in disarmament or deterrence in a dogged and inflexible manner will often trigger resistance. Many people believe disarmament is the most effective, long-term solution to improving global security. Indeed, reducing the role of nuclear weapons in national security strategies is central to the Stockholm Initiative, and necessary for progress in nuclear disarmament. This is based upon the belief that moves to reduce reliance on nuclear deterrence can send positive signals of intent to improve strategic relationships and reduce nuclear risks.

This agenda also appears to have been the most challenging part of the Initiative's agenda for some of the nuclear weapon states in private consultations, even as they have supported the Initiative as a whole and have similar objectives in their national nuclear postures.<sup>13</sup> Some within the nuclear weapon states believe that reductions in nuclear salience at a time of strategic competition can damage nuclear deterrence because they could be interpreted as weakening resolve for nuclear use, and thus could perversely increase nuclear risks by emboldening aggression. They believe that reduced nuclear salience needs to *follow* improved strategic relationships between nuclear armed states, rather than seek to improve relationships by reducing nuclear salience within strategic defence postures first. This is reflected in their focus upon what they describe as creating a strategic environment conducive to nuclear disarmament.<sup>14</sup>

The disagreement between these two positions should not be understated, but there is scope for progress when we acknowledge the strengths and weaknesses of both. This will not resolve the contradiction but will encourage those participating to pay attention to others, to the evidence, and a wider variation of possibility. After all, the objective of *security* is shared

Whilst outright confrontation is usually counterproductive, the Approach does involve drawing attention to some of the nuclear weapon



states most dangerous and escalatory behaviours and encouraging them to engage in open and respectful discussion about these actions as a first step on the road towards disarmament. This might include, for example, the policy of launch-under-attack, which many believe presents the greatest risk of nuclear exchange arising from a false alarm on the basis that credible warnings of incoming long-range missiles create a use-them-or-lose-them situation.<sup>15</sup>

### 1.3 Proposals and dialogue

Trust and confidence take time to build up, and state representatives need to feel their nation's concerns and priorities are heard and respected in the process, enabling them to witness the mutual benefits that can arise before they are willing to invest further in shared governance. Proposals therefore need to account for the interests and perspectives of all main stakeholders with a view to drawing them into dialogue, an open process that involves joint exploration of the landscape and possible improvements that could be attempted. Proposals are best tabled as invitations to explore and participate. If a state responds with a counter-proposal, that itself is a recognition of the process and a success. Engaging constructively with such a counter-proposal and seeking to integrate core objectives is the stuff of successful diplomacy.

When considering steps to progress disarmament we need to understand the drivers behind the dysfunctional relationships that underpin nuclear deterrence rather than continue attempting to keep the lid on the situation.<sup>16</sup> We do well when we draw states that challenge us into a process that involves patient attempts to develop mutual respect and genuine attempts to break the cycles of violence.

### 1.4 Practical, incremental action

The Approach involves taking *early* practical steps with the intention of building momentum, understanding that there will be dead ends and false starts. In complex environments, even very small steps can have unpredictable impacts upon other parts of the landscape that can then open up new challenges and opportunities. The four statesmen that reignited interest in global nuclear disarmament amongst the elites

within nuclear weapon states, Schultz, Perry, Kissinger and Nunn, used the analogy of climbing a mountain in their seminal letter to the Wall Street Journal in January 2007.<sup>17</sup> When ascending the slopes, a climber sees new opportunities and challenges as they gain height. Unfortunately, we seem to have fallen down several crevasses in the last decade. As a result, confidence in the step-by-step approach has been damaged.

We could see ourselves as existing in a metaphorical landscape of peaks and valleys, and efforts to shift to another dynamic equilibrium in a new valley takes larger nudges, or a series of small ones, because of the negative feedback loops that return our systems to the *status quo* and keep them stable. We might imagine a multitude of potential equilibrium points within international strategic relations.<sup>18</sup> In terms of the Approach, we need to consider individual stepping stones in their own right, but it will take implementing a series of them, likely in a number of areas, to unlock stickiness in the system and achieve sustained progress towards nuclear disarmament. We have to expect resistance, failures that take us back to an equilibrium we were hoping to shift. But when we build momentum we have a hope of driving lasting change.

### 1.5 Adapt as events unfold, engage with emergence

The Approach involves improvements, not solutions. As we achieve them, further possible improvements will emerge. It is a feature of the process that transformation emerges in a non-linear and unpredictable manner — emergent change.<sup>19</sup>

The Approach is more likely to be successful if all parties see the dialogue as a shared learning process that involves concrete implementation by the nuclear weapon states. The diagram below is a representation of a learning cycle involved in nuclear diplomacy and implementation, reflecting the fact that the changes themselves (to the right half of Figure 2, in blue) will happen nationally within those states that possess nuclear weapons.

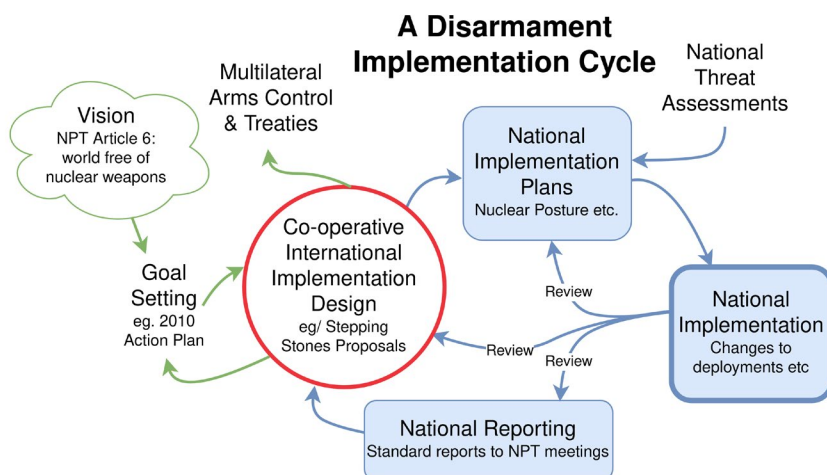


Fig. 2: The learning cycle involved in nuclear diplomacy and implementation.

## 2. Essentials Behind the Approach

### 2.1 It takes appreciation of complexity and emergence

Complex and chaotic systems display emergent properties. Their wicked problems demand, “an approach that requires experimentation and the capacity to allow a path forward to emerge over time — the common cause-and-effect thinking and tools that leaders use to fix problems don’t create the results they expect”.<sup>20</sup> Objectives appear contradictory, are impossible to fully comprehend, and defy efforts to simplify or to control.<sup>21</sup>

Signals and reactions can be unpredictable. For example, significant disarmament moves can signal a confidence in the future and reduced threat, encouraging competitors to relax and de-escalate. On the other hand, they can be interpreted as demonstrating less resolve or even weakness, encouraging an assertive competitor to move into the space created. Clarity and consistency of messaging reduces the possibility of misinterpretation but does not eradicate it. It helps to ensure our analysis and actions considers the broader context, the imperfections, unintended consequences, our political and cognitive distortions, and the likely systems failures. It requires a humility rarely displayed by leaderships and underappreciated by their publics. The complexities

and uncertainties are a powerful reason to proceed with sensitivity to the feedback signals, but also with confidence that making interventions enables learning and growth within the system.

The Approach is not a conventional strategy, planning and then implementing steps. The vision and the steps emerge and adapt as we interact. This requires of us that we recognise that we, individually and collectively, are not in control of outcomes, and that we are engaged in a learning cycle. It means that we have to be more flexible with our personal or political attachments to particular outcomes.

When engaging with complex, emergent systems the attempt to grip and take control can exacerbate the conflict. People often think, for example, that the most effective negotiating strategy is first to build up one's own bargaining position by accumulating assets or positions that can later be traded, or through sheer force of argument, and developing a hard reputation for inflexibility. Sometimes this strategy can drag out the start of serious negotiations for many years as antagonists square off against one another, issue threats and impose penalties.<sup>22</sup> In contrast, the adaptive and collaborative exploration of possibilities opens up unforeseen possibilities and increases the chance of serving the common interest.

## 2.2 Working across polarities as a strategy

The Approach is designed to steer global collaboration on the nuclear disarmament agenda, for which there is an agreed but stalled programme of action.<sup>23</sup> It seeks to answer the "how" in terms of effective diplomacy and engagement. The "what", its agenda, is co-created in the process.<sup>24</sup>

People often use rational argument, manipulate evidence, incentives and emotion, threaten or punish to build support for their preferred solutions. This can descend into a simple trial of strength. We externalise blame, express our anger, and feel the righteousness of our beliefs.<sup>25</sup> We often believe conflict is necessary to resolve disputes, and we institutionalise it across many arenas in life (such as democratic debate, in the courts, or generally asserting our interests). This can drop into a perpetual cycle of conflict between entrenched positions. These approaches to change are particularly ineffective when pursued from a position of weakness, as those with greater power usually use that power to protect the *status quo*.

But even they can attract fierce resistance when they attempt to exert their will, such that any benefit is degraded or eliminated.

We often observe the tendency for complex situations to exhibit two or more polarities in tension with one another, each with advantages and disadvantages for people within the community, but that do not exist in isolation.<sup>26</sup> Too often people pick a solution from one or other polarity, when the challenge is about managing the dynamic balance. When people and states surface and acknowledge the tensions between the polarities, it can strengthen dialogue and understanding without requiring people to switch their position or even to compromise. We see our perspective within a broader context and deepens an appreciation of the dynamic nature of the system as it changes over time. One such example of polarity is transparency and ambiguity.

### *2.2.1 Transparency and ambiguity*

Transparency over nuclear arsenals, doctrine and intentions impacts international stability and builds trust, but sits uncomfortably with ambiguity in nuclear deterrence. Clarity and active management of strategic relationships can reduce nuclear risk arising from misunderstanding or misperception. Alongside inspections and verification, it is an essential ingredient of multilateral nuclear diplomacy and arms control. Transparency shows respect for others, brings trust and stability, and enables others to become friendly critics rather than hostile challengers. It reduces the risks of strategic surprise, builds confidence, and thereby facilitates lower defence spending. Greater transparency also facilitates communication of genuine intent and resolve when necessary.

On the negative side, transparency over nuclear use may give comfort to aggressors if they believe that smaller transgressions would go unpunished, or force one's own hand when they break red lines. Being open about deployments can expose them to action that neutralises their impact, or expose one's own weaknesses and vulnerabilities. Reversal of transparency in crisis might further escalate tensions at sensitive moments.

The perceived benefits of secrecy and ambiguity are so strong that they are the default behaviour of many governments.<sup>27</sup> Military leaders often oppose formal statements that limit options before a crisis. Some

think them naïve as they vanish under existential crisis.<sup>28</sup> Ambiguity delivers doubt in the minds of an aggressor and complicates their strategic planning. Opacity might deliver some additional deterrence against other unspecified threats, or broader influence over international outcomes. Ambiguity can come at considerable additional cost. A government insisting all options remain on the table, for example, invites strong push back and damages international law when it implies a willingness to operate beyond it. Ambiguity can undermine confidence of allies, undermine global diplomacy, and can suggest an indefinite and inflexible attachment to nuclear deterrence.

These features are summarised in the table below:

Table 1: An overview of the positives and negatives of transparency and ambiguity in nuclear diplomacy.

TRANSPARENCY	AMBIGUITY
<b>Positives</b>  Provides trust, clarity and confidence  Facilitates collective understanding & management of strategic relationships  Clearer signalling  Essential ingredient of nuclear diplomacy and arms control  Shows respect for international community	<b>Positives</b>  Freedom of action in crisis  Maximises return from investment  Doubt in the minds of aggressors, complicating their calculations  Delivers additional deterrence/ influence
<b>Negatives</b>  Gives comfort to aggressors operating under the red line  Force own hand when aggression above the line  Gives away valuable strategic info  Reversals in transparency in crises could escalate the conflict  Lack of credibility in making peacetime promises	<b>Negatives</b>  Higher risk of misunderstanding/ misperception  Invites strong responses  Damages international law/ cooperation  Undermines allies' confidence  Is an obstacle to disarmament and signals an apparent indefinite commitment to deterrence

Understanding and exploring in good faith the positives and negatives of the two polarities of transparency and ambiguity enables a more nuanced discussion of the options, and a recognition that this is more about managing objectives in tension rather than the ideological struggles these debates are often characterised as.

### 2.3 Attention to process and relationship

In addition, the Approach involves diplomats paying as much attention to the *process* of disarmament diplomacy as to its *content*, establishing and deepening the interpersonal relationships with officials from other states, particularly those with competing interests or different perspectives.<sup>29</sup> Paying attention to and valuing those interconnections, building trust, confidence and understanding, even in the face of challenging dynamics and conflicting interests and ideologies, are critical steps in finding breakthroughs.

Whilst those using the Approach individually or collectively may have particularly high hopes and radical ambition, it involves a pragmatic, collective, respectful and adaptive learning cycle. The Approach seeks to draw the nuclear weapon states into a progression of steps they can consent to. It respects and values everyone's perspective recognising that when people engage fully, many of the underlying objectives are already met. It encourages states to hold their positions less tightly and see the broader context within which they and their neighbours co-exist.

## Conclusion

The Stepping Stones Approach is an effort to transform diplomacy away from zero-sum confrontational and positional negotiation, towards more adaptable and exploratory engagements. It uses a form of incrementalism to develop ambitious proposals for change. It has emerged because power in the international system in relation to nuclear diplomacy is highly concentrated in the hands of the nuclear armed states, who have not delivered the level of progress envisaged in the 2010 Action Plan. There is only so far that appeals delivered as speeches in intergovernmental conferences can go before people start looking for other approaches. Yet, when power is concentrated, it does

not generally pay for the less powerful to force the issue, but rather to draw those with power into a process whereby all come to recognise the improvements to the system as a whole. Progress on nuclear disarmament is an imperative to our collective survival, and yet is not happening. It may become increasingly critical as other stresses on systems of global governance rise. The evolution of those systems, and the cultures that support them, needs to speed up significantly, and the Stepping Stones Approach is just one attempt to do so.

## Notes and References

- 1 This chapter is drawn extensively from a report: Ingram, Paul. *The Stepping Stones Approach to Nuclear Disarmament Diplomacy: A Personal Explanation of the Approach From One of Its Designers*. British American Security Information Council (BASIC) (December 2021).
- 2 The text of the Non-Proliferation Treaty is available on the United Nations Office of Disarmament Affairs website. 'Treaty on the Non-Proliferation of Nuclear Weapons'. <https://www.un.org/disarmament/wmd/nuclear/npt/text/>
- 3 US intelligence is projecting Chinese modernisation of its nuclear forces and an increase from 400 at end 2022 to 1500 warheads by 2035. US Department of Defense. *China Military Power Report 2022* (2022), p.94. <https://www.defense.gov/CMPR/>
- 4 Allison, Graham. *Destined for War: Can America and China Escape Thucydides's Trap?* (2017).
- 5 *Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons Final Document, Volume I* (2010), pp. 19–24. <https://www.un.org/en/conf/npt/2010/>
- 6 The final document included for the first time a reference to "the catastrophic humanitarian consequences that would result from the use of nuclear weapons". *Ibid.*, p. 19, paragraph 80. The vote to adopt the TPNW was 122 to 1 with 1 abstention, though the nuclear armed states and almost all their allies failed to participate. 'United Nations Conference to negotiate a legally binding instrument to prohibit nuclear weapons, leading towards their total elimination', *United Nations*. <https://www.un.org/disarmament/tpnw/>
- 7 Nuclear armed states and allies deny the TPNW has any relevance to them. See, for example, statement by Benjamin Sharoni, Israel Ministry of Foreign Affairs to the First Committee of the UN General Assembly, on October 31st: [https://reachingcriticalwill.org/images/documents/Disarmament-fora/1com/1com22/eov/L17\\_Israel.pdf](https://reachingcriticalwill.org/images/documents/Disarmament-fora/1com/1com22/eov/L17_Israel.pdf)
- 8 All well-established systems have mechanisms that act as negative feedback loops or checks on rapid change. These drive the system back towards its natural equilibrium, even when change is attempted by those in positions of strong formal power. Without such negative feedback features, the system would have been unstable and would previously have spun off into another state. Harvard professors Lisa Laskow Lahey and Robert Kegan talk of "immunities to change" in our lives, as individuals, groups or nations. Kegan, Robert and Lisa Laskow Lahey. *Immunity to Change: How to Overcome It and Unlock the Potential in Yourself and Your Organization*. Harvard Business Review Press (2009).



- 9 'Common Security 2022: For our Shared Future', [https://www.ituc-csi.org/IMG/pdf/commonsecurity\\_report\\_2022\\_final.pdf](https://www.ituc-csi.org/IMG/pdf/commonsecurity_report_2022_final.pdf)
- 10 For links to the UN Charter, the Declaration of Human Rights and the Sustainable Development Goals: the text of the Non-Proliferation Treaty is <https://www.un.org/en/about-us/un-charter>; <https://www.un.org/en/about-us/universal-declaration-of-human-rights> and <https://sdgs.un.org/goals>
- 11 This was an observation made by Chris Ford in his challenging article, 'The Bodhisattva Vow and Nuclear Arms', *Upaya Newsletter* (July 2009). He wrote this some years before joining President Trump's White House and then becoming US Under-Secretary of State.
- 12 Ingram, Paul. 'Addressing our worst global nightmares whilst managing our righteousness', *The Friends Quarterly*, 55(4) (November 2022), p.12.
- 13 It is also an explicit top-level objective of the 2022 US Nuclear Posture Review (page 1).
- 14 Under-Secretary of State Chris Ford first proposed an initiative to create the conditions for nuclear disarmament in March 2018, and the first inaugural meeting of CEND was held in July 2019. See Potter, William. *Taking the Pulse at the Inaugural Meeting of the CEND Initiative* (July 2019). <https://nonproliferation.org/taking-the-pulse-at-the-inaugural-meeting-of-the-cend-initiative>
- 15 Perry, William J. and Tom Z. Collina. *The Button, the New Nuclear Arms Race and Presidential Power From Truman to Trump*. BenBella Books (2020).
- 16 Rogers, Paul. *Losing Control: Global Security in the 21st Century*. Pluto (2010).
- 17 Schultz, George P., William J. Perry, Henry A. Kissinger and Sam Nunn. 'A world free of nuclear weapons', *Wall Street Journal* (4 January 2007).
- 18 Young, Ed. *I Contain Multitudes: The Microbes Within Us and a Grander View of Life*. Harper Collins (2016), p.117. Emphasis added.
- 19 Brown, Adrienne Maree. *Emergent Strategy: Shaping Change, Changing Worlds*. AK Press (2017).
- 20 Clark, Larry. *Navigating Complexity: A New Map for a New Territory*. Harvard Business Publishing (November 2018). <https://www.harvardbusiness.org/navigating-complexity-a-new-map-for-a-new-territory/>
- 21 Emergent properties are those that are not inherent within the components of a system but that are observed when the system as a whole operates. For example, human cells each have functions, and collectively make up organs and other parts of the body that all together make up an individual.
- 22 This is well illustrated in the stand-off between the United States and Iran over its nuclear enrichment programme, particularly from 2005 to the secret negotiations in Oman in 2013. Countless efforts to find middle ground compromises that met the core needs of both parties were made, including an influential track two series facilitated by the author and colleagues, but the two sides were intent on building up their capacities (Iran its enrichment programme, the United States their sanctions regime) in order to later come to the negotiating table with strong hands.
- 23 This commitment is expressed both in the NPT Treaty itself as well as in subsequent Review Conference agreements and consensus documents.
- 24 The "what" in the case of the Stockholm Initiative is contained within the Sweden NPT working paper referred to above, and in the Annex to the Ministerial Declaration

- issued at the Berlin meeting in March 2020: *Stepping Stones for Advancing Nuclear Disarmament – Annex to the Declaration of the Berlin Ministerial Meeting* (25 February 2020). <https://www.government.se/497342/globalassets/regeringen/lena-micko-test/stepping-stones-for-advancing-nuclear-disarmament.pdf>
- 25 Haidt, Jonathan. *The Righteous Mind: Why Good People Are Divided by Politics and Religion*. Pantheon (2012); Ingram (2022), p. 12.
  - 26 Johnson, Barry. *Polarity Management: Identifying and Managing Unsolvably Problems* (2nd edition). HRD Press (2014). Polarities Management was introduced to BASIC and Emergent Change by the Nucleus Group ([www.thenucleusgroup.com](http://www.thenucleusgroup.com)), who helped us develop a series of workshops with diplomats and officials from a number of countries under a grant from the Carnegie Corporation of New York in 2019.
  - 27 The idea of ambiguity (that applies to the possibility of nuclear use) can sometimes be used to mask secrecy (that surrounds capabilities and their deployments). When publishing its Integrated Review in March 2021 the UK government abandoned its practice of operational transparency (in regards to the numbers of warheads and missiles on patrol) and stepped into greater secrecy. It misleadingly described the move as an extension of its “long-standing policy of deliberate ambiguity... [that] complicates the calculation of potential aggressors, reduces the risk of deliberate nuclear use by those seeking a first-strike advantage, and contributes to strategic stability”. See *Global Britain in a Competitive Age: The Integrated Review of Security, Defence, Development and Foreign Policy* (Cabinet Office Policy Paper). HMG (March 2021), p. 77.
  - 28 Roberts, Brad. ‘Debating nuclear no-first-use, again’, *Survival*, 61(3): 39–56. <https://doi.org/10.1080/00396338.2019.1614788>
  - 29 Lederach, John Paul. *The Moral Imagination: The Art and Soul of Building Peace*. Oxford University Press (2010).