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De-siloing Existential Threats: Challenging Identity, Power, and Inclusivity in the Nuclear Policy Field

Based on a Policy Cycle by BASIC's
Emerging Voices Network (EVN)

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Emerging Voices Network

Launched in December 2020, the Emerging Voices Network (EVN) is a digital network of high-potential, next-generation leaders on nuclear issues who will inherit the responsibility to manage nuclear threats. In founding the EVN, BASIC's aim was to create a truly inclusive digital space wherein younger voices from marginalised communities around the world are heard on nuclear issues. The Network promotes collaboration, dialogue and bridge-building between next-generation leaders from the Global North and South, with diversity and inclusivity at the forefront of the Network's ethos and mission.

BASIC

BASIC is an independent, non-profit think tank working to safeguard humanity and Earth's ecosystem from nuclear risks and interconnected security threats, for generations to come. We have a global reputation for convening distinctive and empathic dialogues that help states overcome complex strategic and political differences. Our established networks and expertise, developed since 1987, enable us to get the right people in the room and facilitate effective, meaningful exchange between siloed and often hostile political communities.

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Editor

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List of Acronyms

CTBT	Comprehensive Nuclear-Test-Ban Treaty
EDI	Equity, Diversity, and Inclusion
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
LGBTQ+	Lesbian, Gay, Bisexual, Transgender, Queer
MIC	Military-Industrial Complex
MoU	Memorandum of Understanding
NC3	Nuclear Command, Control, and Communications
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
POC	People of Colour
SDG	Sustainable Development Goal
SMR	Small Modular Reactor
TPNW	Treaty on the Prohibition of Nuclear Weapons
UNCLOS	UN Convention on the Law of the Sea

Introduction

Forming part of BASIC's Inclusive International Security Programme, the Emerging Voices Network (EVN) seeks to reach, engage and platform early career and young experts from communities, countries and backgrounds that are underrepresented in mainstream nuclear policy fora. The EVN is committed to helping these individuals overcome institutional barriers to ensure that nuclear fora are truly global and that the perspectives and expertise of communities that are often minoritised, yet impacted by nuclear weapons development and policy, are centred and integrated into mainstream nuclear dialogue. The EVN aims to support this new generation of experts who will be working on these issues to address the risks posed by nuclear weapons.

Six months ago, the EVN launched a new Policy Cycle focused on de-siloing existential threats. With support from the Ploughshares Equity Rises Fund, this EVN Policy Cycle was dedicated to breaking down silos and challenging ideas and approaches within and adjacent to the nuclear policy field. As issues relating to identity, power, and inclusivity inform international security practices, nuclear policy, and peacebuilding in many ways, they can have significant implications for individuals, societies, and states all over the world. Confronting, reflecting, and addressing these topics is therefore key to transforming contemporary and future nuclear policy decisions in the best interests of peace and security.

With this in mind, five EVN Working Groups, each led by two Co-Chairs, researched and drafted policy papers including a set of policy recommendations for the international community to consider and take forward. The Working Groups engaged with and confronted key issues relating to:

- Examining and dismantling military-industrial complexes;
- Nuclear weapons issues and climate change;
- Increasing equity, diversity, and inclusivity in the nuclear weapons policy field and within the community of practitioners;
- Challenging racism and white supremacy in nuclear weapons policy-making; and
- Nuclear weapons issues and social justice.

The resulting anthology provides valuable insights into the current challenges and issues that concern emerging researchers and young professionals in the nuclear policy field. They underline the need for innovative approaches to long-standing issues as discussions on nuclear weapons too often take place in siloed environments. Yet, to make significant progress towards nuclear disarmament, non-proliferation, and arms control, the nuclear policy community should consider the linkages between nuclear weapons issues and other existential risks. The community should also recognise the salience of these issues among this young generation of nuclear experts and consider their recommendations as part of a broader effort in making this field more accessible, representative, and inclusive of emerging and minoritised voices.



Image Source: 'Triangular Force', US Department of Defense, 2023.

The Supporting Role of the Military-Industrial Complex to Nuclear Weapons: A Case Study on the United States from Cultural, Political, and Economic Perspectives

Vivienne Zhang (Co-Chair), Orion Noda (Co-Chair), Eliana Johns, Mubashar Rizvi, Morgan Slessor, Jodie Bougaard, Vanessa Canola, Natasha Karner, Vilma Vanhala, Natalia Zhurina, Jennet Charyyeva

Acknowledgements: Shinichi Hirao, Malinda Meegoda

Executive Summary

The private and vested interests of the MIC are prioritised over the public's common and general interests given its close relationship to the government. This transparency-obstructing dynamic can be examined in political,

economic, and cultural spheres. The MIC builds upon Cold War-era thought, pushing narratives which disseminate the idea of a permanent state of war and an equally permanent need for more nuclear weapons. These narratives, however, are unable to sway the public to support nuclear weapons permanently. The total cost of the United States' nuclear weapons programme is not only overpriced, but also an estimate based on insufficiently justified geopolitical risks with dubious returns in security. Notably, there is significant lack of accountability resulting from, inter alia, the 'revolving door' effect, where MIC leadership is appointed to policy making roles and vice-versa. To remediate these issues and increase transparency vis-à-vis nuclear weapons policy, we suggest a series of recommendations applicable to the United States and beyond.

Introduction

The missile gap hoax in the 1950s stemming from the Gaither Report and US Air Force intelligence rumoured a significant Soviet advantage in the Cold War arms race. Despite its debunking, the hoax established the pattern of the military and defence industry's influence on modern US policy. In his 1961 Farewell Address, President Eisenhower coined the term 'military industrial complex' and warned of its growing impact: 'The total influence—economic, political, even spiritual—is felt in every city, every statehouse, every office of the federal government.' He highlighted 'an ever-present menace posed by grasping arms merchants in league with war-mongering generals',¹ and brought public attention to how governmental and industrial power brokers profit financially not only from domestic and international markets but also from perpetuating pro-MIC policy via think tanks and lobbies. Given the sheer strength and impact of the MIC, this paper examines cultural, political, and economic factors of the MIC's entanglement with US decision-making and provides broad recommendations for lessening the dominance of the nuclear MIC over national and global governance.

Analysis

Nuclear Symbolism and 'Full Spectrum Dominance'

Since the days of the Manhattan Project, the MIC employed strategies to promote narratives deeming nuclear weapons and an inflated military machinery vital for national security. Possession of nuclear weapons were associated with positive values; perceived as symbols of military might, technological innovation, international prestige, and frequently linked to national identities.² The United States—particularly its military—attributed these values to its possession of nuclear weapons. The nature of the non-proliferation regime granted the right to possess nuclear weapons to a few countries, in turn constructing nuclear possession as a symbol of power.³ To this extent, a strong nuclear industry corresponding to a strong US leadership was translated from aspirations into policy.

By the end of the Cold War, the MIC was well-established and held an influential role in US nuclear policy. However, the objectives of this close relationship between the MIC and US political elites transitioned from

¹ 'President Dwight D. Eisenhower's Farewell Address (1961).' n.d. National Archives and Records Administration. Accessed May 27, 2023. <https://www.archives.gov/milestone-documents/president-dwight-d-eisenhowers-farewell-address>.

² Hecht, Gabrielle. *Being nuclear: Africans and the Global Uranium Trade*. MIT press, 2014.

³ Noda, Orion. 'A wolf in sheep's clothing? The NPT and Symbolic Proliferation.' *Contemporary Security Policy* 43, no. 1 (2022): 134-160.

advising on matters of national security to securing personal interests under the guise of national interests.⁴ As the Berlin Wall fell, the Pentagon marketed the military doctrine of 'full spectrum dominance',⁵ for instance, encompassing the need to maintain military superiority on all fronts—air, land, and sea.⁶ The image of the United States as 'world police' legitimised global military action and monitoring, which successively justified the maintenance of the intimate relationship linking the MIC and government. The perpetuation of a state of defence and readiness yielded results, as US nuclear capabilities remained proactive after 1991. As a result, the collapse of the USSR and the end of the Cold War had little impact on US nuclear policy, and the influence of the MIC and its interest in upholding military spending and output were, among others, a contributing factor to this phenomenon.⁷

The Nuclear MIC Versus the Public

US nuclear policy fails to reflect an increasing rejection of nuclear weapons in public opinion and opposition to nuclear weapons is heavily underrepresented at the policy-making level. Nuclear policy in the 1990s was kept substantially 'hidden' from the public eye, particularly since the threat of nuclear weapons was no longer perceived as urgent.⁸ Accordingly, the MIC managed to maintain its relationship with policy influencers with little significant public backlash.

Nevertheless, recent data indicates that public support for nuclear weapons is weak: a 2020 survey showed that 66% of Americans believe no country should be allowed to have nuclear weapons, including majorities of Republicans (54%), Democrats (78%), and Independents (64%).⁹ This reveals a trend toward the stigmatisation of nuclear weapons. Comparatively in 1946, when the United States still had a monopoly on nuclear weapons, only 34% of the population supported a halt in nuclear weapons production whilst 58% opposed.¹⁰ In 1982, at the height of the *Nuclear Freeze* Campaign and other anti-nuclear movements, 74% of the public supported a nuclear freeze and 18% opposed.¹¹ But data from the 2020 study sees support for a far more 'radical' opinion—the elimination of all nuclear weapons.

Age is also an important variable in public support of nuclear weapons, as research suggests the positive narratives around nuclear weapons are rejected particularly by youth. According to reports from the International Committee of the Red Cross: 84% of millennials believe nuclear weapons should not be used under any circumstance; in the US, 73% of the youth share that view.¹² Furthermore, 91% of respondents aged

⁴ Kone, Aminata M. 'The Military-Industrial Complex in the United States: Evolution and Expansion from World War II to the War on Terror.' *Inquiries Journal*. 2013. <http://www.inquiriesjournal.com/articles/749/the-military-industrial-complex-in-the-united-states-evolution-and-expansion-from-world-war-ii-to-the-war-on-terror>.

⁵ United States Department of Defense. 'Joint Vision 2020.' *Joint Forces Quarterly*. 2000. 25, 58-76.

⁶ Engdahl, F. William. *Full-Spectrum Dominance: Totalitarian Democracy in the New World Order*. edition.engdahl, Wiesbaden, 2009.

⁷ Sauer, Tom. *Nuclear inertia: US Nuclear Weapons Policy After the Cold War*. Tauris, London, 2005.

⁸ Sauer, Nuclear Inertia.

⁹ Kafura, Craig. 'Americans want a nuclear-free world.' *Chicago Council on Global Affairs*, August 6 (2020).

¹⁰ Kramer, Bernard M., S. Michael Kalick, and Michael A. Milburn. 'Attitudes toward nuclear weapons and nuclear war: 1945–1982.' *Journal of Social Issues* 39, no. 1 (1983): 7-24.

¹¹ Kramer, Kalick, and Milburn. 'Attitudes toward nuclear weapons and nuclear war.'

¹² 'Millennials on War.' International Committee of the Red Cross. November 25, 2019. Accessed May 27, 2023. <https://www.icrc.org/en/millennials-on-war>.

15-45 considered nuclear weapons inhumane, whilst 80.6% support a comprehensive treaty which prohibits nuclear weapons.¹³

Public support for nuclear disarmament pushes back against the depiction of disarmament as a 'utopian fantasy'.¹⁴ The severe diversion of US position from public preferences indicates how the MIC and its vested interests compromise democracy and democratic values. While democracy relies upon transparency and equitable decision-making processes, the prioritisation of nuclear weapons has been fuelled by embedded interests, profit racketeering, and private brokering privy to those involved in the MIC. As such, avoiding public engagement and disclosure has become a necessary feature for larger investments and aspirational defence policymaking.

When the MIC engages with the public, it portrays their interests as convergent with the overall public and national interest. In 2009, when the fate of Lockheed Martin's F-22 Raptor contract was about to be discussed in Congress, the company launched an extensive media campaign to link the contract's maintenance to the grossly exaggerated number of jobs it creates.¹⁵ It is through propaganda portraying the MIC as a benevolent system working towards the collective conception of what is 'good' that the MIC attempts to maintain a firm grasp on decision-making.

Lack of Transparency in Nuclear Weapons Narratives

The bureaucratic relationship between the MIC and policymakers incurs a 'revolving door' effect, where leadership roles and decision-making processes remain at the hands of insiders who are portrayed as selfless leaders working towards the greater good. Many public servants with government experience in defence procurement would switch to working in the defence industry and use their regulatory knowledge to profit off of policies and contracts at the expense of the public interest.¹⁶ Retired Congresspersons and senior military officials often collaborate with lobbyists, defence industry executives, and legislators to promote overkill-capable weapons while they rotate between high government and industry positions.¹⁷ As a result, these individuals often have conflicts of interest which can undermine the integrity and effectiveness of the US Department of Defense's decision-making process.¹⁸ For example, Jon Kyl is a politician and lobbyist who, during his time as a Senator in 2018, advocated and voted in favour of legislation that would increase the profits of defence firms at which he was previously employed as a lobbyist or paid board member.¹⁹

¹³ Soka Gakkai International. 'International Survey by SGI Youth Shows 91% See Nuclear Weapons as Inhumane.' Cision Canada. December 25, 2018. <https://www.newswire.ca/news-releases/international-survey-by-sgi-youth-shows-91-see-nuclear-weapons-as-inhumane-512323641.html>.

¹⁴ Rosendorf, Ondrej, Michal Smetana, and Marek Vranka. 'Disarming arguments: Public opinion and nuclear abolition.' *Survival* 63, no. 6 (2021): 183-200.

¹⁵ William D. Hartung, *Prophets of war: Lockheed Martin and the making of the military-industrial complex*. ReadHowYouWant.com, 2010.

¹⁶ 'Brass Parachutes: Defense Contractors' Capture of Pentagon Officials Through the Revolving Door.' Project on Government Oversight. November 5, 2018. https://s3.amazonaws.com/docs.pogo.org/report/2018/POGO_Brass_Parachutes_DoD_Revolving_Door_Report_2018-11-05.pdf.

¹⁷ Alic, John A. 'The U.S. Politico–Military–Industrial Complex.' *Oxford Research Encyclopedia of Politics*. 26 May. 2021; Accessed 27 May. 2023. <https://oxfordre.com/politics/view/10.1093/acrefore/9780190228637.001.0001/acrefore-9780190228637-e-1870>.

¹⁸ Project on Government Oversight, 2018.

¹⁹ Korda, Matt. 'Influence of the Defense Industry on US National Security Strategy.' November 21, 2021. <https://www.russiamatters.org/analysis/influence-defense-industry-us-national-security-strategy>.

The 'revolving door' extends to the think tank community as the top 50 US think tanks receive over \$1.078 billion in government and defence industry funding, indicating the MIC's possible influence on research.²⁰ Several factors obscure the impact of this funding on pro-nuclear weapons policies: firstly, most think tanks are registered under a tax-exempt non-profit structure and are not required to publicly disclose the names and addresses of their donors.²¹ Despite this, some prominent think tanks indeed disclose the source and amount of funds received for contributions beyond a threshold though the donors themselves could be neither revealed or only exposed upon bankruptcy.²² Due to legal provisions in the US tax code, contributions to think tanks give tax deductions to entities involved in the MIC.²³ By donating to these non-profit entities, organisations profiting from the MIC can 'sponsor' research that legitimises their existence and rally for pro-MIC fiscal policy all while earning sizable tax deductions.

Secondly, when selected think tanks share donor information, there is no disclosure about whether the funds were used for hiring staff or commissioning reports which push a MIC-friendly narrative. Research outputs from influential think tanks can benefit corporate donors as their impact is felt internationally. Pro-MIC research is analysed by academics, policy makers, and students around the world, thus affecting the formulation of strategic policies and geopolitical thought which end up rewarding the global MIC.

Finally, because of the 'revolving door', high-ranking US officials often join the boards of defence contractors immediately or merely months after retiring from service.²⁴ These individuals are likely to have personal contacts in positions of political authority as well as insider knowledge which helps defence companies navigate government contracts. The same issue permeates the leadership cadre of think tanks where these individuals can influence research and orient it towards pro-MIC positions to attract funding. This circular flow of policy influencers strengthens the MIC and obscures accountability.

The Hardship of Nuclear Weapons Accounting

Although nuclear weapons have played an integral part in US foreign policy, it has been and continues to be difficult to determine the total cost of the US nuclear weapons programme. This is due not only to its sensitive nature, but also to the ambiguity surrounding what constitutes nuclear weapons spending, operational costs, and how these factors are declared in annual expenditures.²⁵

²⁰ Freeman, Ben. *US Government and Defense Contractor Funding of America's Top 50 Think Tanks*. Center for International Policy, 2020.

²¹ 'Public Disclosure and Availability of Exempt Organizations Returns and Applications: Contributors' Identities Not Subject to Disclosure.' n.d. Internal Revenue Service. Accessed May 27, 2023. <https://www.irs.gov/charities-non-profits/public-disclosure-and-availability-of-exempt-organizations-returns-and-applications-contributors-identities-not-subject-to-disclosure>.

²² Egeland, Kjøl, and Benoît Pelopidas. 'No such thing as a free donation? Research funding and conflicts of interest in nuclear weapons policy analysis.' *International Relations* (2022).

²³ 'Topic No. 506, Charitable Contributions.' n.d. Internal Revenue Service. Accessed May 27, 2023. <https://www.irs.gov/taxtopics/tc506>.

²⁴ 'Northrop Grumman Elects Mark A. Welsh III to Its Board of Directors.' Northrop Grumman Newsroom. December 6, 2016. <https://news.northropgrumman.com/news/releases/northrop-grumman-elects-mark-a-welsh-iii-to-its-board-of-directors>; Mehta, Aaron. 'Lockheed Adds Dunford, Former Top US Military Officer, to Board.' *Defense News*. Defense News. January 25, 2020. <https://www.defensenews.com/industry/2020/01/25/lockheed-adds-dunford-former-top-us-military-officer-to-board/>.

²⁵ Reif, Kingston, and Shannon Bugos. 2021. 'Projected Cost of U.S. Nuclear Arsenal Rises.' *Arms Control Today*. June 2021. <https://www.armscontrol.org/act/2021-06/news/projected-cost-us-nuclear-arsenal-rises>; Schwartz, Stephen I. 'The Hidden Costs of Our Nuclear Arsenal: An Overview of Project Findings.' *The Brookings Institution* <https://www.brookings.edu/the-hidden-costs-of-our-nuclear-arsenal-overview-of-project-findings> (1998).

It remains unclear if the astronomical increase in US nuclear weapons spending from the Second World War to the Cold War tangibly improved national security. From 1940-1996, the US spent a minimum of \$5.5 trillion in total on nuclear weapons, accounting for 29% of all military spending at the time; a figure which excludes waste storage and disposal, public health, and environmental costs.²⁶ While nuclear deterrence played a key role in the Cold War, questions remain whether the United States possesses an 'optimal' number of nuclear weapons and a competitive advantage for present and future geopolitical landscapes.

More recently in May 2021, the Congressional Budget Office projects the cost for the US nuclear modernisation programme to be \$634 billion from fiscal years 2021-2030²⁷ –an exponential increase from prior nuclear weapons spending. Again, expenditures on related activities like waste management, environmental remediation, safeguards and security measures, disarmament, arms control verification, and non-proliferation were not included in the estimate. The issue of appropriate and comprehensive budgeting is also present in US nuclear non-proliferation programmes as they consistently neglect the costs of cross-departmental activities such as research and development, intelligence, command, control, and communications.²⁸ Without having a holistic picture of the cost of nuclear weapons, not only would the public feel misguided upon seeing unplanned military spending, but governments would also make unrealistic calculations in fiscal planning.

The Nuclear Lobby: Intertwining Interests of US Politics and the Nuclear MIC

Opaque deals benefiting fiscal and electoral incentives of the defence industry and the US government form the foundation of the defence procurement process. The degradation of public trust in government institutions resulting from these intertwining interests in today's polarised and disinforming political atmosphere incurs significant security risks. The defence industry considerably impacts US national security policy through political contributions via earmarking, lobbying, and donations to pro-MIC candidates during elections. Whether it be the economic benefit of labour forces in states with nuclear weapons facilities or the stock owners' financial benefit from government contracts, jockeying for more nuclear weapons encourages unnecessary military investment.²⁹

Lobbying especially influences decisions around nuclear weapons financing, diverting funds from other key priorities toward bolstering strategic capabilities for the sake of national security goals. Since 1998, the defence industry has spent around \$110 million on lobbying annually.³⁰ Additionally, major ICBM contractors over the past decade gave over \$15 million to members of committees who authorise and appropriate funds for the ICBM force including the armed services strategic forces subcommittees and the defence appropriations subcommittees in both the US Senate and House of Representatives.³¹

²⁶ Reif, Kingston, and Shannon Bugos. 2021. 'Projected Cost of U.S. Nuclear Arsenal Rises.' *Arms Control Today*. June 2021. <https://www.armscontrol.org/act/2021-06/news/projected-cost-us-nuclear-arsenal-rises>; Schwartz, Stephen I. 'The Hidden Costs of Our Nuclear Arsenal: An Overview of Project Findings.' The Brookings Institution (1998).

²⁷ 'Projected Costs of U.S. Nuclear Forces, 2021 to 2030.' Congressional Budget Office. May 24, 2021. <https://www.cbo.gov/publication/57240>.

²⁸ 'Fiscal Year 2024 Defense Budget Request Briefing Book.' Center for Arms Control and Non-Proliferation. April 4, 2023. <https://armscontrolcenter.org/wp-content/uploads/2023/04/FY-2024-Defense-Budget-Request-Briefing-Book-Fact-Sheet-2.pdf>.

²⁹ Korda, 2021.

³⁰ Korda, 2021

³¹ Hartung, William D. 'Inside the ICBM Lobby.' *Arms Control Today* 51, no. 4 (2021): 6-11.

In the case of the proposed submarine-launched W93 warhead, the motivation behind Congress' support may be due to lobbying from the nuclear weapons industry.³² It is uncertain whether this warhead is necessary for defence purposes, not to mention the immense cost of development including the production of new plutonium pits and the potential requirement for explosive nuclear testing.³³ Industry stakeholders pitch projects requiring new or updated infrastructure, and advertise these upgrades as a means of generating new jobs while strengthening national security and force posture. Yet internationally, the business of creating nuclear weapons by increasing the number and types of systems stimulates competition in other nuclear armed countries, thereby aggravating the global arms race.

Meaningfully impacting the nuclear weapons budget has been difficult due to antiquated 'pork-barrel' politics.³⁴ Politicians are incentivised to approve additional funding to benefit their constituents, while researchers and think tanks engender bias in their research by being motivated to keep government capital flowing. When the Minuteman ICBM sites were first constructed in the Cold War, they were vital to the economic renewal of many midwestern US communities; now that the missiles are considered obsolete, it is proving difficult for politicians to cut budgets to the sites because the local economies have become reliant on the military. Financial contributions enable defence lobbyists to sway votes in Congress and shape US policy towards boosting defence capabilities to the benefit of the MIC. It creates a system in which nuclear weapons investment promotes policies which defence industry profit from at often excessive and incalculable costs while undermining necessary expenditures in other critical areas.

Ambiguity and Risks in the Defence Industry

In addition to the cost of nuclear weapons, the unique connection between the US government and the defence industry results in a monopolised contracting process. A third of US defence contracts are awarded to Lockheed Martin, Boeing, General Dynamics, Raytheon, and Northrop Grumman, while many senior military and government personnel enjoy rotating employment at the 'big five'.³⁵ Such contracts bind the government and industry in a codependent monopsony where the former dictates the rules for the industry and is its sole customer. The uncertain payoffs of defence investment are determined by vocal MIC beneficiaries instead of a majority of individual stakeholders.³⁶ Subsidies and the lack of market competition functionally carve out the defence industry from the World Trade Organization's jurisdiction. Despite governmental regulation of the defence industry and the supposed need for nuclear weapons, the industry is increasingly dependent on return on investment in global financial markets.³⁷ This trend challenges the necessity of defence capabilities in times of peace since the MIC is reliant on securing national security imperatives.³⁸ In particular, the COVID-19 pandemic and the war in Ukraine provided justification and more cash supply for defence investment. Controlling inflation is a historically harrowing task, especially as the public becomes detached from effective

³² Wyland, Scott. 'Los Alamos National Laboratory's Record \$4.6B Budget Will Still Mostly Fund Nuclear Weapons.' Stars and Stripes. January 4, 2023. <https://www.stripes.com/theaters/us/2023-01-04/los-alamos-national-laboratory-budget-8646189.html>.

³³ Scott, 'Los Alamos National Laboratory's Record \$4.6B Budget Will Still Mostly Fund Nuclear Weapons.'

³⁴ Weida, William J. 'The Economic Implications of Nuclear Weapons.' Brookings. June 30, 1998. <https://www.brookings.edu/the-economic-implications-of-nuclear-weapons/>.

³⁵ Hartung, William D. Profits of War: Corporate Beneficiaries of the Post-9/11 Pentagon Spending Surge. Watson Institute for International & Public Affairs, 2021, 21.

³⁶ Hartley 1, Keith. 'Conflict and Defence output: An economic perspective.' *Revue d'économie politique* 2 (2012): 171-195.

³⁷ Hartley, Keith, and Jean Belin, eds. 2019. *The Economics of the Global Defence Industry*. London: Routledge.

³⁸ See example of Raytheon's 1996 contract for B-2A bombers in Schwartz, Stephen I. *Atomic Audit: the Costs and Consequences of US Nuclear Weapons Since 1940*. Brookings Institution Press, 2011, 529.

determinants of the US defence budget without understanding why other critically needed sectors like education and transportation remain underfunded.³⁹

Policy Recommendations

- Civil society and policymakers alike should counter narratives surrounding nuclear weapons that are fuelled by the MIC by opposing the current pro-bomb discourse through stigmatisation and delegitimization campaigns.
- Education departments and school boards should emphasise the nuclear taboo and raise awareness by fostering international and national disarmament education initiatives and programmes, incorporating them in school curricula with the ultimate goal of offering new interpretative lenses to the public.
- National governments should increase transparency, accountability, and public trust by providing publicly accessible information on the possible involvement of defence contractors as stakeholders in various sectors, such as academia, think tanks, and public policy.
- National governments should conduct annual cross-department budget audits of nuclear weapons spending by using an inclusive definition of nuclear weapons spending (including R&D and nonproliferation and disarmament activities). The same should extend to annual budget calculations and disclosure.
- In addition to disclosing defence contracting objectives with applicable scenarios where proposed systems are deemed necessary, governments should provide 1-year grants for civil society and academia to analyse proposed military investments and present their publicly available findings to policymakers. Part of this should include alternative resource allocations.
- Civil society and public sector actors should implement a human resources policy to bar employment of former middle to senior-level military and government officials in think tanks and defence industry firms and vice versa for a period of four years/one election cycle since their last termination of employment.
- In multilateral fora, governments should support the UN Report on Military Expenditures and submit detailed, disaggregated data on military spending allocation. This acts as a confidence building measure to ease geopolitical tension and allows civil society to study budgetary alignment with national security policy and hold financial mismanagement accountable.

³⁹ 'Policy Basics: Where Do Our Federal Tax Dollars Go?' 2022. Center on Budget and Policy Priorities. July 28, 2022. <https://www.cbpp.org/research/federal-budget/where-do-our-federal-tax-dollars-go>.

Conclusion

With the severe lack of transparency overshadowing the MIC-decision-making confluence, the public is excluded from important governmental processes while pro-MIC narratives are advertised to justify inflated nuclear weapons budgets and defence policies. The current system provides a fertile environment for the normalisation of military overspending. The bureaucratic apparatus is composed of rotating policy influencers with vested interests in maintaining the MIC's profits and decision-making power, thereby creating the 'revolving door' effect and exacerbating security threats. Challenges to ameliorating issues with the MIC include the lack of information and education accessible to the public as well as the regenerative incentives for contractors and stakeholders to keep know-how 'in-house.' Increasing accountability in the defence industry would attract backlash since stakeholders hold diverging opinions based on how they benefit from the MIC.

Nuclear deterrence and public accountability are not mutually exclusive. Ensuring accountability of the government, military, defence industry, and research community in the United States and globally requires a coordinated effort by multilevel stakeholders including civil society and public sectors. This is a potential area of future research to curb the intertwining interests between governments and the defence industry, and it requires empowered international organisations, civil society and academia to actively monitor and push for transparency in defence procurement.



The Dual Threat of Nuclear Weapons and Climate Change: The Danger of Inaction

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Executive Summary

This paper explores the relationship between nuclear weapons, nuclear deterrence, and climate change, showcasing how the fragility in both the nuclear and climate domains can dramatically impact global security, stability, and development, whilst heightening existing or creating new vulnerabilities. It provides key recommendations for different stakeholders, targeting metrics for success alongside broader strategies to address vulnerabilities, including the promotion, universalisation, and adherence to the global non-proliferation and disarmament regime and its associated instruments and frameworks.

Introduction

There are many connections between nuclear weapons and climate change. The use of nuclear weapons would impact the climate, particularly considering the potential humanitarian and environmental consequences of a

'nuclear winter'. Nuclear winter is a theory that describes the climatic effects of a nuclear explosion where the smoke generated by a full-scale nuclear war would cause 'global drops in temperature, mass crop failure and widespread famine'.⁴⁰ Existing literature has already contributed to addressing this aspect of the interconnection, noting that this theory does not stand uncontested.⁴¹ While there is no real-life test to validate this theory, climate modelling and analogues lend the support that can help piece together some parts of the theory.⁴² The use and possession of nuclear weapons is not the only, or biggest, challenge to climate change and some of the impacts from possession may not even be immediate. This policy paper focuses on the relationship between nuclear weapons, nuclear deterrence, and climate change, which remains minimally covered in existing literature,⁴³ in three different aspects: (i) how nuclear deterrence impacts climate change; (ii) how climate change acts as a threat multiplier; and (iii) how nuclear energy, nuclear weapons, and climate change interact. The need to understand the fuller range of these aspects (while in some respects speculative but not altogether implausible) is the challenge that animates the EVN Nuclear Weapons Issues and Climate Change Working Group (hereafter 'the Working Group'). The Working Group has also identified recommendations addressed to four stakeholder groups: (1) the research community; (2) nuclear-armed states; (3) all states; and (4) other stakeholders.

For ease of reference, this paper identifies 'nuclear-weapon states' as the five permanent members of the United Nations Security Council (China, France, Russia, the United Kingdom, and the United States of America); and as 'nuclear-armed states,' the nuclear-weapon states plus India, Israel, North Korea, and Pakistan.

Analysis

1. How Nuclear Deterrence and Climate Change are Interconnected

Nuclear Weapons Possession and Climate Change

Nuclear testing or detonation can result in direct impacts on climate change. These impacts are caused by the release of greenhouse gas emissions, radionuclides to sediments in seabed, and other pollutants into the atmosphere, which can contaminate surface soil and groundwater or result in land disturbances such as craters or partially collapsed mountains. Furthermore, this subjects all forms of biodiversity to health and environmental damages.⁴⁴ Against this context, the mere possession of nuclear weapons has no immediate

⁴⁰ Paul Ingram, 'Opinion Poll Survey: Public awareness of 'nuclear winter' is too low given current risks', *Centre for the Study of Existential Risk*, 14 February 2023, <https://www.cser.ac.uk/news/opinion-poll-survey-public-awareness-nuclear-winte/>.

⁴¹ Matthew R. Francis, 'When Carl Sagan Warned the World About Nuclear Winter,' *Smithsonian Magazine*, 15 November 2017, <https://www.smithsonianmag.com/science-nature/when-carl-sagan-warned-world-about-nuclear-winter-180967198/>.

⁴² Alan Robock, 'Nuclear Winter', *WIREs Climate Change*, 1 (2010), pgs. 418 – 427, <https://doi.org/10.1002/wcc.45>.

⁴³ The existing literature primarily focuses on the relationship between nuclear weapons and climate change for example, Linda Pearson, 'Nuclear Weapons, the Climate and Our Environment,' Don't Bank on the Bomb Scotland, August 2020, <https://nukedivestmentscot.files.wordpress.com/2020/08/nwce-report-final-1.pdf>; and Jürgen Scheffran, 'Climate change, nuclear risks, and nuclear disarmament, from security threats to sustainable peace,' World Future Council, 17 May 2011, https://www.worldfuturecouncil.org/wp-content/uploads/2016/01/WFC_2009_Climate_Change_Nuclear_Risks_and_Nuclear_Disarmament.pdf.

⁴⁴ 'Nuclear testing legacy is 'cruellest' environmental injustice, warns rights expert,' *UN News*, 16 July 2020, <https://news.un.org/en/story/2020/07/1068481>; Alastair Walsh, 'How nuclear testing leaves lasting environmental scars', *DW*, 10 December 2022, <https://www.dw.com/en/nuclear-testing-north-korea-environment-biodiversity/a-63418634>

impact on climate change while nuclear testing maintains direct and indirect impacts on climate change. The 67 nuclear weapons tests that the United States conducted in the Marshall Islands between 1946 and 1958 remain a significant example of the effects of nuclear testing on the environment and health.⁴⁵ Following the testing, the United States army dumped 90,000 cubic metres of radioactive waste in a nuclear blast crater covered with a concrete dome in the late 1970s. With radioactive materials already leaking out of the crater and the concrete dome showing signs of cracks, the threat of rising sea levels in the Marshall Islands exacerbates the situation, risking further contamination of potable water in a country already facing water shortages.⁴⁶ The adoption of the CTBT, though not yet in force, has resulted in a largely well-observed moratorium against nuclear weapons testing since the 1990s. Nevertheless, the climate impacts of past nuclear testing showcase the toll nuclear weapons use has – and could have – on the global environment.

NC3 is a key aspect of a state's nuclear weapons control and deterrence. NC3 structures comprise a comprehensive network of sensors, communication channels, and command-and-control hardware and software through which nuclear-armed states can detect, transmit, and distribute early warnings of an imminent nuclear strike, subsequently enabling the state to initiate an appropriate response. There is an increasing recognition of the potential impact of climate change on the stability and resilience of these installations and their associated systems, evidenced by recent natural disasters. The 2019 flooding of a United States Air Force base in Nebraska has brought these concerns to the forefront, and resulted in the removal of a Boeing E4-B plane, meant to serve as an aerial command centre in the event of a national emergency or destruction of ground bases, including in a nuclear attack.⁴⁷ This incident has highlighted the need to explore the potential impacts of climate change on NC3 for current and planned nuclear installations.

Global nuclear arsenals number approximately 13,000 weapons, of which 9,400 are in active military stockpiles.⁴⁸ These arsenals have a running cost of over USD 80 billion annually,⁴⁹ funds that could be diverted to climate-related programmes to address climate change, mitigate poverty, and tackle other social and economic needs assuming the requisite political will is present. The existence of nuclear weapons also hinders the global movement toward achieving SDGs, which includes SDG 13 on Climate Action, and which would require additional resources and investments.⁵⁰ Additional investments are required for all SDGs; however, nuclear-weapon states direct some of these funds towards their respective nuclear weapon programmes instead. Arguably, even in the case that nuclear weapons are never used again, the existence of nuclear weapons bears a negative impact on the global progress of achieving the SDGs by diverting resources.⁵¹

⁴⁵ Linda Pearson, 'Nuclear Weapons, the Climate and Our Environment,' *Don't Bank on the Bomb Scotland*, August 2020, <https://nukedivestmentscot.files.wordpress.com/2020/08/nwce-report-final-1.pdf>

⁴⁶ Ibid.

⁴⁷ Timothy Gardner, 'Flooded U.S. Air Force base underscores climate risk to security: experts,' *Reuters*, 18 March 2019, <https://www.reuters.com/article/us-usa-weather-airforce-idUSKCN1QZ2IW>

⁴⁸ 'Which countries have nuclear weapons?', *ICAN*, accessed 9 April 2023, https://www.icanw.org/nuclear_arsenals

⁴⁹ '2021 Global Nuclear Weapons Spending Report,' *ICAN*, 14 June 2022, https://www.icanw.org/spending_report

⁵⁰ Erin Hunt, 'Sustaining destruction: nuclear weapons and the sustainable development goals,' *Impakter*, 20 December 2020, <https://impakter.com/sustaining-destruction-nuclear-weapons-sustainable-development-goals/>

⁵¹ Hunt, 'Sustaining destruction: nuclear weapons and the sustainable development goals', *Impakter*, 20 December 2020.

Nuclear Deterrence and Prospects for Global Cooperation

There remains the question of what impact deterrence postures have on prospects for global cooperation against climate change. The notion that a state's nuclear deterrence may positively impact cooperation is based on the premise that a nuclear-weapon state would offer extended deterrence through security guarantees to non-nuclear-weapon states by diminishing their need to pursue nuclear weapons themselves. In the context of climate change, when not viewed through a security lens, nuclear deterrence may potentially negatively impact prospects of cooperation. The primary premise behind such an assumption is that climate change, as a transboundary issue that affects all states to varying degrees, requires a concerted and collective effort. Cooperation is needed on matters including the development and implementation of harmonised standards to reduce global emissions, knowledge sharing on the scientific and technical requirements for effectively pursuing renewable energy alternatives, as well as policies for adapting to the consequences of climate change.⁵²

Nuclear deterrence is based on a doctrine that promises threats and retaliation using nuclear weapons. Therefore, mutual cooperation on climate change would arguably be difficult in such an environment. Tackling both global climate change and the existential threat of nuclear weapons requires international cooperation, confidence-building, and dialogue. Nuclear deterrence and climate change may interact negatively, with climate change creating conditions under which nuclear conflict could become more likely. However, dialogue could address both climate change and nuclear threats through weapons reductions and ultimately, global disarmament. In the same vein, and as will be set forth below, climate change has the potential to be a threat multiplier, leading to conditions that can undermine international security,⁵³ and therefore validate the need for nuclear deterrence by some states based on their own threat perceptions and calculations. To break this cycle, action toward nuclear non-proliferation and disarmament needs to be pursued to establish an environment in which the global community can cooperate to address the twin existential threats of nuclear weapons and climate change. 'In a win-win scenario, nuclear disarmament would improve the conditions for climate cooperation which, in turn, would support an international political climate that would make nuclear weapons increasingly obsolete'.⁵⁴

2. How Climate Change Acts as a Threat Multiplier

Climate Change Mitigation and Adaptation Efforts and Conflicts

Climate change is a transnational challenge, but its impacts are inequitable. This imbalance will require some states to adopt more aggressive climate adaptation or mitigation policies, sometimes at the cost of neighbouring states. In developing states, where the consequences of climate change may be more disastrous, the costs of mitigation and adaptation are more likely to be unmanageable. The fragility imposed on these states by the impacts of climate change has the potential to create both internal and external instability. Nowhere are the potential security risks of climate change adaptation and mitigation more marked than in North Korea. Climate change can be responsible for introducing additional stressors to North Korea thereby exacerbating its already

⁵² 'Climate-Nuclear Nexus', *World Future Council*, 27 November 2015 <https://www.worldfuturecouncil.org/climate-nuclear-nexus/>.

⁵³ Jürgen Scheffran, 'Climate change, nuclear risks, and nuclear disarmament, from security threats to sustainable peace', *World Future Council*, 17 May 2011, https://www.worldfuturecouncil.org/wp-content/uploads/2016/01/WFC_2009_Climate_Change_Nuclear_Risks_and_Nuclear_Disarmament.pdf.

⁵⁴ Scheffran, 'Climate change, nuclear risks, and nuclear disarmament, from security threats to sustainable peace', *World Future Council*, 17 May 2011.

precarious governance and resource base that could lead to further instability. As an insular nuclear-armed state that has exhibited disregard for norms around nuclear weapons development and testing, the North Korean regime is especially vulnerable to erratic behaviour because of climate-induced instability. Climate change is also expected to take a serious toll on the hermit kingdom. Flooding and droughts may leave the regime especially vulnerable, incentivising 'the production of strategic weapon systems to demonstrate relative strength'.⁵⁵ This impact is even more likely if the regime feels that its adversaries intend to take advantage of its weakness and instability. The relative vulnerability of the crucial Yongbyon Reactor is a key issue in the state's climate mitigation and adaptation efforts. North Korea's primary location for fissile material production sits on the Kuryong River, which has been prone to seasonal flooding and is at risk of potentially severe flooding. It has been suggested that damage to these sensitive facilities may influence the regime's risk calculation of weapons production and deployment, by incentivising its increase in weapons production or changing its weapons deployment plans and locations.⁵⁶

Climate Change and the Risk of Conflict Escalation

As set forth above, the impacts of global climate change will be felt around the world. Rising temperatures and sea levels, widespread famine and disease, and intensified competition for natural resources and energy will exacerbate existing geopolitical tensions and birth new ones. Whilst these impacts will disproportionately affect developing nations, there is great concern in regions where affected states are also nuclear-armed states. Here, the consequences of rivalry, miscalculation, and accident are the most severe given their potential to increase likelihood of a nuclear exchange. Access to resources, whether diminishing or widening, serves as a key driver of potential conflict.

A shortage of vital resources necessary for states' survival is one of the most challenging effects of climate change, which will undoubtedly exacerbate pre-existing international political tensions. The border region between India, Pakistan, and China is a key example that illustrates how climate change-fuelled resource scarcity could stimulate nuclear weapons use. The tensions between these states could be aggravated in different ways. India may seek full control of Kashmir in order to dam the tributaries there and divert their waters from Pakistan, cutting access off from the Indus River, one of Pakistan's most crucial freshwater sources⁵⁷ while China's plans to build several dams to divert the Brahmaputra for exclusive national use may come to fruition. The effects of climate change could strain the relationship between China and Pakistan as increased water flow from melting glaciers in Pakistan-controlled Kashmir could tempt China to erect dams on this territory to alleviate water shortages.⁵⁸ As a result of these dynamics, any resource-related disputes could be a potential flash point for escalation leading to the threat of nuclear use to deter annexation and perceived overuse of critical resources. Additionally, these states could use their nuclear arsenals to compel other states to allow them access to their resources. Any of these threats could – particularly if accompanied with miscalculation and misinterpretation of signals – have the potential to further the risk of nuclear weapons use.

⁵⁵ Catherine Dill et al., 'Converging Crises in North Korea: Security, Stability & Climate Change,' *Council on Strategic Risks*, July 2021, https://climateandsecurity.org/wp-content/uploads/2021/07/Converging-Crises-in-North-Korea_Security-Stability-and-Climate-Change_CSR_Woodwell.pdf.

⁵⁶ Dill et al., 'Converging Crises in North Korea: Security, Stability & Climate Change', 2021

⁵⁷ Samaan Lateef, 'Why is India clashing with Pakistan on landmark water deal?', *DW*, 13 February 2023, <https://www.dw.com/en/why-is-india-clashing-with-pakistan-on-landmark-water-deal/a-64684832>.

⁵⁸ Erin Sikorsky, 'China's Climate Security Vulnerabilities,' *Council on Strategic Risks*, November 2022, <https://councilonstrategicrisks.org/wp-content/uploads/2022/11/China-Climate-Security-Vulnerabilities-2022.pdf>.

In other areas, the impacts of climate change may make natural resources more accessible, therefore sparking competition to their claim. The risk is particularly pronounced in the Arctic, the region on earth most vulnerable to the effects of climate change. A recent study found that the region is warming nearly four times faster than the global average, and estimates predict that it may be entirely ice-free during the seasonal sea ice minimum for the first time before 2050.⁵⁹ Reduced sea ice provides new opportunities to exploit the vast natural resources and commercial space of the Arctic. Already, the United States, Russia, and China have operationalised new Arctic doctrines, putting the three at risk of renewed fresh competition in the fragile region. The sovereign rights over natural resources of the water column, seabed and its subsoil are limited to States' Exclusive Economic Zones as provided for by the UNCLOS.⁶⁰ The Arctic could become a fresh theatre of conflict if it is 'reduced to geostrategic space' where cooperation is overshadowed by competition between relevant states.⁶¹ The majority of Russia's submarine forces are also stationed in the Barents Sea, prompting balancing from the United States.⁶² The presence of potentially valuable resources in the extended continental shelf has also raised the prospects for countries like China to raise the issue of the rights to exploit these resources in line with UNCLOS as a means of furthering its interests. Russia has also applied to extend its continental shelf.⁶³ However, the United States is a non-party (though a signatory) to UNCLOS.⁶⁴ As such, increased access due to sea ice melt has the potential to fuel ungoverned disputes between the world's three largest nuclear powers.

3. How Nuclear Energy, Nuclear Weapons, and Climate Change Interact

Proliferation Risk of Nuclear Technology

The attempts to divert from fossil fuels for energy production and the growing interest in nuclear energy have sparked fears surrounding the potential for states to turn civilian nuclear technology towards establishing nuclear weapons programmes. Combating climate change could be a useful facade for states wishing to pursue nuclear weapons programmes. In the 'race to net zero', greater demand for nuclear energy could cause strain on the ability of bodies like the IAEA to monitor the peaceful use of nuclear materials.⁶⁵ Monitoring nuclear materials which have the potential to be enriched or processed to weapons-grade uranium or plutonium could thus be made more challenging without sufficient resources to ensure the safety and security of these materials.

In light of the growing consideration of the role of nuclear energy in addressing future global energy needs, there is an increase in research and development on new reactor technologies purported to be safer, more secure,

⁵⁹ Mika Rantanen et al. 'The Arctic Has Warmed Nearly Four Times Faster than the Globe since 1979,' *Communications Earth & Environment* 3, no. 1, (2022), <https://doi.org/10.1038/s43247-022-00498-3>; 'Climate Change 2021: The Physical Science Basis (Chapter 9: Ocean, Cryosphere, and Sea Level Change),' *Intergovernmental Panel on Climate Change*, 2021, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter_09.pdf#page=20.

⁶⁰ UN General Assembly, 'Convention on the Law of the Sea', adopted on 10 December 1982, *Refworld*, 22 June 2023, <https://www.refworld.org/docid/3dd8fd1b4.html>.

⁶¹ Gry Thomasen, 'Managing Resources and Sea Routes in the Arctic' *BASIC*, November 2022 <https://basicint.org/wp-content/uploads/2022/11/Managing-Resources-and-Sea-Routes-in-the-Arctic-Looking-to-the-Future.pdf>

⁶² Michael T Klare, 'How Rising Temperatures Increase the Likelihood of Nuclear War,' *The Nation*, 13 January 2020, <https://www.thenation.com/article/archive/nuclear-defense-climate-change/>.

⁶³ 'Submissions, through the Secretary-General of the United Nations, to the Commission on the Limits of the Continental Shelf, Pursuant to Article 76, Paragraph 8, of the United Nations Convention on the Law of the Sea of 10 December 1982.' United Nations, May 12, 2023. https://www.un.org/depts/los/clcs_new/commission_submissions.ht.

⁶⁴ Thomasen, 'Managing Resources and Sea Routes in the Arctic', 2022

⁶⁵ Trevor Findlay, *Unleashing the Nuclear Watchdog: Strengthening and Reform of the IAEA*, *CIGI*, 2012, https://www.cigionline.org/sites/default/files/iaea_final_0.pdf, 80

and to enable production of cleaner energy to help meet climate change commitments and targets.⁶⁶ There is a growing interest particularly in SMRs, which offer the opportunity of rapid deployment at decreased costs, and for which the IAEA estimates there are over 80 designs and concepts at various stages of development.⁶⁷ These new types of reactors, however, also pose the risk of weapons proliferation. From a technical perspective, there is no nuclear fuel cycle that can be made proliferation-resistant, as proliferation risks exist in both the front and back end of the fuel cycle.⁶⁸

Advanced nuclear technologies offer opportunities that can be leveraged to combat climate change. With the advent of these new technologies, there are challenges associated with performing nuclear verification at SMRs, including the use of new nuclear fuels, and spent fuel management considerations.⁶⁹ As such, the safeguards regime has begun to attempt to keep pace with the development of technology and to evolve accordingly. Part of this evolution is the concept of 'safeguards by design', which facilitates the implementation of safeguards in all aspects of the nuclear fuel cycle including when designing a nuclear facility or process, by providing guidance to various stakeholders such as State authorities, designers, equipment providers and potential purchasers.⁷⁰ In addition, technology developers also need to integrate 'security by design', which incorporates security into all phases of facility design, construction, operations, and decommissioning.⁷¹ This will serve to strengthen the nuclear security frameworks required to ensure the security of nuclear materials, facilities, and activities necessary to prevent malicious acts by non-state actors, including the possibility of nuclear terrorism. In relation to proliferation concerns, the safeguards regime plays an important part in addressing these concerns.

Climate Change and Nuclear Latency Concerns

Climate change is a key driver for states to pursue nuclear energy as a low-carbon energy source to meet their net-zero emissions pledges. Nuclear energy cooperation among states can also help to improve cooperation and dialogue, reducing the likelihood of conflict. However, as previously discussed, such actions may also raise new suspicions among other states about the motivations for acquiring nuclear technologies. The NPT, in this instance, plays a role in promoting and ensuring transparency and confidence in the peaceful intentions of nuclear energy programmes, including where those programmes are pursued to address climate change. The programmes themselves hold the potential to alter threat perceptions or escalate tensions, including those relating to nuclear latency concerns.

⁶⁶ 'Generation IV International Forum Annual Report 2021', *Generation IV International Forum*, 2021, https://www.gen-4.org/gif/jcms/c_203335/gif-2021-ar.

⁶⁷ Andrew Cartas and Jeffrey Donovan, 'IAEA Platform on SMRs and their Applications: GC Event Examines Progress and Outlook', *IAEA*, 27 September 2022, <https://www.iaea.org/newscenter/news/iaea-platform-on-smrs-and-their-applications-gc-event-examines-progress-and-outlook>;
Carmen Cabañas, 'Safeguarding the Nuclear Future: Small Modular Reactors', *IAEA*, 23 September 2021, <https://www.iaea.org/newscenter/news/safeguarding-the-nuclear-future-small-modular-reactors>.

⁶⁸ Burton Richter, 'Reducing Proliferation Risk'. *Issues in Science and Technology*, Vol XXV, No. 1, (2008), <https://issues.org/richter-2/>.

⁶⁹ Carmen Cabañas, 'Safeguarding the Nuclear Future: Small Modular Reactors', *IAEA*, 23 September 2021, <https://www.iaea.org/newscenter/news/safeguarding-the-nuclear-future-small-modular-reactors>.

⁷⁰ 'Safeguards by Design', *IAEA*, <https://www.iaea.org/topics/assistance-for-states/safeguards-by-design>.

⁷¹ Raphael Duguay, 'Small Modular Reactors and Advanced Reactor Security: Regulatory Perspectives on Integrating Physical and Cyber Security by Design to Protect Against Malicious Acts and Evolving Threats', *International Journal of Nuclear Security*: Vol. 7: No. 1, Article 2 (2022). <https://doi.org/10.7290/ijns070102>.

Nuclear latency entails possessing many or all the technologies, facilities, materials, expertise (including tacit knowledge), resources, and other capabilities necessary for developing nuclear weapons without full operational weaponisation.⁷² Latency concerns arise in the specific context of potential and capacity to divert efforts and resources into nuclear weapons programmes. Such diversion could arise for a variety of reasons, including: (i) because of the lack of clear demarcation between civilian and military nuclear programmes which would allow for the intentional diversion (specifically in the case of nuclear-armed states outside of the P5 states); and (ii) where climate change acting as a destabilising factor affects the security environment facing nuclear-capable states and results in cooperative regimes becoming potentially uncooperative. In the latter's case, the effects of climate change could exacerbate the economic, social, and political stresses that can influence nuclear latency concerns. Examples of such stresses include water scarcity, food insecurity, extreme weather events, and the displacement of people. Such factors can increase political instability, increasing the likelihood of countries pursuing nuclear weapons for deterrence or defence.

Iran is an often-cited example of a state using nuclear power as a cover for investment in a clandestine nuclear weapons programme. However, the 2015 Joint Comprehensive Plan of Action among the P5 states and Germany is a demonstrated example of collaborative effort involving robust international inspections that could help to dissuade states from crossing that line.⁷³ A shift toward a more significant global emphasis on nuclear energy (in light of climate change concerns) requires a proportionate increase in support for the international normative regimes concerning non-proliferation as well as strong commitment to verification and oversight even where the risks of diversion or compromise seem remote today. Concerning nuclear energy programmes, the choice of reactor technologies, primary suppliers and partners, the commitment to international regimes and other such factors will be critical to shaping perceptions on whether countries are motivated by solely peaceful purposes or seek to alter power balances and go some way towards alleviating these latency concerns.⁷⁴

Policy Recommendations

The Working Group:

- Encourages the research community to conduct further research on:
 - Potential impacts of climate change on NC3 for current and planned nuclear installations in nuclear-armed states.
 - The interplay between nuclear weapons, deterrence, and climate change.
 - Proliferation assessments considering climate change as a threat multiplier.
 - A more systematic approach to assessing climate change impacts using modelling and actual case studies in nuclear-armed states.
- Encourages nuclear-armed states to:
 - Further climate change goals by increasing cooperation and addressing the diversion of resources.

⁷² Joseph Pilat, 'Introduction,' in *Nuclear Latency and Hedging: Concepts, History, and Issues*, ed. Joseph Pilat (Washington DC: Wilson Center, 2019).

⁷³ Christine Parthemore and Dr. Janne Nolan, 'Working Group on Climate, Nuclear, and Security Affairs Report One: A Framework for Understanding and Managing the Intersection of Climate Change, Nuclear Affairs, and Security,' *The Center for Climate & Security*, November 2017.

⁷⁴ Ibid.

- Minimise risk of nuclear weapon use or proliferation, in light of climate change concerns and to progress toward their disarmament commitments.
 - Avoid the threat of nuclear weapon use to acquire necessary concessions relating to resource access rights that have become crucial because of climate change.
 - Support and advance global initiatives to increase climate resiliency in nuclear-armed states with lesser capacity, especially ones like North Korea, where climate-fuelled instability poses a greater risk of escalation.
- Encourages all states to:
 - Pursue and enact mitigation and adaptation policies while ensuring such efforts do not escalate any risk of conflicts or 'activate' an already-ambiguous nuclear weapons posture.
 - Champion doctrines that enshrine collective security in the face of a shared problem as opposed to narrow national security interests.
 - Ratify the CTBT as part of efforts to control horizontal and vertical proliferation of nuclear weapons to mitigate climate change.
 - Subscribe to all relevant non-proliferation legal instruments with a particular emphasis on the NPT and the IAEA safeguards regime.
 - Encourages a multi-stakeholder approach in dealing with advanced and new emerging technologies that address climate change and are proliferation resistant.
 - IAEA to facilitate the adaptation and evolution of its safeguards regime.
 - States, technology developers, industry players to invest further in proliferation-resistant technologies.
 - Technology developers to implement security and safeguards by design, and IAEA to facilitate this implementation.

Conclusion

There is a clear and demonstrable link between nuclear weapons and climate change, but the existing research and literature is largely focused on nuclear weapons use and testing. More attention is required on issues related to nuclear weapons possession, nuclear deterrence, and potential nuclear proliferation, including nuclear latency concerns as they relate to climate change. The relationship between nuclear deterrence and climate change shows how the fragility in both these domains has the potential to dramatically impact global security, stability, and development, whilst heightening existing vulnerabilities or creating new ones altogether. Nuclear deterrence posture and the associated possession, testing, and threat of use of nuclear weapons can result in grave physical effects to the climate, while also diverting resources that could be allocated toward addressing climate change and reducing the prospects for global cooperation and collective action. Conversely, the impacts of climate change can also increase the risk of nuclear weapons use or acquisition, acting as a threat multiplier that can increase geopolitical tensions or influence risk calculations.

The growing recognition of the contribution that nuclear energy can have in addressing climate change further highlights the importance of the relationship between nuclear weapons and climate change. Advances in nuclear technologies, combined with their incentives of reduced costs and timelines for deployment, need to be coupled with complementary advances in the regulatory structures and frameworks that govern these technologies to mitigate any potential risks of nuclear proliferation, while addressing nuclear security concerns

as well. The promotion, universalisation, and adherence to the global non-proliferation and disarmament regime and its associated instruments and frameworks need to be a priority for all states to ensure that the risks posed by nuclear weapons and climate change remain in check. Recent years have witnessed a dramatic increase in the scope and extent of advocacy for climate change at both the governmental and grassroots levels, providing invaluable lessons for nuclear campaigners in effective mass action. Nuclear disarmament activism, while less pervasive, has been around for decades and is steadily increasing in influence. Despite the interdependencies across these two realms, they operate in silos without any significant cross-fertilisation of activities and resources. A concerted effort toward bridging climate change and disarmament advocacy efforts can serve to strengthen their connection in the pursuit of minimising their mutually catastrophic effects.



Beyond the Echo Chamber: Creating a More Equitable, Diverse and Inclusive Nuclear Weapons Policy Field

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Executive Summary

The nuclear weapons policy field has been defined by the effect of nuclear weapons production, use, and testing on indigenous communities of colour, demonstrating the exclusionary and inequitable nature of the field. This imbalance in power separating the communities whose bodies, land, and future have been irreversibly marked by the nuclear weapons complex from nuclear decision-makers has resulted in the historically homogenous practitioners and exclusionary treatment of certain demographics, including women, indigenous communities, and the LGBTQ+ population. Furthermore, research into the inequity of the nuclear weapons policy field and critiques of the nuclear status quo have been disproportionately focused on North American and Western European socio-economic contexts, and siloed analyses focused on singular characteristics like gender and geography. The imbalance in power mentioned, can be attributed to several factors that have contributed to the exclusion and marginalisation of certain communities in the nuclear

weapons complex and decision-making processes, for instance, lack of gender diversity, representation of indigenous communities, geographical bias, and the exclusion of the LGBTQ+ community. To effectively address this imbalance of power, policies that aim to combat homogeneity, unfair treatment, and exclusionary practices require sustainable and targeted efforts to make the field more equitable, diverse, and inclusive. These initiatives will not only improve the workforce composition and outcomes of organisations that implement them, but also ensure that the decisions made by those in power are considerate of all the stakeholders impacted by the nuclear weapons field.

Introduction

Increasing EDI in the nuclear weapons space is a smart policy to improve outcomes, increase stakeholder engagement, effectively reduce the harm inflicted on people by nuclear weapons, and to facilitate disarmament. It is beneficial because it offers comprehensive perspectives, addresses systemic inequities, increases stakeholder engagement, facilitates a holistic approach to harm reduction and enhances legitimacy and trust. Participation and influence in nuclear weapons policy making and diplomacy were historically restricted to white men in North America and Europe, reflecting legacies of colonialism and imperialism that translate into the inequitable dynamics of the nuclear weapons field today.⁷⁵ The exclusion of women, people of colour, LGBTQ+ people, and other communities has produced a nuclear weapons policy that is poorly informed, innovation-resistant, and ill-suited for reducing nuclear risk and harm and for advancing disarmament. This, even before considering the ethical implications of excluding diverse voices in nuclear weapons policy making, especially those most affected by nuclear weapons development, testing, and use. Exclusion prevents decision-makers from tapping into the scientifically demonstrated benefits that diversity offers for improving policy outcomes. In short, exclusion is not only problematic, but also damaging to organisations and institutions that fail to address it.

A successful approach to nuclear risk reduction, arms control, disarmament, and non-proliferation recognises that eliminating systemic exclusion and structural inequities in the nuclear weapons space will also change how security is conceptualised and which characteristics of experts and leaders are seen as desirable. As UN High Representative for Disarmament Affairs Izumi Nakamitsu said at the 10th Review Conference on the NPT, EDI is not a question of equity alone, but also of redrawing the traditional nuclear security and disarmament discourse.

This paper identifies the enduring structural inequities in the nuclear weapons space. Along with examples of indigenous peoples, LGBTQ+ people, women, and non-Western voices. It illustrates how they have been systematically excluded from nuclear weapons policy making and diplomacy, the harm this has caused, and how nuclear weapons diminish rather than ensure human security. The paper argues that the lack of EDI among nuclear weapons policy makers has perpetuated thinking that fuels nuclear arms races, discourages critical reflection and change, and disincentivises disarmament. Finally, it demonstrates that EDI is a useful tool for improving nuclear weapons policymaking processes and their outcomes.

⁷⁵ Sylvia Mishra and Wardah Amir *Racial Inequalities and Nuclear Policy*, (Muscatine: Stanley Center, 2022): <https://stanleycenter.org/wp-content/uploads/2022/02/CRNW-SPC21-AB-2-1-22.pdf>

Defining Equity, Diversity, and Inclusion

While considerable work on equity, diversity, and inclusion has been undertaken, most studies examine corporate environments and are centred on North American and Western European understandings of these values. To understand what these characteristics mean in the nuclear weapons policy making field and community of practitioners, it is essential to establish a common baseline for these values and their implications.

Equity speaks to 'fair treatment for all people so that the norms, practises, and policies in place ensure identity is not predictive of opportunities or workplace outcomes.'⁷⁶ This takes into account the unique circumstances faced by an individual in their endeavour to enter the nuclear weapons policy field, their lived experience working in the community of practitioners, and ensuring that their treatment is tailored to their needs, instead of a 'one-size-fits-all' approach.⁷⁷

Diversity refers to 'who is represented in the [nuclear] workforce,' including characteristics like gender, race, age, physical ability, or socioeconomic status.⁷⁸

Inclusion examines 'how the [nuclear weapons policy community of practitioners] experiences the workplace and the degree to which [nuclear] organisations embrace all employees and enable them to make meaningful contributions'.⁷⁹ 'Inclusion in this context means examining if all employees feel that their voices are heard, contributions valued, and concerns taken seriously'.⁸⁰

The Nuclear Orthodoxy

This section contextualises exclusion and homogeneity in the nuclear field. The fallacies of the 'nuclear orthodoxy' — a canon of theories like deterrence, crisis stability, and mutually assured destruction — have long been demonstrated.⁸¹ These include fundamental knowledge gaps regarding the human decision-making processes deterrence is based on, and its neglect of the severe risks of accidental or unintended nuclear use.⁸² Yet nuclear orthodoxy remains at the heart of nuclear weapons decision-making. It has been perpetuated by the homogenous policy communities shaping nuclear posture, arsenal development, and deterrence strategy. Senior members in the nuclear field attest to the centrality of personal connections for professional success in the nuclear weapons space.⁸³ Given the confirmation bias of its members, by which people are more attentive to others similar to them, the 'priesthood' of US defence and military officials working on nuclear posture and deterrence policy has traditionally underrepresented young people, women, people of colour, and simply those

⁷⁶ McKinsey & Company, 'What is diversity, equity, and inclusion?' in *Featured Insights* (August 17, 2022): <https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-diversity-equity-and-inclusion#/>

⁷⁷ Sneha Nair, 'Converging Goals: Examining the Intersection Between Diversity, Equity, and Inclusion and Nuclear Security Implementation,' in *Nuclear Threat Initiative's 16th Global Dialogue on Nuclear Security Priorities* (April 2023)

⁷⁸ McKinsey & Company, 'What is diversity, equity, and inclusion?'; Nair, 'Converging Goals'

⁷⁹ McKinsey & Company, 'What is diversity, equity, and inclusion?'; Nair, 'Converging Goals'

⁸⁰ Nair, 'Converging Goals'

⁸¹ Heather Hurlburt et al., 'The 'Consensual Straitjacket': Four Decades of Women in Nuclear Security', *New America*, March 5, 2019, <https://www.newamerica.org/political-reform/reports/the-consensual-straitjacket-four-decades-of-women-in-nuclear-security/>.

⁸² Ward Wilson, 'Reconsidering nuclear deterrence', *European Leadership Network*, March 1, 2022, <https://www.europeanleadershipnetwork.org/commentary/reconsidering-nuclear-deterrence/>.

⁸³ Hurlburt et al., 'The 'Consensual Straitjacket''

with outside experience, as they are less likely to be identified as desirable talent. The 'priesthood', is 'closed-off and highly hierarchical, tending to value long experience and insider knowledge over innovation'.⁸⁴

Findings from psychology and behavioural science show that homogeneous teams are more prone to misunderstanding the task at hand and making errors.⁸⁵ They are less likely to re-examine their working methods and baseline assumptions, increasing the risk of systematic fallacies. This is because they penalise new or divergent views with exclusion from the group, promote groupthink, and stifle innovation.

Altogether, the lack of EDI in nuclear weapons policy making reduces innovation and problem-solving potential; it excludes and diminishes the qualities and expertise offered by traditionally underrepresented actors and wastes valuable human capital that is crucial for sound decision-making. In this context, leaders must understand EDI as an important, legitimate policy tool for creating effective solutions to contemporary security challenges, and not simply a 'nice-to-have' human resources policy.

Analysis

1. Structural Inequity and Exclusion in the Nuclear Weapons Space

Indigenous Communities

Since the earliest days of the Manhattan Project, nuclear weapons development, production, and testing have always displayed patterns of inequality. As 70% of the world's uranium deposits are found on native lands, their extraction and exploitation in the name of 'national defence' points to the inherent 'radioactive colonialism' that stands in stark contrast to the protection of human rights and the environment.⁸⁶ From the Navajo Nation in the United States to the tribal plains of Jaduguda in India, the lives of indigenous communities worldwide have been severely impacted by the nuclear weapons industry, including uranium mining, milling, enrichment, and nuclear waste storage and disposal. In Australia, for example, indigenous communities in the Northern Territory have been hurt by uranium mining operations since the 1950s, leading to significant environmental degradation and health conditions.⁸⁷ The ardent neglect and abandonment of these communities are reflected in the inequitable distribution of pollution. They are a result of biased policies that side-line the experiences of indigenous communities to fulfil the priorities of those in power.

The asymmetrical power distribution, misrepresentation of the legacy of radioactive contamination, and narrative constructed by decision-makers in the field have facilitated this exploitation of indigenous peoples in the name of 'national security', even though these most vulnerable groups require the state's protection.⁸⁸ The root cause of these injustices is the absence and exclusion of indigenous people from national policymaking and international diplomacy around nuclear weapons. Even during the NPT negotiations in the 1960s, indigenous peoples were not consulted or represented, despite the significant impact that nuclear weapons

⁸⁴ Hurlburt et al., 'The 'Consensual Straitjacket''

⁸⁵ David Rock and Heidi Grant, 'Why Diverse Teams Are Smarter', Harvard Business Review, November 4, 2016, <https://hbr.org/2020/11/getting-serious-about-diversity-enough-already-with-the-business-case>.

⁸⁶ Geordan Graetz, 'Energy for Whom? Uranium Mining, Indigenous People, and Navigating Risk and Rights in Australia.' *Energy Research & Social Science* 8 (2015): 113–26. <https://doi.org/10.1016/j.erss.2015.05.006>.

⁸⁷ Valerie Taliman, 'Healing Global Wounds.' *Race, Poverty & the Environment* 3, no. 3 (1992): 18–19. <http://www.jstor.org/stable/41554085>.

⁸⁸ Mishra and Amir *Racial Inequalities and Nuclear Policy*.

testing and production had on their communities. This shows that the lack of representation of marginalised groups and their participation in the nuclear decision-making process has a considerable effect on their continued marginalisation through nuclear weapons policies.

LGBTQ+ People

There is very little LGBTQ+ participation in nuclear weapons policy making and diplomacy. Historically, LGBTQ+ people have been extremely present in the anti-militarism movement,⁸⁹ and have been leading efforts toward nuclear disarmament. Notably, the Greenham Common Women's Peace Camp, a group that was established to protest the British government's storage of US nuclear missiles in the United Kingdom, was led by lesbian activists.⁹⁰ The LGBTQ+ community is still deeply involved in disarmament activism. Examples of this include LGBTQ+ leadership on nuclear weapons research, as exemplified by Ray Acheson, Director of Reaching Critical Will, as well as disarmament activism, e.g., by International Queers Against Nukes, who are LGBTQ+ activists with International Campaign to Abolish Nuclear Weapons (ICAN). However, there are still some disparities that exist when it comes to the representation of LGBTQ+ people in the nuclear weapons policy sphere. The disparities can be explained by several barriers, including but not limited to: LGBTQ+ people's refusal to participate in nuclear weapons policy making due to anti-militarist convictions or a refusal to work in spaces affected by heteronormativity and sexism; fear of coming out when working in national security; and governments and civil society organisations' incapacity to attract LGBTQ+ people.⁹¹

Regarding the first two reasons, they relate to individual choices and systemic and structural changes. However, governments and NGOs need to put more effort into attracting LGBTQ+ people, creating a safe space for minorities working in the nuclear weapons policy field, and ensuring that perceived security risks or incompatibilities between the LGBTQ+ community and the traditional notions of masculinity associated with security work and nuclear weapons do not result in discriminatory exclusion from certain jobs. It is due to these biases and assumptions about risk and behaviours associated with the LGBTQ+ community, exacerbated by decision-makers in the nuclear weapons policy community, that LGBTQ+ people working in the nuclear weapons space are consciously less visible, more conformist, and adopt behaviours contrary to those informed by their identities and life experiences to avoid stereotypes and associated exclusion from certain roles and opportunities.

Empowering LGBTQ+ members of the nuclear weapons policy community also improves policy outcomes for organisations and the wider field as a whole. LGBTQ+ people, through their lived experiences, can better communicate with broader audiences, know how to listen to different opinions, and know how to defend their opinions more diplomatically.⁹²

⁸⁹ Ray Acheson, *Banning the Bomb, Smashing the Patriarchy* (2021)

⁹⁰ Lily Wakefield, 'Meet the activists who founded an anti-nuclear lesbian utopia in the throes of the Cold War' *PinkNews*. (October 19, 2021) <https://www.thepinknews.com/2021/10/19/greenham-common-peace-camp-lesbian/>

⁹¹ Carol Cohn, *Sex and Death in the Rational World of Defence Intellectuals*, (1987)

⁹² Vienna Center for Disarmament and Non-Proliferation, *LGBT+ Identity in the Nuclear Weapons Space*, (Vienna: VCDNP, 2022); <https://vcdnp.org/lgbt-identity-in-nuclear-weapons-space/>

Women

Gender parity is far from being achieved in the nuclear weapons field. In most panels on nuclear weapons, outside of those focused on feminist perspectives, men will outnumber women.⁹³ This is, however, a structural issue rather than one that can be fixed with short-term policies. Indeed, despite inviting as many women as men to conferences, the gender balance will still favour men, for many reasons, to name a few: women often have childcare responsibilities and cannot travel as easily or attend Zoom conferences after working hours, and the few women in the field are so often invited that they have to decline many invitations. For example, during the NPT review conference in August 2022, less than 1 in 5 (18%) heads of delegations to the NPT Review Conference were women, compared to 22% at the 2015 Review Conference.⁹⁴ Simply speaking, the pool of women experts to invite is smaller, thus making their participation rarer – demonstrating that the issue of gender parity requires more structural changes than simply adding women to the mix, if sustainable and expanding participation of women is truly the goal.

While many describe working in this community as 'draining' or 'restricting,' they feel pressure to prove their credentials. For women, working in such environments can be extremely challenging. Without a critical mass of diverse colleagues, explicit and implicit expectations of how women or people of colour should act can become difficult to navigate and cause significant stress. Senior US women in the nuclear weapons space describe having to perform the 'constant mental and emotional calculus that comes with implicit sexism [...] and gendered expectations', and stated that 'adopting stereotypically masculine traits [firm demeanour and assertiveness] was crucial to success.'⁹⁵ This trend is further exacerbated when considered in the context of gendered language in nuclear weapons treaties that construct women as 'others.'⁹⁶

Women spend significant time and energy walking this tightrope and experience imposter syndrome and self-censorship as a result. Attempts to drown out gendered expectations and discrimination by working extreme hours and being over-competent lead many to feel dissatisfied and burned out, and eventually to leave the field. This ensures the continuation of the reality and idea of nuclear weapons policy as a white, male space, illustrated by gender-coded language describing experts as 'greybeards' or 'silverbacks'.⁹⁷

Non-Western Voices

Understanding the barriers to participation, retention, and advancement of historically excluded communities in the nuclear field is crucial in pursuing the successful implementation of EDI.⁹⁸ As the field slowly diversifies to include groups that were previously marginalised, there is a risk of experiencing a sense of social exclusion and isolation, as well as tokenism for examples if they are the only black person in the organisation or a specific

⁹³ Alexandra Bell and Kelsey Davenport, 'Behold, The Marticle (A Primer on How to Avoid Quoting Only Men as Sources),' *Poynter* (April 30, 2018): <https://www.poynter.org/newsletters/2018/behold-the-marticle-a-primer-on-how-to-avoid-only-quoting-men-as-sources/>

⁹⁴ UNODA, *Stepping it up for diversity, equity and inclusion at the NPT RevCon* (2022): <https://www.un.org/disarmament/update/stepping-it-up-for-diversity-equity-and-inclusion-at-the-npt-review-conference/>

⁹⁵ Hurlburt et al., 'The 'Consensual Straitjacket''

⁹⁶ Laura Rose Brown, Laura Considine, 'Examining 'gender-sensitive' approaches to nuclear weapons policy: a study of the Non-Proliferation Treaty,' *International Affairs*, Volume 98, Issue 4, (July 2022), Pages 1249–1266, <https://doi.org/10.1093/ia/iia114>

⁹⁷ Hurlburt et al., 'The 'Consensual Straitjacket''

⁹⁸ Laura Grindstaff, 'Barriers to Inclusion: Social Roots and Current Concerns' in *Uprooting Bias in the Academy* (eds) Bisson, L.F., Grindstaff, L., Brazil-Cruz, L., Barbu, S.J., (Springer, Cham: 2022): https://doi.org/10.1007/978-3-030-85668-7_2

department within the organisation – thus placing minority workers in a position where they are asked to act as a representative of their entire community or the entire community of minority employees to their organisation.

Nuclear arms control is a small and narrow field. It offers limited career options that are usually highly competitive but mostly in a non-career format where positions are temporary with varying benefits. On the one hand, this uncertainty could make the field less appealing to the communities in the Global South who would expect stability and societal improvement from such a demanding field. As a result, the field's ability to attract talents and retain expertise is in crisis, and the prospects of achieving inclusion and diversity are also in crisis. On the other hand, governments find excuses in limited resources to justify lacking progress on EDI.

It is hard for the Global South's candidates to participate in international forums beyond governmental positions. Candidates from the Global North are usually more likely to assume the positions offered by international organisations. This creates an even wider gap between the haves (candidates from the Global North) and the have-nots (candidates from the Global South). This bias toward Global North candidates is encouraged by centralising nuclear policy organisations and programmes geographically in the Global North and overlooking the challenges imposed by visa and work permit requirements for candidates from the Global South. Based on the previous examples, it can be argued that the structural and systematic biases that have been lodged over a period of time still affect EDI in that the scales of opportunity on the international level are always tipped in favour of candidates in the Global North. There might be a legitimate need for EDI policy among various nuclear and disarmament organisations, but if the root constraints to the lack of EDI are not first dealt with, EDI will remain a flight of fancy.

2. EDI as a Tool for Improving Outcomes

Diversity is a complex phenomenon that requires structural change and skilled management to have a positive effect. Thus, for one to better understand the psychology behind it there should be developed accurate, evidence-based, persuasive arguments for diversity, and maximise its benefits for decision-making on nuclear weapons. Diverse teams are less likely to make mistakes because they frequently re-examine assumptions and evidence.⁹⁹ Where errors happen, they are more likely to be addressed in the discussion. Diversity increases team members' accountability. Diverse teams also make more accurate decisions.¹⁰⁰ Diversifying the workforce promotes innovation, performance, talent, and diversity of views, thus improving a nuclear organisation's outcomes and increasing profitability.¹⁰¹ By encouraging critical thinking and discussion, diversity helps teams avoid mistakes.

Resistance to EDI in the nuclear field has often been justified by high-level decision-makers as a risk to the status quo, citing challenges in reaching international consensus on language around gender and geographic diversity as examples of the struggles ahead, and the need to prioritise *substantive* issues rather than EDI as a *social* grievance.¹⁰² What this critique fails to consider is the risk that comes with a homogeneity of decision-makers and practitioners in the nuclear field. A lack of diversity is a legitimate vulnerability for nuclear security

⁹⁹ David Rock and Heidi Grant, 'Why Diverse Teams Are Smarter', *Harvard Business Review*, November 4, 2016, <https://hbr.org/2020/11/getting-serious-about-diversity-enough-already-with-the-business-case>.

¹⁰⁰ Katherine Phillips, 'How Diversity Makes Us Smarter', *University of California, Berkeley*, September 18, 2017, https://greatertgood.berkeley.edu/article/item/how_diversity_makes_us_smarter#:~:text=Research.

¹⁰¹ WINS, *Advancing Gender Parity in Nuclear Security* (March 23, 2021): pp. 8-12, <https://www.wins.org/document/advancing-gender-parity-in-nuclear-security/>

¹⁰² Nair, *Diversity, Equity, and Inclusion in Nuclear Security Culture*.

and policy making. The homogeneity of individuals and decision-makers in the nuclear field creates risk through associated bias, which prevents an individual from seeing members of one's own group as a potential threat. By creating a more inclusive nuclear decision-making process that represents a broader range of perspectives when defining risk, practitioners will be operating with a more expansive definition of who or what constitutes a 'threat' to nuclear security – improving nuclear security implementation overall.¹⁰³ An example of an existing risk to nuclear security is the accelerationist threat posed by some white supremacist groups with nuclear ambitions.¹⁰⁴ These extremist threats may go undetected if a white-majority workforce does not perceive white supremacist groups and their ideological motivation as a relevant threat to their nuclear security mission.¹⁰⁵

Ensuring a diverse workforce composition can help mitigate bias to prevent characteristics like race or gender from being used as the sole basis for threat identification.¹⁰⁶ Diversity alone is not enough. The organisational culture of a workplace also must create the space for diverse and differing opinions and perspectives to be heard or included, to ensure that the merits of diversity are felt by an organisation. In an organisation that wants to benefit from diversity, all staff must be able to openly discuss hierarchies and work processes, shape the agenda, influence strategy and policy, exercise leadership, and receive recognition and reward.¹⁰⁷ Organisations that are more open-minded are likely to listen to concerns and create a better, non-toxic work environment, which can also improve worker performance and organisational outcomes. A key step in creating these conditions is investigating how the organisation's structures and culture have allocated opportunities, influence, and rewards through bias.¹⁰⁸ Often, this is because leaders recognise and remember talented staff more quickly when they can identify with them. This leads diverse staff to be excluded from the opportunities they need for promotions and leaves significant leadership and substantive potential untapped.

Policy Recommendations

It is crucial to acknowledge bias as the root cause of homogenous workforce composition, unfair participation, and the exclusion of certain demographics from the nuclear weapons policy field. Structural biases based on gender, race, and other characteristics can result in assumptions about candidates' performance, suitability for the role, or culture fit that can serve as barriers to entry into the field and have prevented the participation of historically marginalised communities in the workforce and from acting as knowledge producers in the field. These biases produce recruitment, retention, and advancement challenges for minority personnel working in

¹⁰³ Sneha Nair, *Diversity, Equity, and Inclusion in Nuclear Security Culture: Insider Threat Assessments at Nuclear Facilities*, (Washington D.C.: INMM and the Stimson Center, 2022) https://www.stimson.org/wp-content/uploads/2022/08/209_INMM_Diversity-Equity-and-Inclusion-in-Nuclear-Security-Culture-Insider-Threat-Assessments-at-Nuclear-Facilities_final.pdf

¹⁰⁴ Rebecca L. Earnhardt, Brendan Hyatt, Nickolas Roth, 'A threat to confront: far-right extremists and nuclear terrorism,' *Bulletin of Atomic Scientists*, (January 14, 2021), <https://thebulletin.org/2021/01/a-threat-to-confront-far-right-extremists-and-nuclear-terrorism/>

¹⁰⁵ Earnhardt, Hyatt, Roth, 'A threat to confront.' <https://thebulletin.org/2021/01/a-threat-to-confront-far-right-extremists-and-nuclear-terrorism/>

¹⁰⁶ Nair, *Diversity, Equity, and Inclusion in Nuclear Security Culture*.

¹⁰⁷ Sylvia Ann Hewlett, Melinda Marshall, and Laura Sherbin, 'How Diversity Can Drive Innovation', *Harvard Business Review*, December 2013, <https://hbr.org/2013/12/how-diversity-can-drive-innovation>.

¹⁰⁸ Robin Ely and David Thomas, 'Getting Serious About Diversity: Enough Already with the Business Case', *Harvard Business Review*, November/December 2020, <https://hbr.org/2020/11/getting-serious-about-diversity-enough-already-with-the-business-case>.

the field, and policies that address the root causes of these challenges must aim to advance EDI into the community of practitioners, the procedures in place, and the power structures that govern the field.

- Examine workplace structures for bias and activate social accountability to identify and eliminate bias, enabling EDI in nuclear weapons policy from the top-down.
- Implement collective, team-based bias assessments and learning activities. These are essential for improving performance and morale by addressing the root causes of DEI issues. It strengthens relationships, increases team resilience, and improves problem-solving. Individuals in leadership positions and knowledge management must work to implement these changes.
- Facilitate broader organisational change and change cognitive rules to implement effective EDI measures. Stigmatising resistance allows resisters to perceive the change or 'unlearning' process as the problem. Diversity leaders should address resisters' psychological needs for acceptance, positive self-image, and inclusion in the change process.
- Avoid boiler-plate EDI measures: Rather implement collaborative solutions that utilise cognitive dissonance to create a diverse and inclusive workplace include EDI-focused recruitment, mentoring programmes, and task forces.
- Advance EDI in recruitment, retention, and promotion of personnel in the nuclear weapons policy community to ensure that diverse talent (women, indigenous folks, or other minority communities) is not deterred from entering a field that lacks leaders. Hiring managers, supervisors, and those in leadership must ensure that EDI initiatives focus on all three facets of personnel to support minority and marginalised communities, essential for sustainable change.
- Tailor EDI initiatives to a broad range of stakeholders. This includes civil society, diplomats, practitioners at facilities, and decision-makers in the nuclear weapons policy community. Efforts to advance EDI in the field needing to be targeted across different roles, responsibilities, and seniority of different community members.
- Engage stakeholders from the Global South in serious discussions on EDI to bridge the gap between different perspectives and accounting for unique region-specific, cultural, and demographic challenges. Non-nuclear weapon states should be equitably included in high-level dialogues and discussions about nuclear weapons policy to ensure their voices are represented.
- Reflect commitments to EDI in hiring practices. Nuclear non-proliferation organisations and think tanks should avoid tokenism, as it is counterproductive to the goal of EDI. Decision-makers and hiring managers at nuclear weapons policy organisations must ensure that EDI initiatives address root causes of exclusion and discriminatory practices to be effective.
- Broaden understanding of EDI and initiatives for implementation are essential for diversifying the nuclear weapons policy field to account for all, including women, indigenous communities, LGBTQ+ people, and those with disabilities.

Conclusion

Making the nuclear weapons policy field more diverse, equitable, and inclusive is an essential shift for the field and community of practitioners. Mainstreaming EDI into the field creates a better understanding of policy outcomes. In a scenario where use of nuclear weapons are being considered, ensuring a common understanding of EDI fully centres the potential impact on affected communities for the development of nuclear weapons, the consequences of nuclear weapons use on communities, and the range of security and

humanitarian arguments for disarmament and non-proliferation. EDI does not unilaterally discount the security concerns of the deterrence argument, but rather, ensures that a complete picture of potential use impact is considered by policymakers, the consequences of pursuing nuclear weapons development by non-nuclear weapon states, and the prospective merits and impacts of disarmament. The nuclear policy space needs to realise that diversity begets diversity, and a lack of diversity sustains a lack of diversity. Leaders must create conditions that sustainably increase EDI's positive effects on behaviour and collaboration and reduce stereotyping and conflict to improve outcomes in the nuclear weapons policy field and the community of practitioners.



The Ultimate Coloniser: Challenging Racism and White Supremacy in Nuclear Weapons Policy Making

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Acknowledgements: Jannis Kappelmann

Executive Summary

Nuclear weapons have a colonising effect on human thought, similar to the way in which colonial powers asserted their dominance over colonised peoples. These weapons embody a certain kind of hegemonic power associated with white Western culture. Nuclear weapons have become deeply embedded in our psyches, shaping our perceptions of the world and our place in it. They are the manifestation of abject power held by a subset of the global community, a source of military power, and a strategic deterrent. The policy recommendations in this brief aim to address the past harms of racism and white supremacy in nuclear policy making and centre justice and human-centred security frameworks for those impacted by the nuclear weapons complex, particularly marginalised communities to receive the redress they deserve.

Introduction

Nuclear weapons have played a significant role in Western and global security structures since their first use in 1945. Their origins can be traced back to colonial notions of power, strategic competition, and a desire for global dominance. Today, we witness the manifestation of these neo-colonial and racist ideologies in non-proliferation policies against the alleged threat of non-western proliferation. These policies often employ racialised language that strips states and their people of their agency and humanity. Ironically, many of these entities have no intention of pursuing nuclear weapons but seek inclusion in a global security structure that is not propped up by a hegemonic order and better reflects the diversity of nations worldwide.

Marginalised communities, including Black, Brown, indigenous, and POC, have been disproportionately affected by the negative impacts of the global nuclear weapons system. This is a multifaceted system that encompasses not only the physical infrastructure of nuclear weapons development, production, testing, and deployment but also the underlying power dynamics, ideologies, and historical legacies that shape and sustain it. This implies the historical context in which nuclear weapons emerged, rooted in colonial understandings of power and dominance by Western nations. This also notes that these structures of colonial understanding and systemic oppression, are not upheld simply by western nations but any nation (including the global south) who ascribes to these systems of thinking. From testing and mining, to potential use; POC have borne the brunt of its consequences. It is evident that these dangerous and harmful legacies of the past cannot be ignored any longer. It is imperative to continue to push processes that decolonise nuclear weapons policymaking, seek ways to dismantle these systems and work towards a more equitable and just world that goes beyond the destructive power of nuclear weapons. The NPT, often argued as the legal bedrock of nonproliferation regime, reflects the existing power dynamics within the international system, with the five recognised nuclear-weapon states and does not directly address the broader issues of colonial legacies, power imbalances, or the impacts of nuclear weapons on marginalised communities. NPT primarily prioritises security concerns related to nuclear weapons and their proliferation, and does not emphasise on addressing the broader social, environmental, and humanitarian impacts of nuclear weapons.

In this policy paper, we aim to explore the challenges posed by racism and white supremacy in nuclear weapons policy making. By acknowledging the historical and ongoing injustices faced by marginalised communities, we strive to foster understanding, advocate for change, and pave the way for a future where nuclear weapons policies are rooted in inclusivity, justice, and global cooperation with achieving the goal of a world free of nuclear weapons. Together, we can build a world that transcends the destructive legacy of the bomb and works towards a more equitable, just, and peaceful future.

Historiography

Racism and the history of nuclear weapons policy making are intertwined. When Arundhati Roy stated that nuclear weapons are 'the ultimate colonisers' and at 'the very heart of whiteness',¹⁰⁹ she gets to the heart of the matter by highlighting that in addition to being symbols of power and prestige, nuclear weapons depict a history of racism and white supremacy in their development, possession, and use. While the 1968 NPT sets legal precedent to pursue disarmament, it also currently enshrines a hierarchy of nuclear haves and have-nots, with the five nuclear weapon states at the top. NPT perpetuates a racialised and exclusionary nuclear order. Recognizing that racialized understandings, are not limited by western nations, rather language that devalues or others any non-western state. The non-proliferation regime depoliticises the problem of nuclear proliferation

¹⁰⁹ Arundhati Roy, *The End of Imagination* (Chicago, Illinois: Haymarket Books, 2016).

as a neutral endeavour to reduce nuclear risk globally, distinct from larger questions of global power and serves the political interests of the United States and European states.¹¹⁰ The non-proliferation regime does not adequately address the underlying political, economic, and security dynamics that drive nuclear proliferation. There is often selective enforcement of non-proliferation norms. Also, the non-proliferation regime is sustained by financial incentives and creative techniques to uphold the legitimacy of nuclear weapons.¹¹¹

Effects of Racism on Nuclear Weapons Policy Making

Racism and discrimination have played a significant role in shaping the historiography of nuclear weapons and non-proliferation issues. The structure of the non-proliferation regime, such as the creation of the NPT and the IAEA board membership, has perpetuated a racialised and colonial discourse. For example, Western countries have historically held a significant presence on the board, while the representation of non-Western states, particularly from the Global South, has been limited. Determinations regarding which states can legally and politically possess nuclear weapons and make non-proliferation policies for others to follow are arguably rooted in the racialised and colonial frameworks.

The instances of racism can be traced back to the early days of the nuclear era with the Manhattan Project. Nuclear weapons policy making regarding the selection of nuclear weapons production sites, nuclear testing sites, and nuclear weapons targets (for example, the debate about the legitimacy of potential targets, including why Hiroshima and Nagasaki were good targets as opposed to the culturally richer Japanese city Kyoto¹¹²), as well as nuclear waste disposal sites, depicts racism and discrimination. Many of these sites were located in low-income, and in communities or countries of colour including, Marshall Islands, Navajo reservations, Western Sahara, and the list continues.

The success of the NPT-based non-proliferation regime in preventing the wider proliferation of nuclear weapons is debatable, as it may also be attributed to independent efforts by states to refuse nuclear weapons, for example, the establishment of nuclear weapons-free zones in Latin America, Africa, Oceania, and Southeast Asia.¹¹³ The recent trilateral security pact between the United States, Australia and the United Kingdom, also known as AUKUS, to share nuclear technology is an example of how extended deterrence commitments while arguably rooted in strategic considerations, can also cede non-proliferation concerns to racial logic. The civilisational discourse depicts that in the post-1945 international order, the United States and the West have aimed to preserve their military dominance by strengthening their own armed forces while suppressing other countries' efforts to do the same, as it was interpreted as undermining Western control.

Human Consequences of Racist Nuclear Weapons Policy Making

The systemic hierarchies of racism, white supremacy, and colonialism were not only built into the formation of the global nuclear order, but were embedded into nuclear weapons production, development, and testing at the outset of the nuclear age. These processes privileged certain nations based on the colonial power dynamics and

¹¹⁰ Shampa Biswas, *Nuclear Desire: Power and the Postcolonial Nuclear Order* (U of Minnesota Press, 2014), 98; Campbell Craig and Jan Ruzicka, 'The Nonproliferation Complex,' *Ethics & International Affairs* 27, no. 3 (2013): 329–48, <https://doi.org/10.1017/S0892679413000257>.

¹¹¹ Kjølsv Egeland, 'Sustaining Social License: Nuclear Weapons and the Art of Legitimation,' *International Politics*, September 9, 2022, <https://doi.org/10.1057/s41311-022-00404-w>.

¹¹² Mariko Oi, 'The Man Who Saved Kyoto from the Atomic Bomb,' BBC News, August 8, 2015, <https://www.bbc.com/news/world-asia-33755182>.

¹¹³ Sizwe Mpofu-Walsh, 'Obedient Rebellion: Nuclear-Weapon-Free Zones and Global Nuclear Order, 1967–2017' (PhD thesis, University of Oxford, 2020), <https://ora.ox.ac.uk/objects/uuid:1989894d-1e20-419e-8b39-84a02b53cf05>

established them as arbiters of nuclear legitimacy which is depicted by the politically neutral view of proliferation, ignorance of drivers of proliferation, and perpetuation of global power imbalances. Their consequences have lasted to this day. The extensive nuclear testing during the Cold War had the same profound impacts on global (marginalised) communities as a nuclear war. Despite no nuclear exchange between the nuclear weapons states, it was the non-nuclear weapon states which suffered the consequences of radioactive fallout by experiencing early mortality, disease, displacement, and contamination of food sources and ecosystems.¹¹⁴

Nuclear testing: Nuclear weapons states were aware of the long-term harmful effects of radiation contamination due to nuclear testing. This is the reason the United States tested most of its nuclear weapons in territories of other countries and France and the United Kingdom did not test a single weapon on their own soil. The United States government understood the disastrous effects of radioactive fallout due to the testing of hydrogen bombs and made it a policy to not test the H-bomb on the United States mainland. Even though the United States studied the behaviour of fallout particles in ecosystems and strategised how to weaponise these effects to both kill and psychologically terrify an enemy population, it asserted that fallout from these tests posed no health risk to people living downwind from test sites.¹¹⁵ France's nuclear tests in Algeria during the 1960s caused widespread environmental contamination and negative health effects on local populations. Many Algerians who worked on the tests have suffered from illnesses, including cancer, and their families continue to be affected by the tests' long-lasting effects. Despite this, the French government has not acknowledged the harm caused by the tests or provided sufficient compensation to those affected.¹¹⁶

Nuclear weapons production: Indigenous peoples and their lands have been exploited by Western governments and corporations for nuclear weapons production. These sites of nuclear colonialism extend over every continent: 70% of the world's uranium is mined from Indigenous lands in Kazakhstan, Australia, Canada, and 15% is mined in African nations.¹¹⁷ Indigenous scholars and activists have been instrumental in raising awareness about this issue.¹¹⁸

The uranium used for Fat Man, the bomb dropped by the United States on Nagasaki, was mostly mined from the Congo, a former Belgian colony.¹¹⁹ The Congolese miners who worked in the Shinkolobwe mine, where the uranium was extracted, were subjected to forced labour, harsh conditions, and exposure to radiation without

¹¹⁴ Robert A. Jacobs, *Nuclear Bodies: The Global Hibakusha* (New Haven: Yale University Press, 2022).

¹¹⁵ Jacobs, 'Nuclear Bodies', 2022.

¹¹⁶ Lamine Chikhi, 'French Nuclear Tests in Algeria Leave Toxic Legacy,' *Reuters*, March 4, 2010, sec. Latest Crisis, <https://www.reuters.com/article/idUKCHI233933>.

¹¹⁷ These estimates change from year to year, but the general trends of uranium production and trade have largely remained the same. According to World Nuclear News, Kazakhstan was the top global producer of uranium in 2022, accounting for 43% of the world's supply. Canada ranked second with a 15% share, followed by Namibia with 11%. See more at 'World Uranium Mining – World Nuclear Association,' accessed May 31, 2023, <https://www.world-nuclear.org/information-library/nuclear-fuel-cycle/mining-of-uranium/world-uranium-mining-production.aspx>

¹¹⁸ Danielle Endres, 'The Rhetoric of Nuclear Colonialism: Rhetorical Exclusion of American Indian Arguments in the Yucca Mountain Nuclear Waste Siting Decision,' *Communication and Critical/Cultural Studies* 6, no. 1 (March 2009): 39–60, <https://doi.org/10.1080/14791420802632103>; Ward Churchill and Winona LaDuke, 'Native American: The Political Economy of Radioactive Colonialism,' *Insurgent Sociologist* 13, no. 3 (April 1986): 51–78, <https://doi.org/10.1177/089692058601300306>.

¹¹⁹ Frank Swain, 'The Forgotten Mine That Built the Atomic Bomb,' *News*, BBC, August 4, 2020, <https://www.bbc.com/future/article/20200803-the-forgotten-mine-that-built-the-atomic-bomb>

proper protection.¹²⁰ They were treated as disposable and expendable by the Union Minière du Haut Katanga (UMHK), the Belgian mining company that owned the mine and sold the uranium to the United States and its allies.¹²¹ The Congolese people were not informed of the link between their uranium and the bombs that killed hundreds of thousands of Japanese civilians, nor were they compensated or acknowledged for their contribution to the Manhattan Project.

Nuclear waste is routinely dumped on Native lands in the United States and Canada, violating the 2008 UN Declaration of the Rights of Indigenous Peoples.¹²² This racial and colonial ecology in the nuclear fuel cycle harms Indigenous people, for example, the mining of uranium in Indigenous lands in North America.¹²³ The largest United States nuclear accident occurred in Church Rock, New Mexico, in 1979, just three months after the more widely remembered Three Mile Island incident, yet it is little discussed today outside of New Mexico, highlighting the colonial politics of erasure in what kinds of nuclear waste disasters are remembered.¹²⁴

United States decision to attack Japan: The atomic bombing of Japan was motivated by military and strategic considerations, also arguably involved racial prejudice and imperial ambition, which was used to demonstrate the superiority and dominance of the Western powers over Japan and other non-white nations. The decision to use nuclear weapons against Japan was influenced by racist stereotypes and propaganda that portrayed the Japanese as subhuman and fanatical enemies who deserved no mercy.¹²⁵ The nuclear weapons policy making was dominated by white men who excluded and marginalised the voices and perspectives of people of colour, women, and other groups who were affected by the nuclear threat.¹²⁶

Examples of Human Agency

Examples of agency (resistance) by individuals and groups against the inherent injustice of the nuclear order abound from post-WWII till the present day including the Bandung Conference's calls for disarmament and rejection of nuclear recolonization,¹²⁷ African-American anti-nuclear activism, and African and Asian resistance

¹²⁰ 'Uranium Mine Poses on Going Risk, UN Reports,' The New Humanitarian, November 10, 2004, <https://www.thenewhumanitarian.org/news/2004/11/10/uranium-mine-poses-going-risk-un-reports>

¹²¹ Tom Zoellner, 'A (Radioactive) Cut in the Earth That Will Not Stay Closed,' Scientific American, March 27, 2009, <https://www.scientificamerican.com/article/a-radioactive-cut-that-will-not-stay-closed/>

¹²² Endres, 'The Rhetoric of Nuclear Colonialism.'

¹²³ Traci Brynne Voyles, *Wastelanding: Legacies of Uranium Mining in Navajo Country* (Minneapolis: University of Minnesota Press, 2015).

¹²⁴ Trip Jennings, 'Remembering the Largest Radioactive Spill in U.S. History,' New Mexico In Depth, July 7, 2014, <https://nmindepth.com/2014/remembering-the-largest-radioactive-spill-in-u-s-history/>.

¹²⁵ Elaine Scarry, 'Memorial Days: The Racial Underpinnings of the Hiroshima and Nagasaki Bombings,' *Bulletin of the Atomic Scientists* (blog), August 3, 2020, <https://thebulletin.org/2020/08/memorial-days/>

¹²⁶ David W. Moore, 'Majority Supports Use of Atomic Bomb on Japan in WWII,' Gallup.com, August 5, 2005, <https://news.gallup.com/poll/17677/Majority-Supports-Use-Atomic-Bomb-Japan-WWII.aspx>; Bruce Stokes, '70 Years after Hiroshima, Opinions Have Shifted on Use of Atomic Bomb,' *Pew Research Center* (blog), accessed May 4, 2023, <https://www.pewresearch.org/short-reads/2015/08/04/70-years-after-hiroshima-opinions-have-shifted-on-use-of-atomic-bomb/>

¹²⁷ Rens van Munster and Casper Sylvest, 'On History and Authority: The Cold War Nuclear Arms Race and Its Importance for Critical Security Theory,' *Critical Studies on Security* 10, no. 3 (September 2, 2022): 157–71, <https://doi.org/10.1080/21624887.2023.2167773>.

to French nuclear testing.¹²⁸ The latest example is the demand for reparations from the French government by the French Polynesian community affected by nuclear testing.¹²⁹ A less discussed aspect of the anti-colonial struggle against nuclear weapons is the role of the Black Freedom Movement. Intondi's in-depth work covered this history of seven decades and underscored that nuclear weapons affected black Americans and hindered their struggle for racial justice.¹³⁰

Analysis

The history of racism in nuclear weapons policy making illustrates the ways white supremacy is embedded in the social practices of Western states and that colonial ideology remains prevalent in the functioning of global institutions and non-proliferation norms. Just like the central tenet of white supremacy that 'the white race possesses inherent intelligence to make rational and objective decisions', a foundational argument of Western colonial non-proliferation policies is that only Western states are developed, stable, and advanced enough to master nuclear weapons technology. Even non-western nuclear nations, prop up this notion, when they delegitimise the sanity of their global south counterparts. This argument legitimises the possession of nuclear weapons by the predominantly White states and justifies the exclusion of non-Western states. Through our analysis and suggestions, we will outline some key features of the current issue of neo-colonialism and white supremacy in nuclear policy making and situate it to challenge these notions.

Centring Justice

Nuclear justice in concept entails holding individuals, countries, and systems accountable for the harmful effects of the nuclear weapons complex on people (especially those most marginalised) and the environment. Disproportionate harms have been caused to the marginalised communities. Therefore, we must address issues such as environmental contamination, negative health impacts, displacement, and social and economic impacts of racist nuclear weapons policy making. The pursuit of nuclear justice must involve seeking reparations, remediation, compensation, and/or legal action against the actors who have caused harm or neglect in the nuclear industry, as well as advocating for policies that prioritise public safety, environmental protection, and disarmament.

Accountability in nuclear justice should be framed through a conference resolution framework that may involve criminal liability, reparations, truth-telling, and institutional reforms aimed at preventing the recurrence of nuclear harm.¹³¹ It is essential when working to challenge racism and white supremacy, one must enact an equitable framework, that situates the needs of victims at the centre in order to redistribute power and reframe redress.

¹²⁸ 'France Owes French Polynesia 'a Debt' over Nuclear Tests: Macron,' France 24, July 28, 2021, <https://www.france24.com/en/live-news/20210728-france-owes-french-polynesia-a-debt-over-nuclear-tests-macron>.

¹²⁹ Jon Henley, 'France Has Underestimated Impact of Nuclear Tests in French Polynesia, Research Finds,' *The Guardian*, March 9, 2021, sec. World news, <https://www.theguardian.com/world/2021/mar/09/france-has-underestimated-impact-of-nuclear-tests-in-french-polynesia-research-finds>.

¹³⁰ Vincent J. Intondi, *African Americans against the Bomb: Nuclear Weapons, Colonialism, and the Black Freedom Movement*, Stanford Nuclear Age Series (Stanford, California: Stanford University Press, 2014).

¹³¹ Jana Baldus, Caroline Fehl, and Sascha Hach, *Beyond the Ban a Global Agenda for Nuclear Justice* (Frankfurt am Main: Leibniz-Institut Hessische Stiftung Friedens- und Konfliktforschung (HSFK), 2021).

Reparations

In 2023, a new process began to establish an MoU between the Republic of the Marshall Islands government and the United States. This MoU, part of a new Compact of Free Association for a 20-year term, renews the United States Navy's rights to operate in the Pacific and includes provisions for financial compensation to the Marshallese people affected by nuclear testing.¹³² The funds allocated under the MoU will be used for health care programs, an education and research facility, and a trust fund controlled by the Marshallese government. However, the compensation is limited to specific segments of the population and does not include the entire Marshallese diaspora. This arrangement resembles historical dynamics between colonial powers and occupied territories, where the territory is vulnerable and forced to accept terms that may not prioritise its interests.

Compensation is not only financial, a component of it also involves acknowledgment and formal apology for the wrongs committed under the guise of nuclear testing and attacks. Whilst an apology would be predominantly symbolic, it would signal a significant shift in government perspectives on the moral justification of carrying out nuclear tests and the casualties and generational trauma (emotional and environmental) it has caused. In a Ploughshares Fund podcast, Selina Leem, a Marshallese climate and nuclear testing awareness activist listed the inclusion of nuclear testing in United States educational curricula as one of the most important steps the United States must take as part of its reparations pathway.¹³³

Discussions have begun to establish a victim assistance and environmental remediation mechanism under the TPNW. The draft proposal, initiated at the Meeting of State's Parties, aims to provide resources for assistance and remediation. However, challenges arise due to the non-participation of Nuclear Weapons States and the need to engage with nuclear umbrella states. The proposal includes contributions from various entities, including states, non-state actors, and supports a wide range of programs. The management of the fund would be overseen by a committee established by a diverse commission (inclusive of NGOs, community groups, and especially vulnerable populations e.g., indigenous communities).¹³⁴ The funding of housing is yet to be determined, with potential options being the International Committee of the Red Cross or the establishment of a standalone organisation, similar to the Marshall Islands Nuclear Claims Tribunal.

Lastly, building on the work of the Marshall Islands, another form of redress could include establishing an annual day to honour the testing affected diaspora, similar to the Hibakusha. This would provide an opportunity to honour victims of nuclear testing and accidents across the globe, ensuring the stories and experiences of the Hibakusha diaspora and other victims of nuclear testing are never forgotten.

Diversity in Order to Combat Racism in the Nuclear Non-Proliferation Debate

Considering the disproportionate impact of nuclear weapons on non-white communities, their inclusion within the debate is essential in capturing the full spectrum of impacts and making informed policy decisions based on lived experiences. Nuclear policymaking environments tend to be orthodox and resistant to change and consequentially, these are exclusionary of marginalised identities. Those in positions of power also tend to yield not only great power in shaping the work environment for their subordinates but also a great influence on

¹³² Daryl G. Kimball, 'U.S., Marshall Islands Sign Deal on Nuclear Testing Impacts,' Arms Control Association, March 2023, <https://www.armscontrol.org/act/2023-03/news/us-marshall-islands-sign-deal-nuclear-testing-impacts>.

¹³³ 'Press the Button | Ploughshares Fund,' accessed May 31, 2023, <https://ploughshares.org/pressthebutton>.

¹³⁴ 'An International Trust Fund for Victim Assistance and Environmental Remediation: Briefing Note and Recommendations from ICAN' (The International Campaign to Abolish Nuclear Weapons (ICAN), February 16, 2023), https://assets.nationbuilder.com/ican/pages/3166/attachments/original/1676637600/ICAN_written_comments_Trust_Fund_questions_UPDATED.pdf?1676637600.

agenda-setting and policy making. Given that marginalised individuals experience disproportionately more harassment and encounter racialised or gendered expectations in the workplace, resulting in more mental and emotional weight than their peers, individuals perceive higher costs attached to attempts at injecting innovation into the field.¹³⁵

Unfortunately for many, they eventually must conform to the orthodoxy of the field, reinforcing that by adopting conventional modes of thinking and slimming the chances for innovative policy making one will possibly have better personal and policy outcomes.¹³⁶ This should prompt us to think more deeply about the policies we put in place to extract the highest utility from diversity in nuclear policy making fields for the greatest positive impact, including the restraint in the use or threat of use of nuclear weapons.

Diversity in voices also forces discussions to pan out from the hegemonic perspective, therefore including non-white voices has some power in directing narratives to include non-white and other more diverse perspectives. However, while there has been slow progress in grassroots movements and civil society, there must be further inclusion. There deserve to be more than a few individuals or prominent groups who are often given tokenistic recognition, rather than inclusive opportunities. Amplification and mainstreaming of under-represented voices are needed.

Inclusion and Diversification in Order to Combat Racism in the Discussion Space

The lack of engagement from nuclear and aligned states during the Humanitarian Impact on Nuclear Weapons Conference highlights the deep divide and perceived exclusion. To address the colonial impacts of the nuclear weapons complex, it is crucial to prioritise discussions on the humanitarian impacts of nuclear weapons within a neutral framework, separate from existing treaties. This allows for education and understanding of the historical implications of racist and colonial systems surrounding nuclear weapons.

There is a need for greater emphasis on educating policymakers, state actors, and the public about the colonial legacies of the nuclear weapons complex and the impediments to transitioning to a new security structure without these weapons. Discussions on nuclear issues often lack a real understanding of the harms caused by nuclear weapons development and maintenance and tend to focus solely on strategic considerations without considering the human impact.¹³⁷ The use of dehumanising language in nuclear rhetoric and the presence of racist tropes further undermine the conversation. An example of this issue, illuminated by a study, shows that the United States' public believed a nuclear attack that would kill hundreds of thousands of civilians belonging to a foreign enemy population would be justified if it was to save the lives of a few thousand American troops.¹³⁸ To challenge these notions and promote decolonisation in nuclear policy making, there should be a focus on humanising the enemy and highlighting the humanitarian impact of conflict decisions. Education and engagement should include impacted communities sharing their experiences, alongside experts providing

¹³⁵ U.S. Government Accountability Office, 'Sexual Harassment: NNSA Could Improve Prevention and Response Efforts in Its Nuclear Security Forces,' April 19, 2021, <https://www.gao.gov/assets/gao-21-307.pdf>.

¹³⁶ Heather Hurlburt, Elizabeth Weingarten, Alexandra Stark, and Elena Souris, 'The Consensual Straitjacket': Four Decades of Women in Nuclear Security,' New America, Washington, DC, 2019. Available at: <https://www.newamerica.org/political-reform/reports/the-consensual-straitjacket-four-decades-of-women-in-nuclear-security/>.

¹³⁷ Marga Ferré, 'NATO and the Construction of the Enemy,' transform! European network for alternative thinking and political dialogue, July 4, 2022, <https://www.transform-network.net/en/blog/article/nato-and-the-construction-of-the-enemy/>.

¹³⁸ Paul Slovic et al., 'Virtuous Violence from the War Room to Death Row,' *Proceedings of the National Academy of Sciences* 117, no. 34 (August 25, 2020): 20474–82, <https://doi.org/10.1073/pnas.2001583117>.

quantitative research on humanitarian impacts. Conferences and forums should operate independently from state party meetings to foster inclusive discussions and break down silos. By creating opportunities for diverse voices and promoting equity, a substantive conversation on disarmament can be achieved while broadening community expertise and decolonizing the current structure.

Systemic Change in the International Order

Systems are built to guide processes and create outcomes, but the result of every system at its core is dependent on the nature of its structure. The global nuclear weapons complex order is not exempt. Due to colonial and racist understanding of many Black and brown countries, this sometimes means that non-nuclear weapon states are portrayed as 'irrational', 'emotional', and somehow 'less capable' in the international nuclear fora.¹³⁹ In contrast, the impact of the actions of nuclear weapon states including nuclear testing and production are felt by all. This culture of pervasive power highlights the entrenched nature of racism and white supremacy in the international nuclear order. The power imbalance between nuclear-armed states and non-nuclear states; the under-representation of different ethnic and racial backgrounds in decision-making roles and processes; and unequal stakeholder access to resources and opportunities are all but a few systemic issues that continue to permeate the international nuclear fora.

Promoting change in nuclear weapons narratives can lead to increased inclusivity in policymaking and diverse voices being represented. It is important to consider non-western experts for leadership positions in nuclear policy organisations. Researchers should prioritise incorporating perspectives from those who have firsthand experience with the dangers of nuclear weapons. Marginalised communities should have leadership roles in conferences such as the NPT Review Conference and TPNW Meeting of State Parties. Planning conferences and meetings well in advance, considering entry permit requirements and providing visa assistance, can facilitate participation from a diverse range of invitees.¹⁴⁰ Additionally, choosing event locations that are less problematic for non-western nations should be considered.

Restoring Agency

Marginalised communities have historically borne the brunt of the global nuclear weapons complex, with First Nations peoples, POC, women, and children being disproportionately affected. Empowering these communities requires a comprehensive approach that addresses the root causes of their marginalisation and allows them to take an active role in advocating for change. Agency, or having a voice and the ability to act independently, is crucial for their healing and improvement of their lives. Frontline communities have been at the forefront of anti-nuclear movements, influencing policy through activism and demanding accountability. Their perspectives and experiences are invaluable in understanding and improving nuclear weapons policy. Creating inclusive spaces and networks, and providing opportunities for engagement and dialogue, is essential to restore their agency. The voices of diverse individuals and communities should be amplified, and both bottom-up and top-down approaches should be employed to ensure their meaningful participation in nuclear policy making. Stakeholder consultation and consideration of preferred forms of contribution are important for empowerment and capacity-building initiatives. Encouraging creativity and fostering cross-community collaboration can further enhance accessibility and inclusion of diverse knowledge and experiences.

¹³⁹ Richard Falk, 'Nuclear Weapons Proliferation As a World Order Problem,' *International Security* 1, no. 3 (1977).

¹⁴⁰ Olamide Samuel, 'Travelling While Black: A First-Hand Account of the Restrictive Visa System Impacting Diversity at Nuclear Policy Conferences,' *European Leadership Network*, August 8, 2022, <https://www.europeanleadershipnetwork.org/commentary/travelling-while-black-a-first-hand-account-of-the-restrictive-visa-system-impacting-diversity-at-nuclear-policy-conferences/>.

Policy Recommendations

To provide equitable policy for all states, we must work towards decolonising the current power structures of the nuclear complex. Regardless of the complex nuances of security structures, this includes encouraging the practice of empathy when considering the cost-benefit of policy decisions. Working toward a new security structure that is more equitable, recognising the rising role of non-western states in geopolitics. This includes encouraging current and emerging leaders to think critically about policies currently in place, analysing their efficacy, and thinking past colonial and racist understandings of states across the globe. This also requires that non-western states advocate for themselves, displaying their value and reason to be included in the geo-political security conversation.

There must be an increased representation and participation of non-western countries in international nuclear policy forums (but also at a state and civil society level). This can include more seats for non-western countries on the governing bodies of these forums/ organisations/ conferences. Overall, a greater emphasis on the aspects communities have in common including the indiscriminate impacts of current policies.

- Regardless of the complexity of the geopolitical structures of the current climate; for there to be a just solution to previous implications of nuclear policymaking, acknowledging the fragility of the geopolitical structure, leaders must still seek reparations, remediation, compensation, and/or legal action against the actors who have caused harm or neglect in the nuclear industry, as well as advocating for policies that prioritise public safety, environmental protection, and disarmament.
- Seek to create and promote a decolonised framework that centralises justice and disarmament to achieve progress towards equity.
- Establish a conference resolution framework to ensure accountability in nuclear justice, encompassing criminal liability, reparations, truth-telling, and institutional reforms to prevent future nuclear harm.
- Promote inclusive and diverse representation by amplifying and mainstreaming under-represented voices in nuclear policy discussions, moving beyond tokenistic recognition and ensuring inclusive opportunities for non-white and diverse perspectives.
- There must be more expansive work done as part of the mechanism of the TPNW on victims' assistance and environmental remediation.
- Nuclear-armed states must implement financial compensation policies to provide fiscal restitution to countries and communities affected by nuclear testing, mining, and use.
- International policymaking entities must include those impacted by the nuclear weapons complex at the decision-making table in all multilateral discussions.
- Prioritise stakeholder consultation and incorporate preferred forms of contribution in empowerment and capacity-building initiatives for marginalised communities impacted by nuclear weapons, promoting inclusivity and diversity.
- Encourage creativity and facilitate cross-community collaboration to enhance accessibility, inclusion, and the amplification of diverse knowledge and experiences in efforts to improve nuclear weapons policy.
- Increase representation and participation of non-western countries in international nuclear policy forums, granting more seats on governing bodies to ensure diverse perspectives and inclusive decision-making.

- Emphasise commonalities among communities, highlighting the indiscriminate impacts of current policies and promoting dialogue and collaboration at both the state and civil society level.

Conclusion

There is much to be done to address the generationally negative harms, caused by racism and white supremacy in nuclear policy making, rather than hiding from our past we must just begin. The first step in this process is to provide agency to those impacted by the harms of the nuclear weapons complex. Learning what redress and remediation looks like to them, and then working to create just fiscal, ecological, emotional, and legal reparations to create a more just security structure. We must then decolonise our systems and structures, work towards disarmament, and create a global security framework rooted in human centred security, equity and justice. If we are going to be a world that is transparent about states national security and global foreign policy, we must address and work for a world that is more equitable and just for all.



The Intersection of Social Justice, Uranium Mining and Nuclear Testing

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Executive Summary

This policy paper explores the intersection between nuclear weapons and social justice. In particular, it seeks to elucidate the impact of the production and testing of nuclear weapons on individuals, families, communities, and nations. The first section outlines a conceptual framework for the analysis of social justice in the context of nuclear politics. The second section presents a general discussion of social justice in relation to uranium mining as well as a brief case study focusing on the Navajo Nation. The third section discusses the relation between social justice and nuclear weapons tests, followed by a case study on the history of nuclear testing in the Pacific. Based on these analyses, the paper presents a set of policy recommendations to reckon with past injustices and remedy those that persist.

Introduction

Nuclear weapons emerged as both a product and a source of interstate competition, but they also demanded international cooperation in light of a common interest in war avoidance and survival. This predicament has dominated debates about nuclear weapons since their first use against Hiroshima and Nagasaki in August 1945. Consequently, discussions have largely revolved around deterrence, arms control, non-proliferation, and eventual disarmament. Yet those who have reaped the security benefits of nuclear deterrence have rarely been the ones to bear the human costs of the development, production, testing, maintenance, and usage of nuclear weapons. To explore the policy implications of that gap, this paper focuses on the intersection between nuclear weapons issues and social justice. In doing so, it builds upon the extensive work that has been conducted over the past decades concerning the humanitarian impacts of nuclear weapons.

Analysis

1. Examining the Intersection of Social Justice and Nuclear Weapons

The Concept of Social Justice

The term 'justice', derives from the Latin etymon 'iūstitia',¹⁴¹ which refers to the general notion of moral rectitude as well as the particular realm of authoritative rules and reciprocal rights and obligations.¹⁴² During the late Enlightenment era, major scientific advancements contributed towards a shift in Western philosophers' thinking away from being in nature and hierarchies and towards freedom, equality, and human reason. At this time philosophers like Hume, Smith, and Bentham all saw humans as equally capable, but all had different opportunities afforded to them.¹⁴³ One issue with this school of thought is the assumptions made about human reason and power over nature. Such assumptions facilitated justifications of colonialism and, by extension, the exploitation of indigenous lands for the production and testing of nuclear weapons.

According to Walter Lorenz, 'social justice' commonly refers to "social policies and other rights-based initiatives that protect vulnerable and disadvantaged groups of national or global society from oppression, discrimination, and exclusion or that support them materially."¹⁴⁴ The UN recently noted that social justice leads to increased functionality of societies and economies, and that it is critical to the achievement of the Sustainable Development Goals. Furthermore, the UN acknowledged that a renewed multilateralism, which serves to "coalesce around a set of shared values and goals and identify the means to respond to people's aspirations and needs" required the inclusion of social justice as one of its cornerstones.¹⁴⁵

¹⁴¹ OED. (n.d.-b). Justice. In Oxford English Dictionary Online. Retrieved June 29, 2022, from <https://www.oed.com/view/Entry/102198?rskey=%20qLlSba&result=1>; David A. Welch, *Justice and the Genesis of War* (Cambridge: Cambridge University Press, 1993), 198.

¹⁴² Terry Nardin, *Law, Morality, and the Relations of States* (Princeton: Princeton University Press, 1983), 257.

¹⁴³ David Hume, *Treaties of Human Nature*, ed. P. H. Nidditch, (1978, Oxford, Oxford University Press); Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, ed. R. H. Campbell, A. S. Skinner, and W. B. Todd (1976, Indianapolis: Liberty Fund); Jeremy Bentham, *The Works of Jeremy Bentham, Vol 1*, (1843, William Tait).

¹⁴⁴ Walter Lorenz, "The Emergence of Social Justice in the West," in *The Routledge International Handbook of Social Justice*, ed. Michael Reisch (London: Routledge, 2014), 14.

¹⁴⁵ United Nations, World Day of Social Justice, (2023), available at <https://www.un.org/en/observances/social-justice-day>.

Social Injustice in the Context of Nuclear Weapons

The foregoing exploration of social justice suggests that it is imperative for disadvantaged communities to play a leading role in discussions about social justice. This is especially important in the context of nuclear weapons because the benefits and burdens of these weapons have been distributed unequally; that inequality has adversely affected indigenous people and minorities in particular. For example, nuclear-armed states have often assumed access to (indigenous) land to acquire fissile material for nuclear weapons or to test those weapons.¹⁴⁶ In addition to the cases discussed in this paper, affected communities include those that worked in the Congolese mining industry or lived near the Maralinga, Semipalatinsk, and Lop Nur test sites.¹⁴⁷ Moreover, a lack of diversity still haunts the nuclear policy space.¹⁴⁸

Arguably, the nuclear domain is characterised by a variety of intersecting manifestations of injustice, the most prominent of which are highlighted in the following paragraphs. Across the intersections between those forms of injustice, one can identify a general trend in which those who are exposed to the most harm tend to be the least represented in policymaking. Notably, racial injustice is seen throughout nuclear history, from the bombings of Japan to the impact of nuclear testing and manufacturing on minorities and indigenous people.¹⁴⁹ In addition, there is a significant lack of racial representation in nuclear policy-making. For example, Women of Colour Advancing Peace, Security, and Conflict Transformation (WCAPS) 'has identified that women of colour are impacted by the issues that are often discussed in their absence, including issues related to [weapons of mass destruction]'.¹⁵⁰

Nuclear injustices are prevalent with regard to gender, too. International politics and war-making constitute – and are constituted by – multiple masculinities.¹⁵¹ In the nuclear realm, scholars have argued that the NPT is a product of patriarchal hierarchies and it reinforces power imbalances across genders.¹⁵² Nuclear weapons also affect men and women differently as women are more vulnerable to ionising radiation, yet they and various disproportionately affected minorities are underrepresented in the nuclear field.¹⁵³ Male dominance in policymaking has led to an underutilisation of women's experiences and perspectives on nuclear weapons.

Intergenerational injustice – emanating from harm inflicted upon the relatives of those who have been directly affected by nuclear weapons – is seen with the survivors of the Hiroshima and Nagasaki bombings, where

¹⁴⁶ Max Liboiron, *Pollution is Colonialism* (2021, London: Duke University Press), pp. 7-9.

¹⁴⁷ See for example Togzhan Kassenova, *Atomic Steppe* (Stanford: Stanford University Press, 2022).

¹⁴⁸ Union of Concerned Scientists, *Nuclear Weapons Justice*. Retrieved June 6, 2023, <https://www.ucsusa.org/nuclear-weapons/justice>

¹⁴⁹ Vincent Intondi, *Reflections on Injustice, Racism, and the Bomb* (2020, Arms Control Association)

¹⁵⁰ Sylvia Mishra and Wardah Amir, "Racial Inequalities and Nuclear Policy," Stanley Center for Peace and Security (2022), 8. Retrieved June 21, 2023, from <https://stanleycenter.org/publications/racial-inequalities-nuclear-policy/>.

¹⁵¹ Charlotte Hooper, *Manly States: masculinities, international relations and gender politics*, (2001, New York: Columbia University Press.

¹⁵² Laura Rose Brown, Laura Considine, Examining 'gender sensitive' approaches to nuclear policy: a study of the non-proliferation treaty, *International Affairs*, (2022) 98(4) p. 1250.

¹⁵³ John Borrie, Anne Guro Dimmen, Tobjørn Graff Hugo, Camilla Waszink, and Klølv Egeland, *Gender, Development, and Nuclear Weapons*, (2016, UNIDIR); Heather Hurlburt, Elizabeth Weingarten, Alexandra Stark, and Elena Sourisuono, "The 'Consensual Straitjacket': Four Decades of Women in Nuclear Security," *New America* (March 5, 2019) <https://www.newamerica.org/political-reform/reports/the-consensual-straitjacket-four-decades-of-women-in-nuclear-security>.

many lost loved ones, property, and livelihoods.¹⁵⁴ Furthermore, survivors have suffered from long-term health issues related to exposure to ionising radiation, particularly cancers, for decades after the bombings.¹⁵⁵ Those living in areas that were subjected to nuclear weapons tests were also exposed to nuclear fallout, resulting in long-term health issues and land contamination. Notably, '[o]ne of the 65 tests conducted in the Marshall Islands, the explosion of a US thermonuclear device code-named BRAVO (March 1, 1954), was responsible for most — although not all — of the radiation exposure of local populations from all of the tests. The fallout-related doses received as a result of that one test at Bikini Atoll are the highest in the history of worldwide nuclear testing'.¹⁵⁶

Other health-related injustices also merit recognition. Indigenous people and minorities work for low wages in dangerous places like uranium mines and processing centres. As Bainton describes, 'while capitalism appears to produce value, it actually consumes life and produces poverty' to the detriment of indigenous miners.¹⁵⁷ It also bears mentioning that commercial reactors are often sited in the lowest income regions of the United States, like in the Southeast, and cause serious health effects in places where the populace lives below the poverty line. Even regular operating reactors may also lead to diseases and fatalities as a result of radiation exposure.¹⁵⁸

2. Uranium Mining and Social Justice

General Discussion of Uranium Mining and Social Justice

Uranium mining has some potential benefits including providing a reliable source of energy and reducing greenhouse gas emissions. However, it is also closely tied to the weapons industry. The race to develop nuclear weapons constituted an attempt to consolidate power and achieve credible deterrence. But the sourcing of raw materials for the bomb was carried out in the absence of adequate research into the human impacts of uranium mining. Uranium ores emit radon gas, which is responsible for health impacts on miners, making this activity more dangerous than other forms of underground mining.¹⁵⁹ Additionally, the radon resulting from the high radium content in uncovered dumps and tailing ponds near uranium mining sites can be easily released into the atmosphere and water tables and result in the contamination of the environment, affecting populations over a prolonged period.¹⁶⁰

Uranium mining begins with the process of extracting uranium ore from the ground and often seeks to provide significant economic benefits to the communities in which it takes place. Nonetheless, it has negative impacts on the environment and human health, which disproportionately affect marginalised communities. Alongside these

¹⁵⁴ Ken Okaniwa, Learning from Hiroshima: committing to intergenerational justice (speech), (2023, UN, available at: <https://www.unep.org/news-and-stories/speech/learning-hiroshima-committing-intergenerational-justice>.

¹⁵⁵ Steven Simon, Andre Bouville, and Charles Land, Fallout from Nuclear Weapons Tests and Cancer Risks, *American Scientist*, (2006) available at: <https://www.americanscientist.org/article/fallout-from-nuclear-weapons-tests-and-cancer-risks>.

¹⁵⁶ *Ibid.*

¹⁵⁷ Nicholas Bainton, "Mining and Indigenous Peoples", (2020) p. 15 available at <https://www.planetgold.org/sites/default/files/2020-08/Bainton.%202020.%20Mining%20and%20Indigenous%20Peoples.pdf>

¹⁵⁸ Kristin Shrader Frechette, Nuclear Energy and Environmental Justice, *What Will Work: Fighting Climate Change with Renewable Energy, not Nuclear Power* (2011), available at <https://academic.oup.com/book/26036/chapter-abstract/193944893?redirectedFrom=fulltext>.

¹⁵⁹ Beatrice Alexandra Golomb, et al. (1998) "A Review of the Scientific Literature as it Pertains to Gulf War Illnesses: Stress" Rand. p. 52

¹⁶⁰ *Ibid.*

impacts, the practice of uranium mining is also known to significantly undermine the way of life of indigenous populations. Additionally to impacts on the health and well-being of indigenous communities, uranium mining in places like the Navajo Nation disrupts traditional land use practices and sacred sites, economic development of the local population near mining sites, and their environment and traditional way of life.¹⁶¹

Public debates on the social injustices caused by uranium mining, with its impacts on health, the environment, and the lives of indigenous populations are a recurrent phenomenon. For example, such a debate recently took place in Greenland,¹⁶² where uranium mining was eventually banned.¹⁶³ Similarly, the Jabiluka uranium mine in Australia's Kakadu National Park is at the centre of an ongoing dispute between the mining industry operating in the area, the indigenous populations known as the Mirrar people, ecologists, and the government. This debate largely revolves around the impact of these practices on the health and lifestyles of the local human and animal population, alongside the ongoing operations' role in contaminating the already scarce local water sources.¹⁶⁴ In the West Khasi hills of Meghalaya in India, there is a similar and persistent controversy between the indigenous community, the government, and the mining industry.¹⁶⁵

In various African countries, uranium mining companies are accused of human rights violations, environmental degradation, racial injustice, and exploitation of local populations. For example, according to the International Consortium of Independent Journalists, "[m]ultiple Australian mining companies are accused of negligence, unfair dismissal, violence and environmental law-breaking across Africa, according to legal filings and community petitions gathered from South Africa, Botswana, Tanzania, Zambia, Madagascar, Malawi, Mali, Côte d'Ivoire, Senegal and Ghana."¹⁶⁶ The social justice concerns surrounding uranium mining stem from the fact that the negative impacts are often borne by Indigenous communities, who historically have been unfairly targeted for the siting of hazardous waste facilities and other polluting industries.

¹⁶¹ O'Faircheallaigh, Ciaran (March 1988). "Resource development and inequality in indigenous societies". *World Development*. 26 (3): p. 381–394. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0305750X97100602?via%3Dihub>.

¹⁶² Maurice Walsh, "You Can't Live in a Museum': The Battle for Greenland's Uranium," *The Guardian* (January 28, 2017), available at: <https://www.theguardian.com/environment/2017/jan/28/greenland-narsaq-uranium-mine-dividing-town>.

¹⁶³ Jacob Gronholt-Pedersen, "Greenland Bans Uranium Mining, Halting Rare Earths Project," *Reuters* (November 10, 2021), available at: <https://www.reuters.com/world/americas/greenland-bans-uranium-mining-halting-rare-earth-project-2021-11-10/>.

¹⁶⁴ Banerjee, Suhabrata Bobby (March 2000). "Whose Land Is It Anyway? National Interest, Indigenous Stakeholders, and Colonial Discourses: The Case of the Jabiluka Uranium Mine". *Organization & Environment*. RMIT University. 13 (1): 3–38. doi:10.1177/1086026600131001 Available at: <https://journals.sagepub.com/doi/10.1177/1086026600131001>; "Environmental Justice Case Study: *The Jabiluka Mine and Aboriginal Land Rights in Australia's Northern Territory*". University of Michigan. Available at: <http://websites.umich.edu/~snre492/Jabiluka.html>

¹⁶⁵ Karlsson, BG (August 22–28, 2009). "Nuclear lives: Uranium Mining, indigenous peoples, and Development in India". *Economic and Political Weekly*. 44 (34): 43–49, <https://www.jstor.org/stable/25663470>

¹⁶⁶ Jim Green (June 2018). "Who cleans up the mess when an Australian uranium mining company leaves Africa?". *Nuclear Monitor*, 18th June 2018. <https://theecologist.org/2018/jun/18/who-cleans-mess-when-australian-uranium-mining-company-leaves-africa>

The Cost of Uranium Mining in the Navajo Nation

The uranium mining industry in the Navajo Nation in the United States began in the 1940s and continued until the 1980s. From 1944 to 1986, about 30 million tons of uranium ore were extracted.¹⁶⁷ Valerie Kuletz notes that within the United States, approximately 66% of the known uranium deposits are on reservation lands, as much as 80% are on treaty-guaranteed land, and up to 90% of uranium mining and milling occurs on or adjacent to Native American land.¹⁶⁸ Historian Traci Brynne Voyles explains how resources — like uranium — enact, enable, and embody colonialism between the US colonial state and Native nations.¹⁶⁹ The mining operations, primarily run by non-Native companies, resulted in contamination of the air, soil, and water, endangering the health of Navajo communities; uranium mining being the most environmentally problematic of any mining activity in the Navajo Nation.¹⁷⁰ The miners themselves were not always adequately protected from the harmful effects of radiation exposure, leading to high rates of illness and death from lung cancer, kidney disease, and other ailments. In addition to the health impacts, the mining industry led to social injustices for the Navajo people. Many Navajo lands, which were promised to them in treaties with the US government, were taken over for mining without their consent or adequate compensation. This disruption of traditional ways of life and loss of access to land greatly affected Navajo culture and economy.¹⁷¹

The Navajo Nation is a prime illustration of the fact that uranium mining affects indigenous communities' land and health. Given these active concerns about water contamination, even today, about 15 percent of the population residing in the Navajo Nation lacks access to running water, with residents often forced to seek unregulated water sources which remain susceptible to bacteria, faecal matter, and uranium contamination.¹⁷² This has resulted in an average rate of 0.63 percent of residents suffering from *End Stage Renal Disease* in the region, which remains at least three times higher than the national average of 0.19 percent.¹⁷³

Uranium mining in the Navajo Nation also resulted in significant cultural and economic losses for indigenous communities where indigenous peoples considered the land sacred and integral to their spiritual and cultural practices. Furthermore, the corporations running the mining operations often did not provide adequate compensation or support to affected communities, further exacerbating the economic injustices already faced

¹⁶⁷ Navajo Nation: Cleaning Up Abandoned Uranium Mines (2019). <https://www.epa.gov/navajo-nation-uranium-cleanup>

¹⁶⁸ Valerie Kuletz, *The Tainted Desert: Environmental and Social Ruin in the American West* (New York: Routledge, 1998), 21.

¹⁶⁹ Traci Brynne Voyles, *Wastelanding: Legacies of Uranium Mining in Navajo Country* (Minneapolis: University of Minnesota Press, 2015), ix, 7-8, 9.

¹⁷⁰ Jonathan Nez and Myron Lizer (2019). "THE NAVAJO NATION". Written Statement of the Navajo Nation Prepared for the House Committee on Natural Resources Subcommittee on Energy and Mineral Resources On Uranium Mining: Contamination and Criticality and H.R. 3405, the Uranium Classification Act of 2019. <https://www.congress.gov/116/meeting/house/109694/documents/HHRG-116-II06-20190625-SD013.pdf>

¹⁷¹ Patrick Armiji (November, 2017) "Navajos relate cultural, spiritual wounds from spill from Gold King Mine spill" Available at: <https://www.durangoherald.com/articles/navajos-relate-cultural-spiritual-wounds-from-spill-from-gold-king-mine-spill/#slide=1>

¹⁷² US EPA, REG 09 (2016). "*Providing Safe Drinking Water in Areas with Abandoned Uranium Mines*". <https://www.epa.gov/navajo-nation-uranium-cleanup/providing-safe-drinking-water-areas-abandoned-uranium-mines>

¹⁷³ Hochman, M. E.; Watt, J. P.; Reid, R.; O'Brien, K. L. (May 2007). "*The prevalence and incidence of end-stage renal disease in Native American adults on the Navajo reservation*". *Kidney International*. 71 (9): 931–937. doi:10.1038/sj.ki.5002100. Available at: <https://pubmed.ncbi.nlm.nih.gov/17332739/>

by these communities. As such, the case of the Navajo people serves as an illustrative example of the social injustices associated with uranium mining.¹⁷⁴

3. Nuclear Testing and Social Justice

General Discussion of Nuclear Testing and Social (In)justice

Besides the nuclear weapons production cycle ranging from mining, production processes, transportation, and waste disposal, particularly the nuclear weapons test programmes have arguably engendered several interrelated forms of injustices for affected communities. Nuclear testing has therefore been a part of an interconnected cycle of nuclear injustice and should not be seen in isolation from other parts of the cycle of what can be understood as a nuclear industrial complex.¹⁷⁵

Communities affected by nuclear test programmes have been disproportionately indigenous and formerly colonised communities worldwide. Nuclear testing sites have been intentionally situated away from the political and economic centres of nuclear-armed states. Hence, nuclear tests have been conducted on colonised and occupied land of indigenous and racialised people, leading to their displacement and contamination of their land. Therefore, social injustices engendered by nuclear testing are embedded in — and a continuation of — colonial and imperial global hierarchies and power structures. The framework of nuclear testing as a social justice issue is hereby understood as an overarching framework including and uniting overlapping and interrelated manifestations of injustice such as environmental, racial, gendered, generational, reproductive, informational, and other forms of injustice.

Background Information

Marshall Islands

The Marshall Islands have a history of being under colonial rule or imperial influence between the 16th and 20th centuries. Between 1946-1958, when the Marshall Islands were a trust territory under US administrative control, the United States conducted 67 nuclear tests there — on Bikini Atoll (23 tests) and Enewetak Atoll (44 tests). Radiation exposure, resulting from nuclear tests of a total explosive power of 108.5 megatons, has been traced all over the Marshall Islands. According to the US Department of Energy, Runit Dome — located in Enewetak Atoll — contains over 100,000 cubic yards of radioactively contaminated soil and debris that were encapsulated in concrete inside a nuclear test crater. Currently, the diplomatic relations between the two states, including the compensation for the harm inflicted by nuclear testing, are governed by the Compact of Free Association.¹⁷⁶

¹⁷⁴ Ortiz, Simon. (2010) "Fight Back: Uranium Mining in the Grants Mineral Belt." *Race, Poverty & the Environment*, vol. 5, no. 3/4, 1995, pp. 13-15, Available at: <https://www.jstor.org/stable/41554895>.

¹⁷⁵ Maurer, A., & Hogue, R. H. (2020). "Introduction: Transnational Nuclear Imperialisms". *Journal of Transnational American Studies*. 11(2).

¹⁷⁶ Kimball, 'U.S., Marshall Islands Sign Deal on Nuclear Testing Impacts,' Arms Control Association, March 2023.

French Polynesia

Between 1960 and 1966, France conducted its nuclear tests in Algeria; however, due to Algeria gaining independence, the French nuclear testing programme had to be moved elsewhere. The choice fell on French Polynesia, which at that time was French overseas territory comprised of around 120 atolls and islands. Consequently, from 1966 to 1974, France conducted 193 nuclear tests primarily on Moruroa and Fangataufa atolls, 41 of which were atmospheric. Initially, the French government claimed that nuclear tests caused no harm to the indigenous population and only later recognised some damage. However, a recent two-year investigation of declassified documents revealed that approximately 110,000 people were likely affected by French nuclear testing and are now eligible for compensation, which is ten times higher than what French officials had disclosed.¹⁷⁷

Impacts of Nuclear Testing in the Pacific Region

This section adopts a regional focus on the Pacific region to elaborate upon the social injustices stemming from nuclear testing. This region is relevant because it has been the site of numerous nuclear tests added to the fact that many indigenous populations have been disproportionately affected by these tests and practice of uranium mining. The nuclear legacies of the region are closely tied to their historical colonial legacies. The regional and global interconnectedness through the shared experience of nuclear violence on indigenous people also led to their resistance against such violence and injustice.

Due to nuclear test programmes, communities have been forced to relocate and face displacement; their land and sea were contaminated and severe health issues resulted from radioactive contamination. Nuclear tests in the region should not be seen as isolated single incidences in separate locations but can be understood as part of continued colonial violence onto people and their land as a result of colonial and imperial rule by various nuclear weapons-possessing countries and their allies.

Nuclear tests that have been conducted by the United States, United Kingdom, and France, particularly affecting communities and indigenous land in the Marshall Islands, French Polynesia, Kiribati, and Australia.¹⁷⁸ The box included above provides some background information on nuclear testing in the Marshall Islands and French Polynesia to further expand on various interrelated forms of injustices in these contexts. The commonalities show shared experiences throughout the region, suggesting that different parts of the region and globally have been impacted similarly.

Racialised and colonial injustice: The Marshall Islands and French Polynesia were selected as test sites based on the colonial perception of allegedly remote and isolated small islands. The consent of the people in the Pacific region was never sought, let alone granted. Affected communities from the Marshall Islands and French Polynesia continue their ongoing struggle to have the damage, racialisation, and colonial violence inflicted upon them recognised and addressed.¹⁷⁹

¹⁷⁷ Disclose and Interpret & Princeton University (2021). "Moruroa Files".

¹⁷⁸ Teaiwa, K. (2020). "On decoloniality: A view from Oceania". *Postcolonial Studies*, 23(4), 602.

¹⁷⁹ Epeli Hau'ofa (1994), "Our Sea of Islands," *The Contemporary Pacific*, 6(1), 148–161; Atomic Heritage Foundation, "Marshall Islands," <https://ahf.nuclearmuseum.org/ahf/location/marshall-islands/>

Environmental injustice: Due to the geography of both territories, namely their close proximity to the ocean and limited elevation above the sea level, nuclear testing significantly damaged the environment, deteriorated people's health, and disrupted life. For instance, the Marshall Islands are estimated to have suffered Hiroshima-size bomb explosions daily for 20 years and currently have to deal with the Runit Dome potentially leaking due to the rising sea levels exacerbated by climate change.¹⁸⁰ Additionally, environmental damage severely harmed economies and increased their dependence on imports and subsidies. Notably, French Polynesia had been self-sufficient in food provision before the nuclear testing programme, but by 1979, 65 % of their food was imported.¹⁸¹

Gender and reproductive Injustice: The negative implications of nuclear testing in the Pacific have had a disproportionate impact on women both physically and socially. There are records of reproductive issues, such as infertility, miscarriages, stillbirths, of both Marshallese¹⁸² and Polynesian¹⁸³ women. Such health challenges have not only caused physical and emotional distress, but have also led to social stigmatisation and discrimination against the affected females. Nevertheless, the Pacific women do not subscribe to the notion of victimhood but have been outspoken and proactively resisted nuclear imperialism and related injustices.¹⁸⁴

Generational injustice: The haunting legacy of nuclear testing continues to affect survivors across generations, with individuals in the second and third generations still grappling with persistent health issues. However, it remains challenging to prove the relation between nuclear testing and inter-generational health problems due to the lack of related research and universal methodology. For instance, French Polynesians need to prove the exposure to 1 mSv to be considered affected and eligible for compensation, which can be an arduous task.¹⁸⁵ Furthermore, nuclear testing led to forced relocation of indigenous people, who are still displaced and may never return to their homeland due to remaining contamination.¹⁸⁶

Informational injustice: A veil of secrecy has shrouded nuclear testing programmes in the past with some information still being classified, which has affected the proper evaluation of the impact of nuclear tests. In both the Marshall Islands and French Polynesia, people were not aware of the radiation risks. Simultaneously, secrecy has enabled the nuclear-weapon states to play down the actual damage and avoid remediation by deliberately underreporting adverse impacts,¹⁸⁷ and refusing compensation claims without sufficient evidence.¹⁸⁸

¹⁸⁰ Kimball, 'U.S., Marshall Islands Sign Deal on Nuclear Testing Impacts,' Arms Control Association, March 2023.

¹⁸¹ Disclose and Interpret & Princeton University (2021). "Moruroa Files". <https://moruroa-files.org>

¹⁸² "WWINFP Women Working for an Independent and Nuclear Free Pacific" (1987). Pacific Women Speak, Oxford: Green Line.

¹⁸³ RNZ. (2020). "Claim of prenatal nuclear test exposure in Tahiti". RNZ. <https://www.rnz.co.nz/international/pacific-news/422971/claim-of-prenatal-nuclear-test-exposure-in-tahiti>

¹⁸⁴ Maurer, A. & Hogue, R. H., (2022). "Pacific women's anti-nuclear poetry: Centring Indigenous knowledges". International Affairs, 98(4), 1267–1288.

¹⁸⁵ Cho, A. (2021). "France grossly underestimated radioactive fallout from atom bomb tests, study finds". Science. Available at: <https://www.science.org/content/article/france-grossly-underestimated-radioactive-fallout-atom-bomb-tests-study-finds>

¹⁸⁶ Bordner, A., Ferguson, C. "Colonial dynamics limit climate adaptation in Oceania: Perspectives from the Marshall Islands". Global Environmental Change, March 2020. DOI:10.1016/j.gloenvcha.2020.102054

¹⁸⁷ "French Polynesia Petitioners Blame France for Years of Suffering Fallout from Nuclear Tests, as Fourth Committee Continues Decolonization Debate". UN Press. (2018). Available at: <https://press.un.org/en/2018/gasped663.doc.htm>

¹⁸⁸ Disclose and Interpret & Princeton University (2021). "Moruroa Files".

From injustice towards nuclear justice in the Pacific: Having highlighted the interrelated forms of injustice that continue to impact people and their environment throughout the Pacific region, this section focuses on understandings and ways towards nuclear justice. In this regard, the perspectives, demands, standpoints and initiatives of affected communities should be centred in formulating an understanding of nuclear justice and a justice-oriented approach in nuclear policy making. Demands and struggles for climate justice and self-determination in the region are also interlinked with demands for nuclear justice.¹⁸⁹ Further, resistance against nuclear imperialism has been organised transnationally through networks across the Pacific and globally led by affected communities.¹⁹⁰ Examples of nuclear justice initiatives, organisations and networks by affected communities from the Pacific Region – especially youth and women led organisations – include Coalition of Nuclear Justice Advocates, MISA4the Pacific, Young Solwara Pacific and the Marshallese Educational Initiative.

Policy Recommendations

I. Centering Affected Communities' Perspectives in Nuclear Policy-Making

- States should work towards enhancing the representation of affected communities – particularly survivor-led civil society organisations and networks – in spaces of nuclear policy-making by extending invitations to such groups for engagement with a greater variety of platforms and providing funding for their travel and participation in various events to make them more accessible. Here, one might think of such fora as the NPT review cycle and the Conference on Disarmament.
- Nuclear weapons as a social justice issue and their connection to other struggles for justice (e.g. climate justice, indigenous rights for self-determination) must be verbally and textually addressed and considered in the aforementioned processes and fora.

II. Acknowledgment and Apologies for Harm Caused

- To establish accountability and work towards justice-oriented reconciliation, nuclear-weapons states should publicly apologise for the harm they caused and acknowledge the ongoing consequences of their actions in various fora, including the UN General Assembly and the NPT review cycle.
- To properly estimate the extent of harm and damage, and to identify the groups of people who need remediation, nuclear-weapon states should work constructively towards the declassification of documents containing relevant information and cooperate with the UN and other relevant organisations on establishing a universal methodology for such estimation.
- The humanitarian impacts discussion should be furthered and bolstered with international support at the high-level nuclear policy-making platforms, including the First Committee of the UN General Assembly, and the meetings of state parties to the TPNW and the NPT.

¹⁸⁹ Eschle, C. & Choi, S. (2022). "Rethinking global nuclear politics, rethinking feminism". *International Affairs*, 98(4), 1129–1147.

¹⁹⁰ Maurer, A., & Hogue, R. H. (2020). "Introduction: Transnational Nuclear Imperialisms". *Journal of Transnational American Studies*, 11(2), p. 27.

III. From Retribution, Compensation towards Reparations

- Projects on recovering the areas affected by mining and testing activities require comprehensive research. Such projects should be financed by the responsible states through relevant institutions, e.g. the World Bank.
- Advocacy by state and non-state actors alike for increased financial compensation for communities affected by nuclear testing and uranium mining should be bolstered by mainstreaming the issues of nuclear injustice in other relevant areas of research, notably environmental studies, and increasing the geographic range of non-governmental organisations involved in the relevant research and awareness raising.
- Greater accountability and transparency from governments and corporations involved in these industries is essential for the ongoing process of remediation as well as a more precise assessment of reparations that could compensate for the environmental, economic, and social damage inflicted. This should also ensure that no such harmful activities are rolled out in the future. Ideally, this would be a cooperative process driven by a shared desire to address the injustices that are associated with the production and testing of nuclear weapons.

IV. Using and Strengthening Existing Tools

- Apart from its essential function to identify nuclear explosions, the International Monitoring System of the CTBT could be utilised to measure radiological contamination in the affected territories and to continuously monitor any anomalies that might be related to radiological contamination or environmental damage. Furthermore, it is advisable to renew and strengthen efforts to foster the entry into force of the CTBT.
- International instruments such as the TPNW and particularly the Vienna Action Plan (2022) could be considered as a benchmark mechanism for dealing with victim assistance at the global level.
- Recognising the injustices and violations of human rights resulting from the nuclear industrial complex as a crime against humanity could streamline and formalise the process of pursuing justice, enabling a more efficient and structured mechanism for addressing survivors' needs.

Conclusion

This policy paper addressed the topic of nuclear injustice through a series of specific examples, notably uranium mining in the Navajo Nation and nuclear testing in the Pacific region. Based on those case studies involving affected communities, this paper has provided policy recommendations oriented towards a justice-based nuclear policy approach. Patterns of exclusion continue to shape nuclear policy making; the harm perpetuated on communities by nuclear weapons programmes can be seen across the supply chain of nuclear weapons, which includes uranium mining and processing, production, testing, and waste disposal. Moreover, affected individuals and communities have often been confronted with various types of injustice that interact in complex ways, thereby compounding the adverse impacts of the nuclear supply chain. For example, affected communities are disproportionately indigenous, of colour, poor, and rural. Nonetheless, with a strong commitment to end nuclear injustice from all relevant stakeholders, it is possible to reckon with the past and work towards a just future.