



'PETROBROMANCE', NUCLEAR PRIESTHOOD, & POLICE REPRESSION

Feminist Confrontations of Violent Industries,
and Movements to Abolish Them

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'Petrobromance', Nuclear Priesthood, and Police Repression: Feminist Confrontations of Violent Industries, and Movements to Abolish Them

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Authors: Ray Acheson, Katrin Geyer, Genevieve Riccoboni, Laura Varella

Editor: Ray Acheson

Research support: Emma Murray and Michelle Benzing

Copy review: Genevieve Riccoboni and Zarin Hamid

Design: Nadia Joubert

Credit: The term "petrobromance" was coined by Joni Seager

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ACRONYMS

ANFA	Australian Nuclear Free Alliance	APIB	Articulation of Indigenous Peoples of Brazil
AUD	Australian Dollar	AUKUS	Australia, United Kingdom, United States
BCSC	British Columbia Supreme Court	BP	British Petroleum
CAN	Climate Action Network	CEDAW	Committee on the Elimination of Discrimination Against Women
CGL	Coastal GasLink	COP	Conferences of Parties
DAPL	Dakota Access Pipeline	DPRK	Democratic People's Republic of Korea
DRC	Democratic Republic of the Congo	EACOP	East African Crude Oil Pipeline
EBRD	European Bank for Reconstruction and Development	EDF	Electricite de France
ERA	Energy Resources of Australia	FBI	Federal Bureau of Investigation (US)
FF	Fridays for Future	FPIC	Free, Prior, and Informed Consent
GBV	Gender-Based Violence	GDP	Gross Domestic Product
HADR	Humanitarian assistance and disaster relief	HEU	Highly enriched uranium
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome	IACHR	Inter-American Commission on Human Rights
IAEA	International Atomic Energy Agency	ICAN	International Campaign to Abolish Nuclear Weapons
ICBM	Intercontinental Ballistic Missile	ICJ	International Court of Justice
IEA	International Energy Agency	ICJ	International financial institutions (IFIs)
IMF	International Monetary Fund	IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change	KEC	Kola Environmental Center

KEPCO	Korea Electric Power Corporation	LGBTQIA+	Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual +
2SLGBTQIA+	Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual	LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas	MAD	Mutually Assured Destruction
MOX	Mixed Oxide Fuel	NATO	North Atlantic Treaty Organization
NGO	Non-Governmental Organization	NT	Northern Territory (Australia)
NYPD	New York City Police Department	OCP	Oleoducto de Crudos Pesados
OPEC	Organization of the Petroleum Exporting Countries	PHMSA	Pipeline and Hazardous Materials Safety Administration
PIC	Prison Industrial Complex	PMSCs	Private Military and Security Companies
RCMP	Royal Canadian Mounted Police	RECA	Radiation Exposure Compensation Act
SALW	Small Arms and Light Weapons	SDGs	Sustainable Development Goals
SIDS	Small Island Developing States	SIPRI	Stockholm International Peace Research Institute
SOCFIN	Société Financière des Caoutchoucs	SQM	Sociedad Química y Minera de Chile
SSN	Stk'emlupsemc te Secwepemc Nation	STEM	Science, Technology, Engineering, Mathematics
TPNW	Treaty on the Prohibition of Nuclear Weapons	TTU	Texas Tech University
UK	United Kingdom	UN	United Nations
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples	UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change	UNSC	United Nations Security Council
US	United States of America	USD	United States Dollar
US EPA	US Environmental Protection Agency	WHO	World Health Organization
WILPF	Women's International League for Peace and Freedom	WPS	Women, Peace and Security
XR	Extinction Rebellion		

INTRODUCTION

This report investigates the nexus between the nuclear and fossil fuel industries, and state repression of activism against these industries. It analyses, from a feminist and gender-transformative perspective, trends and parallels in how the nuclear and fossil fuel industries operate and entrench their power; their impacts on communities, including gendered impacts; and the ways in which resistance against these industries is suppressed by police, militaries, and private military and security companies (PMSCs). Drawn from research and consultation with activists, organisers, academics, and members of impacted communities, this research aims to create a shared knowledge base and illuminate paths forward for deeper collaboration across movements, including, but not limited to, among antinuclear, environmental, and land and water defence movements.

Nuclear and fossil fuel industries

Powerful industries continue to shape many of the realities of the world we live in today, influencing ecological health, human rights, and the ability of communities to live in peace and security. Both the fossil fuel industry and nuclear industry constitute an existential threat to humanity and all species on our shared planet. Despite this, the burning of fossil fuels and the existence of nuclear weapons and nuclear energy continue to be justified and legitimised by entrenched interests in government and industry.

Fossil fuels such as coal, oil, and gas are the world's largest contributors to the climate crisis, comprising three-quarters of global greenhouse gas emissions.¹ Even as scientists have been raising the alarm for years about the need for urgent climate action, fossil fuel companies continue to pollute the Earth, with the support of allies in governments, and are spending millions of dollars on lobbying to ensure they

can continue to operate. Every day, the world consumes 100 million barrels of oil and 60 million barrels of natural gas.² Coal is still the main global energy source for electricity³, and the overall primary energy supply is 30.9 per cent oil; 26.8 per cent coal; and 23.2 per cent natural gas.⁴ In 2020 there were at least 2381 oil and gas pipelines in operation, covering 1.18 million kilometres (about 733218.01 mi)—enough to circle the earth 30 times.⁵

While the fossil fuel industry continues to extract and pollute, the nuclear energy industry is trying to sell itself as a solution to the climate crisis. But nuclear power is not a solution to the climate crisis or to broader ecological and environmental concerns. From uranium mining to radioactive waste, the nuclear industry pollutes and poisons people and the planet in other ways. Furthermore, the time necessary to transition to nuclear energy would extend reliance on the fossil fuel industry by decades.

1 "Causes and Effects of Climate Change," United Nations, <https://www.un.org/en/climatechange/science/causes-effects-climate-change>.

2 "Half of the world's oil pipelines under construction are in Africa and the Middle East," *Global Energy Monitor*, 8 May 2023, <https://globalenergymonitor.org/press-release/half-of-the-worlds-oil-pipelines-under-construction-are-in-africa-and-the-middle-east>.

3 "Electricity generation by source 2023," Statista, <https://www.statista.com/statistics/269811/world-electricity-production-by-energy-source>.

4 "World Energy Balances: Overview – Analysis," International Energy Agency, <https://www.iea.org/reports/world-energy-balances-overview/world>.

5 Hussein, Mohammed, "Mapping the world's oil and gas pipelines | Infographic News," *Al Jazeera*, 16 December 2021, <https://www.aljazeera.com/news/2021/12/16/mapping-world-oil-gas-pipelines-interactive>.

Meanwhile, the nuclear industry also involves the production of nuclear weapons. The risk of nuclear war is now at its highest point in decades.⁶ Nine states—China, the Democratic People’s Republic of Korea (DPRK), France, India, Israel, Pakistan, Russia, United Kingdom (UK), and United States (US)—possess over 12,000 nuclear warheads as of 2024.⁷ Most of these weapons (88 per cent) are possessed by only two states: the US and Russia. The Federation of American Scientists highlights that “the number of nuclear weapons in the world has declined significantly since the Cold War: down from a peak of approximately 70,300 in 1986 to an estimated 12,100 in early-2024.”⁸ But the pace of overall nuclear reduction has been slowing, and the nuclear-armed states are “modernising” their warheads, delivery systems, and facilities, at a cost of over 80 billion United States Dollars (USD) a year. Additionally, the number of warheads assigned to operational forces is increasing, posing tremendous risks to the future of our planet.⁹

Colonial and imperial forces

There is significant overlap between the above list of nuclear-armed states and the countries that bear the most responsibility for the greenhouse gas emissions fuelling the climate crisis. The world’s most lucrative oil companies—such as Saudi Aramco, China Petroleum, and Chemical Corp, Exxon Mobil, Shell, British Petroleum, Chevron, and Gazprom—are based in US, Saudi Arabia, China, the UK, France, Russia, and other countries.¹⁰ These states are also all highly militarised, regularly ranking among the top military spenders and arms traders in the world;¹¹

Five out of six of these states are permanent members of the United Nations Security Council (UNSC) and are armed with nuclear weapons. Each of these states promote militarism, centring their armed forces in policy decisions and prioritising their ability to wage war above the wellbeing of their populations or the planet.

Many of the companies and countries benefiting from the fossil fuel industry are in the so-called Global North, which, alongside the term Global South, is a shorthand we use in this report to characterise countries according to their relationships to historical and current structures of power. However, we also recognise the nuances and shortcomings of using such terminology, including in relation to states such as China and Russia—which are not usually considered part of the Global North *per se*, but are heavily militarised states that similarly pursue imperial and neocolonial interests—or regional powers such as Saudi Arabia, which are also highly militarised, active in armed conflicts, and whose foreign policies are intertwined with fossil fuels and geopolitics.

These realities reflect colonial and imperial pasts, in that a few countries have attained wealth and global power through the subjugation and exploitation of other peoples and of nature. This consolidation of power provides a starting point from which to examine the ways that decision-making around existential threats is concentrated in the hands of a small group of people, the majority of whom are cisgendered, heteronormative white men from the Global North.

6 “Nuclear Warfare Risk at Highest Point in Decades, Secretary-General Warns Security Council, Urging Largest Arsenal Holders to Find Way Back to Negotiating Table,” United Nations Meetings Coverage and Press Releases, SC/15630, 18 March 2024, <https://press.un.org/en/2024/sc15630.doc.htm>.

7 “Status of World Nuclear Forces,” Federation of American Scientists, <https://fas.org/initiative/status-world-nuclear-forces>.

8 Ibid.

9 Ibid.

10 Nathan Reiff, “10 Biggest Oil Companies,” Investopedia, 2023, <https://www.investopedia.com/articles/personal-finance/010715/worlds-top-10-oil-companies.asp>.

11 “SIPRI Military Expenditure Database,” Stockholm International Peace Research Institute, <https://milex.sipri.org>.

Both nuclear and fossil fuel interests perpetuate and are dependent on neocolonialism, capitalism, elite capture, and militarism. War is heavily destructive to the environment, both in terms of pollution as well as through high levels of greenhouse gas emissions. While the world's top historical and current emitters include heavily militarised states such as the US and UK, the countries and territories most impacted by the climate crisis between 2000 and 2019 were Myanmar, Haiti, and the US-controlled territory of Puerto Rico.¹² Next to Small Island Developing States, which face existential threats to their existence due to rising sea levels, some of the most vulnerable countries to the climate crisis include Chad, Somalia, Syria, the Democratic Republic of Congo, and Afghanistan.¹³ What these countries also share is that they are suffering protracted humanitarian crises and human suffering, resulting from armed conflict and violence. This suffering is perpetuated directly by both the nuclear and fossil fuel industries, whose leadership makes an enormous profit from war and militarism. Militarism and climate risk therefore intersect to deepen vulnerability, while those most impacted by these realities are excluded from decision-making around them and are met with severe repression when they resist.

Decolonial, abolitionist, and intersectional feminist analysis

Gender and feminist analysis are critical for shedding light on the industry interconnections explored in this report, as well as for identifying ways to build solidarity to address the harms of

fossil fuels, nuclear weapons, and nuclear energy. By feminist analysis, we mean analysis that aims to uncover and unpack biases, inequalities, and imbalances in power, including based on gender. Our approach to feminist analysis is grounded in intersectional feminist theory in the Black feminist tradition, which recognises how different systems of oppression interlock and synthesize to create the conditions which people live under.¹⁴ Such an approach does not merely interrogate the binary categories of man and woman, but rather, explores how gender is non-binary, contextual, relationally defined, and co-constructed alongside other identities such as sexual orientation, race, ethnicity, nationality, class, indigeneity, and religion.

Decoloniality is also essential to thinking through the realities of the climate crisis, the nuclear industry, and militarism. In an article on antinuclear feminism, academic Romy Opperman highlights the need to theorise from an anticolonial feminist lens that centres questions about land and impacted communities, because “claims that technological fixes will address climate injustices obscure the complex relationship of the nuclear fuel cycle with aspects of race, gender, and socioeconomic status”.¹⁵ Anticolonial feminists “work with the fact of continual and widespread nuclear use and often live with its past, present, and perilous future,” and therefore anticolonial approaches must stress both a shared project and political commitment.¹⁶ As academics Shine Choi and Catherine Eschle write, “A feminist reckoning with colonial logics and politics is necessary for a fully critical, holistic understanding of the global nuclear order, and for challenging it more

12 David Eckstein, Vera Künzel, and Laura Schäfer, “Global Climate Risk Index 2021,” Germanwatch e.V., 2021, <https://www.germanwatch.org/en/19777>.

13 “Countries most affected by Climate Change.” Iberdrola, <https://www.iberdrola.com/sustainability/top-countries-most-affected-by-climate-change>.

14 “The Combahee River Collective Statement,” The Combahee River Collective, 1977, https://americanstudies.yale.edu/sites/default/files/files/Keyword%20Coalition_Readings.pdf.

15 Romy Opperman, “Anti-Nuclear Anti-Colonial Feminism,” Blog of the APA, 11 November 2023, <https://blog.apaonline.org/2023/11/01/anti-nuclear-anti-colonial-feminism>.

16 Ibid.

effectively.”¹⁷ Vandana Shiva, an Indian scholar and ecofeminist, has also centred decolonial analysis and perspectives throughout her work, including as it relates to the climate crisis. She argues that “dead carbon has fossilized our minds into (...) mechanistic thinking. And it has fossilized our hearts. Because by escaping our responsibilities to the earth, and to each other, by thinking we can buy our way out with oil, we became indifferent. We became indifferent to life on earth.”¹⁸

As explored throughout the chapters, our approach is also drawn from abolitionist¹⁹ frameworks, movements, and philosophies, both in terms of nuclear abolition²⁰ and degrowth²¹ as well as abolitionist thinking around policing and prisons.²² These movements call for dismantling harmful structures and systems and replacing them with societies based around liberation and regeneration. In the words of prison-industrial complex (PIC) abolitionist thinker Ruth Wilson Gilmore, the goal of abolition “is to change how we interact with each other and the planet by putting people before profits, welfare before warfare, and life over death.”²³

International policy frameworks

Human rights and policy frameworks also provide a basis for looking at gender in relation to issues

such as the climate crisis and international peace and security. One such framework is the Women, Peace, and Security (WPS) Agenda. UNSC Resolution 1325 on WPS called for increasing women’s participation in all aspects of peace and security and has been followed by nine subsequent resolutions.²⁴ The Agenda has four main pillars: participation (of women and girls in peace and security), protection (from violence, including sexual violence), prevention (of armed conflict and violence), and relief and recovery. In 2015, the UN Security Council adopted Resolution 2242, which recognised for the first time that climate change interconnects with the WPS framework.²⁵ The Committee on the Elimination of Discrimination Against Women (CEDAW) has published General Recommendation No.37 on the gender-related dimensions of disaster risk reduction in a changing climate.²⁶ The Paris Agreement calls on states to consider their human rights obligations, as well as gender equality, when taking action to address climate change.²⁷

In terms of disarmament and arms control, the WPS Security Council resolutions incorporate language on small arms and light weapons, but do not address other issues, such as nuclear weapons or biological or chemical weapons. The Treaty on the Prohibition of Nuclear Weapons (TPNW) is the only international nuclear-related instrument to address gendered impacts of nuclear

17 Shine Choi and Catherine Eschle, “Rethinking global nuclear politics, rethinking feminism,” *International Affairs* 98(4), July 2022, pp. 1129–1147, <https://academic.oup.com/ia/article/98/4/1129/6628392>.

18 “Mind & Life Podcast Transcript Vandana Shiva – Earth Democracy,” *Mind & Life Podcast*, 2021, https://podcast.mindandlife.org/wp-content/uploads/2021/08/VandanaShiva_transcript.pdf.

19 Ray Acheson, *Abolishing State Violence: A World Beyond Bombs, Borders, and Cages* (Chicago: Haymarket Books, 2022).

20 International Campaign to Abolish Nuclear Weapons, <https://www.icanw.org>.

21 “What is degrowth.” Degrowth, <https://degrowth.info/degrowth>.

22 Ray Acheson, *Abolishing State Violence*, op. cit.

23 Kay Gabriel, Samuel Bagenstos, Michael J. Fortner, and Mike Konczal, “Abolition as Method,” *Dissent Magazine*, Fall 2022, <https://www.dissentmagazine.org/article/abolition-as-method>.

24 “Security Council Resolution 1325,” PeaceWomen, <https://www.peacewomen.org/SCR-1325>.

25 Keina Yoshida, “The Nature of Women, Peace and Security: Where is the Environment in WPS and Where is WPS in Environmental Peacebuilding?” Centre for Women, Peace and Security – London School of Economics and Political Science, 2020, <https://www.lse.ac.uk/women-peace-security/assets/documents/2020/WPS22Yoshida.pdf>.

26 “General recommendation No.37 (2018) on gender-related dimensions of disaster risk reduction in a changing climate,” UN Office of the High Commissioner on Human Rights (OHCHR), 2018.

27 “Paris Agreement,” United Nations, 2015, https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

weapons and to call for participation of women in the work for nuclear disarmament. While there is increasing recognition of the importance of gender perspectives in global work on nuclear weapons, this has not extended to other parts of the nuclear industry—and there are no global frameworks on the nuclear industry that intersect with climate or other ecological concerns so far. As is described in further detail in the chapter on the nuclear industry, hundreds of organisations around the world are making it clear that nuclear energy is not a solution for the climate crisis and must not be incorporated into climate conference outcomes as such. These organisations include Don't Nuke the Climate,²⁸ the Women and Gender Constituency, and the largest global climate justice network, Climate Action Network.²⁹

Structure of this report

This report takes a global perspective, drawing on the expertise of diverse experts and perspectives from a variety of countries and regions.³⁰ Although it aims to explore interconnections and thematic parallels, it is also important to recognise the differences in the contexts and case studies in the report. Only a few countries in the world possess nuclear weapons, and as noted above, these are many of the same countries which bear the bulk of responsibility for the climate crisis, in terms of both historical and current emissions. Within even these countries, this report shows how it has been marginalised communities, such as Indigenous and Black communities, that have suffered the primary impacts of fossil fuel and nuclear industry-driven environmental racism.³¹ The role of government and private sector interests also notably vary across contexts; in

some countries, oil and gas companies are state-owned enterprises, while in others, they are private companies that have transnational operations. These variations are important to keep in mind in terms of understanding the dynamics present in each case study that is explored in the paper, as well as for identifying paths forward for ongoing advocacy, activism, and campaigning for abolition, accountability, and repair.

To delve deeper into the themes articulated above, this paper contains five main chapters. These comprise distinct chapters on the nuclear industry; the fossil fuel industry; the ways in which police, militaries, and private military and security companies (PMSCs) are used to suppress resistance to these industries; and the connections among these industries and structures of state violence. The closing chapter offers recommendations for activists, organisers, governments, and others working on these issues.

The nuclear industry chapter explores the full lifecycle of the elements of the nuclear chain as well as different uses: uranium mining; milling, conversion, and enrichment; nuclear reactors; reprocessing; nuclear-powered submarines; nuclear weapon production, maintenance, and modernisation; weapon testing; nuclear weapon deployment and doctrines; and radioactive waste. It also provides a brief overview of the antinuclear movement.

The chapter on fossil fuels dives into issues around the role of extractive industries in perpetuating the climate and ecological crisis; the ecological and human rights impact of the industry; and the role of extractive industries in conflict and post-conflict

28 Don't Nuke the Climate, <https://dont-nuke-the-climate.org>.

29 Climate Action Network, <https://climatenetwork.org>.

30 In the interviews for this report, interviewees represented and reflected on their own contexts including the USA, Canada, Mexico, Brazil, Australia, the Philippines, Pakistan, Zimbabwe, the Democratic Republic of the Congo (DRC), and the Northern Mariana Islands, as well as the Mangureira, Micronesian-Chamorro, and Tewa Indigenous communities. We pay respect and homage to all the Indigenous, Aboriginal, and Native nations of these lands.

31 "What Is Environmental Racism?" Natural Resources Defense Council, 2023, <https://www.nrdc.org/stories/what-environmental-racism>.

settings. Extractive operations can be described as any activity that exploits raw materials from the Earth. These raw materials include coal, oil and gas (fossil fuels), minerals such as copper, gold, diamonds or rare earth minerals, and aggregates (such as sand, gravel, and clay).³²

Extractivism is a term that describes “an economic and political model based on the unbridled commodification and exploitation of nature,” and is part and parcel of the global capitalist economy.³³ It can also be described as “a dominant economic model that relies on the removal of natural resources and raw materials on a massive industrial scale for export.”³⁴ Crucially, this includes the specific conditions around extraction, regarding the ways in which extraction takes place—such as the absence of consent of local populations—and the interests they serve—such as elite, corporate, and criminal interests rather than the public good.³⁵ For this research, the focus will predominantly be on the fossil fuel industry’s impacts on the ecological crisis, and to a lesser extent, on those extractive industries active in the mining of critical minerals for renewable energy technologies. The latter have been documented to already commit devastating ecological damage and human rights violations and are implicated in the violent oppression of those that oppose their operations. Extractivism is also relevant for the nuclear chapter in the context of uranium mining.

Following the initial sections on the nuclear and fossil fuel industries, this report further examines how these industries operate and enforce their interests. The chapter on policing and PMSCs examines the roles that police, militaries, and PMSCs have played in relation to repressing the

antinuclear, land defence, and environmental movements, including repression against Indigenous People. We refer to environmental movements throughout this report, however, we acknowledge the heterogeneity of these movements, their histories, ideologies, and motivations, including climate justice activists, land, water, and forest defenders, Indigenous Peoples, environmentalists and conservationists, and more.

Finally, a chapter on industry connections brings together many of the parallels explored throughout the report and provides more detail on how these industries and structures collude and entrench their power and influence. This chapter looks at how these industries perpetuate and depend on neocolonialism, militarism, and capitalism; exclude the participation of the most affected; capture state power; perpetuate and depend on patriarchy; and rely on state violence to oppress those resisting them. Each chapter also introduces the movements for nuclear abolition, police and prison abolition, and degrowth and climate justice, describing their trajectories, growth, and main calls for systems change.

Cross-cutting themes

Across all chapters, several cross-cutting themes emerge as essential for understanding the ways in which the nuclear and fossil fuel industries operate and impact diverse communities. These include industries as causes and drivers of conflict and violence; impacts to health, violence, and wellbeing; impacts on the environment; dynamics of decision-making and governance; repression of resistance; and intersectionality.

32 Claudine Sigam and Leonardo Garcia, “Extractive Industries: Optimizing Value Retention in Host Countries,” United Nations Conference on Trade and Development (UNCTAD), 2012, <https://digitallibrary.un.org/record/725984?v=pdf>.

33 Inmaculada Barcia, “Women Human Rights Defenders Confronting Extractive Industries,” Association for Women’s Rights in Development, 2017, https://www.awid.org/sites/default/files/atoms/files/whrds-confronting_extractive_industries_report-eng.pdf.

34 Katrina Anderson and Mary Jane Real, “Women on the Frontlines of Extractivism: How Funders Can Support Women Environmental Defenders.” Global Alliance for Green and Gender Action, <https://www.gaggashare.net/s/wK56fSLpn9pENFH>.

35 Ibid.

Both the nuclear and fossil fuel industries, in different ways, fuel myriad forms of armed conflict, violence, and displacement. By their very existence, nuclear weapons legitimise mass destruction and death as a means of resolving disputes or manipulating “geopolitical power”. However, the chapter on the nuclear industry also explores how, for Indigenous Peoples impacted by nuclear weapon development and testing, nuclear war cannot be understood as an act defined solely by the final decision to drop the bomb, but as originating in the expropriation of Indigenous land for extracting uranium.³⁶ This discussion challenges the traditional binary between so-called “peacetime” and “wartime,” or between nuclear weapons and nuclear energy, reflecting a deeper continuum of violence.

The chapter on fossil fuels also discusses this theme of conflict and violence by looking at how fossil fuel companies monopolise profits of fossil fuel extraction, while often exacerbating tensions, grievances, land-grabbing, and local conflicts in the communities from which the resources are being extracted. The pursuit of oil and gas has been a major driver of colonial expansion and armed conflicts such as civil wars, with spillover effects even outside of oil-producing nations. For example, decades of war in Afghanistan and instability in Pakistan have been shaped by US interests, as well as Soviet and Chinese interests, while oil politics in the Gulf states have influenced governance in Pakistan as well.³⁷ At times, extractivism and development can also intersect with other forms of conflict and violence. In Mexico, for example, some of the states with mega infrastructure and energy projects—Guerrero, Tabasco, Veracruz, Michoacán—are also states that have substantial amounts of “cartel” and “narco” activity.³⁸

All these phenomena have disproportionate impacts on women, girls, non-binary, and LGBTQ+ people, and influence gender relations and dynamics. This is clearly visible in the heightened rates of gender-based violence and exploitation perpetrated with impunity by police, PMSCs, militaries, and fossil fuel workers around extraction sites, a theme discussed in the chapters on fossil fuels and policing. These phenomena have also been present in the nuclear industry as well as within the so-called clean or renewable energy sectors. In Zimbabwe, for example, there has been a “surge of militarism” within local communities in relation to the mining sector, and the police and army are being used to accommodate investors for lithium extraction.³⁹

Both fossil fuel extraction and the activities of the nuclear industry have resulted in significant and often intergenerational social, health, and cultural impacts on communities. In addition to gender-based violence that is disproportionately waged against women, girls, and gender-diverse people, the radioactivity, chemicals, and pollution associated with extraction of fossil fuels, minerals, and uranium have led to heightened rates of cancers, reproductive issues, and other health conditions. The nuclear chapter examines this issue in relation to the intergenerational trauma and violence against nuclear survivors and their descendants in Hiroshima and Nagasaki, as well as in terms of the health impacts of nuclear development and testing, which have impacted Indigenous communities in the Pacific and in the US southwest, among other locations. In relation to fossil fuels, both fossil fuel extraction as well as its major impact—the climate crisis—have health consequences for humans and other species. Extreme heat, wildfires, and rising sea levels all pose existential threats and immediate

36 Interview with Ahjani Yepa-Sprague on 15 May 2024.

37 Interview with Azra Sayeed on 30 May 2024.

38 Interview with Náme Villa del Ángel on 30 May 2024.

39 Interview with Edwick Madzimore on 30 May 2024.

consequences to health. The presence of police, militaries, and PMSCs also impact health and wellbeing by subjecting frontline communities to the persistent threat of violence and repression at the hands of armed personnel. Regarding social and cultural impacts, these industries have removed communities from their traditional lands, damaged sacred sites, impacted food and water supply, and incarcerated movement leaders and other community members.

Environmental impacts are also a main cross-cutting theme of this research. The various short – and long-term environmental impacts of fossil fuel extraction are clear, in their outsized contribution to the climate and ecological crisis. Both nuclear power and nuclear weapons also have their own set of environmental harms linked to radioactivity, which are broken down in the nuclear chapter in the analysis of each stage of the nuclear cycle. This research, however, also challenges the binary between the impacts these industries have on the environment and humans, by reflecting how these harms are intertwined. This has particularly profound effects for Indigenous Peoples and their relationships to the land. As an organizer with Tewa Women United, Ahjani Yepa-Sprague, stated in an interview for this report, “Violence on the land is violence on our bodies.”⁴⁰

Another theme is that decision-making around fossil fuels and nuclear issues is heavily exclusionary, particularly when it comes to the communities that are most impacted. As one interviewee, environmental activist Joni Seager, noted, “The feminist lens on this is very important” because the nuclear and fossil fuel industries are among the most masculinised in the world. For Seager, this masculinisation is not merely about the male dominance of these industries in terms of

numbers, although that plays a role. Rather, it also refers to their relationships with power structures, and the ways in which fossil fuel profits and decision-making power continue to be hoarded by a small group of men who have held leadership roles both in energy sector as well as in militaries and governments. In her words, the “combined power of militarism and fossil fuels bolsters the power of masculinities” and “supports a male power structure throughout.”⁴¹

The power of the fossil fuel and nuclear industries has had profound impacts on democracy, governance, and politics. In an interview for this project, former Australian Greens senator Scott Ludlam described this as “state capture”, defining state capture as an “intermediate stage between democracy and oligarchy.”⁴² In the context of the nuclear and fossil fuel industries, he argued, the relationship between state-owned enterprises and private corporations has been inverted, in that “it’s the states themselves that are owned” by the corporations. This concept is explored in more detail in the fossil fuel industry section. In another interview, also speaking of the context in Australia, scholar Talei Luscía Mangioni remarked that “the government and climate policy are essentially owned by fossil fuel and extractive industries... You also see a lot of folks with job titles in government move into the fossil fuel industry after their service and vice-versa.”⁴³ These realities are not unique to Australia, but reflect patterns explored throughout the chapters of this report in a variety of contexts.

Marginalised people and impacted communities are particularly excluded from this decision-making, although they are the ones at the frontlines of the myriad environmental, social, and cultural impacts described above. Further, in some

40 Interview with Ahjani Yepa-Sprague on 15 May 2024.

41 Interview with Joni Seager on 30 May 2024.

42 Interview with Scott Ludlam on 15 May 2024.

43 Interview with Talei Luscía Mangioni on 17 May 2024.

contexts, the concept of Free, Prior, and Informed Consent (FPIC), an essential component to the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), has been undermined and manipulated whereby small groups of people are deployed to speak on behalf of their communities, to rubber-stamp projects. These elements are explored across both the nuclear and fossil fuel chapters, where we pose questions around who is present in the rooms where such decisions are made and who gains and loses out most from these activities.

Another common thread between the nuclear and fossil fuel industries is the presence of creative and fierce movements to challenge them—and intense state violence and repression of such resistance. There is a long history of antinuclear activism to call for an end to uranium mining, nuclear weapons, and radioactive waste, including in the Pacific Islands, Japan, Australia, the United States, and many more countries and regions, where many activists identified antinuclear activism with anticolonial and postcolonial resistance. Organisers have pursued strategies at the local, national, and international levels, including pursuing an internationally binding treaty to ban nuclear weapons, the Treaty on the Prohibition of Nuclear Weapons (TPNW).⁴⁴ In relation to fossil fuels, climate justice and environmental movements have been mobilising for a total phase-out of fossil fuels, with an increased focus on justice for countries and communities who have most been impacted by the climate crisis.⁴⁵

Human rights and land defenders in the antinuclear, environmental, and climate movements have been targeted with police repression of protest, reprisals, threats, surveillance, criminalisation, enforced disappearances, and killing. These violations

have disproportionately been against Indigenous and other impacted communities, who are at the forefront of resistance. A discussion of this repression is woven throughout the nuclear and fossil fuel chapters and explored in more detail in a dedicated chapter on police, militaries, and PMSCs. These chapters go into detail about examples of repression from different countries and regions, including the Philippines, US, Russia, Brazil, India, Australia, Viet Nam, and the DRC. The chapter on police and PMSCs breaks down different instances and patterns of repression in these contexts and looks at the connections between repression of environmental and antinuclear movements in terms of common trends in state violence.

By examining these cross-cutting themes as well as the specificities of the nuclear and fossil fuel industries, the hope of the report authors is to provide a common knowledge base from which social movements can continue their essential work.

The process of conducting this research, through group interviews and consultations, brought together activists across antinuclear, climate, environmental, land defence, and peace movements. These interviews helped create connections and spark discussions about the diverse ways in which these movements can deepen their joint strategising and collaboration towards common goals of peace, ecological regeneration, and justice. We hope this work will continue, and that further connections across these areas can be identified in future research.

⁴⁴ Treaty on the Prohibition of Nuclear Weapons, <https://www.reachingcriticalwill.org/disarmament-fora/nuclear-weapon-ban>.

⁴⁵ Farhana Sultana, "Critical climate justice," *The Geographical Journal* 188(1), March 2022, pp. 118–124, <https://www.farhanasultana.com/wp-content/uploads/Sultana-Critical-climate-justice.pdf>.

NUCLEAR INDUSTRY



Photo by Luke Jermajic, Unsplash.

Introduction

As of early 2024, there were approximately 12,500 nuclear weapons in the world,⁴⁶ on which the nine nuclear-armed states collectively spend about 82.9 billion USD a year.⁴⁷ There were also 436 nuclear power reactors operating in 32 countries around the world.⁴⁸

Both nuclear power and nuclear weapons involve many of the same processes, from uranium mining to fuel processing to radioactive waste storage. Each of these links in the nuclear chain produce radioactivity, which, as the UN Environment Programme (UNEP) has stated clearly, is harmful to life by its very nature. At low doses, radiation can start off chains of events that lead to cancer or genetic damage. At high doses, it can kill cells, damage organs, and cause rapid death. “Radiation doses have to reach a certain level to produce acute injury—but not to cause cancer or genetic damage,” explains the UNEP. “In theory, at least, just the smallest dose can be sufficient. So, no level of exposure to radiation can be described as safe.”⁴⁹

Each of the radioactive links in the nuclear chain, along with others such as nuclear weapon production use, testing, and deployment, have waged unconscionable damage to human health, the environment, social and cultural lives, and economic well-being. As communities affected by various aspects of the nuclear industry said in a joint statement to the Second Meeting of States Parties to the Treaty on the Prohibition of Nuclear

Weapons in November 2023, “Nuclear weapons do harm every day. From the mining of uranium to the creation of the bomb and the everlasting radioactive waste, our planet carries the scars of so many nuclear sacrifice zones.” They also pointed out that nuclear colonialism has disproportionately impacted Indigenous Peoples and marginalised communities. “Indigenous Peoples’ lands were taken. Bodies were used, people were bombed.”⁵⁰

The concept of a sacrifice zone, raised in this statement, is important. It is a phrase that Ahjani Yepa-Sprague of Tewa Women United used in her interview for this project as well,⁵¹ and a phrase that researchers Sébastien Philippe and Ella Weber at Princeton University have used to describe the placement of missile silos and nuclear war plans.⁵² Each element of the nuclear chain destroys land, water, and everything living near the areas from which nuclear fuel is extracted, nuclear bombs are made, and nuclear waste is stored. Nuclear war planning deliberately constructs sacrifice zones, building the conditions for Armageddon in certain communities while imagining that this will spare other communities of the horror.

Looking just at the southwest United States, it is clear how discriminate the nuclear industry has been in ensuring that harms are disproportionately borne by Indigenous communities. As Petuuche Gilbert of the Indigenous World Association told the United Nations at that same meeting in 2023:

46 Hans Kristensen, Matt Korda, Eliana Johns, and Kate Kohn, “Status of World Nuclear Forces,” Federation of American Scientists, 31 January 2023, <https://fas.org/initiative/status-world-nuclear-forces>.

47 *Wasted: 2022 Global Nuclear Weapons Spending*, International Campaign to Abolish Nuclear Weapons, June 2023, https://www.icanw.org/wasted_2022_global_nuclear_weapons_spending.

48 “Number of operable nuclear power reactors worldwide as of May 2023, by country,” Statista, 9 January 2024, <https://www.statista.com/statistics/267158/number-of-nuclear-reactors-in-operation-by-country>.

49 *Radiation: Doses, Effects, Risks*, United Nations Environment Programme, December 1985, <https://wedocs.unep.org/handle/20.500.11822/29048>, p. 49.

50 *Affected Communities Statement to the Second Meeting of States Parties to the Treaty on the Prohibition of Nuclear Weapons*, 29 November 2023, https://reachingcriticalwill.org/images/documents/Disarmament-fora/nuclear-weapon-ban/2msp/statements/29Nov_Affected_Communities.pdf.

51 Interview with Ahjani Yepa-Sprague on 15 May 2024.

52 See <https://missileonourland.org> and Sébastien Philippe, “Sacrifice Zones,” *Scientific American*, December 2023.

The nuclear bomb was built on the Indigenous lands of San Ildefonso Pueblo and tested in Mescalero Apache tribal land. The plutonium work for the weapon was carried out on Wanapum and Yakima Nations in Washington State. The weapons underwent testing on the land of the Western Shoshone Tribe in Nevada, which was a violation of the Treaty of Ruby Valley. Uranium for both atomic weapons and nuclear power was extracted from the lands of the Navajo people in New Mexico. We, the Indigenous People, know full well the pains and sufferings done under colonialism and now nuclear colonialism. In an unrestrained power system dominated by white supremacy, lacking mutual accountability, the result is an increased risk of death from nuclear bombing.⁵³

Who profits from all this harm? Corporations. It is private companies such as Northrop Grumman, General Dynamics, BAE Systems, Boeing, Lockheed Martin, and Raytheon that build nuclear weapons and their delivery systems and manage nuclear weapon laboratories. Most of these companies also produce other goods and are open to public investment. Right now, 287 financial institutions from around the world hold 477 billion USD in shares and bonds in these companies. From 2021 to 2023, they provided 276 billion USD in loans and underwriting.⁵⁴

Private corporations also build and operate nuclear power plants, such as Bechtel, EDF, General Electric, Siemens, and TEPCO; operate uranium mines, such as BHP, Cameco, Kazatomprom, General Atomics, Rio Tinto, and Rössing; and process radioactive materials or handle other aspects of the nuclear fuel chain, such as Eurodif, Framatome, Unrenco, and Westinghouse.

The nuclear industry—in terms of the companies building the arsenals, managing weapon labs or power stations, running mines, or overseeing “clean-ups”—have an undue influence over government policies in the countries in which they operate and make their profits. They are part of the system of state capture described in the introduction to this report. State capture can be defined as “the exercise of power by private actors—through control over resources, threat of violence, or other forms of influence—to shape policies or implementation in service of their narrow interest.”⁵⁵ As former Australian Greens senator Scott Ludlam writes, state capture by corporate interests means that “policymaking doesn’t work the way it’s meant to, and neither do elections. It means that even with a change of government, the captured infrastructure is likely to remain firmly in place. Whoever forms government, the fossil-fuel and arms industries will still have the numbers.”⁵⁶

It is also important to note that the nuclear industry, and the government policies that protect its interests, are what Joni Seager described in an interview for this project as comprising “a

53 Petuuche Gilbert, *Statement on behalf of Indigenous World Association and Tewa Women United to the Second Meeting of States Parties to the Treaty on the Prohibition of Nuclear Weapons*, 28 November 2023, https://reachingcriticalwill.org/images/documents/Disarmament-fora/nuclear-weapon-ban/2msp/statements/28Nov_IWA.pdf.

54 *Untenable Investments: Nuclear weapon producers and their financiers* (Utrecht: PAX and International Campaign to Abolish Nuclear Weapons, 2024), <https://www.dontbankonthebomb.com/untenable-investments>.

55 Andreas Fiebelkorn, *State Capture Analysis: How to Quantitatively Analyze the Regulatory Abuse by Business-State Relationships*, World Bank Group, June 2019, <https://documents1.worldbank.org/curated/en/785311576571172286/pdf/State-Capture-Analysis-How-to-Quantitatively-Analyze-the-Regulatory-Abuse-by-Business-State-Relationships.pdf>.

56 Scott Ludlam, “The scourge of state capture,” *The Monthly*, February 2022, <https://www.themonthly.com.au/issue/2022/february/1643634000/scott-ludlam/scourge-state-capture>.



Photo by Gundjeihmi Aboriginal Corporation.

tight network of masculinities".⁵⁷ As a professor and environmental activist, Seager has examined the various ways that masculinities undergird systems of power and violence. The nuclear industry is no exception to this dynamic. It is not just that men principally run and profit from the industry, but also the prevalence of gendered norms of "masculinity," such as hierarchy and centralisation of power, arrogant levels of extraction that prioritise profits over people and the planet, and the overconfident assertion that expensive, deadly technologies are the solution to problems of security, energy, and climate chaos—even when these technologies have actually fostered increased insecurity and grave harms. Some working in the nuclear industry have described this tightly controlled, masculinised dynamic as the "nuclear priesthood," which continues to dominate policymaking on nuclear weapons and nuclear energy.⁵⁸

Yet despite the obstacles of political economy and power, as this report shows, the harms generated by these industries also provide entry points for movements to mobilise against industry capture of governments and work towards their abolition. While this report cannot comprehensively address all the harms caused by the nuclear industry globally, through research and interviews it offers a consistent picture of harm with obvious racial and class discrimination, along with gendered harms and environmental destruction. While incorporating analysis and case studies from around the world, in some sections the report focuses on the United States as the progenitor of the atomic age.

This report also offers a cursory glimpse at the vibrant global antinuclear movement and the potential for remediation, reparation, and abolition offered by the Treaty on the Prohibition of Nuclear Weapons. It highlights some of the successes of antinuclear activism, as well as critiques of the movement and opportunities for improvement.

57 Interview with Joni Seager on 30 May 2024.

58 Heather Hurlburt, Elizabeth Weingarten, Alexandra Stark, and Elena Souris, *The "Consensual Straitjacket": Four Decades of Women in Nuclear Security*, New America, 5 March 2019, <https://www.newamerica.org/political-reform/reports/the-consensual-straitjacket-four-decades-of-women-in-nuclear-security>.

Elements of the nuclear chain

Uranium mining

The first step in the process is uranium mining. There are currently operational uranium mines in at least 20 countries, with most of the world's uranium coming from Kazakhstan, Canada, Australia, and Namibia.⁵⁹ This report looks at cases of uranium mining in the United States, Australia, and Namibia.

Natural uranium consists of three radioactive isotopes: uranium-238, – 235, and – 234. When it is mined from the earth, uranium contains only about 0.7% uranium-235, which is the isotope necessary to create fissile material for energy or weapons. Before being mined, Australian researchers and activists Dave Sweeney and Dimity Hawkins explain, the radioactive elements in uranium are generally locked in an impervious rock cocoon, so little radioactivity reaches the open environment. "Once these materials are mined, radioactive elements become far more bio-available and can readily escape into waterways and the atmosphere. Uranium is also chemically toxic at high concentrations and can cause damage to internal organs. Uranium has been linked with adverse impacts on reproduction, foetal development, and an increased risk of cancer and leukaemia."⁶⁰

Even after mining ceases, uranium tailings retain about 80 per cent of the radioactivity of the original ore body. "These tailings contain over a dozen radioactive materials that pose significant health hazards, including thorium-230, radium-226, and radon gas. These materials can emit radioactivity into the environment for tens of thousands of years. Global experience has

shown that most areas exploited for uranium extraction remain contaminated in perpetuity with limited or no effective rehabilitation," note Sweeney and Hawkins.

Sweeney and Hawkins explain that environmental impacts from uranium mining can include:

- Depletion and/or contamination of ground or surface waters;
- Production of large volumes of long-lived radioactive mine tailings;
- Vegetation clearance and dust generation; disturbance and erosion of the natural environment; chemical and fuel spills;
- Use of scarce resources to conduct the mining;
- Production of large volumes of mine tailings—a long-lived radioactive waste legacy;
- Radiation exposure to workers, local communities, and the environment; and
- Acid mine drainage and costly, complex, and routinely unrealized rehabilitation needs.

Cultural and social impacts include:

- Removal from traditional lands;
- Damage to sacred or significant sites and areas and belief systems;
- Impacts on traditional food sources and water;
- Constraints on cultural practices and restrictions on access to sites of significance and traditional lands;
- Erosion of traditional decision-making and social structures;
- Community division over development decisions and monetary recompense; and

59 "World Uranium Mining," World Nuclear Association, updated 16 May 2024, <https://world-nuclear.org/information-library/nuclear-fuel-cycle/mining-of-uranium/world-uranium-mining-production>.

60 Dave Sweeney and Dimity Hawkins, "Poisoned pathways: the impacts of the nuclear fuel cycle on human health, culture, and the environment," in Ray Acheson (ed.), *Costs, Myths, and Risks of Nuclear Power*, Reaching Critical Will programme of the Women's International League for Peace and Freedom, 2011, pp. 33–36.

- Impacts of mine related social factors such as consumption of alcohol and other drugs, HIV/AIDS, and other health and social impacts.

Other gendered social impacts of uranium mining can include impacts on reproductive health, gender-based violence around mining sites, and shifts in community dynamics due to the presence of large numbers of non-community men, as explored below.

While the impacts of uranium mining affect many communities, 70 per cent of the world's uranium is located beneath lands inhabited by Indigenous people in Africa, Asia, Australia, and the Americas.⁶¹

For example, the reservation lands and the surrounding areas of the Navajo and Hopi in so-called New Mexico have been mined for uranium since 1942. From 1946 to 1968, 13 million tons of uranium were mined on the Navajo Reservation. More than 1,000 open-pit and underground uranium mines on the reservation are abandoned, un-reclaimed, and highly radioactive. Some 600 dwellings on Navajo tribal lands are contaminated with radiation. Former uranium mining and milling districts of the Navajo Reservation suffer from cancer and leukaemia clusters and birth defects.⁶²

In a statement to the Second Meeting of States Parties to the Treaty on the Prohibition of Nuclear Weapons in 2023, Petuuche Gilbert of the Indigenous World Association described the legacy and current harms caused by uranium mining in New Mexico. Noting that from the 1950s to the

1990s, uranium mining took place on the tribal lands of the Laguna Pueblo and Navajo people in New Mexico, Gilbert pointed out that today, over 500 legacy radioactive uranium mines still exist in New Mexico. "The radioactive mill tailings cover hundreds of acres and emit radon gas that contaminate soil and underground deep source aquifers," he explained. "After three decades, the water plumes carrying radioactive toxins persist in motion, and entities such as Homestake Barrick Golds, who own the mills, remain unable to remediate the affected land and water. Individuals who reside around these locations continue to be impacted and succumb to illnesses caused by nuclear exposure."⁶³ Gilbert used the case of the Red Water Pond Road community near Church Rock, New Mexico to showcase the harms of radioactivity on Indigenous Peoples:

For decades, the United Nuclear Corporation carried out uranium mining and milling in the region. There were Navajo families who resided within proximity of less than 5 miles from the uranium mining sites and less than 1 mile from uranium mill tailings. Those people breathe and walk on radioactive affected dirt every day. Women and children living there are affected far more than men by radioactivity. The University of New Mexico conducted the Birth Cohort Study that investigated the presence of radioactive elements in the bodies of newborns and their mothers.

61 W. Eberhard Falck, *Towards a Sustainable Front-End of Nuclear Energy Systems*, European Commission, Joint Research Centre Institute for Energy, 2009, p. 8; also see "World Uranium Mining Production," <https://www.world-nuclear.org/information-library/nuclear-fuel-cycle/mining-of-uranium/world-uranium-mining-production.aspx>.

62 See "Nuclear War: Uranium Mining and Nuclear Tests on Indigenous Land," *Cultural Survival Quarterly Magazine*, September 1993, <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/nuclear-war-uranium-mining-and-nuclear-tests-indigenous>. Also see Laicie Heeley, "To make and maintain America's nukes, some communities pay the price," *PRI*, 30 January 2018, <https://www.pri.org/stories/2018-01-30/make-and-maintain-americas-nukes-some-communities-pay-price>.

63 Petuuche Gilbert, *Statement on behalf of Indigenous World Association and Tewa Women United to the Second Meeting of States Parties to the Treaty on the Prohibition of Nuclear Weapons*, 28 November 2023, https://reachingcriticalwill.org/images/documents/Disarmament-fora/nuclear-weapon-ban/2msp/statements/28Nov_IWA.pdf.

Manny Pino, a researcher from Acoma Pueblo near the Jackpile uranium mine in New Mexico, has observed that people from the Pueblo who worked at the mine “went from being agriculturalists and livestock raisers to wage earners, and that impacted our traditional culture, our traditional language, participation in our ceremonies. During the height of uranium mining, people prioritized their eight-to-five-job, their eight-hour-a-day-job over participating in the ceremonies.”⁶⁴

June Lorenzo, an academic from Laguna Pueblo, has investigated some of the gendered harms associated with uranium mining in the region. She notes that “rates of birth defects in babies born to Navajo women living in New Mexico and Arizona between 1964 and 1981 were 2 to 8 times the national averages, depending on the type of defect.”⁶⁵

In addition, as only men were initially hired to work at the mines, “they had more social and economic status outside of Laguna, where they wielded influence in a monetized economy. This affected the social and economic standing of women who were previously recognized as partners in making a living for the household.”⁶⁶

Due to the mines, bars opened near the Pueblos, which lead to increased rates of domestic violence within Indigenous communities and brought non-Indigenous men near these communities. “They often brought values from patriarchal cultures that did not view the feminine as sacred and did not view women as equal partners. They spent a lot of time with Laguna men at the mine and at the bars after work over the years, and likely influenced Laguna ways of thinking about

the role and status of women.”⁶⁷ Lorenzo also reports stories of sexual assault and kidnapping of Indigenous women near the bars, though most are not documented. As with the “man camps” set up near fossil fuel extraction sites, as described in the chapter on the fossil industry, or US military bases,⁶⁸ the prevalence of sexual assault, and of missing and murdered Indigenous women, girls, and Two Spirit people, has been an issue at nuclear sites.

Meanwhile, over in so-called Australia, uranium mining also disproportionately impacts Indigenous People. Olympic Dam has one of the world’s largest deposits of uranium, producing 1.5 million tons of tailings a year. This affects an area of mound springs, where artesian water naturally rises to the surface, which has a profound significance to Traditional Owners of the land. BHP, the company that operates the mine, refuses to grant compensation to the Aboriginal caretakers of the land for the sacred sites that have been destroyed by the mine’s development and operation. BHP also prohibits the Kakatha people access to sacred sites without an escort of company personnel.⁶⁹

In the Northern Territory (NT), Energy Resources of Australia (ERA)—which is principally owned by Rio Tinto Group—operated Ranger Uranium Mine from 1980 to 2021. The land that the open pit mine sits on belongs to the Mirarr Traditional Owners. It is located inside Kakadu National Park, but the government carved it out from Kakadu when that land was returned to Aboriginal control. Over 200 environmental incidents have occurred at the mine since 1979. In 2009, a government-appointed

64 Paul Brown, *Poison Fire, Sacred Earth: Testimonies, Lectures, Conclusions: The World Uranium Hearing* (Salzburg: rat haus reality press, 1992), pp. 146–148.

65 June Lorenzo, “Gendered Impacts of Jackpile Uranium Mining on Laguna Pueblo,” *International Journal of Human Rights Education* 3(1), p. 13.

66 *Ibid.*, p. 16.

67 *Ibid.*, p. 18.

68 Anezka Pichrtova, “Japan Anger at Okinawa Sex Assault Cases Involving U.S. Military,” *Newsweek*, 29 June 2024, <https://www.msn.com/en-us/news/world/japan-anger-at-okinawa-sex-assault-cases-involving-us-military/ar-BB1p4Qyf>.

69 “Nuclear War,” *Cultural Survival Quarterly Magazine*, op cit.

scientist revealed that the mine was leaking 100,000 litres of contaminated water into the ground every day.⁷⁰ In 2013, about a million litres of crushed ore and acid spilled, causing an evacuation of workers.⁷¹ While the mine is no longer operating, ERA has control of the site until 2026, by which point it is supposed to have cleaned up and rehabilitated the site. However, it is massively behind schedule and over budget. While demanding that the ERA fulfil its obligations to rehabilitate the land, Mirarr leaders have also been struggling to reclaim the land on which Ranger Mine sits today and incorporate it within the park.

Meanwhile, the Traditional Owners have likewise been fighting to incorporate Jabiluka within Kakadu—another uranium ore deposit in the Northern Territory which they have so far been successful in preventing from being mined. After uranium was discovered at the site in the 1970s and ERA moved to develop it, the Mirarr waged fierce opposition against the mining company. In 1998, Mirarr Traditional Owners called on activists from across Australia to join their blockade of the site. The blockade lasted for more than eight months and led to the arrest of over 500 people, after which Rio Tinto declared the mine would not be developed, and started restoration of the site in 2003.

However, now that Ranger has stopped operating, Rio Tinto and ERA are again looking to reopen the site or lease it to another company to mine, claiming they have not heard any opposition from Mirarr lately. Thus, when the ERA held its Annual General Meeting in Darwin on 24 April 2024, Mirarr greeted shareholders with banners and a clear message. Yvonne Margarula said, “The ERA

has been lying. They say they have never heard from us about not mining at Jabiluka. We are here again today, listen to us again. Jabiluka is sacred country, and we will always say no.” Corben Mudjandi said, “The NT government has given us hope, we have asked for Jabiluka to be protected and they have and they can hear what we want. Now it’s time to act and protect Jabiluka from mining forever.”⁷²

On 5 June 2024, the the government of the Northern Territory declared special reserve status over the Jabiluka area within Kakadu National Park, in accordance with the wishes of Mirarr Traditional Owners. This means that the land is now protected from any new mine proposals. However, the decision about whether to approve a ten-year extension of the existing Jabiluka lease formally requires the advice of the Federal Minister for Resources. The Territory legislation paves the way for a decision by the federal Australian government to decide to incorporate the land within Kakadu National Park once the current mining lease expires.⁷³

Uranium mining is also a problem in several African countries. The world’s second-largest open-pit uranium mine is in Namibia. According to the *Cultural Survival Quarterly Magazine*, “most of the mining is done by hundreds of Ovambo laborers who live in neo-colonial housing villages and work under an apartheid management system. They are exposed to high levels of radiation from radon gases. There are concerns that water-borne radiation from tailings left from mining operations could contaminate the Khar River.”⁷⁴ Bertchen Kohrs of Earthlife Namibia explains, “In Namibia, uranium has been mined,

70 Lindsay Murdoch and Darwin, “Polluted water leaking into Kakadu from uranium mine,” *The Age*, 13 March 2009.

71 “Spill of contaminated material at Ranger uranium mine; locals fear for Kakadu National Park,” *ABC News*, 6 December 2013.

72 Instagram post by Mirarr Country @mirarrcountry on 24 April 2024, <https://www.instagram.com/p/C6IzQxlr82J>.

73 Environment Centre NT, “Media Release: Jabiluka breakthrough: Environment groups celebrate protection of iconic site on World Environment Day,” 5 June 2024, https://assets.nationbuilder.com/ecnt/pages/1085/attachments/original/1717551125/ECNT_MEDIA_RELEASE_-_Jabiluka_breakthrough.pdf?1717551125.

74 Ibid.

milled, transported, and exported since 1976 in the absence of legislation regulating the uranium industry. Mining of uranium can take place under the same conditions than any other mineral. It is up to the respective mining company to comply with international standards or not.”⁷⁵

Over the years, rainfall has led tailings to overflow, leading to contamination of surrounding areas. Leaching has caused soil, surface, and groundwater contamination, while dust has blown radioactive and other toxic particles to surrounding areas. Uranium mining in Namibia has led to “loss of biodiversity, contamination of ground and surface water, pollution of soil and air, exploitation of already scarce water resources, increase of traffic and noise, loss of income through tourism, and other negative circumstances, says Kohrs. “Many mine workers say the exposure to radiation and toxic dust is responsible for their deteriorating health condition. Their families, living 13km away from the Rössing mine, claim that they have allergies, respiratory problems, and other complications.”⁷⁶

Milling, conversion, and enrichment

The next steps in the nuclear fuel chain are uranium milling and conversion. Mined uranium is milled by grinding the uranium ore to a uniform particle size and treating it to extract the uranium by chemical leaching. The milling process yields a dry powder of natural uranium, called yellowcake. The milled uranium or yellowcake is then converted to uranium hexafluoride through a chemical process.

After this comes enrichment. The uranium hexafluoride needs to undergo an industrial process that concentrates the amount of U-235 to 3–5 per cent for use as fuel in a nuclear reactor. If uranium is enriched to 20 per cent U-235, it is called highly enriched uranium (HEU) and is suitable for use in nuclear weapons, though typically HEU is enriched to 90 per cent for use in weapons. With some adjustment, the very same facilities and equipment used to produce low-enriched uranium fuel for power reactors can produce HEU suitable for use in a nuclear weapon.

The processes necessary for milling, conversion, and enrichment generate radioactive emissions, occupational exposures, and liquid, gaseous, and solid radioactive wastes, the management of which remains contentious and unresolved. Numerous technologies have been developed to enrich uranium, such as gaseous-diffusion, centrifuges, and electromagnetic separation. Each of these technologies require a large initial investment and large amounts of energy to operate—and each pose risks to workers and the environment.

In the United States, the Y-12 National Security Complex in Oak Ridge, Tennessee, is the only facility dedicated to the fabrication and storage of weapons-grade uranium. It manufactures core components, secondaries, and cases for nuclear weapons from HEU, lithium deuteride, beryllium, depleted uranium, and other materials. The facility holds more than 400 metric tons of HEU.

The most infamous incident at Y-12 occurred in 1958. It was the first nuclear criticality incident—an accidental, uncontrolled nuclear fission chain reaction—at a US facility, caused by a leak of uranyl nitrate. Eight workers were exposed to high doses of radiation and suffered long-term

75 Bertchen Kohrs, “Namibia,” in Ray Acheson (ed.), *Costs, Myths, and Risks of Nuclear Power*, Reaching Critical Will programme of the Women's International League for Peace and Freedom, 2011, p. 82.

76 Kohrs, “Namibia,” p. 84.

health effects, including cancer.⁷⁷ However, this is far from the only incident at the site. In 2019, the Defense Nuclear Facilities Safety Board declared Y-12 unsafe, concluding that a “string of abnormal events and the discovery of unexpected quantities of accumulated uranium in equipment used in several Y-12 processes ‘are linked to systemic issues’ and ‘signify an inadequate Y-12 Criticality Safety Program’.”⁷⁸ The Safety Board has continued to find problems at Y-12, including unauthorised and unsafe conditions for the transfer of HEU.⁷⁹

In 2012, three peace activists with the Catholic Workers broke into the Y-12 facility.⁸⁰ They were following in the tradition of the Plowshares movement’s nonviolent resistance to nuclear weapons, which included breaking into weapon facilities and pouring their own blood on equipment. The incident demonstrated how lax security was at the site and other nuclear facilities in the United States. While the contractor responsible for security at the site was held accountable, the Oak Ridge Environmental Peace Alliance has argued that systematic incompetence from the Y-12’s overall manager, the National Nuclear Security Administration, is to blame, including for its continuous cost-saving measures around issues of safety and security.⁸¹

Nuclear reactors

After processing, the uranium is ready for use as fuel in nuclear reactors, including to produce energy. Nuclear energy carries all the harms

of its generation and faces additional risks posed by accidents and malfunctions. As was seen from the meltdowns at Chernobyl and Fukushima, the impacts of nuclear reactor failure are catastrophic. While these have been the two worst and well-known incidents, there have been many more accidents over the years of nuclear energy production.

As nuclear physicist M.V. Ramana explains, the history of small and large accidents at nuclear reactors shows:

“that accidents occur in most, if not all, countries, involving various reactor designs, initiated by internal and external events, and with different patterns of progressions. Many of these accidents did not escalate purely by chance, often involving the intervention of human operators rather than any technical safety feature. Such interventions cannot be taken for granted and so it seems all but inevitable that nuclear reactors will experience accidents.”⁸²

Accidents can be caused by natural disasters such as earthquakes or tsunamis; by lack of quality in the reactor design or components; or by destruction in armed conflict. In 2022, Russian forces seized the Chernobyl and Zaporizhzhia nuclear power facilities in Ukraine. Fighting at the Zaporizhzhia plant followed, risking a radioactive

77 “Remembering the 1958 Nuclear Criticality Accident,” Y12, 15 June 2023, <https://www.y12.doe.gov/news/blog/remembering-1958-nuclear-criticality-accident>.

78 “Y-12 Nuclear Weapons Plant ‘unsafe,’” Oak Ridge Environmental Peace Alliance, <https://www.orepa.org/y-12-nuclear-weapons-plant-unsafe>.

79 “More Safety Problems at Y-12 Bomb Complex,” Oak Ridge Environmental Peace Alliance, <https://www.orepa.org/more-safety-problems-at-y-12-bomb-complex>.

80 See Dan Zak, *Almighty: Courage, Resistance, and Existential Peril in the Nuclear Age* (New York: Penguin Random House, 2017); Dan Zak, “The Prophets of Oak Ridge,” *The Washington Post*, 30 April 2013, <https://www.washingtonpost.com/sf/wp-style/2013/09/13/the-prophets-of-oak-ridge/>; and Eric Schlosser, “Break-in at Y-12,” *The New Yorker*, 1 March 2015, <https://www.newyorker.com/magazine/2015/03/09/break-in-at-y-12>.

81 “Y12 security breach raises BIG questions about NNSA,” Oak Ridge Environmental Peace Alliance, <https://www.orepa.org/y12-security-breach-raises-big-questions-about-nnsa>.

82 M.V. Ramana, “No escape from accidents,” in Ray Acheson (ed.), *Costs, Myths, and Risks of Nuclear Power*, Reaching Critical Will programme of the Women’s International League for Peace and Freedom, 2011, p. 26.

catastrophe.⁸³ There are several dangers posed by fighting during armed conflicts in close proximity to nuclear power stations.⁸⁴ For example, the destruction of the Kakhovka Hydroelectric Power Station dam posed a threat to the operation of Zaporizhzya, as the necessary water level for cooling the reactors could be lost in addition to power outages. In addition, the cooling tanks or reactors themselves could be damaged, leading to leaks of radiation or even explosions.

But reactor components can also malfunction without war raging around them. In Sweden on 25 July 2006, a short-circuit in the switchyard outside the Forsmark 1 reactor resulted in severe voltage fluctuations that spread to several electrical systems in the plant. While the reactor pressure valve and reactor core did not experience trouble, “the defence-in-depth reactor safety systems did not operate satisfactorily. Several safety systems that are intended to operate independently of each other failed to do so as the result of a common external fault.”⁸⁵ On 14 March 2011 in Canada, at the Pickering Nuclear Generating Station near Toronto, Ontario, a leak of 73,000 litres of de-mineralized water, caused by a faulty pump seal, poured into Lake Ontario.⁸⁶ The examples are endless. Based on investigations into accidents and near-accidents at nuclear reactors, Ramana concludes:

Catastrophic accidents are inevitable with nuclear power. While these may not be frequent in an absolute sense,

there are good reasons to believe that they will be far more frequent than quantitative tools such as probabilistic risk assessments predict. Any discussion about the future of nuclear power ought to start with that realization.⁸⁷

Despite these realities, the nuclear industry has attempted to resurrect public support for nuclear energy by advertising it as a solution to the climate crisis. Nuclear proponents argue that nuclear power does not rely on fossil fuel extraction or emit carbon dioxide, and that small modular reactors will provide cheap energy. Each of these claims, however, is false.⁸⁸

Nuclear energy is not carbon-neutral—all the processes described above to generate nuclear power use other sources of energy and consume vast amounts of water. Emissions from nuclear are lower than fossil fuels, but much higher than renewables, when life cycle and opportunity cost emissions are considered. And while nuclear energy might not entail as many carbon emissions as fossil fuels, it instead involves uranium extraction and processing, which cause environmental and human harms, as described in this report. The Indigenous Environment Network in the United States has opposed efforts to build up nuclear power generation in the country, arguing that nuclear energy “perpetuates the continuation of nuclear-radioactive colonialism that has caused

83 Andrea Thompson, “The Risks of Russian Attacks near Ukraine’s Nuclear Power Plants,” *Scientific American*, 4 March 2022, <https://www.scientificamerican.com/article/the-risks-of-russian-attacks-near-ukraines-nuclear-power-plants1>.

84 Linda Pentz Gunter, “Fighting around Ukraine nuclear plant risks lives of tens of millions,” *Beyond Nuclear*, 8 August 2022, https://beyondnuclear.org/wp-content/uploads/2022/08/BN_PressRelease_Zapor_Aug8_2022-2.pdf.

85 “The Forsmark incident 25th July 2006,” *Analysgruppen Bakgrund*, Number 1, Volume 20, February 2007; see also Emma Rosengren, “Sweden,” in Ray Acheson (ed.), *Costs, Myths, and Risks of Nuclear Power*, Reaching Critical Will programme of the Women’s International League for Peace and Freedom, 2011, pp. 92–93.

86 Zach Rüter, “Canada,” in *Costs, Myths, and Risks of Nuclear Power*, Reaching Critical Will programme of the Women’s International League for Peace and Freedom, 2011, pp. 54–58.

87 Ramana, “No escape from accidents,” p. 29.

88 See for example Stephen Thomas and M.V. Ramana, “A hopeless pursuit? National efforts to promote small modular reactors and revive nuclear power,” *WIREs Energy and Environment*, 12 January 2022, <https://wires.onlinelibrary.wiley.com/doi/abs/10.1002/wene.429>; “Don’t Nuke the Climate press conference at COP26 in Glasgow,” 9 November 2021, https://www.foe.org.au/dont_nuke_the_climate_press_conference_cop26.

a legacy of doom and death to Native families in the uranium corridor of New Mexico.”⁸⁹

Nuclear power is also a slow response to a pressing problem. Nuclear reactors are slow to build and license, and even slower to become net electricity contributors. Globally, reactors routinely take a decade or longer to construct and time overruns are common. This is not a timeframe adequate to deal with climate change.⁹⁰ As Scott Ludlam pointed out in an interview for this project, the new push in Australia for nuclear energy is “basically a foil [for the fossil fuel industry], because Australia’s fleet of coal-fired power stations mostly needs to be closed within the next decade or so.”⁹¹ He argued that coal interests are using the nuclear push “as a way of saying, ‘we don’t need to do anything with renewables, they are flaky, we’ll transition to nuclear, which means that we need to keep these coal-fired power stations open for 20, 30, 40 years.’”

Nuclear power is also one of the most expensive ways to produce electricity, and costs continue to rise.⁹² In addition, nuclear reactors frequently face shutdowns, meaning they are not always producing the promised amount of energy.⁹³ For the nuclear power industry, the primary motive for operation is profit. History shows us that increasing profit is often best achieved in ways that are not consistent with designing or operating the relevant equipment for the lowest risk to humanity or the planet. Profit is less likely to be made by honestly exploring alternative sources of energy that might necessitate initial investments, or that

might not be eligible for the same government (i.e. taxpayer-funded) subsidies as nuclear is in many countries. Profit is also less likely to be achieved by designing economically efficient, need-oriented, and environmentally sound sources of energy.⁹⁴

Hundreds of civil society groups told the UN Climate Conference (COP26), “Every dollar invested in nuclear power makes the climate crisis worse by diverting investment from renewable energy technology.” In this context, nuclear power is “a dangerous distraction from the real movement on the climate policies and actions that we urgently need.”⁹⁵ As Dimity Hawkins said in an interview for this project, the “false narrative of nuclear being a solution” has put a division in between those working for environmental justice and those working to end the nuclear industry. This division is deliberate, she argued. “I think that there is a real strategy from industry and from some governments to divide and conquer. They see our collective efforts and ... their work is to confuse and fragment and push us apart in the ways that they can.”⁹⁶

Finally, there is also a direct link between nuclear energy and nuclear weapons. Because the materials and facilities for nuclear weapons and nuclear power are but variations of each other, the proliferation risks are high. While most governments operating nuclear reactors or enrichment processes have not used their facilities or materials to develop nuclear weapons, China, France, Israel, India, Pakistan, and the United Kingdom “built their nuclear weapons

89 “Climate Justice Alliance Deeply Disappointed with Passage of House Democrats Dirty Energy Bill,” Climate Justice Alliance, 26 September 2020, <https://climatejusticealliance.org/climate-justice-alliance-deeply-disappointed-with-passage-of-house-democrats-dirty-energy-bill>.

90 M.V. Ramana, *Nuclear is Not the Solution: The Folly of Atomic Power in the Age of Climate Change* (Brooklyn, NY: Verso Books, 2024); also see Arjun Makhijani and M.V. Ramana, “Can small modular reactors help mitigate climate change?” *Bulletin of the Atomic Scientists* 77(4): 207–214.

91 Interview with Scott Ludlam on 15 May 2024.

92 M.V. Ramana, “Small Modular and Advanced Nuclear Reactors: A Reality Check,” *IEEE Access* 9, 2021, <https://ieeexplore.ieee.org/document/9374057>.

93 Ali Ahmad, Andrei Covatariu, and M.V. Ramana, “A stormy future? Financial impact of climate change-related disruptions on nuclear power plant owners,” *Utilities Policy* 81, April 2023, <https://www.sciencedirect.com/science/article/abs/pii/S0957178722001485>.

94 Andrew Lichterman and M.V. Ramana, “The US-India nuclear deal: violating norms, terminating futures,” in Ray Acheson (ed.), *Beyond arms control: challenges and choices for nuclear disarmament*, Reaching Critical Will of the Women’s International League for Peace and Freedom, 2010, pp. 67–68.

95 “Don’t Nuke the Climate,” November 2021, <https://www.dont-nuke-the-climate.org/blog/cop-26-glasgow-statement>.

96 Interview with Dimity Hawkins on 15 May 2024.

programs on an infrastructure developed supposedly for nuclear energy.”⁹⁷

The International Atomic Energy Agency (IAEA) was established in part to ensure that nuclear materials for “peaceful uses” are not diverted to weapons use. But as former nuclear weapon designer Theodore B. Taylor has pointed out, the IAEA “has authority only to inspect designated (or in some cases suspected) nuclear facilities, not to interfere physically to prevent a government from breaking its agreements under the treaty if it so chooses.” Furthermore, Taylor notes, “A major function of the IAEA is also to provide assistance to countries that wish to develop nuclear power and use it. Thus the IAEA simultaneously plays two possibly conflicting roles—one of encouraging latent proliferation and the other of discouraging active proliferation.”⁹⁸

Another connection between civilian and military uses of nuclear reactors comes from their potential use by the US military to generate power for its missile defence system. In an interview for this project, Kalani Reyes, a Micronesian-Chamorro ocean advocate who works as a Coral Reef Restoration Coordinator, explained that so-called nuclear “microreactors” are being championed as the US Department of Defense’s “solution to costly power generation on Guam (and, if successful, other islands) which ironically, would be used for anti-nuclear defence missiles to protect not the people of Guam (who are US citizens), but rather to protect US Department of Defense property, which Guam is largely viewed as.”⁹⁹

The US Department of Energy describes microreactors as “nuclear power plants small enough to be transported by truck or plane.” In a 2018 study commissioned by the US Army, Guam is named as one of the “forward and remote” locations considered feasible for the placement of mobile nuclear power plants. But while discussions about the issue during consideration of the US National Defense Authorization Act for 2024 indicated this would be to supplement power generation in Guam, others have noted that the reactors “will inevitably end up providing power to the 360-degree missile defense system for Guam that was recently announced by the Pentagon.” The Army’s 2018 report acknowledges this, stating that the microreactors can meet the power demands of missile defence radars and missile batteries.¹⁰⁰

One interesting element of the renewed push for nuclear energy is the ways in which the nuclear industry has attempted to co-opt feminist language and gender equality ambitions, including by commissioning women (including models) to promote nuclear power.¹⁰¹ By framing the “old” nuclear power industry as a boys’ club, hierarchal, dangerous, and expensive, the “new” industry is recruiting women that identify as progressives and activists by using the language of “environmental justice” and “community leadership” to sell the same toxic technology of the past.¹⁰² As antinuclear feminists have pointed out, the attempt to rebrand nuclearism is colonial in policy and practice. Asserting that nuclear power is environmental justice obscures the industry’s harmful relationship

97 Zia Mian and Alexander Glaser, “Life in a Nuclear Powered Crowd,” *INESAP Information Bulletin*, No. 26, June 2006, pp. 4–8, <https://sgs.princeton.edu/sites/default/files/2020-01/mian-glaser-2006.pdf>.

98 Theodore B. Taylor, “Nuclear Power and Nuclear Weapons,” July 1996, <https://www.wagingpeace.org/nuclear-power-and-nuclear-weapons>.

99 Interview with Kalani Reyes on 4 June 2024.

100 Joe Taitano II, “Guam’s missile defense could include nuclear microreactors,” *The Guam Daily Post*, 27 June 2023, https://www.postquam.com/news/local/guams-missile-defense-could-include-nuclear-microreactors/article_9647ffae-13d4-11ee-8072-6700a993162b.html.

101 See for example <https://www.winus.org>.

102 See for example David Roberts, “Nuclear power has been top-down and hierarchical. These women want to change that,” *Vox*, 21 July 2020, <https://www.vox.com/energy-and-environment/2020/7/21/21328053/climate-change-nuclear-power-environmental-justice-energy-collective>.

with land and First Nations, its extractivism, its imperialism, and its pollution.¹⁰³

As Ahjani Yepa-Sprague of Tewa Women United said in an interview for this project, “As we’ve seen more attention and movement building to stop oil and gas and fracking and all those associated technologies, nuclear power is being pushed.” But, she noted, this will result in the same generation of sacrifice zones and violent processes of extraction as for all other elements of the nuclear and fossil fuel industries.¹⁰⁴ Bringing together the antinuclear and environmental movements is critical in this context, Yepa-Sprague argued. She highlighted the work of Diné activists Leona Morgan and Janene Yazzie, as well as Tewa activist Beata Tsosie-Peña, who have all said that “nuclear war did not start when the first bomb was dropped, that nuclear war has been waged on our people since uranium was being mined and continues to be waged with every waste that is dumped on our land.” The organisers at Tewa Women United emphasise that “the violence on the land is violence on our bodies,” explained Yepa-Sprague. “When you talk about the violence, naming it as weaponry, that connects the militarism, the environmentalism, with the public health.”

Nuclear-powered submarines

Concerns about nuclear energy production are also relevant to discussions about nuclear-powered submarines, in which nuclear reactors are used to propel vessels. Only six countries currently possess nuclear-powered submarines,

all of which are nuclear-armed states—China, France, India, Russia, United Kingdom, and United States. As part of the relatively new military alliance composed of Australia, United Kingdom, and United States (AUKUS), the Australian Navy is supposed to acquire nuclear-powered submarines—first by acquiring a few from the United States, and later building some of its own alongside the United Kingdom.¹⁰⁵

The plan for this acquisition is going to cost Australia at least 368 billion AUD¹⁰⁶ and lead to the imposition of US and UK nuclear waste on First Nations communities in Australia.¹⁰⁷ It is also undermining international law and the so-called rules-based order, jeopardising nuclear safety, and risking the proliferation of nuclear materials and technologies.

Just one nuclear-powered submarine can require up to 20 nuclear weapons’ worth of highly enriched uranium (HEU). This nuclear material would be used outside the scope of international safeguard and scrutiny processes to which Australia has committed under its agreements with the International Atomic Energy Agency.¹⁰⁸ This sets an extremely concerning precedent and would break an existing taboo against non-nuclear-armed states using nuclear material for military purposes.

Using HEU in submarines also carries inherent security risks, as this type of uranium is usable in weapons. It could be a target for theft, or it could lead to catastrophic accidents in which HEU leaks into the ocean. Finally, possessing HEU stockpiles will give any future Australian government an

103 Romy Opperman, “Anti-Nuclear Anti-Colonial Feminism,” Blog of the American Philosophical Association, 1 November 2023, <https://blog.apaonline.org/2023/11/01/anti-nuclear-anti-colonial-feminism>.

104 Interview with Ahjani Yepa-Sprague on 15 May 2024.

105 Ray Acheson, “Solidarity to Stop AUKUS,” *CounterPunch*, 21 April 2024, <https://www.counterpunch.org/2024/04/21/solidarity-to-stop-aukus>.

106 Andrew Greene, “Defence reveal 50 per cent ‘contingency’ for cost overruns inside \$368 billion AUKUS project,” *ABC News*, 27 April 2023, <https://www.abc.net.au/news/2023-04-28/defence-reveals-50-per-cent-contingency-for-cost-overruns-inside/102275806>.

107 Tory Shepherd, “‘Poison portal’: US and UK could send nuclear waste to Australia under Aukus, inquiry told,” *The Guardian*, 1 April 2024, <https://www.theguardian.com/world/2024/apr/02/poison-portal-us-and-uk-could-send-nuclear-waste-to-australia-under-aukus-inquiry-told>.

108 *Troubled Waters: Nuclear submarines, AUKUS, and the NPT*, ICAN Australia, July 2022, <https://icanw.org.au/troubled-waters>.

increased capacity to build nuclear weapons. While the current government says it has no intention of doing so, a future government in possession of HEU may decide to take that next step.

The AUKUS deal could also lead to a proliferation of nuclear-powered submarines, exponentially increasing the risks of oceans being exposed to HEU due to accidents or attacks; the risks of acquisition of nuclear weapon or the theft of HEU; and the demand for even more nuclear waste storage. Canada's prime minister has also now indicated he might be interested in collaborating with AUKUS and acquiring nuclear-powered submarines to deploy in the Arctic.¹⁰⁹ Brazil has also been working to acquire nuclear-powered submarines; AUKUS is only propelling that work forward.

Australia's acquisition of nuclear-powered submarines is also "vastly out of step with a strong sense of Pacific regionalism and the long-standing commitment to a Nuclear Free Pacific," wrote Talei Luscia Mangioni in ICAN Australia's report *Troubled Waters*.¹¹⁰ AUKUS is part of the US and UK governments' efforts to counter China's influence in the Pacific, but the alliance's "upscaling of military capabilities suggests and amplifying of hostilities and now situates the Pacific within the crosshairs of escalating nuclear threats and potential disasters."

AUKUS and the proposed nuclear submarines are "another extension of this nuclear architecture in a Pacific world that has actively resisted and protested it for decades," wrote Mangioni. Many officials from Pacific states have objected to the nuclear-powered submarines and to the establishment of AUKUS without any consultation with countries in the region. Pacific activists and governments have also highlighted the risks posed by AUKUS to the

1985 Rarotonga Treaty establishing a South Pacific nuclear weapon free zone and to the pursuit of a Nuclear-Free Blue Pacific.

Australia wants to be the "security partner of choice" to Pacific states over China and to some degree the United States, noted Talei Luscia Mangioni in an interview for this report. But Pacific civil society is watching the Australian government pour billions into the military industry and AUKUS to "securitise the region through new military and policing arrangements." She pointed out that many regional organisations in the Pacific, such as the Pacific Network on Globalisation and the Pacific Conference of Churches, have spoken out against this:

Especially out of COVID-19 crisis, what's clear is that Pacific peoples need aid money to be directed towards what Pacific feminists I know have described as "genuine security" that values Pacific peoples' cultural, spiritual, and economic wellbeing and health, and that defunds and divests from industries and regimes that cause harm. This is in the context of a mounting climate crisis and nuclear legacy that just compounds all of these issues.¹¹¹

Part of the problem, argues Mangioni, is that Australian politics "is a severely white space with mostly white men in positions of leadership. That's a historical legacy of Australia as a settler colony and continuing colonial presence in the region, and this really impacts who is given a platform to listen to." She notes that despite the discourse about First Nations foreign policy during and also in the wake of the Voice, with the Australian Labour Party government declaring a need to genuinely listen to

109 The Canadian Press, "Canada exploring possibility of joining AUKUS alliance, Trudeau says," Global News, 8 April 2024, <https://globalnews.ca/news/10409582/canada-aukus-alliance-trudeau>.

110 Talei Luscia Mangioni, "Pacific Perspectives on Proposed AUKUS Nuclear-Propelled Submarines," *Troubled Waters: Nuclear submarines, AUKUS, and the NPT*, ICAN Australia, July 2022, <https://icanw.org.au/troubled-waters>.

111 Interview with Talei Luscia Mangioni on 17 May 2024.

Indigenous (Aboriginal and Torres Strait Islander) and Pacific peoples, “there is little evidence of this because the preference always goes to the listening to the fossil fuel and defence industries that have a hold on the country.”

In his interview for this project, Scott Ludlam likewise noted the impacts of state capture in relation to AUKUS, pointing out that, “Because Australia is now flirting with this nuclear submarine concept, which would bring US and UK flagged vessels into Australian ports, there’s this hideous mashup between the civil power industry and the military stuff.”¹¹² Hawkins agreed that AUKUS has “muddied the waters greatly on the nuclear issue here, because for AUKUS to exist in Australia, we necessarily have to skill up and build lots of resources into our education systems and to industries that we haven’t previously had. Therefore, we’re seeing a massive push for investment into nuclear technologies, nuclear education, etc.”¹¹³

These dangers, which are inherent in nuclear-powered submarines, put at risk any country that possesses them and any region that hosts them. The proliferation of nuclear-powered submarines only spreads those dangers and increases regional and global tensions.

Reprocessing

A further possible step in the nuclear fuel chain is reprocessing. This consists of a chemical reaction that separates plutonium and uranium from fuel that has been irradiated in reactors. At this stage, the uranium is a by-product that can be recycled as fuel for reactors. The separated plutonium can be used in nuclear weapons. Scientists

have repeatedly pointed out that “virtually any combination of plutonium isotopes can be used to make a nuclear weapon, using a design as simple as that of the Nagasaki bomb.”¹¹⁴ Plutonium can also be converted into uranium-plutonium oxide fuel (called mixed oxide fuel, or MOX) for use in nuclear power reactors. The conversion of MOX into weapons-grade plutonium is feasible, thus posing an additional nuclear weapon proliferation risk.

Beyond the use of plutonium for building nuclear weapons, reprocessing also has its own set of environmental and humanitarian harms. The Hanford Nuclear Reservation opened in eastern Washington State’s Columbia River Valley in the 1940s to preprocess uranium into plutonium. The plutonium manufactured there was used in the bomb that the US military dropped on Nagasaki in 1945. Hanford generated plutonium for nearly four decades, reaching maximum production during the height of the Cold War. In his investigation of Hanford and the failed clean-ups of the site, journalist Joshua Frank describes the facility as a “sprawling wasteland of radioactive and chemic sewage ... the costliest environmental remediation project the world has ever seen and, arguably, the most contaminated place on the entire planet.” Current cost estimates to clean up the site “could run anywhere between 316 and 662 billion USD.”¹¹⁵

The mess at Hanford cannot be overstated. As Harvey Wasserman reports:

Giant tanks are leaking. Plutonium and other apocalyptic substances are rapidly migrating toward the Columbia River, which could be permanently poisoned, along with much more. Local residents

112 Interview with Scott Ludlam on 15 May 2024.

113 Interview with Dimity Hawkins on 15 May 2024.

114 Zia Mian, “Comment: Nuclear Energy,” *Securing Our Survival: The Case for a Nuclear Weapons Convention*, Cambridge, MA: International Physicians for the Prevention of Nuclear War, International Association of Lawyers Against Nuclear Arms, International Network of Engineers and Scientists Against Proliferation, 2007, p. 137.

115 Joshua Frank, *Atomic Days: The Untold Story of the Most Toxic Place in America* (Chicago: Haymarket Books, 2022).

have been poisoned with “permissible permanent concentration” of lethal isotopes on vegetables, livestock, and in the air and drinking water. Such exposures have even included a deliberate experiment known as the “Green Run” in which Hanford operatives “purposely released dangerous amounts of radioactive iodine.”¹¹⁶

In addition to the leaks, Frank noted in an interview, whistleblowers at Hanford are also concerned about a catastrophe happening with one of the tanks in which radioactive waste is stored. Some of the tanks “are producing hydrogen that they continually have to bleed off so that it doesn’t build up. If too much of it builds up and then there’s a spark or something ignites that hydrogen, you could see a Chernobyl-like explosion that would spread across the country.”¹¹⁷

While Hanford has generated the biggest radioactive mess in the United States, it is matched perhaps by Mayak, Hanford’s equivalent site in Russia. In 1957, a radioactive contamination accident—the world’s second worst nuclear incident in terms of radioactivity released—spread radiation over more than 52,000 square kilometres, where at least 270,000 people lived. An improperly stored underground tank of high-level radioactive waste exploded.¹¹⁸

The town of Ozersk, where Mayak is located, has been heavily contaminated by industrial pollution from the site, as well as from the routine dumping of nuclear waste in nearby lakes and

rivers that flow to the Arctic Ocean. Over four decades, Mayak’s managers reported dumping 200 million curies of radioactive waste into the environment. “One of the nearby lakes has been so heavily contaminated by plutonium that locals have renamed it the ‘Lake of Death’ or Plutonium Lake,” reports *The Guardian*. “The radioactive concentration there is reported to exceed 120 million curies—2.5 times the amount of radiation released in Chernobyl.”¹¹⁹

Ozersk and the surrounding region is one of the most contaminated places on the planet, referred to by some as the “graveyard of the Earth”. Local communities have been plagued by health issues for generations. “Half a million people in Ozersk and its surrounding area are said to have been exposed to five times as much radiation as those living in the areas of Ukraine affected by the Chernobyl nuclear accident.”¹²⁰

Nuclear weapon production, maintenance, and modernisation

Beyond the mining, milling, and processing of the ingredients for nuclear bombs, the nuclear weapon complex also includes the facilities and laboratories where the weapons and their delivery systems are designed, built, and assembled. Just as with the earlier aspects of the nuclear chain, these facilities for the production, maintenance, and now the “modernisation” of nuclear weapons have systematically displaced local communities and harmed workers and the environment.

116 Harvey Wasserman, “Nuclear Power Isn’t Clean — It Creates Hellish Wastelands of Radioactive Sewage,” *Truthout*, 12 October 2022, <https://truthout.org/articles/nuclear-power-isnt-clean-it-creates-hellish-wastelands-of-radioactive-sewage>.

117 Dan Boscov-Ellen, “The Left Goes Nuclear: Interview with Joshua Frank,” *Spectre Journal*, 11 July 2023, <https://spectrejournal.com/the-left-goes-nuclear>.

118 See Kate Brown, *Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters* (Oxford: Oxford University Press, 2015).

119 Samira Goetschel, “‘The graveyard of the Earth’: inside City 40, Russia’s deadly nuclear secret,” *The Guardian*, 20 July 2016, <https://www.theguardian.com/cities/2016/jul/20/graveyard-earth-inside-city-40-ozersk-russia-deadly-secret-nuclear>.

120 Ibid.

When Los Alamos Nuclear Laboratory was constructed in New Mexico in the 1940s for the development of the first atomic bomb, Indigenous Peoples and local Nuevomexicanx “were forcibly dispossessed of their ranches and sacred land on the Pajarito Plateau with inequitable or no compensation,” writes scholar-activist Myrriah Gómez.¹²¹ In addition, as Lucie Genay notes, Los Alamos lies between the Chochití people’s homeland, where Bandelier National Monument is today, and the Tuye ruins on Santa Clara Pueblo lands. The land occupied by the lab is the homeland of the San Ildefonso Pueblo people. The area where the lab buries its nuclear waste and explosive chemicals is the site of the Tsirege Pueblo.¹²²

The lasting impacts of nuclear weapon production in New Mexico are undeniable. As Tewa woman Beata Tsosie-Peña writes,

In my Tewa homelands in north central New Mexico, it is difficult to reconcile how we existed in reciprocity a rural, land-based agricultural existence as farmers, ranchers, and seed savers, isolated from the industrial age, only to be thrust into the nuclear age when the “land was seized under a set of values that separated the Peoples from the land.” This forcible act imposed a culture of violence on our soils, seeds, air, waters, future generations, and spiritual existence that continues to enact harm to this day.¹²³

In addition to having their land stolen and poisoned, these local populations were treated as

a source of expendable labour for the construction of the lab and the Manhattan Project, as well as for the work that has continued at the lab since 1945. The Indigenous and Nuevomexicanx workers were wage labourers at the lab. Unlike the scientists, they often did not know what they were working on. As custodians and janitors, as well as technicians, these workers handled explosives and nuclear materials. Safety precautions were lax, and the risks were not fully explained. Between 1956 and 1959, seven men were killed at three separate explosive accidents at the lab, including six Nuevomexicanos. As Gómez notes, while the men who were killed in these incidents were not explicitly blamed by the lab for their inability to follow protocols, the reports about their deaths note their lack of education as having been a contributing factor. “Certainly, the Laboratory capitalized on Nuevomexicano laborers whom they pulled from the labor pool as unskilled workers and then entrusted them with complex, and dangerous, tasks.”¹²⁴

Indigenous People from nearby Pueblos were also hired to clean up sites near the lab where experiments with radioactive materials were conducted, which meant that not only were the Pueblos exposed to radioactive fallout from the tests, but the same communities were further exposed during the cleanup operations—“a striking illustration of environmental injustice,” as Genay writes.¹²⁵

Local Indigenous and Nuevamexicana women were also part of the labour force at the lab beginning in the early 1940s. Most were housekeepers and caregivers for the scientists

121 Myrriah Gómez, *Nuclear Nuevo México: Colonialism and the Effects of the Nuclear Industrial Complex on Nuevomexicanos* (Tucson: The University of Arizona Press, 2022), p. 5.

122 Lucie Genay, *Land of Nuclear Enchantment: A New Mexican History of the Nuclear Weapons Industry* (Albuquerque: University of New Mexico Press, 2019), p. 184.

123 Beata Tsosie-Peña, “A Tewa Woman’s Reflection on Urgency,” Tewa Women United, 4 November 2017, <https://tewawomenunited.org/2017/11/a-tewa-womens-reflection-on-urgency>.

124 Gómez, *Nuclear Nuevo México*, p. 67.

125 Genay, *Land of Nuclear Enchantment*, p. 185.

and their families; a few others were employed as secretaries or mail clerks, and some even as technicians, including in the nuclear weapon division. “Racism was strewn into the daily interactions between Pueblo women and Manhattan Project families,” notes Gómez.¹²⁶

The lab is also a source of radioactive contamination in the region. “Beginning in the 1940s, Lab personnel directed Valley *vecinos* to bury contaminated everything in the Los Alamos canyon and nearby along the Rio Grande. The soil and the water Nuevomexicanas/os once used to irrigate crops is now polluted with toxic chemicals and remnants of nuclear materials. Cancer, thyroid disease, and unexplained organ failure, among other illnesses, now plague our community.”¹²⁷

Over the years of its continued operation, there have been numerous accidents and incidents at the lab that have resulted in leaks and contamination involving radioactive materials. Even routine procedures have caused massive contamination:

For nearly two decades Los Alamos used hexavalent chromium to prevent scaling in water-cooling towers at a power plant that supplied the lab. The chemical is toxic and is thought to cause cancer when ingested. Often the lab just flushed the hexavalent chromium down canyons toward the Rio Grande, and in 2004 scientists reported that it had leached deep into the ground. It is now in the aquifer’s groundwater.¹²⁸

Searchlight New Mexico, an investigative journalist organisation, found at least 95 process deviations at the lab between 2018 and 2023, ranging from construction accidents and small fires to floods and worker contamination:

In 2019, one worker was nearly felled by a 320-pound toxic nuclear waste container and, in 2020, another inhaled plutonium oxide powder—the most dangerous form of plutonium. There was a broken finger, a mysterious head injury and several instances in which containers of toxic waste were backlogged, up to 80 at one point, in a single storage room. The all-important protective gloves inside the glove boxes have on occasion become separated from their ports in the box wall; they’ve also torn on sharp objects or been worn down by tools or overuse. The [Defense Nuclear Facility Safety Board] called glove box glove failures and floods “repeat events”—serious incidents that it attributes to “poor conduct of operations.” Records show at least 20 such incidents in the last five years that resulted in several instances of skin contamination, though only two reports indicated an “uptake—an absorption of plutonium into the body.”¹²⁹

In a 2021, at least four incidents occurred at Los Alamos, including “one criticality safety violation, one breach that resulted in skin contamination for three workers, and two flooding events that sent water toward fissionable materials.” The National Nuclear Safety Administration “determined that the contractor that manages Los Alamos had violated

126 Gómez, *Nuclear Nuevo México*, pp. 80–84.

127 Gómez, *Nuclear Nuevo México*, p. 5.

128 Abe Strep, “Boom Times,” *Scientific American*, December 2023, p. 33.

129 Alicia Inez Guzmán, “Safety lapses at Los Alamos National Laboratory,” Searchlight New Mexico, 13 July 2023, <https://searchlightnm.org/safety-lapses-at-los-alamos-national-laboratory>.

safety, procedural, management and quality-assurance rules.”¹³⁰

Wildfires have also threatened, on at least three occasions, to burn down the nuclear weapon lab. In 2011, the Las Conchas wildfire was purposefully diverted north toward the Pueblo of Santa Clara in order to protect Los Alamos. As Tewa activist Beata Tsosie-Peña notes, “This was the third time these labs housing plutonium were threatened by wildfires, and I can’t help but think that nature is trying to cleanse herself. It is also a site riddled with seismic fault zones, and is located above our sole source aquifer, which means that more than half the population of New Mexico depends on that water for survival.”¹³¹

Yet now, as part of the US nuclear weapon modernisation programme, the government is expanding the lab and its mission. Los Alamos’ plutonium facility is being transformed from a research lab into a centre for the mass production of plutonium pits, the core inside of every nuclear weapon in the US arsenal.

To understand the dangers of expanding the Los Alamos lab to build pits, it’s imperative to understand what happened at the last US pit production facility. The Rocky Flats Plant near Denver, Colorado opened in 1952. During its time in operation, it manufactured about 70,000 plutonium pits.¹³² By 1957, the plant had expanded to 27 buildings and was already facing extreme safety issues. In September 1957, a plutonium fire occurred in one of the gloveboxes used to handle radioactive materials. This resulted in the contamination of the building the fire took place in, as well as the release of plutonium into the

atmosphere. Another glovebox fire in 1969, along with other accidents and purposeful negligence, such as burning plutonium-contaminated waste, caused extensive contamination of the area around Rocky Flats and led to protests by antinuclear and environmental activists.

In the 1970s, Colorado politicians established a task force to study Rocky Flats in response to public pressure. The task force concluded that the serious safety issues at the plant, as well as the risk of a catastrophic nuclear accident, pose too great a risk for the facility to be located near a major population center such as Denver. But within the same report, it also urged maintaining the “economic integrity of the plant, its employees, and the surrounding communities”. As Kristen Iversen, who grew up near the plant, writes, the task force compromised “the health of local citizens with the competing interests of a government that wants to make bombs, developers that want to sell houses, and workers who need jobs.”¹³³

In 1987, workers at the plant began to leak information to the US Environmental Protection Agency and the Federal Bureau of Investigation about the unsafe conditions inside the facility. Covert investigations by the two agencies confirmed that the plant was burning plutonium in an incinerator along with other hazardous wastes, and that the plant’s groundwater monitoring system was not in compliance with federal law. The plant had also “classified hazardous wastes as nonhazardous, stored [plutonium]-contaminated oil in hundreds of leaking drums near the plant’s eastern border, illegally discharged waste into streams leading to Denver’s drinking water supplies, and sent

130 Sarah Scoles, “Inside the Pit Factor,” *Scientific American*, December 2023, p. 43.

131 Tsosie-Peña, “A Tewa Woman’s Reflection on Urgency.”

132 See the Rocky Flats Nuclear Guardianship project for details: <https://www.rockyflatsnuclearguardianship.org>.

133 Kristen Iversen, *Full Body Burden: Growing Up in the Nuclear Shadow of Rocky Flats* (New York: Crown Publishers, 2012), p. 124.

waste to various dumps around the country that lacked appropriate environmental permits.”¹³⁴

On 6 June 1989, the FBI raided Rocky Flats. The plant’s operator, Rockwell International, was charged with environmental crimes and paid a fine. Clean-up of the site began in the 1990s, which the US Department of Energy declared as concluded in 2005 and transferred most of the site to the US Fish and Wildlife Service in 2007. In 2018, the Service opened the site to the public as the Rocky Flats National Wildlife Refuge. The Rocky Flats Nuclear Guardianship Project has called for the closing of the refuge, however, maintaining that “because plutonium has a half-life of more than 24,110 years, Rocky Flats is a local hazard forever.”¹³⁵

Measurable levels of plutonium were recorded in the air around Rocky Flats in April 2024 by chemist Michael Ketterer and retired FBI agent Jon Lipsky. These recordings were included in a lawsuit filed by the Physicians for Social Responsibility in the US District Court in Washington, DC. The lawsuit seeks an injunction against recreational trail development in the area. “Once construction begins and people begin walking on the site, the court filing says, the soil will be more susceptible to erosion, and it will be easier for wind to pick up and spread contaminated particles.”¹³⁶

This brings us back to Los Alamos, where all these dangers are at risk of being brought to New Mexico, on top of the safety incidents already described. “The resumption of plutonium pit

production has emerged as a deeply polarizing and political act,” writes journalist Alicia Inez Guzmán in an investigative series produced for *Searchlight New Mexico*.¹³⁷ Given the uncertainty about how long plutonium pits last, the project is seen by many as being about war profiteering, not national security. New pits are not needed for existing nuclear warheads, argues the Los Alamos Study Group, an organisation acting as a watchdog of the lab. It explains:

LANL’s pits are needed to build a new variety of warhead, to be deployed on a very expensive new ICBM, called ‘Sentinel’.... The Air Force already has about 540 modern, very accurate, long-lived warheads for its Sentinel missiles, more than enough for all 450 of them. What LANL pit production would provide is the means to start deploying up to 3 independently-targeted new warheads on each missile, and to start doing so in the early 2030s.¹³⁸

To meet the government’s demand to produce 30 new pits a year by 2026, Los Alamos is receiving huge budget increases—currently it receives 3.5 billion USD per year, more than one-third of New Mexico’s state budget.¹³⁹ The lab is substantially increasing its workforce, which is already at a record high.¹⁴⁰ The expansion of the lab “is already having significant local impacts on workforce availability, housing costs, traffic, and nuclear

134 Lucie Genay, *Under the Cap of Invisibility: The Pantex Nuclear Weapons Plant and the Texas Panhandle* (Albuquerque: University of New Mexico Press, 2022), p. 174.

135 Rocky Flats Nuclear Guardianship, 2015, https://www.rockyflatsnuclearguardianship.org/files/uqd/cff93e_ee786d50dcc843ae9a80fee23efb376c.pdf, p. 17.

136 Sara Wilson, “Plutonium found in air near former Rocky Flats nuclear weapons plant,” *Colorado Newslines*, 10 June 2024, <https://coloradonewslines.com/briefs/plutonium-air-rocky-flats>.

137 Alicia Inez Guzmán, “The reawakening of America’s nuclear dinosaurs,” *Searchlight New Mexico*, 28 February 2024, <https://searchlightnm.org/the-reawakening-of-americas-nuclear-dinosaurs>. The full series can be found at <https://searchlightnm.org/stories/the-atomic-hereafter>.

138 Los Alamos Study Group, “Plutonium warhead factory: it’s about new missiles, an arms race, greed, and domination,” *Santa Fe Reporter*, 20 December 2023, https://www.lasg.org/advertising/SantaFeReporter-double-truck-ad_20Dec2023-fnal2.pdf.

139 Streep, “Boom Times,” p. 29.

140 W.J. Hennigan, “In the Lab Oppenheimer Built, the U.S. Is Building Nuclear Bomb Cores Again,” *Time*, 42 July 2023, <https://time.com/6296743/los-alamos-lab-plutonium-pits-nuclear-weapons>.

waste generation, cleanup, and disposal,” warned the Los Alamos Study Group.¹⁴¹ Even before the current build-up, the area was marked by extreme wealth inequality. Los Alamos is one of the richest counties in the United States and has more millionaires per capita than almost anywhere else in the country, but is surrounded by some of the poorest counties, in one of the poorest states. In Española, just 30km away from the lab, the median household income is 33,000 USD, almost 30 per cent of the population live under the poverty line, and it has a reputation as the heroin overdose capital of the United States.¹⁴²

While the national and state governments argue that the lab is a regional “job creator” and generator of “economic growth” in New Mexico, local activists point out that neither jobs nor economic growth, which is often concentrated in a relatively few hands, are reliable measures of broad economic benefit. Greg Mello of the Los Alamos Study Group notes that the claim of providing jobs “Obscures more than it reveals. Crucial information omitted includes the answer to the question, *jobs for whom?*” Furthermore, he argues that it is possible that any given military facility “could drive away other jobs, perhaps many more than it provides.... So even while adding new jobs, it’s quite possible Facility X could increase the number and worsen the plight of the poor in the area, or lead the region toward economic decline, even while adding ‘jobs’.”¹⁴³

The lab relies on regional inequalities to sustain its workforce. It recruits at local colleges and even high schools that serve mostly low-income

students, promising high-paying jobs and a chance at the “American dream”. The trade-offs, of course, are “illness, death, and environmental racism,” notes Alicia Inez Guzmán.¹⁴⁴ While students are trained to “minimise risk” of exposure to radiation, the possibility of serious harm at the lab is much higher than in most other jobs.

“What does it mean to assume that exposure is acceptable at all?” asked Eileen O’Shaughnessy, co-founder of Demand Nuclear Abolition. “Because the thing about radiation is it’s cumulative and any amount is unsafe.” Students may choose to assume the occupational risk, she said, but “inherent in that assumption is that your body is woundable.”¹⁴⁵ A retired machinist who worked at the lab for over two decades told Guzmán, “You realize, yes, they are paying you well, but you’re being put in situations that you have no idea about. It’s the mentality at the lab,” he said. “They don’t really think that people that are techs are even really worth much.”¹⁴⁶

The lab also fosters wealth inequalities because governments spending tax money on nuclear weapons is a self-reinforcing loop: as people have less of a social safety net and less to live on, as conditions of poverty and inequality rise, the general public consumes less goods.¹⁴⁷ This means the economy needs to produce less goods for the general public, freeing up more capital and labour to produce nuclear weapons and even necessitating them as a “reliable” source of revenue and employment. It further embeds the bomb into a nuclear-armed state’s economy. As Ahjani Yepa-Sprague said in an interview, the state of New

141 Los Alamos Study Group, “Plutonium warhead factory,” op. cit.

142 Clare Provost, “Atomic City, USA: how once-secret Los Alamos became a millionaire’s enclave,” *The Guardian*, 1 November 2016, <https://www.theguardian.com/cities/2016/nov/01/atomic-city-los-alamos-secret-town-nuclear-millionaires>.

143 Greg Mello, “Does Los Alamos National Lab help or Hurt the New Mexico Economy?” Los Alamos Study Group, 2006, http://www.lasg.org/LANLecon_impact.pdf.

144 Alicia Inez Guzmán, “The ABCs of a nuclear education,” *Searchlight New Mexico*, 7 June 2023.

145 Ibid.

146 Ibid.

147 Rosa Luxemburg, *The Accumulation of Capital* (New York: Modern Reader Paperbacks, 1968).

Mexico is economically dependent on weapons development. Nuclear weapons are “completely embedded with our state and federal economy.”¹⁴⁸

In this context, the expansion of work at Los Alamos “has nothing at all to do with ‘maintaining a nuclear deterrent,’” argues the Los Alamos Study Group. “Instead, it has everything to do with enabling an arms race in which the U.S. cannot possibly keep up, increasing military spending, and maintaining nuclear and military dominance over other government priorities.”¹⁴⁹ The Study Group points out, for example, that the 20 billion USD required to start pit production at Los Alamos would be enough to provide a solar system for every household in New Mexico.

Of course, pit production is not the only aspect of nuclear weapon production. Over in Texas, the US Atomic Energy Commission opened Pantex in the 1950s to assemble nuclear warheads and to produce the high explosives that accompanied them. In the 1960s and 70s, operations at other nuclear sites in Texas, Tennessee, and Iowa moved to Pantex, making it the country’s sole assembly and disassembly plant for nuclear weapons ever since. In the 1980s, Pantex inherited the storage of plutonium pits after Rocky Flats was raided by the FBI and shut down for its massive contaminations and safety protocol violations, as described above.

“Today, the thirty-three hundred workers at Pantex mainly surveil and maintain the aging warheads in the nation’s arsenal of fifty-eight hundred nuclear weapons,” writes academic Lucie Genay. “The plant occupies more than ten thousand acres of federally owned land and six thousand acres leased from Texas Tech University (TTU), divided into areas for weapons assembly and disassembly, staging

(where weapons await shipment, rework, or disassembly), high explosives development, test firing, burning, sanitary landfill and disposal, water treatment, vehicle maintenance, and administration.”¹⁵⁰

Pantex has become essential to the economy of the town in which it is situated, Amarillo, and to the wider region. “Were Pantex to be bombed,” writes Genay, “the effect would be immediate, painless, numbing. Were the plant to shut down, however, it would mean socioeconomic collapse for the surrounding communities, a much more terrifying and potentially painful prospect for many residents.”¹⁵¹ Despite this, however, there have been tensions between the bomb factory and the agricultural industry in the region. Especially after the closure of Rocky Flats, cattle farmers and those growing wheat, corn, and other crops in the Texas panhandle opposed the expansion of Pantex, citing risks of an accident that could contaminate surrounding land and water.

In a study of nuclear weapon facilities by the National Academy of Sciences in the 1980s, Pantex was cited among the polluters, with forty-six contaminated sites and only one remediated so far. And in the 1990s, the US Department of Energy finally acknowledged groundwater contamination with toxic chemicals from Pantex. Radioactive materials have also been found on the ground in certain areas of the plant facilities and in neighbouring well-water, and tritium was released into the environment in at least one incident in 1989, from which one worker later died. Smaller quantities of tritium were reportedly released regularly during weapon disassembly, to the extent to which the US Government Accountability Office charged that Pantex was “lax on safety”—confirming this, an Occupational Safety and Health

148 Interview with Ahjani Yepa-Sprague on 15 May 2024.

149 Los Alamos Study Group, “Plutonium warhead factory,” op. cit.

150 Genay, *Under the Cap of Invisibility*, p. 2.

151 *Ibid.*, p. 50.

Administration study found 168 violations of worker protection standards and a lack of training for technicians in radiation protection techniques.¹⁵²

These are just two examples among the dozens of facilities where nuclear weapons are produced and modernised in the United States. The story of displacement and ecological and worker harm is similar at each. Furthermore, the production of plutonium pits is not the only expansion of the US nuclear weapon complex. The government has invested billions—and plans to invest trillions more—into the modernisation of its weapon designs, and its “nuclear triad” of delivery systems—the missiles, bombers, and submarines.¹⁵³

Moreover, nuclear weapon build-up is not unique to the United States—all nine nuclear-armed states are either expanding or modernising their nuclear weapons, delivery systems, and/or related facilities.¹⁵⁴ Collectively, the nuclear-armed states are currently spending about 91.4 billion USD a year on nuclear weapons.¹⁵⁵ In each country, there are similar stories about the harms caused by and the risks posed by nuclear weapon production.

In each country, there are also social costs associated with the development of nuclear weapons, the major burden of which will always “be borne by the most vulnerable sections of society,” as Indian antinuclear feminists have argued. “While the inevitable cutbacks in social security and

welfare will hurt and damage all poor people, the proportion of the poor who are steadfastly denied a fair share of even the scarce resources, will undoubtedly become larger.”¹⁵⁶

Austerity in the United Kingdom, for example, decimated public sector jobs as well as social welfare.¹⁵⁷ These cuts have been implemented at the same time the government decided to renew the Trident missile system, which at the time was projected to cost 256 billion USD.¹⁵⁸ It is estimated that women have borne the brunt of the austerity cuts, approximately 86 per cent.¹⁵⁹ Feminists have documented across various sectors and contexts how cuts in the public sector will continue to disproportionately affect women who depend on public resources in support of their reproductive labor. “When public provisioning declines, women are culturally expected to fill the gap, in spite of fewer available resources, more demands on their time and minimal increases in men's caring labour.”¹⁶⁰ Thus, cuts in public spending, which will affect supportive mechanisms such as child and elderly care, as well as healthcare, will most likely make it more difficult for women to take those “new jobs” supposedly offered by the nuclear lab, as diminishing access to supporting mechanisms will increase the burden of unpaid care work on them.

Nuclear weapons increase the insecurity of the most vulnerable populations of the world. They may never be used in war again, but

152 Ibid., pp. 194–195.

153 *FAS Nuclear Notebook*, Federation of American Scientists, <https://fas.org/initiative/fas-nuclear-notebook>.

154 *Assuring Destruction Forever: 2022 edition*, Reaching Critical Will of the Women's International League for Peace and Freedom, January 2022, <https://reachingcriticalwill.org/images/documents/Publications/modernization/assuring-destruction-forever-2022.pdf>.

155 *Surge: 2023 Global Nuclear Weapons Spending*, International Campaign to Abolish Nuclear Weapons, June 2024, https://www.icanw.org/surge_2023_global_nuclear_weapons_spending.

156 Kumkum Sangari, Neeraj Malik, Sheba Chhachhi, and Tanika Sarkar, “Why Women Must Reject the Bomb,” *Out of Nuclear Darkness: The Indian Case for Disarmament* (New Delhi: Movement in India for Nuclear Disarmament, 1998).

157 See Robert Booth and Patrick Butler, “UK austerity has inflicted ‘great misery’ on citizens, UN says,” *The Guardian*, 16 November 2018, <https://www.theguardian.com/society/2018/nov/16/uk-austerity-has-inflicted-great-misery-on-citizens-un-says>.

158 Elizabeth Piper, “UK nuclear deterrent to cost \$256 billion, far more than expected,” *Reuters*, 25 October 2015, <https://www.reuters.com/article/us-britain-defence-trident-exclusive/exclusive-uk-nuclear-deterrent-to-cost-256-billion-far-more-than-expected-idUSKCNOSJOEP20151025>.

159 Dawn Foster, “Britain's Austerity Has Gone From Cradle to Grave,” *Jacobin*, 9 April 2019, <https://www.jacobinmag.com/2019/04/britain-life-expectancy-austerity-conservative-party-tories>.

160 Spike V. Peterson, “How (the meaning of) gender matters in political economy,” *New Political Economy* 10, no. 4 (2005): 510.

even still their pursuit wastes massive human and economic resources; involves exploitative conditions for workers; and involves land appropriation and contamination. “While radiation may not discriminate,” scholar Shampa Biswas notes, nuclearism “does discriminate along lines of class, race, and geography, leading to the differential valuation of human bodies involved in nuclear production.”¹⁶¹

Nuclear weapon testing

Once the bombs are built, they are ready for detonation. “Testing” is a euphemism for detonating a nuclear bomb. While it might not be intended to harm a particular population, a nuclear weapon test still carries all the harms created by blast, fire, and radiation. Since 1945, the nuclear-armed states have conducted more than 2000 tests at dozens of sites around the world.

The history of nuclear weapon testing is a history of colonialism. The fallout of the first atmospheric nuclear weapon test ever conducted, the Trinity test, impacted several Indigenous, Nuevomexicanx, and other local communities in New Mexico. This test, kept secret by the government, poisoned generations of those living in the area and across the continent. New research led by Sébastien Philippe of Princeton University’s Program on Science and Global Security showed that the fallout from the Trinity test was much more widespread than acknowledged by the US government. Contamination was significant in New Mexico and spread across 46 of the 48 contiguous US states as

well as Canada and Mexico and affected dozens of federally recognised tribal lands.¹⁶²

Those living around the test site were not told about the detonation ahead of time, nor did the government warn local populations about the fallout or contamination of the land, water, and animals. “For decades to come, radioactive matter sat in creek beds and soil. Generations of people ate food grown in that soil and drank milk from cows that grazed the land and breathed the contaminated air,” explained Tina Cordova, a founder of the Tularosa Basin Downwinders Consortium.¹⁶³

“The legacy of the Trinity test for people living in the Tularosa Basin and their descendants is one of disease and desecration,” writes Myrriah Gómez in *Nuclear Nuevo México*.¹⁶⁴ Yet the US government has consistently refused to recognise Trinity downwinders under the Radiation Exposure Compensation Act (RECA). The act, which offers financial compensation to people harmed during nuclear weapon testing and uranium mining, does not include those impacted by the Trinity test. RECA was extended for a further two years in 2022, and legislation to expand it to include New Mexicans affected by the Trinity test was added by senators as an amendment to the National Defense Authorization Act in September 2023. However, the House leadership removed this amendment in its version of the Act in December 2023.¹⁶⁵ In June 2024, Congress allowed RECA to expire entirely, though activists continue to push for both an extension and an expansion of the Act.¹⁶⁶

161 Biswas, *Nuclear Despire*, 167.

162 Lesley M. M. Blume, “Trinity Nuclear Test’s Fallout Reached 46 States, Canada and Mexico, Study Finds,” *The New York Times*, 20 July 2023, <https://www.nytimes.com/2023/07/20/science/trinity-nuclear-test-atomic-bomb-oppenheimer.html>.

163 Ryan Lowery, “Biden extends radiation compensation fund, but NM Downwinders still seek help,” *Source NM*, 9 June 2022, <https://sourcennm.com/2022/06/09/biden-extends-radiation-compensation-fund-but-nm-downwinders-still-seek-help>.

164 Gómez, *Nuclear Nuevo México*, p. 88.

165 Jonny Coker, “Tularosa Downwinders disheartened after RECA expansion stripped from NDAA,” *KRWG*, 16 December 2023, <https://www.krwg.org/krwg-news/2023-12-16/tularosa-downwinders-disheartened-after-reca-expansion-stripped-from-ndaa>.

166 Alyssa Munoz, “What’s next for Downwinders after RECA expires,” *KOAT Albuquerque*, 8 June 2024, <https://www.msn.com/en-us/money/companies/what-s-next-for-downwinders-after-reca-expires/ar-BB1nT4hy>.

Beyond Trinity, the United States conducted over 1050 other nuclear weapon tests. Most of these were conducted at the Nevada Test Site, which is in the traditional land-use area of the Western Shoshone and South Paiute.¹⁶⁷ The Western Shoshone are known as “the most bombed nation on earth”: 814 nuclear weapons have been detonated on their land since 1951.¹⁶⁸ The US government also detonated nuclear devices near the Aleutian island of Amchitka in southwest Alaska; Rulison and Rio Blanco, Colorado; Hattiesburg, Mississippi; and Alamogordo and Farmington, New Mexico.¹⁶⁹

The United States, as well as France and the United Kingdom, also tested nuclear weapons in the Pacific region. Between 1946 and 1996, the three countries tested over 315 nuclear weapons on largely remote, rural, and First Nations communities across the Pacific. These tests contaminated vast areas in the Marshall Islands (Bikini and Enewetak islands), Australia (Monte Bello, Emu Field and Maralinga), so-called French Polynesia (Moruroa and Fangataufa), and the Pacific islands of Kiritimati (Christmas island), Kalama (Malden) Island, and Johnson Atoll. France also tested its nuclear weapons in Algeria.

Meanwhile, the Soviet Union conducted about 715 tests, mostly at the Semipalatinsk Test Site in Kazakhstan. China conducted 45 tests at the Lop Nor test site in Xinjiang. India conducted six tests at

Pokhran, and Pakistan six at Ros Koh Hills and the Chagai District. Each of these impacted Indigenous populations in the area.¹⁷⁰

The common factor throughout most nuclear testing is the impact it had on the people living in those locations. “The testing sites chosen were viewed by these nuclear weapons states as ‘open’ or ‘empty’ spaces with little vocal resistance,” writes Dimity Hawkins. “But these traditional lands were neither empty nor silent.”¹⁷¹ As 35 Indigenous groups said in a statement to the negotiations of the Treaty on the Prohibition of Nuclear Weapons (TPNW) in July 2017, “Governments and colonial forces exploded nuclear bombs on our sacred lands—upon which we depend for our lives and livelihoods, and which contain places of critical cultural and spiritual significance—believing they were worthless.” Delivered by Karina Lester, a Yankunytjatjara-Anangu woman from South Australia, the statement explained that Indigenous people “were never asked for, and we never gave, permission to poison our soil, food, rivers and oceans.”¹⁷²

In Australia, 600 so-called minor trials,¹⁷³ as well as 12 atmospheric nuclear tests, spread contamination of uranium, plutonium, beryllium and other toxic substances over a wide area in the South Australian desert.¹⁷⁴ A Royal Commission report found that there was a failure at the first of the UK bomb tests in Australia’s Monte Bello islands to “consider the

167 *United States Nuclear Tests: July 1945 through September 1992* (Las Vegas, NV: US Department of Energy, National Nuclear Security Administration Nevada Field Office, September 2015), https://nnss.gov/wp-content/uploads/2023/08/DOE_NV-209_Rev16.pdf.

168 Taylor N. Johnson, “‘The most bombed nation on Earth’: Western Shoshone resistance to the Nevada National Security Site,” *Atlantic Journal of Communication* 26, no. 4 (2018): 224–239.

169 Kyle Mizokami, “America Has Dropped 1,032 Nuclear Weapons (On Itself),” *The National Interest*, 30 August 2018.

170 See “Nuclear War: Uranium Mining and Nuclear Tests on Indigenous Land,” *Cultural Survival Quarterly Magazine*, September 1993, <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/nuclear-war-uranium-mining-and-nuclear-tests-indigenous>.

171 Dimity Hawkins, “Nuclear weapons testing in the Pacific: lessons for the Treaty on the Prohibition of Nuclear Weapons,” Unpublished paper in author’s possession, draft as of 21 May 2018, 11.

172 Indigenous Statement to the UN Nuclear Weapons Ban Treaty Negotiations, June 2017, <https://icanw.org.au/wp-content/uploads/Indigenous-Statement-June-2017.pdf>.

173 Minor trials were nuclear tests intended to investigate the effects of fire or non-nuclear explosions on atomic weapons.

174 Nic Maclellan, *Banning Nuclear Weapons: A Pacific Islands Perspective* (Melbourne: International Campaign to Abolish Nuclear weapons, 2014); Tilman Ruff, “Health and Environmental Impacts of British Nuclear Test Explosions in Australia,” Institute for Energy and Environmental Research (IEER), June 2022, <https://ieer.org/wp/wp-content/uploads/2022/06/British-testing-in-Australia-for-ICAN-by-Tilman-Ruff-June-2022.pdf>.

distinctive lifestyles of Aboriginal people.”¹⁷⁵ The Commission notes that the UK government did inadequate surveys of the numbers of Aboriginal communities affected—in fact they recorded that there were just 715 people within the immediate 150km area of the test site of the first Monte Bello tests, which excluded Aboriginal People.¹⁷⁶

Speaking to the Second Meeting of States Parties to the TPNW in November 2023, Karina Lester explained how her father, Yami Lester, was blinded as a teenager by the UK nuclear tests conducted at Emu Field. Black mist fell over the community where he lived in 1953; old people died, many in the community became violently ill and was passed down through generations. “We know our lands are poisoned, we know the radiation fallout killed our loved ones, we know the fallout contaminated our country, our traditional lands, but also our families, our people who moved through those traditional lands.”¹⁷⁷

Pacific Islanders also suffered from the nuclear testing conducted by France, the United Kingdom, and United States. They endured displacement as well as malnutrition and near starvation, lost access to traditional food sources, and exposure to radioactive fallout from the tests.¹⁷⁸ In 2012, Calin Georgescu, the UN Special Rapporteur on the Implications for Human Rights of the Environmentally Sound Management and Disposal of Hazardous Substances and Wastes visited the

Marshall Islands to assess the impact on human rights of the nuclear testing conducted by the United States from 1946 to 1958.¹⁷⁹ Among other elements, his work has exposed the gendered harms from nuclear weapon testing.

His investigations found that the bathing and eating habits of women potentially played a role in their higher rates of radioactive contamination. The Special Rapporteur found that women often bathed in contaminated water, which may have been overlooked as a possible means of exposure, as was the fact that women eat different parts of fish than men, such as bones and organ meat, in which certain radioactive isotopes tend to accumulate. The Special Rapporteur also notes, “Apparently, women were more exposed to radiation levels in coconut and other foods owing to their role in processing foods and weaving fibre to make sitting and sleeping mats, and handling materials used in housing construction, water collection, hygiene and food preparation, as well as in handicrafts.”¹⁸⁰

In all cases of nuclear weapon use and testing, high rates of stillbirths, miscarriages, congenital birth defects and reproductive problems (such as changes in menstrual cycles and the subsequent inability to conceive) have been recorded. A possible link between breast cancer in young women and women who were lactating at the time of exposure to nuclear radiation has also been found to exist.¹⁸¹

175 Jim McClelland, *The Report of the Royal Commission into British Nuclear Tests in Australia* (Canberra: Australian Government Publishing Service, 1985), 122.

176 McClelland, *The Report of the Royal Commission into British Nuclear Tests in Australia*, 118.

177 Karina Lester, Presentation to the Second Meeting of States Parties to the Treaty on the Prohibition of Nuclear Weapons, United Nations, New York City, 28 November 2023, <https://www.youtube.com/watch?v=D22ppVIXS5k>.

178 *Moruroa Files: Investigation into French nuclear tests in the Pacific*, Interpret, Disclose, and Princeton University's Program on Science and Global Security, 2021, <https://moruroa-files.org>.

179 Calin Georgescu, *Report of the Special Rapporteur on the Implications for Human Rights of the Environmentally Sound Management and Disposal of Hazardous Substances and Wastes*, Human Rights Council, Twenty-First Session, Agenda Item 3, Promotion and Protection of all Human Rights, Civil, Political, Economic, Social and Cultural Rights, Including the Right to Development, 2012, https://www.ohchr.org/sites/default/files/Documents/HRBodies/HRCouncil/RegularSession/Session21/A-HRC-21-48-Add1_en.pdf.

180 Georgescu, *Report of the Special Rapporteur*, 73.

181 See for example Sebastian Pflugbeil, Henrik Paulitz, Angelika Claussen, and Inge Schmitz-Feuerhake, *Health Effects of Chernobyl: 25 years after the reactor catastrophe* (Berlin: German Affiliate of the International Physicians for the Prevention of Nuclear War, April 2011), <https://ratical.org/radiation/Chernobyl/HEofC25yrsAC.html>; Reiko Watanuki, Yuko Yoshida, and Kiyoko Futagami, *Radioactive Contamination and the Health of Women and post-Chernobyl Children* (Chernobyl Health Survey and Healthcare for the Victims – Japan Women's Network, 2006); and Whitney Graham and Elena I. Nicklasson, “Maternal Meltdown: From Chernobyl to Fukushima,” *Inter Press Service*, 26 April 2011, <http://www.ipsnews.net/2011/04/op-ed-maternal-meltdown-from-chernobyl-to-fukushima>.

For more than sixty years, radiation exposure was measured based on the people primarily developing and testing nuclear weapons: adult white men. Nuclear regulators, including the International Committee for Radiological Protection, use what is called “Reference Man” to evaluate exposure. This model is based on adult white men—officially, “between 20 to 30 years of age, weighing 70 kg, is 170 cm in height, and lives in a climate with an average temperature of from 10°C to 20°C. He is a Caucasian and is a Western European or North American in habitat and custom.”¹⁸² Only one study from the bombings of Hiroshima and Nagasaki assessed impacts of radiation based on age and sex. Analysts such as Mary Olson, who now leads the Gender and Radiation Project, have found that sex and age are “potent factors influencing the outcome of radiation exposure.”¹⁸³

Similarly, the key reference guide for radiation exposure is not adequate for measuring possible exposure amongst Indigenous populations. In the United States, for example, due to differences in diet, activities, and housing, the radiation exposure of Native Americans is not well represented in the Department of Energy dose reconstructions. It leaves out exposure to radioactive iodine from eating small game, while exposures from drinking milk and eating vegetables have not yet been properly estimated for these communities.¹⁸⁴

Tewa activist Beata Tsosie-Peña says:

This environmental racism also does not consider the lifestyle of Native and land-based Peoples, who are outdoors for longer periods of time, still grow their own food,

harvest rain water and use natural springs and bodies of water in our ceremonies, hunt, fish, gather wild plants, gather natural clays and dyes, etc. This puts us at risk for multiple and cumulative exposure to toxins over long periods of time, a factor that is also not considered when determining “allowable” levels of contamination into our environment and when determining water quality standards. We cannot wait for science to validate the harm we know is happening. We must be counted as experts that can help heal this place we are a part of. The process of health studies, while needed, is costly and takes long periods of time. We must not be required to give up our ancestral ways of knowing in order to protect ourselves from environmental violence. It is time that for-profit industries are held accountable, and that we are no longer classified as collateral damage for the war machine or fossil fuels industry.¹⁸⁵

In her interview for this project, Ahjani Yepa-Sprague noted that Tewa Women United has been working for a long time to change the health standards and references to reflect the most vulnerable people, which is the “pregnant Pueblo land-based working woman,” or Nava T’oi Yiya.¹⁸⁶ As the organisation explains, “When Nava T’oi Yiya is protected, everyone will be protected.”¹⁸⁷

Beyond the physical harm from radiation, nuclear weapon testing has also borne racialised and gendered long-term psychological, social, and cultural harm. In the Marshall Islands, Georgescu

182 *Report of the Task Group on Reference Man*, International Commission on Radiological Protection, No. 23 (Oxford: Pergamon Press, 1975), 4.

183 Mary Olson, “Human consequences of radiation: A gender factor in atomic harm,” in *Civil Society Engagement in Disarmament Processes: The Case for a Nuclear Weapon Ban* (New York: United Nations Office for Disarmament Affairs, 2016), 32.

184 Eric Frohberg, Robert Goble, Virginia Sanchez, and Dianne Quigley, “The Assessment of Radiation Exposures in Native American Communities from Nuclear Weapons Testing in Nevada,” *Risk Analysis* 20, no. 1 (March 2000): 101–111.

185 Beata Tsosie-Peña, “A Tewa Woman’s Reflection on Urgency.”

186 Interview with Ahjani Yepa-Sprague on 15 May 2024.

187 Tewa Women United, “Nava T’oi Yiya: Protecting the Most Vulnerable,” <https://tewawomenunited.org/nava-toi-yiya-protecting-the-most-vulnerable>.

found that woman survivors of the test felt shame during the forced relocation process, “when they were subjected to examinations with Geiger counters while naked and hosed down with liquid in the presence of their male relatives, as well as enduring on-site analysis of their pubic hair by American male personnel.”¹⁸⁸ Meanwhile, suicides among young Marshallese men increased as a result of loss of fishing and other traditional sources of income and provision.¹⁸⁹

Georgescu also noted the harms from displacement from nuclear testing in Bikini, Enewetak, Rongelap, and Utrok Atolls. Testing created nomads that were disconnected from their lands and their cultural and Indigenous ways of life.¹⁹⁰ There can be gendered differences in the experience of displacement due to nuclear weapon testing. Based on experiences in armed conflict generally, displacement tends to make women, girls, and gender non-conforming people more susceptible to sexual and gender-based violence. In addition, women, gender non-conforming, and LGBTQ+ people tend to have less access to assistance and difficulties in exercising rights related to housing, land, property, and jobs as well as longer-term cultural impacts such as loss of cultural rights as custodians of land.¹⁹¹

In addition to its nuclear testing in the Pacific, France carried out 17 atmospheric and underground nuclear tests in Algeria between 1960 and 1966. The French government detonated these bombs at the Reggane and In Ekker sites

“in an atmosphere of secrecy and conflict between an Algerian nation under construction and a colonial power seeking strategic autonomy,” write Jean-Marie Collin and Patrice Bouveret in a study published by ICAN France. “A majority of the tests—11—were carried out after the Evian agreements (18 March 1962), which established Algeria’s independence.”¹⁹²

Local populations as well as French civilian workers and soldiers were exposed to radiation. The atmospheric nuclear tests spread radioactivity across the Sahara, over North Africa, into sub-Saharan Africa, and into Europe, as shown in French documents declassified in 2013. A minimum of four underground tests, out of 13, were not fully contained, resulting in the release of volatile radionuclides, including iodine, in the environment. Other tests involving the dispersal of plutonium also resulted in significant contaminations.¹⁹³ In addition, the French government buried contaminated equipment and other nuclear wastes in the Saharan desert—but has not revealed how much or where.

The testing sites were subsequently handed over to the Algerian government without any procedures for decontamination or environmental remediation.¹⁹⁴ According to a French government report summarizing the history of nuclear testing in Algeria, which was made public by French civil society, “No memorandum and no report have been found that provide information about the

188 Calin Georgescu, *Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes*, A/HRC/21/48/Add.1, 3 September 2012, https://www.ohchr.org/sites/default/files/Documents/HRBodies/HRCouncil/RegularSession/Session21/A-HRC-21-48-Add1_en.pdf.

189 Barbara Rose Johnston and Holly M. Barker, *The Rongelap Report: Consequential Damages of Nuclear War* (New York: Routledge, 2008).

190 A/HRC/21/48/Add.1, *op. cit.*

191 See for example *Women and Explosive Weapons*, Reaching Critical Will of the Women’s International League for Peace and Freedom, 2014; and *We Are Still Here: Mosulite Women 500 Days After the Conclusion of the Coalition Military Operation*, Women’s International League for Peace and Freedom, 2019.

192 Jean-Marie Collin and Patrice Bouveret, *Radioactivity Under the Sand: The Waste Produced by French Nuclear Tests in Algeria* (Berlin: Heinrich Böll Foundation, 2020), <https://icanfrance.org/wp-content/uploads/2020/08/Radioactivity-under-the-sand-.pdf>, p. 5.

193 *Ibid.*

194 *Ibid.*

radiological condition of the test sites when they were returned to the Algerian authority.”¹⁹⁵

In January 2010, the French government adopted the Morin Law, granting compensation to “any person suffering from an illness caused by radioactivity as a result of exposure to the ionising radiation from French nuclear tests and registered on a list determined by decree of the Council d’État in accordance with the work recognised by the international scientific community.” In the last ten years, only 1747 claims have been registered,¹⁹⁶ in total 506 individuals—including veterans, former civilian contractors, and members of the public—impacted by the tests have been granted compensation. Based on figures of a 2019 report, only 64 of these were members of the public—63 in Polynesia and one in Algeria. For these populations, more than 80 per cent of the claims submitted have been rejected.¹⁹⁷

The process to seek compensation “has become equivalent to an unscalable wall,” argue the investigators behind the Moruroa Files, a study of French nuclear testing in the Pacific. “The rejected applicants have no means of knowing why they were turned down, because the commission provides no justification for its decisions, which are not made public.”¹⁹⁸ Moreover, for the past decade, the commission falsely claimed that the dose reconstruction data on which it was basing its decisions had been reviewed and validated in 2009 by an independent group of international experts mandated by the International Atomic Energy Agency. Such validation never happened, according

to the report written by the experts at the time, who had no access to the data necessary to conduct such validation.¹⁹⁹

Dimity Hawkins argues that each of these cases expose different, but incredibly similar stories about the relationship between the testing governments and the people upon whom they tested nuclear weapons. “One could be seen as a breach of the global trust placed in an administering authority,” she notes, while “another showed a gung-ho readiness to comply with the wishes of a former colonial master. The last revealed a relentless adherence to perceived colonial privilege alongside collaboration by local political interests.”²⁰⁰

Nuclear weapon deployment and doctrines

At the outset of his full-scale invasion of Ukraine in 2022, Russian President Vladimir Putin declared that other countries “will face consequences greater than any you have faced in history” if they intervened.²⁰¹ A few days later, he ordered Russian nuclear forces to be put on a heightened alert status, after which other Russian officials began speaking of the readiness to use nuclear weapons. In May 2024, the Russian government announced its intention to conduct drills with tactical nuclear weapons.²⁰²

The words and actions of the Russian government have elevated the risks and dangers of nuclear

195 *Report on French nuclear tests 1960–1996, volume 1: La genèse de l’organisation et les expérimentations au Sahara CSEM et Cemo*, 236.

196 Comité d’indemnisation des victimes des essais nucléaires, Rapport d’activité 2020 : retour sur 10 ans de la loi du 5 janvier 2010, <https://www.vie-publique.fr/rapport/279256-comite-dindemnisation-des-victimes-des-essais-nucleaires-2020>.

197 “The compensation trap,” Moruroa Files; Collin and Bouveret, *Radioactivity Under the Sand*, p. 13.

198 “The compensation trap,” Moruroa Files.

199 Victime du nucléaire : l’imposture de l’indemnisation, Médiapart, 9 March 2021, <https://disclose.ngo/fr/article/l-imposture-de-victime-du-nucleaire-limposture-de-lindemnisation-des-victimes-des-essais-nucleaires>.

200 Hawkins, “Nuclear weapons testing in the Pacific,” 10.

201 Dave Lawler, “Putin launches attacks across Ukraine,” *Axios*, 24 February 2022, <https://www.axios.com/2022/02/24/putin-delares-war-on-ukraine>.

202 Guy Faulconbridge, “Putin orders tactical nuclear weapon drills to deter the West,” *Reuters*, 6 May 2024, <https://www.reuters.com/world/europe/russia-practice-tactical-nuclear-weapon-scenario-deter-west-defence-ministry-2024-05-06>.

war back into mainstream consciousness. But the threat of nuclear weapon use is not limited to the Russian government. Eight other governments—those of China, Democratic People's Republic of Korea (DPRK), France, India, Israel, Pakistan, the United Kingdom, and the United Kingdom and the United States—also possess nuclear weapons. US nuclear bombs are stored on the territory of five other North Atlantic Treaty Organisation (NATO) members—Belgium, Germany, Italy, Netherlands, and Türkiye, while more recently Russia has stationed nuclear weapons in Belarus. All the nuclear-armed states actively deploy nuclear weapons—some at land, sea, or air, or all three—ready for use at a moment's notice. The United States regularly conducts intercontinental ballistic missile tests and organises nuclear drills to train its forces and allies for the use of nuclear weapons, including with NATO and with the Republic of Korea.

The latter has consistently raised tensions with the DPRK. And amid all these tensions and rivalries, Indigenous populations continue to pay the price. In an interview for this project, Kalani Reyes noted that the United States has intentionally positioned Guam and the Pacific Ocean “as war grounds, through keeping the Indigenous Chamorus of Guam as a non-self-governing colony without self-determination.”²⁰³ She highlighted that in 2017, when the presidents of the DPRK and the United States were bombastically challenging each other, the DPRK threatened to fire four missiles over Japan and land them in the sea 30 kilometers (17 miles) from Guam.²⁰⁴

The core nuclear policy of all nuclear-armed states—so-called “nuclear deterrence”—is that it relies on the idea of mutually assured destruction (MAD). The strategic plans for the use of nuclear

weapons envision nuclear exchange; nuclear weapon deployments and doctrines signal the capacity to enact those plans. The theory is that because a “nuclear exchange” could end up destroying the entire planet, no one would dare to use them. This is alleged to have maintained “global peace and security” and “geostrategic stability” since the end of World War II.

This is the relentless circular (il)logic of nuclear deterrence, the principal tenet of which is that the possession of nuclear weapons makes their use impossible and thus prevents war. But whether it is the United States attacking Iraq, Russia invading Ukraine, or Israel committing genocide in Palestine, it should be clear to all that nuclear weapons do not prevent war. They enable it.

The deployment of nuclear weapons also involves self-destructive plans masquerading as national security. One example is the land-based missile silos in the United States, which are *intended to serve as targets for enemy nuclear weapons* with no concern for the communities or land upon which they are based. As part of the US nuclear weapon modernisation programme described earlier, the US Air Force's new Sentinel program will replace the current Minuteman III missiles with 400 new missiles across five states starting in 2030.²⁰⁵ Sébastien Philippe of Princeton University's Program on Science and Global Security writes, “a key argument for the continued existence—and now the replenishment—of the land-based missiles is to provide a large number of fixed targets meant to exhaust the enemy's resources.”²⁰⁶ Yet the most recent, 3000-page report from US government on these silos does not mention what happens if the missiles are attacked. As Philippe's modelling of the potential impacts of these “sacrifice zones” shows:

203 Interview with Kalani Reyes on 4 June 2024.

204 “North Korea Guam missile strike plan ‘ready by mid-August’,” BBC, 10 August 2017, <https://www.bbc.com/news/world-asia-40883372>.

205 See the Missiles On Our Land, <https://missilesonourland.org/read.html>, for details.

206 Sébastien Philippe, “Sacrifice Zones,” *Scientific American*, December 2023, p, 48.

A concerted nuclear attack on the existing U.S. silo fields—in Colorado, Wyoming, Nebraska, Montana and North Dakota—would annihilate all life in the surrounding regions and contaminate fertile agricultural land for years. Minnesota, Iowa and Kansas would also probably face high levels of radioactive fallout. Acute radiation exposure alone would cause several million fatalities across the U.S.—if people get advance warning and can shelter in place for at least four days. Without appropriate shelter, that number could be twice as high. Because of great variability in wind directions, the entire population of the contiguous U.S. and the most populated areas of Canada, as well as the northern states of Mexico, would be at risk of lethal fallout—more than 300 million people in total. The inhabitants of the U.S. Midwest and of Alberta, Saskatchewan, Manitoba and Ontario in Canada could receive outdoor whole-body doses of radiation several times higher than the minimum known to result in certain death.²⁰⁷

One of the sites designated to act as a “Nuclear Sponge” to soak up the consequences of a nuclear attack is the Fort Berthold reservation, home of the Mandan, Hidatsa, and Arikara Nation. It is the only federally recognised First Nation in the United States to hose nuclear weapons on its land.

The reservation hosts fifteen silos and a launch facility, but the Nation never agreed to their placement there. When the silos were constructed in the 1960s, most of the Nation had already been forcibly relocated after the intentional flooding of their land for a dam project. The US military built the silos on the land to which they had been displaced—which at that time was not reservation land. After it became reintegrated with the reservation boundaries following a 1972 court decision, the silos were already there, loaded with intercontinental ballistic missiles.²⁰⁸

This is just one example in one country of how the deployment of nuclear weapons involves displacement of Indigenous People and social, cultural, health, and environmental damages and risks. There have been many accidents at missile silos²⁰⁹ and many of the silos themselves are reportedly toxic, leading to cancer of workers.²¹⁰ There have been collisions between nuclear-armed submarines,²¹¹ mishaps with bombers transporting nuclear warheads that crews did not realise were there,²¹² bomber crews accidentally dropping nuclear weapons,²¹³ and safety incidents when warheads are moved on highways through local communities across nuclear-armed states.²¹⁴

The point is that whether they are deployed in the ground in silos, in the air in bombers, or under the sea in submarines, nuclear weapons put every life on Earth at risk every moment of every day. Meanwhile, nuclear war plans determine when and

207 Philippe, “Sacrifice Zones,” p. 49.

208 See the Missiles On Our Land, <https://missilesonourland.org/read.html>; and *The Missiles On Our Rez* podcast, <https://missilesonourland.org/podcast.html>.

209 See Eric Schlosser, *Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety* (New York: Penguin Books, 2013).

210 Tara Copp, “The Air Force said its nuclear missile capsule were safe. But toxic dangers lurked, documents show,” Associated Press, 29 December 2023, <https://www.nbcboston.com/news/national-international/air-force-nuclear-missile-capsules-toxic-dangers-documents-show/3231428>.

211 Peter Suci, “‘Sir, We Hit A Nuclear Submarine’: How Two NATO Nuclear Armed Submarines Collided,” 1945, 22 August 2023, <https://www.19fortyfive.com/2023/08/sir-we-hit-a-nuclear-submarine-how-two-nato-nuclear-armed-submarines-collided>.

212 Barbara Starr, “Air Force investigates mistaken transport of nuclear warheads,” CNN, 6 September 2007, <https://www.cnn.com/2007/US/09/05/loose.nukes/index.html>.

213 Radu Alexander, “10 Times the Military Mistakenly Dropped Nuclear Bombs,” Listverse, 3 November 2014, <https://listverse.com/2014/11/03/10-times-the-military-accidentally-dropped-nuclear-bombs>.

214 Rob Edwards, “Revealed: nuclear bomb convoy’s 40 safety incidents,” *The Ferret*, 15 January 2023, <https://theferret.scot/nuclear-bomb-convoy-40-safety-incidents>.

how these weapons will be used; their combined capacity for destruction is greater than anything with which the planet has yet had to contend.

Yet the deployment of these weapons is mostly unregulated. Only two of the nuclear-armed states, the United States and Russia, have any agreed limits on the deployment of their weapons of mass destruction, and the last of these is set to expire on 5 February 2026. The rising tensions between the two countries, as well as between the United States and China, which the US government wants to join in trilateral nuclear arms control talks, has so far precluded negotiation for an extension of the agreement.²¹⁵ Thus, the sabre rattling among these nuclear-armed governments has implications far beyond current deployments and doctrines. While economic and military competition undermine diplomacy, the fabric of arms control has been lit afire over the past decade, leading now to the potential destruction of any limits to the deployment of massive, and modernised, nuclear arsenals.

Radioactive waste

All aspects of the nuclear fuel chain and industry produce radioactive waste. These take on a myriad of different forms, including tailing waste at uranium mines, depleted uranium waste at uranium enrichment plants, irradiated nuclear fuel from power reactors, waste streams from reprocessing as well as from research reactors used for scientific, industrial, and medical purposes, and of course also nuclear weapon detonations.

Nuclear waste lasts for a hundred thousand years to a million years, depending on the level of its

enrichment.²¹⁶ The timescales are so extreme that it has not been possible for experts assigned to the task to figure out how to “warn future generations of the dangerous contents of nuclear repositories.”²¹⁷ Written language has only existed for a few thousand years; there is no way to guarantee that Earth’s inhabitants that far in the future would understand any signs written today.

There is also the question of how to transport waste to a disposal site. As journalist Joshua Frank notes in an interview, nuclear waste must be put on trains and trucks and transported through communities. As recent accidents across the United States have shown, he argued, “As more and more of this waste is being transported, on rail or by truck, there are more and more chances for accidents to happen. There are also greater chances of intentional attacks or sabotage of some sort.”²¹⁸

As of yet, no country has an operating repository for high-level nuclear waste. The only operating deep underground repository for intermediate-level waste, the Waste Isolation Pilot Plant in Carlsbad, New Mexico in the United States, was shut down for three years following a February 2014 chemical explosion, which was a result of incompetent management, cost-cutting, and regulatory failures. “Meant to store waste for at least ten thousand years,” writes Lucie Genay, “it was only a decade before this accident occurred at the facility that had taken more than twenty years of research and negotiations to open.”²¹⁹

The World Nuclear Waste Report, published in 2019 by a team of international nuclear engineers and scientists, found that more than 70 years after the

215 Libby Flatoff and Shizuka Kuramitsu, “New START to Expire in Two Years as Russia Refuses Talks,” Arms Control Association, 5 February 2024, <https://www.armscontrol.org/blog/2024-02/nuclear-disarmament-monitor>.

216 Christine Ro, “The Staggering Timescales of Nuclear Waste Disposal,” *Forbes*, 26 November 2019, <https://www.forbes.com/sites/christinero/2019/11/26/the-staggering-timescales-of-nuclear-waste-disposal/?sh=616cd76029cf>.

217 Ibid.

218 Boscove-Ellen, “The Left Goes Nuclear,” op. cit.

219 Genay, *Land of Nuclear Enchantment*, p. 227.

start of the nuclear age, governments still do not know what to do with nuclear waste. Even though there have been many “failed selection procedures and abandoned repositories,” and even though “there is no guarantee of the feasibility of deep geological disposal,” most governments are still trying to pursue failed approaches.

One of the International Atomic Energy Agency's conditions for deep geological disposal of radioactive waste is low groundwater content that has been stable for at least tens of thousands of years, and geological stability over millions of years.²²⁰ This precludes a lot of places on the planet. In the meantime, the World Nuclear Waste Report team warns:

The conditioning, transport, storage and disposal of nuclear waste constitute significant and growing challenges for all nuclear countries.... Interim storage of spent nuclear fuel and high-level waste will continue for a century or more. With deep geological repositories not available for decades to come, the risks are increasingly shifting to interim storage. The current storage practices for spent nuclear fuel and other easily dispersible intermediate – and high-level waste forms were not planned for the long-term. These practices thus represent a growing and particularly high risk, especially when other options are available (solidification, dry storage) in hardened facilities. Extended storage of nuclear waste increases risks today, adds billions in costs, and shifts these burdens to future generations.²²¹

Given the realities of global environmental injustice and environmental racism, the burdens of nuclear waste storage are consistently forced onto marginalised communities, especially First Nations. Australian activists Jim Green and Dimity Hawkins note that “radioactive waste management has posed profound social challenges. Often radioactive waste is imposed on unwilling communities, such as that created by nuclear weapons testing in Pacific countries under colonial control.”²²² In Australia, nuclear waste has disproportionately impacted Indigenous Peoples. The repeated attempts by the Australian government to impose radioactive waste dumps on Indigenous communities have been consistently defeated in the courts, explain Green and Hawkins, but successive governments have continuously pursued this approach despite the consistent opposition.

In October 2023, Dr. Marcos Orellana, UN Special Rapporteur on Toxics and Human Rights made a visit to Australia, hearing from a diverse range of experts on the implications for human rights due to the management of hazardous substances and wastes. His initial report noted:

It is instructive that all siting initiatives by the Government for a radioactive waste repository have failed, leaving a legacy of division and acrimony in the communities. The loss of lives and songlines resulting from exposure of Indigenous peoples to hazardous pesticides in the Kimberley region, from asbestos exposure in Wittenoom in Western Australia, and from the radioactive contamination following nuclear weapons testing in South Australia, are all open wounds. Alignment of

220 International Atomic Energy Agency, Technical Reports Series No. 413: Scientific and Technical Basis for the Geological Disposal of Radioactive Waste, 2013, https://www-pub.iaea.org/MTCD/Publications/PDF/TRS413_web.pdf.

221 World Nuclear Waste Report, “5 Nuclear Waste Management,” 2019, <https://worldnuclearwastereport.org>.

222 Jim Green and Dimity Hawkins, *The Politics of Nuclear Waste Disposal: Lessons from Australia, Asia-Pacific Leadership Network for Nuclear Non-Proliferation and Disarmament*, January 2024, <https://cms.apln.network/wp-content/uploads/2024/01/Green-Hawkins-January-2024.pdf>.

regulations with the UN Declaration on the Rights of Indigenous Peoples is a critical step in the path towards healing open wounds of past environmental injustices.²²³

Yet, in the wake of the 2021 announcement that Australia would procure nuclear-powered submarines, described above, there has been further promotion of the idea for Australia to host an international nuclear waste import industry. The nuclear submarine programme will generate streams of intermediate – and high-level nuclear waste requiring deep geological disposal, in addition to low-level radioactive waste.²²⁴ As Green and Hawkins note, the government views the “necessity” of storing this waste as another opportunity to impose a waste dump on an Indigenous community in South Australia.²²⁵

Speaking at a gathering of the Australian Nuclear Free Alliance in March 2024, Kokatha elder Auntie Sue Coleman-Haseldine expressed frustration with the UK’s continued attempt to impose nuclear fallout on First Nations people in Australia. She lamented that first the UK government dropped atomic bombs on their land, now it wants to poison the land and people again with its waste. Others at the meeting warned that wherever the waste will be buried, it will be on Aboriginal land. Aranda/Luritja woman Mitch said that nuclear waste dumps are one more way for the government to get Aboriginal people off their land, to get them to fight

with each other while the government kills them off slowly with radioactive poison.²²⁶

While governments struggle to work out how to safely store radioactive waste, a lot of it is leaking.

In New Mexico, a series of maps published by Nuclear Watch New Mexico identify at least 12,730 locations where plutonium has been found in the groundwater, surface water, and soil. The contamination extends “from Bandelier National Monument to the east and the Santa Fe National Forest to the north, to San Ildefonso tribal lands in the west and the Rio Grande River and Santa Fe County, to the south,” Searchlight New Mexico reported.²²⁷ “So pervasive is the lab’s footprint that plutonium can be found in both trace and notable amounts along hiking trails, near a nursing home, in parks, along major thoroughfares and in the Rio Grande.” The maps suggest that the Los Alamos lab’s unlined waste dumps are the likely source of the leaks, along with the streams and rivers into which the lab “discharged treated and untreated radioactive waste from 1943 to 1964.”

Thousands of miles away in the Marshall Islands, radioactive waste from the 67 nuclear weapons detonated there by the United States between 1946 and 1958 is stored in a giant concrete dome, known by locals as The Tomb. “Runit Dome holds more than 3.1 million cubic feet—or 35 Olympic-sized swimming pools—of U.S.-produced radioactive soil and debris, including lethal amounts of

223 Dr. Marcos A. Orellana, “Australia: Deep divide between Government and community narratives on toxics fuels anger and distrust, says UN expert,” UN Media Release, 8 September 2023, https://www.un.org/sites/un2.un.org/files/press_release_8_september_2023_.pdf. See also, *End of Mission Statement by the UN Special Rapporteur on Toxics and Human Rights, Marcos A. Orellana, on his visit to Australia, August 28 to September 8, 2023*, https://www.un.org/sites/un2.un.org/files/eom_-_08_sep_2023_-_final_.pdf.

224 Daniel Hurst, “Australia risks being ‘world’s nuclear waste dump’ unless Aukus laws changed, critics say,” *The Guardian*, 13 May 2024, <https://www.theguardian.com/world/article/2024/may/13/australia-aukus-deal-submarines-critics-nuclear-waste>; and Tory Shepherd, “‘Poison portal’: US and UK could send nuclear waste to Australia under Aukus, inquiry told,” *The Guardian*, 2 April 2024, <https://www.theguardian.com/world/2024/apr/02/poison-portal-us-and-uk-could-send-nuclear-waste-to-australia-under-aukus-inquiry-told>.

225 Green and Hawkins, *The Politics of Nuclear Waste Disposal*, op. cit.

226 Ray Acheson, “Solidarity to Stop AUKUS,” *CounterPunch*, 21 April 2024, <https://www.counterpunch.org/2024/04/21/solidarity-to-stop-aukus>.

227 Alicia Inez Guzmán, “The long path of plutonium: A new map charts contamination at thousands of sites, miles from Los Alamos National Laboratory,” *Searchlight New Mexico*, 25 April 2024, <https://searchlightnm.org/the-long-path-of-plutonium-a-new-map-charts-contamination-at-thousands-of-sites-miles-from-los-alamos-national-laboratory>.



plutonium,” reports the *Los Angeles Times*.²²⁸ Radioactive soil, debris, and equipment from the tests were collected from islands across Enewetak Atoll, mixed with a slurry of concrete, dumped in an unlined crater created by one of the nuclear weapon detonations, and covered with a concrete cap. Six of the US military servicemen died during this process and hundreds of others developed radiation-induced cancers.

“Now the concrete coffin ... is at risk of collapsing from rising seas and other effects of climate change. Tides are creeping up its sides, advancing higher every year as distant glaciers melt and ocean waters rise.”²²⁹ The poisoning of this area through US testing of nuclear and biological weapons has led to coral bleaching, algae blooms, fish kills, epidemics, and cancer. With Runit Dome now cracking and chipping, the dome could slide off or crack open, releasing its radioactive contents

into the lagoon and ocean. “As seas have gotten higher in the area—the water has risen about 7 millimetres per year since 1993—water has begun to seep into the soil beneath the dome.”²³⁰

The US government has abdicated responsibility for the disaster, arguing that the dome is on Marshallese land it is therefore their problem. The Marshallese argue that the US is responsible both for the nuclear waste and for the rising sea levels, given its massive amount of carbon emissions. This arrogance and racism of the US government is not lost on those whose lands, water, and bodies it tested its weapons of mass destruction. “My belly is a crater empty of stories and answers,” says poet Kathy Jetñil-Kijiner as she stands on top of the Runit Dome. “Only questions, hard as concrete. Who gave them this power? Who anointed them with the power to burn?”²³¹

228 Susanne Rust, “How the U.S. betrayed the Marshall Islands, kindling the next nuclear disaster,” *The Los Angeles Times*, 10 November 2019, <https://www.latimes.com/projects/marshall-islands-nuclear-testing-sea-level-rise>.

229 Ibid.

230 Aria Bendix, “Radioactive ‘Tomb’ in Pacific Filled With Nuclear Waste Is Starting to Crack,” *Science Alert*, 12 November 2019, <https://www.sciencealert.com/a-tomb-in-the-marshall-islands-contains-a-huge-amount-of-radioactive-waste>.

231 Dan Lin and Kathy Jetñil-Kijiner, *Anointed*, April 2018, <https://vimeo.com/264867214>.

Nuclear abolition movement²³²

There is a rich, fierce history of activism against nuclear weapons, and other aspects of the nuclear industry, since the dawn of the atomic age. From 1945 on, scientists, healthcare workers, and the public responded in horror to the US bombings of Hiroshima and Nagasaki. In the mid-1950s, there was similar outrage and activism emerging from US nuclear testing in the Pacific, especially in response to the radioactive contamination of Japanese fishermen on the Lucky Dragon fishing boat, who were doused with radiation from the US Castle Bravo thermonuclear weapon test at Bikini Atoll in 1954.

After this devastating incident, Marshall Islanders presented a petition to the United Nations Trusteeship Council calling for the cessation of all nuclear tests on the islands. Since then, the country's advocacy has continued in a range of forms, including petitions, court cases, and lobbying through regional and international forums.²³³ Marshallese women led campaigns to challenge US nuclear weapon testing and to make visible its gendered harms, highlighting high rates of miscarriage, still births, and the phenomenon of “jellyfish babies,” which health researcher Darlene Keju described as bodies born with translucent skin and no bones.²³⁴ In 1990 the Marshall Islands entered a Compact of Free Association with the United States,²³⁵ but the Marshallese continue to seek effective remedy from the US government in relation to nuclear testing, including in relation to the cracking Runit Dome.

Women in the Pacific also led efforts against French nuclear testing in the region and built solidarity networks across the region to demand a nuclear-free South Pacific, working “consistently to expose the enduring injustices of Pacific nuclear programs devised by foreign powers.”²³⁶ In Australia and throughout the Pacific, noted Talei Luscia Mangioni in an interview for this report, “Indigenous and Pacific women are often at the frontline of [fighting both the nuclear and fossil fuel industries] and have been historically central for movements towards self-determination and a Nuclear Free and Independent Pacific.” She pointed out:

This is because of the legacies of colonial governments in the region and Australia which privilege the voices and positions of white men who are accomplices of empire or just men in general who are expected to be the same. There are certainly hegemonic forms of Indigenous or Pacific masculinities that dominate the region's politics. I think women and people of diverse genders and sexualities are critical in being a voice for the people, contributing to the building of nations and shaping the politics from below. Indigenous Pacific women speak for the land and that's important in countering problematic narratives of development by these nuclear and fossil fuel industries.²³⁷

232 The text in this section is largely drawn from Ray Acheson, *Banning the Bomb, Smashing the Patriarchy* (Lanham, MD: Rowman and Littlefield Publishing, 2021).

233 Hawkins, “Nuclear weapons testing in the Pacific”.

234 Nicole George, *Making the “Invisible” Visible: Women and the Anti-Nuclear Resistance in the Pacific Islands*, Asia-Pacific Leadership Network, March 2024, https://cms.apln.network/wp-content/uploads/2024/02/George_Making-the-Invisible-Visible-Women-and-the-Anti-Nuclear-Resistance-in-the-Pacific-Islands.pdf.

235 “U.S. Relations With Marshall Islands,” US Department of State, Bureau of East Asian and Pacific Affairs, Fact Sheet, 27 December 2016, <https://www.state.gov/r/pa/ei/bgn/26551.htm>.

236 George, *Making the “Invisible” Visible*, op. cit., p. 6.

237 Interview with Talei Luscia Mangioni on 17 May 2024.

In the 1970s, much of the world was taking action in relation to nuclear testing in the Pacific.²³⁸

In 1972, Aotearoa New Zealand and Canadian activists protested French nuclear testing in the Pacific by sailing small vessels into the test zones. French officials assaulted the activists, but the Aotearoa New Zealand government condemned the nuclear tests, and the Australian government approached the International Court of Justice for an injunction against the tests. Throughout Australia, thousands joined protest marches in the major cities; scientists demanded an end to the tests; unions refused to load French ships, service French planes, or carry French mail; and consumers boycotted French products. (When France announced its intention to resume nuclear testing in the 1990s, similar boycotts took place all over the world.) In April 1975, representatives of dozens of anti-nuclear organizations, meeting in Fiji, launched the Nuclear Free Pacific Movement. In 1979, in the Marshall Islands, about 500 people staged a nonviolent occupation of eight islands from which they had been forcibly evicted years before by the US military to accommodate US nuclear missile tests.

Antinuclear activists also opposed atmospheric testing within the United States. From 1955 to 1963, organisers pressured the nuclear-armed states to agree upon a nuclear weapon test ban. As part of this work, scientists in St. Louis collected baby teeth to monitor the levels of strontium-90 from radioactive fallout.²³⁹ In 1961, about 50,000 women

brought together by Women Strike for Peace marched against the bomb in 60 US cities.²⁴⁰

In the 1980s, one of the principal activist campaigns was the “Nuclear Freeze”—the demand for the US and Soviet governments to stop building nuclear weapons and delivery systems. The immediate objective of the Nuclear Freeze movement, launched in early 1980 in a “Call to Halt the Nuclear Arms Race,” written by activist Randall Forsberg, was a bilateral Soviet-US “freeze on testing, production, and further deployment of nuclear weapons.”²⁴¹ In 1982 freeze resolutions were introduced in nine US states and passed in eight; later, freeze resolutions, though in watered-down form, passed the House and the Senate. The movement culminated in the largest antinuclear march in world history, when one million people marched to Central Park on 12 June 1982.²⁴² Around the same time, activists were protesting US nuclear weapon testing at the Nevada Test Site, involving hundreds of demonstrations, peace vigils, and walks through the desert organised by antinuclear, religious, and Indigenous groups.²⁴³

Protests also raged across Europe in these years. In 1981 in the United Kingdom, activists established the Greenham Common Women’s Peace Camp to protest the stationing of cruise missiles at Royal Air Force Greenham Common in Berkshire. In 1983, about 70,000 protesters formed a 23km human chain from Greenham to Aldermaston (home of the UK’s Atomic Weapons Establishment) and the ordinance factory at

238 See more on these examples and others, please see Nic Maclellan, *Grappling with the Bomb: Britain’s Pacific H-bomb tests* (Canberra: Australian National University, 2017) and Lawrence S. Wittner, “Nuclear Disarmament Activism in Asia and the Pacific, 1971–1996,” *The Asia-Pacific Journal* 5:25, no. 5 (15 June 2009), <https://apjif.org/-Lawrence-S.-Wittner/3179/article.html>.

239 Rosalind Early, “How to Stop a Nuclear Bomb: The St. Louis Baby Tooth Survey, 50 Years Later,” *St. Louis Magazine*, 20 September 2013, <https://www.stlmag.com/How-to-Stop-a-Nuclear-Bomb-The-St-Louis-Baby-Tooth-Survey-50-Years-Later>.

240 Amy Swerdlow, *Women Strike for Peace: Traditional Motherhood and Radical Politics in the 1960s* (Chicago: University of Chicago Press, 1993).

241 Randall Forsberg, “Call to Halt the Nuclear Arms Race: Proposal for a Mutual US-Soviet Nuclear-Weapon Freeze,” 1980, <https://livingwiththebomb.files.wordpress.com/2013/08/call-to-halt-arms-race.pdf>.

242 David S. Meyer, *A Winter of Discontent: The Nuclear Freeze and American Politics* (New York: Praeger Publishers, 1990); Jonathan Schell, “Remembering June 12,” *The Nation* (in italic), 14 June 2007, <https://www.thenation.com/article/activism/spirit-june-12/>.

243 See <http://nevadadesertexperience.org> for information.

Burghfield.²⁴⁴ In October 1981, half a million people took to the streets in several cities in Italy, more than 250,000 people protested in Bonn, 250,000 demonstrated in London, and 100,000 marched in Brussels. In October 1983, nearly three million people across Western Europe protested nuclear missile deployments and demanded an end to the arms race; the largest crowd of almost one million people assembled in The Hague, The Netherlands.²⁴⁵ Back in the United Kingdom, 400,000 people participated in what was probably the largest demonstration in British history.²⁴⁶

Meanwhile in Australia, on Palm Sunday 1982, an estimated 100,000 Australians took to the streets for antinuclear rallies in the country's largest cities. Growing year by year, the rallies drew 350,000 participants in 1985. In Japan, the major atomic bomb survivor organisations, labour federations, women and youth associations, religious groups, and others established the Japanese National Liaison Committee for Nuclear and General Disarmament. Record numbers of people turned out for antinuclear rallies: 200,000 people in Hiroshima in March 1982 and 400,000 in Tokyo that May.²⁴⁷ In Aotearoa New Zealand, activists and the Labour government ensured a nuclear-free status for the country, prohibiting US nuclear-capable ships from docking. In 1985, the French foreign intelligence service bombed and sank the Greenpeace flagship, the Rainbow Warrior, in the port of Auckland while it was on its way to protest a planned French nuclear weapon test in Moruroa, killing a photographer on board.²⁴⁸

In the Philippines, activists fought for and achieved a nuclear-free provision in their new constitution and demanded the closure of US military bases where nuclear weapons were stationed. Antinuclear protests grew among student, women's, and religious groups in the Republic of Korea in the 1980s. In 1986, the National Council of Churches called for the removal of all nuclear weapons from the Korean peninsula. Protests also emerged in China: "Enraged by the government's nuclear weapons tests at Lop Nur, in Xinjiang province, local Uighur people staged anti-nuclear demonstrations in Beijing and other Chinese cities."²⁴⁹ The same year, Israeli former nuclear technician Mordechai Vanunu revealed details of Israel's nuclear weapon programme to the British press.²⁵⁰ In 1989, activists in Kazakhstan formed the antinuclear organisation Nevada Semipalatinsk, bringing thousands of people to protests that eventually led to the closure of the Soviet nuclear test site at Semipalatinsk in northeast Kazakhstan, in 1991.²⁵¹

Throughout the 1960s, 70s, and 80s, activists of colour strongly identified antinuclear resistance with postcolonial resistance. African-Americans organizing against nuclear weapons in the United States frequently connected their work to both antiracism initiatives at home and anticolonial initiatives abroad. Coretta Scott King, Dr. Martin Luther King, Jr., W.E.B. Du Bois, and other civil rights leaders elaborated on the inseparability of nuclear disarmament and the end of colonial empires, while Bayard Rustin travelled to Algeria to help organise protests against French

244 See for example Gwen Kirk, "Our Greenham Common: Not Just a Place But a Movement," in *Rocking the Ship of State: Towards a Feminist Peace Politics*, eds. Adrienne Haris and Ynestra King (Boulder, CO: Westview Press, 1989), 263–280 and Catherine Eschle, "Beyond Greenham Women? Gender identities and anti-nuclear activism in peace camps," *International Feminist Journal of Politics* 19, no. 4 (2017): 471–90.

245 David Cortright, *Peace: A History of Movements* (Cambridge: Cambridge University Press, 2008).

246 Wittner, *Confronting the Bomb*.

247 Wittner, "Nuclear Disarmament Activism in Asia and the Pacific."

248 David Robie, *Eyes of Fire: The Last Voyage of the Rainbow Warrior* (Auckland: Lindon, 1986).

249 Wittner, "Nuclear Disarmament Activism in Asia and the Pacific," 7.

250 See for example Yoel Cohen, *The Whistleblower of Dimona: Israel, Vanunu, and the Bomb* (New York: Holmes & Meier Publishers, 2003).

251 "Kazakh anti-nuclear movement celebrates tenth anniversary," *BBC News*, 28 February 1999, <http://news.bbc.co.uk/2/hi/asia-pacific/288008.stm>.

nuclear testing there with the US civil rights movement.²⁵² "Black leftists held firm in their belief that the atomic bombings of Hiroshima and Nagasaki were inextricably linked to colonialism and racial equality," writes Vincent Intondi in his study of Black antinuclear activism.²⁵³ They saw that colonialism, institutionalised racism, and segregation "each grew from the same seed and represented a form of violence," said scholar Jacqueline Castledine.²⁵⁴

US Indigenous activists have argued the same. "Colonization isn't just the theft and assimilation of our lands and people, today we're fighting against nuclear colonialism which is the theft of our future," remarked Leona Morgan of the Diné/Navajo Nation in Nevada.²⁵⁵ In this context, many Indigenous Peoples, including in the United States and Australia, have engaged in organising not just against nuclear weapons and legacies of nuclear testing, but also other elements of the nuclear fuel chain, including uranium mining, fuel processing, and radioactive waste dumping.

The Western Shoshone Nation, which has long protested the bombing of its lands at the Nevada Test Site,²⁵⁶ today continues its resistance against nuclear colonialism by fighting off a nuclear waste disposal site commissioned for Yucca Mountain in southwestern Nevada.²⁵⁷ Activists, including Indigenous leaders, living near the Hanford plutonium processing site opposed its contributions to the nuclear weapon programme and now organise for its clean-up amidst leaks

and contamination.²⁵⁸ In Australia, First Nations, antinuclear organisations, and environmental groups with the Australian Nuclear Free Alliance (ANFA) work for reparations and remediation of UK nuclear weapon testing as well as to close uranium mines, prevent new mining, and stop the imposition of nuclear waste dumps. ANFA is now also working to prevent the porting and development of nuclear-powered submarines as part of the AUKUS alliance described above.²⁵⁹

Indigenous activists have also commented on the connection between the struggles of Water Protectors fighting the construction of oil and gas pipelines and those fighting to keep uranium in the ground. Tom Goldtooth, Executive Director of the Indigenous Environmental Network, noted, "Our Native Nations are on the frontlines fighting a colonial energy system that does not recognize treaties and Indigenous rights, our spiritual cosmologies and the protection of water of life." The link, he argued, is often uranium. "In the northern plains, there's uranium in coal with dust particles that are radioactive. There's even radioactivity within hydro-fracking waste. Water is being contaminated and it's flowing into the Missouri River."²⁶⁰ He highlighted the need to challenge the whole system of energy production and urged all people from all cultures to work together.

Today, the global antinuclear movement is much smaller than it once was. The end of the Cold War diverted people's attention to other pressing issues, but also a deliberate strategy of defunding

252 Vincent Intondi, *African Americans Against the Bomb* (Stanford: Stanford University Press, 2015).

253 Intondi, *African Americans Against the Bomb*, 22.

254 Jacqueline Castledine, *Cold War Progressives: Women's International Organizing for Peace and Freedom* (Urbana: University of Illinois Press, 2012), 17.

255 Ian Zabarte, "Indigenous Peoples Condemn Nuclear Colonialism on 'Columbus' Day," *PopularResistance.org*, 10 October 2016.

256 See for example Johnson, "The most bombed nation on Earth," and Mary Palevsky, "Protest, Dissent, and Witness at the Nevada Test Site," *Online Nevada Encyclopedia*, 29 August 2009, <http://www.onlinenevada.org/articles/protest-dissent-and-witness-nevada-test-site>.

257 Matthew Neisius, "Western Shoshone Nation Opposes Yucca Mountain Nuclear Repository," *Commodities, Conflict, and Cooperation* (Fall 2016 and Winter 2017).

258 See Frank, *Atomic Days*, op. cit.

259 See <https://anfa.org.au>.

260 Ian Zabarte, "Indigenous Peoples Condemn Nuclear Colonialism on 'Columbus' Day".

grassroots work in favour of professional advocacy and lobbying within the capitals of nuclear-armed states also contributed to the movement's shrinkage after the 1990s.

In addition, as Marshallese activist Brookie Takala notes, while Pacific Islanders previously "led global disarmament efforts through the lens of decolonisation that centred on Indigenous rights," which was then amplified by international supporters, today that approach has largely been inverted:

Contemporary large-scale centralised advocacy efforts are western-based and clearly modelled on systems underpinned by colonial frameworks which portray Pacific Islanders as victim constructs. In this way, those directly affected by radiation and their history of colonial resistance have been made invisible, too often presented merely as tokens. Decolonisation is no longer central to the movement, its frameworks, and its key actors. Instead, the movement itself has been colonised by western approaches and squarely centred in the west.²⁶¹

To counter this trend, Mangioni highlights the importance of On Country learning. "Seeking education from traditional knowledge holders and Indigenous Peoples on how they have historically cared for land is important," she argued. "Young people need to be attuned to their surroundings and local contexts first, but then also build in a multi-sited and justice-centred pedagogy on how the local intersects with regional issues." In this context, "Community control is necessary: Being able to locate yourself/position yourself

in relation to the work; making sure the work is always Indigenous/Pacific-led; having strategies for engagement with survivors, victims, and elders who might not be available all the time and are able to give their feedback to the work where needed; and having proper ethical guidelines around consent and access."²⁶²

In most cases of successful antinuclear organising, the efforts have been inclusive, intersectional, international, and most importantly, Indigenous-led. In her interview for this project, Dimity Hawkins highlighted the work of ANFA, mentioned above.²⁶³ Initiated in the late 1990s in Alice Springs, ANFA began in a context where there was talk of opening nuclear waste dumps and new uranium mines, including a second uranium mine in Kakadu National Park, at Jabiluka. This new mine was on the lands of the Mirarr People, who already had decades of experience of uranium mining through Ranger uranium mine. "The Mirarr People had been fighting against this for a long time. They asked for all of us to come together and help them fight against Jabiluka."

It was within this context of the threat of intensified nuclear colonialism that "Aboriginal-led organisations, local communities, and green groups came together and started ANFA, which is still going today. It meets regularly, every year when we can." Hawkins noted that ANFA brings together people with lived experience of nuclear harms and those facing the threat of such harm. "It's a really beautiful example of a kind of mutual aid," she said, "but also this incredible grassroots movement where there's solidarity between people to educate one another." It's a space for people who have experienced nuclear harm to say, "Well, this is what happened on our country; they said this stuff, they did this, they did that." And it's also a space

261 Brooke Takala, *Keeping Nuclear Memories Alive*, Asia-Pacific Leadership Network, February 2024, <https://cms.apln.network/wp-content/uploads/2024/02/Takala-February-2024.pdf>.

262 Interview with Talei Luscia Mangioni on 17 May 2024.

263 Interview with Dimity Hawkins on 15 May 2024.

to bring in people with scientific backgrounds to talk about what the contamination will be like, and environmental groups and parliamentarians and legislators to come in and share ideas for strategy and connection, to say, “Here’s what we’re thinking about it, and how can we work with you?”

Hawkins also emphasised how beautiful it is “to sit around fires together and talk and sit in meeting rooms and talk.”—it can be pretty ad hoc sometimes” but it’s always an incredible exchange, and it’s “an honour, always, to see how that works. That kind of solidarity action is incredibly powerful.”

Scott Ludlam supported this assessment, pointing out the success of ANFA so far. “There’s no nuclear waste dump in Australia at the moment, there’s no uranium mining in Kakadu National Park at the moment.”²⁶⁴ He attributed this to the fact that projects have been “fought one after another, including by some of the same people who show up again and again.” The reason for the success of these fights, he argued, is that they haven’t just been led by the antinuclear movement. They’ve made connections among activists, politicians, trade unions, Indigenous Peoples. These fights have been community building exercises, wherein rather than just pulling off a blockade, the focus is on building a much wider field of relationships within society. “They are also very good at training and mentoring,” Ludlam noted. “There’s folk who have been at this for 30 years who will be there when the 18-year-old shows up, and they bring people in and keep this delicate balance of not dominating when there’s fresh ideas coming in or kids who want to do stuff in different ways.”

However, he noted, the problem is that while there are dozens of examples of successful acts of resistance against the nuclear industry, they

are not systematic wins. “They are set-piece campaigns, where we were able to surround a problem and beat it back.” But, he warned, “systematically, I think we’re in enormous trouble.”

Ahjani Yepa-Sprague agreed with that making systemic change has been challenging.²⁶⁵ She noted as an example that one important success in the United States has been the Radiation Exposure Compensation Act (RECA), through which local communities have “been able to see some justice” for those impacted by nuclear weapons—although, as noted earlier, this has been qualified justice and is currently under threat. Yepa-Sprague highlighted that “tribal communities are also looking at applying RECA,” to see how “we can interpret that to get justice for our mining communities” and for communities that are near the Los Alamos lab, communities that experienced weapons development and unregulated dumping of nuclear waste. But, she emphasised, “I don’t know if those are wins necessarily, because I don’t know if we just want to be compensated for this exposure. I think it would be great to see more regulation and more clean-up wins, more policy wins.” But in the meantime, there is movement building happening, coalition building, and smaller wins at the state level where people are coming together.

Treaty on the Prohibition of Nuclear Weapons (TPNW)²⁶⁶

One attempt with systemic change came with the effort led by the International Campaign to Abolish Nuclear Weapons (ICAN) to ban nuclear weapons. Formed in Australia in 2006, this intergenerational, global movement of antinuclear organisers and activists began to focus on mobilising the support of antinuclear governments for the negotiation of

²⁶⁴ Interview with Scott Ludlam on 15 May 2024.

²⁶⁵ Interview with Ahjani Yepa-Sprague on 15 May 2024.

²⁶⁶ This section is drawn largely from the chapter “Decommissioning Nuclear Weapons” in Ray Acheson, *Abolishing State Violence: A World Beyond Bombs, Borders, and Cages* (Chicago: Haymarket Books, 2022).

an international legally binding treaty prohibiting nuclear weapons.²⁶⁷

Before work for the TPNW began, governments at the United Nations mostly discussed nuclear weapons in what Carol Cohn describes as “technostrategic” language—a language that helps nuclear war planners to rationalize their actions in planning the deaths of millions of people while disassociating themselves emotionally and morally from this task.²⁶⁸ This affected the way even antinuclear governments spoke about nuclear weapons, primarily framing their opposition to the bomb in sanitized language about “international peace and security” and possible risks about use based on nuclear weapon policy details.

ICAN pursued a deliberate disruption of this narrative and a shift to a discourse based on the realities of nuclear weapons: the death and destruction caused by their use and testing; the descriptions of what blast and heat from a nuclear detonation do to human bodies; the radioactive legacies and environmental degradation. Amplifying the testimonies of survivors over the theorizing of policymakers in boardrooms and framing nuclear abolition as part of a broader pursuit of equity and justice, the diplomats and activists engaged in this work sought to stigmatize nuclear weapons to spur on their prohibition and abolition.

The TPNW is a direct result of this shift. Adopted on 7 July 2017 at the United Nations, the treaty places nuclear weapons—along with chemical and biological weapons, blinding laser weapons, landmines, and cluster bombs—on the list of technologies that are unacceptable on the basis of their indiscriminate and horrifically devastating levels of violence.

While the TPNW is not the only international law governing nuclear weapons or related materials, it is the only one to categorically prohibit all nuclear weapon related activities. The Non-Proliferation (NPT), the Comprehensive Nuclear-Test-Ban Treaty (which is not yet in force), the bilateral nuclear arms control agreements between the Soviet Union/Russia and the United States, the International Atomic Energy Agency (IAEA) comprehensive safeguards agreements and additional protocols, and the various international arrangements aimed at preventing the spread of nuclear materials and equipment, provide an important, but piecemeal, approach to dealing with the dangers of nuclear weapons. Only the TPNW outlaws the possession, development, deployment, sharing, testing, or threat of use of nuclear weapons.

The nine nuclear-armed states did not participate in the negotiations. Nor did the countries that claim security from US nuclear weapons. These governments have also so far refused to sign or ratify the treaty. The governments supporting the ban were largely those of the Global South. Most of the countries in Africa, Latin America and the Caribbean, and Southeast Asia participated actively. A cross-regional “core group” of countries, consisting of Austria, Brazil, Ireland, Mexico, Nigeria, and South Africa, together with a number of others such as Costa Rica, Jamaica, Aotearoa New Zealand, and Thailand, drove the process forward despite the opposition to it.

And the opposition was great. The nuclear-armed governments of the world applied a lot of pressure—political and economic—against supporters of the ban to try to stop the process in its tracks. But they ultimately failed to prevent its negotiation and adoption, because the vast majority of the world’s countries stood firm with the Red

²⁶⁷ For a comprehensive history of the process to develop the TPNW and an assessment of its provisions, please see Ray Acheson, *Banning the Bomb, Smashing the Patriarchy* (Lanham, MD: Rowman and Littlefield, 2021).

²⁶⁸ Carol Cohn, “Sex and Death in the Rational World of Defense Intellectuals,” *Signs* 12, no. 4 (1987): 690.

Cross, survivors of nuclear weapon use and testing, and non-governmental organisations and activists from around the world to finally declare these weapons illegal.

Unlike the nuclear weapon governance agreements before it, the new instrument prohibits nuclear weapons for all countries and sets the stage for the elimination of these weapons. It offers various pathways for nuclear-armed states to comply with the Treaty and eliminate their nuclear weapon programs, with verification and within set timeframes.

The Treaty is also the first nuclear weapon agreement to recognize the disproportionate impacts that nuclear weapon activities have had on Indigenous communities, to recognize the gendered impacts of radiation, and to encourage gender diversity in discussions on nuclear weapons. It is also the first to include provisions on victim assistance and environmental remediation, recognizing the harms that have been caused and the needs of communities that have suffered.

The TPNW, however, does not address nuclear energy, nor does it have provisions related to uranium mining or radioactive waste storage. Leaving these important aspects out speaks to the work yet to be done to comprehensively challenge the nuclear industry through international law.

The TPNW entered into force on 22 January 2021. This means it is now legally binding on the countries that have joined it. Some have said that the treaty is irrelevant since none of the countries that have joined so far possess nuclear bombs. But the activists and diplomats that worked on it knew the nuclear-armed would reject at first. The point was to create a new international tool to help us stigmatize nuclear weapons and start creating some economic and political barriers to

their continued existence. Over time, the treaty will have—and is already having—a normative impact on the behavior of other countries, regardless of whether they join, and on financial institutions and other national and local actors. The changes that the nuclear ban brings to law, politics, and economics will help lead us to nuclear disarmament. As past social movements have taught us, change doesn't happen in instant—it is iterative, contested, and must be constantly defended and built upon.

In her interview for this project, Mangioni said that the TPNW has had a positive impact on antinuclear organising. The treaty “has reaffirmed the notion of nuclear abolition and what we fundamentally want to have communities safe from nuclear weapons in this day and age.”²⁶⁹ She highlighted that the section of the treaty on prohibitions has offered a tool to push back against the concept of nuclear deterrence, which dominates so much of the security discourse. Meanwhile, the provisions on victim assistance and environmental remediation have “provided a nascent grammar on what regional nuclear justice in the Pacific could look like, in the place where so many of the bilateral approaches have failed Indigenous and Pacific peoples from Kiribati, Mā'ohi Nui/French-occupied Polynesia, the Marshall Islands, and Australia.”

Still, Mangioni said she take onboard critiques of these provisions, especially those coming from the Marshall Islands, which has a complicated relationship with the United States that raise questions about responsibility and reparations in relation to the legacy of nuclear testing and the disposal of nuclear waste. In addition, she argued, the TPNW “doesn't go far enough to wholly prevent military pacts AUKUS or nuclear power,” but recognised “not all treaties can do everything.”

269 Interview with Talei Luscía Mangioni on 17 May 2024.



Photo by Ra Dragon, Unsplash.

Conclusion

The antinuclear movement has its work cut out for it. With the risks of nuclear war as high as ever, nuclear-armed states investing more money in modernising and expanding their arsenals, and nuclear threats and the sharing of nuclear weapons on the rise, the landscape for nuclear abolition looks bleak. And with nuclear energy being wrongfully touted as a solution to the climate crisis, after decades of languishing as an industry due to its costs and disasters, it might feel like the trend is going in the opposite direction from what's needed to end uranium mining and radioactive waste dumping.

But transformative change is possible, especially if the antinuclear movement collaborates with those working for climate justice and for abolition of other structures of state violence. As outlined in the recommendations of this report, ending the nuclear industry will take more than just

demanding disarmament or the decommissioning of nuclear power plants. It will require the centring of decolonial, feminist, and intersectional analysis and approaches to protecting people and the planet. It will involve disrupting the various corporate and financial actors that have captured politicians and states. It will require transnational and cross-cutting organising and solidarity, and new tactics and methods that work outside of mainstream, “credible” institutions of power.

Abolishing the nuclear industry is possible, but is much more possible if treated and addressed as part of the global system of oppression rather than as a standalone phenomenon. The harms and profits generated by all aspects of the nuclear chain are part of the harms and profits generated by all structures that work only for the elite and subject the rest to mass death and suffering.

FOSSIL FUEL INDUSTRY



Overview of the climate and ecological crises

Climate crisis

We are in a planetary emergency. July 2023, the hottest month ever recorded to date, in the warmest year on record so far, rung in the “era of global boiling” in the words of UN Secretary-General António Guterres.²⁷⁰ In the synthesis of its Sixth Assessment Report published in March 2023, the Intergovernmental Panel on Climate Change (IPCC) reiterated the unequivocal science that human activity has raised global temperatures already by 1.1°C/ 33.98°F.²⁷¹

The burning of coal, oil, and gas are responsible for more than three-quarters of all historic greenhouse gas emissions,²⁷² and are the main root cause of the climate crisis. The three key gases driving the climate crisis—carbon dioxide, methane, and nitrous oxide—have increased to levels unprecedented for at least 800 000 years.²⁷³ Greenhouse gas emissions reached a record high of 57.4 gigatonnes in 2023.²⁷⁴

Global North countries are responsible for 92 per cent of excess global carbon emissions within the planetary boundary.²⁷⁵ As of 2015, the United States (US) was responsible for 40 per cent of excess global CO₂ emissions, and the European Union for 29 per cent.²⁷⁶

In an interview for this project, Azra Talat Sayeed, a political activist from Pakistan, illustrated the stark inequity of emissions between the Global North and Global South, noting:

There is no denying that, absolutely, fossil fuels are responsible for climate change. The question of fossil fuel emissions is really hinged on who is responsible. As a friend of mine once said to me: Azra, even if you stop breathing, if the entire [Global] South stops breathing and stops releasing carbon dioxide, it will not make a difference. Because of the emissions that are coming out from the Global North, specifically the developed industrialised countries. Many people blame India and China. But if you look at the per capita emissions, India and China alone are responsible for more than 3 billion plus people, their emissions are much less if you do it by per capita.²⁷⁷

With current policies in place, the world is on track for a global average temperature rise of 2.5–2.9°C (36.5°F–37.22°F) above pre-industrial levels by the end of this century.²⁷⁸

270 “Hottest July ever signals ‘era of global boiling has arrived’ says UN chief,” UN News, 27 July 2023, <https://news.un.org/en/story/2023/07/1139162>.

271 H. Lee and J. Romero (eds), “Climate Change 2023 Synthesis Report, Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change,” 2023, https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf.

272 “Causes and Effects of Climate Change,” United Nations, <https://www.un.org/en/climatechange/science/causes-effects-climate-change>.

273 Valérie Masson-Delmotte et al. (eds), “Climate Change 2021: The Physical Science Basis Summary for Policymakers,” Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 2021, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf.

274 “Causes and Effects of Climate Change,” United Nations, <https://www.un.org/en/climatechange/science/causes-effects-climate-change>.

275 Jason Hickel, “Quantifying national responsibility for climate breakdown: an equality-based attribution approach for carbon dioxide emissions in excess of the planetary boundary,” *The Lancet Planetary Health*, September 2022, <https://www.sciencedirect.com/science/article/pii/S2542519620301960>.

276 Ibid.

277 Interview with Azra Tala Sayeed on 30 May 2024.

278 “Climate Action Fast Facts,” United Nations, <https://www.un.org/en/climatechange/science/key-findings>.

The implications for life on this planet as we know it would be utterly devastating, with many compounding impacts that are anticipated, but cannot be predicted with precision.²⁷⁹

Some impacts of the climate crisis have already hit in full force, including rising sea levels and the warming, acidification, and de-oxygenation of the global oceans; extreme heat and cold waves, driving droughts and wildfires; increased frequency and intensity of extreme weather events such as storms and cyclones; perturbation of weather systems, including winds and rainfall patterns; the melting of ice, changing the provision of fresh water and river flows; the decline of biodiversity; and others. Further, the climate crisis has already had significant impacts on food production on land and in the oceans. In major crop producing countries, it is forecast that in coming decades, the yield of major crops such as maize, rice, and wheat will be reduced, while there will be an increase of simultaneous harvest failures.²⁸⁰

These impacts will worsen further as temperatures rise. At 1.5°C/ 34.7°F of global warming, 700 million people will be exposed to extreme heatwaves at least every 20 years. At 2°C/35.6°F increase, the number of people exposed to extreme heatwaves at this frequency will rise above 2 billion. By 2100, it is projected that with a 1.5°C/34.7°F increase, 70 per cent of tropical coral reefs are at risk of severe degradation due to temperature-induced bleaching, while at a 2°C/35.6°F increase, virtually all coral reefs will have been bleached.²⁸¹ Over the next 200 years, global mean sea level will rise by about 2–3

metres if warming is limited to 1.5°C/ 34.7°F, but this sea level rise could double to 2–6 metres if the warming reaches 2°C/ 35.6°F. Two metres of sea level rise would displace or flood approximately a tenth of the planet's population every year.²⁸²

Even the slightest increase in temperature risks the triggering of planetary shifts known as “tipping points”. Instead of slowly shifting changes such as rainfall patterns, tipping points happen rather suddenly—which can trigger devastating and irreversible domino effects. According to the 2023 *Global Tipping Points Report*,²⁸³ five important natural thresholds already risk being crossed and three more may be reached in the 2030s if the world heats by 1.5°C/ 34.7°F. Tipping points at risk include the collapse of big ice sheets in Greenland and the West Antarctic, the widespread thawing of permafrost, the death of coral reefs in warm waters, and the collapse of one oceanic current in the North Atlantic.²⁸⁴ Passing these tipping points would have global consequences such as accelerating sea-level rise or reducing the amount of CO₂ taken up by forests—in turn exacerbating the climate crisis further.

The climate crisis is now widely accepted as a key existential threat that needs addressing, but challenges to the planet's resilience and the survival of humanity go well beyond the climate crisis.

Ecological crises

The planetary boundaries framework, established by a group of scientists in 2009, identifies nine

279 Valérie Masson-Delmotte et al. (eds.), “Climate Change 2021,” op. cit..

280 Hans-Otto Pörtner et al. (eds.), “Climate Change 2022: Impacts, Adaptation and Vulnerability,” Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 2022, https://report.ipcc.ch/ar6/wg2/IPCC_AR6_WGII_FullReport.pdf. Also see: Alessandro Dosio et al., “Extreme heat waves under 1.5 °C and 2 °C global warming,” *Environmental Research Letters* 13(5), 25 April 2018, <https://iopscience.iop.org/article/10.1088/1748-9326/aab827>.

281 “The Urgency of 1.5°C,” World Wildlife Fund (WWF), https://wwf.panda.org/discover/our_focus/climate_and_energy_practice/ipcc152/#:~:text=1.5%C%20is%20safer%20than%202%C%20for%20people%20and%20nature&text=But%20we%20can%20now%20better,a%202%C%20world.

282 Karen McVeigh, “‘It’s absolutely guaranteed’: the best and worst case scenarios for sea level rise,” *The Guardian*, 26 June 2023, <https://www.theguardian.com/environment/2023/jun/26/its-absolutely-guaranteed-the-best-and-worst-case-scenarios-for-sea-level-rise>.

283 Timothy M. Lenton et al. (eds.), “Global Tipping Points,” 2023, <https://global-tipping-points.org>.

284 Ajit Niranjana, “Earth on verge of five catastrophic climate tipping points, scientists warn,” *The Guardian*, 6 December 2023, <https://www.theguardian.com/environment/2023/dec/06/earth-on-verge-of-five-catastrophic-tipping-points-scientists-warn>.

processes that are critical for maintaining the Earth's ecosystems. These processes are divided into 1) climate change; 2) land system change, such as deforestation; 3) freshwater change, including both "invisible" water held in soil, plants, and forests, and "visible" waters such as rivers and lakes; 4) biogeochemical flows, referring to phosphorous and nitrogen cycles, heavily influenced by the use of fertilisers; 5) ocean acidification, a chemical process through which human-made carbon dioxide is absorbed into the oceans; 6) atmospheric aerosol loading, such as smoke and pollution; 7) stratospheric ozone depletion; 8) biosphere integrity, referring to extinction rates and ecosystems; and 9) "novel entities". Novel entities include the introduction and accumulation of all novel chemical compounds created by humans, such as microplastics, pesticides, and nuclear waste.

In 2023, scientists found that six planetary boundaries are now transgressed,²⁸⁵ and two are close to being broken: air pollution and ocean acidification. The only planetary boundary that appears to be stable for now is ozone depletion.

Industrial human activity has had exceptional impacts on the destabilisation of planetary processes:

- In terms of biosphere integrity, a ground-breaking report from 2019 by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) found that since 1970, the number of mammals, birds, amphibians, and reptiles has collapsed by more than half. Approximately one million species are now at risk of extinction within decades.²⁸⁶ Insects, including pollinators, are in decline worldwide, with numbers in rainforests and many other localities falling by at least 75 per cent in the last 40 years.²⁸⁷
- A study from 2021 found that about three-quarters of the Earth's land surface have been altered by humans in the last millennium. Since 1960, every year a land area about twice as large as Germany has been changed.²⁸⁸ In 2022 alone, an area of primary rainforests the size of Switzerland was cleared.²⁸⁹ Agriculture—including cattle ranching, soy, palm oil production, and smallholder farming—is the leading driver of forest loss across the tropics.²⁹⁰
- Land clearance and use—for agriculture and other purposes—is affecting soil quality. About one-third of the world's soil is now degraded; this could rise to 90 per cent by 2050.²⁹¹ In the European Union alone, costs related to soil degradation exceed 50 billion EUR a year.²⁹²

285 Katherine Richardson et al., "Earth beyond six of nine planetary boundaries," *Science Advances* 9(37), 13 September 2023, <https://www.science.org/doi/10.1126/sciadv.adh2458>.

286 Sandra Diaz et al., "Summary for policymakers of the global assessment report on biodiversity and ecosystem services," Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 25 November 2019, <https://zenodo.org/records/3553579>.

287 Bradford C. Lister and Andres Garcia, "Climate-driven declines in arthropod abundance restructure a rainforest food web," *Proceedings of the National Academy of Sciences* 115(44), 15 October 2018. See also Caspar A. Hallmann et al., "More than 75 percent decline over 27 years in total flying insect biomass in protected areas," *PLOS ONE* 12(10), 18 October 2017.

288 Karina Winkler, Richard Fuchs, Mark Rounsevell and Martin Herold, "Global land use changes are four times greater than previously estimated," *Nature Communications*, 11 May 2021, <https://www.nature.com/articles/s41467-021-22702-2>.

289 Patrick Greenfield, "Destruction of world's pristine rainforests soared in 2022 despite Cop26 pledge," *The Guardian*, 27 June 2023, <https://www.theguardian.com/environment/2023/jun/27/destruction-of-worlds-pristine-rainforests-soared-in-2022-despite-cop26-pledge>.

290 "Press Release: New Forest Analysis: Global Deforestation Veering Off Track, Threatening People, Climate and Biodiversity," 23 October 2023, <https://forestdeclaration.org/press-release-global-forest-assessment-2023/>.

291 Clarisse T. Kraamwinkel, Anne Beaulieu, Teresa Dias, and Ruth A. Howison, "Planetary limits to soil degradation," *Communications Earth & Environment*, 8 December 2021, <https://www.nature.com/articles/s43247-021-00323-3>.

292 Ibid.

- In 2015, 33 per cent of marine fish stocks were being harvested at unsustainable levels; 60 per cent were maximally sustainably fished, with just 7 per cent harvested at levels lower than what can be sustainably fished.²⁹³
- Plastic pollution, which has passed the safe limit for humanity as a part of “novel entities,” has been found from the top of the Mount Everest to the depths of the oceans. 400 million tonnes of plastic, a product derived from fossil fuels, are produced every single year. An estimated 19–23 million tonnes end up in lakes, rivers, and seas each year. Microplastics and nano plastic pollution, smaller and more toxic than microplastics, are now pervasive around the world, and have even been detected in polar regions.²⁹⁴ Similarly, pollutants such as mercury and toxic pesticides have also been found in these remote regions, both on the surface of the ice and in the bodies of animals.²⁹⁵ The ubiquity of plastics and other pollutants harm biodiversity and ecosystems, and can be found in animals and humans, with far-reaching health impacts.

Earth’s entire web of life is intimately connected—which is why tipping points and feedback loops can exponentially accelerate ecological breakdown. As Richardson et al observe in their assessment of the status of the Earth’s essential ecosystem processes:

Currently, anthropogenic perturbations of the global environment are primarily addressed as if they were separate issues, e.g., climate change, biodiversity

loss, or pollution. This approach, however, ignores these perturbations’ nonlinear interactions and resulting aggregate effects on the overall state of Earth system. Planetary boundaries ... [call] for considering the state of Earth system as a whole.²⁹⁶

Understanding the interconnectedness of ecological crises is essential to avoid the centring of one-dimensional “solutions” that exclusively focus on one of the nine planetary boundaries. Isolated approaches, such as a narrow focus on reducing greenhouse gas emissions by all means, can have devastating impacts on other planetary boundaries, and in turn, risk a chain reaction of accelerating ecological breakdown.

The compounding effects of temperature rise, along with the breakdown or rapid worsening of other ecosystem processes, have disproportionate and distinct impacts on global majority countries and marginalised communities around the world. Those least responsible for the climate crisis suffer the most—both because of their geographical location as well as their lack of resources to cope with and mitigate the impacts, the result of colonial history and imperial present. The most vulnerable countries in the world are in Africa, South Asia, Central and South America, and the Arctic, as well as Small Island Developing States.

The statistics detailing the rapidly worsening state of the Earth are a stark and painful reminder of the fossil fuel and extractive industries’ exceptional role and responsibility in pushing ecosystems and humanity to the verge

293 “UN Report: Nature’s Dangerous Decline ‘Unprecedented’; Species Extinction Accelerating,” United Nations, 6 May 2019, <https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/>.

294 Damian Carrington, “Nanoplastic pollution found at both of Earth’s poles for first time,” *The Guardian*, 21 January 2022, <https://www.theguardian.com/environment/2022/jan/21/nanoplastic-pollution-found-at-both-of-earths-poles-for-first-time>.

295 Tanya Brown, Robie W Macdonald, Derek C G Muir, and Robert J Letcher, “The distribution and trends of persistent organic pollutants and mercury in marine mammals from Canada’s Eastern Arctic,” *Science of The Total Environment*, 618, March 2018.

296 Ashfaq Khalfan et al., “Climate Equality: A Planet for the 99%,” Oxfam International, November 2023, <https://policy-practice.oxfam.org/resources/climate-equality-a-planet-for-the-99-621551/>.

of collapse—as well as how these phenomena are not impacting all of humanity equally.

The 2023 Oxfam report *Climate Equality: A Planet for the 99%*,²⁹⁷ provides some striking examples of disproportionate suffering: Between 2010 and 2020, human mortality from floods, droughts, and storms was 15 times higher in the most vulnerable regions compared to in Global North countries. Across the African region, agricultural productivity has declined by 34 per cent since 1961, in large part due to climate crisis. This is more than in any other region.

Between May and October 2022, West Africa experienced large-scale flooding caused by above-average seasonal rainfall. Over half a million hectares of farmland were inundated, causing damage to 300,000 homes, and displacing over 1.5 million people. In 2022, Pakistan was hit by the worst flood in the country's history, killing 1,700 people, injuring 13,000 and displacing nearly eight million people, with 20.6 million requiring urgent humanitarian assistance.²⁹⁸ Small Island Developing States are responsible for only 0.2 per cent of global carbon dioxide emissions, yet more than 90 per cent of the most damaging climate disasters since 2000 took place in these states.²⁹⁹ Rising sea levels are putting the very existence of some of these islands at stake. Meanwhile, Chile is experiencing the longest drought in over 1,000 years; to date,

it has lasted 15 years. This has put the country at the forefront of the region's water crisis. Brazil, Paraguay, and Bolivia are also suffering multi-year droughts, the worst since 1944.³⁰⁰

These disproportionate impacts extend beyond the climate crisis to all nine planetary processes. For example, there are significant differences in the rate of land change between the Global North and the Global South. While in Global North countries, deforestation has stalled or even reversed, there is rapid deforestation and agricultural expansion in Global South countries as agricultural production is outsourced as part of global trade relations.³⁰¹ Relatedly, losses of intact ecosystems have occurred primarily in the tropics, which is home to the highest levels of biodiversity on the planet. For example, 100 million hectares of tropical forest were lost from 1980 to 2000, resulting mainly from cattle ranching in Latin America (about 42 million hectares) and plantations in Southeast Asia (about 7.5 million hectares, of which 80 per cent is for palm oil, among others).³⁰² Similarly, with respect to plastic pollution, the total lifetime costs of just 1kg of plastic is eight times higher in low- and middle-income countries than in high-income countries.³⁰³ 93 per cent of all deaths linked to global plastic production occur in low- and middle-income countries.³⁰⁴ Forty per cent of degraded soils are in Africa, and most of the rest are in areas affected by food insecurity and poverty.³⁰⁵

297 Ibid.

298 Maha Akbar, "Over a year after Pakistan floods, survivors battle climate anxiety," *Al Jazeera*, 24 October 2023, <https://www.aljazeera.com/gallery/2023/10/24/photos-over-a-year-after-pakistan-floods-survivors-battle-climate-anxiety>.

299 Dakota Anton, Malaika Nduko and Adeyinka Olaleye, "A Human Rights-Based Approach to Debt and Climate Justice," University of Essex, 30 June 2023, https://www.escri-net.org/sites/default/files/a_human_rights-based_approach_to_debt_and_climate_justice_1_1_1.pdf.

300 Ashfaq Khalfan et al., "Climate Equality: A Planet for the 99%," Oxfam International, November 2023, <https://policy-practice.oxfam.org/resources/climate-equality-a-planet-for-the-99-621551/>.

301 Karina Winkler, Richard Fuchs, Mark Rounsevell and Martin Herold, "Global land use changes are four times greater than previously estimated," *Nature Communications*, 11 May 2021, <https://www.nature.com/articles/s41467-021-22702-2>.

302 "UN Report: Nature's Dangerous Decline 'Unprecedented'; Species Extinction Accelerating," United Nations, 6 May 2019, <https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/>.

303 "Who Pays for Plastic Pollution?" World Wildlife Fund (WWF), November 2023, <https://wwfint.awsassets.panda.org/downloads/wwf-report--who-pays-for-plastic-pollution.pdf>.

304 Ibid.

305 "Soil Degradation," United Nations Office for Disaster Risk Reduction, <https://www.undrr.org/understanding-disaster-risk/terminology/hips/en0005#:~:text=Soil%20degradation%20consists%20of%20biological,by%20poverty%20and%20food%20insecurity>.

Within countries both in the Global North and Global South, poor and marginalised communities, as well as those directly living off the land, are hit the hardest by ecological crises.³⁰⁶ Vulnerabilities to the impacts of the ecological crisis can increase when economic inequality intersects with pre-existing

inequalities of power, such as gender, race, (dis)ability, ethnicity, and age, amongst others. People in vulnerable situations are often more exposed to negative impacts due to multiple and intersecting forms of discrimination. These disproportionate impacts will be further discussed below.

The role of extractive industries

How fossil fuel industries have institutionalised their power

In June 2023, UN Secretary-General António Guterres described the fossil fuel industry as the “polluted heart of the climate crisis” and called on the industry to move away from “a product that is incompatible with human survival.”³⁰⁷

A significant proportion of global emissions that have caused the devastation outlined above can be attributed to a relatively small number of fossil fuel producers. In 2017, the Carbon Majors Database found that 100 active fossil fuel producers are accountable for 71 per cent of industrial greenhouse gas emissions since 1988, with over half of global industrial emissions to be traced down to just 25 corporate or state producers since then.³⁰⁸ Almost a third of historic emissions come from publicly listed investor-owned companies, 59 per cent from state-owned companies, and nine per cent from private investment.

The fossil fuel industry has made eye-watering profits over the past decades. The oil and gas industry has generated 2.8 billion USD *a day* in pure profit for the last 50 years—1 trillion USD a year and a staggering total of 52 trillion USD.³⁰⁹ In 2022, particularly due to Russia’s invasion of Ukraine, the fossil fuel industry reached a record high net income of 4 trillion USD.³¹⁰

Fossil fuel subsidies, which is any government action that “lowers the cost of fossil fuel energy production, raises the price received by energy producers, or lowers the price paid by energy consumers,”³¹¹ play a significant role in the continued propping up of this sector. According to the International Monetary Fund (IMF), in 2020, the fossil fuel industry benefitted from subsidies of 5.9 trillion USD, “with not a single country pricing all its fuels sufficiently to reflect their full supply and environmental costs.”³¹² In the US, the fossil fuel industry receives around 20 billion

306 Ashfaq Khalfan et al., “Climate Equality: A Planet for the 99%,” Oxfam International, November 2023, <https://policy-practice.oxfam.org/resources/climate-equality-a-planet-for-the-99-621551/>.

307 Press Conference by Secretary-General António Guterres at United Nations Headquarters, United Nations, 15 June 2023, <https://press.un.org/en/2023/sgsm21840.doc.htm>.

308 Dr. Paul Griffin, “The Carbon Majors Database: CDP Carbon Majors Report 2017,” July 2017, CDP Worldwide, <https://cdn.cdp.net/cdp-production/cms/reports/documents/000/002/327/original/Carbon-Majors-Report-2017.pdf?1501833772>.

309 Damian Carrington, “Revealed: oil sector’s ‘staggering’ \$3bn-a-day profits for last 50 years,” The Guardian, 21 July 2022, <https://www.theguardian.com/environment/2022/jul/21/revealed-oil-sectors-staggering-profits-last-50-years>.

310 April Merleaux et al., “Banking on Climate Chaos: Fossil Fuel Finance Report 2023,” 2023, https://www.ran.org/wp-content/uploads/2023/04/BOCC_2023_vF.pdf.

311 “Fossil Fuel Subsidies: Overview,” Oil Change International, <https://priceofoil.org/fossil-fuel-subsidies/>.

312 Damian Carrington, “Fossil fuel industry gets subsidies of \$11m a minute, IMF finds,” The Guardian, 6 October 2021, <https://www.theguardian.com/environment/2021/oct/06/fossil-fuel-industry-subsidies-of-11m-dollars-a-minute-imf-finds>.

USD in federal and state production subsidies every year, and reaped billions in additional tax savings from former US President Trump's 2017 tax cut legislation.³¹³

With these skyrocketing profits comes a lot of power and influence, which the industry has used for years to maintain profits, spread misinformation, and delay climate action, providing them a free pass to exacerbate human rights violations, conflict, and violence around the world.

Fossil fuel companies have known for decades about the links between fossil fuels and global warming, having commissioned research on this topic already in the 1960s.³¹⁴ A 1968 report to the American Petroleum Institute warned of the threat of rising temperatures due to carbon pollution, and in the late 1970s and early 1980s, Exxon as well as Italian oil major Eni were funding climate change science.³¹⁵ Since then, fossil fuel companies have spent millions on a misinformation campaign to sow doubt about the links between fossil fuels and the climate crisis. The information war on climate science includes the publishing of misleading op-eds, the funding of climate deniers,³¹⁶ and “advertorials”—articles presented as editorials that are sponsored pieces written by the fossil fuel industry.³¹⁷

Having moved on from a purely climate crisis denial approach, fossil fuel industries are now focusing on delay tactics. This includes fossil fuel industries' successful re-framing of responsibility, placing the onus for carbon emissions on the individual. British Petroleum (BP), a company which ranks sixth out of the twenty companies responsible for a third of all carbon emissions since 1965, has popularised the concept of the carbon footprint.³¹⁸ In 2019, BP ran a “Know your carbon footprint” campaign on social media.³¹⁹ Similar to the tobacco industry, fossil fuel companies are shifting responsibility onto the consumer, casting themselves as a “neutral innocent, buffeted by the forces of consumer demand.”³²⁰

Another tactic of the fossil fuel industry to continue business as usual is greenwashing, i.e. presenting themselves as more climate-friendly than they are. Research from 2022 found that oil companies' claims to be transitioning to clean energy amount to egregious examples of greenwashing.³²¹ For example, BP and Shell pledged to reduce investments in fossil fuel extraction projects, but in fact, both increased their acreage for new exploration in recent years. Analysis by the International Energy Agency revealed that, in contrast, investments in renewable energy by oil and gas companies were at around one per cent of their total investments in 2020.³²²

313 Tim Donaghy, “8 reasons why we need to phase out the fossil fuel industry,” Greenpeace, 22 November 2021, <https://www.greenpeace.org/usa/research/8-reasons-why-we-need-to-phase-out-the-fossil-fuel-industry/>.

314 Mikaela Loach, *It's not that radical: Climate action to transform our world*, (United Kingdom: Dorling Kindersley Ltd, 2024).

315 Ibid.

See also Stella Levantesi, “Italian oil firm Eni faces lawsuit alleging early knowledge of climate crisis,” *The Guardian*, 9 May 2023, <https://www.theguardian.com/environment/2023/may/09/italian-oil-firm-eni-lawsuit-alleging-early-knowledge-climate-crisis>.

316 Exxon's Climate Denial History: A Timeline, Greenpeace, <https://www.greenpeace.org/usa/fighting-climate-chaos/exxon-and-the-oil-industry-knew-about-climate-crisis/exxons-climate-denial-history-a-timeline/>. See also: Exposing Climate Deniers, Greenpeace, <https://www.greenpeace.org/usa/fighting-climate-chaos/climate-deniers/>.

317 Mikaela Loach, *It's not that radical: Climate action to transform our world*, (United Kingdom: Dorling Kindersley Ltd, 2024).

318 Ibid.

319 Geoffrey Supran and Naomi Oreskes, “The forgotten oil ads that told us climate change was nothing,” *The Guardian*, 18 November 2021, <https://www.theguardian.com/environment/2021/nov/18/the-forgotten-oil-ads-that-told-us-climate-change-was-nothing>.

320 Ibid.

321 Mei Li, Gregory Trencher, and Jusen Asuka, “The clean energy claims of BP, Chevron, ExxonMobil and Shell: A mismatch between discourse, actions and investments,” *PLOS ONE*, 16 February 2022, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263596>.

322 Damian Carrington, “Oil firms' climate claims are greenwashing, study concludes,” *The Guardian*, 16 February 2022, <https://www.theguardian.com/environment/2022/feb/16/oil-firms-climate-claims-are-greenwashing-study-concludes>.

Canada-based Enbridge Inc. claims to be one of the largest renewable energy companies in the country. However, as a report by Transnational Institute exposes, about 95 per cent of its income is generated from fossil fuels.³²³

Another greenwashing tactic is sponsoring the arts, such as the Royal Ballet and the National Portrait Gallery, as well as funding climate exhibits, such as at the Science Museum in London.³²⁴ The industry is also the largest investor in the world's 50 largest CO2 offsetting schemes, of which Corporate Accountability found that at least 43 per cent have at least "one fundamental flaw and are probably junk."³²⁵ All these approaches have one thing in common: to distract decision-makers from moving down the obvious path to a fossil fuel phase-out as rapidly as possible—or even to provide "justification" for them to avoid this.

The fossil fuel industry has also been successful in convincing decision-makers that technological advances will allow for the continued burning of fossil fuels. This is what climate justice activists call "false solutions"³²⁶ to the climate crisis. They include carbon capture and storage,³²⁷ nature-based

solutions including offsets,³²⁸ carbon markets,³²⁹ geoengineering,³³⁰ as well as the concept of "net zero".³³¹ These false solutions have far-reaching ecological impacts, from deforestation to loss of biodiversity. Additionally, they are drivers of human rights violations, including gender-based violence and displacement, with disproportionate impacts for communities in the Global South while most companies peddling these "dangerous distractions"³³² are based in the Global North.³³³

The framing of "Liquified Natural Gas" (LNG) as well as Liquified Petroleum Gas (LPG) as a cleaner "transition fuel"³³⁴ is another form of greenwashing and indeed, pinkwashing. Joni Seager, a professor and environmental activist, offered a gendered analysis of how fossil fuel companies seek to justify the continued use of LNG/LPG in an interview for this project:

Liquified gas (LNG/LPG) is a fossil fuel—it's not a transition away from fossil fuels. And one of the most contrived, and cynical and alarming levers of pressure that the fossil fuel industry is using to enhance acceptance of LPG in many energy-poor

323 Pratap Chatterjee, Olivier Petitjean and Alfons Perez, "Green' Multinationals Exposed: How the energy transition is being hijacked by corporate interests," Transnational Institute, CorpWatch, Observatoire des multinationales and Observatori del Deute en la Globalització, 14 November 2023, <https://www.tni.org/en/publication/green-multinationals-exposed>.

324 Mikaela Loach, *It's not that radical: Climate action to transform our world*, (United Kingdom: Dorling Kindersley Ltd, 2024).

325 "Press Release: New analysis reveals major corporations are utilizing millions of "likely junk" carbon offsets," Corporate Accountability, 30 May 2024, <https://corporateaccountability.org/media/press-release-corporate-buyers-junk-offsets/>.

326 "Toolkit for fighting climate false solutions," Friends of the Earth International, 7 November 2023, <https://www.foei.org/publication/toolkit-climate-false-solutions/>.

327 "Position: Carbon Capture, Storage and Utilisation," Climate Action Network, January 2021, https://climatenetwork.org/wp-content/uploads/2021/01/can_position_carbon_capture_storage_and_utilisation_january_2021.pdf.

328 "Toolkit for fighting climate false solutions," Friends of the Earth International, 7 November 2023, <https://www.foei.org/publication/toolkit-climate-false-solutions/>.

329 Lise Masson, "Opposing carbon markets: A guide to carbon markets and how to fight them," Friends of the Earth International, November 2023, https://www.foei.org/wp-content/uploads/2023/11/Carbon-markets-guide_FoEI_ENG.pdf.

330 Carroll Muffett and Steven Feit, "Fuel to Fire: How Geoengineering Threatens to Entrench Fossil Fuels and Accelerate the Climate Crisis," Center for International Environmental Law, February 2019, https://www.ciel.org/wp-content/uploads/2019/02/CIEL_FUEL-TO-THE-FIRE_How-Geoengineering-Threatens-to-Entrench-Fossil-Fuels-and-Accelerate-the-Climate-Crisis_February-2019.pdf.

331 "Not Zero: How 'net zero' targets disguise climate inaction," October 2020, <https://corporateaccountability.org/wp-content/uploads/2020/10/NOT-ZERO-How-net-zero-targets-disguise-climate-inaction-FINAL.pdf>.

332 Lindsay Bidga, "WGC calls out concerns on the new report released by the "Climate Overshoot Commission" promoting risky and dangerous distractions for climate action," Women and Gender Constituency, 14 September 2023, <https://womensgenderclimate.org/wgc-calls-out-concerns-on-the-new-report-released-by-the-climate-overshoot-commission-promoting-risky-and-dangerous-distractions-for-climate-action/>.

333 Mikaela Loach, *It's not that radical: Climate action to transform our world*, (United Kingdom: Dorling Kindersley Ltd, 2024).

334 See <https://saynotlng.org>.

countries in the Global South is to claim that women want LPG for cooking. In fact, women don't want "LPG". Women, like everyone, want clean energy. Distorting this need for clean energy, fossil fuel companies frame their LPG production as a way of not only helping the poor communities of the Global South, but specifically helping women.³³⁵

The industry spreads delay tactics and false solutions at all levels, including at the multilateral level. Analysis from the Kick Big Polluters Out coalition³³⁶ revealed that over the last 20 years, the world's biggest polluting oil and gas firms and their trade groups have been granted at least 7200 passes to attend the annual UN-led climate talks (COPs). Since COP9 in 2003, disclosed employees of fossil fuel firms have attended negotiations with a minimum of 945 passes. Disclosed staff from the "Big Five" oil giants—ExxonMobil, Chevron, Shell, BP, and Total Energies—have been granted a minimum of 267 passes. Strikingly, of the top 20 trade groups by attendance identified in the study, all are headquartered in the Global North.

In an interview for this project, Telma Taurepang, an Indigenous activist from Brazil, illuminated one example of how the COPs are a site of brokering deals between decision-makers and fossil fuel corporations. She explained that at COP28, "The

Lula government held an auction to extract oil. He met with all the leaders who were there, including me. We handed him a letter. Then he demarcated two territories and, at the same time, released oil exploration within the Amazon." At COP28, President Lula also announced Brazil's entry into the Organisation of the Petroleum Exporting Countries (OPEC) and its allies (OPEC+).³³⁷

At national levels, the fossil fuel industry has spent millions of dollars in lobbying and campaign contributions to block climate action—a phenomenon called "state capture". As described in the introduction and nuclear industry chapter, state capture has enabled corporate interests to influence and even determine the political economy of states. In the US, the fossil fuel industry's successful lobbying resulted in a bill in the Ohio legislature that bailed-out coal plants while weakening renewable energy and efficiency standards.³³⁸ Under the Energy Charter Treaty, a highly controversial international trade and investment agreement,³³⁹ the German energy giant RWE sued the Netherlands for prohibiting coal power production, claiming 1.4 billion EUR in compensation, while the British oil and gas company Rockhopper sued Italy for banning offshore oil extraction, demanding 300 million EUR in compensation.³⁴⁰ In Peru, Anglo-French oil company Perenco seeks to block the creation of a special reserve for Indigenous Peoples by suing Peru's Ministry of Culture.³⁴¹

335 Interview with Joni Seager on 30 May 2024.

336 "Investigation: Fossil fuel lobbyists attend UN climate talks more than 7000 times as part of decades-long campaign to influence climate action," Global Witness, 21 November 2023, <https://www.globalwitness.org/en/campaigns/fossil-gas/fossil-fuel-lobbyists-attend-un-climate-talks-more-7000-times-cop/>.

337 Interview with Telma Taurepang on 30 May 2024. See Lu Sudré, "Passagem de Lula na COP28 evidencia que petróleo ainda é prioridade brasileira," Greenpeace, 2 December 2023, <https://www.greenpeace.org/brasil/blog/passagem-de-lula-na-cop-28-evidencia-que-petroleo-ainda-e-prioridade-brasileira/>.

338 Tim Donaghy, "8 reasons why we need to phase out the fossil fuel industry," Greenpeace, 22 November 2021, <https://www.greenpeace.org/usa/research/8-reasons-why-we-need-to-phase-out-the-fossil-fuel-industry/>.

339 "8 reasons why the Energy Charter Treaty reform process is doomed to failure," CAN Europe, 9 December 2021, <https://caneurope.org/8-reasons-ect-reform-is-doomed-to-failure>.

340 Instagram post by Transnational Institute, @transnational institute on 30 May 2024, https://www.instagram.com/p/C7liX13sxa9/?utm_source=ig_web_copy_link.

341 Ricardo Pérez Bailó, "Oil in the Peruvian Amazon: Obscene Profits Through Immoral Strategies," Amazon Watch, <https://amazonwatch.org/news/2022/0830-oil-in-the-peruvian-amazon-obscene-profits-through-immoral-strategies>.

Former Australian Greens senator Scott Ludlam illuminated the insidious ways of how the fossil fuel industry influences policies and legislation in Australia in an interview for this project. He noted:

Extinction Rebellion held demonstrations in central Brisbane in 2019. They were using lock-on pipes to close a major intersection in Brisbane to bring traffic to a standstill. The Queensland Resources Council, which is the peak body for the coal industry, went bananas, called a press conference, and said we demand that these lock-on devices be immediately banned. The Queensland premier called a press conference and announced legislation to ban the devices. And then the Queensland Resources Council a couple of weeks later put out a press statement³⁴² patting them on the head, saying that was the right thing to do.

Ludlam concluded that the state capture dimension of this example is that “If both of the major political parties are either compliant and owned or sufficiently traumatised that they don’t step out of line, then you start to manipulate legal processes, judicial processes and the police.”³⁴³

Another avenue of influencing decision-makers is fossil fuel industries’ “donations” to political parties. In the UK, the Conservative Party received 8.4 million GBP since December 2019 from oil and gas interests until 2024,³⁴⁴ while in the US, the sector has contributed more than 25 million USD

to the Republican Party and conservative groups in the 2024 election cycle.³⁴⁵

Furthermore, the fossil fuel industry works hard to discredit environmental activists by influencing public perception of those opposing their industry. Scott Ludlam explained the process of environmental activists and defenders being labelled as terrorists in an interview for this project, with the example of the United Kingdom:

There are a couple of case studies in the UK, where the coal industry-funded think tanks and advocacy bodies who came up with the notion that environmental activism is terrorism. They shifted the whole frame from civil society organisations to terrorist groups which enlivens whole different bodies of law. And then the next minute, they had these horrific laws that you can draw a direct through-line from the Extinction Rebellion demos in 2019 to these Institutes that totally changed public discourse around environmental activism. And then the next minute, they’re passing these absolutely oppressive laws through the parliament. So, they’ve shaped the debate. And then they are bullying politicians into passing these laws.³⁴⁶

Indeed, former UK prime minister Rishi Sunak admitted that oil-funded think tanks helped to write anti-protest laws, after OpenDemocracy exposed a year earlier that the Police, Crime, Sentencing and

342 “QRC welcomes new protest laws,” Queensland Resources Council, 25 October 2019, <https://www.qrc.org.au/media-releases/qrc-welcomes-new-protest-laws/>.

343 Interview with Scott Ludlam on 15 May 2024.

344 Sam Bright, “Tories Have Received £8.4 Million from Fossil Fuel Interests, Polluters, and Climate Deniers Since 2019 Election,” DeSmog, 23 March 2024, <https://www.desmog.com/2024/05/23/conservatives-8-4-million-donations-fossil-fuel-interests-polluters-climate-deniers-since-2019-election/>.

345 Marcus Baram, “U.S. oil and gas production is booming. So are the industry’s donations to its GOP allies,” 7 May 2024, *The Texas Tribune*, <https://www.texastribune.org/2024/05/07/texas-oil-gas-political-donations-august-pfluger/>.

346 Interview with Scott Ludlam on 15 May 2024.

Courts (PCSC) Act may have originated in a briefing from the right-wing think tank Policy Exchange.³⁴⁷

Australian activist Dimity Hawkins also expressed concern in an interview for this report at “the ease of which they use the word terrorist, when you are disrupting, and exercising your political rights, the ease of which that label can be used, and the ways in which you can now be operationalised through crippling laws.”³⁴⁸

Against this backdrop, the fossil fuel industry and its allies in governments are determined to continue with business as usual. In fact, instead of winding down extraction and production of fossil fuels, the industry is planning to expand fossil fuel exploitation.³⁴⁹ Fossil fuel companies are expected to spend 527 billion USD on new fossil gas exploration and 405 billion USD on oil exploration by 2030.³⁵⁰ With oil, gas, and coal in existing reserves estimated to generate around 100 trillion USD of potential revenues,³⁵¹ the industry will not stop unless public pressure and resistance continue to rise.

How fossil fuel industries perpetuate colonial harm

There is overwhelming evidence that in many contexts, profits from the fossil fuel industry benefit a small political and economic elite or so-called Global North countries and corporations. For instance, six major oil corporations, based in the Global North, account for two-thirds of the world’s investment in exploration, profiting hugely at the expense of people living in communities where oil is extracted.³⁵² Shell, which was granted exclusive access by the British government to exploit oil during colonial times, continues to operate in the Niger Delta, poisoning rivers, filling the soil with carcinogens and toxins and destroying homes and livelihoods of local communities. ReconAfrica is a Canadian oil and gas company operating in Namibia and Botswana,³⁵³ Anglo-French oil company Perenco is active in the Peruvian Amazon,³⁵⁴ and the US-based companies ExxonMobil and Chevron are extracting oil from the Doba oilfields in southern Chad and transporting it 1,070 kilometres by pipeline to Cameroon’s Atlantic coast.³⁵⁵ In Tunisia, Shell holds 100 per cent interest in the most productive gas field in the country and sells the gas back to the state at international market prices.³⁵⁶ In 2011, South Sudan invited

347 Anita Mureithi, “Rishi Sunak admits oil-funded think tank helped write anti-protest laws,” openDemocracy, 30 June 2023, <https://www.opendemocracy.net/en/dark-money-investigations/rishi-sunak-right-wing-think-tank-anti-protest-laws-policy-exchange/>.

348 Interview with Dimity Hawkins on 15 May 2024.

349 Damian Carrington, “How much of the world’s oil needs to stay in the ground?,” *The Guardian*, 8 September 2021, <https://www.theguardian.com/environment/2021/sep/08/climate-crisis-fossil-fuels-ground>. See for example Shell’s plans: “Report: Shell set to drill for new fossil fuels for decades to come,” Friends of the Earth Netherlands, 18 March 2018, <https://en.milieudefensie.nl/news/shell-vs-climate-expanding-oil-and-gas-fueling-the-climate-crisis>.

350 “IPCC clarion call puts spotlight on fossil fuel industry’s hypocrisy,” Global Witness, 12 April 2022, <https://www.globalwitness.org/en/campaigns/fossil-gas/ipcc-clarion-call-puts-spotlight-on-fossil-fuel-industrys-hypocrisy>.

351 Damian Carrington, “Revealed: oil sector’s ‘staggering’ \$3bn-a-day profits for last 50 years,” *The Guardian*, 21 July 2022, <https://www.theguardian.com/environment/2022/jul/21/revealed-oil-sectors-staggering-profits-last-50-years>.

352 Alba Kapoor, Nannette Youssef and Simon Hood, “Confronting Injustice: Racism and the Environmental Emergency,” Greenpeace and Runnymede Trust, <https://www.greenpeace.org.uk/challenges/environmental-justice/race-environmental-emergency-report/>.

353 See <https://reconafrika.com/operations/kavango-basin/>.

354 Ricardo Pérez Bailó, “Oil in the Peruvian Amazon: Obscene Profits Through Immoral Strategies,” Amazon Watch, <https://amazonwatch.org/news/2022/0830-oil-in-the-peruvian-amazon-obscene-profits-through-immoral-strategies>.

355 “Contracting out of human rights: The Chad-Cameroon pipeline project,” Amnesty International UK, September 2005, <https://www.amnesty.org.uk/files/pol340122005en.pdf>.

356 Hamza Hamouchene, “Tunisia: protesting austerity, demanding sovereignty,” Committee for the Abolition of Illegitimate Debt, 26 February 2018, <https://www.cadtm.org/Tunisia-protesting-austerity>.

international investments into a newly opened oil field that is estimated to generate 1.3 billion USD in oil revenue per year. However, most of the revenue from petroleum extraction and value additions went to the multinational corporations who control it, and since opening the oil field, the government has lost more than 4 billion USD in unpaid taxes to oil companies alone.³⁵⁷

Beyond Global North countries, China is a key player in the extractive industries in Global South countries, profiting from resource extraction from Zimbabwe to Pakistan. As Azra Talat Sayeed observed in an interview for this project, "It is for the Chinese to use that coal they are extracting [in Pakistan]; a horrendous project as it displaces the local Hindu minority communities from their centuries-old ancestral land."³⁵⁸

These fossil fuel companies have their head offices in the Global North as well as China, pocketing soaring profits while they continue to destroy land and communities in the Global South. The negative impacts of the industry, from environmental disasters to human rights violations, are borne by local and marginalised communities, with cascading and costly knock-on effects. A key component of corporations' reckless exploitation is the lack of meaningful consultations and approval by affected communities. In an interview for this project, Telma Taurepang stressed the lack of free, prior, and informed consent when oil companies extract in Indigenous Peoples' territories, noting, "When oil is being discussed, nobody has gone to the Indigenous Peoples to find out what they think. But this is guaranteed to us through prior informed consultation."³⁵⁹

Continued inequalities and neocolonial practices are also embedded within the existing trade, economic, and international financial systems that keep Global South countries trapped, foregoing their own national interests and those of their communities. For example, Argentina increased its extraction and export of oil and gas to address its debt crisis and alleviate poverty. However, the large-scale fracking project in Vaca Muerta, backed by the International Monetary Fund (IMF), has not only devastated Indigenous communities in the region, but has also been estimated to potentially cause 5.6 trillion USD in societal costs, from public health impacts to potential oil and gas leaks. This would amount to 13 times Argentina's current national debt.³⁶⁰

A 2023 report by Debt Justice explains the connections between fossil fuels, lack of economic development, and how this relates to the international financial system in more detail, noting:

Countries rely on fossil fuel revenues to repay debt, and anticipated revenues from fossil fuels are often overinflated and require huge investments to reach expected returns, leading to further debt, eroding long-term development prospects, and causing devastating environmental and human harms.³⁶¹

This "debt-fossil fuel production trap" means that fossil fuel development often does not contribute to a country's development, leaving countries financially worse off and further indebted. International financial institutions (IFIs) specifically have been shown to

357 Senani Dehigolla et al., "Explainer #2: Post-conflict recovery and trade," Regions Refocus, Women's International League for Peace and Freedom, and Nawi-Afrifem Macroeconomic Collective, 2024, <https://regionsrefocus.org/app/uploads/2024/05/GTC-Post-Conflict-Recovery-and-Trade-Explainer.pdf>.

358 Interview with Azra Talat Sayeed on 30 May 2024.

359 Interview with Telma Taurepang on 30 May 2024.

360 Gerard Rijk and Barbara Kuepper, "Vaca Muerta Basin: An Oil & Gas Trap: IMF and global capital markets neglect the risk of ballooning Argentina's debt and liability problem," Profundo, 28 July 2022, .

361 Tess Woolfenden, "The Debt Fossil Fuel Trap: Why debt is a barrier to fossil fuel phase-out and what we can do about it," Debt Justice, July 2023, <https://debtjustice.org.uk/wp-content/uploads/2023/08/Debt-fossil-fuel-trap-report-2023.pdf>.



trap Global South countries in continued fossil fuel exploration that do not benefit the general population.

Extractivism fails to deliver the development that it promises, and instead causes long-term ecological destruction, inflicts poverty, and deepens economic, social and gender inequalities in societies and communities. Extractivist industries also respond to the ensuing social and political unrest with violence and suppression, by the state's coercive apparatus or by employing private and military security companies.³⁶²

One case in point illustrating these cascading effects is Mozambique. In 2010, massive offshore gas fields were found in Northern Mozambique. Large Global North multinational corporations immediately rushed to develop exploitation plans in collaboration with the Mozambican government. Three large LNG projects have been developed since. The gas projects have had significant

negative environmental impacts and have displaced communities, many of which are still waiting for their entitled compensation for forced resettlement. As a report by Friends of the Earth illustrates in great detail, "The 'gas for development' story is failing desperately" as revenues will benefit first and foremost foreign companies, with Mozambique being the "last on the list to benefit ... after all investment costs have been covered, which will likely take at least another 10 years."³⁶³ The report further argues that the projects have not brought jobs and will not increase access to energy for the Mozambican people, as most of the fossil gas will be exported to Asian and European markets.

These realities have exacerbated pre-existing discontent in the region and led to violent insurgencies from 2017. Non-state actors' horrific attacks on civilians led to displacement of almost 1 million people and a humanitarian crisis. The Mozambican government intervened by deploying

362 Charmaine Pereira and Dzodzi Tsikata, "Contextualising Extractivism in Africa," *Feminist Africa* 2(1), 2021, https://feministafrica.net/wp-content/uploads/2021/04/fa_v2_issue1_Feature-article-Contextualising-Extractivism-in-Africa.pdf.

363 Anneke Wensing, "Fuelling the Crisis in Mozambique: How export Credit Agencies Contribute to Climate Change and Humanitarian Disaster: A Case Study from Mozambique," Friends of the Earth Europe and Justiça Ambiental, 16 May 2022, <https://friendsoftheearth.eu/wp-content/uploads/2022/05/Fuelling-the-Crisis-in-Mozambique.pdf>, page 8.

private military and security companies, which have also been found to commit human rights violations and to further exacerbate violence and insecurities. The violence and conflict have meant grave cases of sexual and gender-based violence against women and girls, from abduction by insurgents to rape

and sexual assaults by government soldiers, as well as forced prostitution. While Mozambique's army, along with foreign troops, have managed to reclaim significant territory from the insurgents, the widespread militarisation will not resolve the root causes of deeper local grievances.

Ecological and social impacts of the fossil fuel industry

At every stage of their lifecycle—from exploration, extraction, production, distribution, refinement, and usage—fossil fuels have a wide range of devastating ecological impacts. Communities relying on water, air, and soil around fossil fuel infrastructure, as well as marginalised communities in both the Global North and Global South, are most impacted by the fossil-fuelled climate crisis. There is no safe way to extract, process, transport, or burn fossil fuels.

This section provides a non-exhaustive overview of the ecological and social harms caused by each aspect of the fossil fuel industry through research, select case studies, and interviews. While this section will never do justice to the far-reaching impacts of the fossil fuel industry around the world, it provides a snapshot of destructive ecological impacts beyond the climate crisis and of disproportionate harms along racial, class, and gendered identity markers in both the Global South and Global North.

Exploration

Oil and gas exploration encompasses the processes and methods involved in locating potential sites for oil and gas drilling and extraction. Geological surveys are conducted using various means, from testing subsoil for onshore exploration, to using seismic imaging for offshore exploration.³⁶⁴ Fossil fuel exploration is an expensive, high-risk operation. The risks of exploration include doubts over the number of reserves that exist as well as huge ecological risks, including a long history of industrial accidents, explosions, leaks, and spillages.³⁶⁵ With oil and gas becoming harder to find, the methods of exploration are getting riskier.

One such example of a tragic accident is the largest offshore oil spill in US history: BP's Deepwater Horizon oil spill in 2010. An explosion occurred on the Deepwater Horizon drilling platform in the Gulf of Mexico, killing 11 men and triggering a catastrophic oil leak from the exploratory oil well. Before it was capped three months later, approximately 134 million gallons of oil had spilled into the Gulf—more than 300 Olympic-sized swimming pools.³⁶⁶ While scientists are still unearthing the full scale of destruction, immediate

364 "Oil and Gas Industry: A Research Guide," Library of Congress, <https://guides.loc.gov/oil-and-gas-industry/upstream>.

365 Helena Wright, "Fossil fuel exploration: what does the World Bank announcement mean?," E3G, 20 December 2017, <https://www.e3g.org/publications/fossil-fuel-exploration-what-does-the-world-bank-announcement-mean/>.

366 Alejandra Borunda, "We still don't know the full impacts of the BP oil spill, 10 years later," *National Geographic*, 20 April 2020, <https://www.nationalgeographic.com/science/article/bp-oil-spill-still-dont-know-effects-decade-later>.

effects included the transformation of the seafloor close to the oil well into a toxic waste dump.³⁶⁷

There is a documented decline of the richness of species of reef fish,³⁶⁸ fish absorbed some of the oil-sourced contaminants,³⁶⁹ and tiny bacteria, deep sea corals, and arthropods were found to take decades to recover.³⁷⁰ The spill significantly affected communities in the Gulf region that were still recovering from damages from Hurricanes Katrina and Rita, as well as those communities relying on the ocean for fishing and tourism, with disadvantaged racial and ethnic groups and poor communities disproportionately impacted.³⁷¹

The exploration process can also negatively impact habitats and biodiversity through seismic surveys. These surveys clear land and are considered a major driver of landscape and habitat fragmentation globally. The report *Fuelling Failure: How coal, oil, and gas sabotage all seventeen Sustainable Development Goals*, lays out seismic surveys' ecological impacts:

Habitat fragmentation is an area of great concern as scientific inquiry is discovering that it is far more detrimental to wildlife populations than a reduction in the total area of an ecosystem. For instance, it has been found that fragmentation of tropical rainforest habitats has had serious impacts on remaining intact old-growth tropical rainforests, including changes in forest structure, ecosystem dynamics, and

ecosystem function. Furthermore, once seismic surveys clear land for machinery and other infrastructures, this increases the accessibility to previously inaccessible areas for other industries and practices, such as logging and hunting, which may cause further habitat fragmentation and harm to life on land.³⁷²

In the oceans, seismic surveys can produce intense artificial noises which can spread up to 300,000 km. These disruptions have been shown to have physiological impacts and disrupt marine species behaviour, including behaviour of mammals, fish, invertebrates, plankton, and reptiles. This in turn can affect species' ability to hunt, migrate, or reproduce.³⁷³

Extraction, production, and refinement

Ecological harms

Fossil fuel extraction refers to the process of taking coal, oil, or natural gas out from their natural underground reservoirs to make them available for commercial and industrial use.

There are two principal methods for extracting fossil fuels: mining and drilling. Mining is used to extract solid fuels, such as coal, while drilling is used to extract gaseous or liquid fuels.³⁷⁴ Due to the scarcity of conventional supplies, the oil industry uses ever-riskier techniques including the mining of

367 Ibid.

368 Justin P. Lewis et al., "Changes in Reef Fish Community Structure Following the Deepwater Horizon Oil Spill," *Scientific Reports*, 9 April 2020, <https://www.nature.com/articles/s41598-020-62574-y>.

369 Rachel e. Struch, Erin L. Pulster, Andrea D. Schreier, and Steven A. Murawski, "Hepatobiliary Analyses Suggest Chronic PAH Exposure in Hakes (*Urophycis* spp.) Following the Deepwater Horizon Oil Spill," *Environmental Toxicology and Chemistry* 38(12), 12 September 2019, <https://setac.onlinelibrary.wiley.com/doi/full/10.1002/etc.4596>.

370 Alejandra Borunda, "We still don't know the full impacts of the BP oil spill, 10 years later," *National Geographic*, 20 April 2020, <https://www.nationalgeographic.com/science/article/bp-oil-spill-still-dont-know-effects-decade-later>.

371 "Human Rights Impact of the Gulf Oil Spill," Amnesty International, <https://www.amnestyusa.org/updates/human-rights-impact-of-the-gulf-oil-spill>.

372 Freddie Daley and Charlie Lawrie, "Fuelling Failure: How coal, oil and gas sabotage all seventeen Sustainable Development Goals," Fossil Fuel Non-Proliferation Treaty, June 2022, <https://fossilfuel treaty.org/fuelling-failure>.

373 Ibid.

374 "The Hidden Costs of Fossil Fuels," Union of Concerned Scientists, 30 August 2016, <https://www.ucsusa.org/resources/hidden-costs-fossil-fuels>.

tar sands, which involves injecting steam into deep deposits underground. Another risky extraction method is “fracking,” which refers to extracting oil from shale rock by injecting fluid into the ground, using large volumes of water.³⁷⁵

Fossil fuel production and refinement is the stage of the supply chain where fossil fuels are processed, refined, and transformed into products for various purposes, including energy generation, transportation, and industrial applications.

The ecological and social impacts of fossil fuel extraction, production, and refinement are pervasive and far-reaching. Below are a few examples of these impacts for illustration.

On land, fossil fuel extraction significantly disturbs and threatens biodiversity due to the conversion, degradation, and pollution from rapid expansion of infrastructure such as roads and well pads. This leads to deforestation and killing or displacing of species from crucial habitats. For example, the Wildlife Conservation Society examined the impact of two of the largest fossil gas fields in the US on the pronghorn population and uncovered an 82 per cent decline in “high quality” habitats.³⁷⁶ Coal mining can include removing mountain tops and stripping large areas of land. This practice has been found to have caused not only the loss of 387,000 acres of mature deciduous forests in Kentucky, Tennessee, Virginia, and West

Virginia but also resulted in a drastic drop of global population of Cerulean Warblers, a small songbird.³⁷⁷ In Indonesia, coal extraction meant that the country lost 1,901 square kilometres of tree cover as a direct result of industrial mining activities in two decades.³⁷⁸

In the oceans, fossil fuel extraction has led to many documented oil spills and other industrial accidents, with rough seas and large waves damaging oil and gas platforms.³⁷⁹ Oil spills in the oceans have long-term impacts on marine life,³⁸⁰ with some species or ecosystems never being able to fully recover, as unearthed by evidence gathered after Exxon Mobil’s Valdez oil spill in 1989.³⁸¹

All fossil fuel extraction and production can cause pollution in water, air, and soil. For example, oil drilling involves gas flaring³⁸² to reduce pressure, which can cause explosions.³⁸³ Dangerous gases are burnt during oil and gas extraction and production, which contaminates water and releases methane and carbon dioxide. Oil flaring also happens at refineries and petrochemical facilities as they burn off excess hydrocarbon gas that cannot be reused or recycled. Furthermore, flaring releases toxic pollutants such as sulphur dioxide or nitric oxides into the air, causing acid rain. Acid rain damages trees, and causes soil and bodies of water to acidify, triggering damage to crops and forests, and making it toxic for plants and animals. It can damage forests by robbing the soil of important nutrients,

375 George Smeeton, “Stop digging: Countries move to end fossil fuel exploration,” Energy & Climate Intelligence Unit, 30 March 2019, <https://eciu.net/insights/2018/stop-digging-countries-move-to-end-fossil-fuel-exploration>.

376 Jon P. Beckmann, Kim Murray, Renee G. Seidler, and Joel Berger, “Human-mediated shifts in animal habitat use: Sequential changes in pronghorn use of a natural gas field in Greater Yellowstone,” *Biological Conservation* 147(1), March 2012, <https://www.sciencedirect.com/science/article/abs/pii/S0006320712000043>.

377 Freddie Daley and Charlie Lawrie, “Fuelling Failure: How coal, oil and gas sabotage all seventeen Sustainable Development Goals,” Fossil Fuel Non-Proliferation Treaty, June 2022, <https://fossilfuel treaty.org/fuelling-failure>.

378 Caroline Bulolo, “Coal extraction in Indonesia is driving deforestation,” *Dialogue Earth*, 16 January 2023, <https://dialogue.earth/en/forests/coal-extraction-in-indonesia-is-driving-deforestation>.

379 Freddie Daley and Charlie Lawrie, “Fuelling Failure: How coal, oil and gas sabotage all seventeen Sustainable Development Goals,” Fossil Fuel Non-Proliferation Treaty, June 2022, <https://fossilfuel treaty.org/fuelling-failure>.

380 “How does oil impact marine life?,” National Ocean Service, 24 August 2023, <https://oceanservice.noaa.gov/facts/oilimpacts.html>.

381 Charles H Peterson et al., “Long-Term Ecosystem Response to the Exxon Valdez Oil Spill,” *Science*, 19 December 2003, <https://pubmed.ncbi.nlm.nih.gov/14684812/>.

382 “Gas flaring: What is it and why is it a problem?,” *BBC News*, 29 September 2022, <https://www.bbc.co.uk/news/science-environment-63051458>.

383 “Fossil fuels,” Greenpeace, <https://www.greenpeace.org.uk/challenges/fossil-fuels>.

making it harder for trees to take up water.³⁸⁴ The Niger Delta is but one example of a region that has suffered from gas flaring and acid rain, impeding long-term water security and public health by contaminating rainwater and surface water.³⁸⁵

Next to soil and air pollution, fossil fuel production, in particular fracking, uses excessive amounts of groundwater. In the US, fracking has used up nearly 1.5 trillion gallons of water since 2011, which is as much as the tap water consumed by the entire state of Texas in a year.³⁸⁶ Fracking procedures also produce enormous volumes of toxic wastewater—often containing radioactive, arsenic, lead, chlorine, and mercury materials.³⁸⁷ Coal can also contaminate water resources during the mining process and through unregulated coal ash impoundments.

Social harms

The ecological impacts of fossil fuel extraction, production, and refinement sites, including open-pit mines, smelters, petroleum refineries, coal-fired power plants, oil and gas fields, tend to be situated next to communities that are already marginalised due to existing systems of oppression. This fact compounds existing discrimination, both in the Global South and the Global North. These fossil fuel processes have far-reaching and often irreversible impacts on the health, livelihoods, and wellbeing of communities.

Azra Talat Sayeed, a political activist, provided an example of the compounding impacts of coal

extraction on marginalised communities in Pakistan in an interview for this project:

Pakistan has very large reserves of coal, in a district Thar in Sindh. Pakistan is 97 per cent Muslim but Thar is the only district in this country which has a Hindu majority. We see that Chinese imperialism has leased areas where coal is extracted. This is ancestral Hindu land. These people have lived here for thousands of years, not centuries. And they are a minority in a Muslim country. And they have no voice, they are being forced off the land. The land is totally degraded, because soil extraction brings out a lot of brackish water. It spoils agricultural land, and people have lost their livestock. They have lost the land which is of spiritual value to them.³⁸⁸

Wherever women are the primary caretakers, ecological destruction or displacement caused by fossil fuel extraction increases their workload, impacts their safety, and inhibits their ability to provide food and clean water for their families and manage care work. Unique gendered health impacts also significantly alter women's lives, and the overall population's sexual and reproductive health. Long-term exposure to nitrate contamination due to gas flaring, for example, has been linked to risk of miscarriage and ectopic pregnancies.³⁸⁹ Other disproportionate gendered impacts of flaring include preterm births, foetal

384 Ibid.

385 Justice Nwafor, "Gas Flaring in the Niger Delta Harming Health, Climate and Environment," Earth Journalism Network, 21 October 2022, <https://earthjournalism.net/stories/gas-flaring-in-the-niger-delta-harming-health-climate-and-environment>.

386 Hiroko Tabuchi and Blacki Migliozi, "Monster Fracks' Are Getting Far Bigger. And Far Thirstier," *The New York Times*, 25 September 2023, <https://www.nytimes.com/interactive/2023/09/25/climate/fracking-oil-gas-wells-water.html>.

387 Elizabeth Ridlington and John Rumpler, "Fracking by the Numbers: Key Impacts of Dirty Drilling at the State and National Level," Environment Colorado Research & Policy Center, 2013, https://publicinterestnetwork.org/wp-content/uploads/2013/10/CO_FrackingNumbers_print.pdf.

388 Interview with Azra Tala Sayeed on 30 May 2024.

389 E P Gharoro and A. A. Igbafe, "Ectopic Pregnancy Revisited in Benin City, Nigeria: Analysis of 152 Cases," *Acta Obstetrica et Gynecologica Scandinavica* 81(12), December 2002.

neurodevelopmental defects, and sterility.³⁹⁰ The pollution of drinking surface water and groundwater with heavy metals increases the chances of developing cancer, lung disease, and birth defects. Beyond health impacts arising from fossil fuel extraction, researchers found that Indigenous women living around Peru's most important gas project have experienced a statistical increase in chronic cases of malnutrition and sexually transmitted diseases such as HIV infection.³⁹¹

Fossil fuel extraction generates significant economic and social re-structuring with gendered consequences. For example, the fossil fuel industry reinforces the patriarchal gendered division of labour. The province of Alberta in Canada, a site of fossil fuel extraction for almost a century, has the highest gender-based economic inequalities in Canada, predominantly driven by the gendered occupational structure of the fossil fuel industry.³⁹² Over in the Amazon, Nelly Luna Amancio provides a compelling account of the cascading effects of the presence of fossil fuel industries' extraction sites on Indigenous women.³⁹³ Because these industries hire predominantly men, a monetised economy is introduced, altering the entire economy of families. As Amancio describes, "Men no longer hunt nor fish nor dedicate themselves to agriculture." This comes with new practices and attitudes displayed by men, including the consumption of alcohol or the frequenting of nighttime entertainment, while women often do not have a say in how the money is spent. An increase in alcohol consumption has also

meant more cases of abuse and domestic violence within families.

Meanwhile in Nigeria, these financial and economic gender inequalities have been demonstrated to further compound gendered oppression by excluding women from participating in consultations and decision-making processes concerning their lands and resources with extractive industries, if they exist at all. In the Niger Delta, women and girls have been excluded from aspects of oil spill remediation, and they do not get access to the limited compensation they might be offered.³⁹⁴

Another significant impact of the presence of fossil fuel extraction sites is an increase of sexual and gender-based violence. As mentioned above, in the Amazon, an increase of alcohol consumption associated with extraction sites often translates into increased rates of domestic violence and abuse. In the US and Canada, so-called "Man Camps," describing temporary housing sites set up for the construction of oil and gas extraction infrastructure, have been extensively documented to be associated with an increase in demand for sex trafficking and violence against women, girls, and two-spirit people.³⁹⁵ Mysti Babineu from the Red Lake Nation described the knock-on effects of the presence of Man Camps with respect to sex trafficking in a report on the topic by WECAN:

390 Freddie Daley and Charlie Lawrie, "Fuelling Failure: How coal, oil and gas sabotage all seventeen Sustainable Development Goals," Fossil Fuel Non-Proliferation Treaty, June 2022, <https://fossilfuel treaty.org/fuelling-failure>.

391 Nelly Luna Amancio, "In the Shadows of the Extractive Industry: A Hard Road for Indigenous Women," *ReVista Harvard Review of Latin America*, 15 November 2015, <https://revista.drclas.harvard.edu/in-the-shadows-of-the-extractive-industry/>.

392 A Letourneau, D. Davidson, C. Karsgaard and D. Ivanova, "Proud fathers and fossil fuels: gendered identities and climate obstruction," *Environmental Politics* 33(4), 27 September 2022.

393 Nelly Luna Amancio, "In the Shadow of the Extractive Industry: A Hard Road for Indigenous Women," *Revista Harvard Review of Latin America* 15(1), 25 November 2015, pp. 71–75.

394 "Petroleum, Pollution and Poverty in the Niger Delta," Amnesty International, 30 June 2009, <https://www.amnesty.org/en/documents/afr44/018/2009/en/#:~:text=In%20this%20document%20Amnesty%20International,regulation%20of%20the%20oil%20industry>.

395 Allison Fabrizio, Livia Charles, and Osprey Orielle Lake, "Gendered and Racial Impacts of the Fossil Fuel Industry in North America and Complicit Financial Institutions," Women's Earth and Climate Action Network International, September 2023, https://www.wecaninternational.org/_files/ugd/d99d2e_99f73731ae9d45bda45073daf7a16364.pdf.

I've lived in these communities when these workers come through to do their maintenance.... I remember being told I can't go out by myself and especially don't go drive anywhere at night and don't go to the bars. I've lived with this, and that's the thing people don't realize is, they have these workers coming through with this money, and as we've seen, the sex traffickers follow these men. It's a business model.³⁹⁶

The presence of private and military security companies (PMSCs) as well as state security forces at extraction sites has also been extensively documented to increase sexual and gender-based violence. For example, Amnesty International exposed how security forces deployed in the Niger Delta to protect oil production have been found to use rape as a counter-insurgency tactic and to intimidate the population.³⁹⁷ More details and examples of this phenomenon can be found in the chapter on police and PMSCs.

The presence of the fossil fuel industry has other myriad impacts on human rights and wellbeing. El Cerrejon in Colombia, Latin America's largest open-pit coal mine, spans an area of over 100,000 football pitches. While the Swiss company Glencore is making annual profits of 256 billion USD, communities around the extraction site have suffered immensely from health impacts, noise and water pollution, and displacement. There is vast evidence of systemic human rights violations of Colombia's largest Indigenous community of the Wayuu and Afro-descendant communities in La Guajira, perpetrated by Glencore and aided

by the Colombian government. As a result of the expansion of the mine, a report by Oxfam Colombia and Friends of the Earth Colombia found that:

Areas where people once moved freely have been enclosed, thus denying access to spaces used for meeting, play and building identity. Passage has also been restricted to former grazing areas and forest where communities could access plants and trees important in traditional medicine, source materials for building houses, gather fruit and hunt animals, as well as collect water.³⁹⁸

The Colombian authorities forcibly relocated the Afro-Colombian community of Chanqueta, with one member of that community, Pinto, describing their situation now: "[It] is appalling. We now live far away from our native land, where we had everything, most importantly food security. Now we have nothing: no water, no health care and no jobs."³⁹⁹

Edwick Madzimure, a political scientist from Zimbabwe, addressed the complex impacts of displacement due to Chinese companies' coal mining in Zimbabwe. She explained in an interview for this project:

600 families lost their traditional homes. When they displaced the villagers, they were relocated to confined areas far away from any school, without sufficient access to drinking water, and there was no area for farming which significantly affected their livelihood. When these villagers tried to go to court to ensure that they get justice

396 Ibid.

397 "Nigeria: Rape—the silent weapon," Amnesty International, 2006, <https://www.amnesty.org/en/wp-content/uploads/2021/08/afr440202006en.pdf>.

398 Tatiana Rodríguez Maldonado et al., "Does Cerrejón always win? Between corporate impunity for human rights violations and the search for comprehensive reparation in times of transition," *Censat Agua Viva - Amigos de la Tierra Colombia*, November 2023, https://www.cinep.org.co/public-files/PDFS/20231114_Glencore_Report_EN.pdf.

399 Oliver Pieper, "How Colombia's dirty coal fuels Germany's energy transition," *DW*, 29 November 2023, <https://www.dw.com/en/how-colombias-dirty-coal-fuels-germanys-energy-transition/a-67583407>.

for themselves, all the inputs [...were] disregarded because the government is on the side of the Chinese [companies].⁴⁰⁰

Indigenous communities that rely on ecosystems for their livelihoods are disproportionately threatened by fossil fuel extraction on their lands, with extensive evidence from around the globe. In Canada, the massive oil extraction site of the Alberta tar sands pollutes water, air, and soil. It has encroached on Indigenous People's traditional lands and has substantially altered their culture and way of life. Tar sand chemicals have also been linked to higher rates of cancer in Indigenous Peoples, and dangerous levels of air pollution.⁴⁰¹ In Ecuador's Amazon rainforest, between 1964 and 1992, Chevron disposed of almost 650,000 barrels of crude oil and more than 16 billion gallons of wastewater in the rivers and soils, affecting the health and traditional way of life of more than 30,000 Indigenous Peoples and peasants in different communities. So far, at least 2,000 people have died from cancer due to toxins and polluted water and air.⁴⁰² Telma Taurepang, General Coordinator of the Union of Indigenous Women of the Amazon in Brazil, addressed some of these challenges Indigenous Peoples face from oil extraction in their territories in an interview for this project:

Don't people realise that what they're doing is a catastrophe? And they're not just going to kill us. Because when you mess with a territory, you cut down flowers, you divert riverbeds. And oil will bring into our territories everything that the Europeans brought when they invaded our territories.

It will mainly bring the greed of a people. Because people are going to come into our territory and they don't want to know who lives there.⁴⁰³

Sakhalin, an island off the eastern Russian coast, has had oil reserves extracted by Exxon, Shell, and BP from the mid-1990s to 2005. The area is also home to many Indigenous Peoples. Oil companies destroyed reindeer pastures and forests, and depleted fish populations through offshore drilling, threatening Indigenous People's foundations of life.⁴⁰⁴ Because of these harmful impacts, Indigenous and environmental activists successfully prevented further development of oil infrastructure in the region.⁴⁰⁵ Campaigners and Indigenous Peoples deployed various tactics to resist the infrastructure, from local protests to solidarity actions in London, Moscow, and New York, and press conferences. What ultimately led to the successful termination of the project was the campaigners' pressure on the European Bank for Reconstruction and Development (EBRD) not to finance Shell's "Sakhalin II" project. Specific pressure on the EBRD included further protests and actions, with support from Sakhalin's local government, as well as petitions targeting both Russian political actors, as well as the EBRD's Board of Directors. As a result, the EBRD confirmed that it would not provide financing to this project, which caused project delays and led to other parties involved to suspend the pipeline construction.

The accelerating rates of deforestation due to coal mining have gravely impacted Indonesia's Indigenous Peoples, too. Losing access to forest

400 Interview with Edwick Madzimure on 30 May 2024.

401 "Everything you need to know about the tar sands and how they impact you," Greenpeace Canada, 17 May 2021, <https://www.greenpeace.org/canada/en/story/3138/everything-you-need-to-know-about-the-tar-sands-and-how-they-impact-you>.

402 Aldo Orellana López, "Chevron vs Ecuador: international arbitration and corporate impunity," openDemocracy, 27 March 2019, <https://www.opendemocracy.net/en/democraciaabierta/chevron-vs-ecuador-international-arbitration-and-corporate-impunity/>.

403 Interview with Telma Taurepang on 30 May 2024.

404 "Indigenous Russians Unite Against Oil and Gas Development," Cultural Survival, 7 April 2005, <https://www.culturalsurvival.org/news/indigenous-russians-unite-against-oil-and-gas-development>.

405 "Indigenous Peoples in Sakhalin, Russia, campaign against oil extraction, 2005-2007," Global Nonviolent Action Database, <https://nvdatabase.swarthmore.edu/content/indigenous-peoples-sakhalin-russia-campaign-against-oil-extraction-2005-2007>.

and land has erased Indigenous People's core identities, and the rituals they previously carried out in many cases do not exist anymore.⁴⁰⁶

It is important to note that fossil fuel extraction and production harms not only Indigenous Peoples but also other marginalised communities in the Global North. In the US and Canada, poor Black communities, as well as other communities of colour are more likely to be located near power plants and refineries, with residents forced to breathe toxic air. African-Americans who are 65 years and older are three times more likely to die of airborne pollution than the general US population.⁴⁰⁷ The predominantly Black and low-income area of Louisiana known as "Cancer Alley," located near 150 chemical plants and oil refineries, exhibits cancer rates that are nearly 50 times higher than the national average.⁴⁰⁸

Distribution and transportation

Crude oil and gas are often transported via pipelines. Around the world, they cover a combined length of 1.18 million kilometres—approximately enough to circle the Earth thirty times.⁴⁰⁹ This infrastructure can cause immense damage to surrounding land through the construction of the infrastructure itself, as well as due to leaks and ruptures.

In the Niger Delta, one study found that the construction of two pipelines led to the loss of 495 hectares of forest, killing almost 10 million trees. As a result, the area where the pipelines were constructed saw significant losses of biodiversity "due to habitat displacement, forest fragmentation and deforestation, and escalated exploitation of species."⁴¹⁰ In the US, the Pipeline and Hazardous Materials Safety Administration (PHMSA) has reported more than 3,300 incidents of oil and gas pipeline leaks and ruptures between 2010 and 2015.⁴¹¹ In 2010, a massive tar sands spill into the Kalamazoo River in Michigan, US, the result of a ruptured pipeline, meant that up to a million gallons of tar sands crude oil was released into the creek. The oil reached nearly 40 miles downriver, coating animals and fouling 4,435 acres of land near the river's banks. The clean-up efforts cost the Canadian pipeline company responsible for the rupture 1.2 billion USD, and the river was closed for nearly two years.⁴¹²

The East African Crude Oil Pipeline (EACOP) currently under construction is set to transport oil from a biodiverse national park in Uganda to a port in Tanzania. In addition to resulting in emissions, estimated to be up to 25 times the combined annual emissions of Uganda and Tanzania,⁴¹³ the pipeline will also displace 14,000 families and cause irreversible environmental damage.⁴¹⁴ The pipeline will disturb nearly 2,000 square kilometres

406 Juliana Nnoko, "Interview: Deforestation Threatens Indonesia's Indigenous Peoples," Human Rights Watch, 22 September 2019, <https://www.hrw.org/news/2019/09/22/interview-deforestation-threatens-indonesias-indigenous-peoples>.

407 "Analysis of PM2.5-Related Health Burdens Under Current and Alternative NAAQS," Industrial Economics Incorporated, 21 March 2023, <https://globalcleanair.org/wp-content/blogs.dir/95/files/2023/03/Updated-IEc-PM-NAAQS-Analysis-March-2023.pdf>.

408 Freddie Daley and Charlie Lawrie, "Fuelling Failure: How coal, oil and gas sabotage all seventeen Sustainable Development Goals," Fossil Fuel Non-Proliferation Treaty, June 2022, <https://fossilfuel treaty.org/fuelling-failure>.

409 <https://www.aljazeera.com/news/2021/12/16/mapping-world-oil-gas-pipelines-interactive>.

410 Ikechukwu O. Agbagwa and Benjamin C. Ndukwu, "Oil and Gas Pipeline Construction-Induced Forest Fragmentation and Biodiversity Loss in the Niger Delta, Nigeria," *Natural Resources* 5(12), September 2014.

411 Justin Worland, "What to Know About the Dakota Access Pipeline Protests," *Time*, 28 October 2016, <https://time.com/4548566/dakota-access-pipeline-standing-rock-sioux/>.

412 David Hasemyer, "Enbridge's Kalamazoo Spill Saga Ends in \$177 Million Settlement," *Inside Climate News*, 20 July 2016, <https://insideclimatenews.org/news/20072016/enbridge-saga-end-department-justice-fine-epa-kalamazoo-river-michigan-dilbit-spill>.

413 Damian Carrington, "'Monstrous' east African oil project will emit vast amounts of carbon, data shows," *The Guardian*, 27 October 2022, <https://www.theguardian.com/environment/2022/oct/27/east-african-crude-oil-pipeline-carbon>.

414 John Okot, "Enemigos del Estado": la represión silenciosa contra los activistas climáticos en Uganda," *El País*, 24 March 2023, <https://elpais.com/planeta-futuro/2023-03-24/enemigos-del-estado-la-represion-silenciosa-contra-los-activistas-climaticos-en-uganda.html>.

of protected wildlife habitats, including Murchison Falls National Park, the Taala Forest Reserve, the Bugoma Forest, and the Biharamulo Game Reserve, all of which are critical to the preservation of vulnerable species such as the Eastern Chimpanzee and African Elephant.⁴¹⁵ In terms of community impacts, the StopEACOP campaign documents that:

Land acquisition and resettlement processes for EACOP and the associated oil fields have already begun, and communities report a lack of transparency and delays in compensation, which have impacted livelihoods, exacerbated food insecurity and disrupted school attendance. Local landowners that resist this process have faced intimidation and manipulation, forcing them to give up their land for derisory cash compensation.⁴¹⁶

Impacts on Indigenous communities

The ecological impacts of oil and gas pipelines are disproportionate for Indigenous communities. In the northern Amazonian territory in Peru, between 1997 and 2021, more than 566 oil spills have been registered in Indigenous ancestral territories. Two-thirds of these are due to corrosion of pipelines and operational failures.⁴¹⁷ These spills have decimated both the marine fauna and the livelihoods of tens of thousands of small fishermen, reducing fish

stocks and contaminating the ecosystem.⁴¹⁸ In 2022, the Oleoducto de Crudos Pesados (OCP) pipeline ruptured in Ecuador's rainforest, spilling 6,000 barrels of crude oil, destroying habitats, polluting rivers and streams, and harming surrounding Indigenous communities.⁴¹⁹

In Canada, the Trans Mountain pipeline is constructed on the sacred lands of First Nations communities. In particular, the pipeline is set to run through a sacred area near Jacko Lake, British Columbia.⁴²⁰ The Stk'emlupsemc te Secwepemc Nation (SSN) emphasise in this context that, "Since time immemorial (10,000 years+), cultural, spiritual and historical connection to the place that our Secwépemc Elders and Ancestors—and present and future generations—have with Pípsell identifies this place as a 'cultural keystone place'."⁴²¹ The area also contains medicinal plants and numerous ceremonial and prayer sites.⁴²²

One of the most prominent examples of oil pipeline infrastructure threatening Indigenous communities is the Dakota Access Pipeline. The pipeline would carry almost 19 million gallons of toxic fracked oil per day from North Dakota to Illinois in the US, cutting through traditional Indigenous lands, fragile wildlife habitats, sacred sites and the Missouri River, the primary drinking water source for the Standing Rock Sioux Tribe.⁴²³ Energy Transfer, the fossil fuel company behind

415 See <https://www.stopeacop.net/for-nature>.

416 Ibid.

417 Jaime Tranca, "Oil spills stain the Amazon in Peru. Why has it been so slow to act?," *Dialogue Earth*, 10 May 2022, <https://dialogue.earth/en/pollution/53777-peru-oil-spills-stain-amazon-why-slow-to-act>.

418 Freddie Daley and Charlie Lawrie, "Fuelling Failure: How coal, oil and gas sabotage all seventeen Sustainable Development Goals," *Fossil Fuel Non-Proliferation Treaty*, June 2022, <https://fossilfuel treaty.org/fuelling-failure>.

419 "Ecuador: Pipeline rupture causes oil spill in Rainforest," *Rainforest Rescue*, 1 February 2022, <https://www.rainforest-rescue.org/updates/10596/ecuador-pipeline-rupture-causes-oil-spill-in-rainforest>.

420 Kamyar Razavi, "Indigenous rights collide with \$35B Western Canada pipeline expansion," *Global News*, 22 November 2023, <https://globalnews.ca/news/10103531/indigenous-rights-collide-with-35b-western-canada-pipeline-expansion>.

421 "Honouring Our Sacred Connection to Pípsell: Stk'emlupsemc te Secwépemc Says Yes to Healthy People and Environment," Stk'emlupsemc te Secwépemc Nation, https://stkemlups.ca/wp-content/uploads/2013/11/2017-03-ssnajaxdecisionsummary_0.pdf.

422 Dr. Mchele Bustamante, Amy Mall, Dr. Matthew McKinzie, and Dr. Jennifer Sass, "Biden Administration Must Redo Its Assessment of Dakota Access Pipeline," NRDC, 24 October 2023, <https://www.nrdc.org/bio/michele-bustamante/biden-administration-must-redo-its-assessment-dakota-access-pipeline>.

423 Justin Worland, "What to Know About the Dakota Access Pipeline Protests," *Time*, 28 October 2016, <https://time.com/4548566/dakota-access-pipeline-standing-rock-sioux>.

the project, has been extensively documented to disregard the environment and communities in the past, with countless spills in other areas and nearly 50 charges of environmental crimes.⁴²⁴

Combustion

The burning of fossil fuels releases carbon dioxide, which is the main source of greenhouse gas emissions that have caused the climate crisis. The burning of fossil fuels also generates localised air pollutants such as soot (fine particulate matter) and smog. The chemical influence of air pollution on aeolian dust contributes to the aerosol cooling. Aerosols can influence the hydrological cycle with impacts on the availability and quality of rainfall and fresh water sources.⁴²⁵

Air pollution

The World Health Organisation estimates that ambient exposure to fine particulate matter leads to around 4 million deaths worldwide every year, mainly from heart disease, stroke, chronic obstructive pulmonary disease, lung cancer, and acute respiratory infection.⁴²⁶ This exposure can also increase risks of dementia.⁴²⁷ Fossil-fuel-related emissions account for about 65 per cent of the excess mortality rate attributable to air

pollution, and a rapid phaseout of fossil-fuel-related emissions could therefore save millions of lives.⁴²⁸

Air pollution from fossil fuel production and consumption disproportionately affects communities of colour and low-income communities in the Global North and the Global South. One study revealed that out of all the 8.7 million global deaths caused by air pollution between 2012 and 2013, 62 per cent of deaths were in China and India.⁴²⁹ Research uncovered that Asian, Latinx, and Black people in the US are disproportionately exposed to air pollution, regardless of household income.⁴³⁰ Similarly, analysis by Friends of the Earth UK demonstrated that people of colour have been found to live three times more likely in neighbourhoods with very high air pollution, and air pollution severely impacts lower-income areas in the UK.⁴³¹

Taken as a whole, no group is more vulnerable to environmental harm than children, who make up 30 per cent of the world's population. Air pollution causes approximately 600,000 deaths of children globally per year.⁴³² In 71 per cent of towns and cities in the UK, for instance, children are breathing unsafe levels of air pollution.⁴³³

424 Dr. Michele Bustamante, Amy Mall, Dr. Matthew McKinzie, and Dr. Jennifer Sass, "Biden Administration Must Redo Its Assessment of Dakota Access Pipeline," NRDC, 24 October 2023, <https://www.nrdc.org/bio/michele-bustamante/biden-administration-must-redo-its-assessment-dakota-access-pipeline>.

425 V Ramanathan, P J Crutzen, J T Khiel, and D Rosenfeld, "Aerosols, climate, and the hydrological cycle," *Science*, December 2001.

426 "Exposure & health impacts of air pollution," World Health Organisation, <https://www.who.int/teams/environment-climate-change-and-health/air-quality-energy-and-health/health-impacts/exposure-air-pollution>.

427 "Exposure & health impacts of air pollution," World Health Organisation, <https://www.who.int/teams/environment-climate-change-and-health/air-quality-energy-and-health/health-impacts/exposure-air-pollution>.

428 "Air pollution and the risk of dementia," Alzheimer's Society, <https://www.alzheimers.org.uk/about-dementia/managing-the-risk-of-dementia/reduce-your-risk-of-dementia/air-pollution>.

429 Karn Vohra et al., "Global mortality from outdoor fine particle pollution generated by fossil fuel combustion: Results from GEOS-Chem," *Environmental Research* 195, April 2021, <https://www.sciencedirect.com/science/article/pii/S0013935121000487>.

430 Robin Lloyd, "People of Color Breathe More Unhealthy Air from Nearly All Polluting Sources," *Scientific American*, 28 April 2021, <https://www.scientificamerican.com/article/people-of-color-breathe-more-unhealthy-air-from-nearly-all-polluting-sources>.

431 "People of colour likelier living in high air pollution areas," Friends of the Earth UK, 4 October 2022, <https://friendsoftheearth.uk/system-change/people-colour-likelier-living-high-air-pollution-areas>.

432 "Clear the air for children: The impact of air pollution on children," UNICEF, October, 2016, https://www.unicef.org/sites/default/files/2019-02/Clear_the_Air_for_Children_Executive_summary_ENG.pdf.

433 "A breath of toxic air: UK children in danger," UNICEF, June 2018, <https://www.unicef.org.uk/publications/child-health-breath-of-toxic-air/>.

Climate crisis

Impacts of the climate crisis on the planet have been elaborated on earlier in this report. It would exceed the scope of this paper to summarise all the impacts of the climate crisis on humans, but there is unequivocal evidence of the far-reaching and already devastating impacts on communities across the globe. The impacts of the climate crisis already hinder human rights to health, food, water, housing, work, and life itself, and threaten the achievement of every single Sustainable Development Goal (SDG).⁴³⁴ The Intergovernmental Panel on Climate Change (IPCC) states that climate-related risks to health, livelihoods, food security, water supply, and human security are projected to increase with global warming of 1.5°C/ 34.7°F and increase further with 2°C/ 35.6°F.⁴³⁵

Azra Talat Sayeed spoke to some of these impacts in an interview for this project:

We had huge floods in 2022. We lost ready-to-harvest crops, much land was flooded and could not be used even for the next season, we lost livestock, and people have been permanently displaced. We have the highest number of glaciers in the world apart from the two polar regions. Global warming is impacting us. In Karachi, yesterday, it was more than 43 degrees. Can you imagine how difficult it is to live? And I live in concrete housing, I can still bear it. What about the people,

the millions who are out on the street, millions of Pakistanis? The temperature today in many parts of Sindh was 51 degrees. We understand what fossil fuel carbon emissions are all about. People in the Global North do not understand these levels of heat.⁴³⁶

The global perpetuation of discrimination, inequality, patriarchal structures, and systemic barriers contribute to an overall higher risk of women and LGBTQ+ people experiencing harmful impacts of the climate crisis, and women are affected twice as much as men by drought, land degradation, and deforestation.⁴³⁷ Women constitute most of the world's poor and are often directly dependent on threatened natural resources as their primary source of food or income. The effects of this are made worse by women's unequal and limited opportunities to acquire access to or own land.⁴³⁸ Telma Taurepang described the gendered impacts of the climate crisis in an interview for this project: "It's a very difficult situation for us, especially for women, because climate change affects our health. It affects our health because it affects our hormones. And it directly affects us Indigenous women also in terms of our food, our harvest. From picking the fruit for food to making our own handicrafts."⁴³⁹

Because of environmental degradation and weather-related disasters, women and girls disproportionately face separation from support networks, homelessness, and an increased

434 Freddie Daley and Charlie Lawrie, "Fuelling Failure: How coal, oil and gas sabotage all seventeen Sustainable Development Goals," Fossil Fuel Non-Proliferation Treaty, June 2022, <https://fossilfuel treaty.org/fuelling-failure>.

435 Hoesung Lee et al., "Climate Change 2023 Synthesis Report: Summary for Policymakers," Intergovernmental Panel on Climate Change, 2023, https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf.

436 Interview with Azra Tala Sayeed on 30 May 2024.

437 "Analytical study on gender-responsive climate action for the full and effective enjoyment of the rights of women," Report of the Office of the UN Nations High Commissioner for Human Rights, 1 May 2019, <https://www.ohchr.org/en/documents/reports/analytical-study-gender-responsive-climate-action-full-and-effective-enjoyment>.

"Panel discussion on the adverse impact of climate change on the full and effective enjoyment of human rights by people in vulnerable situations," Office of the High Commissioner for Human Rights, 27 December 2022, <https://www.ohchr.org/en/documents/reports/ahrc5248-panel-discussion-adverse-impact-climate-change-full-and-effective>.

438 Ibid.

439 Interview with Telma Taurepang on 30 May 2024.

risk of violence, including sexual and gender-based violence.⁴⁴⁰ The United Nations Population Fund found, for instance, that sex trafficking spiked after cyclones and typhoons in the Asia-Pacific region, and intimate partner violence rose during droughts in East Africa, tropical storms in Latin America, and similar extreme weather events in the Arab States region.⁴⁴¹ In an interview for this report, Mitzi Jonelle Tan, a climate justice activist from the Philippines, described gendered impacts of extreme weather events with the example of the 2013 Typhoon Haiyan. The typhoon killed more than 6,000 people and displaced millions in the Philippines. “Because of the economic disruption, young girls and women were forced into prostitution and suffered from an increase in sexual harassment, mostly by the military that were supposed to be there for emergency response and aid,” said Tan. They also noted, “During times of El Niño, when it is incredibly hot in rural areas—which is getting worse because of the climate crisis—military personnel will say that if women have sex with them, they will give them uncooked rice so that they can feed their families.”⁴⁴²

LGBTQ+ people are also uniquely vulnerable after extreme weather events due to stigmatisation and discrimination, and might be excluded from recovery, relief, and response efforts, and lack access to emergency shelters that meet their

needs and provide for their safety.⁴⁴³ For example, in India in 2004, when the Indian Ocean tsunami took place, the Aravanis, a group of people who do not identify as either male or female, were excluded from temporary shelters and official death records. This precluded them from accessing many of the relief and reconstruction provisions, giving them less opportunity to recover after the crisis.⁴⁴⁴ Mitzi Jonelle Tan reaffirmed the exclusion of gender minorities in response efforts in the Philippines in an interview for this project, noting, “During times of climate impacts, related policies and the safeguarding to address climate crisis impacts doesn’t include a gender perspective. This means that a lot of our women and gender minorities are completely [cut] out of the conversation.”⁴⁴⁵

Climate impacts can also differ by age. While older people are a highly diverse group, adults aged 65 and over are more likely to die from extreme weather events such as heat waves or floods. In Finland, for example, deaths for people over the age of 65 increased by 14 per cent because of heatwaves, and 70 per cent of those who died from the floods in La Plata, Argentina in 2013 were over the age of 60.⁴⁴⁶

Most persons with disabilities live in poverty, and often have less adaptive capacity such as the ability to move to areas that are less exposed

440 Panel discussion on the adverse impact of climate change on the full and effective enjoyment of human rights by people in vulnerable situations,” Office of the High Commissioner for Human Rights, 27 December 2022, <https://www.ohchr.org/en/documents/reports/ahrc5248-panel-discussion-adverse-impact-climate-change-full-and-effective>.

441 “Climate change disproportionately affects women and young girls – and here’s why,” UNFPA Peru, 23 February 2023, <https://peru.unfpa.org/en/news/climate-change-disproportionately-affects-women-and-young-girls---and-heres-why-0>.

442 Interview with Mitzi Jonelle Tan on 5 June 2024.

443 “Analytical study on gender-responsive climate action for the full and effective enjoyment of the rights of women,” Report of the Office of the UN Nations High Commissioner for Human Rights, 1 May 2019, <https://www.ohchr.org/en/documents/reports/analytical-study-gender-responsive-climate-action-full-and-effective-enjoyment>.

444 “The climate crisis is an LGBTQIA+ issue,” The Climate Reality Project, 23 June 2021, <https://www.climaterealityproject.org/blog/climate-crisis-lgbtqia-issue>.

445 Interview with Mitzi Jonelle Tan on 5 June 2024.

446 “Analytical study on the promotion and protection of the rights of older persons in the context of climate change,” Report of the Office of the UN Nations High Commissioner for Human Rights, 20 April 2021, <https://www.ohchr.org/en/documents/reports/ahrc4746-analytical-study-promotion-and-protection-rights-older-persons-context>.

to the impacts of the climate crisis.⁴⁴⁷ In Kiribati, Solomon Islands, and Tuvalu, for example, a report found that people with disabilities face barriers to relocating after cyclones, floods, king tides, and severe storms, as they lack access to reliable transportation and appropriate housing and become disconnected from personal or social support networks.⁴⁴⁸

For many Indigenous Peoples, the climate crisis puts food security, traditional livelihoods, cultural practices, and their right to self-determination in danger.⁴⁴⁹ Indigenous Peoples and traditional communities that rely on forests, fisheries, and

natural ecosystems for their material subsistence and cultural life suffer disproportionately from loss of biodiversity.⁴⁵⁰ It is important to note that these vulnerabilities are influenced by historical and ongoing patterns of inequity such as colonialism.⁴⁵¹

In the context of the vast ecological and social impacts of the entire fossil fuel supply chain, the fossil fuel industry carries extraordinary responsibility for these harms caused. They are part and parcel of broader extractive industries that count on and perpetuate “sacrifice zones” to maintain their astonishing profiteering.

Ecological and human rights impacts of the renewable energy industry

Against the above backdrop of far-reaching, fossil-fuel-generated harm, a swift and just transition away from fossil fuels is undeniably urgent and indispensable. Unfortunately, there is already ample evidence of ecological destruction, grave human rights violations, and violence associated with the extractive industries active in the mining of critical minerals required for renewable energy technologies, as well as with those companies deploying renewable energy installations.

Natural resource extraction sectors, which include extractive activities like mining, are responsible for 90 per cent of global biodiversity loss and water stress, as well as approximately half of global greenhouse gas emissions.⁴⁵² It has been estimated that the mining sector generates around 100 billion tons of waste per year, with significant environmental impacts.⁴⁵³ Particularly worrisome is the fact that most critical minerals are in fragile and critical ecosystems. One study reviewing 3,000

447 “Analytical study on the promotion and protection of the rights of persons with disabilities in the context of climate change,” Report of the Office of the UN Nations High Commissioner for Human Rights, 22 April 2020, <https://documents.un.org/doc/undoc/gen/g20/097/56/pdf/g2009756.pdf?token=BtD0nOCGxYuXsK2icJ&fe=true>.

448 “Disability and climate change in the Pacific: findings from Kiribati, Solomon Islands, and Tuvalu,” Pacific Disability Forum, Australian Aid, Australia Pacific Climate Partnership, August 2022, <https://pacificdisability.org/wp-content/uploads/2022/08/PDF-Final-Report-on-Climate-Change-and-Persons-with-Disabilities.pdf>.

449 “Panel discussion on the adverse impact of climate change on the full and effective enjoyment of human rights by people in vulnerable situations,” Office of the High Commissioner for Human Rights, 27 December 2022, <https://www.ohchr.org/en/documents/reports/ahrc5248-panel-discussion-adverse-impact-climate-change-full-and-effective>.

450 Ibid.

451 Hans-O. Poertner et al., “Summary for Policymakers,” Intergovernmental Panel on Climate Change, https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf.

452 Edgar Hertwich, Reid Lifset, Stefan Pauliuk, and Niko Heeren, “Resource Efficiency and Climate Change: Material Efficiency Strategies for a Low-Carbon Future,” UN Environment Programme and International Resource Panel, 2020, <https://wedocs.unep.org/bitstream/handle/20.500.11822/34351/RECCR.pdf?sequence=1&isAllowed=y>.

453 Maedeh Tayebi-Khorami, Mansour Edraki, Glen Corder, and Artem Golev, “Re-Thinking Mining Waste through an Integrative Approach Led by Circular Economy Aspirations,” *Minerals* 9(5), 2019, <https://www.mdpi.com/2075-163X/9/5/286>.

mines of metal ores, including copper, nickel, silver, and zinc, amongst others, found that “79 per cent of global metal ore extraction in 2019 originated from five of the six most species-rich biomes, with mining volumes doubling since 2000 in tropical moist forest ecosystems.” It further revealed that “half of global metal ore extraction took place at 20 km or less from protected territories” and 90 per cent of all considered extraction sites “correspond to below-average relative water availability, with particularly copper and gold mining occurring in areas with significant water scarcity.”⁴⁵⁴

The ecological impacts of extractive activities related to the renewable energy sector cannot be ignored, especially when considering the intricate interdependency of all the nine planetary processes described earlier in this chapter. If critical ecosystems are decimated for the sake of renewable energy mining, planetary overshoots will worsen in ways that may be hard to predict and will further compound the safety and livelihoods of already marginalised communities. These risks point to the need for a radical shift in production and consumption, so to reduce overall pressure on planetary boundaries.

From the Atacama Salt Flat in Chile, which is home to most of the world’s lithium, to the industrial mines of cobalt and copper in the Democratic Republic of the Congo, to Indonesia as the main producer of nickel, extractive industries have already left a trail of harm. With extraction and renewable energy production set to skyrocket in the next couple of years and decades to come, ecosystems and marginalised communities across

the globe are at high risk of suffering from the same colonial extraction patterns perpetuated by the fossil fuel industry. This will exacerbate many of the ecological crises and disproportionate impacts on Indigenous Peoples described above. In an interview for this project, Talei Luscía Mangioni warned about these risks: “When discussing the ‘just transition’, I think there needs to be conversations around greenwashing as a new layer of extractive industries, and how Indigenous Peoples are treated like sacrifice zones for the rest of the world.”⁴⁵⁵

The following section offers a cursory overview of a few concrete examples of the compounding impacts of the extractive industries active in the renewable energy sector.

Lithium

Lithium batteries are essential for storing energy and are a critical component for powering electric vehicles. 500,000 gallons of water are required to produce a single ton of lithium. Chemical leaks from lithium mines have poisoned rivers from Chile to Argentina, Nevada to Tibet, killing freshwater systems.⁴⁵⁶

A significant portion of the world’s lithium is located beneath the Atacama Salt Flat in Chile, which currently provides nearly a quarter of the global supply.⁴⁵⁷ The mining installations, covering more than 30 square miles, pump brine to the surface which is then collected in evaporation ponds. The mining of lithium requires large quantities of water. This has decimated biodiversity,

454 Sebastian Luckender et al., “Surge in global metal mining threatens vulnerable ecosystems,” *Global Environmental Change* 69, July 2021, <https://www.sciencedirect.com/science/article/pii/S0959378021000820?via%3DIihub>.

455 Interview with Talei Luscía Mangioni on 17 May 2024.

456 Amit Katwala, “The spiralling environmental cost of our lithium battery addiction,” *Wired*, 5 August 2018, <https://www.wired.com/story/lithium-batteries-environment-impact/>.

457 Thea Riofrancos, “The rush to ‘go electric’ comes with a hidden cost: destructive lithium mining,” *The Guardian*, 14 June 2021, <https://www.theguardian.com/commentisfree/2021/jun/14/electric-cost-lithium-mining-decarbonisation-salt-flats-chile>.

including the Andean flamingos, and meadows and lagoons have shrunk.⁴⁵⁸ As well, there is less freshwater available for the Indigenous Atacameño communities living around the Salt Flat. These communities have pursued legal action against SQM, one of the two companies responsible for all of Chile's lithium production, and have stressed SQM's disregard of their right to free, prior and informed consent.⁴⁵⁹

In an interview for this project, Edwick Madzimure described the impacts of lithium extraction in Zimbabwe, illuminating how Chinese companies exacerbate conflict and militarisation within communities:

In our context, due to the transition away from fossil fuels to clean energy, we have seen an increase of militarism within the local communities. Local communities are now being displaced to pave way for the Chinese investors who are coming in to extract lithium, who are taking raw lithium back to China. Our local communities are not benefiting from the extraction of lithium, and this contributes to poverty, and exacerbates localised militarisation because the displaced villagers are now coming into other populated villages where they are fighting over the few available resources from those villages. Local soldiers and police are being used to displace local villagers.⁴⁶⁰

She concluded that “the transition from fossil fuels to clean energy is actually disadvantageous to local communities because they are not benefiting from the transition.” Indeed, between January 2021 and December 2022 alone, the Business & Human Rights Resource Centre recorded seven violations of human rights and environmental laws by Chinese mining companies in Zimbabwe.⁴⁶¹

Similarly, with demand for lithium set to skyrocket, Azra Talat Sayeed warned against the ecological impacts of further lithium exploration in the oceans in an interview for this project: “In the Asia-Pacific region, the Japanese and the Americans are exploring lithium in the deep Pacific Ocean. They're going ten thousand meters down. What kind of biodiversity is going to be lost?”⁴⁶²

Cobalt and copper

Around 70 per cent of global cobalt as well as 20 per cent of cobalt production is concentrated in the Democratic Republic of Congo (DRC).⁴⁶³ The extraction process involves both industrial and artisanal mining operations. Multinational corporations' large-scale industrial mining operations typically involve heavy machinery and modern mining techniques. Artisanal mining is characterised by small-scale operations, often involving manual labour and basic tools. This form of mining is widespread in the DRC, with many individuals, including children, participating in the process.

458 “Mining lithium for electric cars is hurting this desert's local environment,” *The Washington Post*, 12 June 2019, https://www.washingtonpost.com/lifestyle/kidspost/mining-lithium-for-electric-cars-is-hurting-this-deserts-local-environment/2019/06/12/aa5a5f64-83b9-11e9-95a9-e2c830afe24f_story.html.

459 Benjamin Hitchcock Auciello, “Recharge Responsibly: The Environmental and Social Footprint of Mining, Cobalt, Lithium, and Nickel for Electric Vehicle Batteries,” *Earthworks*, March 2021, <https://earthworks.org/wp-content/uploads/2021/09/Recharge-Responsibly-Final.pdf>.

460 Interview with Edwick Madzimure on 30 May 2024.

461 “Chinese Mines in DRC, Zimbabwe Accused of Violating Human Rights,” *Africa Defense Forum*, 8 August 2023, <https://adf-magazine.com/2023/08/chinese-mines-in-drc-zimbabwe-accused-of-violating-human-rights>.

462 Interview with Azra Tala Sayeed on 30 May 2024.

463 Benjamin Hitchcock Auciello, “Recharge Responsibly: The Environmental and Social Footprint of Mining, Cobalt, Lithium, and Nickel for Electric Vehicle Batteries,” *Earthworks*, March 2021, <https://earthworks.org/wp-content/uploads/2021/09/Recharge-Responsibly-Final.pdf>.



Photo by Uliana, Adobe Stock.

The mining activities contribute to environmental degradation, including deforestation, soil erosion, and pollution of water sources. Decades of these impacts are responsible for widespread respiratory illnesses and toxic concentrations of metal in the blood for the many communities living near mine sites.⁴⁶⁴

One of the most egregious human rights abuses associated with cobalt and copper mining in the DRC is the extensive use of child labour. Children as young as seven are reported to be working in hazardous conditions in mines, exposed to health risks and denied access to education. They often lack appropriate safety gear and are exposed to hazards such as collapsing tunnels, toxic dust, and accidents involving heavy machinery.⁴⁶⁵

Amnesty International further documented the scale and impact of forced evictions at industrial cobalt and copper mines, including grievous human rights abuses such as sexual assault, arson, and beatings.⁴⁶⁶ Mining activities in the DRC have unique gendered vulnerabilities—in terms of work, status, social norms, and sexual abuse and prostitution, which fall disproportionately on women and girls.⁴⁶⁷

There is a lack of accountability among companies sourcing cobalt and copper from the DRC. Many multinational corporations in the supply chain fail to conduct adequate due diligence to ensure that their products are not tainted by human rights abuses.

⁴⁶⁴ Ibid.

⁴⁶⁵ "'This is what we die for': Human rights abuses in the Democratic Republic of the Congo power the global trade in cobalt," Amnesty International, 2016, <https://www.amnesty.org/en/wp-content/uploads/2021/05/AFR6231832016ENGLISH.pdf>.

⁴⁶⁶ "Powering change or business as usual? Forced evictions at industrial cobalt and copper mines in the Democratic Republic of the Congo," Amnesty International, 12 September 2023, <https://www.amnesty.org/en/latest/news/2023/09/drc-cobalt-and-copper-mining-for-batteries-leading-to-human-rights-abuses/>.

⁴⁶⁷ Benjamin K. Sovacool, "When subterranean slavery supports sustainability transitions? Power, patriarchy, and child labor in artisanal Congolese cobalt mining," *The Extractive Industries and Society* 8(1), March 2021, <https://www.sciencedirect.com/science/article/pii/S2214790X20303154>.

Nickel

Indonesia is the main producer for nickel, contributing almost 50 per cent of global production. In Wawonii Island, Indigenous Peoples protested nickel companies' land grabbing and environmental devastation, including freshwater pollution and marine pollution, and the destruction of traditional farming systems.⁴⁶⁸ In Halmahera Island, Indigenous People were uprooted from their traditional farming land to pave the way for nickel operations, and traditional fishermen were forced to fish further away after the area of operation became severely polluted due to the presence of the heavy metal hexavalent chromium.⁴⁶⁹

Renewable energy installations

Renewable energy installations such as solar or wind farms also have been linked to many documented social and ecological harms. While companies building renewable energy projects do not strictly fall under the notion of “extractive industries,” their approach in some contexts is indeed extractive, further compounding the complex risks of the transition away from fossil fuels.

A report by the Transnational Institute, for example, revealed that in Morocco, the Nour solar complex in Ouarzazate—presented as a beacon of clean energy—is built on expropriated communal land, with little consideration for local populations that face water scarcity exacerbated by the project's water-intensive requirements. In Tunisia, renewable energy initiatives are steered by

international investors, side-lining local ownership and community-driven projects in favour of profit-driven ventures by transnational corporations like Engie SA and ABO Wind.⁴⁷⁰

In The Philippines, Mitzi Jonelle Tan also highlighted the pattern of a small elite reaping the benefits while the negative impacts of solar farms are borne by small-scale farmers: “People who own the land, the people who own the corporations, they are either family members or friends of the people in government. The son of a woman who is a Senator owns large scale solar farms. In that process, they displaced small farmers, taking their land.”⁴⁷¹

In Mexico, the state of Oaxaca is home to 28 wind farms. In 2019, the largest of them opened with 132 new turbines.⁴⁷² The wind farm mega projects did not consult Indigenous communities, and the renewable energy installations are now threatening their livelihoods, polluting agricultural land, and driving wildlife away. Indigenous communities have organised to stop the construction of these projects, and have reported harassment, threats of violence, and persecution by private corporations and police.⁴⁷³

Wind turbines in Norway have caused disruption to the reindeer grazing grounds of the Indigenous Sámi population. Among the largest onshore windfarms in Europe, they are made up of 151 wind turbines that stretch 285 feet high. Maja Kristine Jåma, a reindeer herder and Sámi politician, said, “These constructions threaten

468 Bernadinus Steni, “Critical Minerals: The Need for Market Standards,” Heinrich Boell Stiftung Southeast Asia, 14 December, 2023, <https://th.boell.org/en/2023/12/14/critical-minerals>.

469 Benjamin Schütze, Elia El Khazen, Charlotte Mueller, and Philipp Wagner, “Facilitating energy flows, containing humans: Authoritarian energy transitions in the Middle East and North Africa (MENA) region,” Transnational Institute, 8 February 2024, <https://th.boell.org/en/2023/12/14/critical-minerals>.

470 *Ibid.*

471 Interview with Mitzi Jonelle Tan on 5 June 2024.

472 Simon Schatzberg, “New 132-turbine Oaxaca wind farm is largest in Latin America,” *Mexico News Daily*, 29 May 2019, <https://mexiconewsdaily.com/news/wind-farm-is-largest-in-latin-america>.

473 Louisa Valentin and Lavinia Steinfort, “In Mexico, public power and popular sovereignty must defend Indigenous peoples' rights,” Transnational Institute, 12 October 2023, <https://www.tni.org/en/article/in-mexico-public-power-and-popular-sovereignty-must-defend-indigenous-peoples-rights>.

our way of living and our way of engaging in our culture as reindeer herders.”⁴⁷⁴

In an interview for this report, Kalani Reyes illuminated the ecological impacts of renewable energy installations in the Mariana Islands in the Western Pacific Ocean:

The military buildup in Guam required that Guam Power Authority update their power grid to accommodate the military’s additional needs for electricity. Because of the push towards clean energy, Guam put up a bid and a Korean company Samsung subcontracted a company called KEPCO (Korea Electric Power Corporation), which won the bid to install a solar farm in an undisturbed section of Eastern Guam. KEPCO performed little to no environmental compliance and bulldozed some of the last remaining karst limestone native forest on that side of Guam, installed a solar farm on top of the dirt they left exposed, and did not perform any runoff mitigation. Unfortunately, they cleared the forest right before rainy season, so a large rain followed, and without any plant roots to hold the soil or water runoff mitigation in place, the rain washed down entire sections of dirt and mud into a pristine freshwater cave and spring below, which had formerly been a place for recreation and of cultural historical significance called Marbo Cave. This lack of compliance resulted in Guam permanently losing another historical cultural site due to negligence,

and permanent contamination of Marbo Cave. In 2022, the companies and the Government of Guam reached a settlement,⁴⁷⁵ but none of those funds can bring back what has been lost.⁴⁷⁶

As seen from these brief examples of renewable energy companies’ role in causing ecological and human harm, the “clean” energy industry could become as destructive as the fossil fuel industry in terms of extraction. A corporate-led renewable energy transition will simply create new frontiers of capital accumulation at the detriment of those most marginalised, while destroying ecosystems across the world.

The impact of both the fossil fuel and renewable energy industries reveal the long-standing tension between a growth-based driven economic model that sustains an unsustainable standard of living of societies in the Global North and a small rich elite across the globe on the one hand, while on the other hand, marginalised communities and ecosystems in the Global South and Global North are bearing the brunt. This exploitative system relies on invisibilising the massive damage it commits, to sustain the illusion of guilt-free energy production and consumption for a small global minority. It is therefore indispensable to continue to foreground the systemic harm caused by these industries, to hold them accountable for their impacts, and to abolish them in the long run.

474 Laura Paddison, “Greta Thunberg has joined a protest against wind farms. Here’s why,” *CNN*, 2 March 2023, <https://edition.cnn.com/2023/03/01/europe/greta-thunberg-wind-farm-norway-sami-climate-intl/index.html>.

475 Joe Taitano, “AG settles for \$950,000 over Marbo Cave incident,” *Pacific Daily News*, 6 May 2022, https://www.guampdn.com/news/ag-settles-for-950-000-over-marbo-cave-incident/article_59d5c192-cc44-11ec-9f6c-2f1456295344.html.

476 Interview with Kalani Reyes on 4 June 2024.

Degrowth

As outlined above, there are a plethora of challenges associated with the fossil fuel industry as well as the extractive industries more broadly, including those that focus on the mining of critical minerals for the renewable energy transition. Extractive industries are part and parcel of the growth imperative of the capitalist political economy. While there has been an extraordinary growth in renewable energy capacity, the energy generated is added on top of fossil fuel-generated energy. This is because gross domestic product (GDP) growth is driving total energy demand at a rapid pace.⁴⁷⁷ If the global economy continues to grow at currently projected rates, it will more than double in size by the middle of the century—which means twice as much extraction, production, and consumption, requiring nearly twice as much energy.⁴⁷⁸

It is projected that by 2050, there will be an up to 500 per cent increase in mineral mining of lithium, graphite, and cobalt, all of which are materials required to power “green” energy technologies.⁴⁷⁹ The requirements for neodymium, an element needed for wind turbines, is projected to increase by 35 per cent compared to current levels; demand for silver required for solar panels is estimated to increase between 38 per cent and up to 105 per cent; indium, essential for solar technologies, is estimated to at least triple or end up at an 920 per cent increase compared to current levels of demand and extraction.⁴⁸⁰ While one challenge will be that there will not be enough

of these critical minerals, the key problem is that the mining for critical minerals will “exacerbate an already existing crisis of overextraction,”⁴⁸¹ documented above.

Empirical evidence is mounting that the idea of “green growth,” i.e. the claim that GDP growth can be decoupled from resource use, is deeply flawed.⁴⁸² The profit- and growth-driven *modus operandi* is the leading driver of environmental degradation and the climate crisis. Against the above analysis of both the fossil fuel and renewable energy sectors, it is evident that the capitalist growth imperative, perpetuated by militarisation, is intrinsically colonial, requiring new frontiers from which to extract value, sustaining the dominance of the Global North over the Global South.

Mitzi Jonelle Tan summarised the problem of excessive energy consumption based on a capitalist system in an interview for this project:

The extraction comes from greed and prioritisation of profit. Even if there’s too much of something, they will keep making more so that they can keep selling, selling, selling. And then they also create artificial ideas of scarcity, they burn clothes, throw away food etc. Even if we are in a renewable energy system, if we’re consuming this much still, the minerals are going to run out. The end goal therefore

477 Jason Hickel, *Less is More: How Degrowth will Save the World* (London: Windmill Books, 2021).

478 Ibid.

479 Kirsten Hund et al., “Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition,” World Bank Group, 2020, <https://pubdocs.worldbank.org/en/961711588875536384/Minerals-for-Climate-Action-The-Mineral-Intensity-of-the-Clean-Energy-Transition.pdf>.

480 Hickel, *Less is More*, op cit.

481 Ibid., p. 142.

482 Timothee Parrique et al., “Decoupling Debunked: Evidence and arguments against green growth as a sole strategy for sustainability,” European Environmental Bureau, July 2019, <https://eeb.org/wp-content/uploads/2019/07/Decoupling-Debunked.pdf>.

has to be that we change the way we consume energy as a society altogether.⁴⁸³

This is what the degrowth movement argues. Those advocating for degrowth seek to provide tangible solutions to the complex ecological and social justice implications of the current economic system. Degrowth is centred around the evidence that it is possible to achieve high levels of human development without high levels of GDP. The degrowth movement focuses on reducing the world's consumption of energy and material goods in a way that is globally just, while accounting for inequalities created by colonialism and capitalism. Degrowth seeks to create an economy organised around human flourishing and ecological stability, rather than growth.

Recognising global inequalities, degrowth calls for a radical decrease of resource and energy use in the Global North as well as reform of International Financial Institutions and of global trade policies, including debt cancellation and shutting down tax evasion systems, amongst others. Those calling for degrowth acknowledge that most countries in the Global South will need to increase their resource use to meet human needs. Tan explained what this means in more detail in an interview for this project, noting, "Global South countries should not go into debt for the intellectual property around renewable energy, and we need to industrialise our own countries in a sustainable way, so that we can create our own renewable energy technology without having to go into debt once again to the Global North countries." Research by degrowth advocate Jason Hickel and colleagues has revealed that it is possible for Global South countries to achieve strong outcomes on every human

development indicator including life expectancy, wellbeing, sanitation, income, education, electricity, employment, and democracy, while remaining within planetary boundaries.⁴⁸⁴ Indeed, within all countries, the degrowth movement argues that some sectors will still need to grow to ensure human wellbeing, such as public healthcare or regenerative agriculture, while other sectors, such as fossil fuels, private jets, and the military-industrial complex, should radically shrink.

Proponents of the degrowth movement propose concrete ways of reducing energy consumption, including ending planned obsolescence, i.e. the development of products that are intended to break down after a certain time; the cutting of advertising to reduce consumption, as evidence suggests it encourages people to buy things they do not need; shifting from ownership to usership, such as car shares; or ending food waste.

As WILPF has argued elsewhere, feminist perspectives to degrowth are essential to preventing women from shouldering the burden of social reproduction in a down-scaling economy.⁴⁸⁵ Social reproduction is the labour that goes into reproducing social life, including biological reproduction and unpaid labour in the home and in communities. A more sustainable, fair, and equal relationship between people and the planet must acknowledge and abolish the exploitation of (predominantly) women's social reproductive labour.

While these ideas might appear "radical," Timothée Parrique, a degrowth economist, reminds that the costs of moving towards a degrowth world today will still be lower than total

483 Interview with Mitzi Jonelle Tan on 5 June 2024.

484 Hickel, *Less is More*, op. cit.

485 Ray Acheson, Nela Porobić, Katrin Geyer, and Doug Weir, "Environmental Peacebuilding Through Degrowth, Demilitarization, and Feminism: Rethinking environmental peacebuilding to stay within planetary boundaries and champion social justice," *The Future of Environmental Peacebuilding: Nurturing an Ecosystem for Peace*, 2022, <https://www.ecosystemforpeace.org/compendium>, pp. 130-131.

ecological collapse tomorrow.⁴⁸⁶ To achieve this kind of transformation at global, regional, national, and local levels, movements need to continue to come together and build coalitions and bridges between different struggles that challenge and transform the status quo.

The degrowth movement is profoundly influenced by, and builds upon, other ecological and social justice movements and thought, including feminists, labour movements, racial justice advocates, climate justice activists, land, water, and forest defenders, and Indigenous People's way of life.

Climate justice and other environmental movements

Ecological awareness, humans' interdependence with the web of life, and concern for the environment have been part and parcel of humanity for thousands of years.⁴⁸⁷ The contemporary environmental movement started in the late 19th century focusing on the protection of biodiversity and wildlife, as well as pollution by the Industrial Revolution in the Global North,⁴⁸⁸ while Indigenous and rural communities in the Global South opposed and resisted colonial resource extraction.⁴⁸⁹

In the 20th century, Earth Day on 22 April 1970 marked a milestone for the environmental movement, with 20 million people across the United States protesting environmental destruction. For the first time, people coalesced around a broader awareness of the crises facing the planet as a whole—as opposed to a focus on specific and local concerns such as air and water pollution.⁴⁹⁰

In the 1980s, the “environmental justice” movement, championed primarily by Black, Latinx, Asian, Pacific Islander, and Indigenous people, evolved in the US to describe disproportionate ecological impacts on people of colour.⁴⁹¹ Global South scholars and activists applied and popularised the concept of “environmentalism of the poor” to rural and Indigenous populations. This term later evolved into “environmentalism of the dispossessed” to describe expanded global capitalist accumulation and environmental dispossession, informed by opposition to self-governing authority and sovereignty.⁴⁹² Protests and resistance against environmental degradation continued to increase, from the Chipko movement in the Himalayas to the struggles against Shell in the Niger Delta, and Indigenous resistance against deforestation in the Amazon.⁴⁹³

486 Timothée Parrique, “Plenary 3 – Addressing the limits of resource consumption: towards a resilient economy,” Beyond Growth Conference, 15 May 2023, <https://www.beyond-growth-2023.eu/lecture/plenary-3-addressing-the-limits-of-resource-consumption/>.

487 Rex Weyler, “A Brief History of Environmentalism,” Greenpeace, 5 January 2018, <https://www.greenpeace.org/international/story/11658/a-brief-history-of-environmentalism/>.

488 “History of the environmental movement,” Britannica, <https://www.britannica.com/topic/environmentalism/History-of-the-environmental-movement>.

489 Silpa Satheesh, “Environmental movements in the Global South,” *Diversity and Inclusion in Environmentalism*, March 2021, https://www.researchgate.net/publication/350527339_Environmental_movements_in_the_Global_South.

490 Sophie Yeo, “How the largest environmental movement in history was born,” *BBC*, 22 April 2024, <https://www.bbc.com/future/article/20200420-earth-day-2020-how-an-environmental-movement-was-born>.

491 Renee Skelton, Vernice Miller, and Courtney Lindwall, “The Environmental Justice Movement,” NRDC, 22 April 2023, <https://www.nrdc.org/stories/environmental-justice-movement>.

492 Joan Martinez-Alier, Leah Temper, Daniela Del Bene, and Arnim Schneidel, “Is there a global environmental movement?,” *The Journal of Peasant Studies* 43(3), 2016, <https://www.tandfonline.com/doi/epdf/10.1080/03066150.2016.1141198?needAccess=true>.

493 Silpa Satheesh, “Environmental movements in the Global South,” *Diversity and Inclusion in Environmentalism*, March 2021, https://www.researchgate.net/publication/350527339_Environmental_movements_in_the_Global_South.

By the late 1980s, environmentalism had become a global force. In the Global North, the movement became professionalised, with non-governmental organisations such as Greenpeace, Friends of the Earth, and the Wildlife Fund establishing an international presence.

Thanks to the growing influence of the environmental movement, the 1972 United Nations Conference on the Human Environment marked the first major multilateral conference on the issue. Since then, multilateral processes have multiplied to reflect different aspects of the environment and its interconnections with other issues. These include the Convention on Biodiversity adopted in 1992,⁴⁹⁴ the UN Environment Assembly established in 2012,⁴⁹⁵ the Sustainable Development Goals adopted in 2015, and many more.⁴⁹⁶

The 1992 United Nations Conference on Environment and Development in Rio de Janeiro, also known as the Earth Summit, was a watershed moment for the environmental movement, bringing together 172 countries and almost 10,000 accredited civil society representatives.⁴⁹⁷ The Earth Summit set a new framework for seeking international agreements to protect the integrity of the global environment in its Rio Declaration and Agenda 21.⁴⁹⁸

The most significant event during the Conference was the opening for signature of the United

Nations Framework Convention on Climate Change (UNFCCC), which seeks “to stabilise atmospheric concentrations of greenhouse gases at a level that would prevent dangerous anthropogenic interference with the climate system.”⁴⁹⁹ The UNFCCC entered into force in 1994, and has since hosted 28 Conferences of Parties (COP), and adopted additional treaties and protocols such as the legally binding Kyoto Protocol in 1997 as well as the 2016 Paris Agreement.⁵⁰⁰ The latter’s overarching goal is to hold “the increase in the global average temperature to well below 2°C/ 35.6°F above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C/34.7°F / 34.7°F above pre-industrial levels.”⁵⁰¹ The Paris Agreement is considered a landmark achievement, as it is the first binding treaty that brings all nations together to mitigate and adapt to the climate crisis.

As a distinct thread in the evolving global civil society responses to the climate crisis, the climate justice movement has become stronger and louder over the past few years. Climate justice advocates focus on the climate crisis as a moral and social justice issue—and pay attention to how the climate crisis, as well as climate mitigation and adaptation, impacts marginalised communities distinctly and disproportionately. A broad goal of the climate justice movement is to expose and abolish systems of oppression that lead to marginalisation,

494 See <https://www.cbd.int> for information about the Convention on Biological Diversity.

495 “About the United Nations Environment Assembly,” <https://www.unep.org/environmentassembly/about-united-nations-environment-assembly>.

496 “The Sustainable Development Agenda,” <https://www.un.org/sustainabledevelopment/development-agenda>.

497 Carole-Anne Senit, “Leaving no one behind? The influence of civil society participation on the Sustainable Development Goals,” *Politics and Space* 38(4), 2020, <https://journals.sagepub.com/doi/pdf/10.1177/2399654419884330>.

498 See “United Nations Conference on Environment & Development: Rio de Janeiro, Brazil, 3 to 14 June 1992, AGENDA 21,” United Nations Sustainable Development, <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf> and “Rio Declaration on Environment and Development,” Report of the United Nations Conference on Environment and Development, UN General Assembly, 12 August 1992, https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf.

499 “What is the United Nations Framework Convention on Climate Change?” United Nations Climate Change, <https://unfccc.int/process-and-meetings/what-is-the-united-nations-framework-convention-on-climate-change>.

500 Peter Jackson, “From Stockholm to Kyoto: A Brief History of Climate Change,” UN Chronicle, June 2007, <https://www.un.org/en/chronicle/article/stockholm-kyoto-brief-history-climate-change>.

501 “The Paris Agreement: What is the Paris Agreement?,” United Nations Climate Change, <https://unfccc.int/process-and-meetings/the-paris-agreement>.

exploitation, and extraction of people and nature, and to instead work towards equity and justice.⁵⁰²

Climate justice networks have been bringing together diverse set of social movements, from Indigenous and other land-based peoples to feminist, human rights, and racial and environmental justice advocates, and have been successful in collaborating with grassroots initiatives and activist alliances, resulting in collaborations across place-based mobilisations.⁵⁰³

A significant outcome of cross-collaboration of civil society and governments in the Global South is the People's Agreement of Cochabamba from 2010.⁵⁰⁴ The Agreement is a comprehensive anti-capitalist, antimilitarist, and decolonial appeal for ecological regeneration, centring the demands and expertise of Indigenous Peoples. The World People's Conference on Climate Change and the Rights of Mother Earth, hosted by the Bolivian government, brought together 30,000 civil society and government representatives from over 100 countries.⁵⁰⁵

The merging and collaboration across themes and movements can be observed, amongst others, at the multilateral level at the UNFCCC. Over recent years, of the nine official constituencies inputting into the UNFCCC process, the Environmental NGOs (ENGO), Farmers, Indigenous Peoples Organisations (IPO), Trade Union NGOs (TUNGO), Youth NGOs (YOUNGO), and the Women and Gender

Constituency (WGC) have collaborated to mobilise public support and put pressure on decision-makers, rallying around specific items at each COP.

As a result of these cross-constituency efforts and the strong mobilisation from Pacific Island countries, COP27 in 2022 reached a breakthrough agreement to establish a "Loss and Damage Fund" for countries hit the hardest by the climate crisis. Climate Action Network (CAN), the largest global civil society network for climate justice, argued that the creation of this Fund is "a clear victory for civil society groups across the world, who made this issue a priority and used their power to put sustained pressure on rich nations to take responsibility for the crisis they have historically caused."⁵⁰⁶ Similarly, while the outcome of COP28 had many flaws, it included, for the first time ever, language on the need to transition away from fossil fuels. CAN again attributed this outcome to "our mobilisations through the year and in the corridors of the COP28."⁵⁰⁷

Despite these wins, the only multilateral global process to mitigate and adapt to the climate crisis has failed dramatically to fulfil its mandate. The Women and Gender Constituency, for example, described the UNFCCC and its annual COPs as "a process that does not serve communities around the world in desperate need of a historical course correction to ensure our collective survival."⁵⁰⁸ With such a flawed process, climate justice movements present at COP provide a radical counter-current

502 Farhana Sultana, "Critical climate justice," *Royal Geographical Society*, 13 October 2021, <https://www.farhanasultana.com/wp-content/uploads/Sultana-Critical-climate-justice.pdf>.

503 Ibid.

504 See "People's Agreement from Cochabamba," World People's Conference on Climate Change and the Rights of Mother Earth, 22 April 2010, https://www.climateemergencyinstitute.com/uploads/Peoples_climate_agreement.pdf.

505 Andres Schipani, "Grassroots summit calls for international climate court," *The Guardian*, <https://www.theguardian.com/environment/2010/apr/23/cochabamba-climate-court>.

506 "Landmark Decision at COP27 to set up Loss and Damage Fund," Climate Action Network International, 20 November 2022, <https://climatenetwork.org/2022/11/20/landmark-decision-at-cop27-to-set-up-loss-and-damage-fund>.

507 "COP28: New Path to Transition away from Fossil Fuels Marred by Lack of Finance and Loopholes," Climate Action Network International, 13 December 2023, <https://climatenetwork.org/2023/12/13/new-path-to-transition-away-from-fossil-fuels-marred-by-lack-of-finance-and-loopholes>.

508 "COP28 Press Release: The end of the era of fossil fuels is here, but the fight for climate justice remains," Women and Gender Constituency, 12 December 2023, <https://womensgenderclimate.org/cop28-press-release-the-end-of-the-era-of-fossil-fuels-is-here-but-the-fight-for-climate-justice-remains>.

to traditional climate diplomacy—and continue to mobilise vast public support and attention to the inadequate policy measures under the UNFCCC and related COPs.

At the same time, despite its flaws, climate justice activists are still capitalising on the UNFCCC space, including by using agreed upon outcomes to put pressure on their governments, and to coordinate more localised campaigns. Mitzi Jonelle Tan explained this work in more detail in an interview for this project, urging:

We must utilise as many and all strategies that we can and work together when we do. This is why I still go into these international spaces. Although I'm not a policy negotiation person, I think it's important to understand what's happening so that we can communicate it to everyone else outside, and we can create coordinated campaigns, putting public pressure on decision-makers. It's always about building connections and understanding that policy work, grassroots work, protesting, and campaigning must work together, and they must be connected. Otherwise, we're not taking advantage of our strengths as a community.⁵⁰⁹

A new initiative proposed by civil society, the Fossil Fuel Non-Proliferation Treaty, seeks to address the glaring lack of progress to accelerate a fossil-fuel phase out and complement the Paris Agreement by providing a roadmap to limit global warming to 1.5°C/34.7°F. The initiative, founded in 2019,⁵¹⁰ is a global effort to foster international cooperation. The proposed treaty includes three pillars: 1) A global just transition away from fossil

fuel dependence and towards scaling up access to renewable energy; 2) Non-proliferation of fossil fuels, by ending all new fossil fuel exploration and production; and 3) Fair phase-out of fossil fuels in a fair and equitable manner, with the largest historical emitters to transition the fastest.

The treaty proposal draws inspiration from other successful international agreements such as the Anti-Personnel Mine Ban Convention and the Treaty on the Prohibition of Nuclear Weapons, the latter of which is described in more detail in the chapter on the nuclear industry. It is led by a growing global network of Global South countries, as well as civil society organisations, academics, scientists, youth activists, health professionals, faith institutions, Indigenous Peoples, and hundreds of thousands of other citizens globally.

Mitzi Jonelle Tan, a treaty champion, described the potential and strengths of this initiative, noting, "The Treaty is something that's incredibly promising. The Fossil Fuel Treaty approaches fossil fuels at a global scale and is led, amazingly, by Pacific Islands and Global South countries, like Colombia and Timor Leste. The Paris Agreement is the goal, and the Fossil Fuel Treaty tells you how we're going to get there. There's a lot of promise and hope for me."⁵¹¹

Beyond the multilateral spaces, Fridays for Future (FFF) instigated a new wave of awareness on the climate crisis. In August 2018, as a reaction to the passivity of politicians and world leaders in relation to the climate crisis, then-15-year-old Swedish student Greta Thunberg skipped school to strike outside the Swedish parliament. Her strikes became global news and mobilised the FFF movement. During 2019, FFF grew into a global mass movement and several global climate strikes were organised, the largest of which,

509 Interview with Mitzi Jonelle Tan on 5 June 2024.

510 See <https://fossilfueltreaty.org>.

511 Interview with Mitzi Jonelle Tan on 5 June 2024.

in September 2019, mobilised about 7.6 million people from 185 countries.⁵¹²

2019 saw an unprecedented scale of mobilisation around the climate crisis—not just because of FFF, but also because of Extinction Rebellion (XR). XR organisers announced a Declaration of Rebellion against the UK government in 2018 and drew attention with its civil disobedience and nonviolent direct action to compel government action. The XR campaign has also grown globally, facilitated by its organising structure that enables anyone to act as part of XR, as long as participants consent to a list of core principles.⁵¹³

Together, XR and FFF, championed increasingly by diverse influential climate justice activists from across the globe, including Vanessa Nakate, Ayisha Siddiqa, Xiye Bastida, and many more, succeeded in grasping the attention of the world and its political leaders.

However, in 2020, the COVID pandemic and public health restrictions were one of the reasons the environmental and climate justice movement experienced a significant dampening after a few years of successful awareness raising that had brought climate messages increasingly into the mainstream.⁵¹⁴ Scott Ludlam described the impacts of the COVID pandemic in detail in an interview for this project, explaining:

In the late 2010s we had Extinction Rebellion and school strikes [in Australia]. Both blew up at approximately the same time, doing mass climate organising and very large-scale demonstrations.” He argued that this was done with “quite

significant success in capturing public imagination, pushing the boundaries, getting the TV cameras, getting some concessions. And then all of a sudden, for public health reasons, we’re being told we can’t assemble anymore. Backed by some quite punitive, new laws, new police powers. And I think it really bent a lot of people’s antennae out of shape, including mine. Suddenly, I’m barcoding myself and telling the cops when I’m arriving in a city.”

Ludlam also reflected on the divisive impacts of COVID restrictions and policies within social movements, including the environmental movement, exposing this tension: “Aren’t we meant to distrust authority. But what if they’re speaking from a public health perspective? Do we distrust them then? I think it really smashed up some of our internal politics. I’m not sure that that disruption has really settled or been resolved internally.”⁵¹⁵

It is not only the COVID pandemic that made global climate justice organising more difficult. Russia’s invasion of Ukraine significantly shifted attention away from the climate crisis, both amongst governments as well as the public, in particular in Europe and North America. This is significant, as these countries are the largest historic emitters of greenhouse gases and have an obligation to accelerate their own reduction of greenhouse gases as well as provide financial resources and support to countries in the Global South to adapt to the climate crisis. In Germany, for example, Russia’s invasion triggered a “Zeitenwende” (change of era) away from its proclaimed pacifist-leaning foreign policy towards an openly militarised approach,

512 Anders Svensson & Mattias Wahlström, “Climate change or what? Prognostic framing by Fridays for Future protesters,” *Social Movement Studies* 22(1), 2021, <https://www.tandfonline.com/doi/pdf/10.1080/14742837.2021.1988913>.

513 Joost de Moor, Michiel De Vydt, Katrin Uba, and Mattias Wahlström, “New kids on the block: taking stock of the recent cycle of climate activism,” *Social Movement Studies* 20(5), 2021, <https://www.tandfonline.com/doi/full/10.1080/14742837.2020.1836617>.

514 Peter Gardner, Tiago Carvalho, and Maria Valenstain, “Spreading rebellion?: The rise of extinction rebellion chapters across the world,” *Environmental Sociology* 3(4), 2022, <https://www.tandfonline.com/doi/full/10.1080/23251042.2022.2094995>.

515 Interview with Scott Ludlam on 15 May 2024.



Photo by WILPF.

including the announcement of a one-off allocation of 100 billion EUR for its military.⁵¹⁶ In the UK, the government's 1 billion GDP commitment to military aid for Ukraine in 2022 was partly funded through underspending on climate finance.⁵¹⁷

Despite these worrying trends, the war in Ukraine, as well as the ongoing genocide in Palestine, have increased awareness amongst the climate justice movement of intersecting issues of climate justice, militarism, and war.⁵¹⁸ The vast majority of climate justice advocates have recognised the interconnectedness of these issues, and as a result, have built new alliances with peace and other social justice movements, which has made the movement stronger in its diversity and reach.

While significant challenges remain to pave the way for global and structural transformation required for ecological justice, there are countless

examples of creative pathways for resistance in recent years. The following provides a glimpse of this resistance, with a few examples shared by interview participants for this project that can serve as inspiration for continued mobilising and activism at all levels.

In 2019, a group of 27 students from the University of the South Pacific coalesced to take the issue of the climate crisis and human rights to the International Court of Justice (ICJ). Talei Luscia Mangioni shared that "The Pacific Islands Students Fighting Climate Change (PISFCC) and taking climate justice to the ICJ has been very inspirational. It worked because it was grassroots, youth led, and regionally-based from students at the University of the South Pacific, and came from lived experience."⁵¹⁹ PISFCC managed to have all 51 member states of the Pacific Island Forum endorse the request for an advisory opinion, and in March

516 "Germany commits €100 billion to defense spending," *DW*, 27 February 2022, <https://www.dw.com/en/germany-commits-100-billion-to-defense-spending/a-60933724>.

517 Harry Cockburn, "UK 'underspend' on climate crisis to be used to bolster military aid for Ukraine," *The Independent*, 30 June 2022, <https://www.independent.co.uk/climate-change/news/ukraine-aid-climate-crisis-kwarteng-b2113078.html>.

518 "That's a Wrap on COP28!," Women's International League for Peace and Freedom, 20 December 2023, <https://www.wilpf.org/thats-a-wrap-on-cop28>.

519 Interview with Talei Luscia Mangioni on 17 May 2024.

2023, because of Vanuatu and a core group of countries leading the negotiations, the UN General Assembly unanimously adopted resolution 77/276. It calls on the ICJ to issue an advisory opinion on the obligations of states relating to climate change. By March 2024, the ICJ had received the highest number of states' and international organisations' written statements ever received.⁵²⁰

In the Ecuadorian Amazon, Náme Villa del Ángel, a climate and anti-militarist activist from Mexico, reminded of an important successful case of resistance—a historic binding referendum to halt the development of all new oil wells in the Yasuní national park in the Amazon. In 2023, 60 per cent of Ecuadorians voted to free Yasuní National Park, a 3,948-square-mile protected area and home to many uncontacted Indigenous communities, from oil exploration.⁵²¹ Villa del Ángel described how this case is a great example of transformative constitutionalism—a process by which the “enactment, interpretation, and enforcement of a constitution [can] transform a country's social

and political institutions, and power relationships, steering them towards democracy, participation, and egalitarianism.”⁵²² While they cautioned against “legal fetishisation,” they stressed that using the law in that sense can be one among various tools.

Finally, Tan offered an important example of successful resistance in response to renewable energy transition efforts that were not just and had disproportionate impacts on the most marginalised people in Philippine society:

Jeepney is a form of transport here in the Philippines. The government was trying to shut them down because they wanted to turn them into electric Jeepneys. However, Jeepney drivers are some of our poorest people in society who can't afford these electronic jeepneys. Through transport strikes working with students and environmentalist groups, they were able to postpone it.⁵²³

Conclusion

The unspeakable trail of harm caused by fossil fuel industries, and now increasingly renewable energy corporations—buttressed by a capitalist, militarist, and colonialist system—has profoundly altered thriving ecosystems around the world. Extractive industries, and the financial international system that props them up, have rendered previously self-sufficient and flourishing communities destitute.

At the same time, resistance by those most affected has been carried out since the very beginning of extractivism—and resistance continues to mount. In the context of a globalised and connected world, growing international movement-building and solidarity across borders provide a remarkable glimmer of hope. Movements from all walks of life will continue to have to come together to challenge and transform the destructive foundations of a system of oppression that benefits the few and harms the rest.

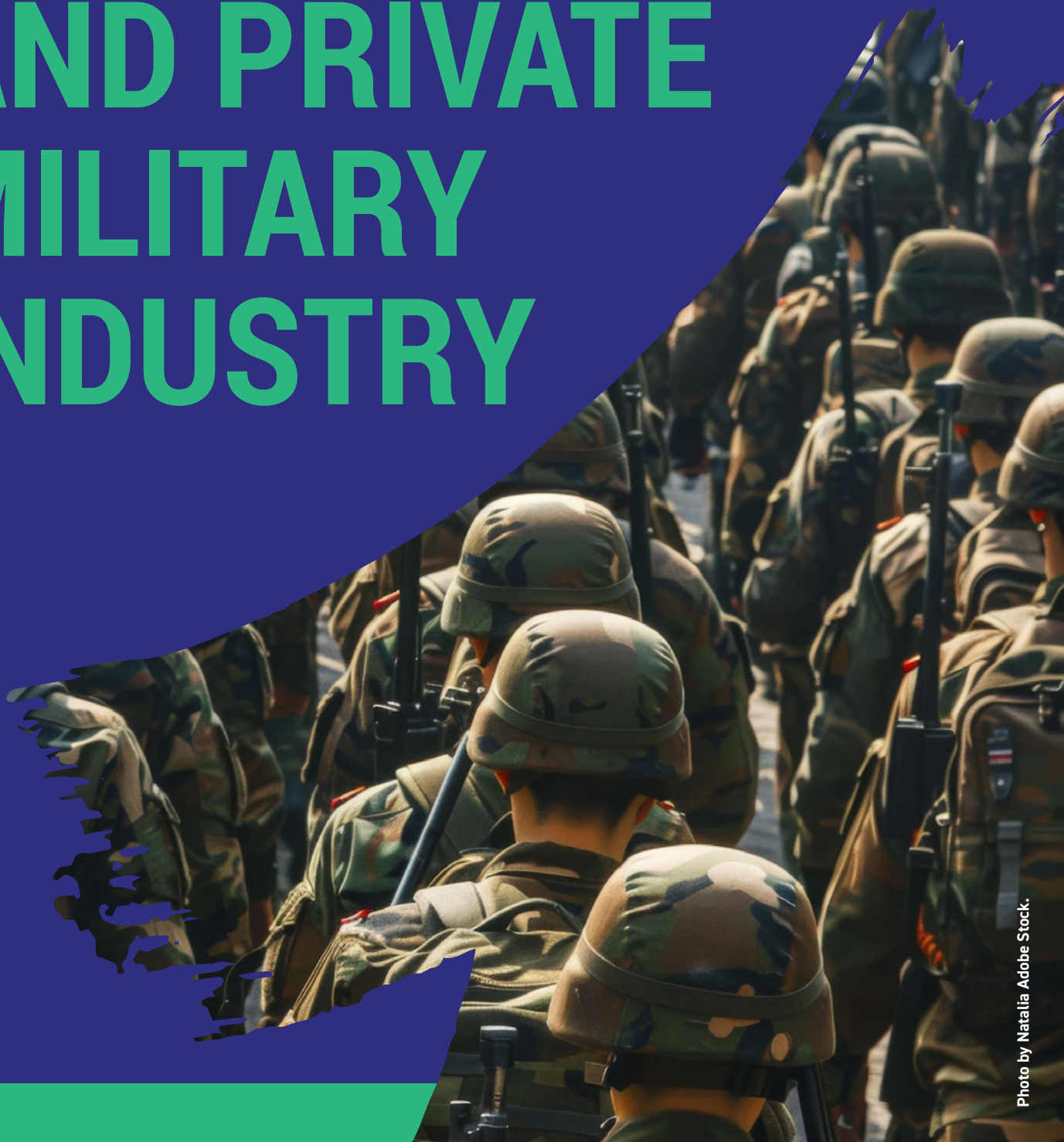
520 See “Our Journey,” Pacific Islands Students Fighting Climate Change, <https://www.pisfcc.org/ourjourney>.

521 Dan Collins, “Ecuadorians vote to halt oil drilling in biodiverse Amazonian national park,” *The Guardian*, 21 August 2023, <https://www.theguardian.com/world/2023/aug/21/ecuador-votes-to-halt-oil-drilling-in-amazonian-biodiversity-hotspot>.

522 Interview with Náme Villa del Ángel on 30 June 2024. See also “Transformative Constitutionalism and Taxation in Africa,” University of Oxford, Faculty of Law, <https://www.law.ox.ac.uk/events/transformative-constitutionalism-and-taxation-africa>.

523 Interview with Mitzi Jonelle Tan on 30 May 2024.

POLICE, MILITARY, AND PRIVATE MILITARY INDUSTRY



Structures of state violence

The main structures of state violence studied in this chapter are the police, militaries, and private military and security companies (PMSCs). Whether working individually or collaboratively, these institutions have been responsible for the repression of environmental and climate justice movements, as well as antinuclear movements, around the world.

In this report, the term “police” refers to all types of law enforcement agencies, including civil and military police, gendarmerie, and municipal, state, and federal police. By “military,” we refer to states’ armed forces. Regarding PMSCs, we consider the Montreux Document, which defines them as “private business entities that provide military and/or security services, irrespective of how they describe themselves.”⁵²⁴

The police

As highlighted in the previous chapters, policing has been used around the world to repress dissident voices, including of environmental and antinuclear movements. This apparatus of repression requires an extensive amount of investment. Some cities in the United States (US) spend from 30 to 60 per cent of their entire annual budgets on their police forces.⁵²⁵ The New York

Police Department (NYPD) alone has a cost of almost 11 billion USD.⁵²⁶ The United States as a whole spends more than 118 billion USD annually on policing, which makes US policing equivalent to the third largest military in the world by budget.⁵²⁷

In addition to large investments, since 1987, the US Congress has allowed the US military to transfer “surplus equipment” to state and local police forces across the country. This equipment includes assault weapons, ammunition, grenade launchers, armoured vehicles, helicopters, battle armour, night-vision equipment, and more.⁵²⁸ The “War on Drugs” and the “War on Terror” further amplified the transfer of not only equipment, but also tactics, from the military to the police.⁵²⁹

Research shows that in the last three decades, law enforcement has become increasingly militarised across the world.⁵³⁰ In Europe, there is the continuous growth and sophistication of the “gendarmeries”.⁵³¹ In China, scholars have pointed out the militarisation of police in recent years, including to repress social protests.⁵³² In Latin America, where the legacy of military dictatorships remains in several countries, “governments have militarised public safety and recast the role of the armed forces for domestic law enforcement purposes.”⁵³³ In Brazil, research found that the Rio

524 *The Montreux Document*, 2008, <https://www.eda.admin.ch/eda/en/fdfa/foreign-policy/international-law/international-humanitarian-law/private-military-security-companies/montreux-document.html>.

525 “Alice Speri, “New York City and Los Angeles slash budgets—but not for police,” *The Intercept*, 22 May 2020.

526 “Not Undercover: The NYC Fiscal Year 2024 Executive Budget for the NYPD,” Citizens Budget Commission, 17 May 2023, <https://cbcny.org/research/not-undercover>.

527 Rob Beschizza, “U.S. policing budgets would rank as world’s third-highest military expenditure,” *Boing Boing*, 20 April 2021, <https://boingboing.net/2021/04/20/u-s-policing-budgets-would-rank-as-the-worlds-third-highest-military-expenditure.html>.

528 Dexter Filkins, “‘Do Not Resist’ and the crisis of police militarization,” *The New Yorker*, 13 May 2016, <https://www.newyorker.com/news/news-desk/do-not-resist-and-the-crisis-of-police-militarization>.

529 Ray Acheson, *Abolishing State Violence: A World Beyond Bombs, Borders, and Cages* (Chicago: Haymarket Books, 2022), p. 25.

530 Gustavo A Flores-Macías and Jessica Zarkin, “The Militarization of Law Enforcement: Evidence from Latin America,” *Perspectives on Politics* 19(2), 2021, pp. 519–538, https://www.cambridge.org/core/product/identifier/S1537592719003906/type/journal_article.

531 Nicholas S Bolduc, “Global Insecurity: How Risk Theory Gave Rise to Global Police Militarization,” *Indiana Journal of Global Legal Studies* 23(1), Winter 2016, pp. 267–292, <http://www.jstor.org/stable/10.2979/indjglolgstu.23.1.267>.

532 Ibid.

533 Gustavo A Flores-Macías and Jessica Zarkin, “The Militarization of Law Enforcement,” op. cit.

de Janeiro state budget for public security and prisons corresponds to 15.8 per cent, totalling 17.8 billion BRL, which is more than the budgets dedicated to Education, Social Assistance, Labour and Housing, Science and Technology, Sanitation, and Culture put together.⁵³⁴

In North Africa, studies indicate that police have become more militarised over time by increasingly adopting the weaponry, tactics, and organisational practices of military forces.⁵³⁵ A study has also revealed that the militarisation of the Uganda Police Force is greatly contributing to human rights violations in the country.⁵³⁶ In South Africa, despite demilitarisation efforts in the 1990s, the country's Police Service has remained a militarised organisation.⁵³⁷ The country is currently increasing its investment in the police at an average annual rate of 5.8 per cent, reaching 124.8 billion ZAR in 2026/2027.⁵³⁸

These are just a few examples among many others around the world that can illustrate the trend of police militarisation. The sophistication of this repressive apparatus has direct consequences for environmental and antinuclear movements, whose resistance is met with violence by police forces across the globe. As it will be explored further in this chapter, the police have been responsible for thousands of episodes of violence against these movements, which are often also targeted

by criminalisation campaigns. In 2021, many independent UN experts and Special Rapporteurs called for an end to police brutality against protestors and organisers worldwide, warning about human rights abuses and violations of the rule of law. The experts argued that police brutality against activists "is symptomatic of a worrying trend towards the increasing militarisation of law enforcement officials and their equipment, training, and rules of engagement, including on the use of force and coercion." As a result, the Special Rapporteurs noted, "in many contexts, law enforcement officials now display an attitude, appearance and mode of operation which is more readily associated with a hostile military force than with serving and protecting the general public."⁵³⁹

The research and interviews conducted for this project also demonstrate instances of gender-based violence perpetrated by the police in the context of repression of activism. In Chile, Colombia, and Mexico, women protestors have reported being raped by the police in custody or sexually assaulted on the street during protests.⁵⁴⁰ In the United States, Ahjani Yepa-Sprague of Tewa Women United drew attention to the particular impacts that gender-diverse persons suffer when detained, noting in an interview for this report that in the context of recent protests at the University of New Mexico, queer students who used they/ them pronouns, or were gender fluid, or simply did

534 *Iniciativa Direito à Memória e Justiça Racial (IDMJR)*, <https://dmjracial.com>.

535 Erica De Bruin and Zachary Karabatak, "Militarized Policing in the Middle East and North Africa," *The Journal of the Middle East and Africa* 13(1), 2021, pp. 93–111, <https://www.tandfonline.com/doi/pdf/10.1080/21520844.2021.1996816>.

536 Jane Nafula, "Police militarisation fuelling human rights violations—study," *Monitor*, 12 October 2023, <https://www.monitor.co.ug/uganda/news/national/police-militarisation-fuelling-human-rights-violations-study-4398278>.

537 Guy Lamb, "Police Militarisation and the 'War on Crime' in South Africa," *Journal of Southern African Studies* 44(5), 2018, pp. 933–949, <https://www.tandfonline.com/doi/pdf/10.1080/03057070.2018.1503831>.

538 Seth Torne, "South Africa's massive police problem," *BusinessTech*, 8 April 2024, <https://businesstech.co.za/news/government/766825/south-africas-massive-police-problem/#:~:text=According%20to%20the%202024%2F2025,the%20current%20financial%20year%2C%20R131>.

539 "UN experts call for an end to police brutality worldwide," United Nations Office of the High Commissioner for Human Rights, 11 August 2021, <https://www.ohchr.org/en/press-releases/2021/08/un-experts-call-end-police-brutality-worldwide>.

540 Albinson Linares and Noticias Telemundo, "Mexican women have been physically, sexually abused for participating in protests," *NBC News*, 10 March 2021, <https://www.nbcnews.com/news/latino/mexico-women-physically-sexually-abused-participating-protests-rcna373>; Joshua Collins, "A Teen Accused the Colombian Police of Rape. Two Days Later She Took Her Own Life," *VICE News*, 19 May 2021, <https://www.vice.com/en/article/akgvx5/a-teen-accused-the-colombian-police-of-rape-two-days-later-she-took-her-own-life>; and "UN Human Rights Office report on Chile crisis describes multiple police violations and calls for reforms," UN Office of the High Commissioner for Human Rights, 13 December 2019, <https://www.ohchr.org/en/press-releases/2019/12/un-human-rights-office-report-chile-crisis-describes-multiple-police>.

not fall into the binary categories of female and male, were put in solitary confinement after being detained by the police.⁵⁴¹ Other examples of gender-based violence perpetrated by the police will be featured throughout this chapter.

Militaries

Militaries have also been responsible for the oppression of antinuclear and environmental activists. In the Philippines, for example, the Army has been linked to numerous killings of land and environmental defenders.⁵⁴² In some countries, it is possible to observe violations when militaries act as law enforcement agents. In Latin American countries, there are many instances of soldiers replacing civilian police in law enforcement tasks, which has “important consequences for the quality of democracy in the region by undermining citizen security, human rights, police reform, and the legal order.”⁵⁴³

Additionally, in several cases the military has provided the police with training. In the US, police forces have received direct training from US military and from PMSCs.⁵⁴⁴ The US and Israeli governments have also carried out “exchange programs” that bring together US police officers, US Immigration and Customs Enforcement and Border Patrol agents, and the Federal Bureau of Investigation (FBI) with soldiers, police, and border agents from Israel. Jewish Voice for Peace has described this an “exchange of worst practices,” as it promotes and extends “discriminatory and repressive policing practices that already exist in both countries, including racial profiling, massive

spying and surveillance, deportation and detention, and attacks on human rights defenders.”⁵⁴⁵

Like the police, militaries also divert an extensive amount of money that could be spent on life-affirming services. The Stockholm International Peace and Research Institute (SIPRI) found that global military expenditure reached 2443 billion USD in 2023, an increase of 6.8 per cent in real terms from 2022.⁵⁴⁶ Research by UN Women has also found that fragile and conflict-affected countries have tended to spend relatively more on militaries than on social protection.⁵⁴⁷ The research shows that in 2019, nearly 24 per cent of government spending in Afghanistan was devoted to the military and another 13 per cent went to activities related to “public order and safety.” In contrast, less than 6 per cent of government spending went to the health sector, about 9 per cent to education, and just 4 per cent was spent on social protection. In Burkina Faso, the government budgeted over 10 times as much for militarism as for social protection in 2020. The situation was similar in Mali in 2017, with the government spending over five times as much on militarism and security as on social programmes.

Private military and security companies (PMSCs)

In many cases, the states’ repressive apparatus also incorporates the participation of PMSCs. The Montreux Document explains that these companies are hired to provide a wide range of services, including armed guarding and protection of persons

541 Interview with Ahjani Yepa-Sprague on 15 May 2024.

542 *Enemies of the State?* Global Witness, 30 July 2019, <https://www.globalwitness.org/en/campaigns/environmental-activists/enemies-state>.

543 Gustavo A Flores-Macías and Jessica Zarkin, “The Militarization of Law Enforcement,” op. cit.

544 Ray Acheson, *Abolishing State Violence*, op. cit., p. 26.

545 *Deadly Exchange*, <https://deadlyexchange.org/about-deadly-exchange>.

546 “Global military spending surges amid war, rising tensions and insecurity,” Stockholm International Peace Research Institute, 22 April 2024, <https://www.sipri.org/media/press-release/2024/global-military-spending-surges-amid-war-rising-tensions-and-insecurity>.

547 “Comparing military and human security spending: Key findings and methodological notes,” UN Women, May 2022, <https://www.unwomen.org/sites/default/files/2022-08/Comparing-military-and-human-security-spending-en.pdf>.

and objects, maintenance and operation of weapons systems, prisoner detention, training of local forces and security personnel, among others.⁵⁴⁸ The monetary value of this sector has increased over the years—in 2022, it was estimated at 224 billion USD, with an expectation to soon expand to 475 billion USD.⁵⁴⁹

A common client for PMSCs are extractive industries. This industry has immense economic power and considerable political influence, being among the world's highest earning entities and surpassing the national gross domestic revenues of many countries.⁵⁵⁰

Many extractive companies rely on the services provided by PMSCs to secure their operations. The UN Working Group on the use of mercenaries highlights three main types of security providers in extractive operations: security professionals directly employed by an extractive company (“in-house security”); PMSCs contracted by the company; and state security forces operating in and around the extractive site.⁵⁵¹ The Group stressed that there is little transparency on the arrangements between companies, the police, and PMCSs, or on their respective roles, responsibilities, and chains of command.⁵⁵²

These mixed security arrangements at extractive sites can present several problems. For example, there are reports of police personnel stationed within facilities belonging to an extractive company or that a police station was opened in a community because of the start of extractive operations in the area.⁵⁵³ There are also reports of payments being made to state security agents by an extractive company, as well as the provision of fuel, vehicles, maintenance, per diems and other types of monetary support, accommodation and meals, and administrative support to the police by a mining company.⁵⁵⁴ Cases of state security personnel “moonlighting” by working as private security guards in parallel to their public functions further blurs the lines between public and private roles.⁵⁵⁵

The problematic nature of these arrangements was challenged in Peru, where a case was filed in the Constitutional Court to question “extraordinary police service” contracts signed by Peru's police to provide security services to extractive industries.⁵⁵⁶ Civil society organisations in the country demonstrated that many projects have led to social uprisings by local communities and argued that the contracts affect the ability of the police to respond to protests impartially. Despite this, in September 2020, Peru's Constitutional Court ruled that “extraordinary agreements”

548 *The Montreux Document*, 2008, <https://www.eda.admin.ch/eda/en/fdfa/foreign-policy/international-law/international-humanitarian-law/private-military-security-companies/montreux-document.html>.

549 “US Private Military and Security Companies Fuel Corruption and Conflict Risk,” Transparency International UK, 9 August 2022, <https://www.transparency.org.uk/us-private-military-and-security-companies-fuel-corruption-and-conflict-risk>.

550 “Report on the relationship between private military and security companies and extractive industry companies from a human rights perspective in law and practice,” Working Group on the use of mercenaries as a means of violating human rights and impeding the exercise of the right of peoples to self-determination, A/HRC/42/42, 29 July 2019, paragraph 20, <https://www.ohchr.org/en/calls-for-input/report-relationship-between-private-military-and-security-companies-and-extractive>.

551 “Impact of militarization on the rights of Indigenous Peoples: Study by the Expert Mechanism on the Rights of Indigenous Peoples,” A/HRC/54/52, Human Rights Council, 8 August 2023, paragraph 25, <https://www.ohchr.org/en/documents/studies/ahrc5452-impact-militarization-rights-indigenous-peoples-study-expert-mechanism>.

552 *Ibid.*, paragraph 63, <https://www.ohchr.org/en/documents/studies/ahrc5452-impact-militarization-rights-indigenous-peoples-study-expert-mechanism>.

553 “Relationship between private military and security companies and extractive industry companies from a human rights perspective in law and practice: Report of the Working Group on the use of mercenaries as a means of violating human rights and impeding the exercise of the right of peoples to self-determination,” A/HRC/42/42, Human Rights Council, 29 July 2019, paragraph 31, <https://www.ohchr.org/en/calls-for-input/report-relationship-between-private-military-and-security-companies-and-extractive>.

554 *Ibid.*, paragraph 32.

555 *Ibid.*, paragraph 33.

556 “Defenders of our planet: Resilience in the face of retrictions,” Civicus Monitor, November 2021, <https://civicus.contentfiles.net/media/assets/file/DefendersOfOurPlanet.pdf>.



Photo by GreenOptix Adobe Stock.

between the national police and private sector were constitutional.

In addition to the situations described above, there are several cases in which PMSCs assisted and supported state security forces in forcibly removing people or communities from their lands in the vicinity of an extractive site. For example, at the Yanacocha mine in Peru, both public and private forces have been accused of concerted harassment, violence, and destruction of property and possession of property of a local family.⁵⁵⁷

The militarisation of lands due to operations from extractive industries also leads to gender-based violence. In Papua New Guinea, around the Porgera Joint Venture gold mine, operated by Canadian mining company Barrick Gold Corporation, 119 women were subjected to sexual violence and excessive use of force by mine security and police guarding the mine. According to UN Working Group

on the Use of Mercenaries, one of the victims said she had been gang raped by five security personnel who caught her on the Kogai waste dump while she was selling betel nut to informal miners working there in September 2009. According to the Working Group, the perpetrators of these violations have not been brought to justice:

Survivors of sexual or gender-based violence often suffer stigma and exclusion from their communities, leaving them in a vulnerable situation. The significant challenges that survivors of sexual violence, especially women, face have been well documented, and may be further exacerbated when private military and security companies are involved.⁵⁵⁸

Despite the concerns around PMSC's operations, they continue to expand. The UN Group of Experts

557 "Relationship between private military and security companies and extractive industry companies from a human rights perspective in law and practice," op. cit., footnote 41.

558 "Relationship between private military and security companies and extractive industry companies from a human rights perspective in law and practice," op. cit.

on the Democratic Republic of the Congo (DRC) warned that the founder of Blackwater, a mercenary company, attempted to broker a deal to deploy 2,500 Latin American mercenaries in the DRC.⁵⁵⁹ The UN Group reported that the deal had been halted, though it is not possible to assess whether permanently or temporarily. The DRC is currently host to several PMSCs from various countries, and there are many concerns of the presence of the groups in relation to natural resources, political patronage, and foreign interests.⁵⁶⁰ Annie Matundu

Mbambi, Regional Representative for Africa on the WILPF International Board, who was interviewed for this project, said that “these private military and security companies have become powerful players, placing profit and power above human rights. Communities are sometimes driven out of their mining areas. This includes acts of violence, intimidation, and other forms of abuse against communities. This is due to the lack of robust and appropriate mechanisms to monitor all private military companies and mercenaries.”⁵⁶¹

Repression of environmental activism

The police, militaries, and PMSCs have been responsible for the death of environmental and land defenders around the world. In 2019, the organisation Global Witness was able to link state security forces to 40 of the killings of land and environmental defenders that took place in 2018, of a total of 164.⁵⁶² In 2022, it was documented that 177 environmental and land defenders were killed around the world by both state and non-state actors.⁵⁶³ Just in the Amazon region, 39 forest defenders were killed last year—11 of which were from Indigenous communities. This means that more than one in five defenders killed in 2022 were from the Amazon region.⁵⁶⁴

In addition to the killing of land and environment defenders, the repression perpetrated by state forces and PMSCs can take other forms. Enforced

disappearances, torture and ill-treatment, sexual and gender-based violence, surveillance, death threats, intimidation, and excessive use of force in protests, are a few examples.⁵⁶⁵

Global Witness has highlighted that women land and environmental defenders face attacks on two fronts, as they are targeted for their activism in addition to facing gender-specific rights violations.⁵⁶⁶ The Inter-American Commission on Human Rights (IACHR) also found that women, as well as people of Indigenous or African descent who are involved in the defence of the environment, land, and territory, are exposed to greater risk than others. “The vulnerability experienced by these groups as they go about their work defending the environment are compounded by structural factors such as ethnic and racial discrimination and the

559 “Midterm report of the Group of Experts on the Democratic Republic of the Congo,” S/2023/990, UN Security Council, 5 January 2024, <https://reliefweb.int/report/democratic-republic-congo/midterm-report-group-experts-democratic-republic-congo-s2023990-enarruzh>.

560 Michael E. Picard, “An American Mercenary Resurfaces in the Democratic Republic of the Congo,” *Instick*, 29 February 2024, <https://instickmedia.com/an-american-mercenary-resurfaces-in-the-democratic-republic-of-the-congo/>.

561 Interview with Annie Matundu Mbambi on 19 May 2024.

562 *Enemies of the State?*, Global Witness, op. cit.

563 *Standing firm: The Land and Environmental Defenders on the frontlines of the climate crisis*, Global Witness, 13 September 2023, <https://www.globalwitness.org/en/campaigns/environmental-activists/standing-firm>.

564 Ibid.

565 “Relationship between private military and security companies and extractive industry companies from a human rights perspective in law and practice,” op. cit.

566 *Standing firm*, Global Witness, op. cit.



Photo by arthurhidden Adobe Stock.

levels of marginalization, poverty, inequality, and social exclusion that have historically jeopardized them," said the IACHR.⁵⁶⁷

Latin America faces a grim scenario in terms of repression to environmental movements. In 2022, almost nine out of ten recorded killings of land and environmental defenders were in Latin America, according to Global Witness.⁵⁶⁸ A recent investigation of Canadian extractive companies operating in Latin America and the Caribbean found that "the magnitude of violence in projects where Canadian companies participate is of concern; 16 of the projects evaluated impact political and civil rights, placing human rights defenders at risk, including the militarisation of territories, the abuse of public forces to benefit the interests of companies, and the criminalization of human rights defenders."⁵⁶⁹

The police, militaries, and PMSCs have violently repressed environmental movements in the region, as illustrated by several cases:

- In Peru, a series of protests between 2019 and 2020 against the Canadian Oil company PetroTal and the Peruvian government was met with extreme repression by the police. The police fired on the demonstrators, killing three Indigenous People, as well as 12 demonstrators. A highly irregular situation was that the bodies remained for several hours on the company's premises, according to the prosecutor's investigation.⁵⁷⁰
- In Ecuador in the 1990s, the A'i Cofán organised protests demanding the closure of Dureno 1, a well that caused oil spills that contaminated waterways, and demanding that Ecuador's

567 Report on the Situation of Environmental Human Rights Defenders in the Northern Central American Countries, op. cit.

568 "Almost 2,000 land and environmental defenders killed between 2012 and 2022 for protecting the planet," *Global Witness*, 13 September 2023, <https://www.globalwitness.org/en/press-releases/almost-2000-land-and-environmental-defenders-killed-between-2012-and-2022-protecting-planet/>.

569 *No More Violence: Unmasking Canada at the UN Universal Periodic Review*, The Articulation of Indigenous Peoples of Brazil, 2023, https://apiboficial.org/files/2023/08/00_Executive-Summary_Unmasking-Canada-Rights-Violations-Across-Latin-America.pdf.

570 "Report Reveals Shocking Rights Violations by Canadian Corporations in Latin America," *The Articulation of Indigenous Peoples of Brazil*, 31 August 2023, <https://apiboficial.org/2023/08/31/report-reveals-shocking-rights-violations-by-canadian-corporations-in-latin-america/?lang=en>.

state petroleum company leave the area.⁵⁷¹ The Ecuadorian military was called in to monitor the situation, but in the end, the government agreed to temporarily close the well. Currently, the country's state-owned oil company is operating in the area again, which has been a source of serious concerns, including threats to activists who oppose the oil industry. In 2020, Ecuadorian authorities carried out violent raids in the community,⁵⁷² and a leader in the community's resistance, Josefina Tunki, received death threats from the vice president of mining operations for Solaris Resources, a Canadian mining company, and president of the Warints mining project, Federico Velásquez, who reportedly told her, "If you keep bothering me with national and international complaints, we will have to cut someone's throat."⁵⁷³ In 2023, Indigenous communities from Ecuador saw a positive development, when 60 per cent of Ecuadorians voted to free Yasuní National Park, a 3,948-square-mile protected area and home to many uncontacted Indigenous communities, from oil exploration in a historic referendum.⁵⁷⁴ This was hailed as a victory by environmental advocates across the globe.

→ In Brazil, on the first seven months of 2022, 759 violent incidents by police with Indigenous Peoples were recorded, involving a total of 113,654 families and 33 killings in land-related conflicts in rural areas of the country.⁵⁷⁵ The

record level of police violence against Indigenous communities motivated the filing of a motion in the Supreme Court by the Articulation of Indigenous Peoples of Brazil (APIB) seeking the adoption of measures to tackle police brutality and misconduct by the police.⁵⁷⁶

→ In Honduras, Berta Cáceres, a Lenca defender and leader who opposed the construction of an un-consulted hydroelectric project on the Gualcarque River, was murdered in 2016. The IACHR informed that after her murder, attacks against women defenders of land and territory increased substantially in the country, doubling in 2017 (475) compared to 2016 (203).⁵⁷⁷

→ In Guatemala, there are reports that indicate that between 2019 and 2020, women who defend land and territory have been one of the most attacked groups, registering 28 aggressions in this period.⁵⁷⁸ Additionally, sexual violence is a practice especially used against Indigenous women defenders and leaders who defend the environment and their lands in Guatemala.⁵⁷⁹ A landmark case of violence is the "Guatemala Hubday case," which involved serious allegations of violations of the human rights of Maya-Q'eqchi villagers, an Indigenous People from eastern Guatemala, by the Canadian company Hubday Minerals in the context of the Fenix Mining Project.⁵⁸⁰ There have been recurrent

571 Aime Gabay, "In the Ecuadorian Amazon, oil threatens decades of Indigenous-led conservation," *Infoamazonia*, 15 December 2023, <https://infoamazonia.org/en/2023/12/15/in-the-ecuadorian-amazon-oil-threatens-decades-of-indigenous-led-conservation/>.

572 Susana Moran, "Josefina Tunki and women human rights defenders attacked by mining companies and the ecuadorian state," *PlanV*, 22 June 2021, <https://www.planv.com.ec/josefina-tunki-and-women-human-rights-defenders-attacked-mining-companies-and-ecuadorian-state>.

573 Ana Cristina Basantes, "Josefina Tunki: 'If we have to die in defense of the land, we have to die,'" *Mongabay*, 5 January 2022, <https://news.mongabay.com/2022/01/josefina-tunki-if-we-have-to-die-in-defense-of-the-land-we-have-to-die>.

574 Dan Collins, "Ecuadorians vote to halt oil drilling in biodiverse Amazonian national park," *The Guardian*, 21 August 2023, <https://www.theguardian.com/world/2023/aug/21/ecuador-votes-to-halt-oil-drilling-in-amazonian-biodiversity-hotspot>.

575 Aimee Gabay, "Indigenous groups turn to Brazil's highest court to stop police violence," *Mongabay*, 9 June 2023, <https://news.mongabay.com/2023/06/indigenous-groups-turn-to-brazils-highest-court-to-stop-police-violence/>.

576 Ibid.

577 *Report on the Situation of Environmental Human Rights Defenders in the Northern Central American Countries*, op. cit.

578 Ibid.

579 Ibid.

580 *Impact of Canadian Mining Companies*, Women' International League for Peace and Freedom, October 2017, https://wilpf.org/wp-content/uploads/2017/12/UPR_Canada_WEB.pdf.

and grave acts of violence perpetrated by mining companies' private security guards against communities. Three civil lawsuits were initiated by members of the Q'eqchi communities against the company Hudbay Minerals in the context of the Fenix Mining Project operations.⁵⁸¹ Allegations include the killing of Adolfo Ich, a respected community leader and school teacher who was hacked with machetes and shot in the head by mine company security personnel,⁵⁸² the shooting and paralyzing of German Chub by mine company security personnel,⁵⁸³ and the gang-rape of 11 women by mining company security personnel, police and military during the forced eviction of their village and families from their ancestral lands.⁵⁸⁴

→ Another example of violations perpetrated by private personnel took place in Peru, in the Rio Blanco Mine. In a protest by the local community against the mine, the police and security personnel employed by the mine responded with extreme violence, including beatings, whippings, and a fatal shooting. Victims filed a negligence lawsuit in England alleging that certain protestors were held captive, tortured, and two women were sexually assaulted.⁵⁸⁵ The parties agreed to a confidential settlement to end litigation.⁵⁸⁶

The IACHR, in a study focused on the Northern Central American Countries, also observed that “women defenders face a situation of extreme risk due to the permanent violence, criminalization, and delegitimization they suffer as a result of their opposition to the installation of hydroelectric, mining and agrarian projects that affect their territories and natural resources.”⁵⁸⁷ The IACHR underlined that the stigmatisation and smear campaigns have a differentiated impact on women environmental defenders due to traditional gender relations.⁵⁸⁸ It also noted that threats directed at women often includes a strong connotation of sexual violence, and that women defenders are more likely to have their children or family members threatened or attacked as a form of intimidation.⁵⁸⁹

This practice is not exclusive to Latin America, as confirmed by Mitzi Jonelle Tan, a climate activist based in the Philippines:

That's something that I've seen specifically with women environmental defenders and activists that they don't just harass the activist themselves, both physically and sexually ... but they extended to threatening the mother of the activist or their children, if they have them, and the entire family. We don't see as much here in the Philippines when it's a guy environmental activists or defenders that they're trying to threaten.⁵⁹⁰

581 “Hudbay Minerals lawsuit (re killing of community leader, Guatemala, filed in Canada),” Business and Human Rights Resource Centre, 24 September 2010, <https://www.business-humanrights.org/en/latest-news/hudbay-minerals-lawsuit-re-killing-of-community-leader-guatemala-filed-in-canada/>.

582 “Choc v. Hudbay Minerals Inc.,” <https://chocversushudbay.com/about/>.

583 Ibid.

584 Ibid.

585 “Repression of protests against the Rio Blanco Mine,” The Responsibility Security Association, <https://icoca.ch/es/case-studies/repression-of-protests-against-the-rio-blanco-mine/>.

586 Ibid.

587 *Report on the Situation of Environmental Human Rights Defenders in the Northern Central American Countries*, Inter-American Commission of Human Rights, 25 April 2023, https://www.oas.org/en/iachr/jsForm/?File=/en/iachr/media_center/preleases/2023/076.asp.

588 Ibid.

589 Ibid.

590 Interview with Mitzi Jonelle Tan on 5 June 2024.

They also described in an interview for this project how the Philippine government justified the closing down, and even bombing of Lumad Indigenous schools as “terrorist schools”.⁵⁹¹ These schools are led by Indigenous communities and teach about land and environmental protection.

Tan pointed to several other examples of “red-tagging” in the Philippines, which means blacklisting individuals or organisations who are critical of the government administration.⁵⁹² The activists Francisco ‘Eco’ Dangla III and Joxelle ‘Jak’ Tiong were “red-tagged” and later abducted due to their work as convenors of the Pangasinan People’s Strike for the Environment, who opposed the coal-fired power plants and nuclear power plants in their region.⁵⁹³ The activists were later released. Two other activists, Jonila Castro and Jhed Tamano, were also abducted and then later released by the Army, who said that they had “voluntarily surrendered to the military.”⁵⁹⁴ After the activists retorted publicly that they had been abducted, they were charged with defamation.⁵⁹⁵

Tan further elaborated on the gendered dimensions of labelling and red-tagging environmental defenders and activists, explaining:

In the newspaper *Manila Times*, in an article that has since been taken down, the then-Lieutenant General Parlade under former president Duterte, said that young

girls who wear short shorts, calling for the protection of the environment, are doing it to entice young men to join the rebel army and become terrorists. This gives you a picture of how they view women protecting the environment.

In addition to this scenario of violence in the Philippines, there are several other examples of repression to environmental activists in Asia, most of them documented by the CIVICUS Monitor:⁵⁹⁶

- In Armenia, where in August 2020 at least 14 people were detained for demonstrating against gold mining by the Lydian Armenia company,⁵⁹⁷
- In Kazakhstan, where in February 2021, several activists were detained and found guilty of organising and participating in rallies where they raised concerns about liquified natural gas extraction and drinking water quality, and protested the construction of a “safari hotel” in the Bozzyhra tract,⁵⁹⁸
- In Viet Nam, where numerous protests in April 2016 against a toxic spill by Formosa Plastics Group—Viet Nam’s largest environmental disaster to date, which resulted in the death of an estimated 115 tons of fish—were repressed by authorities using teargas and excessive force. Environmental activist Hoang Duc Binh was arrested and sentenced to 14 years in prison after criticising the disaster;⁵⁹⁹

591 Interview with Mitzi Jonelle Tan on 5 June 2024.

592 Ibid.

593 Jairo Bolledo, “‘Bruised but alive’: Missing environmental activists in Pangasinan found safe,” *Rappler*, 28 March 2024, <https://www.rappler.com/philippines/missing-environmental-activists-pangasinan-found-safe>.

594 Jairo Bolledo, “Activists slapped with defamation case for exposing ‘abduction’ post bail,” *Rappler*, 20 February 2024, <https://www.rappler.com/philippines/jonila-castro-jhed-tamano-warrant-arrest-after-supreme-court-victory>.

595 Ibid.

596 *Defenders of our Planet: Resilience in the Face of Restrictions*, Civicus Monitor, November 2021, <https://civicus.contentfiles.net/media/assets/file/DefendersOfOurPlanet.pdf>.

597 “Solidarity protests with Belarus held, journalists covering military operations face risks,” Civicus Monitor, 1 December 2020, <https://monitor.civicus.org/explore/solidarity-protests-belarus-held-journalists-covering-military-operations-face-risks/>.

598 “Muffled protests and persecution of opposition movements, NGOs and trade unions,” Civicus Monitor, 22 June 2021, <https://monitor.civicus.org/updates/2021/06/22/muffled-protests-and-persecution-opposition-movements-ngos-and-trade-unions/>.

599 “Vietnam: Fish deaths blamed on Formosa Plastics; Taiwan Court dismisses Vietnamese farmers’ lawsuit over environmental damage,” Business and Human Rights Resource Centre, 8 May 2026, <https://business-humanrights.org/en/vietnam-fish-deaths-blamed-on-formosa-plastics-put-fisherfolk-out-of-work-spark-rare-protests>.

- In India in May 2018, during a protests calling for the closure of a local copper smelting plant, which was polluting the air and water supply in Thoothukudi, Tamil Nadu, police fired live ammunition into a crowd of protesters. The police killed at least 13 people, including a teenage girl, injured dozens of people, and arrested and charged at least 65 people for “engaging in violence” during the protests;⁶⁰⁰
- In Azerbaijan in June 2023, the police repressed a protest against the planned construction of an artificial lake meant to hold waste from the nearby Gadabay gold mine;⁶⁰¹
- In Indonesia, in 2015, there were reports of beating, abduction, and murder of environmental human rights defenders by private security guards hired by a subsidiary pulpwood supplier company;⁶⁰² and
- In Laos and Viet Nam, environmental activists report being objects of constant surveillance and arbitrary arrests.⁶⁰³
- In the DRC, a community leader was beaten and arrested by police in September 2019 after a protest against the palm oil agribusiness Feronia PHC;⁶⁰⁴
- In Kenya in May 2018, two environmental activists from Save Lamu, an environmental activism group, were arrested during a protest against plans to set up a coal-fired power plant;⁶⁰⁵
- In Uganda during September 2020, eight young climate activists who protested as part of the global climate strike were detained and questioned for eight hours;⁶⁰⁶
- In Sierra Leone, authorities killed two people and detained another 15 who were protesting against the multinational palm oil and rubber plantation management corporation SOCFIN;⁶⁰⁷
- In South Africa, authorities have used excessive force against environment defenders from mining communities who have held anti-mining protests;⁶⁰⁸
- In Ghana in 2018, a protest by farmers against their compensation package for the buyout of their farmlands by the Newmont Mining Company was met with teargas and rubber bullets;⁶⁰⁹

Underreporting of attacks has been described as a significant challenge in Africa, but there are numerous instances of police violence against environmental activists, most of them also documented by the CIVICUS Monitor:

600 “Environmental protesters in Ramil Nadu shot dead,” Civicus Monitor, 25 May 2024, <https://monitor.civicus.org/updates/2018/05/25/protesters-tamil-nadu-shot-dead-during-protest-copper-plants-environmental-damage>.

601 Chichak Mammadova, “Crackdown on environmental protest in Azerbaijan sparks outrage,” Eurasianet, 23 June 2023, <https://eurasianet.org/crackdown-on-environmental-protest-in-azerbaijan-sparks-outrage>.

602 “Relationship between private military and security companies and extractive industry companies from a human rights perspective in law and practice,” op. cit., Paragraph 53.

603 Hông Thiên, “The police are watching’: In Mekong countries, eco defenders face rising risks,” *Mongabay*, 18 December 2023, <https://news.mongabay.com/2023/12/the-police-are-watching-in-mekong-countries-eco-defenders-face-rising-risks/>.

604 *Defenders of our Planet: Resilience in the Face of Restrictions*, op. cit., p. 5.

605 “Opposition figure detained at airport and forcibly deported again,” Civicus Monitor, 14 June 2018, <https://monitor.civicus.org/updates/2018/06/14/opposition-figure-detained-airport-and-forcibly-deported-again/>.

606 *Human Rights Watch submission to the UN Special Rapporteur on the rights to freedom of peaceful assembly and of association on the challenges and threats facing climate defenders*, June 2021, https://www.hrw.org/sites/default/files/media_2021/06/210528_Climate%20Defenders%20Submission_Human%20Rights%20Watch.pdf.

607 “Government poised to decriminalise libel,” Civicus Monitor, 3 April 2019, <https://monitor.civicus.org/explore/government-poised-decriminalise-libel>.

608 *Human Rights Watch submission*, op. cit..

609 “String of attacks against journalists while growing calls for the passage of the RTI bill,” Civicus Monitor, 11 December 2018, <https://monitor.civicus.org/updates/2018/12/11/ghana-string-attacks-journalists-while-growing-calls-passage-RTI-law>.



threatened, and there have been reports of several arrests of people who opposed the pipeline, and of the closing of dozens of NGOs.⁶¹²

Cases of police repression of environmental and climate protests have also been reported in Europe, including:

- In France in October 2020, seven climate protesters from the ANV COP 21 Gironde and Extinction Rébellion movements protesting in the Bordeaux-Mérignac airport were arrested and are facing charges of “obstructing the movement of an aircraft.”⁶¹³
- In Finland, in June 2021, the police arrested over 100 people from Elokapiina (Extinction Rebellion Finland), during a protest calling for urgent action from the government on the climate crisis.⁶¹⁴
- In Belgium, Italy, the Netherlands, and England, hundreds of people have been protesting projects damaging the environment or climate, with many protests being repressed by the police.⁶¹⁵

- In Uganda, climate activist Bob Barigye was arrested before a meeting with local authorities to discuss the East African Crude Oil Pipeline (EACOP).⁶¹⁰ The project, aiming to transport crude oil over 1,443 kilometres from Uganda to Tanzania, will displace 14,000 families, cause irreversible environmental damage and generate 34 million tons of carbon emissions per year.⁶¹¹ The activist was tortured and

Considering this trend of repression against environmental protests around the world, the UN Special Rapporteur on the Rights to Freedom of Peaceful Assembly and of Association, Clément Voule, published a report on climate justice and civic space, in which he warned against the violent dispersal of peaceful assembly, including of climate-related protests.⁶¹⁶

⁶¹⁰ John Okot, “‘Enemigos del Estado’: la represión silenciosa contra los activistas climáticos en Uganda,” *El País*, 24 March 2023, <https://elpais.com/planeta-futuro/2023-03-24/enemigos-del-estado-la-represion-silenciosa-contra-los-activistas-climaticos-en-uganda.html>.

⁶¹¹ Ibid.

⁶¹² Ibid.

⁶¹³ “Worsening crackdown on civic space by Macron’s government to preserve ‘Republican values,’” *Civicus Monitor*, 4 March 2021, <https://monitor.civicus.org/updates/2021/03/04/worsening-crackdown-on-civic-space-by-macrons-government-to-preserve-republican-values>.

⁶¹⁴ “Police accused of mistreatment after climate activists arrested during protest,” *Civicus Monitor*, 25 June 2021, <https://monitor.civicus.org/updates/2021/06/25/police-accused-mistreatment-after-climate-activists-arrested-during-protest/>.

⁶¹⁵ *Protecting Environmental and Climate Defenders in Europe*, *Climate Action Network Europe*, October 2023, <https://caneurope.org/content/uploads/2023/10/Protecting-environmental-climate-defenders-in-Europe-2.pdf>.

⁶¹⁶ *Exercise of the rights to freedom of peaceful assembly and of association as essential to advancing climate justice: Report of the Special Rapporteur on the rights to freedom of peaceful assembly and of association*, Clément Nyaletossi Voule, A/76/222, UN General Assembly, 23 July 2021, <https://undocs.org/Home/Mobile?FinalSymbol=A%2F76%2F222&Language=E&DeviceType=Desktop&LangRequested=False>.

The UN Special Rapporteur on the rights of Indigenous Peoples has also issued many press releases to address discrimination, violence, and attacks against, and killings of, Indigenous women and girls demonstrating, including in Guatemala,⁶¹⁷ Honduras,⁶¹⁸ Colombia,⁶¹⁹ Brazil,⁶²⁰ and the Philippines.⁶²¹

In addition to repression by the police during protests, the criminalisation of activists is yet another tool of repression used by several states to suppress environmental activism.⁶²² Counterterrorism, Anti-Terror, and other restrictive laws are used in practice to harass and intimidate activists, generating a chilling effect among movements. Hundreds of cases of such repression have been documented on all continents, revealing a trend of criminalising environmental movements.⁶²³

In Australia, climate defenders are also increasingly being punished with repressive laws, among other forms of repression.⁶²⁴ According to a recent report,⁶²⁵ activists are being targeted with litigation; surveillance and infiltration of groups of climate defenders; enforcement of punitive bail laws and excessive penalties for minor protest related offences; introduction of harsh, and at times

unconstitutional, anti-protest laws targeting climate defenders; and more. This repression comes as a consequence of the “unregulated influence of the fossil fuel industry,” which presents itself in a web of connections between government and industry.⁶²⁶

In an interview for this project, Scott Ludlam, a former Greens senator from Australia, commented on these practices, saying that over time, the exercise of the right to protest has become more and more restrictive in Australia. He said that in New South Wales, protesters often fill in an application called a “Form One,” notifying police of an intention to block traffic or conduct an action of a certain size. Transgressions of some of those agreements are “being met with greater degrees of repression,” he stated. He particularly highlighted that bail conditions are being used to prevent people to talk to their family or any other members of the organisation. “They’re using bail conditions as ways of fragmenting and splintering social movements.”⁶²⁷

The criminalisation of activists is also a common tactic in the United States. Last year, 61 protesters were indicted on racketeering charges for protesting “Cop City,” a proposed police training

617 “‘Milestone judgement’ in Guatemala—UN Human Rights Chief,” United Nations, 24 May 2018, <https://www.ohchr.org/en/press-releases/2018/05/milestone-judgement-guatemala-un-human-rights-chief?LangID=E&NewsID=23125>.

618 “Honduras: Masterminds of Berta Cáceres killing still at large, say UN experts,” United Nations, 7 December 2018, <https://www.ohchr.org/en/press-releases/2018/12/honduras-masterminds-bertha-caceres-killing-still-large-say-un-experts?LangID=E&NewsID=23994>.

619 “Colombia: UN experts are outraged by killing of indigenous leader and community members,” United Nations, 31 October 2019, <https://www.ohchr.org/en/press-releases/2019/10/colombia-un-experts-are-outraged-killing-indigenous-leader-and-community?LangID=E&NewsID=25240>.

620 “Brazil: UN experts deplore attacks by illegal miners on indigenous peoples; alarmed by mercury levels,” United Nations, 2 June 2021, <https://www.ohchr.org/en/press-releases/2021/06/brazil-un-experts-deplore-attacks-illegal-miners-indigenous-peoples-alarmed?LangID=E&NewsID=27134>.

621 “Accusations against UN expert a retaliation by Philippines, say fellow rapporteurs,” United Nations, 8 March 2018, <https://www.ohchr.org/en/press-releases/2018/03/accusations-against-un-expert-retaliation-philippines-say-fellow-rapporteurs?LangID=E&NewsID=22783>.

622 “Global Witness strongly condemns the criminalisation of four land and environmental activists as ‘terrorists’ in the Philippines,” Global Witness, 12 July 2023, <https://www.globalwitness.org/en/press-releases/global-witness-strongly-condemns-the-criminalisation-of-four-land-and-environmental-activists-as-terrorists-in-the-philippines>.

623 Nina Lakhani, Damien Gayle and Matthew Taylor, “How criminalisation is being used to silence climate activists across the world,” *The Guardian*, 12 October 2023, <https://www.theguardian.com/environment/2023/oct/12/how-criminalisation-is-being-used-to-silence-climate-activists-across-the-world>.

624 Royce Kurlmelovs, “Environmental activists face ‘fever pitch’ of repression from Australian governments, report says,” *The Guardian*, 25 November 2021, <https://www.theguardian.com/environment/2021/nov/25/environmental-activists-face-fever-pitch-of-repression-from-australian-governments-report-says>.

625 Ibid.

626 *Escalating suppression of climate defenders exposed in new investigation*, Human Rights Law Centre, 25 November 2021, <https://www.hrlc.org.au/news/2021/11/23/escalating-suppression-of-climate-defenders-exposed-in-new-investigation>.

627 Interview with Scott Ludlam on 15 May 2024.

facility to be built in the Weelaunee Forest in Atlanta at the cost of 90 million USD.⁶²⁸ These indicted activists face penalties of up to 20 years in prison. Three bail fund organisers face additional money laundering charges, and other forest defenders face state domestic terrorism charges. The charges have been criticised as overreaching and excessively punitive.⁶²⁹ Such criminalisation follows a series of violent acts by the US government and police in the context of the “Stop Cop City” protests, including the killing of Manuel Esteban Paez Terán, also known as “Tortuguita,” an Indigenous queer and non-binary forest defender in January 2023.⁶³⁰

The resistance of Indigenous Peoples at the Standing Rock reservation against the Dakota Access Pipeline was also met with extreme use of force by state law enforcement officials, the North Dakota National Guard, and PMSCs. Operating together, they used excessive force—including in one instance PMSCs using guard dogs—against water protectors.⁶³¹ In one of the police raids on the camp, on 27 October 2016, the police forcibly evicted residents and arrested 142 people.⁶³² Seven people, all Native American, faced rare federal charges. Additionally, TigerSwan, a PMSC, used infiltration techniques to sow discord and monitor actions of demonstrators, in an attempt

to thwart protest activity and to identify threats to the pipeline.⁶³³ Ahjani Yepa-Sprague confirmed this in an interview for this report, saying that the company, composed mainly of ex-military personnel, was hired to run covert operations and to cause disinformation. “They had infiltrators and informants enter our camps. They did psychological warfare on us with constantly flying drones over our camp,” she added.⁶³⁴

In Canada, Wet’suwet’en land defenders have been facing a years-long campaign of violence, harassment, discrimination, and dispossession in resisting the construction of Coastal GasLink (CGL) liquified natural gas pipeline through their territory.⁶³⁵ In 2018 and 2019, the British Columbia Supreme Court (BCSC) granted CGL two injunctions which prevented the land defenders from blockading pipeline construction in Wet’suwet’en territory and allowed enforcement provisions. According to Amnesty International, “These injunctions have been used by the government of Canada and the Province of British Columbia to undertake constant surveillance, harassment, and the forceful removal and jailing of Wet’suwet’en land defenders.”⁶³⁶ In three large-scale police raids that took place in January 2019, February 2020, and November 2021, a total of 74 people were arrested and detained. These raids were highly militarised,

628 Christopher E. Bruce and Hina Shamsi, “RICO and Domestic Terrorism Charges Against Cop City Activists Send a Chilling Message,” ACLU, 21 September 2023, <https://www.aclu.org/news/free-speech/rico-and-domestic-terrorism-charges-against-cop-city-activists-send-a-chilling-message>.

629 Ibid.

630 Shoshana K. Goldberg, “Remembering Tortuguita, Indigenous queer and non-binary environmental activist and forest defender,” Human Rights Campaign, 21 March 2023, <https://www.hrc.org/news/rememering-tortuguita-indigenous-queer-and-non-binary-environmental-activist-and-forest-defender>.

631 Alleen Brown, Will Parrish and Alice Speri, “Leaked documents reveal counterterrorism tactics used at Standing Rock to “defeat pipeline insurgencies”, *The Intercept*, 27 May 2017, <https://theintercept.com/2017/05/27/leaked-documents-reveal-security-firms-counterterrorism-tactics-at-standing-rock-to-defeat-pipeline-insurgencies/#:~:text=Photo%3A%20TigerSwan,-Leaked%20Documents%20Reveal%20Counterterrorism%20Tactics%20Used%20at%20Standing%20Rock%20to,opponents%20and%20infiltrated%20protest%20camps>.

632 Alleen Brown, Will Parrish and Alice Speri, “The Battle of Treaty Camp,” *The Intercept*, 27 October 2017, <https://theintercept.com/2017/10/27/law-enforcement-descended-on-standing-rock-a-year-ago-and-changed-the-dapl-fight-forever/>.

633 Alleen Brown, Will Parrish and Alice Speri, “Leaked documents reveal counterterrorism tactics used at Standing Rock to “defeat pipeline insurgencies”, *The Intercept*, 27 May 2017, <https://theintercept.com/2017/05/27/leaked-documents-reveal-security-firms-counterterrorism-tactics-at-standing-rock-to-defeat-pipeline-insurgencies/#:~:text=Photo%3A%20TigerSwan,-Leaked%20Documents%20Reveal%20Counterterrorism%20Tactics%20Used%20at%20Standing%20Rock%20to,opponents%20and%20infiltrated%20protest%20camps>.

634 Interview with Ahjani Yepa-Sprague on 15 May 2024.

635 “Criminalization of Wet’suwet’en land defenders,” Amnesty International, 1 March 2023, <https://www.amnesty.org/en/latest/news/2023/03/criminalization-wetsuweten-land-defenders/>.

636 “Criminalization of Wet’suwet’en land defenders,” Amnesty International, 1 March 2023, <https://www.amnesty.org/en/latest/news/2023/03/criminalization-wetsuweten-land-defenders/>.

with the Royal Canadian Mounted Police (RCMP) using helicopters, dog units, and assault weapons, in addition to the involvement by CGL's private security company, Forsythe Security.⁶³⁷

Women defenders from the Wet'suwet'en People and other Indigenous groups have experienced both threats and acts of gender-based violence and discrimination.⁶³⁸ Amnesty International also underscores that "Indigenous women, Two Spirit and gender diverse defenders not only experience criminalization and surveillance but also state-sanctioned sexual and gender-based violence in their attempts to preserve their lands and waters and heal their communities."⁶³⁹

Police and private security services hired by industries have been known to routinely harass, assault and intimidate women, girls, Two-Spirit, gender diverse people and community members.⁶⁴⁰ As described in the fossil fuel chapter, "Resource extraction projects are also directly tied to the expansion of 'Man Camps,' temporary extractive industry labour camps that bring an influx of

transient male workers to Indigenous territories. These 'Man Camps' are associated with high rates of sexual and gender-based violence and trafficking experienced by Indigenous women, girls and 2SLGBTQIA+ people."⁶⁴¹

Indeed, there is a clear link between the militarisation of lands due to operations from extractive industries and gender-based violence. In the study produced by the Expert Mechanism on the Rights of Indigenous Peoples addressing the impact of militarisation on the rights of Indigenous Peoples, the group of experts stressed that the militarisation of and conflict over Indigenous land has led to the sexual assault, gang rape, sexual enslavement, and killing of Indigenous women and girls in India, Kenya, Myanmar, Nepal, the Philippines, Thailand, and Timor-Leste.⁶⁴² The UN Special Rapporteur on the Rights of Indigenous Peoples also noted that "because women and girls are primarily responsible for gathering food, fuel, water and medicine, they are exposed to risks of sexual violence by militarized security forces, park rangers and law enforcement officers."⁶⁴³

Repression of antinuclear movements

Antinuclear activists have also been targeted by state violence. One of the most famous cases of repression took place in New Zealand (Aotearoa) in 1985, when France bombed and sank the Greenpeace boat Rainbow Warrior, which was at the Port of Auckland on its way

to a protest against a planned French nuclear test in Moruroa.⁶⁴⁴ Photographer Fernando Pereira died due to the attack.

Repression against movements opposing French nuclear tests continued in 1995, after the

637 Ibid.

638 "Solidarity with the Wet'suwet'en Nation," Amnesty International, 11 December 2018, <https://www.amnesty.org/en/latest/news/2023/12/canada-amnesty-criminalization-surveillance-wetsuweten-land-defenders>.

639 "End violence against Indigenous women and 2SLGBTQIA+ land and water defenders in Canada," Amnesty International, 14 March 2024, <https://amnesty.ca/online-action/end-violence-against-indigenous-women-and-2slgbtqia-land-and-water-defenders-in-canada/>.

640 Ibid.

641 "End violence against Indigenous women and 2SLGBTQIA+ land and water defenders in Canada," Amnesty International, 14 March 2024, <https://amnesty.ca/online-action/end-violence-against-indigenous-women-and-2slgbtqia-land-and-water-defenders-in-canada/>.

642 *Impact of militarization on the rights of Indigenous Peoples*, op. cit.

643 Ibid.

644 "The bombing of the Rainbow Warrior," Greenpeace, <https://www.greenpeace.org/aotearoa/about/our-history/bombing-of-the-rainbow-warrior/>.

the police officers brought dogs onto one bus to intimidate the protesters. Among them were women with their children, including a baby. After several hours, the police eventually took the protestors to a police station in the town to be processed.⁶⁵²

Hawkins highlighted that in addition to this kind of military and police action, there are many others that also cause harm to activists, such as covert operations aimed at building distrust amongst communities, with people infiltrating and spreading disinformation and dissent within organised groups. In the late 1990s, there were revelations of a secret police unit in Victoria, for example, that infiltrated and conducted illegal surveillance of a broad range of social change groups.⁶⁵³

This kind of tactic can also be seen in the United Kingdom (UK). In the 1970s and 1980s, British undercover police officers infiltrated the Scottish Campaign to Resist the Atomic Menace (SCRAM), Friends of the Earth, and the Torness Alliance during protests against the building of a nuclear power station at Torness, Scotland.⁶⁵⁴

Russia has also used repressive tools to crack down against movements protesting nuclear energy and nuclear waste. Several national organisations opposed to nuclear energy were labelled as “foreign agents” by the Russian government and forced to close. That is the case of the organisation Kola Environmental Center (KEC), which was listed as a foreign agent in 2017, subjected to two trials, fined 150,000 RUB, and

eventually shuttered in 2018, due to its opposition to the Kola NPP reactor’s lifetime extension.⁶⁵⁵ Green World, which opposed dangerous nuclear projects in the Baltic Sea region, was listed as foreign agent in 2015 and forced to close.⁶⁵⁶ Other organisations, like Nature and Youth, made the decision to close to avoid prosecution.⁶⁵⁷

In March 2020, local activist Lyubov Kudryashova was targeted with a criminal case for her “public justification of terrorism using the Internet.” In 2017, she led the Public Monitoring Fund for the Environmental Condition and the Population Welfare, which has published information on the possible environmental damage resulting from Dalur’s mining activity.⁶⁵⁸ Additionally, several activists also faced prosecution following protests against the import of radioactive waste from Germany, to be stored in the Urals or Siberia. Rashid Alimov, an expert from Greenpeace Russia, was arrested in front of his house by two police officers, together with six other un-uniformed people, after participating in a protest in Saint Petersburg.⁶⁵⁹ He faced charges and a substantial fine, although the charges were later dropped. Alexandra Korolyova, leader of the organisation Ecodefense, which has also opposed the import of uranium waste, was targeted with five criminal cases in 2019 and eventually left the country.⁶⁶⁰

Activists fighting for awareness about radiation pollution have also been persecuted in Russia. Nadezhda Kutepova, a lawyer and head of the organisation Planet of Hope—which was also

652 Interview with Dimity Hawkins on 15 May 2024.

653 “Political surveillance in Victoria,” Activist Rights, 8 December 2022, <https://activistrights.org.au/kb/surveillance-of-activists/political-surveillance-in-australia>.

654 Billy Briggs, “Revealed: spycops infiltrated Scottish anti-nuclear groups,” *The Ferret*, 6 June 2021, <https://theferret.scot/spycops-infiltrated-scottish-anti-nuclear-groups/>.

655 Russian Social Ecological Union, “Anti-nuclear resistance in Russia: problems, protests, reprisals,” Kaka, May 2020, https://www.laka.org/docu/catalogue/publication/2.34.2.10/06_antinuclear-resistance-in-russia-problems-pro.

656 Ibid.

657 Ibid.

658 Ibid.

659 Ibid.

660 Ibid.

labelled as foreign agent in 2015 and closed in 2018—won more than 70 cases in defence of Mayak victims, including two cases in the European Court of Human Rights. She was accused of “industrial espionage” and had to flee the country with her children.⁶⁶¹

In India, antinuclear activism also has long been suppressed.⁶⁶² Since 1988, thousands of people have been protesting a nuclear power plant in southern India, at Kudankulam in Tamil Nadu’s Tirunelveli district. After the Fukushima nuclear reactor disaster in Japan in 2011, protests in Tamil Nadu gained new momentum, and the police and paramilitary forces responded firing shots and tear gas. At least two people were killed in 2012, and several others were injured.⁶⁶³ Protesters have also faced arbitrary legal charges, being accused of sedition and waging war against the government of India.⁶⁶⁴

In the US, anti-nuclear protests have also been repressed throughout the years. Since the 1960s, thousands of people have been arrested for taking direct action against US policies on nuclear weapons and nuclear power. A few examples that illustrate this phenomenon are the arrest of 1,401 people in 1977 who protested the Seabrook Station Nuclear Power Plant,⁶⁶⁵ as well as the arrest of 149 people protesting the Nevada Test Site in 1986.⁶⁶⁶ Hundreds more were arrested over

many years at other actions against the Nevada Test Site. In 2012, Sister Megan Rice and two other protesters were arrested for protesting at the Y-12 nuclear weapons production complex in Tennessee. They spray-painted the walls with antinuclear slogans, lit candles, prayed, and sang. For this, they were convicted of sabotage, or “harming the nation’s ability to defend itself.”⁶⁶⁷ After two years into her three-year sentence, the sabotage charge was overturned, and Sister Anne Rice was released from prison.⁶⁶⁸ Protesters from the Catholic Workers movement were also arrested in other instances. In 2018, seven activists known as the “Kings Bay Plowshares Seven,” broke into the naval base in Brunswick, Georgia, to protest the suspected nuclear arsenal housed within.⁶⁶⁹ The activists were charged with conspiracy, destruction of government property, and depredation. Such protests and arrests continue today.

Beyond the repression of protests, the US has been engaged in other types of violence against antinuclear activists and communities. In an interview for the project, Ahjani Yepa-Sprague pointed out the violence of the militarisation of her people’s sacred mountain with Los Alamos National Lab. She stressed that local people are not allowed to travel through that area without facing surveillance and passing through a checkpoint.⁶⁷⁰

661 Ibid.

662 Urvashi Sarkar, “India has long suppressed antinuclear activism. Still, activists persist,” *Bulletin of the Atomic Scientists*, 17 December 2021, <https://thebulletin.org/2021/12/india-has-long-suppressed-antinuclear-activism-still-activists-persist>.

663 Ibid.

664 Ibid.

665 Marco Giugni, “Social Protest and Policy Change: Ecology, Antinuclear, and Peace Movements in Comparative Perspective,” (Rowan & Littlefield, 2004), pp. 44, https://books.google.ch/books?id=Kn6YhNtyVigC&pg=PA45&redir_esc=y#v=onepage&q&f=false.

666 “Record 149 Arrested in Nevada Nuclear Protest,” *The Los Angeles Times*, 3 June 1986, <https://www.latimes.com/archives/la-xpm-1986-06-03-me-9174-story.html>.

667 Carole Sargent, “Sister Megan Rice: A Catholic Activists Who Saw Nuclear Weapons as a Social Injustice,” *Politico*, 27 December 2021, <https://www.politico.com/news/magazine/2021/12/27/2021-obituary-megan-rice-520597>.

668 Ibid.

669 Elise Swain, “Anti-Nuclear Pacifists Get Federal Prison Terms for Nonviolent Protest,” *The Intercept*, 16 November 2020, <https://theintercept.com/2020/11/16/nonviolent-protest-plowshares-nuclear/>.

670 Interview with Ahjani Yepa-Sprague on 15 May 2024.

The movement to abolish the police and actions against PMSCs

The violence perpetrated by the police and its role in maintaining an order based on the exploitation of people and the planet has been a motivator for movements around the world to call for the abolition of police and the entire prison-industrial complex (PIC). This call has been led by Black, Indigenous, and people of colour survivors and affected communities in the past two decades, and offers a “different vision for ending violence and transforming communities.”⁶⁷¹ US-based PIC abolitionist Mariame Kaba explains, “PIC abolition is a positive project that focuses, in part, on building a society where it is possible to address harm without relying on structural forms of oppression or the violent systems that increase it.”⁶⁷²

PIC abolition is a strategy that is already in practice. While it would be impossible to list all abolitionist initiatives taking place around the world, below are a few of them, which surfaced during the project’s interviews and research.

In the United States, where calls for the abolition of police reached the mainstream media after the murder of George Floyd in 2020, there are several abolitionist projects, collectives, movements,

and organisations working on this issue for decades, including: Critical Resistance,⁶⁷³ Project NIA,⁶⁷⁴ One Million Experiments,⁶⁷⁵ Interrupting Criminalization,⁶⁷⁶ #8toAbolition,⁶⁷⁷ Black & Pink,⁶⁷⁸ Creative Interventions,⁶⁷⁹ DefundPolice.org,⁶⁸⁰ Don’t Call the Police,⁶⁸¹ Movement 4 Black Lives,⁶⁸² and Stop Cop City.⁶⁸³

The last of these, Stop Cop City, is a movement opposed to the police training facility to be built in the Weelaunee Forest in Atlanta, Georgia. This facility would train police from the US and other countries in how to use military equipment to fight urban warfare. Organisers in Atlanta have been fiercely against the initiative, getting hundreds of thousands of signatures on petitions, engaging in protests, contributing to 17 hours’ worth of commentary to public hearings at City Hall, engaging in forest defence through encampments and blockades, and organising against the corporate backers and construction firms.⁶⁸⁴

The resistance of the Stop Cop City movement continues even after the murder of one forest defender and the charging of more than 40 others with domestic terrorism, as noted above.

671 Mariame Kaba, *We Do This ‘Til We Free Us* (Chicago: Haymarket Books, 2021), p 19.

672 Ibid.

673 Critical Resistance, <https://criticalresistance.org/>.

674 Project NIA, <https://project-nia.org/>.

675 One Million Experiments, <https://millionexperiments.com/>.

676 Interrupting Criminalization (IC), <https://www.interruptingcriminalization.com/>.

677 #8toAbolition, <https://www.8toabolition.com/>.

678 Black & Pink, <https://www.blackandpink.org/>.

679 Creative Interventions, <https://www.creative-interventions.org/>.

680 DefundPolice.org, <https://defundpolice.org/>.

681 Don’t Call the Police, <https://dontcallthepolice.com/>.

682 Movement 4 Black Lives, <https://linktr.ee/M4BL>.

683 Stop Cop City, <https://stopcop.city/>.

684 Ray Acheson, “Cop Cities, Borders, and Bombs,” *CounterPunch*, 17 March 2024, <https://www.counterpunch.org/2024/03/17/cop-cities-borders-and-bombs>.

The movement to Stop Cop City is a landmark case, in which activists are organising on environmental grounds but also against militarisation of the police, police brutality, racial injustice, gentrification, and more. The movement has brought together people of different ages, races, backgrounds, faiths, and other identities. Its largely decentralised, autonomous organisational structure enables different groups of people to take on different aspects of the work and to resist the various forms of state violence enacted against movement leaders and organisers.⁶⁸⁵

In Australia, Aboriginal and Torres Strait Islander people make up approximately 28 per cent of the total prison population in Australian prisons, despite making up only 2 per cent of the total adult population. Calls for PIC abolition in Australia are primarily driven by First Nations, disability and women's support groups.⁶⁸⁶ For example, in Queensland, Sisters Inside fundraises to pay fines, connects women with housing to increase their bail prospects, and provides social services, including violence intervention programs and child support.⁶⁸⁷ Other abolitionists facilitate community accountability processes without calling the police.⁶⁸⁸

In Brazil, the "Initiative Right to Memory and Racial Justice"—in its original name in Portuguese, "Iniciativa Direito à Memória e Justiça Racial (IDMJRacial)" —is doing work at the Baixada Fluminense in Rio de Janeiro against state violence by debating public security from an anti-racist perspective. The organisation "seeks to build public security policies based on life, on guaranteeing the

right to memory for victims and relatives of state violence, centred on confronting structural racism and demanding racial justice."⁶⁸⁹ The organisation's work is done in four main ways: training and mobilisation, advocacy, building memory, and producing data and knowledge. Their research findings on police budget in the state motivated the call for defunding the police, and the organisation has done several activities to mobilize in this regard, including public events and small grants for local organisations.

Several groups in Mexico are also exploring alternative ways of providing security for their communities. In an interview for the project, Náme Villa del Ángel spoke about the experience of autonomy movements in Mexico, like the Cherán, who have been "pushing for a more transformative way of understanding justice in a non-carceral way and non-militaristic way."⁶⁹⁰

Mitzi Jonelle Tan shared about the Lumad Indigenous Schools in the Philippines, which have been instrumental in the opposition to the militarisation of Indigenous territories in the country. These schools not only provide a haven for activists, but also contribute to education about protection of the land and environment.⁶⁹¹

Across all countries, a few common strategies have been developed to deal with aspects of police brutality. As highlighted by Scott Ludlam, in Australia, judicial cases have been brought against the police and their insurance companies because of abuse against protesters.⁶⁹² Ray

685 Ray Acheson, "The Racketeering of State Violence," *CounterPunch*, 17 September 2023, <https://www.counterpunch.org/2023/09/17/the-racketeering-of-state-violence>.

686 Robyn Lewis, "Prison abolition and reform in Australia: A case for campaigners to take abolition seriously," *Alternative Law Journal* 47(4), 29 September 2022, pp. 279–285, <https://journals.sagepub.com/doi/10.1177/1037969X221130539?icid=int.sj-full-text.similar-articles.4>.

687 Sisters Inside, <https://sistersinside.com.au>.

688 Robyn Lewis, op. cit.

689 Iniciativa Direito à Memória e Justiça Racial (IDMJRacial), <https://dmjracial.com>.

690 Interview with Náme Villa del Ángel on 30 May 2024.

691 Jose Monfred Sy, "We are defending a sanctuary of learning and of life," *University World News*, 30 January 2021, <https://www.universityworldnews.com/post.php?story=20210130093010398>.

692 Interview with Scott Ludlam on 15 May 2024.

Acheson highlighted that this is also common in the US, where victims have sued the NYPD for “kettling” and perpetrating other abuses in protests in New York.⁶⁹³

Regarding PMSCs, Annie Matundu Mbambi highlighted that in the Democratic Republic of the Congo (DRC), social movements are putting pressure on governments and to adopt stricter laws and policies on PMSCs. She said that movements seek to establish dialogue and cooperation between civilians and military forces to promote better understanding and resolve conflicts peacefully. “These efforts aim to create safer environments and ensure that human rights are respected, while seeking to hold the Private Military Services and police forces accountable for their actions,” she added.⁶⁹⁴

This call from activists in the DRC follows demands for better regulation of PMSCs by several actors, including the United Nations. The UN Working Group on the use of mercenaries has “maintained the position that the most effective way to regulate private military and security companies is through an international legally binding instrument.”⁶⁹⁵

Additionally, organisations have increasingly conducted research to monitor the activities and impacts of PMSCs⁶⁹⁶ and demanded accountability and justice for victims of contractors. However, much more can be done. Marta Bautista Forcada suggests that scholars and practitioners should coordinate with grassroots organizations to conduct joint field research to further study the

impact of PMSCs in their communities.⁶⁹⁷ She also suggests that Women, Peace, and Security (WPS) “activists, practitioners, and allies at the UN should strategise on joint advocacy to have stronger and more efficient legal frameworks that further regulate and harmonize the current regulation of PMSCs.”⁶⁹⁸ She added, “The WPS community, especially those focused on prevention, protection, and accountability, can contribute by systematically including PMSCs in their analyses of challenges to international peace, security, and human rights.”⁶⁹⁹

Overall, the solution to the repression of antinuclear and environmental movements does not lie in addressing this issue in an isolated manner, but rather considering it in the broader context of our militarised and capitalist society. As Náme Villa del Ángel pointed out, it is not about changing the logic of production or the system. “There is no other alternative if we keep thinking inside the logics of capitalism. So, if we don't want a logic of patriarchy, and a logic of war economy, and a logic of permanent war, we need to think outside of the box, outside of the system.”⁷⁰⁰

693 Ray Acheson mentioned this during interview with participants on 15 May 2024.

694 Interview with Annie Matundu Mbambi on 19 May 2024.

695 “Mercenaries and Private Military and Security Companies,” HRC/NONE/2018/40, United Nations Human Rights Special Procedures, 2018, <https://www.ohchr.org/sites/default/files/Documents/Issues/Mercenaries/WG/MercenarismandPrivateMilitarySecurityCompanies.pdf>.

696 Shock Monitor, <http://shockmonitor.org>.

697 Marta Bautista Forcada, “The privatization of war: A new challenge for the women, peace, and security agenda,” IPI Global Observatory, 24 October 2019, <https://reliefweb.int/report/world/privatization-war-new-challenge-women-peace-and-security-agenda>.

698 Ibid.

699 Ibid.

700 Interview with Náme Villa del Ángel on 30 May 2024.

INDUSTRY CONNECTIONS



Photo by Leo Lintang Adobe Stock.

This chapter looks at the connections between the nuclear and fossil fuel industries and the types of economic, political, and gendered structures of power that sustain them. It also looks at how both industries rely on state violence to continue operating, including through the repression by police, militaries, and private military and security companies outlined in the previous chapter. Understanding how these industries and systems of violence collaborate helps illuminate opportunities for solidarity in our resistance to them.

Colonialism and capitalism

Colonialism created the blueprint for extractivism and provided justifications for exploitation of the Earth and humans by creating an artificial separation between humans and nature, as well as humans in the colonising countries and those in colonised places. The dehumanisation of people in the Global South and the reckless exploitation and pollution of the environment in those regions continues to this day. This has resulted in the relentless transfer of resources and wealth from the Global South to the Global North, as well as to the enrichment of a small local elite in some Global South countries.

Profits and power

Extractive corporations, including fossil fuel, mining, and nuclear companies, are key players in perpetuating these practices. Global North as well as Chinese extractive companies are inflicting neocolonial violence on communities in the Global South and on marginalised and racialised communities in the Global North, all while pocketing soaring profits for their head offices on the other side of the world. For example, as mentioned earlier in this report, six major corporations based in the Global North account for two-thirds of the world's investment in oil exploration.⁷⁰¹ At the

same time, in 2023, twenty companies working on nuclear weapon development, modernisation, and maintenance raked in at least 31 billion USD,⁷⁰² with the top earners, including Honeywell International, Northrop Grumman, BAE Systems, Lockheed Martin, and General Dynamics all headquartered in the Global North.

The extractive and nuclear industries' profiteering is deeply embedded within larger economic and financial systems that predominantly benefit the Global North. Financial institutions play a key role in sustaining the destruction caused by both industries. As examined in the chapter on the nuclear industry, 287 financial institutions currently hold 477 billion USD in shares and bonds in corporations involved in the production of the nuclear supply chain.⁷⁰³ The top ten bond and shareholders are all based in the United States, with the largest investments from Vanguard, Capital Group, State Street, and BlackRock. The banks that lend most to nuclear weapons companies are Citigroup, Bank of America, JPMorgan Chase, Wells Fargo, and BNP Paribas.

The same institutions that are financing the nuclear industry are also the ones propping up the fossil fuel industry. The 2023 report *Investing in Climate*

701 Alba Kapoor, Nannette Youssef and Simon Hood, "Confronting Injustice: Racism and the Environmental Emergency," Greenpeace and Runnymede Trust, <https://www.greenpeace.org.uk/challenges/environmental-justice/race-environmental-emergency-report/>.

702 "Surge: 2023 Global Nuclear Weapons Spending," International Campaign to Abolish Nuclear Weapons, June 2024, https://www.icanw.org/surge_2023_global_nuclear_weapons_spending.

703 Alejandra Muñoz, "Untenable Investments: Nuclear weapon producers and their financiers," PAX and International Campaign to Abolish Nuclear Weapons, 2024, <https://www.dontbankonthebomb.com/untenable-investments>.

*Chaos*⁷⁰⁴ revealed that over 6,500 institutional investors are holding bonds and shares in coal, oil, and gas worth 3.05 trillion USD. The two biggest investors are Vanguard and BlackRock, with 17 per cent of all institutional investments. Another 2024 report, *Banking on Climate Chaos*, exposes the “Dirty Dozen” of worst banks financing fossil fuels globally since the adoption of the Paris Agreement, between 2016 and 2023. The same banks’ asset management arms that finance nuclear weapons production also finance climate breakdown. They include JPMorgan Chase, Citigroup, and Bank of America.⁷⁰⁵

These connections point to the problematic financial architecture that sustains destructive industries. The largest fossil fuel and nuclear companies are in fact owned and controlled by the same big investment funds, exerting power and influence over both industries, with a clear vested interest for these industries to continue their profiteering.

In the nuclear industry, the corporations involved in nuclear profiteering are contracted or subsidised by governments. In the US, for example, nuclear weapon producing companies receive bloated funding from the government and pull in enormous profits while costing taxpayers billions in cost overruns, even as projects languish years behind schedule or even end up being scrapped.⁷⁰⁶ Nuclear power plants are often subsidised with government grants.⁷⁰⁷ As Tim Hollo of the Green Institute in Australia argues:

The privatisation of profit and socialisation of risk inherent in nuclear power only makes economic sense if you believe in the dominance of corporations. With multi-billion dollar cost blowouts in construction and decommissioning, the refusal of private insurance companies to cover risk, and a waste stream that will need to be managed for many times longer than our civilisation has so far existed, it’s basically a complex wealth transfer from citizens to corporations.⁷⁰⁸

The fossil fuel industry is also subsidised by taxpayer funds, as explored earlier in this report. In 2020, globally the industry received 5.9 trillion USD in subsidies.⁷⁰⁹ In the US, the fossil fuel industry receives around 20 billion USD in federal and state production subsidies every year.⁷¹⁰

The collusion between governments, international financial institutions, and extractive and weapon-producing corporations sabotages both nuclear disarmament and a just transition away from fossil fuels and nuclear energy. Antinuclear and climate justice movements and civil society organisations are acutely aware of the major role that international financial institutions play in wreaking havoc on the planet, and expose these connections in regular investigative reports.⁷¹¹ But further work is needed to raise awareness

704 Investing in Climate Chaos: NGOs Release Data on Fossil Fuel Holdings of 6,500 Institutional Investors, *urgewald*, 20 April 2023, <https://investinginclimatechaos.org/media/pages/reports/4377839a28-1693208616/urgewald-pr-iicc-august2023.pdf>.

705 April Merleaux et al, *Banking on Climate Chaos: Fossil Fuel Finance Report 2024*, Rainforest Action Network et al, https://www.bankingonclimatechaos.org/wp-content/uploads/2024/06/BOCC_2024_vF2.pdf.

706 Jonathan King and Richard Krushnic, “Biden Is Quietly Funding Nuclear Weapons Upgrades That Could Imperil the Planet,” *Truthout*, 29 March 2024, <https://truthout.org/articles/biden-is-quietly-funding-nuclear-weapons-upgrades-that-could-imperil-the-planet>.

707 Catherine Clifford, “Why the U.S. government plans to spend billions to keep money-losing nuclear plants open,” *CNBC*, 17 February 2022, <https://www.cnn.com/2022/02/17/the-us-is-spending-billions-to-keep-money-losing-nuclear-plants-open.html>.

708 Tim Hollo, “Do Nuclear-Powered Electrons Have Balls? Hyper-Masculine Domination VS Ecological Politics,” *Green Agenda*, 30 August 2019, <https://greenagenda.org.au/2019/08/hyper-masculine-domination-vs-ecological-politics>.

709 Darmian Carrington, “Fossil fuel industry gets subsidies of \$11m a minute, IMF finds,” *The Guardian*, 6 October 2021, <https://www.theguardian.com/environment/2021/oct/06/fossil-fuel-industry-subsidies-of-11m-dollars-a-minute-imf-finds>.

710 Tim Donaghy, “8 reasons why we need to phase out the fossil fuel industry,” *Greenpeace*, 22 November 2021, <https://www.greenpeace.org/usa/research/8-reasons-why-we-need-to-phase-out-the-fossil-fuel-industry>.

711 See for example the yearly reports *Untenable Investments: Nuclear weapon producers and their financiers*, and the “Banking on Climate” series.

amongst the public about the role of the financial sector, and to encourage further divestments from these industries.

Harms

While profits of colonial corporatism described above go to a small minority, harms are externalised to entire communities and ecosystems by both industries.

In an interview for this project, Ahjani Yepa-Sprague of Tewa Women United noted that all elements of the nuclear industry—nuclear weapons, uranium mining, radioactive waste—as well as the fossil fuel industry, create spaces that are treated by governments as “sacrifice zones”. The nuclear, gas, and coal industries, she argued, come together in terms of leasing of public lands, mining, and extracting, and in their turning Indigenous communities and other frontline communities into sacrifice zones. “They’re willing to pollute and contaminate our lands, air, water, and people,” said Yepa-Sprague.⁷¹²

Both industries have relied on and continue to rely on sacrifice zones to continue their profiteering. As extensively documented in this report, these zones are often concentrated in communities that are already made vulnerable due to systems of oppression and are located disproportionately in the Global South. As well and as shown throughout previous chapters, neither industry meaningfully consults affected communities. Both industries fail to ensure Free, Prior, and Informed Consent, an essential component to the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), because they regard these communities and its ecosystems as disposable.

Sacrifice zones are also marked by specific and disproportionate gendered impacts. Previous



Photo by Denys Adobe Stock.

chapters in this report illuminated the ways in which both industries have exacerbated gender-based violence at extraction sites. For example, the “man camps” set up near fossil fuel extraction sites and uranium mining sites correlate with a prevalence of sexual assault and the extensively documented phenomenon of missing and murdered Indigenous women, girls, and Two Spirit people. All aspects of the nuclear industry also have gendered impacts due to the health effects of ionising radiation, social and cultural norms, and other discriminations. Similarly, all stages of the fossil fuel supply chain have distinct gendered health impacts, while repression of those resisting these industries often includes various forms of gender-based violence.

712 Interview with Ahjani Yepa-Sprague on 15 May 2024.

Militarism

Both fossil fuel and nuclear industries accelerate militarisation, conflict, and war. They are dependent on and profit from a militaristic world view that regards conflict and war as unavoidable and prioritise confrontation and competition over cooperation and diplomacy.

War and fossil fuels

It is important to note that there does not exist a causal relationship between fossil fuels and war—but no other commodity has shaped international wars to such a significant extent as oil has. For instance, an estimated one-quarter to one-half of all interstate wars have been linked to oil since 1973.⁷¹³ There has been a long history of states with little or no domestic fossil fuel reserves intervening militarily in other countries, and propping up their militaries to secure or maintain a flow of energy supplies. Oil-producing states have expanded national and corporate interests through militarism and intervention. For example, according to a study released in 2018, the US military spends 81 billion USD a year to monopolise global oil supplies.⁷¹⁴

The relationship between oil, militarism, and armed conflict is also not clear-cut and is a source of discussion and debate. Although there is a common narrative that US military interests in the Middle East region has been to secure energy sources,

some argue that the relationship has been “oil for insecurity, a dynamic in which war, militarization and autocracy in the region have been entangled with the economic dominance of North Atlantic oil companies, US hegemony and discourses of energy security.”⁷¹⁵ Academic Jacob Mundy argues, “By posing as the protector of the global economy’s most essential energy resource, the United States was able to extract geopolitical power from Middle Eastern oil. Growing insecurity in the Middle East, in turn, has allowed the North Atlantic oil industries to derive economic power from this politically manufactured scarcity.”⁷¹⁶

Azra Talat Sayeed, a political activist from Pakistan, highlighted in an interview for this project that “militarism is very closely tied to the politics of control and colonisation—and in our territories, colonisation has been very much driven by the control of fossil fuels.”⁷¹⁷

There is also a link between oil and civil wars, with some research indicating that armed conflicts and separatist movements are concentrated in oil-producing regions.⁷¹⁸ Some research has indicated that the presence of oil is correlated with intensification of violence during armed conflict and influences the activities of armed groups, including the decision of armed groups to settle in particular regions or areas.⁷¹⁹

713 Jeff D. Colgan, “Fueling the Fire: Pathways from Oil to War,” *International Security* 38(2), pp. 147–180, October 2013, <https://www.jstor.org/stable/24480933>.

714 “The Military Cost of Defending Global Oil Supplies,” *Securing America’s Future Energy*, 21 September 2018, <http://secureenergy.org/wp-content/uploads/2020/03/Military-Cost-of-Defending-the-Global-Oil-Supply.-Sep.-18.-2018.pdf>.

715 Jacob Mundy, “The Oil for Security Myth and Middle East Insecurity,” Middle East Research and Information Project: Critical Coverage of the Middle East Since 1971, Spring 2020, <https://merip.org/2020/06/the-oil-for-security-myth-and-middle-east-insecurity-2>.

716 Ibid.

717 Interview with Azra Talat Sayeed on 30 May 2024.

718 Graeme Blair, Drain Christensen, and Michael Gibilisco, “The Point of Attack: Where and Why Does Oil Cause Armed Conflict in Africa?,” September 2023, <https://graemeblair.com/papers/where.pdf>.

719 Juan David Gutiérrez Rodríguez, “The connection between oil wealth and internal armed conflicts: Exploring the mechanisms of the relationship using a subnational lens,” *The Extractive Industries and Society* 6(2), pp. 319–331, April 2019, <https://www.sciencedirect.com/science/article/abs/pii/S2214790X18300935>.

Fossil fuel companies benefit from war and militarism in various ways. Firstly, war or military intervention can secure them access to extraction sites. One example of military intervention that significantly benefitted multinational oil companies is the US war against Iraq and its ensuing occupation. Once Saddam Hussein was removed from power, the United States set up a provisional US-led government, which allowed for the privatisation of the Iraqi oil industry. In this context, the Global Centre for Climate Justice argues that this “benefitted Anglo-American oil companies like Shell and British Petroleum (BP), granting them 30-year contracts that allowed them keep most of the profits from Iraq’s oil extractions and export them abroad.”⁷²⁰ BP was offered Iraq’s largest Rumaila oil field near Basra, the same area that the British Army had occupied. As a result, BP pumped oil worth 15.4 billion GBP from 2011–2022. By 2020, BP produced more oil from Iraq than its entire European operations.⁷²¹

Private military and security companies have also played a key role in protecting US oil interests and the “reconstruction” after the Iraq war. Estimates suggested that at least 25 per cent of the US government’s 18.6 billion USD spending on “reconstruction” of Iraq was used to pay security companies.⁷²² Private security company Eryins International was deployed to protect US government and oil companies’ interests. The company provided 14,500 guards to protect Iraq’s oil pipeline with an annual contract of more than 100 million USD paid for by the Pentagon.⁷²³

The Global Center for Climate Justice poignantly describes connections between the fossil fuel industry and the broader military-industrial complex in the US context:

When governments hold investments in extractive industries (e.g. oil), the state often works to increase the profits of that industry through policy choices (e.g. supporting war to access oil) in order to maintain tax revenues, royalty income, etc. These same defense industries and corporate polluters shower government officials with campaign donations and lucrative job offers. This creates an opportunity for government officials to profit directly from warmongering and pro-oil policies. This results in an ongoing revolving door between corporate polluters, the defense industry, and federal government positions.⁷²⁴

This revolving door is not limited to the United States. In the United Kingdom, Sir John Sawers was the country’s first special representative to Iraq in 2003. He had served then-UK Prime Minister Tony Blair as a foreign policy advisor. In 2014, he stepped down as head of M16, the UK’s intelligence agency and the following year, he joined BP’s board. As Matt Kennard shares in an exposé on the topic, the company reported that Sawers was a suitable candidate for the job as he “brings long experience of international politics and security that are so important to our business.”⁷²⁵

720 “The Military Cost of Defending Global Oil Supplies,” *Securing America’s Future Energy*, 21 September 2018, <http://secureenergy.org/wp-content/uploads/2020/03/Military-Cost-of-Defending-the-Global-Oil-Supply.-Sep.-18.-2018.pdf>.

721 Matt Kennard, “BP extracted Iraqi Oil Worth £15BN after British Invasion,” *Declassified UK*, 22 March 2023, <https://www.declassifieduk.org/bp-extracted-iraqi-oil-worth-15bn-after-british-invasion>.

722 James Conachy, “Private military companies in Iraq: profiting from colonialism,” World Socialist Web Site, 3 May 2004, <https://www.wsws.org/en/articles/2004/05/pmcs-m03.html>.

723 Matthew Quirk, “Private Military Contractors: A buyer’s guide,” *The Atlantic*, September 2004, <https://www.theatlantic.com/magazine/archive/2004/09/private-military-contractors/303424>.

724 Katya Forsyth and Frederick Kerr, “The Toxic Relationship between Oil and the Military,” Global Center for Climate Justice, 22 March 2022, <https://www.climatejusticecenter.org/newsletter/the-toxic-relationship-between-oil-and-the-military>.

725 Matt Kennard, “BP extracted Iraqi Oil Worth £15BN after British Invasion,” op. cit.

Secondly, war and conflict create uncertainty and volatility, upon which fossil fuel corporations as well as international financial institutions capitalise. Previous wars have caused an increase of oil prices, from the Iran-Iraq war in the 1980s to the Gulf War in the early 1990s. More recently, Russia's full-scale invasion of Ukraine in 2022 sparked another global energy crisis. Wholesale gas and oil prices skyrocketed, resulting in historic and unprecedented profits for oil and gas producers. Importantly, the price of oil is not necessarily and exclusively determined by supply and demand, but also subject to energy traders who buy and sell energy contracts based merely on the *expectation* of a shortage. As Antonia Juhasz from Human Rights Watch explained, "When there are times of crisis, like a war, the price of oil will go up whether or not a supply shortage even materialises—either way, the industry benefits."⁷²⁶ In fact, Russia still managed to sell its oil through various loopholes, despite sanctions imposed by Western countries.⁷²⁷ Since the beginning of Russia's invasion of Ukraine, European and US fossil fuel corporations made more than a quarter of a trillion dollars. These corporations paid more than 200 billion USD to shareholders in the same period.⁷²⁸ As a result, US President Biden accused the industry of "war profiteering" while the UN Secretary-General warned that fossil fuel companies "have humanity by the throat".⁷²⁹

Another way that fossil fuel companies profit from death and destruction is through their direct supplies of oil and refined products to militaries.

Oil Change International, for instance, unearthed how BP, Chevron, ExxonMobile, Shell, Eni, and TotalEnergies have all facilitated the supply of crude oil for tanks and military vehicles to Israel since the beginning of its most recent attacks on the Gaza Strip in October 2023.⁷³⁰ Meanwhile, the Centre for Research on Multinational Corporations (SOMO) exposed how US companies such as the Valero Energy Corporation (Valero), which are contracted by the US government, are profiting from the supply of military jet fuel to Israel. From 2020–2024, the US Department of Defense awarded 24 contracts to Valero, one of the top 100 suppliers of jet and diesel fuel to the US military. In 2024, SOMO reported that the export of jet fuels from the Valero refineries increased, suggesting that "the U.S., and the companies involved in the jet fuel supply chain between U.S. and Israel, are on course to deliver a greater supply of fuel to Israel in the context of the ongoing conflict."⁷³¹

Thirdly, fossil fuel corporations can benefit from contexts of conflict, insecurity, and upheaval as it can muddle their contribution to insecurity and violence. While the causes of the conflict between South Sudan and Sudan are rooted in tribal, economic, religious, social, and political factors, a Human Rights Watch report found that the large-scale exploitation of oil by foreign companies operating in southern Sudan increased human rights abuses, including many cases of forced displacement.⁷³²

The case of Aceh, Indonesia is one in which private oil companies and disputes over oil revenues

726 Nick Thompson, "How Do Oil Companies Get Away With, Well, Everything? An Expert Explains," *Vice*, 22 February 2024, <https://www.vice.com/en/article/ak385j/how-oil-companies-get-away-with-everything-expert>.

727 "EU purchases of laundered Russian oil worth an estimated €1.1 billion to the Kremlin in 2023," Global Witness, 23 February 2024, <https://www.globalwitness.org/en/campaigns/fossil-gas/eu-purchases-of-laundered-russian-oil-worth-an-estimated-11-billion-to-the-kremlin-in-2023>.

728 "US & European big oil profits top a quarter of a trillion dollars since the invasion of Ukraine," Global Witness, 19 February 2024, <https://www.globalwitness.org/en/press-releases/us-european-big-oil-profits-top-quarter-trillion-dollars-invasion-ukraine>.

729 "Crisis year 2022 brought \$134 billion in excess profit to the West's five largest oil and gas companies," Global Witness, 9 February 2023, <https://www.globalwitness.org/en/campaigns/fossil-gas/crisis-year-2022-brought-134-billion-in-excess-profit-to-the-wests-five-largest-oil-and-gas-companies>.

730 "Investigating the countries and companies behind Israeli crude oil and fuel supply chains," Oil Change International, March 2024, <https://priceofoil.org/content/uploads/2024/03/Israel-Gaza-Fuel-Data-v2.pdf>.

731 Lydia De Leeuw and Misa Norigami, *Fuelling the flames in Gaza: Exploring the legal consequences for states and corporations involved in supplying jet fuel to the Israeli military*, The Centre for Research on Multinational Corporations (SOMO), May 2024, <https://www.somo.nl/fuelling-the-flames-in-gaza>.

732 "Sudan, Oil, and Human Rights: Summary," Human Rights Watch, November 2003, <https://www.hrw.org/reports/2003/sudan1103/8.htm>.

intersected with state neglect, human rights violations, and questions about sovereignty and self-determination. In Aceh, the Free Aceh Movement waged a war for independence against the Indonesian military for approximately 30 years, from the mid 1970s until 2005. The Indonesian government sought to retain control of Aceh in large part due to its wealth of natural resources, predominantly oil and gas. The armed conflict only came to an end after the 2004 tsunami, which killed almost 200,000 people in Aceh. The resulting peace agreement, the Helsinki Memorandum of Understanding, stipulated that 70 per cent of oil and gas revenues should stay in Aceh.⁷³³

ExxonMobil played a large role in the events leading up to and surrounding the armed conflict. In the late 1960s, then-Mobil corporation began operating the Arun gas fields in Aceh, and during the armed conflict, hired Indonesian military officials to provide security to the fields.⁷³⁴ In 2023, ExxonMobil settled a long-standing dispute that was brought by Acehese villagers who argued that the company was complicit in torture and other human rights violations perpetrated by Indonesian military officials providing security to the company.⁷³⁵ The case argued that ExxonMobil

executives were aware of the abuses perpetrated by the military, and knowingly hired and supported them even though they tortured, killed, and sexually assaulted the villagers.⁷³⁶

ExxonMobil has been at the centre of a variety of other disputes, including as one of only two companies (along with ConocoPhillips) that rejected regulation of the oil industry in Venezuela.⁷³⁷

It is important to note that the same geopolitical risks for conflict, war, and occupation that have been documented with respect to fossil fuels are already being replicated with critical minerals required for renewable energy technologies. It is indeed not a given that a switch to renewable energy automatically means more global peace. There are many unknowns in terms of how geopolitics will play out in a world without fossil fuels.⁷³⁸ The decline of petrostates is likely to present a risk for tension and conflict.⁷³⁹ Another risk has been identified as it relates to non-state actors' roles in conflicts caused by increased global competition for the land required for renewable energy installations.⁷⁴⁰ Similarly, the scramble to secure access to critical minerals required to power the renewable energy transition

733 Esther Pan, "Indonesia: The Aceh Peace Agreement," Council on Foreign Relations, 15 September 2005, <https://www.cfr.org/backgrounder/indonesia-aceh-peace-agreement>.

734 Neela Banerje, "Lawsuit Says Exxon Aided Rights Abuses," *The New York Times*, 21 June 2002, <https://www.nytimes.com/2001/06/21/business/lawsuit-says-exxon-aided-rights-abuses.html>.

735 "Indonesia: After two decades, ExxonMobil settles case of alleged human rights abuses including torture brought by Aceh villagers," Business & Human Rights Resource Centre, 16 May 2023, <https://www.business-humanrights.org/en/latest-news/indonesia-after-two-decades-exxonmobil-settles-case-of-alleged-human-rights-abuses-including-torture-brought-by-aceh-villagers/>.

736 Douglas Gillision, "Exxon Human Rights Case Survives— On Claim that Execs Knew All Along," Business & Human Rights Resource Centre, 21 July 2015, <https://www.business-humanrights.org/en/latest-news/exxon-human-rights-case-survives-on-claim-that-execs-knew-all-along/>.

737 "ExxonMobil and A Possible War in South America," *Modern Diplomacy*, 9 December 2023, <https://moderndiplomacy.eu/2023/12/09/exxonmobil-and-a-possible-war-in-south-america/>.

738 Roman Vakulchuk, Indra Overland, and Daniel Scholten, "Renewable energy and geopolitics: A review," *Renewable and Sustainable Energy Reviews* 122, April 2020, <https://www.sciencedirect.com/science/article/pii/S1364032119307555>.

739 See for example Tim Sweijts et al., *Time to wake up: The geopolitics of EU 2030 climate and energy policies*, The Hague Centre for Strategic Studies, 2014, https://hcss.nl/wp-content/uploads/2014/09/HCSS_Wake-Up-1.pdf; and Fritz Reusswig, Nadejda Komendantova, and Antonella Battaglini, "New Governance Challenges and Conflicts of the Energy Transition: Renewable Electricity Generation and Transmission as Contested Socio-technical Options," in Daniel Scholten (ed.) *The Geopolitics of Renewables* (London: Springer International Publishing, 2018), pp. 231–256, https://link.springer.com/chapter/10.1007/978-3-319-67855-9_9.

740 See for example Iñigo Capellán-Pérez, Carlos de Castro, and Iñaki Arto, "Assessing vulnerabilities and limits in the transition to renewable energies: Land requirements under 100% solar energy scenarios," *Renewable and Sustainable Energy Reviews* (77), September 2017, pp. 760–782, <https://www.sciencedirect.com/science/article/abs/pii/S1364032117304720>; André Månsson, "A resource curse for renewables? Conflict and cooperation in the renewable energy sector," *Energy Research & Social Science* 10, November 2019, pp. 1–9, <https://www.sciencedirect.com/science/article/abs/pii/S2214629615000791>; and Bengt Johansson, "Security aspects of future renewable energy systems—A short overview," *Energy* 61, November 2013, pp. 598–605, <https://www.sciencedirect.com/science/article/pii/S0360544213007743>.

poses another conflict potential,⁷⁴¹ and is, in fact, already playing out. Azra Talat Sayeed explained this dynamic in relation to the occupied territories of Kashmir, noting, “Both Pakistan and India have occupied Kashmir. On the Indian side of Kashmir they have found a lot of lithium and other rare earth minerals. Since then, the United Arab Emirates, and the Saudis have been investing in Kashmir, which is an occupied territory. The level of oppression and exploitation of Kashmir is considered to be equal to Palestine.”⁷⁴²

There is no denying that currently, fossil fuel extraction, exports, and use are the very foundation of powering militarism. Militaries are uniquely dependent on fossil fuels. They are some of the largest institutional consumers of fossil fuels, even in the absence of active conflict. According to a recent study from Brown University’s Cost of War Project, “The [US Department of Defense] is the world’s largest institutional user of petroleum and correspondingly, the single largest producer of greenhouse gases in the world.”⁷⁴³ Globally, it is conservatively estimated that military activity contributes at least 5.5 per cent of global greenhouse gas emissions.⁷⁴⁴ To put this into perspective: The global emissions of the civilian aviation industry account for roughly 2.5 per cent.

In addition to emissions originating from regular military operations, ongoing conflicts are powered

by oil. Just one B-52 military Stratocruiser jet, for instance, consumes about as much fuel in an hour as the average car driver uses in seven years.⁷⁴⁵

The use of these fighter jets, missiles, and bombs, and the resulting destruction of infrastructure and entire ecosystems, including carbon sinks such as forests, all combine to create immense amounts of emissions. For example, the first two years of the war in Ukraine generated additional emissions that were greater than the greenhouse gas emissions generated by 175 countries combined.⁷⁴⁶ Only the first two months of Israel’s most recent war on Gaza have been estimated to at least produce emissions comparable to the annual carbon footprint of more than 20 of the world’s most climate-vulnerable nations—of which over 99 per cent can be attributed to Israel’s military operations.⁷⁴⁷ The reconstruction of conflict-destroyed infrastructure and buildings again relies on fossil fuels and other energy-intensive materials. The carbon costs of reconstructing Gaza will entail total annual emissions that are higher than those of over 130 countries.⁷⁴⁸

War and nuclearism

The nuclear industry also makes a killing off war and militarisation. In the wake of Russia’s invasion of Ukraine, for example, the nine nuclear-armed states increased their spending on nuclear

741 Olivia Lazard, “The blind spots of the green energy transition,” TED, June 2022, https://www.ted.com/talks/olivia_lazard_the_blind_spots_of_the_green_energy_transition? See also Roman Vakulchuk, Indra Overland, and Daniel Scholten, “Renewable energy and geopolitics: A review,” *Renewable and Sustainable Energy Reviews* 122, April 2020, <https://www.sciencedirect.com/science/article/pii/S1364032119307555>.

742 Interview with Azra Talat Sayeed on 30 May 2024.

743 Neta C. Crawford, “Pentagon Fuel Use, Climate Change, and the Costs of War,” *Costs of War and Brown University*, 13 November 2019, <https://watson.brown.edu/costsofwar/files/cow/imce/papers/Pentagon%20Fuel%20Use%2C%20Climate%20Change%20and%20the%20Costs%20of%20War%20Revised%20November%202019%20Crawford.pdf>.

744 Stuart Parkinson and Linsey Cottrell, “Estimating the Military’s Global Greenhouse Gas Emissions,” *Scientists for Global Responsibility and Conflict and Environment Observatory*, November 2022, https://ceobs.org/wp-content/uploads/2022/11/SGRCEOBS-Estimating_Global_Military_GHG_Emissions_Nov22_rev.pdf.

745 Lorah Steichen and Lindsay Koshgarian, “No Warming, No War: How Militarism Fuels the Climate Crisis—and Vice Versa,” *National Priorities Project at the Institute for Policy Studies*, 1 April 2022, <https://www.jstor.org/stable/resrep28827>.

746 Nina Lakhani, “Russia’s war with Ukraine accelerating global climate emergency, report shows,” *The Guardian*, 13 June 2024, <https://www.theguardian.com/environment/article/2024/jun/13/russia-war-with-ukraine-accelerating-global-climate-emergency-report-shows>.

747 Nina Lakhani, “Emissions from Israel’s war in Gaza have ‘immense’ effect on climate catastrophe,” *The Guardian*, 9 January 2024, <https://www.theguardian.com/world/2024/jan/09/emissions-gaza-israel-hamas-war-climate-change>.

748 Benjamin Neimark, Patrick Bigger, Frederick Out-Larbi, and Reuben Larbi, “A Multitemporal Snapshot of Greenhouse Gas Emissions from the Israel-Gaza Conflict,” *SSRN*, 9 January 2024, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4684768.

weapons by 2.5 billion USD.⁷⁴⁹ As outlined in the nuclear chapter, all nine nuclear-armed states are modernising and/or expanding their nuclear arsenals, and while much of this work was initiated long before the current increase in global tensions, the geopolitical unrest is now being used as an excuse to justify it publicly. Moreover, new countries are now hosting nuclear weapons on their territories,⁷⁵⁰ and others are saying they are seriously considering acquiring them.⁷⁵¹

Over in the Pacific, plans are brewing for a trilateral military alliance between Australia, the United Kingdom, and the United States (AUKUS). Announced in 2021, AUKUS seeks to counter China's influence in the Asia-Pacific region through Australia's acquisition of nuclear-powered submarines and the integration of the Australian, UK, and US navies. As scholars Marco de Jong and Robert G. Patman have argued, the purpose of AUKUS is to extend US nuclear deterrence "and to facilitate closer ties between AUKUS states and the US-military-industrial complex."⁷⁵² Under the new alliance, Australia has pledged to spend at least 368 billion AUD, with at least 9 billion AUD set to bolster the US and UK nuclear submarine industries.⁷⁵³

Beyond the proliferation of the nuclear-armed submarines, highly enriched uranium, and radioactive waste associated with the plan (all of which generate more profits for companies involved in each element), AUKUS is also already proliferating militarism. New Zealand/Aotearoa,⁷⁵⁴ Canada,⁷⁵⁵ and Japan⁷⁵⁶ and have expressed interest in collaborating with the alliance. The expansion of this nuclear-industry-driven military alliance is expanding before it even gets off the ground, and is creating more global and regional instability and even risking nuclear war. China's government has expressed concern repeatedly with the pact and has warned in particular that Japan's inclusion would "intensify the arms race in the Indo-Pacific region and disrupt regional peace and stability."⁷⁵⁷

The nuclear industry's profiteering is based on its promotion of "the relentless circular (il)logic of nuclear deterrence, the principal tenet of which is that the possession of nuclear weapons makes their use impossible and thus prevents war."⁷⁵⁸ However, with an ever-increasing number of conflicts and wars around the world, which have almost doubled from 30 in 2010 to 56 in 2022,⁷⁵⁹ it should be clear that nuclear weapons do not

749 Wasted: 2022 Global Nuclear Weapons Spending, International Campaign to Abolish Nuclear Weapons, June 2023, https://www.icanw.org/wasted_2022_global_nuclear_weapons_spending.

750 "Putin announces deployment of tactical nuclear weapons to Belarus," International Campaign to Abolish Nuclear Weapons, 19 June 2023, https://www.icanw.org/putin_announces_plans_to_deploy_nuclear_weapons_in_belarus.

751 Ulrich Kühn, "Germany debates nuclear weapons, again. But now it's different," *Bulletin of the Atomic Scientists*, 15 March 2021, <https://thebulletin.org/2024/03/germany-debates-nuclear-weapons-again-but-now-its-different/>.

752 Marco de Jong and Robert G Patman, "Aukus Pillar II compromises NZ's principled, in dependent voice," *newsroom*, 3 April 2021, <https://newsroom.co.nz/2024/04/03/aukus-pillar-two-would-compromise-nzs-principled-independent-voice>.

753 Ray Acheson, "Solidarity to Stop AUKUS: Saying No to Nuclear Subs," *CounterPunch*, 21 April 2024, <https://www.counterpunch.org/2024/04/21/solidarity-to-stop-aukus>.

754 Eva Corlett, "New Zealand steps up interest in Aukus as Pacific security concerns grow," *The Guardian*, 2 February 2024, <https://www.theguardian.com/world/2024/feb/02/new-zealand-aukus-alliance-membership>.

755 Leyland Cecco, "Canada hopes to join Aukus defence pact, says report," *The Guardian*, 9 May 2024, <https://www.theguardian.com/world/2023/may/08/canada-aukus-defence-pact>; and The Canadian Press, "Canada exploring possibility of joining AUKUS alliance, Trudeau says," *Global News*, 8 April 2024, <https://globalnews.ca/news/10409582/canada-aukus-alliance-trudeau>.

756 Brad Ryan, "Australia, US and UK confirm Japan could be brought into AUKUS fold on eve of Kishida's Washington visit," *ABC News*, 8 April 2024, <https://www.abc.net.au/news/2024-04-09/australia-us-uk-confirm-japan-considered-aukus-pillar-ii/103683934>.

757 Ibid.

758 Ray Acheson, "The Shape of Nuclear Abolition," *Nuclear Ban Daily* 4(1), 24 November 2023, p. 1, <https://www.reachingcriticalwill.org/images/documents/Disarmament-fora/nuclear-weapon-ban/2msp/reports/nbd4.1.pdf>.

759 Ana Carolina de Oliveira Assis et al., "SIPRI Yearbook 2023: Armaments, Disarmament, and International Security," Stockholm International Peace Research Institute, <https://www.sipriyearbook.org/view/9780198890720/sipri-9780198890720-chapter-001.xml#sipri-9780198890720-chapter-001-note-001>.

prevent war. They enable it. Two nuclear-armed states, Israel and Russia, are currently engaged in armed conflict against their neighbours, and other nuclear-armed states are providing weapons to one side or the other. Whether nuclear weapons are used in these conflicts or not, they facilitate other forms of violence.

Nuclear weapons “are the backbone of a mentality that security can best be achieved through building up the capacity to commit mass destruction—and by committing mass destruction. Nuclear weapons are used as shields to prevent others from standing up to their possessors’ acts of aggression, to their war crimes.”⁷⁶⁰ Financial investments in nuclear weapons provide profits for weapons manufacturers that also build conventional bombs, missiles, guns, fighter jets, and other weapons of war that are being used every day, as these are largely the same companies. And financial investments in lobbyists and think tanks ensure that false narratives about nuclear deterrence and geopolitical stability continue to dominate in foreign policy and national security discussions.⁷⁶¹

“Threat multiplier”

What most determines risks for conflict are underlying inequities in a globalised world, which were established by colonialism and maintained today through imperialism and military intervention. These inequalities are compounded by problematic political responses to situations

of crises, including as they relate to correlations between the climate crisis and conflict. For example, Global North-based militaries and military alliances⁷⁶² have described the conflict-potential of the fossil-fuelled climate crisis as a “threat multiplier”. This framework looks at direct threats to national security—such as military operations—as well as indirect “threats” of conflict and violence or mass migration, that are exacerbated by the climate crisis.⁷⁶³ The response being prepared for is one of more militarism, exclusion, and repression.

Australia’s Defence White Paper from 2016, for example, plans on deploying armed forces to respond to situations of “instability or natural disasters,” noting that “climate change means that we will be called on to do so more often.”⁷⁶⁴ The paper also discusses the various climate change-induced pressures on “the Defence estate, with sea level rises having implications for Navy bases and more extreme weather events more frequently putting facilities at risk of damage.” It further argues for the need of the development of “new bases, wharves, airfields and training and weapons testing ranges,” to be “appropriately postured for the implications of climate change.”⁷⁶⁵

Over in Europe, the Council of the European Union released the “Climate Change and Defence Roadmap” in 2020, where it reiterates that “the EU has long recognised that climate change acts as a threat multiplier with serious implications for peace and security across the globe.”⁷⁶⁶ While the Roadmap

760 Ray Acheson, “The Shape of Nuclear Abolition,” op. cit., p. 1.

761 See Kjølvi Egeland and Benoît Pelopidas, “No such thing as a free donation? Research funding and conflicts of interest in nuclear weapons policy analysis,” *International Relations* 0(0), 22 December 2022, <https://journals.sagepub.com/doi/full/10.1177/00471178221140000>; and *Wasted: 2022 Global Nuclear Weapons Spending*, International Campaign to Abolish Nuclear Weapons, June 2023, https://www.icanw.org/wasted_2022_global_nuclear_weapons_spending.

762 “NATO Climate Change and Security Action Plan,” North Atlantic Treaty Organisation, 14 June 2021, https://www.nato.int/cps/en/natohq/official_texts_185174.htm?selectedLocale=en.

763 Nick Buxton, “Primer on climate security: The dangers of militarising the climate crisis,” Transnational Institute, 12 October 2021, <https://www.tni.org/en/publication/primer-on-climate-security>.

764 “2016 Defence White Paper,” Australian Government Department of Defence, p. 56, <https://www.defence.gov.au/about/strategic-planning/defence-white-paper>.

765 Ibid., p. 102.

766 “Climate Change and Defence Roadmap,” Council of the European Union, 9 November 2020, p. 4, <https://data.consilium.europa.eu/doc/document/ST-12741-2020-INIT/en/pdf>.

emphasises that “mitigation of climate related risks and alleviation of environmental stress” should be addressed through “global cooperation and multilateral channels,”⁷⁶⁷ most of the paper focuses on the impacts of the climate crisis on Europe’s Common Security and Defence Policy, including its military capability planning and development. Similar to Australia’s Defence White Paper, it discusses the need for increased deployment of the EU member states’ armed forces in response to disaster management and relief efforts.

In this context, fossil fuel extraction, exports, and use are the very foundation of powering militarism, while the climate crisis provides further justification for fossil-fuel powered militarised responses. Talei Luscia Mangioni spoke about this militarised response to the fossil-fuel-generated climate crisis in an interview for this project, explaining:

I also see this narrative of the military and police being the “first responders” to climate crisis as problematic. This is what is being advanced by Australia in the Pacific in HADR (Humanitarian Assistance and Disaster Relief) in situations like cyclones or tidal waves etc., but it’s also happened in the recent floods and bushfires in Australia. This is greenwashing of the military/police and we should consider denormalising this and putting the money elsewhere.⁷⁶⁸

As illustrated above, the nuclear and fossil fuel industries have been key in maintaining empire and hegemony of powerful states, aiding and profiting from invasions, occupations, and other forms of imperialism and militarism. It is striking that with both the climate crisis and an ever more insecure and militarised world, countries most

responsible, and by extension, the nuclear and fossil fuel industries that they rely on, continue to point fingers at others. They continue to abdicate themselves of responsibility and accountability.

As Ray Acheson has argued elsewhere, both the US and Russia have engaged in imperialist actions abroad, and both have built up their nuclear arsenals—but put the blame on everybody else but themselves for contributing to a more insecure world in the first place.⁷⁶⁹ While nuclear-armed states of Russia, United States, France, the United Kingdom, and China recently agreed that a “nuclear war cannot be won and must never be fought,” each of these governments have spent billions in the modernisation of their nuclear arsenals. All nuclear-armed states and the nuclear industry are contributing to the very militarisation that they are using as justification for continuously propping up the military-industrial complex. A similar dynamic can be observed with governments’ militarised responses to the climate crisis, discussed above. Instead of recognising that fossil-fuel powered military activity and conflict play a key role in exacerbating the climate crisis, governments and militaries position the military-industrial complex as the solution to a crisis they have significantly contributed to.

Both the fossil fuel and nuclear industries have a vested interest in an ever more insecure world. They deliberately construct a more militarised world, and then profit off it. In turn, this means that to abolish these industries, challenging a militarised world view and investing in peace, diplomacy, trust-building, and cooperation are essential to remove the lifeblood of these industries.

⁷⁶⁷ Ibid., p. 3.

⁷⁶⁸ Interview with Talei Luscia Mangioni on 17 May 2024.

⁷⁶⁹ Ray Acheson, “Abolishing geopolitics and building a world without state violence,” *Metapolis*, September 2022, <https://metapolis.net/project/abolishing-geopolitics-and-building-a-world-without-state-violence/>.

Patriarchy

There are striking similarities in the ways that both the fossil fuel and nuclear industries are sustained by and perpetuate patriarchy.

Patriarchy is a system of power. It is a hierarchical social order that shapes and entrenches gender as a cultural construction. It insists upon norms, roles, and conditions of being a “man” and a “woman” and rejects anyone that does not conform to norms of their prescribed gender or to the gender binary.⁷⁷⁰ Patriarchy celebrates a certain form of masculinity, namely, a “particular idealized image of masculinity in relation to which images of femininity and other masculinities are marginalized and subordinated.”⁷⁷¹ In most cultures today, this “hegemonic masculinity” is represented by a heterosexual cisgender man who makes claims to being independent, risk-taking, aggressive, rational, physically tough, courageous, and unemotional.⁷⁷²

This kind of masculinity is also militarised. The military plays a primary role in shaping images of masculinity in the larger society,⁷⁷³ to the point where “the dominant adult male role model could largely be the product of the military.”⁷⁷⁴ Primacy in the military was, and still is, awarded to “toughness, skilled use of violence, presumption of an enemy, male camaraderie, submerging one’s emotions, and discipline (being disciplined and demanding it of others).”⁷⁷⁵

The dominant form of militarised masculinity is not universal.⁷⁷⁶ But these norms play a critical role in how people are expected to behave, which values are held in regard, which actions are considered honourable. All of this, in turn, impacts how the world is shaped and ordered, what structures are established and reinforced, and how they are sustained.

The people that try to embody this form of militarised masculinity tend to associate nuclear weapons, nuclear energy, and fossil fuels with power. Patriarchy and masculinity are part and parcel of these industries, not just in terms of who controls these industries, but also in terms of how they see these technologies, how they think about the harms their industries create, and how they approach those who would criticise and resist their industries.

Feminist researchers such as Carol Cohn have demonstrated how symbolic meanings of nuclear weapons are tied to specific understandings of masculinity.⁷⁷⁷ Nuclear weapons specifically bolster militarised notions of masculinity in which traits such as strength, courage, and protection are equated with violence, power, and dominance. Nuclear weapons are the pinnacle of such understandings of militarised masculinities. Striking examples of patriarchal, sexualised metaphors around the possession and threat of use

770 Ray Acheson, *Autonomous Weapons and Patriarchy*, Reaching Critical Will of the Women’s International League for Peace and Freedom, October 2020, <https://reachingcriticalwill.org/images/documents/Publications/aws-and-patriarchy.pdf>.

771 Franck Barrett, “The Organizational Construction of Hegemonic Masculinity: The Case of the US Navy,” *Gender, Work and Organization* 3, no. 3 (1996).

772 See for example Maya Eichler, “Militarized Masculinities in International Relations,” *Brown Journal of World Affairs*, Volume XXI, Issue 1 (Fall/Winter 2014) and R.W. Connell, *Masculinities* (Berkeley: University of California Press, 1995).

773 Michael S. Kimmel and Michael A. Messner, *Men’s Lives* (New York: Macmillan, 1989): 176–83; David H. J. Morgan, “Theater of War: Combat, the Military, and Masculinities,” in Harry Brod and Michael Kaufman (eds.) *Theorizing Masculinities* (Thousand Oaks, CA: Sage, 1994).

774 William Arkin and Lynne Dobrofsky, “Military socialization and masculinity,” *Journal of Social Issues* 34, no. 1 (1978): 151–168.

775 Cynthia Entoe, *Bananas, Beaches, and Bases* (Berkeley: University of California Press, 1990): 150.

776 *Ibid.*

777 Carol Cohn, “Sex and Death in the Rational World of Defense Intellectuals,” *Signs* 12(4), 1987, pp. 687–718, https://genderandsecurity.org/sites/default/files/carol_cohn_sex_and_death_in_the_world_of_rational_defense_intellectuals.pdf.

of nuclear weapons abound: in 2018, the then-US president tweeted: "I too have a Nuclear Button, but it is a much bigger & more powerful one than his, and my Button works!" directed at North Korea's President Kim Jong-Un.⁷⁷⁸ Hindu nationalist leader Balasaheb Thackeray justified the explosion of five nuclear devices in 1998 with the assertion that "we had to prove that we are not eunuchs."⁷⁷⁹

Along with the objects of nuclear weapons, concepts such as nuclear deterrence and geostrategic stability are also gendered. These masculinised concepts are mechanisms to maintain the current global hierarchy, and they can only persist by refusing to engage with the very real humanitarian and environmental impacts of nuclear weapons. Any discourse or policy that addresses what nuclear weapons actually do to human bodies, to societies, and to the planet disrupt mythologies around power projection that deterrence offers. Evidence of impacts "undermines the abstraction of nuclear weapons as deterrents or protectors, and refocuses attention on the fact that they are tools of genocide, slaughter, extinction."⁷⁸⁰

Carol Cohn's story in her 1993 article "Wars, wimps, and women" demonstrates this clearly. A white male physicist, working on modelling nuclear counterforce attacks, exclaims to a group of other white male physicist about the cavalier way they are talking about civilian casualties. "Only thirty million!" he burst out. "Only thirty million human beings killed instantly?" The room went silent. He later confessed to Cohn, "Nobody said a word. They didn't even look at me. It was awful. I felt like a woman."⁷⁸¹

The association of caring about the murder of thirty million people with "being a woman" is about seeing women as being weak, caring about the wrong things, letting your "emotions" get the better of you, and focusing on human beings when you should be focused on "strategy". Caring about the humanitarian consequences of nuclear weapons is feminine, weak, and not relevant to the job that "real men" have to do to "protect" their countries. It not only suggests that caring about the use of nuclear weapons is spineless and silly, but also makes the pursuit of disarmament seem unrealistic and irrational.⁷⁸²

Gendered notions about care for human beings or the planet also impact how people think about nuclear energy. Studies from the 1980s and 1990s indicated that just as militarised masculinities preclude caring about the humanitarian impact of nuclear weapons, the same is true for nuclear energy. One 1986 study that looked at public opinions about the Shearon Harris Nuclear Power Plant in North Carolina found that men were less concerned about the safety of the plant than women. The report concluded that safety was "a significant predictor of support for nuclear power at both the local and general levels" and that "different levels of safety partially explain gender differences in support of nuclear power."⁷⁸³

Masculinity is also arguably embedded within nuclear technology itself. Scholars of gender and technology have argued that gender relations are "materialised in technology," through which the meaning and character of masculinity and femininity are further developed "through

778 Carol Cohn, "The Perils of Mixing Masculinity and Missiles," *The New York Times*, 5 January 2018, <https://www.nytimes.com/2018/01/05/opinion/security-masculinity-nuclear-weapons.html>.

779 Carol Cohn, Felicity Hill, and Sara Ruddick, "The Relevance of Gender for Eliminating Weapons of Mass Destruction," Weapons of Mass Destruction Commission, 2005, <https://reachingcriticalwill.org/images/documents/Publications/BAC/chapter10.pdf>.

780 Ray Acheson, "The nuclear ban treaty and the patriarchy: a feminist analysis of opposition to prohibiting nuclear weapons," *Critical Studies on Security* 7(1), 2019, pp. 78–82, <https://www.tandfonline.com/doi/full/10.1080/21624887.2018.1468127>.

781 Carol Cohn, "Wars, Wimps, and Women: Talking Gender and Thinking War," in M. Cooke and A. Woollacott (eds.) *Gendering War Talk* (Princeton, NJ: Prince University Press, 1993).

782 Ray Acheson, "The nuclear ban and the patriarchy," op. cit.

783 L. S. Solomon, D. Tomaskovic-Devey, and B. J. Risman, "The Gender Gap and Nuclear Power: Attitudes in a Politicized Environment," *Sex Roles* 21, 1989.

their enrolment and embeddedness in working machines,” as Judy Wajcman writes.⁷⁸⁴ This is not to suggest that technology is “masculine,” but rather, as Cynthia Cockburn suggests, the gender binary and gender hierarchies are often reinforced or even defined in relation to technology.⁷⁸⁵ In this way, Wajcman notes, the “ideology of masculinity” has an intimate bond with technology. She argues that technology is more than a set of objects or artefacts; it also “fundamentally embodies a culture or set of social relations made up of certain sorts of knowledge, beliefs, desires and practices.”⁷⁸⁶

In relation to nuclear energy, as Tim Hollo writes, there are clear gendered constructions in relation to electricity supply, wherein coal is seen as more masculine than solar or wind. And this holds true even more for nuclear power, he argues.

“In this understanding of the world, what could be stronger, what could demonstrate ‘man’s power over nature’ more than our ability to split the atom? The idea that this is dangerous and has the capacity to make great big explosions is part of the attraction, not a mark against it. The fact that it’s the most expensive technology to boil a kettle ever invented is irrelevant.”⁷⁸⁷

The “hyper-masculinised” attitude toward nuclear power described by Tim Hollo also applies to fossil fuels. Looking at research conducted by Janet K. Swim that found gendered perceptions of

environmentalism,⁷⁸⁸ Hollo argues that the equation of environmentalism with femininity is bound up in ideas of domination:

There is actually something in the very destructive nature of digging great big holes in the ground, pulling up rocks and burning them, consequences be damned, that suggests greater strength and power to some people than harnessing the energy of the wind and sun. From this perspective, a plan to phase out coal and power Australia 100% with renewable energy is seen as a challenge to the view of this country as a place of rugged masculinity.⁷⁸⁹

Feminist scholars have also further examined the essential role that fossil fuels play in buttressing white patriarchal rule. Fossil fuels are a way of making and sustaining masculine identities and patriarchal order particularly in new authoritarian movements in the Global North, a concept which Cara Daggett describes as “petro-masculinity”. She argues that conservative white men’s attachment to fossil fuels is a reactionary stance, which seeks to “defend the endangered status quo, entrenching the petrocultures that have historically propped up Anglo-European fossil-burning men.”⁷⁹⁰

Daggett argues that fossil fuels matter to authoritarian movements in the Global North because “privileged subjectivities are oil-soaked and coal-dusted,”⁷⁹¹ with white US men being

784 Judy Wajcman, “Feminist theories of technologies,” *Cambridge Journal of Economics* 34, no. 1 (2009): 2.

785 See for example Cynthia Cockburn, *Machinery of Dominance: Women, Men and Technical Know-How* (London: Pluto Press, 1985) and Cynthia Cockburn and Susan Ormand, *Gender and Technology in the Making* (London: Sage, 1993).

786 Judy Wajcman, *Feminism Confronts Technology* (University Park, PA: The Pennsylvania State University Press, 1991), 137, 149.

787 Tim Hollo, “Do Nuclear-Powered Electrons Have Balls?” op. cit.

788 Janet K. Swim, Ash Gillis, and Kaitlynn J. Jamaty, “Gender Bending and Gender Conformity: The Social Consequences of Engaging in Feminine and Masculine Pro-Environmental Behaviors,” *Sex Roles* 82, 18 June 2019, pp. 363–385, <https://link.springer.com/article/10.1007/s11199-019-01061-9>.

789 Tim Hollo, “Do Nuclear-Powered Electrons Have Balls?” op. cit.

790 Cara Daggett, “Petro-masculinity: Fossil Fuels and Authoritarian Desire,” *Journal of International Studies* 47(1), 20 June 2018, <https://journals.sagepub.com/doi/full/10.1177/0305829818775817>.

791 Ibid., pp. 27–28.

among the most “vociferous climate deniers as well as leading fossil fuel proponents in the West.”⁷⁹² Former US president Trump’s “Make America Great Again,” for example, seeks to evoke the mid-20th century patriarchal ideal “in which the achievement of hegemonic masculinity required intensive fossil fuel consumption.”⁷⁹³

Patriarchal support of continued fossil fuels use is not limited to the United States. A study from Norway found that a total of 63 per cent of conservative men do not believe in anthropogenic climate change. These men are part of a group of “xenosceptic cool dudes,” according to the researchers, whereby attitudes of conservative men towards the climate crisis are part of a larger attitude complex expressing resistance against changing societal conditions.⁷⁹⁴ Two Swedish researchers likewise found that “for climate skeptics ... it was not the environment that was threatened, it was a certain kind of modern industrial society built and dominated by their form of masculinity.”⁷⁹⁵

Fossil fuels, and by extension energy and climate change politics, are a politics of identity, one in which gender is central. Research has found that fossil fuel workers’ resistance to decarbonisation is because they perceive it as a threat to their understanding of masculinities. The fossil fuel industry has intentionally tried to ensure that workers identify with objects that are highly masculinised, such as big trucks and “hard work,”⁷⁹⁶ and “the symbolic appeal of the rugged,

masculine fossil fuel worker providing for his family has been invoked as a cultural symbol among industry defenders.”⁷⁹⁷

The nuclear industry has also played an important role in shaping and sustaining men’s identities. Hugh Gusterson’s *Nuclear Rites*,⁷⁹⁸ for example, sheds light on the cultural, ethical, and political politics of the identity of nuclear weapons designers and scientists. Gusterson unearths how scientists learn to identify, in an almost romantic way, with the power of the machines they design and shows how these scientists regard nuclear weapons tests as rituals of initiation. Workers in the US-based Pantex Nuclear Weapons Plant, a nuclear-warhead assembly, disassembly, and storage facility, also have been documented to demonstrate pride in having worked “on weapons that help to ‘keep this country free.’”⁷⁹⁹

Extractive industries like coal, oil, and gas, as well as the nuclear industry, are highly male-dominated and masculinised. As discussed in the nuclear industry chapter, it is predominantly men that run and profit from the industry, with mostly white men in positions of leadership. A recent report by the Nuclear Energy Agency found that within member countries of the Organisation for Economic Co-operation and Development, women only comprise nearly 25 per cent of the nuclear workforce and make up just over 18 per cent in senior leadership roles. The analysis also reported that around two-thirds of surveyed women believed “that gender stereotyping, micro-aggressions, unconscious bias

792 Ibid., pp. 27–28.

793 Ibid.

794 Olve Krange, Bjørn P. Kaltenborn, and Martin Hultman, “Cool dudes in Norway: climate change denial among conservative Norwegian men,” *Environmental Sociology* 5(1), 2019, <https://www.tandfonline.com/doi/abs/10.1080/23251042.2018.1488516>.

795 Jonas Anshelm and Martn Hultman, “A green fatwā? Climate change as a threat to the masculinity of industrial modernity,” *International Journal for Masculinity Studies* 9(2), 19 May 2014, pp. 84–96.

796 Marc Fawcett-Atkinson, “White men are the super spreaders of climate denialism,” *Canada’s National Observer*, 7 March 2023, <https://www.nationalobserver.com/2023/03/07/news/white-men-super-spreaders-climate-denialism>.

797 A. Letourneau, D. Davidson, C. Karsgaard and D. Ivanova, “Proud fathers and fossil fuels: gendered identities and climate obstruction,” *Environmental Politics* 33(4), p. 684, <https://www.tandfonline.com/doi/full/10.1080/09644016.2023.2274271>.

798 Hugh Gusterson, *Nuclear Rites: A Weapons Laboratory at the End of the Cold War* (Oakland: University of California Press, 1996).

799 Lucie Genay, *Under the Cap of Invisibility: The Pantex Nuclear Weapons Plant and the Texas Panhandle* (Albuquerque: University of New Mexico Press, 2002).

and/or male-dominated work cultures negatively impact women's careers in the nuclear sector."⁸⁰⁰

The 2019 report *The Consensual Straitjacket* similarly found that the nuclear arms control field in the US is overwhelmingly white and male, and that this impacts policymaking and responses to new ideas.⁸⁰¹

The fossil fuel sector, in turn, traditionally has the lowest percentage of women employees,⁸⁰² and even fewer women who are in managerial positions.⁸⁰³ According to a Greenpeace article, in Europe, wages for women employees in the energy sector are almost 20 per cent lower than for male employees; in Australia, the fossil fuel industry had the largest gender pay gap compared to other STEM industries, while in Canada, the extractive industry is claimed to be among the largest single drivers of income inequality, contributing to a staggering 6.7 per cent of the national wage gap.⁸⁰⁴

The cementing of male power structures in these industries means that it is predominantly men who benefit from these industries through profits and by having their male privilege and power reasserted. As A. Letourneau et al argue, "The deep immersion of fossil fuels in Western economies has facilitated ... the direct material benefits to the predominantly male and financial occupational sectors associated with fossil fuels."⁸⁰⁵

As a professor and environmental activist, Joni Seager has examined the various ways that masculinities undergird the systemics of power and violence enacted by the nuclear and fossil fuel industries. In an interview for this project, Seager noted that these industries sustain a revolving door of politicians and industry leaders and the financial benefits from these industries also "flow to very particular people through very particular channels that are themselves heavily masculinised."⁸⁰⁶

As well, both nuclear and fossil fuel industries generate significant economic and social re-structuring at extraction sites with gendered consequences. As illuminated in earlier sections, both industries reinforce the patriarchal gendered division of labour, as both industries predominantly hire men. At sites close to traditional and Indigenous communities such as the Jackpile uranium mine in New Mexico or the gas extraction sites at the Cuzco Amazon referred to in previous chapters, new forms of economic exchange put men at an advantage. In the Peruvian Amazon, gas firms "hire men who then acquire goods that displace women from their traditional routines."⁸⁰⁷ The introduction of monetised economies altering communities' way of life have far-reaching impacts, exacerbating other gender-based inequities. Men's alcohol use has translated in some cases into increased rates of domestic violence both at uranium and oil extraction sites, while their frequenting of bars and other forms of nighttime

800 "Gender Balance in the Nuclear Sector," Nuclear Energy Agency and Organisation for Economic Co-operation and Development, 2023, p. 10, http://www.oecdnea.org/upload/docs/application/pdf/202303/7583_gender_balance_in_the_nuclear_sector.pdf.

801 Heather Hurlburt, Elizabeth Weingarten, Alexandra Stark, and Elena Souris, *The "Consensual Straitjacket": Four Decade of Women in Nuclear Security*, New America, 5 March 2019, <https://www.newamerica.org/political-reform/reports/the-consensual-straitjacket-four-decades-of-women-in-nuclear-security>.

802 Nick Johnstone and Marta Silva, "Gender diversity in energy: what we know and what we don't know," International Energy Agency, 6 March 2020, <https://www.iea.org/commentaries/gender-diversity-in-energy-what-we-know-and-what-we-dont-know>.

803 Lisa Göldner, "The fossil fuel industry is inherently patriarchal and criminal," Greenpeace, 8 March 2023, <https://www.greenpeace.org/international/story/58515/fossil-fuel-industry-inherently-patriarchal-criminal>.

804 Ibid. See also A Letourneau et al, "Proud fathers and fossil fuels," op. cit.

805 A Letourneau et al, "Proud fathers and fossil fuels," op. cit.

806 Interview with Joni Seager on 30 May 2024.

807 Nelly Luna Amancio, "In the Shadows of the Extractive Industry: A Hard Road for Indigenous Women," *Harvard Review of Latin America*, 25 November 2015, <https://revista.drclas.harvard.edu/in-the-shadows-of-the-extractive-industry>.

entertainment has brought the first cases of HIV to Indigenous communities of the Amazon.⁸⁰⁸

While the fossil fuel industry is heavily male-dominated, Seager urged looking beyond the “counting of heads” to understand how “fossil fuels bolster the power of masculinities in the civic and social sectors. It really supports a male power structure throughout.” For example, former US president Trump “has belligerently said in effect, we’re going to drill, we’re going to drill everywhere, you can’t stop us. There’s that kind of sense of power of belligerence, you can’t tell us what to do and where to drill and where not to drill.”⁸⁰⁹ To describe this phenomenon, Seager has referred to the highly gendered attachment to fossil fuel use as “petro-bromance” in her other work.⁸¹⁰

In thinking about the connections between the impacts of the nuclear industry and fossil fuel industry, it is important to answer the question of who holds decision-making power over these matters, particularly in comparison to who is impacted most by them. In relation to the activities of extractive industries, the concept of Free, Prior, and Informed Consent (FPIC) “is a principle protected by international human rights standards that state that all peoples have the right to self-determination’ and—linked to the right to self-determination—all peoples have the right to

freely pursue their economic, social and cultural development.”⁸¹¹ In relation to international peace and security, UN Security Council Resolution 1325 and the subsequent resolutions and frameworks of the Women, Peace, and Security (WPS) agenda call for the full, equal, and meaningful participation of women at all levels and stages of discussions around peace and security.⁸¹² For WILPF, the WPS principle of participation is not merely a call for representation, but also fundamentally about reshaping institutions to be based on human rights and peace.⁸¹³

Against this backdrop, it can be argued that not only the fossil fuel industry, as Daggett asserts,⁸¹⁴ but also the nuclear industry, are misogynist in practice, with the understanding of misogyny to be the policing of activities that punish deviants and reinforce patriarchal rule.⁸¹⁵ Similarly, those opposed to nuclear weapons are feminised and ridiculed.⁸¹⁶ In the context of the process to establish negotiations of the Treaty on the Prohibition of Nuclear Weapons (TPNW), diplomats and government officials representing nuclear-armed states berated their counterparts in pro-ban countries for supporting the TPNW, ridiculing their perspectives on peace and security and accusing them of threatening the world order.⁸¹⁷ These government officials argued that prohibiting and eliminating nuclear weapons is

808 Ibid.

809 Interview with Joni Seager on 30 May 2024.

810 “Fossil Fuel Treaty: A Bold Feminist Climate Solution for Peace at Stockholm+50,” Fossil Fuel Non-Proliferation Treaty, 21 April 2022, <https://www.youtube.com/watch?v=0xL8BvPflEY&t>.

811 “Free Prior and Informed Consent: An Indigenous Peoples’ right and a good practice for local communities—FAO,” Department of Economic and Social Affairs, 14 October 2016, <https://www.un.org/development/desa/indigenouspeoples/publications/2016/10/free-prior-and-informed-consent-an-indigenous-peoples-right-and-a-good-practice-for-local-communities-fao>.

812 “Landmark resolution on Women, Peace and Security,” Office of the Special Adviser on Gender Issues and Advancement of Women,” <https://www.un.org/womenwatch/osagi/wps>.

813 “Submission to the CEDAW Committee’s Half-day general discussion on the equal and inclusive representation of women in decision-making systems,” Women’s International League for Peace and Freedom, 14 February 2023, <https://www.wilpf.org/wp-content/uploads/2023/06/WILPF-submission-CEDAW-GR-participation.pdf>.

814 Cara Daggett, “Petro-masculinity: Fossil Fuels and Authoritarian Desire,” *Journal of International Studies* 47(1), 20 June 2018, pp. 25–44, <https://journals.sagepub.com/doi/full/10.1177/0305829818775817>.

815 Kate Manne, *Down Girl: The Logic of Misogyny* (New York: Oxford University Press, 2017).

816 See Ray Acheson, *Banning the Bomb, Smashing the Patriarchy* (Lanham, MD: Rowman and Littlefield, 2021).

817 Ray Acheson, “Full spectrum change,” *First Committee Monitor* 13(2), 19 October 2015, <https://www.reachingcriticalwill.org/images/documents/Disarmament-fora/1com/FCM15/FCM-2015-No2.pdf>.



Photo by Markus Spiske Unsplash.

neither practical nor feasible. Some claimed that those who support the prohibition of nuclear weapons are delusional, are “radical dreamers” who have “shot off to some other planet or outer space.”⁸¹⁸ They do not understand how to protect their people. Their security interests do not matter—or do not exist at all.⁸¹⁹

During this time period, when most of the world was actively trying to ban nuclear weapons, representatives of the nuclear-armed states argued that even talking about this subject is

“emotional”. They refused to attend the 2013–2014 multilateral conferences in Oslo, Nayarit, and Vienna examining the humanitarian and environmental impacts of nuclear weapons. As Ray Acheson has argued elsewhere:

This dismissal is highly gendered. When those flexing their “masculinity” want to demonstrate or reinforce their power and dominance, they try to make others seem small and marginalised by accusing them of being emotional, overwrought, irrational, or impractical. Women and gender-non-conforming people have experienced this technique of dismissal and denigration for as long as gender hierarchies have existed. It is well established in feminist literature that binary comparisons and contrasts such as strength/weakness and reason/emotion are gendered, with strength and reason associated with masculinity and emotion and weakness with femininity.⁸²⁰

Both the nuclear and fossil fuel industries have for decades deployed these tools of gaslighting, victim blaming, and denial of the impacts of their policies to maintain the status quo. Policymakers and profiteers in both industries deny the lived reality and extensive harm inflicted on marginalised communities caused by uranium mining and nuclear weapons testing and use as well as the extraction and burning of fossil fuels. Both industries have not only denied these harms, which manifest in sacrifice zones and beyond, but have actively worked to fiercely oppress and silence those resisting their violence and to punish those who dissent.

818 Ray Acheson, “Overcoming obfuscation,” *First Committee Monitor* 11(4), 28 October 2013, <https://reachingcriticalwill.org/images/documents/Disarmament-fora/1com/FCM13/FCM-2013-4.pdf>.

819 Ray Acheson, “First Committee fairy tales and a measure of reason,” *First Committee Monitor* 14(3), 17 October 2016, <https://www.reachingcriticalwill.org/images/documents/Disarmament-fora/1com/FCM16/FCM-2016-No3.pdf>.

820 Ray Acheson, “The nuclear ban treaty and the patriarchy,” op. cit.

Understanding the patriarchal thread that sustains both the nuclear and fossil fuel industries is essential for recognising the obstacles towards nuclear abolition and a fossil-fuel phase out. To overcome these obstacles, current dominant understandings

of masculinities need to be challenged and transformed, including by creating space to amplify the perspectives of those most affected and most marginalised, and by centering feminist alternatives that prioritise reciprocity, care, and empathy for all people and the planet as a whole.

State capture

Both the nuclear industry and fossil fuel industries have an undue influence over government policies wherever they operate and make their profits, a process referred to earlier in this report as “state capture”. Both industries use similar tactics to institutionalise and maintain their power and influence. Tactics include the funding of think tanks to influence narratives and public discourse in their favour, donations to and lobbying with political parties, revolving doors between government and industry representatives, as well as greenwashing, pinkwashing, and rainbow washing.

In 2023, research by the International Campaign to Abolish Nuclear Weapons (ICAN) found that nuclear weapons companies spent about 118 million USD lobbying governments in the US and France, while several companies held more than a dozen meetings with UK officials. Two companies met UK officials more than 40 times, and five companies met with the UK Prime Minister.⁸²¹ In the same year, nuclear companies donated more than 6 million USD to the top think tanks researching and writing about nuclear weapons, and current and former employees of these companies sit on think tank boards of directors and advisory councils.⁸²²

Similarly, the database Open Secrets exposes fossil fuel companies’ spending on US decision-makers per year. In 2023, the fossil fuel industry spent more than 133 million USD, and for the first half of 2024 only, the industry spent more than 35 million USD on lobbying.⁸²³ In Europe, the world’s five biggest publicly-traded oil and gas companies—and their Brussels-based fossil fuel lobby groups—have declared spending over a quarter of a billion euros between 2010 and 2019 on lobbying the EU.⁸²⁴ In the UK, the Conservative Party received 8.4 million GBP from oil and gas interests from 2019 to 2024, while in the US, the sector has contributed more than 25 million USD to the Republican Party and conservative groups in the 2024 election cycle.

Kalani Reyes, a Micronesian-Chamorro Indigenous advocate of the Mariana Islands in the Western Pacific Ocean, detailed how extractive industries have institutionalised their influence in an interview for this report:

Extractive industries have institutionalised their power in the Marianas largely via private companies garnering favor with local elite families and companies, politicians, as well

821 *Surge: 2023 Global Nuclear Weapons Spending*, International Campaign to Abolish Nuclear Weapons, June 2024, https://www.icanw.org/surge_2023_global_nuclear_weapons_spending.

822 Ibid.

823 “Industry Profiles,” Open Secrets, <https://www.opensecrets.org/federal-lobbying/industries/summary?id=E01>.

824 “Big oil and gas buying influence in Brussels,” Corporate Europe Observatory, food&water Europe, Friends of the Earth Europe, Greenpeace, 24 October 2019, <https://corporateeurope.org/sites/default/files/2019-10/FFP%20Briefing%20-%20Big%20oil%20and%20Gas%20buying%20influence%20in%20Brussels%20-%20Oct%202019.pdf>.

as US National Federal Agencies and Departments (Department of Defense, Homeland Security, FBI, etc.) who host private meetings with our government leadership in order to relay their plans—not to gain our input or permission, but to strictly relay their plans.⁸²⁵

In addition, both the fossil fuel and nuclear industries have used the Energy Charter Treaty, a highly controversial international trade and investment agreement,⁸²⁶ to sue governments in Europe for seeking to phase out nuclear energy in Germany, coal power production in the Netherlands, and the banning of offshore oil extraction in Italy.⁸²⁷

Another way that the industries institutionalise their power is through a “revolving door” of personnel. The database Open Secret tracks the percentage of fossil fuel lobbyists in the US who used to be former government employees. In 2024 and 2023, the percentage was between a striking 64 and 65 per cent.⁸²⁸ Talei Luscia Mangioni described this process of state capture and revolving doors in an interview for this project:

There are so-called independent think tanks that are funded by arms manufacturers and others involved in defence industry in Australia who are advising on defence policy ranging from anything from how great AUKUS and nuclear deterrence is for Australia’s security to how Pacific Islanders from Pacific nations should be used to address the shortfall in the Australian Defence

Force. It’s telling that former PM Scott Morrison who signed onto AUKUS got a job at a defence firm just after he left politics. Neither Australian climate nor defence policy is rarely imagined with the position of Pacific Island states or Pacific Islander people and their wellbeing in the islands or diaspora, in mind.... Many prime ministers have fallen because of the fossil fuel industries, and that’s deeply linked to the hold that the media has on Australian politics. You also see a lot of folks with job titles in government move into the fossil fuel industry after their service and vice-versa.⁸²⁹

Earlier sections of this report discussed the various ways in which the fossil fuel and nuclear industry seek to greenwash themselves. One specific insidious example of how the military-industrial complex, including nuclear weapons producers such as Airbus, are seeking to capitalise on the need to transition away from fossil fuels while maintaining their extractive activities, is through the EU Critical Raw Materials Act (CRMA). The CRMA is an instrument that seeks to secure Europe’s supply of critical minerals for the renewable energy transition as part of the region’s “Green Deal”. A 2023 report by Corporate Europe Observatory and Observatoire des Multinationales exposed how corporations and lobby groups from military corporations such as Airbus, Safran, or ASD have been particularly active at all stages of the CRMA legislative process, including through meetings with decision-makers. These corporations made sure that the list of critical minerals includes

825 Interview with Kalani Reyes on 4 June 2024.

826 Pia Eberhardt, Cecilia Olivet, and Lavinia Steinfort, “One treaty to rule them all,” Corporate Europe Observatory and Transnational Institute, 12 June 2018, <https://www.tni.org/en/publication/one-treaty-to-rule-them-all>.

827 Instagram post by Transnational Institute, @transnational institute on 30 May 2024, https://www.instagram.com/p/C7liX13sxa9/?utm_source=ig_web_copy_link.

828 “Industry Profile: Oil & Gas,” Open Secrets, <https://www.opensecrets.org/federal-lobbying/industries/summary?id=E01>.

829 Interview with Talei Luscia Mangioni on 17 May 2024.

aluminium and titanium, two metals essential for their own weapons production. With respect to the nuclear industry, the report argues that “it’s reasonable to assume that the addition of uranium [to the list of critical minerals]—proposed by MEP Hildegard Bentele on behalf of the EPP parliamentary group and rejected in the European Parliament vote in September—will come up again.”⁸³⁰

Another example of greenwashing by the nuclear industry is its attempts to frame nuclear energy as “clean” energy that can play a key role in the transition away from fossil fuels. Mitzi Jonelle Tan shared in an interview for this project that in the Philippines, “Marcos Jr, who is our president, has been trying to push nuclear energy now as clean energy, and argued this is the supposed climate solution for our country.” From Australia to the Philippines to the US, interview participants emphasised the industry’s renewed push to frame nuclear power as a climate solution, when in reality nuclear energy is not green, and a transition to nuclear energy would prolong the fossil fuel industry by decades.⁸³¹

The nuclear industry’s greenwashing attempts also have an increasing presence at the annual UN climate talks. At COP27 for instance, organisations such as the World Nuclear Association had their own pavilions as well as a related youtube channel called #Atoms4Climate.⁸³² However, and as detailed in the nuclear industry chapter, nuclear energy is not carbon neutral, is prone to

accidents at nuclear reactor sites, and carries other ecological and social risks throughout the entire nuclear supply chain.⁸³³

One interesting element of the renewed push for nuclear energy is the ways in which the nuclear industry has attempted to co-opt feminist language and gender equality ambitions, including by commissioning women (including models) to promote nuclear power, as noted in the nuclear industry chapter. Interestingly, the nuclear industry also appears to actively endeavor to improve its image through endorsements of prominent climate justice advocates and influencers. Sierra Quitquit, a model, professional skier, and founder of Time for Better, a climate communications and consulting agency, with an Instagram following of over 120K, recently endorsed nuclear energy as “clean, safe, and reliable.” The self-proclaimed feminist⁸³⁴ thanked the US Department of Energy (DOE) and Idaho National Laboratory, one of 17 national labs of the DOE focusing on nuclear energy research, for hosting her.⁸³⁵ Quitquit also endorses greenwashing attempts by fossil-fuel powered military alliances such as the North Atlantic Treaty Organization (NATO). She hosted NATO’s Assistant Secretary General in a “fireside chat” at COP28 and asserted in an Instagram post that “NATO can contribute to climate security by fostering cooperation among member states to address environmental challenges,”⁸³⁶ while in another post, she welcomed Sweden’s accession as a new member of NATO, with pictures of herself—in a pink suit—at the NATO headquarters.⁸³⁷

830 Olivier Petitjean and Lora Verheecke, *Blood on the Green Deal: How the EU is boosting the mining and defence industries in the name of climate action*, Corporate Europe Observatory and Observatoire des Multinationales, November 2023, <https://corporateeurope.org/sites/default/files/2023-11/CRM%20english%20final%20%281%29.pdf>.

831 Interview with Scott Ludlam on 15 May 2024.

832 See “#ATOMS4CLIMATE at COP27,” World Nuclear Association, <https://www.youtube.com/playlist?list=PLbvnriOT9Kpq3DsmiHqCfQkoc9Yxmyfg>.

833 M.V. Ramana, *Nuclear is Not the Solution: The Folly of Atomic Power in the Age of Climate Change* (Brooklyn, NY: Verso Books, 2024).

834 See: Facebook post: “Sierra Quitquit on what Feminism Means,” 13 February 2018, <https://www.facebook.com/watch/?v=10160035306995154>.

835 Joint Instagram post by Sierra Quitquit and Idaho National Lab @sierra on 11 June 2024, https://www.instagram.com/p/C8FVlOgp4ei/?utm_source=ig_web_copy_link&igsh=MzRIODBiNWFIZA==.

836 Joint Instagram post by Sierra Quitquit and Time for Better @sierra on 5 December 2023, https://www.instagram.com/p/C0ebsLZJJXS/?utm_source=ig_web_copy_link.

837 Instagram post by Sierra Quitquit @sierra on 2 March 2024, https://www.instagram.com/p/C4OQurdL0iE/?utm_source=ig_web_copy_link&igsh=MzRIODBiNWFIZA==.

This “pinkwashing” of the nuclear industry and military alliances is similar to the fossil fuel industry pushing liquified natural gas (LNG) as a transition fuel by framing it as a fuel that empowers women in the Global South, discussed earlier in this report. Fossil fuel corporations are also actively working on acquiring a pro-LGBTQ+ image by “rainbow washing”. British Petroleum (BP), for instance, has promoted Pride events and portrayed itself as a strong employer for queer folks.⁸³⁸

Nuclear weapon contractors have done the same, with Raytheon changing its logo to rainbow colours for Pride month⁸³⁹ and Lockheed Martin celebrating its LGBTQ+ employees to enable “everyone to bring their full, authentic selves to work every day.”⁸⁴⁰ Nuclear power plants also enjoy rainbow washing, with Southern Nuclear urging people to be better allies to the LGBTQ+ community by being “willing to listen and learn”.⁸⁴¹

Movements and state violence

The state relies on complex structure of violence which involves the police, militaries, and private actors—including private military and security companies (PMSCs)—to “maintain the social order”. However, as Ray Acheson points out, “‘Maintaining order’ is not about preventing ‘crime’; it is about maintaining the order of privilege and inequality necessary to sustain capitalism as a system, in which the few accumulate wealth while the majority suffer for it.”⁸⁴² Violence against those that challenge the status quo is seen as necessary to maintain the privileges of certain sectors of society.

Antinuclear movements challenge the status quo by questioning the reliance on nuclear weapons and the false narrative of security that they supposedly provide. Antinuclear movements also challenge the myths about nuclear energy and highlight instead the harms caused by the wider nuclear industry.

Environmental movements challenge the social, economic, and political order by criticising the investments in fossil fuels and other extractive industries and the assertion that extraction is necessary for economic survival.

Sometimes, actions by these movements have had a direct impact on these companies’ profits. Antipipeline movements in the United States, for example, have cost pipeline companies like Energy Transfer Partners billions of dollars.⁸⁴³ Movements like this suffer severe repression by the police precisely because they threaten to establish “an altogether different order of nature incompatible with the logic of capital accumulation,” explains Axel González.⁸⁴⁴ He underscores that the violence perpetrated by the police against these movements is in line with a tradition of waging war against those who threaten the order of nature that capitalism requires.

838 Catherine McGinn, “Pinkwashing & Climate Injustice,” Carbon Literacy Project, June 2002, <https://carbonliteracy.com/pinkwashing-climate-injustice/>.

839 Edward Ongweso Jr., “Companies Are Using Pride Month to Rainbow-Wash Bombs and Tasers,” *VICE*, 4 June 2021, <https://www.vice.com/en/article/z3xmk8/companies-are-using-pride-month-to-rainbow-wash-bombs-and-tasers>.

840 “16 Years of PRIDE Business Resource Group,” Lockheed Martin, 8 June 2021, <https://www.lockheedmartin.com/en-us/news/features/2021/16-years-of-pride-business-resource-group.html>.

841 “Southern Nuclear celebrates Pride Month,” Southern Nuclear, 16 June 2021, <https://www.southernnuclear.com/news-center/community/2021-0615-pridemonth.html>.

842 Ray Acheson, *Abolishing State Violence: A World Beyond Bombs, Borders, and Cages* (Chicago: Haymarket Books, 2022), pp. 20–21.

843 Axel González, “Policing, Pipelines, and the Capillaries of Capital in a Warming World,” in David Correia and Tyler Wall (eds.) *Violent Order: Essays on the Nature of Police* (Chicago: Haymarket Books, 2021), p 143.

844 *Ibid.*, p. 148.



The fossil fuel industry is one of the key enablers of the current inequalities in society. Historically, the capital accumulation inherent to industrial capitalist societies was only possible through fossil fuels, notably coal and later oil and gas. Today, society largely depends on fossil fuel extraction to maintain an economic system based on never-ending growth. Building on Matthew Huber's argument that fossil fuels are capitalism's very "lifeblood," González argues that it is the police who ultimately secure capital's access to its lifeblood.⁸⁴⁵ Thus, environmental movements, by questioning the prevalence of extractive industries, are challenging the capitalist system itself. And police violence is the state's response to this threat. As González eloquently articulates, "In a warming world, capitalism is and will continue adapting to the climate crisis with nightsticks, handcuffs, Tasers, and rubber and metal bullets."⁸⁴⁶

The nuclear industry, in turn, is part of both the extractivist industry (i.e. through uranium

mining) and the military-industrial complex (through nuclear weapons). All other aspects of the nuclear industry described in this report are key to maintaining the culture and economics of nuclearism and militarism, which privileges a few at the expense of the many. While the profits from building nuclear bombs and nuclear power stations are reaped by a few, the costs of harm from extraction, production, testing, and use of nuclear technologies are borne by the many—mostly by poor communities, First Nations, and people of colour globally. Any challenge to the nuclear industry is a challenge to those who profit from radioactive violence, and from the broader systems that dictate that the power to unleash unfathomable violence on the world is necessary for "security".

This is why states and corporations that profit from these industries are so adamant about repressing the movements that challenge them. State violence can take various forms, including murder, enforced disappearances, torture and ill-treatment, sexual

845 Ibid., p. 133.

846 Ibid.

and gender-based violence, surveillance, death threats, intimidation, excessive use of force in protests, and use of abusive and restrictive laws. As shown in the previous chapter, both antinuclear and environmental movements face all these forms of repression.

Conclusion

As demonstrated in this chapter, there are many connections and parallels between the nuclear and fossil fuel industries—and more broadly, extractive industries. These industries include some of the most powerful corporate actors in the world. They profoundly shape current realities sustained by various systems of oppression, including militarism, (neo)colonialism, patriarchy, racism, and capitalism. As revealed throughout these chapters, both industries reap obscene profits at the detriment of people and planet, are sustained by the same financial institutions, and prop up a destructive extractivist system through state capture and the violent repression of those that resist them. They are both driving humanity towards extinction.

The commonalities in the repression faced by these movements also points to the need for shared strategies of resistance. Acknowledging the role played by the fossil fuel and nuclear industries in the maintenance of the capitalist society is essential for acting against them.

The power and reach of these industries are truly breathtaking. To break up this powerful club, antinuclear, climate justice, environmental, Land Back, and police abolition movements, as well as other social justice movements including feminists, LGBTQ+ activists, racial justice organisers, and economic justice groups, need to continue to creatively and fiercely challenge these industries as well as the very foundations and systems of oppression that they so rely on. These movements would benefit from collaborating in their struggles and strategies for abolition of all these structures of state violence. While a powerful small elite seeks to keep these struggles divided, social justice movements are increasingly coming together in resisting and dreaming up a new world we know is possible.

CONCLUSION AND RECOMMENDATIONS



Conclusion

Across diverse global contexts, this report has highlighted a range of concrete and theoretical connections between the fossil fuel and nuclear industries. These industries are complex—the subject of deep political, cultural, and economic discourse—and have held outsized importance over the development of our current world. Fossil fuels have been the engine behind the growth of modern capitalism, and have driven economic expansion, colonial and imperial exploitation, industrialisation, and economic growth. This has come at a profound cost, namely, the potential livability of the planet for current and future generations of humans and other species. Meanwhile, there are few developments that are more reflective of the inherent violence and inhumanity of the global geopolitical order than nuclear weapons. The same states that have fueled the slow burning of the planet also possess the ability to bring an end to the planet as we know it, within an instant.

Grappling with such existential threats evokes deep emotions of anxiety, anger, and fear. The decision of the United States to drop nuclear bombs on Hiroshima and Nagasaki, killing tens of thousands of people in an instant and more in the days, weeks, and years that followed, ushered in a nuclear arms race and decades of intense anxiety about the nuclear threat. Today, with backtracking on global commitments on disarmament and arms control, the risk of nuclear war has again increased. At the same time, young people, particularly in the Global South, are faced with the prospect that they will not have a habitable planet in the years to come. Communities are already experiencing the impacts of the climate crisis and broader ecological crisis, with rising sea levels, heatwaves, droughts, and intense storms and natural disasters. The climate crisis and exploitation of natural resources is also increasing the likelihood of global pandemics, a fact that is top of mind as the COVID-19 pandemic has killed at least seven

million people worldwide as of mid-2024—likely a vast undercount. Technological developments, such as artificial intelligence, are being advanced without government regulation at rapid speed, and at great environmental impact. It is difficult to watch these realities and not feel an intense sense of panic and abandonment by government leaders, particularly those who are perpetuating a new global arms race, climate denial, and are seemingly leaving communities behind to cope on their own. For many, it is also difficult to live lives “as normal,” as we are being forced instead into living within a perpetual crisis mode.

As the authors of this report, it is our belief that the best way to move through these emotions is to commit to a sustained collective struggle for a future of dignity, justice, and peace. The profound parallels, connections, and collusion between the fossil fuel and nuclear industries—and the police, militaries, and private military and security companies (PMSCs) that serve in their defence—demand similar connections, creativity, and fierce resolve among those of us who aim to challenge their power. Unpacking the ways in which all these industries and their protectors operate, impact communities, and entrench and enforce their interests can provide us with new ideas, and a pathway for identifying how to dismantle them.

Therefore, this research has aimed to create a shared knowledge base and shed light on some paths forward for deeper collaboration across social justice movements, which in the status quo are often forced into operating in silos. This report has outlined the specific ways that the nuclear and fossil fuel industries operate, as well as the ways that they suppress dissent from the antinuclear and environmental movements. Despite variations in context and specificities, this report has found that there are profound comparisons between the

ways in which these two industries operate. Both industries perpetuate capitalism and colonialism to survive, consolidating their power and profits while causing tremendous harm to frontline communities. These harms also have clear gendered and racialised dimensions and impacts, including to health, peace, ecological wellbeing, governance, and stability. However, the industries also obscure and rationalise these realities through masculinised narratives and ideologies that prop up fossil fuels and nuclear weapons as critical for securing power, control, and hegemony. Despite the tremendous harms these industries cause, they manage to sustain their own power through state capture, collusion, and a revolving door of governance.

Throughout this report, we have uplifted different cross-cutting themes, such as the ways that these industries serve as drivers of conflict and violence; impacts to health and wellbeing; impacts on the environment; dynamics of decision-making and governance; repression of resistance; and intersectionality. All these thematic areas can be the focus of joint activism, organising, and collaboration, as well as further research. We believe it is critical to build networks across regions and geographies, to share knowledge with each other, and to learn from heterodox approaches including feminist, Indigenous, and decolonial views. It is also critical to centre critiques of state violence in our movements, given the intense repression that is levied against them.

As demonstrated throughout this report, it is also imperative that antinuclear and environmental movements keep in mind the evolving ways in which these two industries are aiming to keep their activities alive, as the world wakes up to the violence they perpetuate. Relevant to this is feminist scholar Cynthia Enloe's concept of adaptive patriarchy—how patriarchy is always reinventing itself and trying to sustain itself as social norms and structures change.⁸⁴⁷ This is

reflected in the discussion of how nuclear energy is being posited as a solution to the climate crisis, despite its immense harms. Similarly, it can be seen in how some of the momentum around climate action is being directed towards militarisation, by framing the climate crisis as a “threat multiplier”. This narrative shifts focus away from the true need, namely, climate justice, towards potentially viewing frontline communities as threats that need to be contained through military force. In our demands for government action, we must be cognisant of how these demands can be co-opted and warped into half-measures that end up reinforcing existing power structures, rather than challenging them.

The antinuclear and environmental movement each have core, longstanding demands around abolition of nuclear weapons, phasing out of nuclear energy, and ending fossil fuels. Similarly, both movements have highlighted the importance of reparations and repair for impacted communities, such as survivors of nuclear weapons and frontline communities. Meanwhile, movements to abolish police and the prison-industrial complex have centred the perspectives and activism of Black, Brown, Indigenous, and queer people, whose experiences of state violence are essential to effectively challenging the institutions that incarcerate and oppress, and to building alternative communities of care and justice. Learning from and collaborating across each of these movements is imperative to our struggle and our survival.

There are many actions that require urgent short-term attention, as well as long-term strategies to move forward. These coalesce around several core demands: abolition, accountability, and repair, which are outlined in more detail in the section below. With powerful movements and coordinated and creative action, under the leadership of impacted communities, we believe that a better world is possible.

847 Enloe, Cynthia. *The Big Push: Exposing and Challenging the Persistence of Patriarchy* (2017). University of California Press. <https://www.ucpress.edu/book/9780520296893/the-big-push>.

Recommendations

The end to the nuclear industry, fossil fuel industry, extractivism, and police and private military and security company (PMSC) repression of movement activism will require many actions. The following are non-sequential and non-exhaustive recommendations of actions that need to be taken by various actors, including governments, corporations, international institutions, and civil society groups. These actions will need to be compelled through pressure from affected communities, organisers, and activists working on a range of issues from environmental justice to nuclear disarmament, as well as from governments of countries that are impacted by the climate crises, extractive industries, and nuclearism. These recommendations reflect the perspectives of the report authors following the research process, but do not necessarily reflect the views of all the individuals who contributed to this research through interviews or consultations. However, the perspectives of the interviewees were critical to the development of the recommendations.

Cross-cutting recommendations

Several actions apply across all the industries covered in this report, including:

- Pursue a sustainable and just future by reducing the use of energy, promoting degrowth policies, and investing in renewable, non-carbon emitting, and non-radioactive sources of energy.
- Disrupt the nuclear and fossil fuel industry actors who are involved in state capture, such as think tanks, corporations, politicians, lobbyists, and others, including by exposing their networks of financing and corruption and engaging in divestment and direct-action campaigns against them.
- Reject attempts to pinkwash, rainbow wash, or greenwash the nuclear and fossil fuel industries or the police and PMSCs, such as by promoting “women’s participation or leadership,” LGBTQ+ “solidarity,” or generating misinformation about “clean energy”. Instead, highlight the militarised, masculinised, patriarchal, extractive, and exploitative norms of all aspects of these industries.
- Nurture environmental, antinuclear, and abolitionist movements that are not just connected thematically, but are also international, intergenerational, transnational, and better connected across borders.
- Donors should fund environmental, antinuclear, feminist, and other social movements through sustained, flexible, informed, long-term, and core funding, where movements are able to shape and design their own priorities and agendas. They should particularly fund organisations that are led by Indigenous People, impacted communities, and marginalised communities.
- Ensure that the environmental, antinuclear, and police/PMSC abolitionist movements are decolonial, centring the participation, perspectives, and recommendations of Indigenous Peoples and demands for Land Back.
- Continue to challenge and transform the systems of oppression that sustain and reinforce the nuclear and fossil fuel industries as well as police, militaries, and PMSCs, including militarism, capitalism, patriarchy, and colonialism.
- Extend international solidarity and centre the experiences, priorities, and demands of those impacted by the nuclear and fossil fuel and

- extractive industries, as well as by police, PMSCs, and the prison-industrial complex.
- Move towards an economy based on “promiscuous care,” i.e. the provision of social wellbeing for all instead of the accumulation of wealth by a few.⁸⁴⁸
 - Advocate for cooperation, disarmament, and trust-building to prevent war, militarisation, and conflict, including over critical minerals required for the renewable energy transition, and promote “ecological diplomacy,”⁸⁴⁹ understood to focus more intently on conflict and fragile zones, and systemically shift the geo-economic, regulatory, trade, and multilateral power toward efforts that advance socio-ecological peace and stabilisation.
 - Hold the nuclear, fossil fuel, extractive, police, and PMSCs industries accountable, including by ending impunity of corporate abuse.
 - Reform the policies and practices of international financial institutions away from promotion of harmful and regressive austerity and privatisation measures, particularly within conflict and post-conflict contexts. Promote economic and social policies centred on human rights, care, and equality.
- ## Nuclear industry recommendations
- Abolishing nuclear weapons and dismantling the entire nuclear industry is imperative. The following are a set of non-exhaustive actions that will need to be taken to achieve this.
- Stop nuclear weapon research, development, testing, production, and modernisation of nuclear weapons and delivery systems, and halt any expansion of nuclear weapon laboratories and production facilities.
 - End the financing or other material support to public or private companies or government institutions involved in nuclear energy generation, nuclear weapon production, testing, or modernisation, and in any other aspect of the nuclear industry.
 - End the nuclear war machine, including by dismantling nuclear weapon programmes; terminating nuclear weapon doctrines and “deterrence” strategies, nuclear war planning, and nuclear sharing arrangements; and achieving the universalisation and implementation of the Treaty on the Prohibition of Nuclear Weapons.
 - Prevent the advancement of the AUKUS military arrangement, including the elements to spread nuclear-powered submarines, highly enriched uranium, and radioactive waste to Australia or any other country seeking to join or collaborate with the pact.
 - Decommission existing nuclear power stations and prevent the granting of any new licenses or reactor construction.
 - End uranium mining by cancelling all leases of land to companies to mine for uranium, investing in land, water, and community remediation and restoration, and return the land to Indigenous Peoples.

848 The Care Collective, *The Care Manifesto: The Politics of Interdependence* (New York: Verso Books, 2020).

849 Olivia Lazard and Richard Youngs, “The EU and Climate Security: Toward Ecological Diplomacy,” Carnegie Europe, 12 July 2021, <https://carnegieendowment.org/research/2021/07/the-eu-and-climate-security-toward-ecological-diplomacy?lang=en¢er=europe>.

- Prevent the imposition of nuclear waste dumps anywhere in the world, especially on Indigenous lands.
- Improve the management of interim nuclear waste storage and disposal programmes and implement standards for the governance of the programs, including planning quality and safety, quality assurance, citizen participation, and safety culture. End the dangerous transshipment of radioactive waste and nuclear materials.
- Further investigate the humanitarian impacts of nuclear weapons, including gendered and racialised harms. While there is now some research on the gendered and racialised impacts of radiation, more work is needed to understand and amplify the impacts of the fire and blast, which also affect people disproportionately depending on how a society is structured. Nuclear weapons have social and economic impacts through the destruction of cities, communities, and ecologies. Efforts are needed to examine these broader social and economic impacts to design assistance efforts, taking into consideration how discrimination based on gender identity and racial and socioeconomic inequalities and injustices already manifest within systems of health care, economics, and social and political life. Investigations of humanitarian impacts also need to extend past the use and testing of nuclear weapons to address their production, from uranium mining to fuel processing to their construction, disposal, and waste management.
- Provide reparations for nuclear harms and work for nuclear justice, including through the following measures drawn from the Asia-Pacific Leadership Network's infographic on nuclear justice:⁸⁵⁰
 - Acknowledgement and apology for harms done;
 - Investments in remediation of affected land, water, and communities;
 - The granting of guardianship over contaminated areas to Indigenous and other local communities, with financing for remediation provided by the states responsible for contaminating the land and water;
 - Restoration of human dignity, including by de-stigmatising survivors of nuclear harms;
 - Provision and fair access to quality healthcare, especially for cancer and mental health;
 - Repatriation of displaced communities to decontaminated, safe, and healthy homelands, and restoration of cultural practices, including food practices, as well as compensation for loss of access to traditional food and lands;
 - Access to historical documents, contemporary research and scientific information on nuclear harms;
 - Practical and financial support for further study on nuclear harms and to build technical capacities to detect, monitor, and respond to radiological and environmental threats;
 - Provision of scholarships to Indigenous and affected community members to conduct research studies as identified, informed, and led by affected community members needs;
 - Ensuring participation of affected communities in the nuclear policy space; and

850 "What is Nuclear Justice?" Asia-Pacific Leadership Network, 28 February 2024, <https://www.apln.network/projects/voices-from-pacific-island-countries/infographic-what-is-nuclear-justice>.

- Just and fair reparations and compensation for victims and survivors, including through pensions and insurance programmes.

Fossil fuel industry recommendations

Phasing out fossil fuels and abolishing the fossil fuel and other extractive industries will require many actions, including:

- Implement a fair, fast, full, and funded fossil fuel phase out.⁸⁵¹
- Immediately halt fossil fuel representatives' access to multilateral climate negotiations.⁸⁵²
- Challenge and prevent “false solutions” to the climate crisis.
- Ensure that Global North countries provide adequate climate finance for mitigation, adaptation, a just transition, and loss and damages to Global South countries— this can be done by divesting from harmful industries to people and planet, such as the military-industrial complex.⁸⁵³
- Work for a just transition⁸⁵⁴ from fossil fuels, including by avoiding “green extractivism”. Global supply chains for renewable energy technologies must be grounded in principles of environmental and social justice, and a just transition must be gender-responsive.⁸⁵⁵
- Implement socio-environmental impact assessments at mining sites and renewable energy installation sites.
- Scale up the recycling of minerals required for renewable energy technologies while radically reducing unsustainable consumption, including energy demands, in particular in the Global North based on demands from the degrowth movement.
- Reclaim the entire energy sector through public ownership and democratic governance and transform the sector so that it is not run for profit, and that its revenues are equally shared and redistributed rather than consolidated in the coffers of an elite few.
- Respect and systematically implement Free, Prior, and Informed Consent of Indigenous Peoples for all extractive projects and other activities on Indigenous lands, and implement proper human rights due diligence processes, including the UN Guiding Principles on Business and Human Rights for both the fossil fuel industry as well as the renewable energy industry.

Police and PMSC recommendations

It is not possible to envision the end of the repression of environmental and antinuclear movements without dismantling the structures of state violence. The recommendations below are formulated with the understanding that these

851 “Position: The world needs a fair, fast, full, and funded fossil fuel phase-out,” Climate Action Network International, November 2023, <https://docs.google.com/document/d/1LKqGRWUG6G0jWjQ6W2SYQPhwlRg6Qh9WWyYxdP3W6dE/edit>.

852 See <https://kickbigpollutersout.org/demands>.

853 For concrete ideas on how this can be done, see: Michelle Benzing and Katrin Geyer, “Towards Climate Justice: Redistributing Military Spending to Climate Finance,” Women’s International League for Peace and Freedom, June 2024, https://www.wilpf.org/wp-content/uploads/2024/06/Bonn-Climate-Change-Conference-2024_3-pager.pdf.

854 See “Can Guidance on Just Transition,” Climate Action Network International, May 2023, <https://climatenetwork.org/wp-content/uploads/2023/09/CAN-JT-Guidance.pdf>.

855 For a detailed overview of what a gender-just transition entails, see “Gender Just Transition: A Path to System Change,” Women’s Environment and Development Organization, November 2023, https://wedo.org/wp-content/uploads/2023/12/WEDO_Just-Transition-Brief_COP28_Nov2023.pdf.

structures should not be reformed; they should be abolished. The following are a few steps, directed at governments, that can lead towards this goal, but many others are necessary:

- Defund the police, do not increase police budgets, and gradually cut them each year until funding for police departments reaches zero.
- Redirect military and police budgets toward education, housing, food security, healthcare, social services, environmental protection, and renewable energy.
- End contracts with private companies that provide training, equipment, and any type of support to the police.
- Prohibit training exercises between police and the military within and between countries, and prohibit the transfer of equipment from the military to the police.
- Ban the use of surveillance technologies by police and other government agencies, especially technologies that facilitate the processing, categorising, identifying, and tracking of people, such as facial recognition.
- Initiate or amplify campaigns demanding divestment from weapon producers, companies that develop or produce military and police technologies, and PMSCs.
- Outlaw the influence of corporate interests over national policies that perpetuate war, embolden police brutality and impunity, enrich PMSCs, and preclude a rational analysis of spending priorities.
- Do not build “cop cities” or other types of training facilities where police, PMSCs, and militaries are to be trained to engage in repression of civilians in urban areas.
- Abolish all PMSCs currently operating and prohibit their future creation. In the meantime, states and relevant organisations should also:
 - Introduce greater transparency and access to information, coupled with stronger monitoring and oversight of PMSCs and other actors providing security services to nuclear, fossil fuel, and extractive industries, in order to effectively prevent, address, and remedy any abuses committed by PMSCs in the service of these companies, as recommended by the UN Working Group on the use of mercenaries.⁸⁵⁶
 - Increase their capacity to monitor private military and security sector actions, also as recommended by the UN Working Group on the use of mercenaries.
 - Adopt all necessary measures to ensure that individuals, organisations, communities, and Indigenous People exercising their rights to protest and freedom of association are not subjected to attacks, harassment, threats, or intimidation by PMSCs, police, or militaries.
 - Preclude the use of the legal system to intimidate, criminalise, deter, or impose any other arbitrary measure against activists. States must stop using the law as a mechanism of punishment or retaliation against activists, organisers, and groups.

856 “Report on the relationship between private military and security companies and extractive industry companies from a human rights perspective in law and practice,” Working Group on the use of mercenaries as a means of violating human rights and impeding the exercise of the right of peoples to self-determination, A/HRC/42/42, 29 July 2019, paragraph 20, <https://www.ohchr.org/en/calls-for-input/report-relationship-between-private-military-and-security-companies-and-extractive>.



Photo by kiss777, Adobe Stock.

- As recommended by the Inter-American Commission of Human Rights (IACHR)⁸⁵⁷, states should urgently adopt a comprehensive public policy of prevention and protection for human rights defenders and environmental defenders, drafting it with the active participation of human rights defenders and organisations dedicated to defending human rights and the environment. For countries that have national protection mechanisms, the IACHR recommends providing them with sufficient financial resources and adequate personnel trained to respond to demands for measures of protection. Also, guarantee that risk assessments and the implementation of protection measures are done adequately, with the participation of those requesting the measures and employing approaches differentiated by gender, ethnicity, and race in an intersectional manner in order to ensure their effectiveness.
- The IACHR also recommend that states recognise the rights to a healthy environment and to defend human rights and the environment in internal legal frameworks, as well as ratify the Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean (Escazú Agreement), and other pertinent treaties.⁸⁵⁸

857 *Report on the Situation of Environmental Human Rights Defenders in the Northern Central American Countries*, Inter-American Commission of Human Rights, 25 April 2023, https://www.oas.org/en/iachr/jsForm/?File=/en/iachr/media_center/preleases/2023/076.asp.

858 Ibid.

PARTICIPANT BIOGRAPHIES

Ray Acheson (they/them) is the Director of Reaching Critical Will, the disarmament programme of the Women's International League for Peace and Freedom, and served on the steering group of the International Campaign to Abolish Nuclear Weapons (ICAN) from 2008 to 2024. They are an abolitionist organiser and author of two books, *Banning the Bomb*, *Smashing the Patriarchy* and *Abolishing State Violence: A World Beyond Bombs, Borders, and Cages*.

Katrin Geyer (she/her) is the Environment Advisor at the International Secretariat of the Women's International League for Peace and Freedom. She is supporting the inclusion of ecological justice perspectives into WILPF's work, and oversees advocacy on the links between peace, ecologies, and feminist perspectives with relevant multilateral processes.

Dimity Hawkins AM (she/her) is a queer nuclear free activist, researcher, and PhD candidate living as a settler in Australia. She is the Co-Coordinator of the Nuclear Truth Project, a co-founder of the International Campaign to Abolish Nuclear Weapons (ICAN), and is on the Board of ICAN Australia.

Scott Ludlam (he/him) was a senator with the Australian Greens from 2008 to 2017, and served as co-deputy leader of the party from 2015 to 2017. He is now working as a writer, designer, and freelance troublemaker, based on unceded Yuin country on the south coast of New South Wales. He is author of *Full Circle: A Search for the World That Comes Next*.

Edwick Madzimure (she/her) is a Doctoral Researcher who is passionate about gendered dimensions in rural livelihoods, environmental peacebuilding, feminist political economy analysis, feminist responses to climate change, and challenging militarised political economies. Edwick is engaged in humanitarian disarmament advocacy, community peacebuilding, climate change mitigation and adaptation awareness, anti-gender-based violence campaigns to human rights awareness programs, the participation of women in political and economic spheres, militarised masculinities in artisanal mining communities, and the UNSCR 1325 and its implementation in Zimbabwe.

Talei Luscía Mangioni (she/her) is a Pacific Studies PhD candidate and teacher at the School of Culture, History, and Language, College of Asia and the Pacific at the Australian National University. She is of mixed Fijian and Italian descent and currently lives on unceded lands of the Bidjigal, Birrabirragal, and Gadigal peoples. She is a member of Youngsolwara Pacific, a board member of ICAN Australia, and the Secretary for the Australian Association for Pacific Studies.

Annie Matumdu Mbambi (she/her) holds a double master's degree in Public Finance and Economic Planning from the State University of Antwerp in Belgium and is Honorary President of WILPF DRC and currently Regional Representative for Africa on the WILPF International Board. She works on gender, climate change, human rights, disarmament, gender-based violence, women's political participation, peacebuilding, conflict and mediation. She is a member of

various organisations at national, regional, and international level, and a co-founding member of the Gender in Action Network and the Nothing Without Women Movement. She is also a member of the UN Women's Advisory Council in the DRC, and Focal Point/Pool West of the Framework Agreement on Cooperation for Peace and Security in the DRC and the region.

Kalani Reyes (she/her) is a Micronesian-Chamorro daughter of the Mariana Islands in the Western Pacific ocean. She is an ocean advocate, and steward of the deepest trenches in the world, as well as a steward of coral reefs. In her home island she works as a Coral Reef Restoration Coordinator at the CNMI Department of Lands and Natural Resources. She loves connecting with others through sharing stories.

Genevieve Riccoboni (she/her) is the Women, Peace and Security Programme Coordinator at the Women's International League for Peace and Freedom.

Joni Seager (she/her) is a feminist environmentalist, Distinguished Professor of Arts and Sciences at Bentley University, a Fossil Fuel Treaty Campaign Champion, and has spent years researching the intersection of fossil fuels, hyper masculinity and militarism.

Azra Talat Sayeed (she/her) is the Executive Director, Society for Roots for Equity, an organization that remains committed to being an active part of communities in struggling for social and economic justice. Azra is a political activist working for farmers' rights and women's rights. She was the chairperson for the Asia Pacific Research Network (APRN), and for the International Women's Alliance 2015-2024. Azra's work has focused on fighting for the rights of the landless and small farmers including women.

Mitzi Jonelle Tan (she/they) is a full-time climate justice activist guided by the principles of anti-imperialism, anti-colonialism, collective action,

community building, joy, and love. She is based in the Philippines and is the international spokesperson of Youth Advocates for Climate Action Philippines.

Telma Taurepang (she/her) is the General Coordinator of the Union of Indigenous Women of the Brazilian Amazon (UMIAB), and a native of the Manguera Indigenous Community in Roraima, Brazil. Telma is a professor and academic in Anthropology at the Federal University of Roraima and she dedicates her experience to the search for recognition and rights for Indigenous women. She also acts as a mobiliser between the Green Climate Fund and the state governments of the Brazilian Amazon.

Laura Varella (she/her) is the Coordinator of Reaching Critical Will. She supports WILPF's advocacy and research on a wide range of disarmament issues, in addition to monitoring and reporting on multilateral disarmament fora. She has a background in human rights law, having worked with NGOs in Brazil.

Náme Villa del Ángel (they/them) is a climate activist with a special interest in anti-militarism, queer ecology, institutional pluralism, and common goods. For the past four years, they have been the president of the Popular Ecologist Assembly and have been involved for two years in territorial defence networks such as the Front of Indigenous Peoples and Neighborhoods of the Anahuac Basin and the Encounter of Peoples, Neighborhoods, and Colonies for the Defense of the Territory of Mexico City. They have spearheaded initiatives for climate justice, environmental and LGBTQ+ rights, disability rights, and more.

Ahjani Yepa-Sprague (she/her) is the Environmental Justice Advocacy Coordinator at Tewa Women United. She is the Co-Founder of Women of Bears Ears, Indigenous women who support their families and communities in the protections of ancestral lands in the southwestern United States.

About Us

WILPF is the oldest feminist peace organisation in the world, founded in The Hague in 1915. WILPF envisions a world free from violence and armed conflict with justice and equality for all. By addressing the root causes of violence with a feminist lens and by mobilising for non-violent action, we build feminist peace for equality, justice, and demilitarised security.

Since its inception in 1915, WILPF's focus has been to bring together activists and organisations from across regions to ensure sustainable peace and human security for all. We have consistently challenged the root causes of war and promoted political, economic, environmental, and social justice through advocacy and analysis. WILPF's approach to connect local and global work for peace constitutes a significant, unique, and transformative added value to our members and partner organisations around the world.

WILPF currently has 42 National Sections and Groups, and four international programmes on disarmament and militarism; women, peace and security; human rights; and crisis response for emerging security situations; as well as projects on the environment, feminist political economy, and confronting militarised masculinities and mobilising men for feminist peace.