Issue 25, October 2025
ISSN: 2286-7511
EISSN: 2287-0113

anti trafficking review

Special Issue - Climate Emergency and Work on a Heated Planet

Editorial: Climate Emergency and Work on a Heated Planet

Thematic Articles

The Climate Crisis as a Poverty Crisis: How climate change amplifies (im)mobility and gendered vulnerabilities

Climate-induced Exploitation: Workers' rights and protections on a heated planet

Climate Brides: (Un)Tying the knots between climate change and child marriage

The Vulnerability Gap: How people affected by climate change perceive their circumstances and make (risky) migration decisions

A Phenomenon Displaced: Human trafficking in the Philippines in the wake of Typhoon Haiyan

Decent Work in a Changing Climate

Solar Value Chain and Workers: Supporting a just transition in Australia by strengthening human rights due diligence

Short Articles

Worker Protections at Sea: Climate change and life aboard distant water fishing vessels

What Does It Take to Protect Livelihoods and Forests? Insights from workers and communities in the Brazilian Amazon opposing deforestation and slave labour

Fields of Uncertainty: Climate, extraction, and the struggles of rice farmers in the Philippines

The Battered Generation: Precarity of ageing people and people with impairments in climate-affected borderlands

Interview: Currents of Despair: The political ecology of migration and trafficking in the Mekong region

anti trafficking review

GUEST EDITORS

DENISE BRENNAN
SALLIE YEA

EDITOR

BORISLAV GERASIMOV

EDITORIAL BOARD
RUTVICA ANDRIJASEVIC, University of Bristol, United Kingdom
LYNDSEY BEUTIN, McMaster University, Canada
JACQUELINE BHABHA, Harvard School of Public Health, United States
DENISE BRENNAN, Georgetown University, United States
AMALIA CABEZAS, University of California Riverside, United States
JOY NGOZI EZEILO, University of Nigeria; Former UN Special Rapporteur on trafficking in persons, especially women and children, Nigeria
JOHN GEE, Transient Workers Count Too, Singapore
YANA HASHAMOVA, Ohio State University, United States
SUZANNE HOFF, La Strada International, The Netherlands
MÓNICA HURTADO, Universidad de la Sabana, Colombia
ANNALEE LEPP, University of Victoria, Canada
MARIKA MCADAM, Independent Consultant, Australia
SANJA MILIVOJEVIC, La Trobe University, Australia and Oxford University, United Kingdom
SVERRE MOLLAND, Australian National University, Australia
JENNIFER MUSTO, Wellesley College, United States
MARINA NOVAES, Business & Human Rights Resource Center, Brazil
VICTORIA IJEOMA NWOGU, United Nations Development Programme, Somalia
JULIA O'CONNELL DAVIDSON, University of Bristol, United Kingdom
PIA OBEROI, Office of the High Commissioner for Human Rights, Thailand
SAM OKYERE, University of Bristol, United Kingdom
SHARAMILA PARMANAND, London School of Economics, United Kingdom
ELAINE PEARSON, Human Rights Watch, Australia
NICOLA PIPER, University of Sydney, Australia
ADRIANA PISCITELLI, University of Campinas, Brazil
NIVEDITA PRASAD, Alice Salomon University of Applied Sciences, Germany
JOEL QUIRK, University of the Witwatersrand, South Africa
CAROLINE ROBINSON, Independent human rights expert, United Kingdom
JYOTI SANGHERA, Office of the High Commissioner for Human Rights, Switzerland
MARIE SEGRAVE, Monash University, Australia
KIRIL SHARAPOV, Edinburgh Napier University
ELENA SHIH, Brown University, United States
REBECCA SURTEES, NEXUS Institute, United States
SALLIE YEA, Independent scholar and consultant, Australia
CATHY ZIMMERMAN, London School of Hygiene and Tropical Medicine, United Kingdom

ANTI-TRAFFICKING REVIEW

Special Issue
CLIMATE EMERGENCY AND WORK ON A HEATED PLANET

Issue 25, October 2025

The *Anti-Trafficking Review* (ISSN 2286-7511) is published by the Global Alliance Against Traffic in Women (GAATW), a network of over 80 NGOs worldwide focused on advancing the human rights of migrants and trafficked persons.

The *Anti-Trafficking Review* promotes a human rights-based approach to anti-trafficking. It explores trafficking in its broader context including gender analyses and intersections with labour and migration. It offers an outlet and space for dialogue between academics, practitioners, trafficked persons and advocates seeking to communicate new ideas and findings to those working for and with trafficked persons.

The *Review* is primarily an e-journal, published biannually. The journal presents rigorously considered, peer-reviewed material in clear English. Each issue relates to an emerging or overlooked theme in the field of anti-trafficking.

Articles contained in the *Review* represent the views of the respective authors and not necessarily those of the editors, the Editorial Board, the GAATW network or its members. The editorial team reserves the right to edit all articles before publication.

The *Anti-Trafficking Review* is an open access publication distributed under the terms of the Creative Commons Attribution License (CC-BY).

The *Anti-Trafficking Review* promotes the sharing of information, and we therefore encourage the reproduction and onward dissemination of articles published with us.

Copyediting: Matthias Lehmann

ANTI-TRAFFICKING REVIEW

Issue 25, October 2025

1 Editorial: Climate Emergency and Work on a Heated Planet
Denise Brennan and Sallie Yea

Thematic Articles: Climate Emergency and Work on a Heated Planet

12 The Climate Crisis as a Poverty Crisis: How climate change amplifies (im)mobility and gendered vulnerabilities
Benedikte Raft and Kolja Dahlin

31 Climate-induced Exploitation: Workers' rights and protections on a heated planet
Denise Brennan, Kathleen Kim, and Julia Jackson

52 Climate Brides: (Un)Tying the knots between climate change and child marriage
Reetika Revathy Subramanian

71 The Vulnerability Gap: How people affected by climate change perceive their circumstances and make (risky) migration decisions
Ruta Nimkar and Julia Schweers

90 A Phenomenon Displaced: Human trafficking in the Philippines in the wake of Typhoon Haiyan
Chris Weeks

109 Decent Work in a Changing Climate
Bethany Jackson, Nicole Tichenor Blackstone, and Jessica L. Decker Sparks

130 Solar Value Chain and Workers: Supporting a just transition in Australia by strengthening human rights due diligence
Phoebe Michelmore and Marinella Marmo

Short Articles

153 Worker Protections at Sea: Climate change and life aboard distant water fishing vessels
Sallie Yea

158 What Does It Take to Protect Livelihoods and Forests? Insights from workers and communities in the Brazilian Amazon opposing deforestation and slave labour
Jolemia Nascimento das Chagas, Dionéia Ferreira, and Ginny Baumann

165 Fields of Uncertainty: Climate, extraction, and the struggles of rice farmers in the Philippines
Merry Jean A. Caparas and Maria Aurora Teresita W. Tabada

171 The Battered Generation: Precarity of ageing people and people with impairments in climate-affected borderlands
Tasnia Khandaker Prova, Era Robbani, and Humaun Kabir

175 Interview: Currents of Despair: The political ecology of migration and trafficking in the Mekong region
David A. Feingold and Denise Brennan

Editorial: Climate Emergency and Work on a Heated Planet

Denise Brennan and Sallie Yea

Abstract

This Editorial introduces a Special Issue of the *Anti-Trafficking Review* that analyses the links between climate change, migration, and exploitative labour. It documents some of the deteriorating climate-induced labour conditions and outlines the main arguments made in the Special Issue contributions. It concludes with several recommendations for future research and possible actions to protect workers on a heating planet.

Suggested citation: D Brennan and S Yea, 'Editorial: Climate Emergency and Work on a Heated Planet', *Anti-Trafficking Review*, issue 25, 2025, pp. 1-10, https://doi.org/10.14197/atr.201225251

'There is something about the weather'[1]

As all living things face terrifyingly dangerous and life-threatening climate events, humanity is at a juncture, a moment of existential choices. In line with the mission of the *Anti-Trafficking Review* to examine sources of and solutions to labour and migrant exploitation, we can—and must—build new modes of living and working that dismantle current extractive, death-creating, and unsustainable systems. Otherwise, as the articles in this Special Issue explore, the climate crisis will continue to deepen existing inequities, widen the radius of precarious work, and create new forms of exploitation. Extreme heat, sea level rise, drought, floods, fires and hurricanes, amongst other slow and rapid-onset events, are threat multipliers that intensify workers' vulnerabilities.[2] As workers labour in increasingly perilous conditions, the line between minor mistreatment and extreme exploitation is blurring, transforming many workplaces into sites that

1 The Red Nation, *The Red Deal: Indigenous Action to Save Our Earth*, Common Notions, New York, 2021.

2 S Goodman, *Threat Multiplier: Climate, Military Leadership, and the Fight for Global Security*, Island Press, Washington, DC, 2024.

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

meet different countries' legal definition of human trafficking. Yet, we are only at the beginning stages of preventing and redressing—legally and politically—the normalisation of escalating climate-related harms.

This Special Issue documents ongoing deteriorating climate-induced labour conditions. It asks what will 'count' as forced labour when extreme heat conditions blanket the globe and climate-related events change landscapes, economies, and everyday lifeways. We consider local knowledge, ways of seeing, and solidarity within and across justice-seeking movements—climate/environmental, de-colonial, racial, worker, migrant, feminist, food, and prison—as starting points. It is our hope that this Special Issue launches and amplifies care-forward conversations across these otherwise often siloed movements. This intersectional approach also recognises what abolitionist geographer Ruth Wilson Gilmore describes as the effects of entangled crises on already vulnerable people: 'For anybody who is caught up in the systems that are shaped by extractive capitalism and organized violence, there is a cumulative and compounded effect on their persons and their lives.'[3]

Meanwhile, workers across labour sectors throughout the world are more unsafe every day. It does not have to be this way. We see this Special Issue as 'sending out a flare', an urgent 'call to begin building new labour protections to keep pace with ever-increasing climate-generated dangers.'[4] Immediate worker protections are easy fixes within current systems of law and policy, such as mandating water and shade breaks and guaranteeing disaster pay when climate-related events interrupt work. Longer-term protections are trickier and involve overhauling capitalist ways of life. Rooted in abolitionist scholarship and action, along with critiques of racial capitalism, this issue argues for a more just economic system that allows people and the planet to thrive.[5] It also insists that workers and the communities in which they are embedded are experts. We must begin by listening to those on the frontlines of climate change not only to learn about worsening dangers and their strategies to stay safe, but also about longer-term structural changes that are needed. The future of protecting workers is being led by workers themselves, as documented by this issue's ethnographers, attorneys, social workers, and other

---

3 K Hayes, 'Ruth Wilson Gilmore on Abolition, the Climate Crisis and What Must Be Done', *Truthout*, 14 April 2022, retrieved 27 August 2025, https://truthout.org/audio/ruth-wilson-gilmore-on-abolition-the-climate-crisis-and-what-must-be-done.

4 Brennan, Kim, and Jackson in this issue.

5 Based on Cedric Robinson's writing on racial capitalism, geographer Ruth Wilson Gilmore's abolitionist framework extends beyond prison walls as she expansively describes abolition's goal to 'change how we interact with each other and the planet by putting people before profits, welfare before warfare, and life over death'. R W Gilmore, 'Foreword', in D Berger, *The Struggle Within: Prisons, Political Prisoners, and Mass Movements in the United States*, Kersplebedeb Publishing, Montreal, 2014, p. viii.

contributors who have had the opportunity to listen to and learn from workers, and use worker knowledge to forge effective plans of action. Following the expertise of workers is exactly what Marxist philosopher Kohei Saito instructs in his treatise on degrowth, writing that we cannot 'entrust the salvation of the Earth's future to the emergency responses dreamed up by politicians, experts, and other elites' but instead must listen to 'ordinary citizens…testify to their experiences' with capitalism, the 'root cause' of the climate crisis.'[6]

Written on the Body

Although workers the world over long have virulently denounced, resisted, and strategised against capitalism's harms, we are racing to a new and dangerous low point within the Anthropocene. Workers are labouring in climate-altered conditions that threaten their short- and long-term wellbeing. While it is common knowledge that some of the world's dirtiest and most dangerous jobs have been outsourced to the Global South, where populations have disproportionately borne the costs of climate change, capitalism has altered the entire planet—not just part of it. With 'freak' storms and extreme temperatures no longer rare in the Global North, labouring 'here' (and not just 'over there') increasingly takes place under lethal conditions. Capitalism's capacity to devour people and the planet, famously described as a vampire by Marx, more recently has prompted comparison to cannibalism by philosopher Nancy Fraser, and to a horror story by Marxist critic Jon Greenaway.[7] This Special Issue is concerned with how the climate crisis accelerates capitalism's 'consumption' of the most vulnerable workers' bodies, 'chew(ing) them to pieces in the gears of the machines.'[8] There is nothing 'slow' about the immediate violence of labouring through scorching temperatures, choking wildfire smoke, or toxic sludge from flooding.[9] Investigative reporter Hannah Dreier's series in the *New York Times* on the lethality of wildfire smoke on young healthy wildland fire fighters was nothing short of shocking. Otherwise healthy fire fighters have been stricken by fast-moving, and often deadly, forms

---

6 Predictions of what is ahead in eighty years' time are catastrophic: hundreds of millions of people will be forced to evacuate their homes; the global food supply will no longer sustain the world's population; and economic damage could cost upward of USD 27 trillion annually (see K Saito, *Slow Down: The Degrowth Manifesto*, Astra House, New York, 2024, p. XIX).

7 N Fraser, *Cannibal capitalism: How our system is devouring democracy, care, and the planet—and what we can do about it*, Verso Books, London, 2022; J Greenaway, *Capitalism: A Horror Story: Gothic Marxism and the Dark Side of the Radical Imagination*, Repeater Books, London, 2024.

8 Greenaway, pp. 36, 5.

9 See R Nixon, *Slow Violence and the Environmentalism of the Poor*, Harvard University Press, Cambridge, 2011.

of cancer.[10] The immediate health effects are so unmistakable that within a week of Drier's first article, the US Forest Service lifted its (perplexing) mask ban.[11]

While scientists predict tipping points beyond which the planet's destruction would be irreversible, no such modelling is needed to understand the limits of the human body. Physicians Sorensen and Garcia-Trabanino have written that 'we may have now reached a physiological limit, in terms of heat exposure, at which acclimatization and behavioral modifications can no longer overcome the biologic stressors of unsafe working conditions and environmental exposures in these hot spot communities.'[12] The articles in this Special Issue describe how the most vulnerable have deployed various strategies to live healthy and dignified lives.

Terms

Since we see this Special Issue as a kind of flare about work amid the climate emergency, it contains stories from disparate geographical and ecological contexts. We invite readers to use the term 'precarious work' to encompass a wide range of low-paying insecure work that can tip into forced labour, human trafficking, and debt bondage. While the term 'modern slavery' has been used as a catch-all term, we urge readers to insist on terms that are more precise as well as to eschew morally-laden historical referents that diminish plantation slavery that was ensconced in law and enforced with slave patrols.[13] Workers' exploitation, including forced labour, because of climate catastrophe is a powerful enough descriptor without resorting to terms that often lead to pontificating and politicking rather than to crafting and supporting policies that protect workers. Instead, we find situating trafficking at one end of a continuum of worker exploitation particularly

---

10 H Dreier, 'Wildfire Fighters, Unmasked in Toxic Smoke, Are Getting Sick and Dying', *New York Times*, 17 August 2025, https://www.nytimes.com/2025/08/17/us/wildfire-firefighters-masks-smoke.html; N Dreier, "'If I Live to be 25, I've Lived a Good Life'", *New York Times*, 7 September 2025, https://www.nytimes.com/2025/09/07/us/wildfire-firefighter-cancer.html

11 H Dreier, 'U.S. Wildfire Fighters to Mask Up After Decades-Long Ban on Smoke Protections', *New York Times*, 9 September 2025, https://www.nytimes.com/2025/09/09/us/wildfires-masks-firefighters.html.

12 C Sorensen and R Garcia-Trabanino, 'A New Era of Climate Medicine — Addressing Heat-Triggered Renal Disease', *New England Journal of Medicine*, vol. 381, no. 8, 2019, pp. 693–696, https://doi.org/10.1056/NEJMp1907859. Heat extremes not only exacerbate known diseases, but also produce new ones such as chronic kidney disease of unknown origin (CKDu) which disproportionately affects vulnerable populations. (See *Ibid.*)

13 D Brennan, *Life Interrupted: Trafficking into Forced Labor in the United States*, Duke University Press, Durham, 2014.

helpful to understand how already precarious work can easily slip into extreme exploitation/trafficking because of the climate crisis.

It is important to note that many people affected by the climate crisis do not call it as such. In his interview in this Special Issue, anthropologist and filmmaker **David Feingold** reflects on the countless conversations about the environment he has had with people throughout Southeast Asia since the 1960s. While man-made changes to the climate have altered lifeways and livelihoods, people more often commented on the changes and their effects rather than their source. Similarly, **Jolemia Nascimento das Chagas, Dionéia Ferreira, and Ginny Baumann** describe how people who depend on fishing from the Manicoré River in the Brazilian state of Amazonas do not 'use the jargon of international conferences' but instead speak 'in more literal terms about the rapid changes they see all around them'. For example, about the scorching heat that forces them to go to their fields much earlier in the morning; mass deaths of fish in the dried-up rivers; wildfires in the forests; and worsening scarcity of drinking water.

Below we introduce other articles in this Special Issue in sections about what the climate crisis sets in motion.

The Climate Crisis: *Compounds vulnerabilities*

All the articles in one way or another explore how the climate crisis amplifies vulnerabilities, testing the International Labour Organization's notion of 'decent work'—the topic of the article by **Bethany Jackson, Nicole Tichenor Blackstone, and Jessica L. Decker Sparks**. They argue that the pace of extreme weather events challenges the commitments that governments and international governance mechanisms have espoused to promote decent work. We single out the article by **Tasnia Khandaker Prova, Era Robbani, and Humaun Kabir** for beautifully capturing how the climate crisis collides with cultural codes along gender and generational lines. Focusing on elderly people and people with disabilities in the southwestern borderlands of Bangladesh, they write that deltaic communities 'struggle to keep pace with fast-eroding rivers, where natural shocks like floods and cyclones increase in intensity and frequency with each passing year'. Some of the most vulnerable people in the community make decisions that might not make sense to others. Take Aparna, a 90-year-old woman, who in the path of a fast-moving cyclone decided to return to her 'flimsy' thatched house instead of seeking refuge at the closest cyclone shelter. Her decision was based on long-held understandings about the dangers of multi-purpose shelters for women. Aparna's decision to ride out the storm on her own teaches us how plans and systems can 'perpetuate exclusion'. The authors also write about a disabled father who poetically describes that climate change has made life 'less sweet', since his famed date molasses literally does not taste the same anymore.

The Climate Crisis: *Tips low-wage jobs into forced labour*

As worksites become increasingly hazardous, or what is known in environmental justice parlance as 'sacrifice zones', legal frameworks that protect against forced labour do not account—as of yet—for the heightened risks workers face due to climate change.[14] The article by **Denise Brennan, Kathleen Kim, and Julia Jackson** calls for the re-evaluation of the socio-legal dimensions of forced labour as climate-altered living and working conditions worsen.[15] It considers how climate-related events blur the line between lousy exploitative work and trafficked labour. Worksites enveloped in choking wildfire smoke, for example, are grotesquely unsafe and life-threatening. But how should we view the interconnected systems that deliver people into these worksites, and shape their decisions (or their perception) that they cannot leave? This article—and the entire Special Issue—ask readers to consider what to call, how to measure, as well as to advocate for robust protections against rapidly changing labour conditions.

The Climate Crisis: *Widens the radius of precarious work, dragging dispossessed workers into extractive jobs*

It is no longer the most low-wage marginalised workers who are exposed to dangers and economic precarity because of extreme weather. Authors in this Special Issue write about workers long understood as vulnerable as well as those newly made so because of climate-related events. **Sallie Yea**'s article on the exploitation of Filipino men on distant water fishing vessels captures the disposability of low-wage workers. Pushed into working on these vessels because of compounding vulnerabilities at home, these men work in what amounts to a floating jail without sufficient desalinated water, nutritious food, or medical care. The lack of drinkable water is so severe that some resort to drinking the rusty water from air conditioning units. Their egregious mistreatment, which has led to disease and, in some cases, death, reflects employers' gruesome recklessness with what they see as disposable bodies.

---

14 S Lerner, *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the Unites States*, MIT Press, Boston, 2010.

15 R D Bullard and B Wright, *The Wrong Complexion for Protection: How the Government Response to Disaster Endangers African American Communities*, NYU Press, New York, 2012; M Méndez, G Flores-Haro, and L Zucker, 'The (In)Visible Victims of Disaster: Understanding the Vulnerability of Undocumented Latino/a and Indigenous Immigrants', *Geoforum*, vol. 116, 2020, pp. 50–62, https://doi.org/10.1016/j.geoforum.2020.07.007; D E Taylor, *Toxic Communities: Environmental Racism, Industrial Pollution, and Residential Mobility*, NYU Press, New York, 2014.

We are all familiar with challenges ensuring fair treatment of workers along supply chains, and the renewable energy sector is no exception. **Phoebe Michelmore and Marinella Marmo**'s article discusses exploitation of Uyghur workers in China who work in solar power supply chains. They demonstrate that in the global race to transition to net zero, workers are expendable in the name of saving the planet. As the climate crisis creates new forms of work, including within a green economy, there will be new forms of exploitation. The ethics of green industrial policy are fraught; renewable technologies *here* often rely on neocolonial techniques of extraction and exploitation *over there*. Given the 'territorially uneven costs and benefits' built into extractive economies, it is a daunting challenge to internationalise robust ethical, equitable, and dignified forms of work stretched across supply chains, even green ones.[16] Once adopted, green technologies not only can be dirty at the end of their life cycle, but also dangerous for workers involved in their installation, maintenance, and recycling.[17] Installation of solar panels, for example, like roofing jobs in general, is known for its dangers due to injury and death from falls as well as proximity to overhead power lines in which workers—and their tools—can come into contact and lead to electrocution.[18]

Climate change not only worsens working conditions in jobs that workers might have chosen, but also forces people to work in industries that directly contribute to the climate crisis. **Chagas, Ferreira and Baumann** describe rural workers in the Brazilian Amazon surviving through family farming in locales with little or no government investment in services or infrastructure. Only making a 'pittance', the 'tragic twist' is that many 'have no choice but to accept jobs to carry out deforestation and mining' which further destroy the livelihoods of their neighbours. They can be recruited 'precisely because the conditions required for meeting their basic needs have been removed by the invaders and exhausted by climate change'.

Similarly, **Merry Jean A. Caparas and Maria Aurora Teresita W. Tabada** tell the story of a small agricultural village in the Philippines that was devastated by a super typhoon, forcing rice farmers to sell their land. At the same time, government efforts to prepare for future extreme weather events prioritised

---

16 T N Riofrancos, 'Scaling Democracy: Participation and Resource Extraction in Latin America', *Perspectives on Politics*, vol. 15, issue 3, 2017, pp. 678–696, https://doi.org/10.1017/S1537592717000901.

17 A Atasu, S Duran, and L N Van Wassenhove, 'The Dark Side of Solar Power', *Harvard Business Review*, 18 June 2021, https://hbr.org/2021/06/the-dark-side-of-solar-power.

18 Occupational Safety and Health Administration, 'Green Job Hazards', n.d., retrieved 8 October 2025, https://www.osha.gov/green-jobs/solar/electrical; B Wang, '2020 Fatalities for US Roofers Increased 15% as Solar Roof Installations Increase', *Next Big Future*, 6 July 202, https://www.nextbigfuture.com/2021/07/2020-fatalities-for-us-roofers-increased-15-as-solar-roof-installations-increase.html.

infrastructure development, leading to a rapid expansion of sand and gravel extraction that contaminated the village's irrigation system. Workers the world over are being dragged into participating in the dissolution of forms of self-sufficiency, control, and solidarity.

The Climate Crisis: *Forces people to undertake risky strategies with little time to plan*

As the climate crisis forces people to look for work beyond their local economies, many become vulnerable to fraudulent recruiters, debt brokers, and traffickers. 'Climate refugees' a catch-all term with no legal teeth, belies the range of legal statuses and work authorisations with which individuals operate. **Ruta Nimkar and Julia Schweers** use large survey data to examine how individuals and families in Ethiopia and the Philippines evaluate whether to undertake risky migration, arguing that governments' climate adaptation strategies, no matter how well intentioned, often exclude the most vulnerable people. Decades of robust migration scholarship has documented how migrants would rather stay at home amidst their families and extended social and economic networks as well as lifeways (food and language) than migrate for work and start anew. But extreme climate events leave marginalised individuals and households scrambling, which shifts the calculus in risk assessments by would-be migrants. Notably, such events cut short would-be migrants' planning, including saving money for their migration journey. Since the climate crisis often speeds up migrants' decision making, the most careful plans can go awry and ferry even the most seasoned migrants into situations of trafficking.

Time, thus, is a critical issue. A host of life-altering decisions can become rushed and compressed in the chaos after climate emergencies. In her article about 'climate brides' in South Asia, **Reetika Revathy Subramanian** reminds that although marriage can be a 'gendered strategy of survival' that offers 'social protection under conditions of precarity', we see the deleterious effects of sped up decision making because of the climate crisis. Time is also a theme in **Chris Weeks**' article on spectacularised interest in the alleged relationship between trafficking and disasters. After conducting interviews in the aftermath of a devastating typhoon in the Philippines, he found that there was no uptick in trafficking cases. Rather, over time, destroyed livelihoods can funnel people into accepting more precarious work and heighten the risk of human trafficking.

Benedikte Raft and Kolja Dahlin also take up similar themes in their article on what they call the gender-climate-mobility nexus in which climate change compounds pre-existing vulnerabilities and inequalities in Maithili Dalit women's lives in Nepal. The climate crisis is a 'risk amplifier' of caste-based exclusions, economic marginalisation, and immobility (in the face of male out-migration) such that they become mutually reinforcing.

Considerations and Future Directions

What will keep neoliberal capitalism going in ever-increasing extreme climate conditions? Employers will need more and more elaborate strategies to cheat and expire workers. While we have been witnessing the increasing ineffectiveness of existing worker protections to keep pace with climate-induced exploitation (let alone their enforcement), governments have been working closely with businesses to nibble away at worker rights. There are many thorny questions ahead.

As old forms of exploitation grow and new forms of abuse emerge, what will count as severe enough to warrant prevention, protection, and prosecution in the future? Do we expand existing policies and legal frameworks to reflect these new abuses or do we start anew? Do we resign ourselves to a dystopia where 'ever worse' becomes the norm? Or do we, as a society, undertake the large-scale restructuring necessary to ensure decent working conditions?

If we choose the latter, it will require a new understanding of trafficking that includes a vastly larger population of workers, along with a new commitment to workers' protections. As civil society, non-profits, and progressive policymakers labour to keep workers safe, employers and business-friendly policymakers will keep on inventing new modes of extraction.

Researchers must follow the lead of workers advocating for their colleagues and the planet. We should also look to past missed opportunities. The articles in this Special Issue push us to consider what went wrong—and right—with anti-trafficking legislation such as the United States Trafficking Victims Protection Act or the UN Trafficking Protocol. The dawning of this anti-trafficking era offered a reset, a juncture at which to rethink policies related to border policing and migrant worker protections (including sex workers). It was a huge opportunity for nations and their economies to reckon with the paradox of essential yet disposable migrant labour. Twenty-five years later on a much hotter planet, we need to look back as we look forward and consider what should 'count' as trafficking when increasing numbers of workers labour in sites grievously altered by climate change.[19] Given the many criticisms of current anti-trafficking frameworks, particularly since they were handily hijacked to crack down on migrants and sex workers, it remains an open question whether to update them to reflect new forms of perilous labour.[20] The current anti-trafficking legal and social assistance regimes are

[19] D Brennan, 'Magical Thinking', *American Anthropologist*, vol. 121, issue 1, 2019, pp. 262-264, https://doi.org/10.1111/aman.13181.

[20] As many activists, scholars, and attorneys around the globe have noted, anti-trafficking policies and programmes have been far more effective as punitive anti-sex work and migration controls than in assisting exploited individuals. See, for example, J Quirk, C Robinson, and C Thibos, 'Editorial: From Exceptional Cases to Everyday Abuses:

woefully unprepared to address the sheer number of workers whose livelihoods will depend upon them risking their lives in lethal working conditions created by incessant carbon emissions.

The intersection of the climate crisis, environmental degradation, and precarious work demands our attention as politically engaged researchers, practitioners, and policymakers. The articles in this Special Issue offer a new direction, a 'climate turn', in critical social science on trafficking. It is our hope that these essays stir discussion around strategies and practices that build worker and migrant power and protections in times of multiple crises. Workers' health and well-being hang in the balance.

Denise Brennan is a 2025–26 Harvard Radcliffe Fellow where she is writing a new book *Work on A Heated Planet*. She is the author of *Life Interrupted: Trafficking into Forced Labor in the United States* and is Professor and Chair of the Department of Anthropology at Georgetown University, the United States. Email: Denise.Brennan@georgetown.edu

Sallie Yea is an Associate Professor of Human Geography in the Environmental Science Programme at Charles Sturt University, Albury, Australia. She has been conducting research with precarious migrant workers from or in Asia for more than twenty years. Email: salliellao@gmail.com

Labour Exploitation in the Global Economy', *Anti-Trafficking Review*, issue 15, 2020, pp. 1-19, https://doi.org/10.14197/atr.201220151; J Musto, M Thakor, and B Gerasimov, 'Editorial: Between Hope and Hype: Critical Evaluations of technology's Role in Anti-Trafficking', *Anti-Trafficking Review*, issue 14, 2020, pp. 1-14, https://doi.org/10.14197/atr.201220141; and M G Giammarinaro, *Report of the Special Rapporteur on trafficking in persons, especially women and children*, A/HRC/44/45, United Nations Human Rights Council, 6 April 2020.

Thematic Articles: Climate Emergency and Work on a Heated Planet

ANTI-TRAFFICKING REVIEW 25 (2025): 12-30

The Climate Crisis as a Poverty Crisis: How climate change amplifies (im)mobility and gendered vulnerabilities

Benedikte Raft and Kolja Dahlin

Abstract

This article explores the intersection of climate change, mobility, and gender in the Madhesh Province of Nepal, with a particular focus on the experiences of Maithili Dalit women, based on 19 semi-structured interviews conducted in 2024. It highlights how international labour migration, primarily undertaken by men, serves as a crucial survival strategy for families, while women remain behind to manage the household in the face of poverty and increasing climate risks. Utilising an intersectional approach, the article argues that (im)mobile Maithili Dalit women face poverty-induced vulnerabilities, which are amplified by climate change. Consequently, migration becomes a strategy for coping with these poverty-induced vulnerabilities. Privileging the voices and stories of Maithili Dalit women, the article attempts to understand those who are affected by climate change and international migration but are often absent from the political conversation and decision-making processes in a globalised world.

Keywords: climate change, im/mobilites, gender, Nepal

Suggested citation: B Raft and K Dahlin, 'The Climate Crisis as a Poverty Crisis: How climate change amplifies (im)mobility and gendered vulnerabilities', *Anti-Trafficking Review*, issue 25, 2025, pp. 12-30, https://doi.org/10.14197/atr.201225252

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

Introduction

In the past two decades, public debates in the Global North have painted apocalyptic scenarios of massive waves of future migration due to climate change.[1] However, recent academic research argues that the links between migration and climate change may not be as straightforward.[2] Instead of viewing climate change as a primary driver of migration, researchers emphasise its amplifying effect on existing patterns of mobility and vulnerability, including the gendered risks induced by climate change.[3]

This article explores the intersection of climate change, mobility, and gender in Maithili traditions in the Madhesh Province of Nepal, focusing on how climate change and migration affect lower-caste Maithili Dalit women's lives. Through fieldwork and interviews conducted in collaboration with the Danish Red Cross (DRC), the article underscores how international labour migration, primarily undertaken by men, serves as a crucial survival strategy for families, while women manage the household in the face of poverty and increasing climate risks. Poverty creates vulnerabilities, and these vulnerabilities are amplified by climate change. This vulnerability particularly affects women, who must endure not only poverty and the consequences of climate change but also systemic marginalisation in Maithili Dalit culture. Although the reality is more complex than the alarmist

---

1 J Warner and I Boas, 'Securitization of Climate Change: How Invoking Global Dangers for Instrumental Ends Can Backfire', *Environment and Planning C: Politics and Space*, vol. 37, no. 8, 2019, pp. 1471–1488, https://doi.org/10.1177/2399654419834018; G Bettini, 'Climate Barbarians at the Gate? A Critique of Apocalyptic Narratives on "Climate Refugees"', *Geoforum*, vol. 45, 2013, pp. 63–72, https://doi.org/10.1016/j.geoforum.2012.09.009.

2 I Boas, N de Pater, and B T Furlong, 'Moving Beyond Stereotypes: The Role of Gender in the Environmental Change and Human Mobility Nexus', *Climate and Development*, vol. 15, no. 1, 2023, pp. 1–9, https://doi.org/10.1080/17565529.2022.2032565.

3 F Sultana, 'Gendering Climate Change: Geographical Insights', *The Professional Geographer*, vol. 66, no. 3, 2014, pp. 372–381, https://doi.org/10.1080/00330124.2013.821730; C G Goodrich, P B Udas, and H Larrington-Spencer, 'Conceptualizing Gendered Vulnerability to Climate Change in the Hindu Kush Himalaya: Contextual Conditions and Drivers of Change', *Environmental Development*, vol. 31, 2019, pp. 9–18, https://doi.org/10.1016/j.envdev.2018.11.003; S Arora, 'Intersectional Vulnerability in Post-Disaster Contexts: Lived Experiences of Dalit Women After the Nepal Earthquake, 2015', *Disasters*, vol. 46, no. 2, 2022, pp. 329–347, https://doi.org/10.1111/disa.12471; S Leder, 'Beyond the "Feminization of Agriculture": Rural Out-Migration, Shifting Gender Relations and Emerging Spaces in Natural Resource Management', *Journal of Rural Studies*, vol. 91, 2022, pp. 157–169, https://doi.org/10.1016/j.jrurstud.2022.02.009; I Boas *et al.*, 'Climate Mobilities: Migration, Im/Mobilities and Mobility Regimes in a Changing Climate', *Journal of Ethnic and Migration Studies*, vol. 48, no. 14, 2022, pp. 3365–3379, https://doi.org/10.1080/1369183X.2022.2066264.

discourses advanced at the political level, we still need to engage with the relationship between climate change and migration. By understanding these links as interconnected and privileging Maithili Dalit women's stories and strategies, we can enhance just practices and challenge the myths about the causal links between climate change and migration that dominate the climate–migration discourse.

We begin by reviewing relevant literature on the interlinkages between gender, the environment, and mobility. We then outline our research design and methodology, including a contextual overview of how climate change and migration intersect in Nepal's Madhesh Province. Building on Christoffersen's intersectional methodology,[4] we apply the gender–environment–mobility nexus as a conceptual and analytical approach to guide our iterative analysis of fieldwork data through three interrelated lenses: *climate*, *mobility*, and *gender*. This approach enables us to uncover how overlapping social, environmental, and structural pressures shape lived experiences, particularly for marginalised caste and gender groups, and to further advance our core argument.

The Gender-Environment-Mobility Nexus

Recent feminist migration scholars call for a more nuanced approach to understanding climate-related migration and relocation patterns. The nature of physical relocation can vary widely, ranging from short-term to long-lasting, occur seasonally or singularly, and happen by choice or by force.[5] This has led scholars to advocate for a focus on mobility rather than migration.[6] As a result, research has shifted towards embracing pluralism, recognising the inherently political nature of climate-related mobility, and understanding the diverse strategies local communities employ to navigate environmental changes.[7] Similarly, the mobility framework seeks to avoid constructing individuals as a homogenous 'migrant

4 A Christoffersen, 'Intersectional Approaches to Equality Research and Data', Advance HE, April 2017, retrieved 29 March 2024, https://www.advance-he.ac.uk/knowledge-hub/intersectional-approaches-equality-research-and-data.

5 Sultana.

6 H Wiegell, I Boas, and J Warner, 'A Mobilities Perspective on Migration in the Context of Environmental Change', *WIREs Climate Change*, vol. 10, issue 6, 2019, pp. e610, https://doi.org/10.1002/wcc.610; I Boas *et al.*, 'Climate Change and Internal Migration Intentions in the Forest-Savannah Transition Zone of Ghana', *Population and Environment*, vol. 35, no. 4, 2014, pp. 341–364, https://doi.org/10.1007/s11111-013-0191-y; G Cundill *et al.*, 'Toward a Climate Mobilities Research Agenda: Intersectionality, Immobility, and Policy Responses', *Global Environmental Change*, vol. 69, 2021, pp. 102315, https://doi.org/10.1016/j.gloenvcha.2021.102315.

7 Boas *et al.*, 2022; Wiegell *et al.*

mass' devoid of any individualised decision-making regarding whether to relocate or stay put.[8]

Climate mobility is seen as an attempt to ensure the de-exceptionalism of international migration to instead understand climate movement as embedded in the already existing patterns of both mobility and immobility.[9] Boas *et al.* outline the advantages of adopting a climate mobilities viewpoint: firstly, it treats climate change as a relational phenomenon that varies by locality and 'cannot be reduced to "impacts" that can be isolated, enumerated, modelled and hence predicted. … [Instead, it] exerts its influence through the matrix of social, economic, environmental, cultural, historical and political processes'.[10] This means that the climate mobility paradigm departs from more conventional migration understandings where migration is binary and can be predictably modelled. The mobility perspective thus shifts the focus from labelling migrants as 'climate migrants' towards a deeper understanding of how individuals perceive and respond to the effect of climate change in their lives and how it influences their mobility or immobility. It seeks to uncover the reasons behind people's decisions to move or stay, including the where, how, and why of these decisions.[11] Instead of establishing predictable connections, the notion of climate mobility prompts us to examine the intricate, day-to-day interactions between various forms and levels of mobility and climate change.[12] This perspective challenges the simplistic binary of seeing mobility as an active choice and immobility as a passive condition.

As we are interested in exploring climate mobility patterns in Maithili Dalit women's lives, we address the concepts of climate, mobility, and gender not in isolation, but rather as entangled entities influencing each other. Recent literature suggests analysing these intersecting relationships through the lens of a climate–mobility–gender nexus, which explicitly examines how climate change exacerbates various forms of context-specific vulnerabilities connected to migration and gender.[13] This intersectional approach avoids the tendency to essentialise women as a homogenous group and overlook the multiple processes that constitute

8 M Sheller, *Mobility Justice*, Verso, London, 2014; Bettini.

9 J Schapendonk, M Bolay, and J Dahinden, 'The Conceptual Limits of the "Migration Journey": De-Exceptionalising Mobility in the Context of West African Trajectories', *Journal of Ethnic and Migration Studies*, vol. 47, no. 14, 2021, pp. 3243–3259, https://doi.org/10.1080/1369183X.2020.1804191.

10 Boas *et al.*, 2022, pp. 3368–3369.

11 *Ibid.*

12 Boas *et al.*, 2023.

13 Sultana; Goodrich *et al.*; Arora.

gendered subjects, identities, and bodies.[14] The dominant focus has been on the impacts of climate change on women, but greater attention is needed to how gender is intersected by axes (e.g. class, caste, age, etc.) as well as a relational analysis of both women and men across social categories in a changing climate.[15]

By applying the climate–mobility–gender nexus, we aim to move away from causal links and promote an intersectional view of gender and mobility to explain how climate change is linked to migration and gender. In this nuanced understanding, climate change is not perceived as the only source of risk or vulnerability, but rather as a risk amplifier.[16] Secondly, instead of assuming that men are mobile and agentic and women are neither, the climate–mobility–gender nexus allows for a greater focus on different forms of gendered dynamics and different ways to understand roles played in mobility. Overall, this article contributes to these previous intersectional findings in the literature by studying gender dynamics of migration and climate change in the Madhesh Province in Nepal.

Locating Vulnerability: Climate, gender, and mobility in Madhesh

Our fieldwork in Madhesh, Nepal, was part of a research project between the Danish Institute for International Studies and the Danish Red Cross (DRC).[17] The project sought to offer qualitative insights to the gendered dimensions of climate vulnerability, with a focus on how women experience and navigate intersecting challenges of environmental stress, poverty, caste-based exclusion, and male out-migration. In coordination with the DRC Nepal and Nepal Red Cross Society, Madhesh was selected as the primary research site due to its

[14] K Davis, 'Intersectionality as a Buzzword: A Sociology of Science Perspective on What Makes a Feminist Theory Successful', *Feminist Theory*, vol. 9, no. 1, 2008, pp. 67–85, https://doi.org/10.1177/1464700108086364; A Kaijser and A Kronsell, 'Climate Change through the Lens of Intersectionality', *Environmental Politics*, vol. 23, no. 3, 2014, pp. 417–433, https://doi.org/10.1080/09644016.2013.835203.

[15] Sultana, p. 374.

[16] P Lama, M Hamza, and M Wester, 'Gendered Dimensions of Migration in Relation to Climate Change', *Climate and Development*, vol. 13, no. 4, 2021, pp. 326–336, https://doi.org/10.1080/17565529.2020.1772708.

[17] S Henriksen, S Plambech, K Dahlin, and B Raft, *Climate Migration Amplifies Gender Inequalities*, Migration and Global Order Research Unit, Danish Institute for International Studies, 2024, https://research.diis.dk/en/publications/climate-migration-amplifies-gender-inequalities.

high levels of labour migration and acute exposure to climate-related hazards.[18] Situated in Nepal's southern Terai region along the Indian border, Madhesh is geographically distinct from the country's mountain areas. It forms part of the Eastern Gangetic Plain and shares deep historical, linguistic, and cultural ties with northern India.[19] Once unified under the medieval Maithili kingdom, the region continues to uphold Maithili customs and Hindu traditions, including caste hierarchies, which today remain deeply embedded in social life.[20] Despite Nepal's constitutional commitments to equality, caste-based oppression persists, particularly for Dalit communities who continue to face political and social exclusion.[21] For Madheshi Dalits, especially women, structural marginalisation is further deepened by landlessness, tenuous citizenship status, and exclusion from broader inter-caste networks that facilitate access to opportunity and influence.[22] These social and economic barriers not only constrain everyday life but also shape how communities experience and respond to broader environmental and livelihood challenges.

Rivers have long been central to life in the Terai region, where cyclical flooding has traditionally been a part of the seasonal cycle. Yet increasingly erratic monsoon patterns and prolonged droughts, widely attributed to climate change, have begun to severely disrupt livelihoods.[23] Entire harvests and homes are often lost to sudden flooding, while dry spells leave families without sufficient water or food.[24]

---

18 F Clement and F Sugden, 'Unheard Vulnerability Discourses From Tarai-Madhesh, Nepal', *Geoforum*, vol. 126, 2021, pp. 68–79, https://doi.org/10.1016/j.geoforum.2021.07.016.

19 K C Samir, 'Internal Migration in Nepal', in M Bell *et al.* (eds.), *Internal Migration in the Countries of Asia: A Cross-national Comparison*, Routledge, 2020, pp. 249–267, pp. 250; M Witzel, 'Tracing the Vedic Dialects', in C Caillat (ed.), *Dialectes dans les Littératures Indo-Aryennes*, Paris, 1989, pp. 97–264; M Jha, *Anthropology of Ancient Hindu Kingdoms: A Study in Civilizational Perspective*, M.D. Publications Pvt., New Delhi, 1997, pp. 55–56.

20 D Gellner, J Pfaff-Czarnecka, and J Whelpton, *Nationalism and Ethnicity in a Hindu Kingdom: The Politics and Culture of Contemporary Nepal*, Taylor & Francis, London, 2012, p. 251; D Chaudhary, *Tarai/Madhesh of Nepal. An Anthropological Study*, Ratna Pustak Bhandar, Kathmandu, 2011; K P Pandey, 'Madheshi Dalit Women's Access to Citizenship and Livelihood Alternatives in Nepal', *Contemporary Voice of Dalit*, 2024, https://doi.org/10.1177/2455328X241258001.

21 M Subedi, 'Caste System: Theories and Practices in Nepal', *Himalayan Journal of Sociology & Anthropology*, vol. 4, 2010, pp. 134–159, https://doi.org/10.3126/hjsa.v4i0.4672.

22 Pandey.

23 P Bolte, S Marr, and S M Y Chaw, *At the Frontlines of the Climate Crisis: Scoping Study for the Development of a Climate Resilience Programme in Asia (Afghanistan, Nepal, Bangladesh, Myanmar)*, Danish Red Cross, Copenhagen, 2023.

24 *Ibid.*

To cope with the new climate uncertainties, labour migration has emerged as a key adaptation strategy.[25] In Nepal, mobility patterns are evolving, with a notable shift towards internal migration from rural areas to urban centres, alongside a rising trend in international labour migration, particularly to destinations like India, Malaysia, and the Persian Gulf states.[26] The province of Madhesh mirrors these national mobility trends. In 2021 and 2022, most Nepali international labour migrants with formal labour permits were from Madhesh.[27] Over 40% of households in the region are classified as migrant households. Moreover, the province continues to rank among the poorest in Nepal, with one of the lowest Human Development Index (HDI) scores.[28]

Recognising these intersecting pressures, our research aimed to understand how women in migrant households, particularly those from marginalised Dalit communities, experience and negotiate these layered forms of vulnerability. To this end, we conducted a 12-day field trip to Nepal in February 2024. Although the fieldwork period was brief, close coordination and preparation, together with our Nepali Red Cross colleagues, ensured that the data gathering was as focused and meaningful as possible. Through continuous dialogue with the DRC's country office in Nepal, along with volunteers from the Red Cross district office in Dhanusha, we identified the primary target groups for the data gathering as Dalit women impacted by mobility and climate change. The Dhanusha Red Cross volunteers helped identify the women and coordinated meetings with them before our arrival. We conducted 19 semi-structured interviews with Maithili Dalit women residing in the Kamala and Mukhiyapatti Municipalities of the Dhanusha District in Madhesh. All the women had husbands or sons working abroad, reflecting the centrality of migration in their household livelihood strategies. We focused on Dalit women because they often occupy the most vulnerable position at the intersection of caste, gender, and poverty, making them disproportionately exposed to both the impacts of climate change and of male out-migration. The interviews were carried out in close collaboration with both national and local Red Cross teams. Furthermore, semi-structured key informant interviews with village leaders and municipal officials were also conducted to gain broader

---

25 A Maharjan *et al.*, 'Can Labour Migration Help Households Adapt to Climate Change? Evidence from Four River Basins in South Asia', *Climate and Development*, vol. 13, issue 10, 2021, pp. 879–894, https://doi.org/10.1080/17565529.2020.1867044.

26 S Bhattarai, B Upadhyaya, and S Sharma, *State of Migration in Nepal*, Centre for the Study of Labour and Mobility, Kathmandu, 2023; L Sherpa and G Bhatrai Bastakot, *Migration in Nepal through the Lens of Climate Change*, Climate Action Network South Asia (CANSA), January 2021, p. 11.

27 International Organization for Migration (IOM), *Policy Brief: Migration and Skills Development*, IOM Nepal, 2022.

28 *Ibid.*; United Nations Development Programme (UNDP), *Nepal Multidimensional Poverty Index 2021: Analysis Towards Action*, Government of Nepal, Kathmandu, 2021, https://www.undp.org/nepal/publications/nepal-multidimensional-poverty-index-2021.

contextual insights. A local translator fluent in Maithili facilitated communication during the interviews, ensuring that participants could speak comfortably in their native language.

For data processing, we followed an open coding strategy to remain closely attuned to the women's narratives. As recurring patterns and themes emerged, we shifted to focused coding to identify the most significant categories and explore broader relationships and structures within the data.[29] Informants' names have been anonymised for the purpose of this article, with descriptive footnotes included to provide contextual details about each woman, such as caste, age, and family circumstances.

Analytical Framework

Our analytical framework will be structured around the three intersecting categories of the climate–mobility–gender nexus. This will help organise the core themes at play and further allow us to reflect on how other intersecting factors shape these relationships. Drawing on Christoffersen's intersectional methodology,[30] we will examine the same data set three times, each section focusing on one of the nexus's dimensions: (1) climate, (2) mobility, and (3) gender. By systematically shifting focus across these dimensions, we uncover overlapping narratives and insights, integrating reflections from interviews and field notes. Consequently, intersections between climate change and mobility, for instance, will be addressed both in the climate chapter and the mobility chapter, each offering distinct yet complementary analytical perspectives.

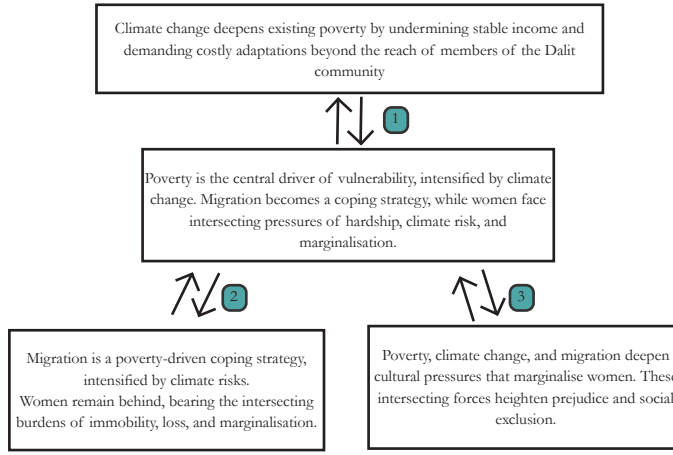


Figure 1: Visual representation of our intersectional framework.

[29] Clement and Sugden, p. 69.

[30] Christoffersen.

Climate Change as a Poverty Crisis

As previously noted, floods have long been part of life in the Terai region, but their intensity and irregularity have increased markedly in recent years. The transformation has not gone from an absence of floods to their sudden occurrence, but rather from familiar, cyclical flooding to increasingly invasive and unpredictable events. Dalit women living along the Kamala River in Dhanusha District recounted how recent floods have swept through their communities with unprecedented force. During such events, many families had been forced to seek temporary refuge in nearby villages or adapt their homes by raising foundations in an attempt to reduce the damage. Parvati[31] described the impact vividly, 'When rainy season comes, I have water coming here, so I don't have a place to sleep or cook or live.' In addition to displacement, floodings had disrupted agricultural cycles, reduced crop yields, and made it difficult to secure food. Laksmi[32] echoed this impact, stating, 'Sometimes we have floods, so all the crops are destroyed.' Although extreme weather was a constant feature in the lives of the women with whom we spoke, many struggled to fully grasp the phenomenon of climate change, and, for some, it was simply not a concern. The technical scientific explanations felt distant from their lives. Yet consequences were impossible to ignore. As Sita remarked, 'Something is changing'.

Turning to the analysis of this article, rather than focusing on how these women experience the phenomenon of climate change as a whole, a more insightful approach is to examine how they experience the dramatic changes in weather patterns. In this section, we explore climate not as an abstract environmental issue but as a condition that deepens existing inequalities. We illustrate that the effects of climate change are best understood as a poverty issue. It worsens the scarcity of stable employment and makes income more precarious, while simultaneously demanding forms of adaptation, such as relocating, rebuilding, or changing livelihoods, that are often out of reach for poor Maithili Dalit women. In this way, climate change does not act alone; it compounds existing vulnerabilities, disproportionately affecting those least able to adapt.

Climate Change and Work

The Dalit women we interviewed often worked as tenant farmers or wage labourers—forms of precarious employment that are particularly widespread among lower caste groups in Madhesh.[33] Tenant farming, which involves cultivating land owned by others in exchange for a portion of the yield or

[31] Dalit, age unknown, husband works in India.

[32] Dalit, aged 35, husband died while working in Qatar.

[33] Pandey, p. 8.

payment, is a common livelihood strategy in the region, especially among Dalit communities.[34] As Sugden notes, the agrarian structure across the Mithilanchal region is deeply shaped by long-standing class and caste-based inequalities, rooted in feudal state formations that historically empowered certain landed families as tax collectors and Dalit families as landless communities.[35] Within this already precarious livelihood system, the increasing frequency and severity of climate-related events, particularly floods and droughts, further reduce the availability of agricultural work. As environmental shocks destabilise crop cycles, they also erode the already limited employment opportunities for landless and land-poor women. As Kaditya[36] explained, 'I am [...] affected because if floods or droughts are coming, I am not getting work.' For her, the experiences of climate change translate into the ability to find daily wage labour. In this way, the concern for Maithili Dalit women is therefore not merely the changing weather but how these shifts intersect with agricultural livelihoods and reduce access to tenant or wage labour. Climate change is thus interpreted not through abstract environmental discourse but through the immediate lens of economic and health insecurity.

The Need for Climate Investments

Adapting to climate challenges often depends on access to resources.[37] Whenever we asked the women what they needed to improve their everyday lives, most of them responded 'a water pump'. Water pumps are not only useful to pump water out of houses and fields during floods, but they can also pump water onto fields during droughts. As such, they offer a measure of security and are considered a significant investment, often associated with wealth and status. Sarita,[38] who did not own a pump, explained, 'A person who is very rich, they have their pump and all.' Lacking a water pump was not just a symbol of economic disadvantage; it also had tangible consequences for families trying to cope with floods or droughts. While droughts complicate agricultural work, they are not insurmountable for those with the means to invest in necessary resources. The intersection of climate change and poverty becomes starkly visible in situations like these. Coping with the impacts of climate change often requires financial resources that Dalit women frequently lack. In Madhesh, adapting to climate challenges is not impossible, but

---

34 F Sugden, 'A Mode of Production Flux: The Transformation and Reproduction of Rural Class Relations in Lowland Nepal and North Bihar', *Dialectical Anthropology*, vol. 41, no. 2, 2017, pp. 129–161, pp. 142, https://doi.org/10.1007/s10624-016-9436-3.

35 *Ibid*.; F Sugden, 'Pre-Capitalist Reproduction on the Nepal Tarai: Semi-Feudal Agriculture in an Era of Globalisation', *Journal of Contemporary Asia*, vol. 43, issue 3, 2013, pp. 519–545, https://doi.org/10.1080/00472336.2013.763494; Clement and Sugden.

36 Dalit, aged 30, husband previously worked in Saudi Arabia.

37 Wiegell *et al*.

38 Dalit, aged 60, has only daughters.

it relies heavily on economic stability and access to essential resources.

Overall, this section has examined how environmental stressors intensified by climate change—particularly unpredictable and more extreme weather patterns—intersect with caste-based and socioeconomic inequalities. The impacts of climate change are not experienced in a vacuum; rather, they are mediated by poverty, landlessness, and limited access to adaptive resources such as water pumps. While wealthier landowners in Madhesh may mitigate environmental risks through infrastructure or irrigation, climate change is a persistent challenge embedded in the daily routines of many Maithili Dalit women, affecting their ability to find employment and secure basic necessities.[39] These climate-related pressures are thus best understood not as isolated environmental phenomena, but as forces that interact with entrenched social hierarchies, setting the stage for further analysis in the sections on mobility and gender.

The Mobility of Maithili Dalit Women

On our way out of the house of Sunali,[40] we thanked her one last time for inviting us into her home. Sunali's husband migrated to Malaysia around two years ago to work as a woodworker. The home was built on remittances he had sent from Malaysia. She did not have to work because his salary was good enough to take care of them both. She told us that she felt lonely and missed him. Even though he had migrated to another country to find employment, she was not permitted to leave their home. She was confined to a house built of money earned thousands of kilometres away.[41]

Women's (Im)mobilites

Migration was a constant presence in the villages we visited. Nearly every household shared stories of migration, ranging from long-term work abroad to seasonal labour in India—a practice that has persisted in the region for countless years.[42] Our initial observation was that women's mobility often seemed inversely

[39] F Sugden, 'Neo-Liberalism, Markets and Class Structures on the Nepali Lowlands: The Political Economy of Agrarian Change', *Geoforum*, vol. 40, issue 4, 2009, pp. 634–644, https://doi.org/10.1016/j.geoforum.2009.03.010; F Sugden, *Landlordism, Tenants and the Groundwater Sector: Lessons From Terai-Madhesh of Nepal*, IWMI Research Report 162, International Water Management Institute, Colombo, 2014.

[40] Dalit, aged 20, husband works in Malaysia.

[41] Excerpt from field notes, 15 February 2024.

[42] Y Gautam, 'Seasonal Migration and Livelihood Resilience in the Face of Climate Change in Nepal', *Mountain Research and Development*, vol. 37, no. 4, 2017, pp. 436–445, https://doi.org/10.1659/MRD-JOURNAL-D-17-00035.1.

related to the migration of their husbands. As men migrated, women stayed behind. However, staying behind did not imply continuing life as before; rather, it often entailed a further restriction of women's mobility. The phenomenon illustrated in Sunali's story must be understood within a broader context of gendered and caste-based restrictions. In Madheshi communities, many women are only permitted to leave the home when accompanied by their husbands or elder family members, a condition rendered more restrictive by the absence of male relatives when they are working thousands of kilometres away.[43] These accounts reflect what Zharkevich identifies as the relational construction of (im)mobility in rural Mid-Western Hills of Nepal, in which women's virtue is symbolically tied to their physical presence in the home, reinforcing ideals of femininity rooted in domesticity and respectability.[44] Even in the context of male out-migration, which sometimes necessitates greater female participation in economic or public life, traditional gender ideologies often persist, if not intensify, particularly for poor and marginalised women like those from Dalit communities.[45]

Despite cultural norms shaping immobilities, the poorest Dalit women are often forced to leave their homes in search of wage labour. In the districts of Dhanusha and Mukhiyapatti, this did not translate into empowerment. Instead, it exposed them to increased vulnerability and community stigma. Asmita,[46] who had migrated to India for work, described how even expressing a desire to migrate was considered inappropriate for women. Kaditya[47] echoed this sentiment: 'If I am planning to move, the community members will feel I am quite odd, point fingers at me (…) so that's why I'm not going.' As such, the mobility of Dalit women must be understood not merely as a matter of physical movement but as embedded in intersecting structures of caste, gender, poverty, and community norms shaping women's experiences and decisions to move.

Although shaped by social norms and structural inequalities, Maithili Dalit women's apparent immobility should not be conflated with passivity or lack of agency. While the women themselves rarely migrated, many described decisions around male out-migration as collective, involving discussions with husbands and

---

43 S Maharjan and R K Sah, 'Madheshi Women in Nepal', in R K Chaudhary, P Yadav and S R Chaudhary (eds.), *The Landscape of Madhesh: Politics, Society and Economy of the Plains*, Nepal Madhesh Foundation, 2012, pp. 119–149.

44 I Zharkevich, 'Gender, Marriage, and the Dynamic of (Im)Mobility in the Mid-Western Hills of Nepal', *Mobilities*, vol. 14, no. 5, 2019, pp. 681–695, https://doi.org/10.1080/17450101.2019.1611026.

45 G Shrestha, E L Pakhtigian, and M Jeuland, 'Women Who Do Not Migrate: Intersectionality, Social Relations, and Participation in Western Nepal', *World Development*, vol. 161, 2023, pp. 106109, https://doi.org/10.1016/j.worlddev.2022.106109.

46 Dalit, aged 35, originally from India.

47 Dalit, aged 30, husband previously worked in Saudi Arabia.

family elders. In the Madheshi context, such decisions are often negotiated at the household level through complex gendered dynamics. Although men typically hold more authority, several women emphasised their role in influencing, and at times initiating, migration-related choices. However, this does not imply equal power in decision-making, as these conversations unfolded within broader dynamics of traditional patriarchal household hierarchies where women's voices were negotiated rather than guaranteed. Nevertheless, it nuances reductive narratives that portray women as entirely passive or excluded from processes of mobility.

The Consequences of Migration

Many of the women recognised the importance of sending their husbands and sons to work abroad, but this did not make the decision any easier. 'When my husband left, I cried for three weeks', Urja[48] shared. The women were deeply aware of the dangers, recounting harrowing stories of migrants being killed, and expressed constant worry for the safety of their loved ones abroad. For some, these fears became a devastating reality. Many women in the community had been widowed, and in some cases, the circumstances of their husbands' deaths remained unclear. Ganga[49] learnt about her husband's death through Facebook, and she expressed to us: 'His body might still be somewhere in India.' Saraswati,[50] an elderly woman, also shared how her son came home from Qatar due to mental issues. She did not know what had happened to him. He came home with nothing, and although his remittances had been used to build an elevated house, she now had to take care of him and pay back the loans it took to send him abroad while also ensuring an income for the family to survive.

These scenarios underscore that migration is not simply a long-term investment but also a gamble shaped by emotional precarity, debt, and loss. While remittances may offer critical lifelines, the burden of managing the emotional and economic uncertainties and consequences of migration often falls on the women who remain behind. Lei and Desai's research in India shows that women whose husbands migrate often report worse health outcomes than those whose husbands remain.[51] Larger and consistent remittances may alleviate some of these pressures by reducing women's hardships; however, when remittances are low or irregular,

48 Dalit, aged 32, husband works in India.

49 Dalit, aged 43, son works in Malaysia. Husband used to work in India until he was murdered.

50 Dalit, aged 70, son migrated to Qatar but returned.

51 L Lei and S Desai, 'Male Out-Migration and the Health of Left-Behind Wives in India: The Roles of Remittances, Household Responsibilities, and Autonomy', *Social Science & Medicine*, vol. 280, 2021, pp. 113982, https://doi.org/10.1016/j.socscimed.2021.113982.

they tend to intensify both emotional strain and material hardship.[52] Yet the alternative is rarely viewed as better. Although migration projects can come at great costs, opting against them comes with great economic downsides as well. As Sarita, who had six daughters, explained, not having a son meant having no access to remittances at all. Her open disappointment in not bearing sons reflected a deeper economic grief: 'So you pray for a son because then you get money; you earn money from them.' In her words, sons represented income, while daughters were framed as financial burdens. When asked later about the main challenges she faced, her answer was blunt: 'daughters'. Her response underscores how deeply intertwined gendered expectations, migration, and economic survival are in the everyday lives of Maithili Dalit women.

The reason why international labour migration is a gamble worth taking is the remittances. A stable flow of them enables significant investments, such as building elevated houses—an essential climate adaptation, as Sunali[53] explained: 'So he sent money, then we built this house.' Even if not its primary purpose, migration often serves as a means of adapting to climate change, as remittances help families afford both daily needs and larger investments. However, migration is a gamble, and the intersections between poverty, caste-based discriminations, gender, and mobility are present in the examples above. The economic advantage might land families in debt spirals despite an otherwise successful migration project. To harness the promise of migration, a family in Madhesh requires either husbands or sons, access to resources to fund the journeys without ending in debt traps, and luck that the remittances keep flowing. Although Maithili Dalit women generally do not engage in migration, mobility patterns in Madhesh cannot be understood without examining the various ways in which women are embedded in the out-migration of their male family members: by taking part in the decision-making process over whether a family member will migrate for work; by missing their husbands or sons but still needing them to be abroad due to the essential income their remittances generate; and by being left to deal with the consequences of failed migration projects.

[52] A Maharjan, S Bauer, and B Knerr, 'Do Rural Women Who Stay Behind Benefit from Male Out-Migration? A Case Study in the Hills of Nepal', *Gender, Technology and Development*, vol. 16, issue 1, 2012, pp. 95–123, https://doi.org/10.1177/097185241101600105.

[53] Dalit, aged 20, husband works in Malaysia.

The Inseparability between Maithili Culture and Gendered Dynamics

Having established that the impacts of climate change on livelihoods in Madhesh are deeply entangled with caste and poverty, and recognising women's role in broader mobility patterns, a central question emerges: how are Maithili Dalit women rendered particularly vulnerable at the intersections of gender, climate, and migration? Here, culture plays a central role. The cultural norms and traditions that structure Maithili women's lives shape how overlapping hardships like climate-induced floods, poverty, lack of work, etc. are understood, endured, and responded to, reinforcing gendered hierarchies while also defining the terms of survival and agency.[54]

Engaging with questions on the intersecting linkages between gender and cultural conditions in the discussions of the livelihoods of Maithili Dalit women, one custom stands out as central to the families' lives: dowries. The dowry system is deeply entrenched in Maithili culture, emblematic of both societal norms and familial expectations.[55] Over time, the costs of dowries have escalated, imposing substantial financial strain on families.[56] Our translator recounted how the system brought 'mental and physical torture', while all women interviewed noted that their families had to take out loans to afford dowry payments. For the women, a daughter not only represented an economic liability due to dowries but also the absence of a future caregiver.

In rural Maithili culture, caregiving typically relies on familial structures, with daughters moving to their in-laws' household post-marriage. This dynamic leaves families with daughters alone and unsupported in their later years. Sarita who only had daughters underscored this anxiety: without a son contributing financially or a daughter-in-law to provide care, her future felt uncertain. The financial and caregiving void left by this system creates layers of vulnerability for Maithili Dalit women across their lifespans, compounded by poverty and precarious economic conditions.

To further understand women's immobility and confinement requires a nuanced appreciation of cultural norms and traditions. In Maithili culture, a woman's physical immobility within the household signifies that she is well taken care of and that her family is affluent enough to support her without requiring her to engage in labour outside the home. As our translator explained one day to us:

---

54 Pandey; S P Subedi, 'The Status of Dalit Women in Nepal', in J Rehman, A Shahid, and S Foster (eds.), *The Asian Yearbook of Human Rights and Humanitarian Law*, Brill | Nijhoff, Leiden, 2022, pp. 43–53, https://doi.org/10.1163/9789004520806_004.

55 Maharjan and Sah, p. 141.

56 Sugden, 2017, p. 140.

'[If] a Maithili woman's hands are soft, other people can see that she is well taken care of', indicating the need for women to remain untouched by paid labour and other harsh realities from the outside world. For wealthy women, immobility is a status symbol; for poor women, it is enforced deprivation. However, this system experiences significant strain under pressures from precarious working conditions, at home and abroad, as well as climate change. The following story emphasises why that is the case:

> Jyoiti[57] had spent nearly her entire life as a widow. Her husband had migrated to work in India forty years ago but tragically died in a work accident due to medical issues after returning home. She was only in her early twenties when he passed away. She explained to us how she was not allowed to partake in any village ceremonies after her husband died. This is because, in Maithili Dalit culture, widows are not allowed to take part in any social activities. They are further restricted in their diet and only allowed to eat vegetarian foods. Jyoiti expressed how: 'I have all kinds of problems. I don't have a home. I don't have clothes to wear. I don't have food. There is no one to help me.' Because Jyoiti had no husband to take care of her, she often had to leave her home, but this was frowned upon by the local community.
>
> Two years ago, her house was destroyed in a flood, and with little donations from the municipality she was able to build a new roof. However, many parts of the house were still destroyed when we spoke to her. Deprived of economic and cultural resources, she was left alone and unable to secure a safe and stable life for herself. For her, stress was not the fear of being attacked or physically harmed. Instead, it was the uncertainties induced by climate change and a lack of income, along with caste and cultural restraints, that made her life insufferable.

Jyoiti's story illustrates how cultural conditions fail to accommodate the absence of a husband, who is traditionally seen as the provider. The cultural arrangements she described were likely shaped in a time when male out-migration was less prevalent, and they have not been adapted to the current realities of life in Madhesh. Due to economic hardship, women like Jyoiti are consequently forced to step outside of their traditional roles and confront a dual burden: not only do they need to bear all responsibilities of managing their households, but they also face judgements for not conforming to the societal ideal of women's immobility. This burden is further exacerbated by climate-induced risks. As illustrated in Jyoiti's story, the intersection between mobility, climate change, and poverty can entrench already

[57] Dalit, aged 60, husband died from medical issues after working in India.

existing vulnerabilities and inequalities for women, marginalising them further. The Maithili culture places a high value on family and collective unity. When women find themselves alone due to reasons such as migration and poverty, they face different forms of marginalisation and are left to survive without any support or care from others. Men can also be poor, but they are still allowed to access spaces of participation such as leaving their homes to find work. Women, particularly those living without a husband, are left alone, in a form of double-sided misery: either stay at home without means to secure an income or leave the home and be confronted with the stigmas surrounding women in public spaces.

Furthermore, if Maithili Dalit women would venture outside to work, enduring the stigma from the Maithili communities, they would still be Dalits. Dalit communities are restricted from several occupations, leaving them with only a few low-paying jobs.[58] This systemic exclusion from more respected professions severely limits their economic mobility and reinforces their marginalised status. Atreya *et al.* find that the total income of Nepali Dalit households headed by single women is approximately 23% less than that of other Dalit households.[59] This suggests that widows like Jyoiti and Ganga have fewer work opportunities and experience greater social burdens. As Laksmi[60] expressed: '(...) being a single woman, being low-caste, you face such kind of abuse and such kind of exploitation.' This sentiment underscores the daily discrimination that Dalit women endure, both within their communities and in the broader society. The intersection of caste, class, and gender not only restricts their employment opportunities but also subjects them to heightened vulnerability to violence and exploitation. Studies have shown that Indian Dalit women are disproportionately affected by sexualised violence and are often denied justice due to systemic biases.[61] These entrenched barriers illustrate the profound structural inequalities that hinder Dalit women's access to economic and social advancement.

To summarise, in Madheshi communities, poverty puts pressure on the cultural dynamics, which further marginalises Dalit women. The examples above not only illustrate the intrinsic link between gender and culture but also how economic and environmental shocks can distort existing gendered and cultural structures. In that way, women are simultaneously supposed to be 'unspoilt' and bear the role of 'economic ruin' due to dowry payments. These pressures are further

58 Pandey, p. 4.

59 K Atreya *et al.*, 'Dalit's Livelihoods in Nepal: Income Sources and Determinants', *Environment, Development and Sustainability*, vol. 25, 2023, pp. 12629–12657, https://doi.org/10.1007/s10668-022-02582-2.

60 Dalit, aged 35, husband died working in Qatar.

61 N S Sabharwal and W Sonalkar, 'Dalit Women in India: At the Crossroads of Gender, Class, and Caste', *Global Justice: Theory Practice Rhetoric,* vol. 8, no. 1, 2015, pp. 44–73, https://doi.org/10.21248/gjn.8.1.54.

amplified due to the job uncertainty created by climate change and the necessity of migration to sustain an income. The intersecting vulnerabilities of gender, culture, climate, and poverty thus result in heightened prejudice against women, increasing their vulnerability and risk of social exclusion.

Conclusion

The aim of this article was to understand the intersection of climate change, migration, and gender in shaping the lives of Maithili Dalit women in Madhesh. Drawing on intersectional methodology and qualitative fieldwork, we analysed the same dataset iteratively through three lenses: climate, mobility, and gender. This approach allowed us to identify overlapping pressures and dynamics that structure these women's everyday lives.

Our findings demonstrate that the effects of climate change in Madhesh are best understood as a poverty issue. Climate change exacerbates the scarcity of stable employment, drives income precarity, and creates adaptation demands, such as rebuilding or relocating, that are often inaccessible to poor Dalit women. In this context, migration—primarily undertaken by men—emerges not as a direct response to climate threats, but as a coping strategy for enduring poverty and sustaining family livelihoods. Yet while men leave, women remain, to face not only the consequences of climate stress and economic hardship but also deeply entrenched gendered and cultural expectations.

At the same time, Maithili Dalit women are not passive or immobile. They play central, if constrained, roles in managing households, participating in migration-related decisions, and absorbing the emotional and material risks associated with (im)mobilities. Their immobility is not a sign of disconnection from migration but a result of intersecting structures of caste, gender, poverty, and local norms. Ultimately, climate change does not act in isolation; it compounds pre-existing vulnerabilities and sharpens the inequalities that already shape people's lives. For Maithili Dalit women, vulnerability is not just about environmental exposure but about navigating a landscape where economic marginalisation, caste-based discrimination, and immobility are mutually reinforcing. Recognising this complexity is essential in climate change adaptation and mitigation approaches centring those most affected by overlapping crises of climate, labour, and inequality. We argue that only by understanding these intersections between gender, caste, poverty, (im)mobility, and climate is it possible to fully grasp how Maithili Dalit women are affected by the interplay between climate change and migration. Any attempt to view these issues in isolation would obscure the deeply relational and intersectional nature of their vulnerability.

Acknowledgments

This article is based on a Master's thesis from the Department of Political Science at the University of Copenhagen and has been rewritten for publication. The research was developed in collaboration with DIIS Senior Researcher Sine Plambech and Postdoctoral Researcher Sofie Henriksen. We would also like to extend special thanks to Gender Officer Dhana Owd from the Danish Red Cross in Nepal and to the volunteers from the Red Cross Dhanusha District Office for their invaluable assistance in the field. Finally, we express our deepest gratitude to our thesis advisor, Prof Maja Zehfuss, for her guidance and support throughout the research process.

Benedikte Raft is a PhD Fellow at the University of Copenhagen's Department of Political Science. Email: bmr@ifs.ku.dk

Kolja Dahlin obtained his MA in Political Science from the University of Copenhagen. Email: kolja.dahlin@gmail.com

Climate-induced Exploitation: Workers' rights and protections on a heated planet

Denise Brennan, Kathleen Kim, and Julia Jackson

Abstract

This article envisions new approaches to worker protections on a heated planet. As worksites become increasingly hazardous, legal frameworks that regulate workplace standards as well as provide protections for forced labourers do not account—as of yet—for the heightened risks they face due to climate change. The article calls for the re-evaluation of the socio-legal dimensions of forced labour as climate-altered working conditions worsen. It focuses on three under-examined populations who labour in sectors exceptionally burdened by the climate catastrophe in the United States: undocumented migrants, H-2A and H-2B visa recipients, and incarcerated and formerly incarcerated individuals. These workers labour through excruciatingly hot temperatures, dismal air quality, and toxic pesticides often with no protective gear or water or shade breaks. They also do 'disaster work' by preparing for and cleaning up after fires, hurricanes, and floods. The authors consider if the worst of worsening working conditions constitute forced labour and conclude by outlining protections and remedies that workers have been demanding.

Keywords: climate emergency, worker exploitation, forced labour, prison labour, undocumented migrants, disaster workers, extreme heat, United States

Suggested citation: D Brennan, K Kim, and J Jackson, 'Climate-induced Exploitation: Workers' rights and protections on a heated planet', *Anti-Trafficking Review*, issue 25, 2025, pp. 31-51, https://doi.org/10.14197/atr.201225253

Introduction

This article envisions new approaches to worker protections on a heated planet. It brings together the otherwise often siloed conversations among migrant, labour, anti-trafficking, prison, and environmental justice movements to outline how climate change exacerbates workplace precarity across labour sectors. Workers exposed to both immediate dangers and long-term health risks from climate change labour in industries that rely on their disposability. This reality amplifies

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

the systematic inequities in public and private institutions that grow out of a history of racial capitalism in the United States.[1] Climate-induced workplace hazards heighten the urgency for increased worker legal protections. We focus on three under-examined worker populations who operate with truncated rights while filling gaps in labour sectors exceptionally burdened by climate catastrophe: undocumented migrants, H-2A and H-2B visa recipients, and incarcerated and formerly incarcerated individuals.[2]

These vulnerable worker populations experience exploitation, including forced labour (human trafficking) abuses. They toil in excruciatingly hot temperatures, dismal air quality, and amidst toxic pesticides often with no protective gear or water or shade breaks. Those who are undocumented have limited income-earning opportunities and thus little choice but to accept jobs in labour sectors rife with rampant exploitation.[3] Those with H-2A and H-2B guest worker visas are similarly constrained since their visas have no job portability—meaning, if they were to leave an exploitative employer they would be out of status. They also depend on their employers to secure future visas.[4] An organiser in Sonoma County, California, captured this precarity by describing the guestworker programme as 'trafficking-adjacent': 'It's rife with abuses. And there are more opportunities than ever since the program is growing. Everyone knows you have to pay a recruiter in Mexico. And then they may have to pay supervisors here a case of beer. They don't ask for more breaks or complain about *any* conditions because then they might not be invited back. They get blacklisted.' Incarcerated persons face a different form of coercion. As a captive workforce, they are coerced by the carceral system to 'accept' unpaid or low-paid and often dangerous work, including fighting wildfires.

---

1 N Leong, 'Racial Capitalism', *Harvard Law Review*, vol. 126, issue 8, 2013, pp. 2151–2226; C J Robinson, *Black Marxism: The Making of the Black Radical Tradition*, 3rd ed., University of North Carolina Press, Chapel Hill, 2020.

2 The H2 guestworker programme, originally enacted by the *Immigration and Nationality Act* of 1952 and amended by the *Immigration Reform and Control Act* of 1986 (IRCA), created two classes of guestworker visas: H-2A visas for agricultural workers and H-2B visas for non-agricultural workers.

3 J Gordon, *Suburban Sweatshops: The Fight for Immigrant Rights*, Harvard University Press, 2007; S B Horton, *They Leave Their Kidneys in the Fields: Illness, Injury and Illegality among U.S. Farmworkers*, University of California Press, Oakland, 2016; S M Holmes, *Fresh Fruit, Broken Bodies: Migrant Farmworkers in the United States*, 5th print, University of California Press, Berkeley, 2014; N De Genova, *Working the Boundaries: Race, Space, and 'Illegality' in Mexican Chicago*, Duke University Press, Durham, 2005; A Stuesse, *Scratching out a Living: Latinos, Race, and Work in the Deep South*, University of California Press, Oakland, 2016; P Kwong, *Forbidden Workers: Illegal Chinese Immigrants and American Labor*, The New Press, New York, 1997.

4 M Bauer and M Stewart, 'Close to Slavery: Guestworker Programs in the United States', Southern Poverty Law Center, 19 February 2013, https://www.splcenter.org/resources/reports/close-slavery-guestworker-programs-united-states.

Once released, parole conditions continue to coerce many formerly incarcerated individuals into 'accepting' exploitative work.[5]

These three types of workers—undocumented workers, those who are 'out of status' because they exited the jobs tied to their visas, and formerly incarcerated individuals—now also comprise a large part of a new kind of workforce: disaster workers. Disaster work, a new climate-created form of labour, involves preparing for fires, hurricanes, and floods through such tasks as sandbagging and boarding up buildings as well as cleaning up and rebuilding after. Workers are often exposed to extreme weather and work-site dangers without proper training or gear. Their disposability crystallises the racist exploitation at the heart of racial capitalism.

As worksites become increasingly hazardous, legal frameworks that regulate workplace standards as well as provide protections for forced labourers do not account—as of yet—for the heightened risks they face due to climate change.[6] This article calls for the re-evaluation of the socio-legal dimensions of forced labour as climate-altered living and working conditions worsen.[7] It is a kind of flare, a call to begin building new labour protections needed to keep pace with ever-increasing climate-generated dangers. Its analysis works within a 'critical mobilisation' framework, a term that derives from the related disciplines of critical race, feminist, and intersectional studies to apply modes of analysis that seek to dismantle systems of oppression by mobilising support for movements toward progressive change. Such an intersectional lens is necessary, as abolitionist geographer Ruth Wilson Gilmore explains: 'For anybody who is caught up in the systems that are shaped by extractive capitalism and organized violence, there is a cumulative and compounded effect on their persons and their lives.'[8] Since exploitation and racial animus have shaped the carceral regimes that undocumented migrants, H-2A and H-2B visa recipients, and incarcerated and formerly incarcerated individuals navigate, the article points to the importance of building 'coalitional power' between the climate and decarceration movements

---

5 B Western, *Homeward: Life in the Year after Prison*, Russell Sage Foundation, 2018.

6 S Lerner, *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the Unites States*, MIT Press, Boston, 2010.

7 R D Bullard and B Wright, *The Wrong Complexion for Protection: How the Government Response to Disaster Endangers African American Communities*, NYU Press, New York, 2012; M Méndez, G Flores-Haro, and L Zucker, 'The (In)Visible Victims of Disaster: Understanding the Vulnerability of Undocumented Latino/a and Indigenous Immigrants', *Geoforum*, vol. 116, 2020, pp. 50–62, https://doi.org/10.1016/j.geoforum.2020.07.007; D E Taylor, *Toxic Communities: Environmental Racism, Industrial Pollution, and Residential Mobility*, NYU Press, New York, 2014.

8 K Hayes, 'Ruth Wilson Gilmore on Abolition, the Climate Crisis and What Must Be Done', *Truthout*, 14 April 2022, https://truthout.org/audio/ruth-wilson-gilmore-on-abolition-the-climate-crisis-and-what-must-be-done.

to 'avoid both carceral and ecological catastrophe.'[9]

The article draws from a number of sources, including ethnographic interviews (by Brennan), legal advocacy and scholarship (Kim), and media interviews (Jackson) on migration, border policing, worker exploitation, trafficking, and climate change. More specifically, Denise Brennan is an anthropologist who has interviewed hundreds of trafficked persons and other exploited undocumented individuals for multiple book projects spanning over twenty years, including the first scholarly book on life after trafficking.[10] This article draws from interviews she has been conducting over the past four years in agricultural and other vulnerable worker communities on how climate change is altering their labour conditions. Unless there is a citation, quotes by workers, organisers, attorneys, and health professionals are from ethnographic interviews. As a Fellow at the Harvard Radcliffe Institute in 2025–26, she is currently writing a book on the themes explored in this article as well as in this special issue of *Anti-Trafficking Review*, co-guest edited with Sallie Yea. Kathleen Kim, a legal scholar, has represented a broad range of immigrant trafficked workers for over twenty years, including some of the workers trafficked from India on H-2B visas to provide forced labour for Signal International, LLC (Signal) in the aftermath of Hurricane Katrina. The Signal case has become well known as the largest labour trafficking case to date in US history.[11] This case marked a rapidly growing trend of forced labour responders to subsequent climate disasters, as well as a movement to advance the rights of disaster relief workers.[12] The third author, Julia Jackson, a former student of and research assistant for Brennan, is a student at Harvard Divinity School. She also writes scripts for a popular environmental podcast that centres community-based knowledge and action.

---

9 B Story and S J Prins, 'A Green New Deal for Decarceration', *Jacobin*, 28 August 2019, retrieved 27 August 2025, https://jacobin.com/2019/08/green-new-deal-decarceration-environment-prison-incarceration.

10 D Brennan, *Life Interrupted: Trafficking into Forced Labor in the United States*, Duke University Press, Durham, 2014.

11 David *et al.* v. Signal Int'l LLC *et al.*, No. 2:2008cv01220 (E.D. La. filed Mar. 10, 2008).

12 Organiser Saket Soni—one of the founders of the New Orleans Workers' Center for Racial Justice in the wake of Hurricane Katrina—recently launched Resilience Force, a membership-based organisation that supports workers who rebuild after disasters. Their goal is to create 'a stable, well-paid, million-strong corps that can do year-round climate adaptation and preparation, as well as rebuild after storms'. Resilience Force is also 'working to rewrite the rules of recovery' such that 'the billions we spend after disasters don't deepen inequality, but become an engine of racial and economic equity'. N.a., 'Resilience Force', Resilience Force, n.d., retrieved 15 September 2023, https://www.resilienceforce.org.

Following this Introduction, the article proceeds in the following manner. Part II addresses the concept of racial capitalism by examining the United States' history of racialised labour policies and practices. This section also explains the current socio-legal understanding of coercion in the context of forced labour and human trafficking. Against this backdrop, Part III analyses the convergence of climate change with racial capitalism and its deleterious effects on workers at its frontlines. It examines the Signal case that arose out of post-Hurricane Katrina disaster relief efforts and involved the largest class of trafficked workers to date in US history. This case marked a rapidly growing trend of forced labour responders to subsequent climate disasters, as well as a movement to advance the rights of this 'Resilience Workforce'. Part IV examines the persistence of forced labour in US history and its present-day usage in workplaces such as agriculture with intolerable conditions caused by climate change, as well as in climate disaster relief work. The pervasiveness of forced prison labour in wildfire fighting captures the racist extraction and exploitation that undergirds racial capitalism. Part V draws on ethnographic data in farm working communities and asks if climate-induced hazardous working conditions—such as extreme heat, smoke, and fire—amount to forced labour conditions. Part VI considers responses to the harms inflicted upon the worker groups discussed in the previous parts. It suggests a redesign of the socio-legal structures that relegate workers to forced labour conditions in climate change-stricken work environments. Part VII concludes with a call to action to de-silo migrant, labour, anti-trafficking, prison, and environmental justice movements.

Part II: Racialised and Coerced Labour

The growth of the United States' political and economic infrastructure has relied on the dispossession of Indigenous peoples' lands, the transatlantic slave trade, labour exploitation of migrants of colour, and hyper-policing and mass incarceration of (documented and undocumented) people of colour.[13] The racist ideologies underpinning an economy to benefit whiteness while dehumanising, commodifying, and subordinating non-whiteness did not end with the Thirteenth

[13] R Dunbar-Ortiz, *Not 'A Nation of Immigrants': Settler Colonialism, White Supremacy, and a History of Erasure and Exclusion*, Beacon Press, New York, 2021; W Johnson, *Soul by Soul: Life Inside the Antebellum Slave Market*, Harvard University Press, Cambridge, 2009; P Butler, *Chokehold: Policing Black Men*, The New Press, New York, 2017; A Das, 'Inclusive Immigrant Justice: Racial Animus and the Origins of Crime-Based Deportation', *UC Davis Law Review*, vol. 52, 2018, pp. 171–195; D Kunstler, *Passaic: The True Story of One Man's Journey through American Immigration, Detention and Deportation,* 1st ed., Tamalpais Publishing, Sausalito, 2014; D Kanstroom, *Aftermath: Deportation Law and the New American Diaspora*, Oxford University Press, New York, 2012.

Amendment of the US Constitution.[14] Black Codes sustained the racial caste system entrenched by antebellum chattel slavery through the criminalisation of harmless everyday conduct such as 'loitering' and 'vagrancy'.[15] These crimes subjected newly freed slaves to criminal punishment in the form of hard labour and convict leasing. Indentured migrant workers of colour fulfilled labour demands during the Reconstruction era. Growing populations of Asian and Latino workers initiated the first US immigration laws. Explicitly exclusionary based on race and gender, these laws limited the rights of migrant workers to prevent their long-term residency in the United States.[16]

The H-2 guestworker programme created two classes of guestworker visas: H-2A visas for agricultural workers and H-2B visas for non-agricultural workers. The temporary nature of these visas along with their lack of job portability and weak worker protections has been abused by bad faith employers who have subjected guestworkers to extreme labour exploitation, including forced labour.[17]

Except for immigration laws enacted to meet temporary labour demands, US borders largely restricted the entry and long-term residence of workers of colour until the passage of the 1965 *Immigration and Nationality Act*. This Act was passed along with several other civil rights statutes and repealed some of the most overtly racist immigration exclusions.[18]

---

14 US Constitution, amend. XIII ('Neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.'); M Goodwin, 'The Thirteenth Amendment: Modern Slavery, Capitalism, and Mass Incarceration', *Cornell Law Review*, vol. 104, issue 4, 2019, pp. 899–990.

15 Black Codes ensured the continued subordination of freed slaves through an expanding penal system that criminalised ordinary behaviour based on racial identity and forced 'violators' of these laws into unpaid work. W E B Du Bois, *Black Reconstruction in America: 1860–1880*, 1st ed., The Free Press, New York, 1998; S E Hadden, *Slave Patrols: Law and Violence in Virginia and the Carolinas*, Harvard University Press, 2003; E P Oberholtzer, *A History of the United States Since the Civil War: 1865–68*, Macmillan, New York, 1917.

16 *Page Act* of 1875; *Chinese Exclusion Act* of 1882 (denying the re-entry of lawful Chinese (and other Asian) migrant workers and permitting their deportation); *Illegal Entry Act* of 1929 (targeting Latino workers for deportation); the Bracero Program provided Mexican workers with border-crossing cards to work in the United States without workplace protections or a path to legal residence.

17 Brennan; Southern Poverty Law Center; M L Ontiveros, *Noncitizen Immigrant Labor and the Thirteenth Amendment: Challenging Guest Worker Programs*, University of San Francisco Law Research Paper No. 2010–15, 2007.

18 The 1965 *Hart-Cellar Act* abolished the quota system.

By the time the *Immigration Reform and Control Act* (IRCA) was enacted in 1986, the undocumented population in the United States had grown into the millions and comprised a significant subset of the country's labour force. While the IRCA provided a pathway to citizenship for approximately five million undocumented individuals residing in the United States, it also increased immigration enforcement measures against future undocumented workers by designating workplaces sites for immigration enforcement. The IRCA made it unlawful for employers to knowingly hire undocumented workers, thereby creating the perverse effect of elevating employer dominance over workers. Employers could feign ignorance of a worker's undocumented status until the worker challenged workplace violations. Employers could then function as de facto immigration officers, proxies to the US immigration surveillance state, by threatening to deport or fire workers who resisted their demands. Even in the absence of an employer's threatening conduct, the IRCA's criminalisation of unauthorised work created inherently coercive conditions that compel workers' submission to labour abuses.[19]

Present-day Thirteenth Amendment-related law and policy resides largely in the context of human trafficking.[20] The *Trafficking Victims Protection Act* (TVPA), enacted in 2000 through Section Two of the Thirteenth Amendment, prohibits forced labour through coercive means that threaten a worker with 'serious harm', including psychological, financial, and reputational harm.[21] It recognises a fulsome range of coercive power dynamics that may prevent a worker from freely quitting an exploitative work situation. By giving legal significance to the psychological and sociological factors that facilitate forced labour, the TVPA captures the complex reality of trafficking. Yet, its implementation has drawn significant critique because of divergent interpretations of coercion that prevent trafficked workers from accessing the TVPA's protections and benefits, and in other instances, criminalise these workers. Even though non-overt forms of coercion qualify workers for T visas, the reality of proving coercion can be challenging.[22]

---

19 J J Lee, 'Redefining the Legality of Undocumented Work', *California Law Review*, vol. 106, 2018, pp. 1617–1656, https://doi.org/10.15779/Z38TH8BN20; K Kim, 'Beyond Coercion', *UCLA Law Review*, vol. 62, 2015, pp. 1558–1584; Ontiveros; R J Garcia, 'Ghost Workers in an Interconnected World: Going Beyond the Dichotomies of Domestic Immigration and Labor Laws', *University of Michigan Journal of Law Reform*, vol. 36, 2003, pp. 737–765, https://doi.org/10.36646/mjlr.36.4.ghost.

20 K Kim, 'The Thirteenth Amendment and Human Trafficking: Lessons & Limitations', *Georgia State University Law Review*, vol. 36, issue 4, 2019–2020, pp. 1005–1025.

21 K Kim, 'The Coercion of Trafficked Workers', *Iowa Law Review*, vol. 96, 2011, pp. 409–474.

22 As legal scholar Dina Haynes quips: 'Unless the victim is "rescued" or found chained to a bed in a brothel, she will be forever unable to establish that her traffickers ultimately had something more "severe" and "exploitative" in mind' since "the victim bears the burden of proving her traffickers' intent to exploit her."' D F Haynes, '(Not) Found

There are multiple ways in which employers pressure workers to labour through dangerous conditions—and to stay quiet about abuses. Far from spectacularised images of trafficking that depict shackles, locked rooms, and guards with guns, labour coercion is usually invisible, such as threats of deportation. Kim refers to human trafficking as 'the most recent manifestation of unfree labor', characterised by 'subtle power dynamics that do not involve physical force, but [are] nonetheless debilitating'.[23] A worker's background, including their migration status, interacts with 'subtle methods of control' to constrain workers' freedom to quit.[24] Remaining in exploitative and dangerous jobs can be understood in terms of 'tactics and strategy, not consent or resignation'.[25] Political scientist Lukes's description of 'willing' and 'unwilling' 'compliance to domination' as not mutually exclusive helps explain why workers might stay in abusive conditions.[26] Kim refers to this phenomenon as 'situational coercion'.[27] The situational coercion framework applies a holistic analysis of coercion in legal cases that arise under the TVPA. The objective and subjective components of coercion are assessed by considering the totality of the circumstances of working conditions, including the worker's vulnerabilities as well as extreme imbalances in power between the worker and their employer. This sociological and legal examination of the workplace yields more accurate determinations of working conditions that may be so severe that they amount to forced labour.[28] The situational coercion framework recognises that the lived experiences of trafficked workers are unique and diverse, yet the workplaces in which they labour exhibit objectively identifiable conditions sufficient to establish forced labour violations under the TVPA.

This policy backdrop sets the context for the foregoing examination of undocumented workers, guestworkers, and incarcerated and formerly incarcerated workers who labour under climate-induced life-threatening conditions or provide climate disaster relief. These workers are also highly vulnerable to coercive circumstances that amount to forced labour. The interaction of climate-endangered workplaces with forced labour sheds new light on the socio-legal

Chained to a Bed in a Brothel: Conceptual, Legal, and Procedural Failures to Fulfill the Promise of the Trafficking Victims Protection Act', *Georgetown Immigration Law Journal*, vol. 21, 2007, pp. 337–381, p. 360.

23 K Kim, 'Psychological Coercion in the Context of Modern-Day Involuntary Labor: Revisiting United States v. Kozminski and Understanding Human Trafficking', *University of Toledo Law Review*, vol. 38, no. 3, 2007, pp. 941–972.

24 Kim, 2011, p. 461.

25 Brennan, p. 86.

26 S Lukes, *Power: A Radical View*, 2nd ed., [Reprint], Palgrave Macmillan, Houndmills, 2006, p. 150.

27 Kim, 2011.

28 *Ibid.*, p. 473.

dimensions of coercion sufficient to establish forced labour. A critical argument this article advances is that forced labour in climate-endangered workplaces is far from incidental. This raises an important consideration—whether these workplaces may be considered presumptively coercive. If so, workers who labour in them urgently require protective interventions.

Part III: Climate Disaster and Trafficked Relief Workers

The interaction of climate change with racial capitalism has aggravated systemic harms against workers who have been traditionally subjected to egregious working conditions. This part explores the exploitation of undocumented workers and guestworkers that occurred during post-Hurricane Katrina relief efforts. Hurricane Katrina led to widespread devastation, particularly in New Orleans. A surge in demand for labour to rebuild the area led to numerous incidents of human trafficking.[29] Drawn to the Gulf Coast with promises of high wages and steady work, migrant workers instead discovered highly exploitive situations, including complete loss of agency to employers/traffickers who demanded worker compliance with unconscionable working conditions through a range of coercive means such as threats of harm, financial ruin, and deportation. Numerous lawsuits filed against companies for unfair labour practices during the Katrina reconstruction underscore the heightened risk for labour exploitation inherent in responses to climate disasters. As emergency management professor Samantha Montano describes, climate change is a 'threat multiplier' that dramatically intensifies society's existing vulnerabilities.[30] Applying Montano's concept to the interaction of climate change with racial capitalism points to the enormity of harms that result when two complex systems of entrenched destruction collide.

The most prominent human trafficking case to emerge out of Hurricane Katrina's rebuilding phase involved approximately 500 H-2B construction workers from India subjected to forced labour by their employer, Signal International, LLC (Signal).[31] Workers who escaped initiated a class action lawsuit against Signal. While a federal court denied class certification of the 500 workers, eleven separate lawsuits proceeded on behalf of approximately 250 workers. The Equal Employment Opportunity Commission (EEOC) also filed suit on

---

[29] J Browne-Dianis *et al.*, *And Injustice for All: Workers' Lives in the Reconstruction of New Orleans*, New Orleans Workers' Center for Racial Justice, 2010, pp. 47–49; L McCallum, 'Reflections from the Field: Disparate Responses to Labour Exploitation in Post-Katrina Louisiana', *Anti-Trafficking Review*, issue 15, 2020, pp. 21–41, https://doi.org/10.14197/atr.201220152.

[30] S Montano, *Disasterology: Dispatches from the Frontlines of the Climate Crisis*, Park Row Books, Toronto, 2021.

[31] *David et al. v. Signal Int'l LLC et al.,* 2008.

behalf of almost all of the H-2B workers from India because of Signal's overtly discriminatory conduct against these workers based on their race and national origin.[32]

The combination of these lawsuits exposed the horrendous conditions that the workers experienced. Signal, which provided construction services to the Gulf Coast oil and gas industry, recruited H-2B workers in India with advertisements that falsely promised legal permanent residency for hired employees and their families. Workers paid up to USD 20,000 in recruitment fees to Signal, which they raised through private loans and the sale of personal property in India. Once they arrived at Signal's labour camps in Pascagoula, Mississippi, and Orange, Texas, the workers learnt that Signal would be taking automatic deductions from their salary for food and accommodations. The food was inedible and the living conditions—uninhabitable, overcrowded, and unsanitary, causing many workers to become ill. Guards at the labour camps monitored and frequently searched workers. And unlike their American counterparts, Signal required the Indian workers to toil in the dirtiest and most dangerous parts of the oil rigs they were reconstructing. When the workers from India began to complain about these conditions and inquire about Signal's promise to provide permanent residency, they received threats of retaliation and deportation. The threats of deportation intensified because Signal had allowed the workers' H-2B visas to expire, leaving them undocumented.[33]

Almost ten years after the first lawsuit against Signal was filed, the plaintiff workers overwhelmingly prevailed against Signal. In one case, the jury awarded plaintiffs USD 14,100,000 in damages, finding that Signal had trafficked the workers into forced labour. In the related EEOC case, Signal was ordered to pay USD 5 million to 476 workers. Signal's CEO also issued an apology for the company's conduct.

The workers who escaped Signal's work camps and bravely sought justice in the civil court system exemplify the potential power that trafficked plaintiffs might exercise against their traffickers, especially when government enforcement agencies ignore forced labour abuses enacted by corporations like Signal.[34] Still, struggles with the civil justice system reveal deep biases against claims brought by migrant workers of colour, who, even if mistreated by their employers, are perceived as voluntarily sacrificing their self-determination to undertake risky and degrading work. Immigration and criminal laws that constrain the choices of these workers reinforce this false perception. Further, the neglect of government agencies mandated to intervene and protect these workers contribute to the

32 *EEOC v. Signal International, LLC*, 2014.

33 S Soni, *The Great Escape: A True Story of Forced Labor and Immigrant Dreams in America*, 1st ed., Algonquin Books of Chapel Hill, Chapel Hill, 2023.

34 *Ibid.*

persistence of systems that keep these workers subordinated.[35]

In spite of the racialised labour hierarchy that subjected the Signal workers to forced labour, the workers succeeded in catalysing a movement to empower disaster workers. Signal workers alongside grassroots advocacy groups, civil rights and pro bono attorneys, and immigrant and workers' rights organisations, formed the Resilience Workforce, an organisation that heralds disaster workers as the workforce—the 'white blood cells'—that 'helps us come home after climate disaster' yet 'face appalling conditions and widespread exploitation'.[36]

Part IV: Exploiting Carceral Labour to Address Climate Change's Dangers

The historic and persistent systems of racialised labour exploitation have taken advantage of the United States' growing prison industry. For example, incarcerated individuals are coerced to participate in 'voluntary work programmes', through threats of solitary confinement, restrictions against contact with outside support, and threats of disciplinary action. Some courts have held that such coercive means might violate the Thirteenth Amendment and the TVPA's forced labour statute in the immigration detention context.[37] A handful of similar claims have been raised against forced labour practices in criminal detention, where some courts have regarded forced labour in detention settings as akin to human trafficking and therefore unlawful under the TVPA and the Thirteenth Amendment.[38] These cases raise an obvious tension within the Thirteenth Amendment's promise to abolish involuntary servitude, 'except for punishment of a crime'.[39]

---

35 K Kim, 'The Trafficked Worker as Private Attorney General: A Model for Enforcing the Civil Rights of Undocumented Workers', *University of Chicago Legal Forum*, vol. 2009, issue 1, 2015, pp. 247–316.

36 N.a., 'Who We Are', Resilience Force, n.d., retrieved 2 October 2025, https://www.resilienceforce.org/our-team.

37 *Barrientos v. CoreCivic, Inc.*, 2020.

38 A Levy, *Fact Sheet: Human Trafficking & Forced Labor in For-profit Detention Facilities*, The Human Trafficking Legal Center, 2018.

39 The abolition of chattel slavery 'coincided with the birth of the modern penitentiary' to maintain a system of labour extraction and control over Black bodies (E Hinton and D Cook, 'The Mass Criminalization of Black Americans: A Historical Overview', *Annual Review of Criminology*, vol. 4, issue 1, 2021, pp. 261–286, https://doi.org/10.1146/annurev-criminol-060520-033306). As noted above, Black Codes ensured an immediate solution to the high demand for no- to low-wage labour after the Thirteenth Amendment's ratification (Goodwin; see also P Wallenstein, 'Slavery Under the Thirteenth Amendment: Race and the Law of Crime and Punishment in the Post-Civil War South', *Louisiana Law Review*, vol. 77, no. 1, 2016, pp. 1–20). Newly enacted

The Thirteenth Amendment's criminal punishment exception has been broadly construed to permit the continuing subjugation of prison labourers. Such broad application of the criminal punishment exception has been contested by constitutional law scholars who have thoroughly studied the intent and meaning of the Thirteenth Amendment.[40] Nonetheless, they too agree that forced labour as a form of convict leasing persists in today's prison industrial complex.[41]

Presently, approximately 30,000 inmates toil in the agricultural industry under forced labour conditions.[42] The US Department of Justice reports that 27% of public prisons require their inhabitants to participate in farming and agricultural work programmes.[43] Those incarcerated in public prisons are considered wards of the state and therefore not employees entitled to the protection of workplace laws such as the *Fair Labor Standards Act* (FLSA) and the *Occupational Safety and Health Act* (OSH Act). Private prisons overtly operate to maximise their profits. The percentage of persons incarcerated in private prisons increased by 47% in the last two decades.[44] The two largest private prison corporations, Core Civic and GEO Group, had a total revenue of USD 3.5 billion in 2015.[45] These corporations generate revenue from their prison population through government-funded contracts and by profiting off the individuals they keep captive. In the private prison context, courts have excluded incarcerated workers from the employment protections afforded by the FLSA, OSH Act, Title VII, and the *National Labor Relations Act*.[46] As a result, private prisons can get away with paying little to no

offenses for 'vagrancy' and 'loitering' criminalised freed slaves and authorised courts to require inmates to perform hard labour to 'work out their sentences' (*Ibid.*). Former plantation owners could also 'lease' inmates from the state and force them to work on their property (J Browne, 'Rooted in Slavery: Prison Labor Exploitation', *Race, Poverty & the Environment*, vol. 14, no. 1, 2007, pp. 42–44). In 1878, almost 91% of Georgia inmates subject to convict leasing were Black (*Ibid.*, p. 42).

40 J G Pope, 'Labor's Constitution of Freedom', *The Yale Law Journal*, vol. 106, issue 4, 1997, pp. 941–1031, https://doi.org/10.2307/797148.

41 Goodwin.

42 Percentage is based on ACLU analysis of the raw survey data. A Prashar, 'Prison Labor or Modern Day Slavery?', *Business Casual Podcast*, 25 August 2020; United States Bureau of Justice Statistics (BJS), 'Survey of Prison Inmates, United States, 2016 (ICPSR 37692) [Version 4]', *BJS*, 2021, https://doi.org/10.3886/ICPSR37692.v4.

43 *Ibid.*

44 M A Hallett, *Private Prisons in America: A Critical Race Perspective*, University of Illinois Press, Urbana, 2006; R W Gilmore, *Golden Gulag: Prisons, Surplus, Crisis, and Opposition in Globalizing California*, University of California Press, Berkeley, 2007.

45 K Gotsch and V Basti, *Capitalizing on Mass Incarceration: U.S. Growth in Private Prisons*, The Sentencing Project, 2018.

46 M J Lang, 'The Search for a Workable Standard for When Fair Labor Standards Act Coverage Should Be Extended to Prisoner Workers', *University of Pennsylvania Journal*

wages for the labour of incarcerated people. Private prisons further maximise their profits by keeping staffing costs low and forcing inmates to perform the work to upkeep the prisons such as cooking food, cleaning, and carrying out repairs and maintenance. These prisons also generate revenue from contracting out prison labour. Widely known businesses, including 3M, Starbucks, and Whole Foods, purchase the goods produced by prison labourers who typically earn only one dollar per day of work.[47] In California, incarcerated individuals fight wildfires with only three weeks of training and earn eight to fifteen cents an hour while their civilian counterparts receive three to four years of training and earn over USD 40 per hour.[48]

A recent report provides a comprehensive study of the pervasiveness of forced prison labour and its use in response to climate disasters. After Hurricane Irma swept through Florida, hundreds of incarcerated workers provided relief labour without pay. In Texas, incarcerated workers prepared for Hurricane Harvey by filling sandbags and were 'forced to work in the storm's path while people outside prisons were evacuated'.[49] The report also notes the widespread use of incarcerated workers to fight wildfires for little to no pay in fourteen other states.[50]

Part V: Agricultural Workers, Climate Catastrophe, and Emergency Governance

Entangled systems and policies steeped in racial capitalism erode worker power and protect employers. This section examines how these power imbalances intensify in the midst of climate-induced disasters and outlines the various tactics that agricultural employers, in particular, use to coerce workers into labouring in extreme conditions.

---

of Business Law, vol. 5, issue 2, 2002, pp. 191–208; K Goad, 'Columbia University and Incarcerated Worker Labor Unions under the National Labor Relations Act', *Cornell Law Review*, vol. 103, issue 1, 2017, pp. 177–204.

47 R McDowell and M Mason, 'Cheap Labor Means Prisons Still Turn a Profit, Even during a Pandemic', *PBS*, 8 May 2020, https://www.pbs.org/newshour/economy/cheap-labor-means-prisons-still-turn-a-profit-even-during-a-pandemic.

48 J Lowe, 'What Does California Owe Its Incarcerated Firefighters?', *The Atlantic*, 27 July 2021, https://www.theatlantic.com/politics/archive/2021/07/california-inmate-firefighters/619567.

49 American Civil Liberties Union (ACLU) and Global Human Rights Clinic (GHRC), *Captive Labor: Exploitation of Incarcerated Workers*, ACLU and The University of Chicago Law School Global Human Rights Clinic, 2022, https://www.aclu.org/wp-content/uploads/legal-documents/2022-06-15-captivelaborresearchreport.pdf.

50 *Ibid*., p. 31.

In agriculture, growers place far more value on crops—and have more systems in place to protect them—than on the people who pick them. A farmworker organiser in Sonoma described the 'glaring' differences between very large growers who have fire-related crop insurance and agricultural workers, of which around 50% are Indigenous, who lose their wages after fires. Insurance payouts to growers are staggering. California's total liabilities for wine grapes was USD 1.74 billion in 2021—USD 266 million more than in 2020. Insurance companies paid USD 227 million in indemnities to California growers for fire-related crop losses. Napa County growers received USD 91.8 million in indemnities, while Sonoma County growers were paid USD 80.2 million.[51] In contrast, when crops burn, farmworkers do not get paid. Securing 'disaster pay', consequently, is a central campaign for farmworker organisers throughout the US.

The loss of pay is devastating for farmworkers who are barely getting by. In fact, it is the key reason why workers feel compelled to continue working in climate-induced hazardous conditions. A farmworker health and safety expert likened loss of pay to a disaster in and of itself: 'One day of missed pay can be a disaster. Especially since the work is seasonal.' For workers paid in a piece rate system, the onus is on them to figure out how to protect themselves from extreme heat while simultaneously feeling 'pressure to work harder and pick more.'[52] Piece work compels workers to run, which means they often take off masks meant to protect them from wildfire smoke—as well as from COVID-19—as they gasp for breath.

Anything that impinges on maximising productivity, including water and shade breaks, is discouraged. Despite medical evidence and the Occupational Safety and Health Administration's (OSHA) recommendation that employers alter working conditions during hot weather, only four states—California, Oregon, Colorado, and Washington—have mandated protections for outdoor workers.[53] Even with these mandates, workers still feel pressure to keep working. A farmworker health and safety expert explained that there are many disincentives for workers to take any kind of breaks: 'Workers know their employers [and] they know they can't trust them. They know that their employers do whatever it takes to extract more labour.' Moreover, there can be a lack of shaded areas, bathrooms, and enough

51 K Todorov, 'Crop Insurance Premiums Did Not Change in 2021, but May Increase in 2022, USDA Says', *Wine Business*, 5 August 2021, https://www.winebusiness.com/news/article/249750/subscribe_dnl.

52 M Sainato, 'Big Business Lobbies against Heat Protections for Workers as US Boils', *The Guardian*, 31 July 2023, https://www.theguardian.com/environment/2023/jul/31/heat-protections-workers-big-business-lobbies.

53 N.a., 'Farmworker Advocates Call on Congress to Protect Workers from Dangerous Heat', Farmworker Justice, 22 September 2022, https://stage.farmworkerjustice.org/blog-post/farmworker-advocates-call-on-congress-to-protect-workers-from-dangerous-heat.

cold water for the whole day. Lack of rest, shade, and water are exactly how people develop heat stroke. The health and safety expert explained, 'Effects of heat stress are not seen immediately. They are cumulative. Breaks are critical.' These cumulative effects are well documented in medical journals. Not having enough water one day, for example, can lead to illness a few days later.[54] Even when workers are told they can leave when the heat or smoke gets severe, an organiser explained that 'the pressures remain to stay.' She noted that workers' 'immigration status, combined with racism, creates a power imbalance. The workers don't feel they can complain. And they must keep working to feed their families. They feel trapped.' Nor do workers find co-ethnic solidarity with supervisors. 'Even if supervisors are Hispanic and used to be farmworkers themselves', the health and safety expert explained, 'they always are going to follow employer instructions' which creates 'a shield' for employer liability.

During disasters, an emergency governance regime takes over that suspends the few protections low-wage workers might have.[55] In the midst of raging fires and mandated evacuation, for example, localities often issue 'access passes' to agricultural workers.[56] Growers also pressure workers to sign liability waivers. While these waivers—and fire insurance—protect growers, workers risk heat exhaustion, exposure to toxins, and the terror of encroaching fire and emergency evacuation.[57] They take this risk in large part out of fear of being reported to the Immigration and Customs Enforcement (ICE) agency. This fear of deportation also leads them to eschew government assistance after their own losses to fire or floods. An attorney in Northern California recounted, for example, how agricultural workers slept on beaches after a fire ravaged their community because they feared that ICE would arrest them in shelters.

---

54 Agricultural workers are at least 35 times more likely to die of heat than other workers. See M El Khayat *et al.*, 'Impacts of Climate Change and Heat Stress on Farmworkers' Health: A Scoping Review', *Frontiers in Public Health*, vol. 10, 2022, pp. 1–18, https://doi.org/10.3389/fpubh.2022.782811.

55 V Adams, *Markets of Sorrow, Labors of Faith: New Orleans in the Wake of Katrina*, Duke University Press, Durham, 2013.

56 A Brown, 'In California's Wine Country, Undocumented Grape Pickers Forced to Work in Fire Evacuation Zones', *The Intercept*, 6 September 2020, https://theintercept.com/2020/09/06/california-fires-undocumented-farm-workers; W Carruthers, 'Sonoma County Evacuation Zone Waiver Program Sparks Labor Concerns', *Bohemian*, 27 August 2020, https://bohemian.com/sonoma-county-evacuation-zone-waiver-program-sparks-labor-concerns-1.

57 Kristen Simmons writes about breathing in spaces contaminated through colonialism. See K Simmons, 'Settler Atmospherics', *Society for Cultural Anthropology*, 20 November 2017, https://culanth.org/fieldsights/settler-atmospherics.

Another form of coercion is rounding up workers from shelters during mandatory evacuations. Even though growers might tell their workers they do not have to work in an active wildfire evacuation zone, when they send vans to pick them up, many workers perceive that they cannot say no. An organiser in Northern California wine country explained: 'It's not really a choice. They were being forced to pick when smoke and fire were everywhere.'

With the system stacked against secure and dignified work, worker organisers are building worker empowerment through trainings on keeping safe through heatwaves, wildfires, and use of pesticides in the fields and near their homes. There has been successful organising on language justice, after alerts during wildfires in Northern California wine country in 2017 were only in English. There has also been success at winning disaster pay at some vineyards. At a community picnic/celebration in a large county park in Sonoma, awards were given out to a number of worker organisers to cheers of the intergenerational crowd. Seeing their fellow farmworkers taking action, their chants of 'Si se puede!' ['Yes, it can be done!'] were materialised. Waving banners about disaster pay, dignified work, and the climate crisis, the attendees were determined to take on chronic mistreatment.

The current system is untenable, including for the growers. While Denise was on a Zoom call with an organiser, he received a text alert about a fire in Napa. He elaborated: 'This happens all the time. And it's inevitable there will be more fires. These are cascading issues, so we are seeing more organising among workers.' They are pushing companies to pay hazard pay not just when there are evacuation orders because of nearby fires, but also when fire far away makes the air quality unhealthy. As the organiser in Napa explained, 'When the AQI [air quality index] is over 150, workers should receive time and a half. This raises conversations about wealthy white men sending Indigenous workers into unhealthy conditions. Without their work, the entire industry will collapse. Disaster pay must be a standard. Otherwise, the wine industry will go belly up.'

Part VI: Considerations

Inspired by abolitionist thinkers like Ruth Wilson Gilmore who prescribes a 'politics of care', we outline questions and actions for building a care-forward world.[58] Her maxim, 'where life is precious, life is precious' models value of all lives, even as philosopher Judith Butler observes that some lives are treated as more 'grievable' than others.[59] Questions about the value of human life loom

[58] R W Gilmore, *Abolition Geography: Essays towards Liberation*, Verso, New York, 2022.

[59] J Butler, *Frames of War: When Is Life Grievable?*, Verso, London, 2016; M Alexander, *The New Jim Crow: Mass Incarceration in the Age of Colorblindness*, The New Press, New York, 2010.

over the task of identifying working conditions that are too dangerous for anyone to endure.[60] But importantly, 'lives cannot be apprehended as injured or lost' if they are not first 'apprehended as living'.[61] In the scorching hot summer of 2023, Texas Governor Greg Abbott's ban on water breaks for workers exemplifies Butler's point. This rank ordering of some lives over others has been taken up, in particular, by scholars studying Black life. Building on Katherine McKittrick's notion of 'breathless numbers' and Albert Camus's idea of 'cruel mathematics', Africana Studies scholar Bedour Alagraa considers the threshold between life and death as 'the arithmetic logic applied to both the preservation and loss of life'.[62] Over the past centuries, such calculations have been differentially applied, with Brown, Black, and Indigenous persons deemed expendable and replaceable—as less human than white persons.[63] The planet has also suffered. Like centuries of genocidal treatment of humans, this era of extreme harm to non-humans is not new. As geographer Kathryn Yusoff notes, 'the Anthropocene might seem to offer a dystopic future that laments the end of the world, but imperialism and ongoing (settler) colonialisms have been ending worlds for as long as they have been in existence.'[64]

Militarised border policing, prisons, and climate change are disasters. Decarceration, including the elimination of prisons and immigrant detention centres, must be part of the environmental justice movement.[65] Legal scholar Allegra McLeod writes about both as 'public safety' issues that threaten 'new life-sustaining institutions and collective structures that improve human well-being'.

---

60 Writing about the death of a farmworker, journalist Jeff Goodell declares the obvious: 'the simple truth is that in twenty-first century America, nobody should be doing physical labor in an open field when it's 107 degrees'. See J Goodell, *The Heat Will Kill You First: Life and Death on a Scorched Planet*, 1st ed., Little, Brown and Company, New York, 2023, p. 173. OSHA has guidance on workers' rights to refuse 'dangerous work'. See United States Occupational Safety and Health Administration (OSHA), 'Workers' Right to Refuse Dangerous Work', OSHA, n.d., https://www.osha.gov/workers/right-to-refuse.

61 Butler. Mexican writer Cristina Rivera Garza describes states that lack 'a political acknowledgement of the human body and its individual subjectivity' as 'visceraless states'. See C Rivera Garza, *Grieving: Dispatches from a Wounded Country*, 1st ed., Feminist Press, New York, 2020, p. 175.

62 B Alagraa, 'The Interminable Catastrophe', *Offshoot Journal*, 1 March 2021, https://offshootjournal.org/the-interminable-catastrophe.

63 Alagraa explicitly ties today's climate catastrophe to the 'repeating structure' of 'racial slavery and plantation modes of production' that began with the 'New World colonial encounter(s)'.

64 K Yusoff, *A Billion Black Anthropocenes or None*, University of Minnesota Press, Minneapolis, 2018.

65 C C García Hernández*, Migrating to Prison: America's Obsession with Locking up Immigrants*, The New Press, New York, 2019.

For abolitionists, 'meaningful' public safety requires ending the fossil fuel-driven economy 'characterized by vast racialized inequality and held in place by penal bureaucracy' to instead move towards 'new regenerative economic, social, and ecological systems.'[66]

Philosopher Olúfẹ́mi O. Táíwò similarly offers a 'blueprint for just worldmaking'.[67] He created graphs to show how today's climate catastrophe is inextricably tied to centuries of racialised violence, labour extraction, and patterns of accumulation by charting the relationship between climate change vulnerability and colonial history. Unsurprisingly, places with a history of colonisation are abundantly more vulnerable to climate change. Táíwò uses this vulnerability index to advance reparation claims since 'in our era, climate justice and reparations are the same project: climate crisis arises from the same political history as racial injustice and presents a challenge of the same scale and scope.'[68]

As immigration, labour, and carceral regimes create and sustain a hierarchical valuation of human life, this article urges greater attention to the kinds of protections that need to be in place to preserve workers' lives when facing climate-induced dangers. Such protections call for policy measures that provide immediate remedies for these workers, such as disaster pay, permanent residence visas and pathways to citizenship for migrant workers, and basic workplace protections for incarcerated workers. In addition, the racialised labour extraction that has harmed the victims and survivors among these work groups demands reparations. Finally, policy measures should seek to dismantle the systems that keep these workers subordinated, by holding government actors accountable for their roles in facilitating forced labour in industries that are rampant with abuse.

In developing strategies that can effectively protect these workers and prevent future abuses against them, critical examination of the industries that exploit them require the following considerations: 1) Is harm to workers in these industries, such as agriculture, an inevitability, and if so, how should harm be measured and mitigated, especially when these workplace harms are exacerbated by climate change? 2) Does the distinction between workers subjected to labour exploitation versus forced labour have any sociological or legal significance in the context of workplaces with climate-induced life-threatening working conditions? 3) Does climate change create inherently coercive workplaces for the workers discussed

66 A McLeod, 'Abolition and Environmental Justice', *UCLA Law Review*, vol. 69, issue 6, 2023, pp. 1536–1575.

67 Táíwò suggests a series of 'targets and tactics' that, among others, include global climate funding taxing tax havens, and fossil fuel divestment.

68 O O Táíwò, *Reconsidering Reparations: Worldmaking in the Case of Climate Crisis. Philosophy of Race Series*, Oxford University Press, New York, 2022, p. 147.

in this article, given the dangers of extreme heat, toxic smoke, and fire on the frontlines that these workers are pressured to endure by the systems of power that constrain them?

We now turn to steps workers can take to protect themselves and employers can deploy to create safe and dignified worksites. We also consider the role of the government and the health sector in keeping workers safe. The *Asunción Valdivia Heat Illness and Fatality Prevention Act*, named after a farmworker who died of heatstroke in California in 2004 after picking grapes for ten straight hours in 105°F (40.5°C), was first introduced in the US House of Representatives in 2019 and continues its run through the House and the Senate.[69] If passed, the bill would be the first federal law related to outdoor and indoor heat exposure.[70] It is not difficult to protect against heat-related illnesses, as Elizabeth Strater from the United Farm Workers union made clear: 'It's enraging, in a slow and violent way, to think about how heat death is entirely preventable. It doesn't take cutting-edge technologies, or expensive machinery. It takes shade and cool water and rest. That is all.'[71] As Physicians Sorenson and Garcia-Trabanino suggest: 'We may have now reached a physiological limit, in terms of heat exposure, at which acclimatization and behavioral modifications can no longer overcome the biologic stressors of unsafe working conditions and environmental exposures in these hot spot communities.' Heat extremes are exacerbating known diseases and producing new ones such as chronic kidney disease of unknown origin (CKDu).[72] In a call to action to fellow medical professionals on the frontlines of the 'new era of climate-health crises', they urge cross-sectoral research and its dissemination not just to clinicians but also decision-makers working on immigration. They also advocate for physicians to work with local and global governmental and nongovernmental institutions. 'If we become active stakeholders, we can shape

---

69 Farmworker Justice Alliance, 'Fact Sheet: Legislation Would Provide Farmworkers Protection from Heat', Farmworker Justice Alliance, July 2023, https://stage.farmworkerjustice.org/wp-content/uploads/2023/07/Heat-Stress-Bill-Fact-Sheet_2023-2.pdf.

70 The White House, 'Fact Sheet: President Biden Announces New Actions to Protect Workers and Communities from Extreme Heat', The White House, 27 July 2023, https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2023/07/27/fact-sheet-president-biden-to-announce-new-actions-to-protect-workers-and-communities-from-extreme-heat.

71 Goodell, p. 173.

72 CKDu disproportionately affects vulnerable populations: 'By the time their disease is diagnosed, most workers are too ill to work or are excluded from the agricultural workforce because of company-mandated preemployment health screenings.' C Sorensen and R Garcia-Trabanino, 'A New Era of Climate Medicine — Addressing Heat-Triggered Renal Disease', *New England Journal of Medicine*, vol. 381, no. 8, 2019, pp. 693–696, https://doi.org/10.1056/NEJMp1907859.

the transition to renewable energy to ameliorate changes that are detrimental to health [and] advocate for a just and equitable health-centered approach in a nonpartisan fashion.'[73]

In addition to evidence-based perspectives from climate scientists and medical professionals, the insights of other key stakeholders—such as affected workers, employers, and advocacy groups—should be collected and shared with government agencies. Stakeholder convenings can engage and educate government agencies that encounter the intersection of climate change with workplace rights such OSHA, the Department of Labor, and the Federal Emergency Management Agency. These convenings can encourage systemic reforms across government agencies (especially those charged with immigration and criminal enforcement) that increase transparency and accountability to minimise government complicity in the exploitation and forced labour of vulnerable workers who toil in environments that have become intolerable due to climate change.

Part VII: Conclusion—Ways forward

We imagine an economy rooted in care in which workers and the environment thrive. Our current sacrificial economy, steeped in 'grow or die' racial capitalism, is proving fatal for the most vulnerable workers and the planet.[74] The Resilience Force, among other worker-led initiatives, models another way. Their mission to create stable and well-paid climate disaster work while 'rewrit[ing] the rules of recovery' is a roadmap to build 'racial and economic equity'.[75] Tracing its origins to the Signal case, as well as other disaster-related trafficking cases, this membership-based organisation grows out of decades of exploited workers, including trafficked persons, demanding dignified and protected work. Movement builders and participants at the intersection of prison, worker, and climate justice are imagining, demanding, and creating more just worlds. Given rising planetary temperatures, law and policy must keep pace with ever-changing climate conditions.

Denise Brennan is a 2025–26 Harvard Radcliffe Fellow where she is writing a new book *Work on A Heated Planet*. She is the author of *Life Interrupted: Trafficking into Forced Labor in the United States* and is Professor and Chair of the Department of Anthropology at Georgetown University, the United States. Email: Denise.Brennan@georgetown.edu

---

73 *Ibid.*

74 B Sandler, 'Grow or Die: Marxist Theories of Capitalism and the Environment', *Rethinking Marxism*, vol. 7, issue 2, 1994, pp. 38–57, https://doi.org/10.1080/08935699408658097.

75 Resilience Force, 'Resilience Force'.

Kathleen Kim is a Professor of Law at LMU Loyola Law School, United States. Email: kathleen.kim@lls.edu

Julia Jackson is a Master of Divinity candidate at Harvard Divinity School. Email: jaj139@georgetown.edu

ANTI-TRAFFICKING REVIEW 25 (2025): 52-70

Climate Brides: (Un)Tying the knots between climate change and child marriage

Dr Reetika Revathy Subramanian

Abstract

Although both climate change and child marriage have received sustained policy and research attention, their intersection remains critically underexplored. This article examines how climate stress—arising from rapid-onset disasters and slow-onset processes such as drought and salinisation, and intensified by displacement and weak governance—reshapes marriage practices in South Asia, where climate vulnerability and gendered precarity converge with particular intensity. Drawing on ethnographic research in drought-affected western India and case studies from the Indo-Bangladesh border, southern India, and Afghanistan documented through the Climate Brides project, the paper traces how child marriage functions as an infrastructure of adaptation—a mechanism for redistributing labour, debt, and care under conditions of crisis. Across cases—from *Gate-Cane* weddings in Maharashtra to trafficking-linked unions in the Sundarbans, post-tsunami marriages in Tamil Nadu, and *Toyana* exchanges in Afghan displacement camps—early and forced marriage emerge not as cultural residues but as adaptive, if extractive, responses to livelihood erosion and the retreat of state support. Using feminist political ecology and social reproduction theory, the article calls for interdisciplinary, justice-oriented approaches that recognise child marriage as part of the gendered infrastructures of climate adaptation.

Keywords: climate change, child marriage, displacement, economic precarity, climate brides, marriage of survival

Suggested citation: R R Subramanian, 'Climate Brides: (Un)Tying the knots between climate change and child marriage', *Anti-Trafficking Review*, issue 25, 2025, pp. 52-70, https://doi.org/10.14197/atr.201225254

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

Introduction

Although both child marriage and climate change have been the focus of substantial research, their intersection remains critically underexplored. In recent years, the connection has received growing attention, particularly after major climate events such as the 2020 Cyclone Amphan in Bangladesh[1] and the 2022 floods in Pakistan.[2] The COVID-19 pandemic likewise highlighted how social and economic disruptions can accelerate risks of early and forced marriage.[3] It also amplified vulnerabilities such as educational disruption, food insecurity and gendered labour burdens, with activists warning of significant setbacks in efforts to curb early and forced marriage.

This convergence is especially visible in South Asia, where climate vulnerability and child marriage overlap with particular intensity. The region is home to 45% of the world's child brides—one in three girls marry before the age of 18[4]—and it ranks among the most climate-exposed globally. In the past two decades, more than 750 million people in South Asia have been affected by at least one climate-related disaster.[5] Yet in child protection and disaster response frameworks, child marriage is still often treated either as a moral or legal violation, rather than as a practice shaped by livelihood precarity, ecological stress, and the reorganisation of gendered labour under agrarian decline and displacement.

Evidence from diverse settings suggests that, under conditions of scarcity and insecurity, marriage can function as a household strategy to redistribute economic burdens, access labour, or manage debt. Yet these dynamics are rarely captured in demographic surveys or climate adaptation assessments, which tend to privilege indicators such as income, education, or health while neglecting the marital

---

1 R I Montu, 'Deepening Climate Crisis Fuels Child Marriage in Bangladesh', *Inkstick*, 28 October 2024, retrieved 30 June 2025, https://inkstickmedia.com/deepening-climate-crisis-fuels-child-marriage-in-bangladesh.

2 Al Jazeera Staff, '"My Childhood Just Slipped Away": Pakistan's "Monsoon Brides"', *Al Jazeera*, 8 March 2025, https://www.aljazeera.com/features/2025/3/8/my-childhood-just-slipped-away-pakistans-monsoon; A Irfan, 'Pakistan's Climate Crisis of Child Marriage', *Atmos Earth,* 27 March 2023, https://atmos.earth/pakistan-floods-child-marriage.

3 United Nations Children's Fund (UNICEF), '10 Million Additional Girls at Risk of Child Marriage Due to COVID-19', UNICEF, 7 March 2021, https://www.unicef.org/press-releases/10-million-additional-girls-risk-child-marriage-due-covid-19.

4 United Nations Children's Fund (UNICEF), 'A Profile of Child Marriage in South Asia', UNICEF, 5 May 2023, https://data.unicef.org/resources/a-profile-of-child-marriage-in-south-asia.

5 World Bank, 'Climate', World Bank, n.d., https://www.worldbank.org/en/programs/south-asia-regional-integration/climate-change.

transitions through which households reorganise care, labour, and survival. As adaptation research has noted, institutions, social relations, and behaviours remain under-analysed levers of change.[6] As a result, marriage—despite its near-universality and social centrality—remains largely absent from these conversations.

This article examines how climate change interacts with the drivers of child marriage in South Asia. Both rapid-onset disasters (floods and cyclones) and slow-onset processes (drought, salinisation, and land degradation) undermine livelihoods, displace communities, and disrupt education, healthcare, and legal protections. Here, climate stress refers to the cumulative effects of environmental degradation and the socioeconomic pressures it generates. In such contexts, marriage is not simply cultural inertia but a gendered infrastructure mobilised to absorb and redistribute these stresses across households and generations.

Through case studies of *Gate-Cane* weddings in drought-prone western India, post-tsunami marriages in Tamil Nadu, marriage–trafficking linkages in the Sundarbans delta along the Indo-Bangladesh border, and *Toyana* exchanges in Afghan displacement camps, the article illustrates how child marriage functions simultaneously as an adaptive infrastructure of household survival and a vector of exploitation within broader systems of gendered labour. These examples show that early and forced marriage are not reducible to culture or tradition but are embedded in the political economies of risk, labour, reproduction, and displacement.

Using feminist political ecology and social reproduction theory, the article rejects linear causal explanations and instead traces the contingent pathways through which climate stress interacts with gender, caste, class, religion, and the erosion of state support to shape marital practices. By doing so, it makes three key contributions: first, it demonstrates that the link between climate change and child marriage is empirically evident; second, it shows that existing demographic and adaptation frameworks fail to capture this relationship; and third, it argues for a systematic, interdisciplinary, and ground-up framework that integrates feminist and ecological perspectives to study marriage as part of the social dimensions of climate adaptation. Such an approach also has implications for anti-trafficking and protection policy, illuminating how blurred boundaries between marriage, migration, and coercion are produced and sustained under conditions of climate precarity.

---

6 C Singh, 'Human Dimensions of Climate Change Adaptation: Gaps and Knowledge Frontiers', *Dialogues on Climate Change*, vol. 2, issue 1, 2025, pp. 71–81, https://doi.org/10.1177/29768659241297772.

Marriage as Survival: Climate precarity, gendered reproduction, and the logics of crisis

Feminist scholarship has challenged culturalist explanations of child marriage, showing it to be less a residue of tradition than a social institution embedded in political economy, social reproduction, and gendered labour regimes.[7] In many patriarchal systems, particularly those organised around patrilineal inheritance, daughters are regarded as temporary members of the household, with marriage serving as the mechanism through which their value is redistributed socially and economically.[8]

Marriage in these contexts performs overlapping functions: it reallocates care, reduces household expenditure, enables transfers through dowry or bride price, and safeguards family reputation. These decisions are not simply cultural but reflect shifting household needs, resource scarcity, and intergenerational strategies for navigating uncertainty and sustaining social reproduction.[9] Yet, while such arrangements help secure household survival, they also reinscribe gendered hierarchies, positioning girls and women as the primary sites through which families absorb economic and social risk.

Climate change interacts with these dynamics in uneven and differentiated ways across scales and identities, from household to community to region. It is not a discrete trigger but a set of interlinked processes that exacerbate existing inequalities, mediated by gender, class, caste, and geography.[10] Environmental

---

7 S Sen and A Ghosh (eds.), *Love, Labour and Law: Early and Child Marriage in India*, SAGE Publications/Stree, New Delhi/Kolkata, 2021; S Sen, *Women and Labour in Late Colonial India: The Bengal Jute Industry*, Cambridge University Press, Cambridge, 1999; N Rao, 'Marriage, Violence, and Choice: Understanding Dalit Women's Agency in Rural Tamil Nadu', *Gender and Society*, vol. 29 issue 3, 2014, pp. 410–433, https://doi.org/10.1177/0891243214554798; N Kabeer, 'Women, Wages and Intra-Household Power Relations in Urban Bangladesh', *Development and Change*, vol. 28, issue 2, 1997, pp. 261–302, https://doi.org/10.1111/1467-7660.00043.

8 T Dyson and M Moore, 'On Kinship Structure, Female Autonomy, and Demographic Behavior in India', *Population and Development Review*, vol. 9, no. 1, 1983, pp. 35–60, https://doi.org/10.2307/1972894; R Kaur, 'Dispensable Daughters and Bachelor Sons: Sex Discrimination in North India', *Economic and Political Weekly*, vol. 43, issue 30, 2008, pp.109–114; P Mishra, 'Sex Ratios, Cross-region Marriages and the Challenge to Caste Endogamy in Haryana', *Economic and Political Weekly*, vol. 48, issue 35, 2013, pp. 70–78.

9 A Malhotra, *The Causes, Consequences and Solutions to Forced Child Marriage in the Developing World*, Testimony submitted to U.S. House of Representatives Human Rights Commission, International Centre for Research on Women, 2010; Rao.

10 F Sultana, 'Gendering Climate Change: Geographical insights', *The Professional Geographer,* vol. 66, issue 3, 2014, pp. 372–381, https://doi.org/10.1080/00330124.2

variability, whether through drought, flooding, or slow-onset processes like salinisation, reshapes household economies in ways that can make marriage appear a practical option for redistributing labour, care, or financial responsibility. Evidence suggests it is often the accumulated effects of prolonged anomalies—what some scholars describe as slow violence[11]—rather than one-off shocks, that recalibrate marriage practices.[12]

Examples from across regions illustrate this dynamic. In Burkina Faso, prolonged drought has been linked to increases in child marriage, interpreted by some researchers as a household strategy for redistributing risk and resources.[13] During the 1992 drought in Southern Africa, reports emerged of families marrying off daughters earlier in anticipation of receiving bride price, which could help mitigate economic losses.[14] In Kenya's Rift Valley, North[15] and Archambault[16] documented how acute food insecurity led to the emergence of

013.821730; M Alston *et al.*, 'Are Climate Challenges Reinforcing Child and Forced Marriage and Dowry as Adaptation Strategies in the Context of Bangladesh?', *Women's Studies International Forum*, vol. 47, Part A, 2014, pp. 137–144, https://doi.org/10.1016/j.wsif.2014.08.005; R Pearse, 'Gender and Climate Change', *Wiley Interdisciplinary Reviews: Climate Change*, vol. 8, issue 2, 2016, pp. e451, https://doi.org/10.1002/wcc.451; S Arora-Jonsson, 'Virtue and Vulnerability: Discourses on Women, Gender and Climate Change', *Global Environmental Change*, vol. 21, issue 2, 2011, pp. 744–751, https://doi.org/10.1016/j.gloenvcha.2011.01.005.

11 R Nixon, *Slow violence and the environmentalism of the poor*, Harvard University Press, 2013.

12 L E Ortensi, F Tosi, and R Rettaroli, 'Estimating the Relationship between Prolonged Weather Variability and Accelerated Marriage in Bangladesh', *World Development*, vol. 195, 2025, pp. 106994, https://doi.org/10.1016/j.worlddev.2025.106994; S Ainul and S Amin, 'Environmental Vulnerability and Early Marriage in Southern Bangladesh', Paper presented at the Population Association of America Annual Meeting in San Diego, California, 2015; C McLeod, H Barr, and K Rall, 'Does Climate Change Increase the Risk of Child Marriage? A Look at What We Know—and What We Don't—With Lessons from Bangladesh and Mozambique', *Columbia Journal of Gender and Law*, vol. 38, no. 1, 2019 pp. 96–145, https://doi.org/10.7916/cjgl.v38i1.4604.

13 J Ø Nielsen, 'Drought and Marriage: Exploring the Interconnection between Climate Variability and Social Change through a Livelihood Perspective', in K Hastrup (ed.), *The Question of Resilience: Social Responses to Climate Change*, Det Kongelige Danske Videnskabernes Selskab, Copenhagen, 2009, pp. 159–177.

14 C Eldridge, 'Why Was There No Famine Following the 1992 Southern African Drought? The Contributions and Consequences of Household Responses', *IDS Bulletin*, vol. 33, issue 4, 2002, pp. 79–87, https://doi.org/10.1111/j.1759-5436.2002.tb00047.x.

15 A North, 'Drought, Drop Out and Early Marriage: Feeling the Effects of Climate Change in East Africa', *Equals. Beyond Access: Gender, Education and Development*, issue 24, 2010, p. 6.

16 C S Archambault, 'Ethnographic Empathy and the Social Context of Rights: "Rescuing" Maasai Girls from Early Marriage', *American Anthropologist*, vol. 113, issue 4, 2011, pp. 632–643, https://doi.org/10.1111/j.1548-1433.2011.01375.x.

so-called 'famine brides', wherein girls were married off to access livestock, food, or remittance flows. In South Asia, dowry systems, displacement, and trafficking converge with climate stress to produce similar though context-specific patterns.[17] These cases do not suggest a universal or causal relationship but underline how marriage can function as a gendered infrastructure of adaptation, shaped by the intersection of agrarian decline, debt, and highly stratified labour markets.

Displacement further shapes these dynamics. When families are pushed into camps or settlements, weakened social and legal protections—and fragmented humanitarian responses—make marriage appear a way of securing social standing or support for adolescent girls. At the same time, such arrangements can expose girls to heightened risks of coercion or exploitation, particularly when linked to debt, cross-border movement, or unfamiliar households.[18] Marriage in these settings is best understood not as cultural inertia but as part of the everyday infrastructures—the informal social systems that substitute for absent state support—through which households redistribute resources and responsibilities under conditions of precarity.[19]

Despite mounting evidence, marriage remains largely invisible within adaptation planning and protection frameworks. Large-scale demographic surveys record age at first marriage but seldom connect it to climate variability, while climate vulnerability assessments track livelihoods and health but not household decisions around union formation.[20] What would it mean if adaptation planning treated marriage rates as an early-warning indicator of precarity—a question that reframes

---

17 Alston *et al.*; K J Ahmed, S M A Haq, and F Bartiaux, 'The Nexus between Extreme Weather Events, Sexual Violence, and Early Marriage: A Study of Vulnerable Populations in Bangladesh', *Population and Environment*, vol. 40, 2019, pp. 303–324, https://doi.org/10.1007/s11111-019-0312-3.

18 B Trew, 'Too Young to Wed: Poverty and Hunger Are Driving up Numbers of Child Brides in South Sudan', *Independent,* 21 February 2019, https://www.independent.co.uk/news/world/africa/south-sudan-child-brides-marriage-wedding-war-conflict-a8788646.html; McLeod, Barr, and Ral; J Demetriades and E Esplen, 'The Gender Dimension of Poverty and Climate Change Adaptation', in R Mearns and A Norton, (eds.), *Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World*, The World Bank, Washington, DC, 2010, pp. 133–143.

19 See also, on displacement and governance of crisis: J Hyndman, *Dual Disasters: Humanitarian Aid after the 2004 Tsunami*, Kumarian Press, 2011; and on militarisation of care: C Enloe, *Maneuvers: The International Politics of Militarizing Women's Lives*, University of California Press, 2000.

20 A R Carrico *et al.*, 'Extreme Weather and Marriage among Girls and Women in Bangladesh', *Global Environmental Change*, vol. 65, 2020, pp. 102160, https://doi.org/10.1016/j.gloenvcha.2020.102160; Singh; C Singh, D Solomon, and N Rao, 'How Does Climate Change Adaptation Policy in India Consider Gender? An Analysis of 28 State Action Plans', *Climate Policy*, vol. 21, issue 7, 2021, pp. 958–975, https://doi.org/10.1080/14693062.2021.1953434.

marriage not as a static outcome but as a dynamic signal of systemic stress? Similarly, child marriage prevention initiatives often prioritise normative change or legal enforcement, with insufficient attention to the material conditions, including ecological precarity, labour extraction, and the erosion of state support, that shape household decision-making. This disconnect obscures one of the central ways households adjust to environmental stress.

Reframing marriage as part of the infrastructures of climate adaptation makes it possible to move beyond linear explanations or culturalist accounts. It directs attention to how households mobilise marriage under conditions of environmental and economic change, and why interventions that focus narrowly on legal reform or behavioural change often miss their mark. Recognising these dynamics is essential for developing frameworks that are analytically robust and responsive to the everyday strategies of survival.

Research Methods

This article draws on multi-sited ethnographic research conducted during my doctoral fieldwork (October 2020–August 2021) in the drought-affected Marathwada region of western India, complemented by additional material from the Climate Brides project and secondary sources. Grounded in feminist methodological principles of intersectionality, reflexivity, and attention to structures of power,[21] the research approached marriage as a practice shaped by gendered labour, ecological variability, and uneven state support.[22] All participants provided informed consent, and all names have been anonymised.

In Marathwada, I conducted semi-structured interviews with nearly 90 harvesters (65 women and 24 men); supplemented by group discussions with around 80 participants; and dialogues with local stakeholders, including village headmen, welfare workers, and labour contractors. A central focus was on informal *Gate-Cane* weddings, in which adolescent couples marry quickly to migrate together as labour units. This ethnographic lens provided a close view of how marriage is mobilised within household economies, kinship obligations, and the precarious rhythms of agrarian migration.

The additional case studies—including child marriage and trafficking in the Sundarbans delta, marriages following the 2004 tsunami in Tamil Nadu, and *Toyana*-based exchanges in Afghan displacement camps—were developed through

[21] J Hyndman, 'The Field as Here and Now, Not There and Then', *Geographical Review*, vol. 91, no. 1–2, 2001, pp. 262–272, https://doi.org/10.2307/3250827.

[22] D Rocheleau, B Thomas-Slayter, and E Wangari, *Feminist Political Ecology: Global Issues and Local Experience*, Routledge, 2013.

Climate Brides,[23] an open-source multimedia platform I created as an extension of this research. The platform curates podcast interviews, infographics, and literature reviews to document how climate, marriage, and gendered labour intersect across South Asia. For this article, I draw specifically on three podcast interviews with Prof Upasona Ghosh (2023) on the Sundarbans, journalist Ruchi Kumar (2022) on Afghanistan, and Prof Nitya Rao (2022) on India. These materials offered a broader perspective on how climate-related marriage practices are framed and understood across different institutional and ecological contexts.

Together, these materials reflect a layered methodological approach. The Marathwada ethnography provides depth and context-specific insight, while the podcast interviews and secondary sources extend the analysis to other South Asian settings. The paper does not offer a direct comparison across cases; rather, it uses these varied materials to identify patterns, highlight regional specificities, and illustrate how marriage is mobilised within adaptation strategies. This combination strengthens the analysis while also underscoring the need for more systematic, interdisciplinary frameworks to study these dynamics.

Tracing Marriage under Climate Stress

This section presents four empirically grounded case studies that explore how early and forced marriage operates as a gendered survival strategy within contexts of climate-related environmental stress in South Asia. Together, they illustrate the structural entanglements between ecological disruption, economic vulnerability, and marital regulation, and show how marriage is reconfigured into an adaptive, yet extractive, infrastructure of labour and social reproduction.

Gate-Cane Weddings in the Drought-affected Marathwada Region, India

Marathwada, in western India, is marked by chronic drought, groundwater depletion, and agrarian decline. Cane harvesters largely belong to landless and historically oppressed Dalit and Banjara communities, whose livelihoods depend on precarious agricultural and migrant labour. According to the National Family Health Survey 5 (2019–21), nearly 40% of women in the region reported being married before the age of 18—almost double the national prevalence. While child marriage is a long-standing practice here, its contemporary forms are deeply entangled with the demands of industrial agriculture and the stresses of climate and market variability.

As rain-fed farming has become increasingly untenable, families rely on seasonal migration to the sugarcane fields of Maharashtra and Karnataka. Contractors

[23] See 'Climate Brides', https://www.climatebrides.com.

recruit married couples under the *ek koyta* (translated as one sickle) labour system, in which a pair is counted as a single unit. Historically, sugarcane migration was male-dominated; evidence from studies[24] and interviews with elder harvesters indicates that until the early 1960s, it was common for men to migrate for work while women remained in the villages. Since the 1970s, however, prolonged droughts and expanding cane cultivation have drawn women into the *koyta* system—first as members of smaller family groups of three, and eventually as part of two-member, marriage-based labour units. This shift effectively made marriage a precondition for labour mobility and an infrastructural mechanism for assembling productive labour under climate stress.

Gate-Cane weddings—hastily arranged, often informal unions performed before harvest—emerged within this context. They serve as mechanisms to convert adolescent girls from household dependents into deployable labour, while binding couples into exploitative labour regimes that merge reproductive and productive work. As one father explained: 'What will she do alone in the village anyway? With marriage, she can become both wife and worker. That's how she enters the labour force.' For contractors, marriage is also a form of labour discipline. One remarked: 'A single man is of no use. If he's not married, there's every chance he'll abscond, get drunk, and disappear. Marriage keeps him tied to the fields. The younger they are, the easier it is to control [them].'

Drought further accelerates these decisions. A 17-year-old girl married during the 2014 drought recalled: 'There is no *bhakri* [bread], no water, nothing. Cane was the only way to earn an income.' The *uchal*—an advance payment typically ranging from INR 60,000 to 100,000 (USD 680–1,100)—functions both as a wedding subsidy and a debt-bond, effectively binding couples to six months of physically demanding labour. Within this system, high interest rates are imposed on pending *uchals*—that is, when workers are unable to cut enough cane in one season to repay their advances—creating a cycle of dependency that restricts mobility and choice. Young women enter these unions without legal protections, formal consent, or individual pay. As one 19-year-old harvester put it: 'There is no name, no slip, no record of me. Only the *koyta* gets paid—and he [the husband] is the *koyta*.'

The intergenerational trajectories of one family underscore these shifts. A grandmother, married at eight during the drought of the 1970s, remained with her natal family until puberty. Her daughter-in-law, wed at twelve in the 1990s, entered the household and migrated to the cane fields within a year. The most recent daughter-in-law, married at fifteen in 2014, left for migrant labour within two weeks. Over time, even as the age at marriage has marginally increased—

[24] J Breman, 'Seasonal migration and co-operative capitalism: Crushing of cane and of labour by sugar factories of Bardoli', *Economic and Political Weekly*, vol. 13, no. 31–33, 1978, pp. 1317–1360.

though often still below 18—the interval between marriage and labour migration has progressively shortened, embedding these early unions more tightly within extractive circuits of industrial agriculture and climate-stressed migration economies.

These dynamics reveal how marriage in Marathwada functions not only as a social institution but as an infrastructure of labour and extraction. Climate stress intersects with industrial agricultural regimes and entrenched gender norms to recalibrate marriage into a mechanism that mobilises, disciplines, and appropriates the labour of adolescent girls.

Tsunami Brides in Post-disaster Tamil Nadu, India

The Indian Ocean tsunami of 26 December 2004 devastated coastal Tamil Nadu, a state in southern India, killing more than 14,000 people and displacing nearly 3 million. In Cuddalore district alone, 391 of the 550 dead were women. Relief assessments noted that women were disproportionately affected because they were more likely to be indoors or attempting to save dependents when the waves struck. In the immediate aftermath, this loss produced a marked demographic imbalance, as significantly more men than women survived—an imbalance that would soon reshape household structures and marriage patterns.[25]

In the weeks following the tsunami, relief camps were overcrowded and unsafe, with reports of harassment and insecurity, particularly for adolescent girls. Many of these girls—some recently orphaned—were married off, often to older men who had lost wives and children. Unlike the slow-onset droughts of Marathwada, where marriage became embedded in seasonal labour cycles, these unions emerged abruptly, framed as a form of protection, moral recovery, and household stabilisation. As one 16-year-old recalled her mother saying: 'How long can I look after a pretty girl like you? Please see it my way—I only want you to be safe."'[26]

Government compensation packages—approximately USD 2,000 per deceased family member—also shaped these unions.[27] Widowers used compensation money to propose marriages, while bereaved families interpreted such offers as signs

[25] S Fisher, 'Violence Against Women and Natural Disasters: Findings From Post-Tsunami Sri Lanka', *Violence Against Women*, vol. 16, issue 8, 2010, pp. 902–918, https://doi.org/10.1177/1077801210377649; C Felton-Biermann, 'Gender and Natural Disaster: Sexualized Violence and the Tsunami', *Development*, vol. 49, issue 3, 2006, pp. 82–86, https://doi.org/10.1057/palgrave.development.1100276.

[26] C Philp, 'Tsunami's Teenage Brides Take Place of the Lost Women', *The Times*, 6 June 2005, https://www.thetimes.com/life-style/sex-relationships/article/tsunamis-teenage-brides-take-place-of-the-lost-women-xvzk3dqvb97.

[27] The USD 2,000 compensation in 2004 would equal roughly USD 3,400 in 2025 values.

of financial security.[28] Dowries were often waived, and marriages were arranged quickly. An Oxfam report documented 210 marriages involving girls under 18 in Nagapattinam district within three months of the tsunami.[29] Official statistics downplayed underage marriage, but with many birth records destroyed, age verification was difficult. As one girl explained: 'My school teacher vouched for me and told them I was 18. Nobody questioned it.'[30] In this context, compensation operated not only as relief but as a new currency in marital negotiation.

In an interview for the Climate Brides podcast, Prof Nitya Rao observed: 'When there is a disaster, I think, then you have much more of early marriages. I think after the 2004 tsunami in Tamil Nadu itself, there were a lot of recorded cases where fathers had died, you know, mothers were getting their daughters [married], and also other people had died. So, there were bachelors, there were young girls, there were dead fathers. So, there was a lot of early marriage going on. With increasing climate variability, I think, apart from early marriage, there is also quite a bit of a very fine line between migration and trafficking of young women.'[31]

These marriages were often conducted quickly and with minimal oversight. In a context where many women had died and protective infrastructures were absent, marriage became a way for families to navigate bereavement, displacement, and uncertainty. The tsunami case illustrates how marriage can operate as an infrastructure of adaptation, mobilised to redistribute care, provide perceived protection, and secure household survival—while simultaneously blurring into exploitative practices such as trafficking.

Marriage and Trafficking in the Climate-stressed Sundarbans, India–Bangladesh Border

The Sundarbans, a densely populated coastal delta shared by India and Bangladesh, is among the most ecologically fragile and economically marginalised regions in South Asia.[32] Repeated climate events—sea level rise, salinisation, cyclones, floods,

---

28 S N Bhanoo, 'Some of India's "Tsunami Brides" Fare Better than Others', *SFGate*, 24 December 2007, https://www.sfgate.com/news/article/some-of-india-s-tsunami-brides-fare-better-than-3234072.php.

29 Oxfam International, *The Tsunami's Impact on Women* [Briefing note], Oxfam International, 25 March 2005, https://policy-practice.oxfam.org/resources/the-tsunamis-impact-on-women-115038.

30 Philp.

31 R R Subramanian, 'Episode 01: Nitya Rao on Bombay Ducks, Polygamy, Disaster, and More', *Climate Brides Podcast*, 9 July 2022, https://www.buzzsprout.com/1999556/episodes/10908505-episode-01-nitya-rao-on-bombay-ducks-polygamy-disaster-and-more.

32 B Jackson, *Climate Change, Migration and Human Trafficking: Assessing the Impact of Climate Change, Migration, and Human Trafficking Risks for Populations in the Bangladesh and India Sundarbans*, University of Nottingham, 2023.

and storm surges—have eroded livelihoods rooted in agriculture, aquaculture, and forest produce. Cyclones such as Aila (2009), Bulbul (2019), and Amphan (2020) displaced thousands, submerged farmland, and destabilised already fragile household economies. Nearly half of households in the Indian Sundarbans are landless and reliant on casual wage labour, with disaster relief often delayed or inaccessible.[33] Under such intersecting pressures of slow degradation and sudden shocks, marriage emerged as a mechanism to manage economic pressure, reduce dependents, and secure perceived safety for adolescent girls.

The convergence of environmental displacement and entrenched trafficking networks renders the Sundarbans a hotspot for exploitative marriages. After Cyclone Bulbul, Sarita, 23, from the South 24 Parganas district, was married through a broker following the destruction of her family's land. Promised stability and a new beginning in Rajasthan, a state in northwestern India, she was instead trafficked into unpaid domestic work and reproductive servitude. Similar accounts proliferated after Cyclone Amphan, with NGOs documenting rising numbers of adolescent girls moved across districts or borders under the guise of dowry-free marriage offers or job placements.[34]

Brokers play a central role in this dynamic, reconfiguring marriage as a vehicle for trafficking and linking ecological shocks to circuits of labour exploitation and mobility. Families facing acute survival pressures and lacking alternatives often accepted such arrangements despite doubts. As Dr Upasona Ghosh observed in an interview for the Climate Brides podcast: 'The parents know what is good or bad for their girls, but survival is the priority. A dowry-free marriage offer can feel like a relief—even when there are doubts about the groom's intentions.'[35]

Intersectional vulnerabilities compound these risks. Girls from Muslim, Scheduled Caste, and undocumented migrant households—already marginalised by caste, religion, and the absence of entitlements—were particularly exposed. Male out-migration further depleted local livelihoods, increasing the likelihood that girls would be withdrawn from school and married off soon after disasters. The International Rescue Committee estimates that climate-related events in

---

33 U Ghosh, S Bose, and R Bramhachari, *Living on the Edge: Climate Change and Uncertainty in the Indian Sundarbans*, STEPS Working Paper 101, STEPS Centre, Brighton, 2018.

34 International Rescue Committee (IRC), 'Bangladesh: IRC Study Reveals Staggering 39% Surge in Child Marriage Due to Climate Change', IRC, 6 December 2023, https://www.rescue.org/eu/press-release/bangladesh-irc-study-reveals-staggering-39-surge-child-marriage-due-climate-change.

35 R R Subramanian, 'Episode 04: Upasona Ghosh on Cyclones, Borders, and Child Trafficking in the Sundarbans', *Climate Brides Podcast*, 26 January 2023, https://www.buzzsprout.com/1999556/episodes/12123585-episode-04-upasona-ghosh-on-cyclones-borders-and-child-trafficking-in-the-sundarbans.

Bangladesh's coastal districts have raised child marriage rates by 39%.[36] Once married, many girls were transported to other Indian states or across the Bangladesh–India border, where they were absorbed into exploitative labour or domestic servitude.

Local organisations such as the Bandhan Mukti Collective have sought to trace missing girls and assist survivors, but face systemic challenges, including stigmatisation, fragmented legal frameworks, porous borders, and limited state support. In this context, marriage in the Sundarbans operates less as a rite of kinship than as an improvised infrastructure of adaptation and mobility—one that redistributes household risk and care while simultaneously serving as a conduit for coercion and exploitation.[37]

Toyana Practices in Internally Displaced Persons Camps, Afghanistan

Afghanistan's prolonged environmental crisis—driven by rising temperatures, recurrent droughts, and the breakdown of water governance—has deepened over the past decade, undermining agrarian livelihoods in provinces such as Badghis, Faryab, and Ghor.[38] As crops fail and livestock perish, families face acute food insecurity and migrate to overcrowded displacement camps. These camps—shaped as much by ecological collapse as by decades of conflict and state fragility—offer few formal protections. Within this context, early and forced marriage has re-emerged as a systemic household strategy to navigate precarity, often framed by families as necessary for survival.

At the centre of these arrangements is *Toyana*, a bride price system historically rooted in tribal kinship networks. While traditionally serving to cement alliances or provide informal debt relief, *Toyana* has been reconfigured under conditions of drought, displacement, and shrinking humanitarian aid. Once embedded in reciprocal exchange, it now operates as a monetised survival economy and gendered mechanism of redistribution, in which daughters' futures are bargained to offset hunger or debt. Payments are made in cash, grain, or livestock, with transactions often noted in ledgers and subject to negotiation. As one mother in

[36] *Ibid.*

[37] D Kumar, 'Climate Crisis in the Sundarbans Makes Women Vulnerable to Trafficking', *IndiaSpend*, 11 October 2024, https://www.indiaspend.com/climate-change/climate-crisis-in-the-sundarbans-makes-women-vulnerable-to-trafficking-927311.

[38] International Organization for Migration (IOM), 'Climate Crisis Drives Displacement, Worsens Afghanistan's Humanitarian Needs: IOM Report', IOM, 27 February 2025, https://afghanistan.iom.int/news/climate-crisis-drives-displacement-worsens-afghanistans-humanitarian-needs-iom-report.

Nawabad Farabi-ha in northern Afghanistan told aid workers: 'It was either her marriage or our funerals.'[39]

Journalist Ruchi Kumar, in an interview for the Climate Brides podcast, documented how these transactions vary depending on local context and the desperation of families. In camps in Herat, a wealthy agricultural businessman paid a high *Toyana* for an eight-year-old girl. In contrast, in Mazar, a slightly better-off displaced family arranged a marriage with payments spread out over time, often in kind—groceries, clothing, or an animal for Eid—rather than lump sums. Mothers sometimes kept notebooks recording partial payments, anxious about whether the full sum would ever materialise. As one woman told Kumar: 'They know we are desperate, so they might just pay us half.'[40]

Life in displacement camps amplifies the commodification of marriage, intensifying the circulation of girls as economic assets within systems of survival. With schools shuttered or inaccessible, girls are withdrawn from education, married early, and placed in households already under strain. Human Rights Watch has documented cases of girls as young as 10 being married, with families justifying these unions as protection against hunger, Taliban abduction, or the erosion of family honour.[41] Displaced grooms often retain some mobility or earning potential, while girls are confined to reproductive labour and dependency.

Despite lacking sanction in Islamic law, *Toyana* remains both culturally entrenched and economically pivotal, with payments sometimes amounting to several thousand dollars—exceeding Afghanistan's per capita GDP.[42] Tribal councils in provinces such as Ghazni and Jawzjan have attempted to cap bride prices, but enforcement remains inconsistent and is often undermined by state retreat and institutional fragmentation, as families continue to depend on *Toyana* as a vital income source. The Taliban's return to power in 2021 has further constrained

---

39 Quoted in: R Kumar, 'In Afghanistan, Climate Change Drives an Uptick in Child Marriage', *Undark,* 17 November 2021, https://undark.org/2021/11/17/in-afghanistan-climate-change-drives-an-uptick-in-child-marriage.

40 R R Subramanian, 'Episode 02: Ruchi Kumar on Climate, Conflict, and Bride Price in Afghanistan', *Climate Brides Podcast*, 14 August 2022, https://www.buzzsprout.com/1999556/episodes/11110032-episode-02-ruchi-kumar-on-climate-conflict-and-bride-price-in-afghanistan.

41 H Barr, 'The Taliban and the Global Backlash against Women's Rights', Human Rights Watch, 6 February 2024, https://www.hrw.org/news/2024/02/06/taliban-and-global-backlash-against-womens-rights.

42 F R Muzhary, 'The Bride Price: The Afghan Tradition of Paying for Wives', Afghanistan Analysts Network, 25 October 2016, https://www.afghanistan-analysts.org/en/reports/context-culture/the-bride-price-the-afghan-tradition-of-paying-for-wives.

women's mobility, employment, and education, described by UN experts as a form of 'gender apartheid'.[43] Within camps, this has reinforced perceptions of marriage as one of the few available protections for girls, even as it simultaneously entrenches their vulnerability. In this setting, *Toyana* absorbs the costs of drought, displacement, and institutional collapse by converting girls' futures into immediate relief. What once functioned as a kinship practice of alliance has become a mechanism of adaptation to intertwined ecological and political precarity.

(Un)Tying the Knots: Marriage, governance, and the gendered infrastructure of climate adaptation

The case studies of *Gate-Cane* unions in Marathwada, tsunami marriages in Tamil Nadu, marriage trafficking in the Sundarbans, and *Toyana* practices in Afghanistan's displacement camps collectively unsettle dominant interpretations of child marriage. While global prevalence is declining, these practices endure and at times intensify, not as anomalous responses, but through their recalibration under environmental, political, and economic stress. Marriage in these contexts is not a vestige of tradition but a dynamic infrastructure strategically mobilised where livelihoods, mobility, and protection are under strain, and where state and humanitarian institutions have withdrawn or failed.

Marriage as Infrastructure: Adaptive, coercive, unequal

Across these settings, marriage functions as an informal yet institutionalised infrastructure—a mechanism through which labour, care, and value are circulated under conditions of scarcity. In Marathwada, conjugal pairing operates as a labour contract within the *ek koyta* system, where adolescent brides become both mobile and productive yet remain invisible in wage records and legal protections. In Afghanistan, *Toyana*-based marriages substitute for cash income, commodifying daughters as assets exchangeable for livestock, grain, or debt relief. These practices do not signal cultural persistence but material adaptation.

Yet adaptability is not synonymous with equity. The contrast between tsunami widows in Tamil Nadu and marriages brokered under coercive or deceptive arrangements in the Sundarbans illustrates how marriage is differently reconfigured depending on context: in one, absorbed into local rebuilding as a stabilising institution; in the other, instrumentalised by brokers into circuits of exploitation. Across cases, adolescent girls emerge as the default absorbers of risk, with their reproductive and productive labour appropriated without compensation or protection. What appear as adaptive strategies are also extractive regimes, where

[43] V Mishra, 'Afghanistan Faces "Perfect Storm" of Crises, UN Warns', UN News, 17 September 2025, https://news.un.org/en/story/2025/09/1165870.

marriage is mobilised to redistribute risk downward onto the most vulnerable.

Climate Temporalities and the Recalibration of Marriage

The temporality of climate stress, including its pacing, duration, and predictability, shapes not only when but how marriage is mobilised as an adaptive practice. In slow-onset contexts such as Marathwada, and in compound settings like the Sundarbans—where gradual salinisation and livelihood decline intersect with recurrent cyclones—marriage becomes embedded in seasonal cycles, debt arrangements, and the gradual erosion of agrarian livelihoods. Over time, child marriage is routinised within everyday adaptation, framed as normal rather than exceptional.

In contrast, rapid-onset events like the 2004 tsunami generate abrupt disruptions. In Tamil Nadu's relief camps, marriage was mobilised to quickly reorganise households, framed as protection and stability amid displacement. In Afghanistan, however, protracted droughts and governance restrictions have created a chronic temporality of crisis, transforming *Toyana* into a semi-permanent survival economy, no longer primarily about kinship but about negotiating scarcity over the long term. These temporalities often overlap, as short-term shocks compound long-term erosion.

These patterns show that climate stress does not mechanically 'cause' child marriage; rather, its temporal dynamics shape how marriage is mobilised, what problems it is imagined to solve, and who bears the costs. Adaptation frameworks, which often privilege rapid-onset disasters, overlook the slow erosion of livelihoods through which coercion becomes normalised. Policy responses must therefore distinguish between the everyday institutionalisation of coercion under chronic stress and the intensification of coercive responses during sudden shocks.

Juridical Voids and Paralegal Governance

Marriage under conditions of climate stress often unfolds within fragmented legalities and paralegal spaces. In India, the *Prohibition of Child Marriage Act* (2006) is unevenly enforced, particularly across migratory and informal economies such as the *ek koyta* system. In Bangladesh, birth certificates are easily circumvented, sometimes with the complicity of local leaders, as documented by Human Rights Watch.[44] In Afghanistan, the near-total rollback of women's legal rights since 2021, compounded by institutional collapse, has made marriage one of the few remaining avenues for securing food, shelter, and limited mobility.

[44] Barr.

These contexts illustrate the emergence of paralegal governance, in which contractors, customary leaders, brokers, and even humanitarian actors informally regulate marriage practices. Legal absence does not create a void; it generates alternative infrastructures of authority that mediate access to resources while entrenching patriarchal control and economic exploitation. In this sense, the governance of marriage under climate stress cannot be read solely through state law but must account for these layered, intersecting regimes of regulation and adaptation.

Labour, Gender, and the Redistribution of Risk

Marriage in these contexts also functions as a covert labour regime—a system through which reproductive, productive, and affective labour are reorganised under climate duress. Adolescent brides are not only displaced into reproductive roles but drawn into the social reproduction of households that depend on their unpaid care, emotional labour, and income-generating work. In Marathwada, brides cut cane and manage makeshift campsites, while in the Sundarbans girls married under coercive or deceptive arrangements perform domestic work, agricultural labour, and remittance support. In Afghan camps, marriages mobilise girls as caregivers and reproducers within households sustained by their unacknowledged labour.

These forms of labour are classed, caste-marked, and racialised, and often mediated by mobility: Dalit girls in drought-prone Maharashtra, stateless girls in Bangladesh, and displaced rural girls in Afghanistan are disproportionately targeted. While coercive, these marriages can also become sites of negotiation and agency, where girls forge fragile solidarities and strategies of endurance within systems that deny them autonomy. Recognising this does not romanticise exploitation but highlights how adaptation is enacted through the redistribution of labour, care, and risk onto marginalised female bodies.

From Adaptive Practice to Extractive Paradigm

The cases presented here challenge interpretations of child marriage as cultural residue or developmental failure. They demonstrate instead that marriage persists as a relational infrastructure of adaptation—one that redistributes labour, stabilises social reproduction, and reallocates risk in ways that sustain broader systems of patriarchal and economic governance. Its persistence is less a marker of cultural lag than of institutional retreat, as households fill the void left by inadequate welfare, education, and protection systems.

This reframing carries implications far beyond South Asia. As climate variability intensifies globally, the turn to informal, gendered infrastructures such as marriage, kinship, and migration, may become a defining feature of adaptation. Understanding marriage in this way underscores the need for systematic,

interdisciplinary frameworks capable of analysing its place within the architectures of adaptation—frameworks that are attentive to nuance, avoid linear causality, and foreground the near-universal nature of marriage as a social institution. Tracking marriage practices could even serve as an early-warning indicator of deepening precarity, offering a lens through which feminist, climate, and policy scholarship might better align adaptation research with the lived realities of those navigating environmental change.

Pathways Forward and Key Contributions

The cases examined in this paper show how marriage is mobilised as an infrastructure of adaptation under conditions of environmental and economic stress. These practices are not cultural residues but institutionalised responses to eroded livelihoods, weakened state protections, and the unequal distribution of social reproduction—revealing how adaptation itself is shaped by gendered hierarchies and extractive political economies.

If marriage already functions as a mechanism for absorbing climate-related disruptions, what does this portend for women's autonomy as climate change intensifies? How might institutions meant to safeguard women—schools, relief systems, and legal frameworks—be hollowed out or reconfigured in ways that deepen reliance on marriage as a strategy of survival? What new forms of constrained choice and coercion might emerge when access to mobility, livelihoods, and protection is increasingly mediated through marital and kinship arrangements?

These questions demand sustained feminist inquiry. The task is not only to document harms but to imagine alternative infrastructures of care and redistribution—at household, community, and state levels—that do not depend on the disposability of girls. If marriage has become an architecture of adaptation, the challenge ahead is to envision futures where rights, autonomy, and collective resilience are secured without tethering them to marital status.

For research, three priorities emerge. First, longitudinal and multi-sited studies are needed to trace how climate variability reconfigures marriage practices across both rapid-onset disasters and slow-onset. Second, applied research should engage grassroots women's organisations to map how relief, adaptation, and protection schemes reshape the marriage–livelihood nexus in practice. Third, scholars and practitioners must collaborate to design tools such as early-warning indicators, community-based monitoring systems, and feminist policy audits that make marriage practices legible within adaptation planning. Tracking shifts in marriage rates and forms—centred on women's and girls' lived experiences—could function as indicators of deepening precarity, signalling points of intervention for displacement, food insecurity, or livelihood stress.

At the policy level, recognising marriage as part of the architecture of adaptation requires moving beyond culturalist framings to embed it within the political economy of climate governance. This means integrating marriage-related data into disaster risk assessments, resourcing women's collectives to track coercive practices after environmental shocks, and designing climate programmes that explicitly reduce reliance on early and forced marriage through food security, debt relief, and accessible education for girls in intersectionally vulnerable settings.

Finally, centring marriage in these debates offers distinctive insights for two broader fields. In human trafficking studies, it demonstrates how the boundary between consensual unions and coerced exploitation is fluid, requiring a shift from juridical binaries toward structural analyses of coercion. In climate adaptation research, it foregrounds the intimate and reproductive spheres, often sidelined in planning, and shows how households redistribute risk through gendered institutions like marriage. Taken together, these insights open new cross-disciplinary pathways between feminist political economy, adaptation governance, and human rights research.

Studying marriage as an infrastructure of adaptation thus broadens the analytic frame: from legal compliance to redistribution, from protectionism to autonomy, and from climate 'impacts' to feminist climate justice. This paper has sought to establish the contours of such an approach, providing a foundation for the development of a systematic framework that can guide future interdisciplinary and ground-up research on marriage, adaptation, and gendered precarity.

Dr Reetika Revathy Subramanian is a Senior Research Associate at the School of Global Development, University of East Anglia. She holds a PhD and MPhil in Multidisciplinary Gender Studies from the University of Cambridge. She hosts the Climate Brides podcast and co-convenes the Gender and Development Study Group for the Development Studies Association in the UK. Email: R.Subramanian@uea.ac.uk

The Vulnerability Gap: How people affected by climate change perceive their circumstances and make (risky) migration decisions

Ruta Nimkar and Julia Schweers

Abstract

Climate change has disproportionate effects on the most disadvantaged communities and households, but the ways in which individuals and households respond to extreme weather events is not yet fully clear. This paper uses the adaptive preferences framework to better understand decision-making processes among individuals and households struggling to cope with the effects of extreme weather events. Drawing on 755 household surveys and 74 qualitative engagements, it argues that, as climate change limits livelihood options, individuals and households make conscious decisions to undertake risky migration. Climate limits current earnings, pushes households to sell productive assets, and erodes community infrastructure; in doing so, it constrains individual and household well-being. In response to these increasing limitations, individuals and households consciously accept the risks associated with migration journeys to access potential short- and long-term benefits. Specific groups, including women, face potentially more damaging adaptive preferences due to pre-existing structural and cultural barriers such as lower literacy and levels of documentation. While government investments to support climate adaptation are partially successful, they do not fully reach the most vulnerable populations. Government actors must develop a better understanding of the choices faced by disadvantaged households, and create flexible risk mitigation measures on long-term initiatives that are already trusted by communities. The paper concludes that adoption of the adaptive preferences framework by policymakers can improve the effectiveness of programmes designed to support climate adaptation and reduce vulnerability.

Keywords: climate change, human trafficking, vulnerability, exploitation, forced labour, Ethiopia, Philippines

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

Suggested citation: R Nimkar and J Schweers, 'The Vulnerability Gap: How people affected by climate change perceive their circumstances and make (risky) migration decisions', *Anti-Trafficking Review*, issue 25, 2025, pp. 71-89, https://doi.org/10.14197/atr.201225255

Introduction

Extreme weather events caused by climate change disproportionately affect marginalised communities.[1] They not only cause physical damage, including death, injury, and destruction of property, but also reduce longer-term economic resilience by eroding income sources.[2] Individuals and households in disadvantaged communities affected by climate change adopt a range of coping mechanisms, including risky migration and acceptance of exploitative labour.[3] The specific ways in which climate change affects the choices facing households, how households make decisions, and their subsequent vulnerability to trafficking are not yet fully understood.[4] Government and international actors have taken a range of policy and programme measures to support climate adaptation and protect the most vulnerable populations; the effectiveness of these interventions is likely to improve if individual and household decisions about risky migration are better understood.[5]

---

1 D Council, G Meagher, and Leah Cabrera, *Risk and Resilience: How Weather-related Disasters Impact Economically Marginalised Communities*, Community and Economic Development Discussion Paper 2024–2, Federal Reserve Bank of Atlanta, 2024, https://doi.org/10.29338/dp2024-02; H-O Pörtner *et al.* (eds.), *Climate Change 2022 – Impacts, Adaptation and Vulnerability*, Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, 2023, https://doi.org/10.1017/9781009325844.

2 *Ibid.*; R Newman and I Noy, 'The Global Costs of Extreme Weather that are Attributable to Climate Change', *Nature Communications*, vol. 14, issue 1, 2023, https://doi.org/10.1038/s41467-023-41888-1.

3 S Coelho, *The Climate Change–Human Trafficking Nexus*, International Organisation for Migration, 2016, https://publications.iom.int/system/files/pdf/mecc_infosheet_climate_change_nexus.pdf; S N Nazrul Islam and J Winkel, *Climate Change and Social Inequality*, Department of Economic & Social Affairs (DESA) Working Paper No. 152, October 2017, https://www.un.org/esa/desa/papers/2017/wp152_2017.pdf; S Hagan *et al.*, 'Climate Change Impacts and Mental Health in Poor Urban Coastal Communities in Ghana', *PLOS Mental Health*, vol. 2, issue 4, 2025, pp. e0000284, https://doi.org/10.1371/journal.pmen.0000284.

4 N Molinari, 'Intensifying Insecurities: The Impact of Climate Change on Vulnerability to Human Trafficking in the Indian Sundarbans', *Anti-Trafficking Review*, issue 8, 2017, pp. 50–69, https://doi.org/10.14197/atr.20121784.

5 M Mukherjee and S Fransen, 'Exploring Migration Decision Making and Agricultural Adaptation in the Context of Climate Change: A Systematic Review', *Development*

Migration scholarship presents several differing viewpoints on the relationship between climate and human trafficking. While some argue that climate factors play a critical role in migration decisions,[6] others state that the relationship between climate and migration is exaggerated.[7] Discrepancies between different academic arguments arise, in large part, from the diversity and multi-dimensionality of migration decisions: decisions to migrate consist not of a simple risk-benefit trade-off made at an individual level, but of individual, household, and community perceptions of financial, social, and other rewards both now and in the future.[8]

Climate factors affect this complex calculus, in large part, by shifting individual and household perceptions of short- and long-term risk and reward. This paper analyses the migration decisions taken by households affected by extreme weather events using an adaptive preferences framework.[9] Climate factors may create a context in which individuals and households take migration decisions

Review, vol. 179, 2024, pp. 106600, https://doi.org/10.1016/j.worlddev.2024.106600; S Marchiosio, G G Nucera, and F Negozio, *Tackling Climate Migration and Human Rights in Tandem: A Policy Agenda*, HABITABLE, 2023, retrieved 9 September 2025, https://habitableproject.org/wp-content/uploads/2024/02/HABITABLE-D6.1-WP6-POLICY-BRIEF-UNIROMA1.pdf.

6 F Sultana (ed.), *Confronting Climate Coloniality: Decolonising Pathways for Climate Justice*, Routledge, London, 2024; F Sultana, 'Critical Climate Justice', *The Geographical Journal*, vol. 188, issue 1, 2022, pp. 118–124, https://doi.org/10.1111/geoj.12417; R E Luft, 'Racialised Disaster Patriarchy: An Intersectional Model for Understanding Disaster Ten Years after Hurricane Katrina', *Feminist Formations*, vol. 28, issue 2, 2016, pp. 1–26, https://doi.org/10.1353/ff.2016.0023; R Hoffman, B Šedová, and K Vinke, 'Improving the Evidence Base: A Methodological Review of the Quantitative Migration Literature', *Global Environmental Change*, vol. 71, 2021, pp. 102367, https://doi.org/10.1016/j.gloenvcha.2021.102367.

7 A Parr, *Making the Important Urgent: Can Climate Migration Light up the Slow-burn Politics of the Climate Emergency?*, University of Oxford, Smith School of Enterprise and the Environment, 2022; H de Haas, *How Migration Really Works: 22 Things You Need to Know about the Most Divisive Issue in Politics*, Penguin Books, 2023; A İçduygu and H Gören, 'Exploring Temporal and Topical Dynamics of Research on Climate/Environment-Migration Nexus: A Critical Comparative Perspective', *Migration Studies*, vol. 11, issue 4, 2023, pp. 572–597, https://doi.org/10.1093/migration/mnad021.

8 S Vezzoli, L M Kureková, and K Schewel, *Researching Decisions to Stay and Migrate: A Temporal Multilevel Analysis Framework*, Working Paper No. 178/PACES Project Working Paper No. 1, International Migration Institute, 2024; J Hagen-Zanker, G Hennessey, and C Mazzilli, 'Subjective and Intangible Factors in Migration Decision Making: A Review of Side-Lined Literature', *Migration Studies*, vol. 11, issue 2, 2023, pp. 349–359, https://doi.org/10.1093/migration/mnad003.

9 S J Khader, *Adaptive Preferences and Women's Empowerment*, Oxford University Press, Oxford, 2011.

that they recognise as risky.[10] These decisions may expose individual migrants to exploitation, but they also reflect a choice made in constrained circumstances, designed to improve the household wellbeing.[11] The paper draws on quantitative and qualitative data collected from households particularly affected by climate change in Ethiopia and the Philippines; it examines their perceptions of short- and long-term risks and rewards to capture how risk assessments by would-be migrants are shifting in a heating world.

In the next section, we provide a review of climate change and its linkages to human trafficking in Ethiopia and the Philippines and the framework for the data analysis through social justice and adaptive preferences. We then outline our methodology for gathering empirical data from 755 household surveys and 72 qualitative engagements. The Findings section details how households decide to migrate, despite awareness of risks of exploitation, to make proactive decisions in circumstances with limited options. We conclude that community and national level actors need to understand the choices facing households in order to leverage existing policies and infrastructures to minimise risks.

Context

This paper examines the relationship between climate and household migration decisions in Ethiopia and the Philippines. The two countries have been selected for this research because they have some notable similarities—but also provide some interesting opportunities for contrast and comparison. In terms of similarities, climate change has resulted in more frequent extreme weather events in both countries, with a particularly strong impact on communities and small-scale farming. In addition, both countries have strong traditions of migration and benefit from international remittances. Furthermore, both have sent significant numbers of migrants to Persian Gulf countries, specifically from the communities targeted for this research—meaning that experiences in destination countries are similar. In terms of contrasts, communities in the Philippines are primarily negatively affected by sudden onset events such as typhoons, while communities in Ethiopia are primarily negatively affected by slow onset events such as droughts. Furthermore, the Philippines has a long tradition of protections for migrant

[10] Coelho; Islam and Winkel; Hagan *et al.*

[11] R Bharadwaj *et al.*, *Climate Change, Migration and Vulnerability to Trafficking*, Working Paper, International Institute for Environment and Development, 2022, retrieved 19 June 2025, https://www.preventionweb.net/publication/report-climate-change-migration-and-vulnerability-trafficking.

workers that have developed over time,[12] whereas the Ethiopian legal framework for supporting migrant workers is much more recent.[13]

Ethiopia: Climate change is a major concern for Ethiopia,[14] which is particularly affected by drought-related extreme weather events, such as heat, irregular rainfall, and floodings when the dry soil is unable to absorb rainwater. This extreme weather has become more pronounced over the last decades: since 1960, the number of unusually hot days has increased by 20% due to lack of rainfall.[15] As a predominately agrarian country, the changing and increasingly erratic weather has severe consequences for communities across Ethiopia, as farmers can no longer rely on rainfall patterns and risk losing entire yields—and with them their means to sustain a living.[16]

International migration in Ethiopia takes place primarily through four main routes: intra-regionally, to Persian Gulf countries (e.g. Saudi Arabia, Oman, the UAE), to Europe, and to southern Africa.[17] The individuals and communities targeted in our survey had strong migration links to Gulf countries. Migration takes place, in general, through personalised networks, with facilitators organising irregular journeys over land (both via foot and via vehicle) and over the Gulf of Aden.[18]

---

12 A Ang and E R Tiongson, 'Philippine Migration Journey: Processes and Programs in the Migration Life Cycle', Background Paper to *World Development Report 2023: Migrants, Refugees, and Societies*, World Bank, 2023, pp. 1–19; G Battistella, 'Multi-level Policy Approach in the Governance of Labour Migration: Considerations From the Philippine Experience', *Asian Journal of Social Science*, vol. 40, issue 4, 2012, pp. 419–446, https://doi.org/10.1163/15685314-12341243; International Organization for Migration (IOM), *Migration Governance Profile: Republic of the Philippines*, IOM, 2018.

13 M Dank *et al.*, *Balancing Hopes and Fears: Experiences of Women Intending to Migrate to the Kingdom of Saudi Arabia under the New Ethiopian Government Scheme*, Freedom Fund, 2025.

14 World Bank, *Climate Risk Country Profile – Ethiopia*, 2021.

15 *Ibid.*

16 UN Environmental Programme, *Ethiopia Interactive Country Fiches: Climate Change,* n.d., retrieved 19 June 2025, https://dicf.unepgrid.ch/ethiopia/climate-change.

17 M Aderoh *et al.*, *A Region on the Move: East and Horn of Africa*, IOM, 2022.

18 J Busza *et al.*, 'Accidental Traffickers: Qualitative Findings on Labour Recruitment in Ethiopia', *Global Health*, vol. 19, 2023, https://doi.org/10.1186/s12992-023-01005-9; Aderoh *et al.*; L Moton *et al.*, 'Ethiopian Domestic Workers and Exploitative Labour in the Middle East: The Role of Social Networks and Gender in Migration Decisions', *Anti-Trafficking Review*, issue 24, 2025, pp. 57–76, https://doi.org/10.14197/atr.201225244.

Women take on primarily domestic work, and men often work in construction or production in the irregular economy.[19]

Philippines: Climate change is an equally severe concern for the Philippines, though due to a different set of extreme weather events: rising sea levels, rising sea temperatures, and an increase in the frequency and intensity of typhoons.[20] Today, the Philippines already have an annual average of twenty typhoons, and with climate change progressing, this number is expected to rise even further.[21] While agriculture is no longer the largest sector of the Philippines' economy, it is still a substantial sector and the one particularly prone to poverty.[22] Bad harvests and dwindling fish catches caused by climate change and related loss of marine biodiversity thus exacerbate existing economic hardship.[23]

Migration trends out of the Philippines are diverse, with primary destination countries for regular migrants including the US, Canada, Saudi Arabia, and the UAE.[24] Migration takes place, for the most part, through formal routes;

---

19 M Dessiye and G Emirie, 'Living and Working as a Domestic Worker in the Middle East: The Experience of Migrant Returnees in Girana Town, North Wollo, Ethiopia', *African and Black Diaspora: An International Journal*, vol. 11, issue 1, 2018, pp. 69–86, https://doi.org/10.1080/17528631.2017.1342984; B Fernandez, *Migrant Domestic Workers: Migrant Agency and Social Change*, *Mobility and Politics*, Palgrave Macmillan, Cham, 2020; Moton *et al*., 2025; L Moton *et al*., *'They Don't Give You Accurate Information about Anything.' Pre-Migration Experiences of Ethiopian Migrant Domestic Workers*, Freedom Fund, London, 2024; Z Shewamene *et al*., 'Migrant Women's Health and Safety: Why Do Ethiopian Women Choose Irregular Migration to the Middle East for Domestic Work?', *International Journal of Environmental Research and Public Health*, vol. 19, issue 20, 2022, pp. 13085, https://doi.org/10.3390/ijerph192013085.

20 World Bank, *Climate Risk Country Profile – Philippines*, 2021.

21 H L Sapigao, 'More Intense Typhoons to Come this Century', *University of the Philippines Diliman*, 15 December 2023, https://science.upd.edu.ph/more-intense-typhoons-to-come-this-century-up-study-warns.

22 Food and Agricultural Organization of the United Nations (FAO), 'Country Profile Philippines', n.d., https://www.fao.org/countryprofiles/index/en/?iso3=PHL.

23 R D Tchonkuang, H Onyeaka, and H Nkoutchou, 'Assessing the Vulnerability of Food Supply Chains to Climate Change-induced Disruptions', *Science of the Total Environment*, vol. 920, 2024, pp. 171047, https://doi.org/10.1016/j.scitotenv.2024.171047; J E Cinner *et al*., 'Potential Impacts of Climate Change on Agriculture and Fisheries Production in 72 Tropical Coastal Communities', *Nature Communications*, vol. 13, 2022, pp. 3530, https://doi.org/10.1038/s41467-022-30991-4.

24 M M B Asis, 'The Philippines: Beyond Labor Migration, Toward Development and (Possibly) Return', *Migration Policy Institute*, 12 July 2017, https://www.migrationpolicy.org/article/philippines-beyond-labor-migration-toward-development-and-possibly-return; A D Tabuga, M L S Baiño, and A R P Vargas, *Analyzing the Characteristics of*

recruitment agents are registered with the government.[25] Where irregular migration takes place, it is often through unregistered recruitment agents.[26] However, even registered recruitment agents may link people to exploitative jobs.[27]

Adaptive Preferences as a Framework for Understanding Decision Making

Marginalised communities, households, and individuals in Ethiopia and the Philippines face a situation in which climate change and associated extreme weather events steadily erode their productivity and their asset base. In addition, climate change exacerbates existing inequalities within a society over time,[28] thus perpetuating a vicious cycle of harm. The effects of climate change on marginalised communities are so strong and so harmful that scholars have described climate change as a key vector exacerbating social inequalities and colonial injustices.[29] Therefore, the reactions of households and individuals to climate change can be analysed through lenses used to describe decision-making processes in the context of oppression and marginalisation.

Households and individuals facing oppression and marginalisation experience a struggle between their limited capabilities and their capacity to act. Climate change effectively restricts capabilities and opportunities available to the most marginalised populations in three ways: first, disadvantaged groups are more exposed to extreme weather events associated with climate change; for example, they are more likely to be located in areas which are more exposed to the effects of climate change (e.g. landslides, floods, etc.). Second, they are likely to be more susceptible to the effects of climate change; for example, they are reliant on subsistence agriculture whose yields decline due to climate change. Third, they are likely to have fewer resources to cope and recover, particularly financial resources.[30] As successive weather events affect disadvantaged communities, ability to cope is eroded as earnings reduce, assets are sold, and communal infrastructure is not maintained. This can be described as offering individuals and households a steadily decreasing set of capabilities. Despite this restriction in capabilities, households

International Migration in the Philippines Using the 2018 National Migration Survey, Philippine Institute for Development Studies Discussion Paper Series, issue 40, 2021.

25 *Ibid.*

26 L H Siruno, *Agents of Human Development? The Strategies of (Irregular) Filipino Migrant Domestic Workers in the Netherlands and the United Kingdom,* Doctoral Thesis, Maastricht University, June 2025, https://doi.org/10.26481/dis.20250603ls.

27 D R Agunias, *Running in Circles: Progress and Challenges in Regulating Recruitment of Filipino and Sri Lankan Labor Migrants to Jordan*, Migration Policy Centre, 2011; Siruno.

28 Islam and Winkel.

29 Sultana, 2024; Sultana, 2022; Luft.

30 Islam and Winkel.

and individuals nonetheless have capacity to make decisions; for example, there are indications that households experiencing the effects of climate change are more likely to accept hazardous work, to migrate using risky routes as a coping strategy, and to accept situations of bonded labour.[31]

The tension between steadily reducing options and individual capacity to make decisions can be described by the concept of adaptive preferences. This framework helps to identify and analyse preferences that are shaped by oppressive circumstances, while respecting individuals' desire and need to make choices and act. There are three criteria for adaptive preferences: (1) that preferences are formed under circumstances that are not conducive to flourishing; (2) that preferences are inconsistent to basic flourishing; and (3) that preferences would not persist under other (flourishing-conducive) conditions. This paper examines the degree to which the three criteria for adaptive preferences were present in climate change-affected communities in Ethiopia and the Philippines.

Methods

This paper draws on data collected by Meraki Lab and Amador Research Services[32] for a research project commissioned by the International Organization for Migration (IOM) and funded by the United Kingdom's Home Office, aiming to explore the extent to which the impact of climate on livelihoods had effects for trafficking. The research adopted an exploratory mixed-methods approach revolving around two case studies complemented by a desk review comprising both academic and grey literature. This approach was adopted to produce a more nuanced analysis that supports pragmatic transformation.[33] Quantitative survey data provided insights into the prevalence of some specific trends and perceptions (e.g. income trends, women's literacy, or perceptions of the degree to which climate affected agricultural

[31] B Jackson, *Climate Change, Migration and Human Trafficking: Assessing the Impact of Climate Change, Migration and Human Trafficking Risks for Populations in the Bangladesh and India Sundarbans*, University of Nottingham Rights Lab, Nottingham, 2023; Bharadwaj *et al.*

[32] Meraki Labs is a women-owned research business focusing on humanitarian, migration, and displacement issues; the majority of its products are co-authored by migrants, refugees, or people from conflict-affected communities. Amador Research Services is an advisory and research consulting firm seeking to provide insights on the Philippines and its international affairs from a Philippine perspective.

[33] Bharadwaj *et al.*

productivity).[34] Qualitative approaches supported insight into more contextual factors as well as the breadth of factors included in migration decision-making.[35]

Following the desk review, quantitative data was collected in the two countries. Communities for the data collection were selected by the IOM on the basis of their vulnerability to extreme weather events as measured by changes in rainfall, incidence of typhoons and tropical storms, and crop yield. The quantitative study was conducted first, using a random sampling methodology. In total, 755 households were surveyed (195 in Ethiopia and 560 in the Philippines). Within each household, one representative was interviewed. The household selected the individual to be interviewed; the individual selected was generally the primary income earner and/or decision maker. Sample sizes were selected to ensure representative results at the community level, with a confidence level of 95% and a margin of error of between 5% (Philippines) and 10% (Ethiopia). Initial analysis of quantitative data was conducted to inform the development of qualitative tools.

Qualitative data collection took place approximately two months after quantitative data collection. Participants in the qualitative data collection were purposively sampled using a snowball sampling method; the IOM's community engagements and data from the quantitative survey were used as a starting point for sampling. Three types of qualitative data were collected. Those with experience of trafficking (either directly or as a family member of a trafficked individual) took part in in-depth interviews (IDIs); interview questions were open-ended and designed to support individuals to tell stories about their experiences. This approach helped to understand the ways in which trafficked individuals perceived the links between climate and their own experiences of trafficking. People with specific political or social knowledge—traditional elders, community political leaders, health workers, etc.—took part in key informant interviews (KIIs) which were semi-structured and designed to elicit comparable information. Focus group discussions (FGDs) took place with groups of individuals who had not necessarily experienced trafficking, but who belonged to a demographic group of specific interest. Thirty FGDs, 28 KIIs, 14 IDIs were conducted.

[34] G O Wayessa and A Nygren, 'Mixed Methods Research in Global Development Studies: State-sponsored Resettlement Schemes in Ethiopia', *European Journal of Development Research*, vol. 35, 2023, pp. 1440–1464, https://doi.org/10.1057/s41287-023-00588-8.

[35] Jackson.

Table 1: Quantitative Data Collection

Community	Location	# Households	# Surveyed	Male-Headed	Female-headed
Ethiopia					
1	Yeka Umama Tokuma	1328	101	77	24
2	Ushane Koche	841	94	62	32
Philippines					
1	Marigondon	355	154	30	123
1	Barangay 5	573	169	34	134
2	Timbang	313	120	39	81
2	Taban	305	117	24	93

Community	Location	# FGDs	# KIIs	# IDIs
Ethiopia				
1	Yeka Umama Tokuma	6	4	2
2	Ushane Koche	6	3	2
Philippines				
1	Marigondon	5	5	2
1	Barangay 5	4	4	5
2	Timbang	5	6	2
2	Taban	4	6	1

Quantitative data analysis took place using both Excel and Stata; descriptive statistics and cross-tabulations were developed. Qualitative analysis took place using hybrid coding. KIIs, FGDs, and IDIs were first coded using a codebook based on the research questions and sub-questions. Following this, on the basis of a review of the transcripts and ongoing discussions with national researchers and research teams, a list of additional themes was developed, and coding took place to ensure that these themes were fully explored. Participatory analysis workshops took place to discuss and develop major findings; in these workshops, the full research team, including local enumerators, reviewed the quantitative and qualitative data and integrated them into findings.

The researchers designed the study to support and protect, to the degree possible, the most vulnerable populations. Research design took place with active involvement of and leadership by national researchers from the affected communities to try to address issues associated with positionality and mitigate risks associated with collecting data on behalf of international organisations. Research tools were designed in close collaboration with team members from local communities. Quantitative tools included relatively few questions on trafficking and no questions on personal experiences with trafficking; qualitative tools were designed to be semi-structured and respond to the openness of different respondents. In both Ethiopia and the Philippines, extensive role play exercises were conducted prior to data collection. These helped the research team to develop a common understanding of risks, ethical challenges, and mitigation measures. Some mitigation measures included adapting translations to account for local understandings, and developing different methods of approaching

sensitive topics. Referral mechanisms were also identified prior to data collection. Regular daily discussions about ethical challenges, issues, and approaches took place during data collection.

Findings

Households Make Migration Decisions in Conditions That Are Not Conducive to Flourishing

Our data suggests that in communities affected by climate change and frequent extreme weather events, conditions have deteriorated to the point where households are facing systemic climate-related barriers to flourishing, as defined in the adaptive preferences framework. These barriers include lower income due to shifting land productivity, erosion of infrastructure, and health issues associated with changing climate.[36] This aligns with Khader's argument that adaptive preferences are formed in conditions which are not conducive to flourishing.

Climate change increases economic hardship in both the Philippines and Ethiopia. As one Filipino woman succinctly summed it up: 'The most important effects of climate in the community is really poverty. People suffer because their sources of livelihood are damaged.' Similarly, in a focus group discussion in the Ethiopian region of Jimma, several young adults discussed how climate affected crops, pointing specifically to unseasonal rain, soil erosion, and lack of rainfall. At the end of the conversation, one young person concluded that the situation had gotten so bad that 'farmers are reluctant to return to their fields'. The specific weather events that affected hardship differed between countries: in Ethiopia drought (identified by 45% of respondents) was considered to have the greatest effect on households, whereas in the Philippines heat and typhoons (identified by 23% and 21% of respondents, respectively) were considered to have the most significant effect.

We also found that the effects of climate change on household conditions worsened steadily over time. Thirty-five per cent of household representatives interviewed in Ethiopia and 22% of those interviewed in the Philippines stated that their income had decreased within the last five years. This reduction had a significant impact: 66% of household representatives interviewed in Ethiopia and 70% of those interviewed in the Philippines stated that loss of income had either a large or a moderate effect on their wellbeing. Household representatives considered themselves to be in unsustainable conditions that did not promote flourishing; one farmer in Ethiopia described the situation as follows: 'Sometimes

[36] A I Almulhim *et al.*, 'Climate-induced Migration in the Global South: An In-depth Analysis', *NPJ Climate Action*, vol. 3, issue 47, 2024, pp. 1–12, https://doi.org/10.1038/s44168-024-00133-1; Içiduygu and Gören.

there's too much rain, and other times there's too little, which impacts crop productivity. This year, for example, our coffee production was damaged due to untimely rain, and farmers were left with nothing.' The findings of our research reinforce a body of literature showing that climate change has a disproportionate effect on poorer households, and that it has long-term effects on wealth and income inequality.[37]

In both Ethiopia and the Philippines, women were less likely to flourish—as defined in the adaptive preferences framework—compared to men and were identified in the quantitative survey as among the top three groups considered vulnerable to weather issues. This vulnerability was underpinned by systemic barriers. In Ethiopia, for instance, 41% of women had no education at all compared to 22% of men; 10% of women had no form of documentation, compared to only 1% of men; 23% of women stated that they did not know their household income, compared to only 8% of men. In the Philippines, another group identified as particularly disadvantaged was elderly people. Fourteen per cent of respondents to the quantitative survey in the Philippines identified elderly people as those whose wellbeing would suffer in the event of poor weather; elderly people were the group identified by the greatest number of survey respondents as vulnerable to extreme weather. They were also identified as one of the groups most likely to be affected by reduction in livelihood options and income levels (by 12% of respondents). The differential effects of climate on specific vulnerable groups such as women and elderly people identified in this study have also been widely discussed in broader literature.[38]

Governments in both Ethiopia and the Philippines made efforts to support communities affected by climate change, with varying levels of success. Infrastructure investment provides an example of some of the potential pitfalls of these efforts. While both governments made investments in infrastructure,

---

[37] B A Jafino *et al.*, *Revised Estimates of the Impact of Climate Change on Extreme Poverty by 2030*, COVID-19 (Coronavirus) | Policy Research Working Paper No. WPS 9417, World Bank, September 2020, http://documents.worldbank.org/curated/en/706751601388457990; S Cevik and J T Jalles, 'For Whom the Bell Tolls: Climate Change and Income Inequality', *Energy Policy*, vol. 174, 2023, pp. 113475, https://doi.org/10.1016/j.enpol.2023.113475; M Pardy, C Riom, and R Hoffmann, *Climate Impacts on Material Wealth Inequality: Global Evidence from a Subnational Dataset*, Geography and Environment Discussion Paper Series No. 48, London School of Economics and Political Science, September 2024, https://eprints.lse.ac.uk/125447/1/DPS_48_pardy_et_al.pdf.

[38] Pörtner *et al.*; G Anjum and M Aziz, 'Climate Change and Gendered Vulnerability: A Systematic Review of Women's Health', *Women's Health*, vol. 21, 2025, http://doi.org/10.1177/17455057251323645; M Prina *et al.*, 'Climate Change and Healthy Ageing: An Assessment of the Impact of Climate Hazards on Older People', *Journal of Global Health*, vol. 14, 2024, pp. 04101, https://doi.org/10.7189/jogh.14.04101.

37% of respondents in Ethiopia and 48% in the Philippines found the quality of infrastructure intermediate or poor. There were notable differences in perceptions of the sufficiency of infrastructure for different groups and especially for the most disadvantaged populations. For example, women are particularly disadvantaged and particularly at risk from extreme weather events, but they did not necessarily benefit from public infrastructure projects. In Ethiopia, 14% of women found the quality of infrastructure poor, compared to only 6% of men; this was in part because women had different requirements compared to men. For example, if a newly constructed road was badly lit, then men could still use the road with minimal safety concerns, but women were unwilling to use it in the evening and at night due to concerns about their physical safety. Government investments thus were made, but did not necessarily benefit those who were in the worst conditions.

Risky Migration Decisions Are Likely to Be Inconsistent with Flourishing

In contexts where opportunities are limited and steadily decreasing, individuals and households make active decisions about migration in order to exercise some control over their futures. They understand that the individual who migrates is at risk of exploitation but still choose this course of action as a response to limited options. Migration decisions are taken to express individual and household capacity, but they expose the migrant to risk and are thus inconsistent with a person's basic flourishing, as per Khadar's framework.

Individuals and households who experienced climate change and extreme weather events perceived that migration offered them a strong possibility of short- and long-term returns. Forty-three per cent of households in Ethiopia and 33% in the Philippines identified economic factors as their primary reason for wanting to migrate. Migration offered not only short-term gains, but also long-term possibilities to invest and build resilience. For example, in the Philippines, remittances were used in part to rebuild houses out of concrete to be better protected against extreme rain. Similarly, in Ethiopia, households invested remittances into irrigation systems to better withstand extreme heat and drought. In both countries, remittances were also used to invest in still more income diversification measures, for example, to set up variety/convenience stores in the Philippines and cafés in Ethiopia. In some cases, remittances were invested in household health, which represents both a social and an economic asset. One elderly community member in the Philippines described his family's migration decision as follows: 'The purpose in [migrating] was that if or when a member of the family gets sick, they can have the financial capacity to pay for hospital bills, etc.' Remittances were not always used to build productive assets—in both countries, research teams and interviewees mentioned that remittances were often used both to meet immediate household consumption needs and to pay for extraordinary costs such as weddings and funerals. However, where remittances were invested, the resulting assets helped to further mitigate against climate change.

To access these short- and long-term benefits, households and individuals needed to also accept the possibility of risk—including the risk of exploitation. The chances that labour migration would involve exploitation were well understood by communities in both countries. In the quantitative survey, 41% of respondents in Ethiopia stated that migrants frequently faced an exploitative situation along the route, and 39% that migrants frequently faced exploitation in destination countries. Fourteen per cent of participants from the Philippines stated that migrants frequently faced an exploitative situation (e.g. withholding of passports, denial of salary, or physical and sexualised abuse) in destination countries. In the qualitative data, some returnees described exploitative situations they had lived through in destination countries. Community members who had not migrated were also aware of the potential for exploitation, and of which migrants are more subject to exploitation, with one community leader in Ethiopia describing the situation as follows: 'Of course, if they migrate to become housemaids, they will be exploited. It is expected that they will be exploited...and if they go abroad illegally, they will be heavily exploited.' There is a body of evidence explaining the ways in which climate contributes to distress migration; climate exacerbates poverty and food insecurity, and in these contexts individuals and households are more willing to accept both current and future risk.[39]

The risks of irregular migration were heightened by structural factors which climate change-affected households and communities faced. Visa regulations of member countries of the Organisation for Economic Co-operation and Development (OECD)[40] render it difficult, if not impossible, for smallholder farmers of countries such as Ethiopia and the Philippines to migrate through regular routes—and would require passports in the first place. Legal hurdles, fees, and bribes involved in obtaining international travel documents can be a barrier for low-income citizens, even before the problem of obtaining a visa begins.[41] Among the individuals we sampled, no one in Ethiopia and only 3% in the Philippines had a passport.

---

[39] B Castro, 'Becoming a Climate Migrant: Climate Change and Sequential Migration Decision-Making', *Social Problems*, 2025, pp. spaf027, https://doi.org/10.1093/socpro/spaf027; S Mugambiwa and P Sibanda, 'Climate Change, Migration, and Displacement: Advancing a Risk-Informed Approach for Sustainable Solutions', *International Journal of Population Studies*, vol. 11, issue 4, 2025, pp. 7–14, https://doi.org/10.36922/ijps.5165.

[40] S Mau *et al.*, 'The Global Mobility Divide: How Visa Policies Have Evolved over Time', *Journal of Ethnic and Migration Studies*, vol. 41, issue 8, 2015, pp. 1192–1213, https://doi.org/10.1080/1369183X.2015.1005007.

[41] B N Lawrance and J Stevens, *Citizenship in Question: Evidentiary Birthright and Statelessness*, Duke University Press, Durham, 2017; B Manby, *Struggle for Citizenship in Africa*, Zed Books, London, 2009.

Left with dubious options, people tended to rely on close contacts for information to make their migration decisions; 40% of respondents in the quantitative survey stated they relied on family and friends, and 14% stated they relied on social media. In the Philippines, respondents selected recruitment agents that were recommended by family contacts and networks; in Ethiopia, family contacts often put migrants in touch with smugglers. Given these circumstances—urgent need for a solution to economic hardship, legal hurdles to regular migration routes, lack of documentation, and proximity to smugglers or traffickers—those hit by extreme climate events have little options but to migrate internationally through irregular routes. They undertake these journeys despite strong awareness of the chances of exploitation along the route or in the destination.

In this context, where migration is likely to be risky, household gender dynamics can specifically expose women to harm and exploitation. In the Philippines, qualitative data indicates that cultural norms dictate that men take responsibility for farming, fishing, and household assets. As such, after a destructive weather event, it is more likely for a man to look after the remnants of the household and farmland, and for a woman to migrate to earn money to rebuild. Often migration takes place to the Persian Gulf due to demand for domestic workers. Respondents noted that societal expectations often discourage women from being assertive or outspoken, potentially leading to a higher tolerance for difficult situations. In contrast, men were perceived as more likely to actively resist or report abusive conditions. These findings generally support other literature showing that climate and migration can reinforce gender norms.[42]

Government actors have taken measures to try to reduce the risk to individuals who migrate. In the Philippines, these measures have been perceived as effective both by the international community and a proportion of Filipino migrants.[43] The migration management system in the Philippines includes not only a legal and policy framework, but also the installation of Overseas Filipino Workers (OFW)

---

42 N Sultana, J Sarkar, and M Meurs, 'Climate Change Induced Migration: A Gendered Conceptual Framework', *Migration and Diversity*, vol. 3, no. 2, 2024, pp. 215–233, https://doi.org/10.33182/md.v3i2.3177; I Boas, N De Pater, and B T Furlong, 'Moving Beyond Stereotypes: The Role of Gender in the Environmental Change and Human Mobility Nexus', *Climate and Development*, vol. 15, issue 1, 2023, pp. 1–9, https://doi.org/10.1080/17565529.2022.2032565.

43 A C Orbeta Jr and M R M Abrigo, 'Managing International Labor Migration: The Philippine Experience', *Philippine Journal of Development*, vol. 38, no. 1–2, 2013; T D Ballesteros *et al.*, 'Assessing the Effectiveness of Employment Policies for Filipino Migrant Workers', *International Journal of Law and Public Policy*, vol. 7, no. 1, 2025, pp. 31–38, https://doi.org/10.36079/lamintang.ijlapp-0701.806; J Debonneville, 'An Organizational Approach to the Philippine Migration Industry: Recruiting, Matching and Tailoring Migrant Domestic Workers', *Comparative Migration Studies*, vol. 9, 2021, https://doi.org/10.1186/s40878-020-00220-2.

helpdesk offices throughout the country, the establishment of Regional Offices of the Department of Migrant Workers, and the rollout of pre-departure orientation sessions and pre-employment orientation seminars for workers. Almost all the returnee or migrant participants in the qualitative data collection had participated in pre-departure briefing sessions, and most knew how to contact the Overseas Workers Welfare Administration during their migration. The existing system, trust in the system by workers going abroad, and the clear examples of workers using information from this system to escape exploitative situations show that in the Philippines, migration governance at least partially mitigates risks. The migration management system in Ethiopia is more recent and has been subject to more changes; as such, interviewees were less aware of government policies and systems.

Would Risky Migration Persist Under Other Circumstances?

In both the Philippines and Ethiopia, there is a long history of internal and international migration. In the Philippines, large-scale international migration has taken place over many years, with male workers migrating to Gulf countries in the 1970s, women migrating as domestic workers since the 1980s, and, more recently, as specialised migrants, including healthcare workers and technical professionals. Internal migration flows have taken place to Manila, the capital city, as well as major urban centres, for decades. In Ethiopia, large scale international migration is more recent; movement to Gulf countries forms one of the largest routes, as does movement to southern African countries. Internal migration again takes place towards urban areas, as job opportunities are concentrated in these locations.

The historic prevalence of substantial migration flows in both countries leads to the question: Would risky migration take place in the absence of climate change? Would this preference persist under flourishing-conducive conditions? In both Ethiopia and the Philippines, our qualitative data suggests that at least some individuals are driven to migration because of circumstances directly resulting from climate change. One returnee in the Philippines described her migration decision as being caused by the confluence of two factors: first, declining agricultural productivity had reduced her household's savings and asset base, and second, a typhoon destroyed her family's house. She stated very clearly that if her family had adequate savings, she would not have migrated and, subsequently, experienced exploitation. Similarly, a government official in Ethiopia described the situation facing households as follows: 'If a farmer loses everything he worked for in one night of heavy rain,…the only option he has is to ask for refuge in the nearby cities or to migrate internationally.'

In the absence of climate change, other households might choose to migrate—but do so using safer, less risky paths. In both countries, respondents preferred internal to international migration. In Ethiopia, household desire to migrate internally was ranked as high or very high by 49% of respondents, significantly higher than household desire to migrate internationally (33%); similar responses

were observed in the Philippines. A returnee in the Philippines described her decision to pursue international, rather than internal, migration as driven by need: following a disaster, her household needed to make as much money as possible, and salaries were higher internationally compared to within the Philippines.

The decision to migrate, and the decision about where to migrate, thus was formed substantially by climate change: in the absence of extreme weather events, a proportion of the individuals and households we spoke to would have made different choices; while some may still have chosen to migrate, they may have chosen safer paths, such as internal migration, or they may have invested more time and effort in overcoming the legal hurdles and saving money for fees to pursue regular migration. As such, the nature of the risks accepted by migrants differed substantially because of climate factors; as climate changed, migrants and their families became steadily more willing to accept risk to access the gains associated with migration.

Discussion and Conclusion

Our findings illustrate that households affected by climate change in both Ethiopia and the Philippines adapt their preferences to their context. They acknowledge their restrictive and worsening conditions, and their migration decisions are made to achieve short- and long-term improvements for themselves and their families. These migration decisions reflect a trade-off between the acknowledged risk of exploitation and the reward of both immediate earnings and an increased household asset base. The findings also demonstrate that government efforts to reduce risk are only partially successful; while they do address some needs, they are often not sufficiently tailored to local contexts or to the needs of the most disadvantaged populations. Climate change thus shapes the life plans and trajectories of disadvantaged households, and government efforts to address their vulnerabilities lag behind. Individual and household decisions to engage in risky migration and accept the risk of exploitation can thus be described as adaptive preferences: preferences that are adopted to account for past experience of climate change, and due to the expectation of future harms associated with extreme weather events. Government efforts to safeguard vulnerable populations have not kept pace with changes in individual and household decision making.

The findings also illustrate that within communities affected by climate change, specific groups are making more extensive use of adaptive preferences. Women face structural disadvantages; they are less likely to be literate, to have documentation, and even to be aware of household finances. They are therefore more exposed to exploitation in the course of their migration. This finding aligns with and deepens analysis of the effects of climate change on women; researchers have found that climate change increases women's vulnerability and that women select adaptation strategies that are rational but are made in circumstances that

may result in further long-term harm.[44]

Our research therefore suggests that an adaptive preferences framework captures best the decisions made by households and individuals affected by climate change, and that adoption of such a framework by policy actors would help to achieve more effective, flexible, and rapid outcomes. This framework provides a tool for analysing the trade-offs facing households and individuals, understanding the ways in which disadvantaged households perceive their own capacity to act, and examining the perceived extent of deprivation caused by climate change. This is important because government actors have put measures in place to support households and communities to adapt, but these initiatives have had mixed results. For example, migration management has been a long-standing priority in the Philippines, and some initiatives such as pre-departure briefings (which involved both national and community actors) clearly led to more resilience against exploitation. However, other government initiatives—notably infrastructure projects—have had less success. Governments in both Ethiopia and the Philippines have constructed infrastructure to mitigate the effects of climate change, but in the Philippines this infrastructure was seen as inappropriate, and in Ethiopia structurally disadvantaged groups such as women did not have equitable access to it.

At a policy level, this paper recommends that governments develop adaptable policies that are designed for the local level. International policies to address climate change are often targeted at the regional or national level, due to the scope of the challenge. However, the climate-migration-trafficking chain is extremely sensitive to local factors. As such, policies need to be adaptable, not only to the national level, but also to the local level. This paper also indicates that resilience measures should be built on pre-existing large-scale systems; existing government investments and strong community trust form the foundations for effective risk mitigation. Finally, this paper recommends that gender is mainstreamed into measures to respond to climate change.

Ruta Nimkar is the co-founder of Meraki Labs and a DPhil (PhD) student at the University of Oxford. For Meraki Labs, she works on smuggling, migration, and displacement research and evaluation for governments, UN agencies, and INGOs. In her DPhil, she examines the interaction between international programme and policy instruments and smuggling and trafficking actors. Email: ruta@meraki-labs.org

[44] Anjum and Aziz; E Alonso-Epelde, X García-Muros, and M González-Eguino, 'Climate Action from a Gender Perspective: A Systematic Review of the Impact of Climate Policies on Inequality', *Energy Research & Social Science*, vol. 112, 2024, pp. 103511, https://doi.org/10.1016/j.erss.2024.103511.

Julia Schweers is a post-doctoral researcher at the University of Oxford's Refugee Studies Centre, where she works on refugee policies in authoritarian states with a focus on East Africa. She holds a DPhil (PhD) in Migration Studies from the University of Oxford's Centre on Migration, Policy, and Society. Email: julia.schweers@qeh.ox.ac.uk

ANTI-TRAFFICKING REVIEW 25 (2025): 90-108

A Phenomenon Displaced: Human trafficking in the Philippines in the wake of Typhoon Haiyan

Chris Weeks

Abstract

Widespread claims about human trafficking emerge after many climate-induced disasters, with news headlines about children being snatched, abducted, and exploited. One such example is Typhoon Haiyan (Yolanda) which struck the Philippines in 2013, partially destroying Tacloban City and claiming more than 6,000 lives. Returning to the city after this historic storm, I conducted interviews with professionals who were likely to have encountered trafficking cases, including police, government anti-trafficking officials, NGO workers, community leaders, academics, and judges. However, despite widespread claims of post-disaster trafficking, only four cases were ever investigated—none of which resulted in prosecution. Casting the net wider, I discovered that affected people living in more peripheral areas, or who were displaced there, appeared more likely to be recruited into trafficking than those at the geographical centre of the disaster. In an area of study almost completely devoid of empirical evidence, this paper challenges an assumed direct link between disasters and trafficking. It presents a more nuanced picture of a multi-step process in which disasters destroy livelihoods, prompting a precarious search for work which can, in turn, heighten the risk of human trafficking.

Keywords: human trafficking, disaster, Typhoon Haiyan, Super Typhoon Yolanda, Philippines

Suggested citation: C Weeks, 'A Phenomenon Displaced: Human trafficking in the Philippines in the wake of Typhoon Haiyan', *Anti-Trafficking Review*, issue 25, 2025, pp. 90-108, https://doi.org/10.14197/atr.201225256

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

Introduction

Typhoon Haiyan (known in the Philippines as Super Typhoon Yolanda) made landfall on the morning of 8 November 2013, claiming at least 6,300 lives,[1] displacing more than 4 million people, and affecting up to 16 million overall.[2] Tacloban City, with a population of around 220,000 at the time, bore the brunt of this destruction as a huge storm surge crashed into the coastline with the deadly effect of a tsunami.[3] The Philippines is no stranger to extreme weather events, experiencing an average of 20 typhoons each year,[4] and being situated on the 'Pacific Ring of Fire' with a heightened risk of volcano eruptions and earthquakes. While there are around 200 fatalities annually from disasters in the country, the death toll from Haiyan—a disaster which was 'very unlikely to have occurred without climate change'[5]—was unprecedented, with some local organisations suggesting the real number of lives claimed was closer to 18,000.[6]

Fears that individuals, particularly children, were at risk of human trafficking surfaced in the media and on NGO websites within days.[7] Speculation around these trafficking destinations varied, with the International Organization for Migration (IOM) stating that the region was already known as a 'source of women and children for sexual exploitation, and men and boys for labour exploitation'.[8] Yet, as with myriad similar claims following other climate-induced disasters (see

1 *Final Report Re: Effects of Typhoon Yolanda (Haiyan)*, National Disaster Risk Reduction and Management Council (NDRRMC), November 2013, https://ndrrmc.gov.ph/attachments/article/1329/FINAL_REPORT_re_Effects_of_Typhoon_YOLANDA_HAIYAN_06-09NOV2013.pdf.

2 M Yonetani *et al.*, *The Evolving Picture of Displacement in the Wake of Typhoon Haiyan: An Evidence-based Overview*, Government of the Philippines, Department of Social Welfare and Development *et al.*, 2014, https://www.internal-displacement.org/publications/the-evolving-picture-of-displacement-in-the-wake-of-typhoon-haiyan-an-evidence-based.

3 NDRRMC.

4 'Information on Disaster Risk Reduction of the Member Countries: The Philippines', Asian Disaster Risk Reduction Center, 2018, https://www.adrc.asia/nationinformation.php?NationCode=608&Lang=en.

5 N Sparks and R Toumi, 'Climate Change Attribution of Typhoon Haiyan With the Imperial College Storm Model', *Atmospheric Science Letters*, vol. 26, issue 1, 2025, https://doi.org/10.1002/asl.1285.

6 *Disaster upon Disaster: Lessons beyond Yolanda*, IBON Foundation, 2015, https://www.medico.de/fileadmin/user_upload/media/en/Disaster_Upon_Disaster_Final.pdf.

7 T Branigan, 'Typhoon Haiyan: Children in Disaster Zone Are Vulnerable, Warns Unicef', *The Guardian,* 20 November 2013.

8 'Fears Grow of Increase in People Trafficking in Typhoon-Affected Philippines', International Organization for Migration (IOM), 14 January 2014.

the next section), no specific cases were mentioned and no evidence was presented to back up these assertions.

Attempting to address this void of evidence, I returned to Tacloban City three years after this historic storm to interview key stakeholders involved in the disaster relief effort who were likely to have encountered cases of human trafficking in this 'central disaster zone'. I then extended the geographical reach of my investigation to the 'outer disaster zone' of Cebu and the capital Manila to learn what was known about post-Haiyan trafficking in these peripheral areas.

This paper aims to challenge the assumption that trafficking risks are heightened in the immediate aftermath of a disaster in the worst affected area. Through the case study of Typhoon Haiyan, I present a more nuanced picture of trafficking risks based on the sequence of disaster leading to economic desperation and loss of livelihoods, which, if no assistance is given, can lead to a desperate employment search and morph into human trafficking. Furthermore, this study is not limited to a particular type of trafficking and could involve any type of exploitation and any means of recruitment. It is specifically focused on the vulnerabilities that led up to the act of trafficking itself.

Literature Review: The disaster-trafficking discourse

Warnings about the risk of human trafficking are frequently issued after major disasters, with news headlines that children are being 'snatched by mafias',[9] criminal gangs are 'offering [children] for adoption or exploitation',[10] and children and human organs are trafficked[11] by 'those who seek to profit from their misery'.[12] This common refrain first began to surface after the 2004 Indian Ocean tsunami,[13] followed by the 2005 Pakistan earthquake,[14] the 2008 Myanmar

[9] L A Santos, 'Human Trafficking Prevalent in Post-typhoon Philippines', *Devex*, 2 January 2014.

[10] J Aglionby, J Steele, and B Whitaker, 'Criminals May Be Trafficking Orphans', *The Guardian,* 5 January 2005.

[11] N.a., 'Haitian PM: Human Organs Are Being Trafficked In Aftermath of Quake', *Huffpost*, 30 March 2010.

[12] US Department of State, 'South Asia: U.S. "horrified" at Child Trafficking in Tsunami Aftermath', *ReliefWeb*, 5 January 2005.

[13] G Nishiyama, 'Indonesia: UNICEF Confirms Tsunami Child Trafficking Case', *ReliefWeb*, 7 January 2005.

[14] D Walsh, 'Earthquake Orphans under Guard to Stop Child Trafficking', *The Guardian*, 19 October 2005.

cyclone,[15] the Haiti earthquake of 2010,[16] and Typhoon Haiyan in 2013 which is the focus of this study. Many such disaster-trafficking warnings have been issued since then, including after the Nepal earthquake of 2015,[17] making this an 'integral part of the disaster narrative'.[18]

Behind these headlines, the disaster-trafficking connection is explored theoretically in the literature, with scholars noting that trafficking is more likely to happen during economic crises, disasters, and conflicts[19] when the 'supply of available children increases, the demand for those children increases, and the intentions of those transporting the children is difficult, if not impossible, to assess'.[20] Displacement from disaster zones has been raised as a trafficking risk factor,[21] with those on the move facing potential exploitation.[22] People actively seeking out smugglers to move out of a disaster area can also be at risk because smuggling can morph into trafficking.[23] It is claimed that, following disasters, a breakdown of law and order exacerbates these risks,[24] coupled with a sudden demand for cheap labour.[25] The ability of law enforcement and state capacity to prevent post-disaster trafficking may also be a factor, with inadequate laws meaning that

---

15 N.a., 'Child Traffickers Preying on Burma Victims: Aid Groups', *ABC*, 14 May 2008.

16 J G Delva, 'Americans Arrested Taking Children out of Haiti', *Reuters*, 31 January 2010; L Cohen, 'How Traffickers Exploit Children in Haiti's Orphanages', *CNN*, 2 March 2018.

17 J Burke, 'Indian Gangs Found Trafficking Women From Earthquake-hit Nepal', *The Guardian,* 30 July 2015.

18 H Montgomery, 'Rumours of Child Trafficking after Natural Disasters: Fact, Fiction or Fantasy?', *Journal of Children and Media*, vol. 5, issue 4, 2011, pp. 395–410, https://doi.org/10.1080/17482798.2011.587142.

19 L Shelley, *Human Trafficking: A Global Perspective,* Cambridge University Press, New York, 2010, p. 94.

20 I Atzet, 'Post-Crisis Actions to Avoid International Child Trafficking', *Journal of Law & Family Studies*, vol. 12, issue 2, 2010, pp. 499–510, p. 510.

21 J N Sigmon, 'Combating Modern-Day Slavery: Issues in Identifying and Assisting Victims of Human Trafficking Worldwide', *Victims and Offenders*, vol. 3, issue 2–3, 2008, pp. 245–257, https://doi.org/10.1080/15564880801938508.

22 S Coelho *et al.*, *The Climate Change – Human Trafficking Nexus,* IOM, 2016.

23 Y Tamura, *Illegal Migration, People Smuggling, and Migrant Exploitation*, INSIDE Paper No. 25, Australian National University, 2011; K Fitzgibbon, 'Modern-day Slavery? The Scope of Trafficking in Persons in Africa', *African Security Studies*, vol. 12, issue 1, 2010, pp. 81–89, https://doi.org/10.1080/10246029.2003.9627573.

24 A Childs, 'Why Child Trafficking Spikes after Natural Disasters – And What We Can Do about It', *The Conversation*, 22 March 2016.

25 S Hepburn and R J Simon, *Human Trafficking around the World: Hidden in Plain Sight*, Columbia University Press, 2013, p. 3.

trafficking cases cannot always be pursued.[26]

Academics reviewing the slim but growing literature on the disaster-trafficking nexus have raised concerns about a lack of solid evidence. A recent literature review found just a handful of peer-reviewed articles on the topic, none of which contained any empirical research,[27] coupled with more general concerns that 'the current discourse on human trafficking is driven by mythology'.[28] There are also calls for more country-specific studies, rather than large sweeps of multi-country secondary data.[29] It should be noted that it is difficult to produce reliable data on human trafficking as many survivors do not report the crime because of stigma[30] and even experts do not always agree on what should be counted as trafficking.[31] Furthermore, disaster-trafficking beliefs presented in Western media may not be held by local experts in the areas affected.[32]

Methodology

For the first part of this study, I interviewed representatives of authorities and NGOs as well as academics in Tacloban City, the area most severely affected by Haiyan, who were likely to have information about trafficking cases. I gathered testimony from four politicians, eight civil servants, two prosecutors, two NGO workers, and one senior academic between 5 and 16 June 2017. These included the Prosecutor for Region VIII, who is Chair of the Inter-Agency Council Against Trafficking (IACAT); Tacloban City's Chief Prosecutor; and officials from the

---

26 N F Bromfield and K S Rotabi, 'Human Trafficking and the Haitian Child Abduction Attempt: Policy Analysis and Implications for Social Workers and NASW', *Journal of Social Work Values and Ethics*, vol. 9, no. 1, 2012, pp. 1–25.

27 V Curbelo, 'Exploring the Relationship between Humanitarian Emergencies and Human Trafficking: A Narrative Review', *Journal of Modern Slavery*, vol. 6, issue 3, 2021, pp. 7–18, https://doi.org/10.22150/jms/XIPN5627.

28 S X Zhang, 'Beyond the "Natasha" Story – A Review and Critique of Current Research on Sex Trafficking', *Global Crime*, vol. 10, issue 3, 2009, pp. 178–195, https://doi.org/10.1080/17440570903079899.

29 K Hoogesteyn *et al.*, 'The Intersection of Human Trafficking and Natural Disasters: A Scoping Review', *Trauma, Violence, & Abuse*, vol. 25, issue 4, 2024, pp. 2877–2890, https://doi.org/10.1177/15248380241227985.

30 E Nykaza, 'Human Trafficking and Its Public Health Implications', in P A Gaist (ed.), *Igniting the Power of Community – The Role of CBOs and NGOs in Global Public Health*, Springer, New York, 2009, pp. 311–325, p. 319.

31 J Tigno, 'Agency by Proxy', in M Ford, L Lyons, and W van Schendel (eds.), *Labour, Migration and Human Trafficking,* Taylor and Francis, London, 2012, pp. 23–40.

32 Montgomery, p. 405; E M Goździak and A Walter, 'Misconceptions about Human Trafficking in a Time of Crisis', *Forced Migration Review*, vol. 45, 2014, pp. 58–59, p. 59.

Department of Social Welfare and Development (DSWD), Tacloban City Police, the Women and Children's Shelter of Tacloban City, the Tacloban Statistics Office, and the Philippine Overseas Employment Administration (POEA), Region VIII, which is responsible for preventing trafficking of Philippine people abroad, and a professor from the University of the Philippines Tacloban College. I also interviewed the Mayor of nearby Palo, adjoining Tacloban, which was severely affected by Typhoon Haiyan, a number of *barangay* (the smallest administrative units in the Philippines) captains, as well as NGO workers and academics in the city. All of these respondents participated in semi-structured interviews to share their knowledge of trafficking cases following the typhoon, the details of which is presented shortly.

I conducted subsequent semi-structured interviews in the wider affected areas of Cebu Island and in the capital Manila, where thousands of evacuees arrived. Interviewees in this geographic area included two social workers responsible for anti-trafficking; the manager of a trafficking shelter with two sites in Cebu City and a third site in a more rural area of Cebu Island; three NGO workers; four academics; and Cebu City's Chief Prosecutor, who also served as the regional anti-trafficking coordinator.

When this research took place, three years after Haiyan, just one specific case of post-disaster trafficking had been reported in the public domain—a news report about attempts to traffic a 16-year-old girl on an evacuation flight,[33] which later turned out to be false. I was also aware of two official reports published after Haiyan stating that 'at least two trafficking investigations' had been launched, but no further details were provided.[34]

I therefore began every interview with a general question about whether respondents were familiar with claims of post-disaster trafficking, and if they agreed in principle that this disaster-trafficking link existed. I then asked them to recount *any* specific cases they knew about following Typhoon Haiyan. Their responses prompted numerous follow-up questions about the details of these trafficking cases, what measures were taken to prevent human trafficking, and cross-referencing interviewees' accounts, because the same trafficking investigation was often referred to by multiple respondents. This interview process was the same in the inner and outer disaster zones.

I carried out the research project across three visits in June and November 2017, as well as July 2018. All interviews were conducted in English which is spoken

[33] A Tang, 'Authorities Detain Two Men Suspected of Trafficking 16-Year-Old Girl in Typhoon-Hit Philippines', *Thomson Reuters Foundation News,* 28 November 2013.

[34] Walk Free Foundation, *Global Slavery Index 2014*, Hope for Children Organization Australia, 2014.

fluently across the Philippines. As a visitor who does not speak Waray-Waray, the local language in Tacloban, conducting the interviews in English means I may have missed some subtleties with the absence of vernacular descriptions, as have been documented by local researchers.[35] Furthermore, as a foreign researcher, I cannot claim to have any deep-rooted societal or contextual knowledge, which should be borne in mind throughout this paper.[36] Indeed, having been deployed to the Philippines in the immediate aftermath of Typhoon Haiyan with an NGO, and having heard many rumours of trafficking while based there, my positionality must be considered throughout this paper—recognising that a researcher's position has influence on every aspect of their work, including why they choose a particular topic, how the research is conducted, and how the results are portrayed.[37]

My experience in the wake of this disaster certainly sparked my initial interest in this topic. There were widespread claims of post-disaster trafficking while I was based in the disaster zone, but it was not clear which areas or communities were affected. With an aid worker background, my aim entering this research was simply to gather evidence. Furthermore, even though I always explained to interviewees that my research would be used for a PhD dissertation, their knowledge of my aid worker background could have affected my access to them or shaped the discussion. It is difficult to know with certainty, but it appeared that post-disaster trafficking was a 'neutral' topic for the professionals I interviewed, and they spoke freely and thoughtfully during the interviews.

I took hand-written notes during all interviews. All but two respondents agreed that I could also make audio recordings of the interviews on my mobile phone; two judges preferred for me to take written notes only. Audio recordings were securely stored on a password-protected drive. A two-stage ethics review was conducted at SOAS, University of London, before this research project began.

---

35 A J Pacoma, Y Su, and A Genotiva, 'Resilience Unfiltered: Local Understandings of Resilience after Typhoon Haiyan in Tacloban City, Philippines', *Journal of Humanitarian Affairs*, vol. 4, issue 1, 2022, pp. 14–24, https://doi.org/10.7227/JHA.078.

36 J Spiers, 'New Perspectives on Vulnerability Using Emic and Etic Approaches', *Journal of Advanced Nursing*, vol. 31, issue 3, 2000, pp. 715–721, p. 720, https://doi.org/10.1046/j.1365-2648.2000.01328.x.

37 C Wilson, G Janes, and J Williams, 'Identity, Positionality and Reflexivity: Relevance and Application to Research Paramedics', *British Paramedic Journal*, vol. 7, issue 2, 2022, pp. 43–49, https://doi.org/10.29045/14784726.2022.09.7.2.43.

Findings

Trafficking from the 'Central Disaster Zone'

Before the typhoon struck it was estimated that 40% of children in the affected areas were living in poverty with 'trafficking and other forms of gender-based violence among the most acute risks for women and children'.[38] It is clear, therefore, that human trafficking was already widely recognised as a significant risk. It has been noted that local experts are more likely to be sceptical about disaster-trafficking than Western observers.[39] However, nearly all officials I interviewed from frontline organisations and agencies in Tacloban City stated unequivocally that they believed post-disaster trafficking was a major concern, particularly after Haiyan. It is unclear exactly why they believed this, but one possibility is that the Philippines is an English-speaking country consuming international media which runs such stories. Examples of responses confirming this belief include a social welfare officer who told me: 'If you are a victim of disaster, there's no hope, there's no future, and somebody offers you something which you believe initially is through good will. You can easily fall prey to trafficking.' The head of an anti-trafficking charity said: 'The traffickers are actually faster than other disaster efforts that we have. Every time there's a rise in vulnerability, especially in terms of disaster, there's a rise in cases of human trafficking. Because traffickers capitalise on desperation; they capitalise on the vulnerability of the people.' A social worker added that 'families can be disintegrated [following disaster] which really affects vulnerability, including vulnerability to human trafficking'.

Most of my interviewees spoke about their strong belief in trafficking related to Typhoon Haiyan in general terms but, when I probed further, were unable to provide specific examples. Ultimately, piecing together all the information from my interviewees, it became clear that just four Haiyan-related trafficking cases were ever recorded in Tacloban City. One was discounted, and none resulted in prosecutions.

Case 1 – Discounted: The first report of a suspected trafficking case (referenced above), one week after the typhoon, was dropped by the authorities as they concluded it was based on a misunderstanding. A 16-year-old girl had asked an engineer in his 20s to enlist her as a family member so she could be allowed to board an evacuation flight from Tacloban City Airport, as unaccompanied minors were not allowed to leave. The news report, which was based on preliminary information at the time, referred to two men being involved in this case—though my interviewee referred to just one individual. The fact that he was unrelated

[38] UNICEF, *Four Months After Typhoon Haiyan, Philippines: Progress Report*, UNICEF, 2014, p. 12.

[39] Montgomery.

to the girl was detected at a 'migration outflow desk' at the airport, resulting in him being questioned by police. The Head of Women and Children Protection at Tacloban City Police told me: '[The case was] filed at the Prosecutor's Office, but the subject was freed because he was only lending a helping hand to the girl.'

Case 2 – 'Fake nuns' arrested: In May 2014, six months after the typhoon, a group of women dressed as nuns were arrested by Tacloban City Police at Abucay Bus Station after reports from a member of the public. The 'nuns' were with five girls from Samar Island who had been promised school places in Manila. Recalling the case, a senior official from Tacloban City Police told me that the women could not produce satisfactory documentation and were arrested pending further investigation. A social worker involved in the case told me: 'The children were brought here, as this is the temporary shelter for them. And they [the nuns] said they were like an NGO. But, when we went into the details, they were not registered as an NGO. We filed a case, and they were put in jail for five to six months. However, because of some interventions of people who are influential, the case was subsequently dropped at the prosecutor level.' While the authorities intervened before any potential exploitation had taken place, they investigated this as trafficking because the group of women were not who they claimed to be, raising suspicions over their motive which the authorities believed required further investigation.

Case 3 – Sex work: Seven months after the typhoon, a group of women and girls—siblings from Tacloban City—travelled to Abuyog on Leyte Island, on the coast south of Tacloban, to look for a job and were reportedly forced into sex work at a karaoke bar. This incident was linked to 'poverty and desperation after Typhoon Haiyan', according to a representative of the Women and Children's Shelter of Tacloban City. There is no record of a prosecution, and none of the officials interviewed knew how it concluded. Some scepticism is needed around this case as the circumstances were conveyed by one institution in somewhat general terms. While they would have no reason to fabricate the story, I was unable to have this account corroborated by a second source or any documentation.

Case 4 – Wages withheld: In this case, five boys under 18 secured a job in a warehouse but were not paid the city's minimum wage. The Head of the Women and Children's Shelter of Tacloban City told me: 'They landed a job in one of the warehouses to carry the goods from the truck to the warehouse and vice versa. They complained that they cannot bear any more of this kind of job because they are still minors. They were not paid fairly, according to the daily wage in Tacloban City. We rescued them from that warehouse, and the owner—through their lawyer—gave them their salaries.' The DSWD said that this case was connected to poverty following Typhoon Haiyan. While the details were conveyed with first-hand knowledge, a question again emerges over whether it meets the definition of human trafficking. The children were certainly recruited into this work, but, at their destination, was this 'forced labour' and did the employers have control

over them, as set out in the trafficking definition? The fact that they were paid very little and were 'rescued' by the social welfare department, rather than leaving freely, suggests this may be the case.

Trafficking from the 'Outer Disaster Zone'

Having established only four legally investigated trafficking cases in the central disaster zone of Tacloban City, my research expanded to the wider disaster zone to glean facts about known trafficking cases in two specific areas: first, the major cities of Cebu and Manila, where evacuees from Tacloban were taken; and, second, outlying rural areas on Cebu Island. Interviews in this wider area were conducted with two social workers from the DSWD responsible for anti-trafficking—the first in Cebu City, and the second at Lapu-Lapu City near Mactan–Cebu Airport; the manager of a trafficking shelter with two sites in Cebu City and a third site in a rural area of Cebu Island; three NGO workers; four academics; and Cebu City's Chief Prosecutor, who also served as the regional anti-trafficking coordinator. Unlike my interviews in the central disaster zone of Tacloban, this cannot claim to be an exhaustive list of officials dealing with trafficking cases because of the huge size of the cities and a much larger geographic area.

At least 17,000 people evacuated Tacloban after Haiyan on military flights,[40] with many more evacuating on ferries. Temporary shelter, food, and psychosocial and medical assistance were provided at Villamor Airbase in Manila, along with centres in Cebu City, to support those crossing by ferry from Ormoc, on the western side of Leyte Island. Around 5,000 people each day were taking this route, with most ending up in 'dispersed placement settings' outside evacuation centres.[41] As I observed on previous visits while working for an international NGO, the reality was that many of these were sprawling 'tent cities'. The wider area of Cebu was affected by the typhoon with 110,000 damaged homes[42] and 74 deaths recorded.

So what trafficking risks did evacuees and migrants face in the cities? A typical scenario described to me, echoed in the literature, is that those who migrate to cities without savings, education, or advanced skills 'can become easy targets for exploitation'.[43] This creates a perfect storm of risk factors, primarily economic desperation. In the case of Haiyan, the IOM reported that almost half of those evacuating had no means of financial support.[44] Furthermore, with many

40 A Sherwood *et al.*, *Resolving Post-disaster Displacement: Insights from the Philippines after Typhoon Haiyan (Yolanda)*, Brookings Institution/IOM, 2015, p. 21.

41 Yonetani.

42 NDRRMC, p. 4.

43 Coelho *et al.*, p. 4.

44 Sherwood *et al.*

essential documents washed away or destroyed during Haiyan,[45] a number of my interviewees stated that a lack of identity documents led individuals to seek risky informal 'off-the-books' employment. In all, information from my interviews in the outer disaster zone confirmed seven trafficking cases involving 25 people.

Case 1 – Eight children in a Manila factory: An anti-trafficking NGO in Manila told me it supported eight children who had come to Villamore Airbase on an evacuation flight. They were recruited to work in a factory but were not paid and their freedoms were curtailed—thus meeting the definition of human trafficking under Philippine law.

Case 2 – Children forced into labour: The same NGO dealt with a second post-Haiyan trafficking incident involving children from Bantayan Island, north of Cebu Island, which was badly hit by the typhoon. This was a case of forced labour involving a group of four boys and two girls who had arrived at the North Harbor in Manila. Details of the case were scant but were said to have involved leaving an area devastated by Typhoon Haiyan and a situation of economic desperation. Once again, a question arises about the circumstances of this case and whether it crossed the line from child labour to human trafficking for forced labour.

Case 3 – Child domestic work: Another NGO related to me a case of a 17-year-old girl from Leyte Island who migrated to Talisay, Cebu, in search of childcare work. She was held in a house by her employers against her will. The case did not result in a prosecution, but the girl was freed and paid the wages owed to her when the police intervened.

Case 4 – Domestic worker: This case involved a 49-year-old woman whose home in the city of Ormoc was flattened. She was hired as a domestic worker with two other women, before an employment opportunity arose. In a written case report, an NGO quotes the woman as saying: 'After one month, my boss's sister asked me and the other women to work in Iloilo for 3,000 pesos for just one month of work. My husband was against it, but it was only a month and we really needed the money.' However, she continued: 'We were trapped there for seven months with no pay. We were beaten badly, and she [the employer] threatened to kill us if we tried to escape.' According to the NGO's account, she and the other two women were eventually rescued by village leaders.

Case 5 – Sex work: A woman from Tacloban came to Cebu to stay with her friend to find work following Typhoon Haiyan, according to a local NGO. Her friend invited her on the premise of working as a nanny, but she was subsequently coerced and deceived into sex work, resulting in exploitation—thus meeting the definition of human trafficking. No further details were known by the interviewee.

[45] 'Philippines Typhoon Appeal', Disasters Emergency Committee, 2014, https://www.dec.org.uk/appeal/philippines-typhoon-appeal.

Case 6 – Child abuse: A Canadian national was charged under trafficking legislation after four girls, aged nine to 11 years old, were found by police in his hotel room on Cebu Island. At the time of research, this was an ongoing investigation. The City Prosecutor for Cebu told me how the case was connected to the poverty following Typhoon Haiyan, and how victims of Haiyan had been exploited. Notably, this is the only post-Haiyan case to have been specifically reported in the media, apart from the investigation in Tacloban mentioned earlier which was subsequently found to be invalid.

Case 7 – Child labour: This incident occurred three months after the typhoon and was recounted by a human trafficking expert for a local NGO. It involved a number of students recruited from a school in eastern Samar in the severely-affected districts of Veloso and Legazpi. They took up work in a bakery. After two months, one child returned and spoke about significant abuses, along with verbal and sexual harassment and withheld wages. They ate once a day and were sleeping in the bakery. In April 2014, the owner of the bakery was arrested but a prosecution was not pursued. As with other cases of this nature, a question remains as to whether this would qualify as child labour or human trafficking.

Discussion

As a researcher, I was expecting to find a large number of documented cases of human trafficking following this historic disaster. However, with just four recorded incidents and no prosecutions, the findings from the central disaster zone prompt the question: Why were so few cases reported? What does this tell us about post-disaster trafficking risks facing those who remained in the city, and how does this contribute to existing knowledge on the topic? One plausible explanation is the well-known phenomenon that trafficking can be clandestine and under-reported, partly because people do not come forward due to fear of repercussions, shame, or stigma.[46] The Head of the Women and Children's Shelter in Tacloban City told me: 'I cannot say how many [trafficking cases there have been] because many wanted to go to other places because of the chaos, because of disintegration. There were only food commodities given. Many don't have their houses. No jobs, no livelihood.' There may also be a lag time between the offence occurring and the authorities hearing about it from the person recruited. I conducted these interviews more than three years after the typhoon—though it is conceivable that individuals trafficked after Haiyan may still have been working in slavery-like conditions and their cases remained unknown. Additionally, many individuals severely impacted by Haiyan may have faced exploitation, but these cases may have fallen short of the definition of human trafficking—in other words, the means of force, coercion, or fraud may have been absent. These

[46] Nykaza, p. 319.

cases would not have come to the fore during my interviews, or even have been known by those I interviewed, because I was specifically asking about trafficking.

It is also notable that none of the three suspected post-disaster trafficking cases from Tacloban ever made it to trial. The City Prosecutor for Tacloban City and Chair of the Regional Task Force on Human Trafficking told me: 'I know for a fact there were so many incidents of trafficking reported to the DSWD, although these did not mature into actual cases filed with us. Perhaps the victim just gets lost, or cannot be identified, or the victim can no longer be found. Or the victim doesn't pursue the case. They fail to file the case with us.' Even recognising under-reporting as a significant issue, and potential capacity issues with the police to detect such crimes and the courts to pursue them through the legal process, it is still surprising that just three trafficking cases were ever detected.

Further themes emerged during the interviews which may go some way towards addressing this apparent anomaly. First is community leaders' hyper-vigilance. Most stated strongly that they were on 'high alert' following Haiyan, thus, possibly, in some instances, preventing trafficking from occurring in the first place. The Mayor of Palo, an urban area south of Tacloban City, told me that she had alerted all of her staff to be on the look-out for suspected traffickers, and that she had personally driven away a group of suspected 'fake nuns' from her district (a different set of 'nuns' from the aforementioned group in Tacloban City), who were reportedly attempting to recruit children with the offer of school places.

The overall picture, therefore, is of community leaders, officials, NGOs, and law enforcement who are highly aware of the risk of post-disaster trafficking as well as hyper-vigilant and on their guard against suspected traffickers. It is also worth dwelling on the social and political structure of the local government unit which is charged with 'taking the lead in preparing for, responding to, and recovering from the effects of any disaster'.[47] Of particular note is that the *purok* system, which comprises smaller neighbourhoods within *barangays*, is often used to deliver services including disaster management.[48] These *puroks* were active and came to the fore in the aftermath of Haiyan.[49] However, scepticism is needed around

[47] L L Mangada, 'Post-Haiyan Adaptation and Institutional Barriers to Women Survivors in Tacloban', *Philippine Political Science Journal*, vol. 37, issue 2, 2016, pp. 94–110, https://doi.org/10.1080/01154451.2016.1196855.

[48] 'Purok System Mobilizes Community, Improves Governance', Ramon Aboitiz Foundation Inc, 7 May 2012, https://web.archive.org/web/20131208051647/http://www.rafi.org.ph/news-highlights/purok-system-2.

[49] R R Cheng, 'Community-based Disaster Risk Reduction and Management in the Philippines: A Science of Delivery Case Study', in G A Benitez, *Implementing Government Reforms: Science of Delivery Case Studies*, Capstone Project, 2018, p. 65, https://core.ac.uk/download/pdf/344342191.pdf.

the assertion that this significantly drove down the number of cases. As stated earlier, human trafficking is often a clandestine activity, with recruitment taking place out of sight—or not perceived as trafficking at the recruitment stage—and the act of exploitation potentially taking place later in the private economy or in workplaces that are not subject to inspections or monitoring.

A second theme that emerged during the interviews was that basic needs such as shelter, food, and water were met to some extent in the central disaster zone. This could have meant that disaster-affected individuals would not necessarily need to take an employment risk because they could survive in Tacloban City with the resources they had. In other words, economic desperation was not as pronounced because of temporary support from the government, bolstered by the huge international aid effort. This included five million food packs which had been distributed in less than two months,[50] and government and NGO-run cash-for-work programmes resulting in USD 34 million distributed to 1.3 million people.[51] It should be noted that, with many governments now scaling back foreign aid, including in post-disaster contexts, it is probable that similar levels of international support may not be seen in the future.

It should also be acknowledged that the humanitarian effort did not meet everyone's needs and was sometimes slow to arrive,[52] with one local NGO noting that despite the 'influx of humanitarian assistance', many were struggling to survive.[53] Abuse by aid workers themselves has also been recognised as a risk, along with an apparent failure to put typhoon survivors' needs and views at the heart of the recovery process, which can result in a 'divide between outside organisations and local people on how they perceive Build Back Better'.[54] A nuanced picture of how effectively aid reached survivors in Tacloban is presented by Mangada, a senior academic based in the city, who observes that, while 'there was no shortage of aid, relief efforts were not coordinated'.[55] She also states that Tacloban City's Disaster Risk Reduction Management Office was 'not functional'—with a high

---

50 T Bowen, *Social Protection and Disaster Risk Management in the Philippines: The Case of Typhoon Yolanda (Haiyan)*, Background Paper for S Hallegatte *et al.*, *Shock Waves: Managing the Impacts of Climate Change on Poverty*, World Bank, November 2015.

51 T Hanley *et al.*, *IASC Inter-agency Humanitarian Evaluation of the Typhoon Haiyan Response*, Inter-Agency Humanitarian Evaluation Steering Group, 2014, p. 54.

52 R Francisco, 'Analysis: Hero to Zero? Philippine President Feels Typhoon Backlash', *Reuters*, 15 November 2013.

53 IBON Foundation.

54 Y Su and L Le Dé, 'Whose Views Matter in Post-disaster Recovery? A Case Study of "Build Back Better" in Tacloban City after Typhoon Haiyan', *International Journal of Disaster Risk Reduction*, vol. 51, 2020, pp. 101786, https://doi.org/10.1016/j.ijdrr.2020.101786.

55 Mangada, p. 2.

staff turnover and duties spread over a wide area, limiting its effectiveness—and notes that vulnerable groups were not involved in the planning process.

Turning to the 'outer disaster zone' of Cebu and Manila, more cases of trafficking were evident—specifically, seven post-Haiyan trafficking cases involving 25 people, many of them children. While I gleaned this information from a limited number of interviews in a wide geographical area, it is still surprising that more trafficking cases did not come to the fore. Thus, we circle back to the original question: Why were so few trafficking cases detected by the authorities, despite claims and assumptions that trafficking was rife? We are left with some remaining explanations, or, more accurately, speculation. Did trafficking take place on a larger scale but was undetected by the authorities—either because they did not recognise it, or because it occurred somewhere beyond their reach? One plausible setting for this was the temporary shelters where volunteer security forces were present but often 'shirked their duties', with illegal activities flourishing.[56]

Was the low number of detected trafficking cases because people were recruited for work in a way that appeared legitimate at the time but later morphed into human trafficking, with exploitation taking place elsewhere, unbeknown to the authorities back in Tacloban City? Or were trafficking cases detected but downplayed by the authorities? If this had occurred, one would assume that staff of local NGOs whom I interviewed would have known about these cases and set the record straight. Or is the answer more straightforward: Were there just very few cases of human trafficking following Typhoon Haiyan? Interviews I conducted at three trafficking shelters in and around Cebu City, in a separate study, yielded first-hand accounts many years later of individuals being trafficked following other disasters much smaller than Haiyan, such as Typhoon Mike (known in the Philippines as Super Typhoon Ruping).[57] This suggests, therefore, that the likelihood of there being no post-Haiyan trafficking cases is very small.

All of this discussion is focused on unravelling the true extent of post-disaster trafficking—a pursuit that could be seen as playing into the 'almost obsessive tendency to know the scale, proportion, size, major sectors and geographical concentrations of human trafficking'.[58] It should also be recognised that efforts to gather trafficking statistics are often carried out in the face of 'manipulation, misuse and, at worse, neglect of existing evidence altogether by those responsible

[56] *Ibid.*, p. 12.

[57] C Weeks, 'The "Slow-Burn Effect" of Human Trafficking Following Disaster', *Disasters*, vol. 49, issue 3, 2025, pp. e12685, https://doi.org/10.1111/disa.12685.

[58] S Yea, 'Editorial: The politics of Evidence, Data and Research in Anti-trafficking Work', *Anti-Trafficking Review,* issue 8, 2017, pp. 1–13, p. 2, https://doi.org/10.14197/atr.20121781.

for collecting this data.[59] Trafficking cases are often exaggerated,[60] with observations that the claim of post-disaster trafficking 'always flourishes on the heels of a catastrophe' leading to 'an emotional investment in the drama of disaster' and the result 'something akin to moral panic'.[61]

While uncertainty remains about the true extent of post-disaster trafficking, this paper departs from existing narratives in terms of *when* vulnerability to trafficking occurs. What is absent in typical accounts is the multi-step process described by my interviewees. Disaster does not lead *directly* to human trafficking as might be assumed; instead, it leads to economic desperation and loss of livelihoods which, in turn, leads to a frantic search for work in a precarious labour market. This, then, can feature the risk of recruitment through deception or coercion which leads to exploitation—thus meeting the definition of human trafficking, with the original disaster serving as a trigger or 'shock'.

Trafficking survivors from other disasters described this process to me. One interviewee told me how the roof of her family home blew off in a typhoon, and how she sought work to pay for repairs and avoid the threat of the structure being demolished. She was subsequently trafficked during this search for employment. Another described how a typhoon virtually destroyed the family home, forcing them to build a new one which pushed them into financial hardship and prompted a desperate search for work which resulted in human trafficking.[62] These cases reinforce the notion that trafficking does not take place immediately after a disaster. Rather, the initial shock of the disaster leads to economic hardship, a search for work, and recruitment, which is then followed by human trafficking as the final step.

How does the timing of vulnerability align with existing anti-trafficking programmes? One obvious set of pre-trafficking interventions are 'awareness campaigns' run by local governments and NGOs. The DSWD, which conducts such outreach, is strongly integrated into the country's disaster response efforts, with awareness-raising measures having taken place immediately after Haiyan. The IOM was another prominent player, launching a 'Victim-Centered Counter-Trafficking Awareness' project in affected areas in cooperation with the Philippines' Inter-Agency Council Against Trafficking and the US Embassy

59 *Ibid*., p. 4.

60 K Bales, 'What is the Link between Natural Disasters and Human Trafficking and Slavery?' *Slavery and Humanitarian Response Supplemental,* vol. 6, issue 3, 2021, pp. 34–45, p. 34 https://doi.org/10.22150/jms/MOJJ8604.

61 *Ibid*., p. 35.

62 Weeks, p. 12.

in Manila.[63] Even outside the context of disaster, campaigns in the Philippines frequently warn people about the perils of trafficking and how to avoid it, such as a high-profile 'anti-trafficking week' I saw in Cebu during which a series of public events were taking place which included street dramas, speeches, and music performances.

The effectiveness and impact of anti-trafficking campaigns are notoriously difficult to measure. Would a campaign really stop someone from accepting a dubious job offer? Does an individual facing extreme economic desperation after a disaster only need information about trafficking in order to decline a job offer that appears dubious or 'too good to be true'?[64] In reality, they may not have any choice but to take that risk. It may also be impossible for an individual to detect if anything is untoward at the moment of recruitment.

Post-disaster financial support would remove the need to migrate in search of work in unfamiliar cities and accept job offers from dubious employers. Indeed, support was provided following Haiyan, as stated above. However, providing meaningful economic support for millions of disaster survivors for a protracted period, to ensure they do not need to search for work at a time of vulnerability, would be difficult for the Philippine government. Detection is also stepped up in times of disaster. One example of this is the aforementioned 'migration outflow desk' at Tacloban Airport, which ensured minors could not evacuate without their relatives. As previously stated, this did in fact lead to the detection of one case, though this was later dropped by the authorities as a misunderstanding. One government official in Lapu-Lapu City, near Cebu, described the management of evacuation routes following Haiyan: 'You cannot just leave all by your own. Even if they [disaster survivors] say they have relatives, we check first before we let them go. We are very strict because there were instructions from the regional office to watch out, because these victims are easy prey for vultures who prey on the human trafficking [sic]'.

---

63 *Victim-centered Counter-trafficking Project Is Launched in Tacloban City: IOM Philippines and the US State Department Rejoin Forces to Combat Human Trafficking*, International Organisation for Migration (IOM), October 2014, https://www.iom.int/sites/g/files/tmzbdl486/files/migrated_files/Country/docs/Victim-Centered-Counter-Trafficking-Project-is-launched-in-Tacloban-City.pdf.

64 K Sharapov, S Hoff, and B Gerasimov, 'Editorial: Knowledge is Power, Ignorance is Bliss: Public Perceptions and Responses to Human Trafficking', *Anti-Trafficking Review*, issue 13, 2019, pp. 1–11, https://doi.org/10.14197/atr.201219131.

Conclusion

The typical disaster-trafficking discourse has leaned on a narrative that vulnerabilities are heightened in the wake of a calamity, plunging those affected into a state of economic desperation which elevates their risk of exploitation.[65] In the mind's eye, there may be a picture of a chaotic post-disaster scene with decimated communities and traffickers lurking on the sidelines as law and order breaks down, ready to recruit their victims. The reality could not be more different. Despite a groundswell of public concern about post-Haiyan trafficking in Tacloban City among hyper-vigilant local officials, who even reported driving away 'fake nuns' attempting to abduct children, there were just four cases investigated by the authorities. One of these was flawed from the start, and none resulted in prosecution. Therefore, according to the evidence gathered for this study, *no one* in Tacloban City was ever charged or convicted for post-Haiyan trafficking. Furthermore, the very few cases that were investigated in the city occurred several months after the disaster, rather than in its immediate aftermath.

It is apparent, however, that nearly all of the reported cases involved children, endorsing the common NGO and media refrain that minors are most vulnerable following disaster.[66] Furthermore, political interference in one case echoes claims

in the literature that corruption 'oils the wheels of trafficking'.[67] Thus, there remains a clear tension between the grand claims about post-disaster trafficking from local officials, politicians, and NGOs which are reflected in international news outlets, and the very small number of cases actually detected on the ground. In this paper, I have explored various possibilities about why this may be the case, including community leaders' hyper-vigilance and basic needs being met with humanitarian assistance. However, none of these is conclusive or a panacea for preventing cases of trafficking.

Despite very few trafficking cases coming to the fore, it can be seen that moving away from the worst-affected disaster zone to seek employment in unfamiliar cities increases trafficking risks more than staying put in the central disaster zone. This is because individuals often arrive at their new destination with few resources and no connections to seek bona-fide employment. In other words, the post-disaster trafficking phenomenon is 'displaced' from the central disaster zone to more peripheral areas, as individuals affected evacuate, migrate, or are displaced, and seek employment elsewhere with the multi-step process of disaster leading to

---

65 Shelley.

66 Atzet.

67 A P Guth, 'Human Trafficking in the Philippines: The Need for an Effective Anti-corruption Program', *Trends in Organized Crime*, vol. 13, issue 2, 2010, pp. 147–166, https://doi.org/10.1007/s12117-009-9082-0.

economic desperation which, in turn, leads to a precarious employment search and possibly trafficking.

As 'climate change manifests through more intense extreme weather events, including heatwaves, droughts and heavy rainfall' each year[68] with growing damage and losses, preventing disaster-induced trafficking becomes increasingly important. It is therefore hoped that this paper, while based on a single case study, contributes to the current knowledge on this phenomenon. It also challenges widespread assumptions that traffickers may exploit people in a central disaster zone in the immediate aftermath of such events.

Chris Weeks has worked in the international development and humanitarian sector for nearly 15 years, and has been deployed to a number of disasters including Typhoon Haiyan (Yolanda). He holds a PhD in Development studies from SOAS, University of London. His research focuses on claims that human trafficking increases in the wake of disasters. Email: 615683@alumni.soas.ac.uk

[68] B Clarke *et al.*, 'Extreme Weather Impacts of Climate Change: An Attribution Perspective', *Environmental Research Climate*, vol. 1, no. 1, 2022, pp. 012001, https://doi.org/10.1088/2752-5295/ac6e7d.

Decent Work in a Changing Climate

Dr Bethany Jackson, Dr Nicole Tichenor Blackstone, and Dr Jessica L. Decker Sparks

Abstract

Climate change is placing increased pressures on workers, including their health, working conditions, and economic outcomes. Whilst efforts by international governance mechanisms and governments espouse the need to achieve decent work, in reality, the threats facing workers are shifting. In this article, we begin to assess how decent work is undermined by climate change. We explore what barriers render decent work increasingly out of reach for some workers in the context of a changing climate. Using examples from the literature, we review different sectors, geographies, and climate impacts, such as extreme heat, flooding, and wildfires, to assess the varied risks to workers. We outline some of the extant approaches in policy and labour rights spaces to identify integrated solutions for decent work in a changing climate. Finally, we conclude that a future shift in discourse is needed to ensure decent work becomes the minimum standard when addressing labour rights and climate change concerns, including centring expertise from worker-led initiatives.

Keywords: climate change, decent work, labour rights, Just Transition, occupational safety and health

Suggested citation: B Jackson, N T Blackstone, and J L Decker Sparks, 'Decent Work in a Changing Climate', *Anti-Trafficking Review*, issue 25, 2025, pp. 109-129, https://doi.org/10.14197/atr.201225257

Introduction

In a world of growing global crises, collaboration across siloed domains will be critical to define shared objectives and maximise their success. The intersection of workers' rights and human-driven environmental change is one area where this has become increasingly important. Decent work has been a concept promoted by the International Labour Organization (ILO) since the

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

start of the century.[1] At its core, decent work could be considered the minimum standard for working conditions, as it embeds labour rights and centres the protection of workers in the labour market. In practice, the agenda promoted by the ILO is a 'top-down' approach to improve working conditions through a series of priority pillars enacted through country programmes that have been both praised and criticised.[2] This global agenda is particularly important for informal forms of employment where workers can be overlooked and be at greater risk of the effects of climate change and exploitation.[3] Many cases of human trafficking begin with people seeking opportunities for decent work; and violations of decent work can often be a precursor to exploitation. As such, ensuring decent work reduces vulnerability to human trafficking.

The ILO's decent work agenda initially focused on the primary risks to workers in terms of labour standards, employment opportunities, social protection measures, and social dialogues.[4] Intersecting issues such as climate change remained siloed within intergovernmental activities, and this is reflected in disjointed international governance discourses focused on labour rights and environmental concerns that do not always explicitly address climate change.[5] Yet climate change has

1 D Ghai, 'Decent work: Concept and Indicators', *International Labour Review*, vol. 142, no. 2, 2003, pp. 113–145, https://doi.org/10.1111/j.1564-913X.2003.tb00256.x; L Brill, 'What Is Decent Work? A Review of the Literature', in F Christie *et al.* (eds.), *Decent Work: Opportunities and Challenges*, Emerald Publishing, Bingley, 2021, pp. 11–26, https://doi.org/10.1108/978-1-80117-586-920211002; T Ferraro, 'The Genesis of the Decent Work Agenda', in M Moore, C Scherrer, and M van der Linden (eds.), *The Elgar Companion to Decent Work and the Sustainable Development Goals*, Elgar, Cheltenham, 2025, pp. 39–51, https://doi.org/10.4337/9781035300907.00008.

2 J Rantanen, F Muchiri, and S Lehtinen, 'Decent Work, ILO's Response to the Globalization of Working Life: Basic Concepts and Global Implementation with Special Reference to Occupational Health', *International Journal of Environmental Research and Public Health*, vol. 17, no. 10, 2020, pp. 3351, https://doi.org/10.3390/ijerph17103351; F Christie, 'Decent and Indecent Work', *Career Matters*, vol. 10, no. 2, 2022, pp. 40–41.

3 Brill; Christie.

4 International Labour Organization (ILO), *Decent Work Indicators: Guidelines for Producers and Users of Statistical and Legal Framework Indicators (ILO Manual Second Version)*, ILO, Geneva, 2013.

5 B Jackson *et al.*, *Modern Slavery, Environmental Degradation and Climate Change: Present and Future Pathways for Addressing the Nexus*, University of Nottingham Rights Lab, 2021; N Räthzel and D Uzzell, 'Mending the Breach Between Labour and Nature: Environmental Engagements of Trade Unions and the North-South Divide', *Interface*, vol. 4, issue 2, 2012, pp. 81–100.

been identified as a barrier to productive and decent employment.[6] It has also both pushed and pulled individuals or communities into exploitative working conditions.[7] Thus, the duality of the climate–work nexus leads to economic, social, and environmental precarity.[8]

In this article, we consider the risks workers face in the context of a heating planet. We have been researching the intersections between climate change and working conditions across multiple sectors and geographies, and working alongside lived-experience experts and leading worker-led organisations. Here we define decent work in the current context and then highlight key case study examples of climate impacts upon workers in a range of sectors and geographies, reflecting the scale of challenges that climate change poses to the decent work agenda. Finally, we suggest areas to strengthen both developing and established decent work strategies to reflect the need to directly address the climate crisis. This includes amplifying leadership and solutions developed by worker-led organisations.

Defining Decent Work

The United Nations defines decent work as 'work that respects the fundamental rights of the human person as well as the rights of workers in terms of conditions of work safety and remuneration... provides an income allowing workers to support themselves and their families... [and] also include[s] respect for the physical and mental integrity of the worker in the exercise of his/her employment'.[9] The ILO outlines four key concepts linked to the decent work agenda: '(i) International

6 For example, ILO has identified climate hazards as leading to lower productivity levels and the undermining of working conditions, which, without sustainable climate mitigation, will only exacerbate inequalities. See: International Labour Organization (ILO), *World Employment and Social Outlook 2018: Greening with Jobs*, ILO, Geneva, 2018.

7 See D Brown *et al.*, 'Modern Slavery, Environmental Degradation and Climate Change: Fisheries, Field, Forests and Factories', *Environment and Planning E: Nature and Space*, vol. 4, issue 2, 2019, pp. 191–207, https://doi.org/10.1177/2514848619887156; S Coelho *et al.*, *The Climate Change–Human Trafficking Nexus*, IOM, Bangkok, 2016; J L Decker Sparks *et al.*, 'Growing Evidence of the Interconnections between Modern Slavery, Environmental Degradation, and Climate Change', *One Earth*, vol. 4, issue 2, 2021, pp. 181–191, https://doi.org/10.1016/j.oneear.2021.01.015; Jackson *et al.*, 2021; C O'Connell, *From a Vicious to a Virtuous Circle: Addressing Climate Change, Environmental Destruction and Contemporary Slavery*, Anti-Slavery International, London, 2021.

8 S Lawreniuk, 'Climate Change Is Class War: Global Labour's Challenge to the Capitalocene', in N Natarajan and L Parsons (eds.), *Climate Change in the Global Workplace: Labour, Adaptation, and Resistance*, Routledge, London, 2021.

9 United Nations, *The Right to Work. General Comment No. 18. Article 6 of the International Covenant on Economic, Social and Cultural Rights*, E/C.12/GC/18, United Nations, New York, 2006.

labour standards and fundamental principles and rights at work; (ii) Employment creation; (iii) Social protection; and (iv) Social dialogue and tripartism'. The agenda thus covers appropriate wages and breaks (including enabling work-life balance), workplace stability and security, occupational safety and health (OSH), equal opportunities and treatment, access to social security schemes, the ability to unionise, and the elimination of extreme forms of exploitation.[10]

The shift to decent work is being driven by workers and their representatives. Trade unions have pushed the ILO to outline indicators, set standards, and monitor the links between climate change and working conditions, emphasising that decent work, rather than economic growth or developmental matters, should be viewed as a fundamental rights-based issue. For example, the International Trade Union Confederation (ITUC) has called for the need to dismantle policy siloes related to climate action and labour as a means of ensuring adaptability of workers in response to climate change, the ability to migrate safely, and access to more formalised quality jobs.[11]

Such rights-based responses have been rooted in the 'Just Transition' movement which advocates for better work opportunities and labour protections as economies and industry move towards activities that seek to mitigate, adapt, or reverse the impacts of climate change.[12] Foundational elements linked to the 'Just Transition' movement are now more firmly rooted in the decent work agenda supporting workers who may be engaged in so-called 'dangerous, dirty, and demanding' jobs in sectors such as agriculture, fishing, mining, construction, and quarrying. The recent inclusion of a safe and healthy working environment within the ILO's Fundamental Principles and Rights at Work has led to additional guidance to support the achievement of decent work.[13] We argue that climate change poses a fundamental risk to the working environment. Therefore, failing

[10] ILO, 2013; Brill; Christie; M Tigchelaar *et al.*, 'Decent Work in Fishing in a Changing Climate', *Marine Policy*, vol. 181, 2025, pp. 106846, https://doi.org/10.1016/j.marpol.2025.106846.

[11] International Trade Union Confederation (ITUC), *Decent Work at the Nexus between Climate Change and Migration*, ITUC, Brussels, 2024.

[12] United Nations Development Programme (UNDP), 'What is Just Transition? And Why Is It Important?', UNDP, 2022, 3 November 2022, https://climatepromise.undp.org/news-and-stories/what-just-transition-and-why-it-important; S Barca, *Workers of the Earth: Labour, Ecology and Reproduction in the Age of Climate Change*, Pluto Press, London, 2024.

[13] International Labour Organization (ILO), *Working on a Warmer Planet: The Impact of Heat Stress on Labour Productivity and Decent Work*, ILO, Geneva, 2019; International Labour Organization (ILO), *Resolution on the Inclusion of a Safe and Healthy Working Environment in the ILO's Framework of Fundamental Principles and Rights at Work*, ILO, Geneva, 2022.

to address climate change as a threat to decent work, especially without involving workers, can undermine efforts to improve working conditions.[14] To fill the gap from the lack of international ratifiable standards on climate-influenced extremes (e.g. temperatures) put forward by the ILO in the context of the decent work agenda, workers should define how work needs to be adapted to be considered 'decent' in a changing environment.

Climate Change is Challenging Notions of Decent Work

Many people are facing changes to their climate but also poorer conditions at work.[15] This includes violations of labour laws, as well as a continuum of 'less severe' labour exploitation, from wage violations and long working hours to the 'more severe' forced labour, debt bondage, and human trafficking.[16] As the effects of climate change become extreme, workers are likely to face conflicts between labour and their personal safety, leaving them even more vulnerable to labour violations. Workers may also choose to accept 'indecent' working conditions due to limited options or to work in a sector that is impacted by—or drives—environmental degradation due to their skillsets or the perception of limited opportunities. Tensions can arise even where workplace regulations exist (e.g. between current OSH practices and rapidly changing environmental working conditions). For example, miners may be recommended to wear personal protective equipment (PPE) (e.g. hard-hats or steel boots) to reduce the number of workplace accidents; however, this equipment can increase body temperature to uncomfortable or dangerous levels, leading to it not being worn. While outdoor workers can be exposed directly to midday heat, indoor factory workers can also be impacted as temperatures rise in poorly ventilated buildings.[17] Workers may also tolerate abuses due to economic priorities (e.g. requiring employment, or being unable to find alternative work), which disincentivises employers to institute climate protections. These tensions are only likely to increase as workers must choose between prioritising conflicting factors, which affect their safety within the workplace. Thus, consultation and leadership by workers in climate change

[14] J Kurtz *et al*., 'The True Cost of Labour Must Be Worker-defined', *Nature Food*, issue 2, 2021, pp. 630–631, https://doi.org/10.1038/s43016-021-00369-8.

[15] L Parsons, *Carbon Colonialism: How Rich Countries Export Climate Breakdown*, Manchester University Press, Manchester, 2023.

[16] B France, *Labour Compliance to Exploitation and the Abuses In-between*, Position Paper, Labour Exploitation Advisory Group, London, 2016; International Labour Organization (ILO), *Global Estimates of Modern Slavery: Forced Labour and Forced Marriage*, ILO, IOM, and Walk Free, Geneva, 2022; J L Decker Sparks, *Letting Exploitation Off the Hook? Evidencing Labour Abuses in UK Fishing*, University of Nottingham Rights Lab, 2022.

[17] ILO, 2019.

responses are vital, providing an opportunity to radically transform workers' rights.

The focus on the extreme end of the labour exploitation spectrum has left a gap in knowledge and consideration for decent work to address issues such as low wages and labour violations at the 'lesser' end of the spectrum. Limited understanding of work in a changing climate across the spectrum has come at the expense of understanding interactions in a nuanced manner. **Table 1** outlines a series of 'risky' sectors for which the achievement of decent work is further challenged by the intersection of climate change and extreme forms of labour exploitation.

Table 1: Example Risks to Ensuring Decent Work in Select Sectors with High Potential Exposure to Climate-Related Hazards. *This is not an exhaustive list but rather demonstrates a variety of hazards to which workers are exposed and that hinder access to decent working conditions within such sectors.*

Sector	Selected climate change and environment-related impacts[a]	Examples of risks to ensuring decent work
Agriculture[b]	• Agrochemicals • Heat stress • Wildfires (workplace air pollution) • UV radiation • Flooding	• Safety equipment increases body temperature, so workers are less likely to wear equipment when spraying pesticides • Working shorter but more shifts, creating challenges to defining safe continuous rest • Piece-rate payments incentivise workers to not follow high-heat protocols or continue work in areas where they may be exposed to severe air pollutants • Risk of long-term health conditions due to prolonged exposure with limited shade and protections • Reduced working hours or cancelled contractual work
Aquaculture[c]	• Increased salinity and temperatures • Vector-borne diseases	• Exposure to parasitic produce and chemical actors that lead to illnesses

Brick kilns[d]	• Heat stress	• Debt bondage means labourers either work during harsh heat conditions or obtain more debt by altering their working patterns (i.e. working at night when they must pay for their electricity use so they can continue working to fulfil targets)
Construction[e]	• Workplace air pollution; UV radiation • Heat stress	• Frequent exposure to workplace emissions and exposure to UV radiation whilst working outdoors for extended periods, leading to risks of long-term health impacts • High core bodily temperatures experienced by prolonged periods of outdoor building activities compared to indoor construction work
Fishing[f]	• Increased frequency and severity of storms at sea • Extreme temperatures	• Vessels using exploited workers are more likely to go to sea in extreme weather, creating unsafe working environments, while migrant workers often cannot refuse or stay ashore due to immigration precarity • Denying access to safety equipment is used as a means of controlling exploited workers, increasing their risk of death or injury during storms at sea • Exploited fishers are often denied sufficient quality and quantity of drinking water as a means of control; yet may be forced to work outdoors on deck in extreme heat or cold for shifts exceeding 30 hours during abundant hauls

Fish processing[g]	• Cyclones • Heat stress	• Lengthening cyclonic seasons expose workers to storm surges, high winds, injury from debris, and disease risk in extreme situations • Processing of fish (sorting, cleaning, preparing, cooking, and selling) in the informal food sector is linked to dangerous body temperatures due to poor building ventilation (factory sites) and uses of cooking equipment in hot temperatures (food markets)
Garment production[h]	• Flooding • Heat stress • Workplace air pollution	• Factory closures (full or partial) can lead to a reduction in production and wages • High ambient air temperatures are exacerbated by the conditions and job roles (e.g. ironing) within the factories where ventilation can be poor and health risks increase • Higher heat and poor ventilation combined with chemical exposure can lead to multiple respiratory issues within factories
Logging[i]	• Wildfires (workplace air pollution)	• Health risks from prolonged exposure to air pollutants through fire exposure
Manufacturing[j]	• Flooding	• Suspended production and a reduction in wages due to staff being unable to work
Extractive industries[k]	• Heat stress	• Safety equipment increases the body temperature, and without cooling systems, workers are less likely to wear equipment when in the extraction location (e.g. mines or quarries) • Adequate hydration and breaks are sometimes not provided, leading to greater risks of heat stress

a. Some language has been aligned with the concerns in the report: International Labour Organization (ILO), *Ensuring Safety and Health at Work in a Changing Climate*, ILO, Geneva, 2024.
b. J T Spector, J Krenz, and K N Blank, 'Risk Factors for Heat-related Illness in Washington Crop Workers', *Journal of Agromedicine*, vol. 20, issue 3, 2015, pp. 349–359, https://doi.org/10.1080/1059924x.2015.1047107; Food and Agriculture Organization (FAO), *Guidelines for Personal Protection When Working with Pesticides in Tropical Climates*, FAO, Rome, 1990; M El Khayat *et al.*, 'Impacts of Climate Change and Heat Stress on Farmworkers' Health: A Scoping Review', *Frontiers in Public Health*, vol. 10, 2022, pp. 782811, https://doi.org/10.3389/fpubh.2022.782811; L Gross, 'Fires Fuel New Risks to California Farmworkers', *Inside Climate News*, 21 September 2021, https://insideclimatenews.org/news/21092021/wildfires-california-farmworkers-smoke-health; ILO, 2024; D Pineda and B Mejia, 'Storm Flooding Compounds Misery for California Farms and Workers', *Los Angeles Times*, 21 January 2023, https://latimes.com/california/story/2023-01-21/storm-flooding-compounds-misery-for-california-farmworkers; M Singh, 'An Immigrant Farmer Grew Produce for Restaurants. California Floods Ruined Her Crops', *The Guardian*, 18 April 2023, https://theguardian.com/us-news/2023/apr/18/california-immigrant-farmers-flooding; L Parsons *et al.*, 'Climate-linked Heat Inequality in the Global Southern Workforce: Cambodian Workers' Economic and Health Vulnerability to High Core Temperatures in Five Occupational Sectors', *Climate and Development*, 2025, pp. 1–13, https://doi.org/10.1080/17565529.2025.2474026.
c. D Ngajilo and M F Jeebhay, 'Occupational Injuries and Diseases in Aquaculture – A Review of Literature', *Aquaculture*, vol. 507, 2019, pp. 40–55, https://doi.org/10.1016/j.aquaculture.2019.03.053.
d. K Lundgren-Kownacki *et al.*, 'Climate Change-induced Heat Risks for Migrant Populations Working at Brick Kilns in India: A Transdisciplinary Approach', *International Journal of Biometeorology*, vol. 62, issue 3, 2018, pp. 347–335, https://doi.org/10.1007/s00484-017-1476-0; S B Bajracharya *et al.*, 'Do Working and Living Conditions Influence Brick-kiln Productivity? Evidence from Nepal', *International Journal of Occupational Safety and Ergonomics*, vol. 28, issue 3, 2022, pp. 1452–1460, https://doi.org/10.1080/10803548.2021.1899498.
e. L Parsons, J Cole, and P Mishra, *Heat Stress in the Cambodian Workplace*, Royal Holloway, University of London, 2024; Parsons *et al.*, 2025.
f. Based on ongoing research undertaken by Decker Sparks. See also: Tigchelaar *et al.*, 2025.
g. B Jackson, *Climate Change, Migration and Human Trafficking: Assessing the Impact of Climate Change, Migration and Human Trafficking Risks for Populations in the Bangladesh and India Sundarbans*, University of Nottingham Rights Lab, 2023; Parsons *et al.*, 2024.
h. L Parsons *et al.*, *Hot Trends: How the Global Garment Industry Shapes Climate Change Vulnerability in Cambodia*, Royal Holloway, University of London, 2022; Parsons *et al.*, 2024; Parsons *et al.*, 2025.

i. S M D'Evelyn *et al.*, 'Wildfire, Smoke Exposure, Human Health, and Environmental Justice Need to be Integrated into Forest Restoration and Management', *Current Environmental Health Reports*, vol. 9, 2022, pp. 366–385, https://doi.org/10.1007/s40572-022-00355-7.
j. R Leitold *et al.*, 'Flood Risk Reduction and Climate Change Adaptation of Manufacturing Firms: Global Knowledge Gaps and Lessons from Ho Chi Minh City', *International Journal of Disaster Risk Reduction*, vol. 61, 2021, pp. 102351, https://doi.org/10.1016/j.ijdrr.2021.102351.
k. J Nelson and R Schuchard, *Adapting to Climate Change: A Guide for the Mining Industry*, Business for Social Responsibility (BSR), 2011; E B Meshi *et al.*, 'Thermal Exposure and Heat Illness Symptoms among Workers in Mara Gold Mine, Tanzania', *Annals of Global Health*, vol. 84, issue 3, 2018, pp. 360–368, https://doi.org/10.29024/aogh.2318.

Climate Impacts for Workers around the World

The scale and scope of climate-related impacts vary across sectors and geographies. Much has been written about the impacts of climate change—particularly the effects of heat—upon agricultural workers in the United States.[18] For example, the number of days agricultural workers are exposed to unsafe conditions due to heat stress is expected to nearly double by 2050; for migrant workers, acute exposure to heat can be compounded by socio-economic barriers and limited healthcare access.[19] Some interventions have been put in place. In California, the state's Occupational Safety and Health Administration (Cal/OSHA) introduced measures which seek to address heat illness for workers in both outdoor and indoor settings.[20] Despite the risks, some workers are compelled to

[18] J T Spector *et al.*, 'A Case-crossover Study of Heat Exposure and Injury Risk in Outdoor Agricultural Workers', *PLOS One*, vol. 11, issue 10, 2016, pp. e0164498, https://doi.org/10.1371/journal.pone.0164498; M Tigchelaar, D S Battisti, and J T Spector, 'Work Adaptations Insufficient to Address Growing Heat Risk for U.S. Agricultural Workers', *Environmental Research Letters*, vol. 15, no. 9, 2020, pp. 094035, https://doi.org/10.1088/1748-9326/ab86f4; C Z De Lima *et al.*, 'Heat Stress on Agricultural Workers Exacerbates Crop Impacts of Climate Change', *Environmental Research Letters*, vol. 16, no. 4, 2021, pp. 044020, https://doi.org/10.1088/1748-9326/abeb9f.

[19] *Ibid.*; J Margolis, 'Workers Are Dying of Heat Outdoors without Standards to Protect Them', *NPR*, 17 August 2021, https://www.npr.org/2021/08/17/1028542777/workers-are-dying-of-heat-outdoors-without-standards-to-protect-them.

[20] Cal/OSHA, Section 3395. Heat Illness Prevention in Outdoor Places of Employment. California Code of Regulations, 2005, https://www.dir.ca.gov/title8/3395.html; Cal/OSHA, Section 3396. Heat Illness Prevention in Indoor Places of Employment. California Code of Regulations, 2005, https://www.dir.ca.gov/title8/3396.html.

work in adverse conditions. Because of their piece-rate payment systems, migrant agricultural workers may be pressured to continue working during wildfires where temperatures can become extreme and air can become unbreathable (Table 1).[21]

In India's agricultural industry, rising temperatures also mean workers are facing prolonged heat stress even in the winter months. The increase in heat and more erratic monsoon seasons has led to changes in the crop growth cycles, meaning there is uncertainty in the fields around cultivation practices, and losses can reduce the income and adaptive capacity of workers in the state of Gujarat. Responding to heat has also been associated with greater exposure to pests and the use of pesticides, with workers sometimes disregarding PPE during uncomfortably high temperatures, creating precarious health conditions due to pest, chemical, and heat exposure.[22] Similar concerns have been raised for workers in the brick manufacturing sector in India (Table 1) where payment per brick may be linked to working in more extreme temperatures, leading to 'decent work deficits' in an informal sector with limited contracts and negotiations.[23]

In the garment industry (Table 1), indoor workers in Cambodia have been exposed to greater levels of air pollutants from microfibres and excessive heat, coupled with limited ventilation, which raises health risks.[24] The conditions within factories in Cambodia are compounded by strict targets which mean workers may avoid taking breaks to drink water or go to the bathroom, and even when provisions have been put in place by factory owners (e.g. fans and misting machines), not all workers are covered.[25] Yet the range of climatic impacts explored in detail for workers in informal work and indoor settings are limited.

Climate change also has an impact on working conditions in the construction industry.[26] For example, following Hurricane Katrina in the US, reconstruction was linked to exploitative working practices, with migrant workers subjected to poor OSH conditions at recovery sites and the introduction of visa schemes which

---

21 Gross.

22 L Donovan, S Poonam, and A Oppong-Ansah, 'The World's Garment Workers Are on the Front Lines of Climate Impacts', *Grist*, 2 May 2024, https://grist.org/labor/the-worlds-garment-workers-are-on-the-frontlines-of-climate-impacts.

23 D S Boyd *et al.*, 'The Future of Decent Work: Forecasting Heat Stress and the Intersection of Sustainable Development Challenges in India's Brick Kilns', *Sustainable Development*, vol. 33, issue 2, 2025, pp. 3099–3117, https://doi.org/10.1002/sd.3272.

24 Parsons *et al.*, 2022.

25 Donovan, Poonam, and Oppong-Ansah.

26 Occupational Safety and Health Administration (OSHA), 'Heat: Case Studies', US Department of Labor, 2025, https://www.osha.gov/heat-exposure/case-studies.

exacerbated debts for workers and were linked to deceptive recruitment practices.[27]

Fluctuating weather conditions and more severe storms also create unsafe working conditions for seafarers which have led to death of workers who have been made to go out to sea despite clear risks.[28] Some efforts have been made in the development of ratifiable *minimum* international standards for maritime work (e.g. ILO Convention 188 and 186 outlining minimum standards for fishers and seafarers, respectively) that can be transposed into different contexts, including a changing climate.[29]

Further, flooding has been associated with changing conditions for workers. In agriculture, US-based workers have been impacted by flooding (Table 1) that has led to reduced working hours being available or ended in cancelled contracts, which is particularly risky for workers on the restrictive H-2A visa (the US temporary guest worker programme—an example of a tied visa regime),[30] as this leaves workers unable to pivot to other sectors or jobs to secure additional work, rendering labourers more vulnerable to economic precarity and exploitation. Flooding has also caused issues for the garment recycling industry in Ghana—which developed in response to climate change ravaging traditional farming communities—where flooding in cities like Accra closes trading markets, adversely affecting the wages workers are paid and compounding economic stresses during adverse weather events.[31] The effects of flooding are felt by indoor workers, too; for Cambodian garment factory workers, flash flooding can close factories when there are power outages; upon reopening, workers must work faster and longer to make up for the shortfalls during closures.[32]

In the Sundarbans region of Bangladesh, sea-level rise is leading to greater levels of salt-water intrusion. Former rice paddy production has already been altered to accommodate the changing salinity of the water and as a response to waterlogging

---

27 L McCallum, 'Reflections from the Field: Disparate Responses to Labour Exploitation in Post-Katrina Louisiana', *Anti-Trafficking Review*, issue 15, 2020, pp. 21–41, https://doi.org/10.14197/atr.201220152; K Bales, 'What Is the Link between Natural Disasters and Human Trafficking and Slavery?', *Journal of Modern Slavery*, vol. 6, issue 3, 2021, pp. 34–45, https://doi.org/10.22150/jms/MOJJ8604.

28 International Transport Workers' Federation (ITF), 'Troy Pearson: The Human Cost of an Industry in Crisis', ITF, 2022, retrieved 13 May 2025, https://www.itfglobal.org/en/stories/troy-pearson-human-cost-industry-in-crisis.

29 International Labour Organization (ILO), *C188 Work in Fishing Convention*, 2007; International Labour Organization, *Maritime Labour Convention*, 2006.

30 Pineda and Mejia; Singh.

31 Donovan, Poonam, and Oppong-Ansah.

32 *Ibid.*

from cyclones; aquaculture is now a common livelihood adaptation.[33] Such changes alongside increased heat and flooding can lead to greater exposure of workers to zoonotic diseases, as they work in close proximity to aquatic species, often without PPE, and come into contact with animal species that may have greater levels of antibiotic resistance (Table 1).[34]

Opportunities for Embedding Climate Change in the Decent Work Agenda

To avoid an overemphasis on a small number of sectors and geographical contexts, the issue of climate change—beyond a hyper-focus on heat—needs to be expanded in scope and scale to address the complex and wide-reaching issues that workers are experiencing. One way to achieve this is by embedding climate change within the international framework of decent work. The decent work agenda itself is fundamentally linked to international governance (top-down) and so much of the consideration for climate change impacts needs to be rooted in this agenda. However, this can be supported by direct action (bottom-up), mainly in geographies and sectors where workers are highly organised. To address the concerns raised earlier around considering all elements of the decent work agenda, there need to be concerted and collaborative efforts across different scales, activities, and leaders that coalesce around the agenda's core concepts. In this discussion, we outline how these actions manifest from the top-down and bottom-up approaches, and where greater integration could strengthen efforts to successfully achieve decent work in the context of climate change.

[33] S M Kais and M S Islam, 'Resilience to Climate Change in Industrial Shrimping in Bangladesh: Assessing the Comparative Role of the Stakeholders, *Sustainability*, vol. 13, issue 1, 2021, pp. 307, https://doi.org/10.3390/su13010307; B C Bhowmik *et al.*, 'Salinity Extrusion and Resilience of Coastal Aquaculture to the Climatic Changes in the Southwest Region of Bangladesh, *Heliyon*, vol. 9, issue 3, 2023, pp. e13935, https://doi.org/10.1016/j.heliyon.2023.e13935; S Samui, B Mallick, and A Bailey, 'Impact of Shifting from Rice to Shrimp Farming on Migration Aspirations in Bangladesh', *Regional Environmental Change*, vol. 24, issue 4, 2024, https://doi.org/10.1007/s10113-024-02312-6.

[34] Ngajilo and Jeebhay.

Strengthening the ILO Decent Work Agenda and Baseline Standards

Combined action on climate impacts and decent work has begun,[35] and the UN Sustainable Development Goals (SDGs) accelerated such ambitions—despite critique, particularly around the continued call for economic growth without de-linking environmentally degrading practices.[36] Tensions around achieving decent work in a changing climate mean that responses to climate impacts are often not prioritised, as productivity concerns are seen as more pressing issues.[37] *Explicitly* embedding workers' experiences of climate change in the design of workplace interventions to achieve the decent work agenda is an opportunity to address these prioritisation gaps and ensure decent work is rooted in all transitional sectors.

Climate change within the decent work agenda is commonly associated with the 'Just Transition', linking changes to the economy to the provision of decent working conditions, often within 'green jobs'.[38] The 'Just Transition' shift has occurred alongside greater community engagement, including with Indigenous populations, to advance knowledge in addressing climate change impacts,[39] consider climate resilience and the mobility of vulnerable populations and geographies,[40] and expand beyond a focus on heat across sectors to address

35 International Labour Office, *Decent Work for Sustainable Development – The Challenge of Climate Change*, International Labour Office, Geneva, 2007; United Nations General Assembly, *Transforming our World: The 2030 Agenda for Sustainable Development*, United Nations, New York, 2015.

36 M Menton *et al*., 'Environmental Justice and the SDGs: From Synergies to Gaps and Contradictions', *Sustainability Science*, vol. 15, issue 6, 2020, pp. 1621–1636, https://doi.org/10.1007/s11625-020-00789-8; H Kreinin and E Aigner, 'From "Decent Work and Economic Growth" to "Sustainable Work and Economic Degrowth": A New Framework for SDG 8', *Empirica*, vol. 49, issue 2, 2022, pp. 281–311, https://doi.org/10.1007/s10663-021-09526-5; E Chertkovskaya, 'From Economic Growth to Socio-ecological Transformation: Rethinking Visions of Economy and Work under SDG 8', in L Partzsch (ed.), *The Environment in Global Sustainability Governance*, Bristol University Press, Bristol, 2023, pp. 197–216, https://doi.org/10.51952/9781529228021.ch016.

37 Parsons *et al*., 2022.

38 ILO and UNFCCC, *Global Forum on Just Transition: Climate Change, Decent Work and Sustainable Development*, ILO, Geneva, 2018; International Labour Organization (ILO), 'Just Transition Towards Environmentally Sustainable Economies and Societies', ILO, n.d., retrieved 9 December 2024, https://www.ilo.org/topics-and-sectors/just-transition-towards-environmentally-sustainable-economies-and-societies.

39 R K Dhir, M Oelz, and M Harsdorff, *Indigenous Peoples and Climate Change: From Victims to Change Agents through Decent Work*, International Labour Office, Geneva, 2017.

40 International Labour Organization (ILO), *Future of Work for Climate Resilience in the Pacific Islands*, ILO, Fiji, 2019; International Organization for Migration (IOM) and International Labour Organization (ILO), *Climate Change and Labour Mobility in Pacific Island Countries Policy Brief*, IOM, Bangkok, 2022.

additional climate risks through evidence of good practice.[41] Further, the ILO led on the integration of labour rights and decent work in climate policy negotiations at the 2024 UNFCCC Conference of the Parties (COP29),[42] where risks to workers were also highlighted by the UN Secretary-General.[43] Such work is vital, and leadership from the international governance system on combined action is one area in which to push for national and sectoral legislative protections for workers in the long term.

The inclusion of a 'safe and healthy environment' in the ILO's agenda[44] provides an ideal opportunity for explicit reference to climate change, as more than 70% of workers are likely to face exposure to OSH impacts linked to climate change.[45] Core health-climate risks identified include: excessive heat, exposure to ultraviolet radiation and air pollution, increasing contact with vector-borne diseases and pesticides, and the impacts of extreme weather.[46] Resulting public health frameworks and approaches are considered particularly important to addressing worker exploitation.[47] As noted earlier, the impacts of climate are affecting both the safety and security of work—by limiting access to stable periods of employment or affecting the health outcomes of workers—yet the impacts of climate change are not explicitly included. This is an oversight in the agenda preventing effective top-down action.

41 United Nations Development Programme (UNDP), *Climate Change and Labour: Impacts of Heat in the Workplace*, UNDP, New York, 2016; ILO, 2019; L A Hoffner *et al.*, *Turning up the Heat: Exploring Potential Links between Climate Change and Gender-based Violence and Harassment in the Garment Sector*, ILO, Geneva, 2021; ILO, 2024.

42 International Labour Organization (ILO), 'Just Transition Policies Must Prioritize Labour Rights and Decent Work', ILO, 7 November 2024, https://www.ilo.org/resource/news/just-transition-policies-must-prioritize-labour-rights-and-decent-work.

43 United Nations, 'Secretary-General's remarks to World Leaders Climate Action Summit at COP29 [as delivered]', 12 November 2024, https://www.un.org/sg/en/content/sg/statement/2024-11-12/secretary-generals-remarks-world-leaders-climate-action-summit-cop29-delivered.

44 ILO, 2022.

45 ILO, 2024.

46 *Ibid.*

47 E Such, C Laurent, and S Salway, 'Modern Slavery and Public Health. Public Health England', UK Government, 7 December 2017, https://www.gov.uk/government/publications/modern-slavery-and-public-health/modern-slavery-and-public-health; E Such *et al.*, 'A Public Health Approach to Modern Slavery in the United Kingdom: A Codeveloped Framework', *Public Health*, vol. 232, 2024, pp. 146–152, https://doi.org/10.1016/j.puhe.2024.04.004.

Thus, we argue that the decent work agenda—to be effective—should explicitly name climate change as a risk that needs to be considered within ratifiable conventions around OSH and labour conditions (e.g. by developing a Convention on Decent Work in a Changing Climate that would address the decent work agenda by tying it to core climate risks identified by the ILO).[48] The context of a changing climate can be inferred in some conventions,[49] but ratifiable conventions focused on protecting workers from climate impacts would help to push integration through national legislation and across varied geographies and sectors. Whilst formal standards continue to be lacking in many sectors, the risks of working conditions impacted by climate change become more acute and will erode potential minimum standards, making the achievement of decent work across 'at-risk' industries more difficult. The decent work agenda itself should be considered as representing the *minimum* standards required to establish a baseline of protection and codified as such within sectoral conventions. Establishing such a baseline (via a dedicated convention) would then enable the consideration of adaptive standards that can more effectively integrate and address climate change without degrading the existing standards. The role of the international governance system is vital to ensure the rapid development and adoption of ratifiable standards on work impacted by climate, led by the experiences and needs of impacted workers.[50]

Due Diligence Legislation and Action Plans

Action to address working conditions in conjunction or on par with environmental and climate concerns are starting to be developed, particularly in relation to supply chain action.[51] Mandatory due diligence is currently the dominant form of legislation but rarely explicitly considers decent work, due to the lack of ratifiable conventions led by international governance institutions. Yet such legislative actions are being heralded as a more standardised approach in addressing issues for workers (in terms of employment and working conditions as well as climate-related environmental issues). Historically, the framing of environmental and social governance (ESG) has placed greater emphasis on the environmental aspects, leading to imbalanced action or an appending of social issues to environmental activities which fails to support workers due to a lack of business and investor

48 ILO, 2013; ILO, 2022; ILO, 2024.

49 Tigchelaar *et al.*, 2025.

50 T Novitz, 'Engagement with Sustainability at the International Labour Organization and Wider Implications for Collective Worker Voice', *International Labour Review*, vol. 159, issue 4, 2020, pp. 463–482, https://doi.org/10.1111/ilr.12181.

51 B Jackson *et al.*, *Integrating policies addressing modern slavery and climate change*, Modern Slavery & Human Rights Policy & Evidence Centre, London, 2024; B Jackson *et al.*, *Review of Global Legislation on Labour and Environmental Compliance Applicable for the UK Context*, University of Nottingham Rights Lab and Transparentem, 2024.

buy-in.[52] The current leading legislative action combining labour rights and climate action is the European Union's recently passed Corporate Sustainability Due Diligence Directive (CSDDD)[53]—although it is under considerable threat of being further watered down.

Such mandatory due diligence should also frame the social and human rights needs through the decent work agenda, with companies' due diligence reports tied to the agenda's main elements. For instance, to identify compliance with decent working time, reporting should be linked to the average number of working hours and breaks provided to employees, whereas for worker representation, it should include policies to enable unionisation and collective bargaining for workers. Further, reporting on addressing issues such as air pollution and other climatic conditions (including heat) should be linked to ensuring a safe work environment through reporting measures and tie together the social and environmental aspects of due diligence monitoring, potentially through the lens of OSH. If due diligence continues to be the preferred approach to legislation, countries and economic blocs seeking to design legislation should use the decent work agenda as the basis for the worker rights-focused portion and seek to identify and include risks of climate impacts within this structure.

Further at the national level, some integration of decent work is being undertaken under the 'Just Transition' framing. For example, the Scottish and Northern Irish legislatures in the UK have implemented 'Just Transition' policies to address climate change. This legislation explicitly includes decent work as an aim of the policies, ensuring that opportunities are made available to support workers who may be adversely affected by both climate change and the responses to address it.[54] However, the specific inclusion of decent work as an agenda within policy

---

52 A Gözlügöl, 'The Clash of "E" and "S" of ESG: Just Transition on the Path to Net Zero and the Implications for Sustainable Corporate Governance and Finance', *The Journal of World Energy and Law Business*, vol. 15, issue 1, 2020, pp. 1–21, http://dx.doi.org/10.2139/ssrn.3962238; C Williams and J L Decker Sparks, 'Fishery Improvement Projects: A Voluntary, Corporate "Tool" Not Fit for the Purpose of Mitigating Labour Abuses and Guaranteeing Labour Rights for Workers', *Marine Policy*, vol. 147, 2023, pp. 105340, https://doi.org/10.1016/j.marpol.2022.105340.

53 M Foley, 'Beware: The Scaled-Down CSDDD Regulation Still Has Bite', *Forbes*, 27 March 2024 https://www.forbes.com/sites/maryfoley/2024/03/27/beware-the-scaled-down-csddd-regulation-still-has-bite; J McGowan, 'European Parliament Approves Corporate Sustainability Due Diligence Law', *Forbes*, 24 April 2024 https://www.forbes.com/sites/jonmcgowan/2024/04/24/european-parliament-approves-corporate-sustainability-due-diligence-law; Anti-Slavery International, 'EU Omnibus Threatens Legislation Designed to End Forced Labour in Supply Chains', 26 February 2025, https://www.antislavery.org/latest/eu-omnibus-threatens-legislation-designed-to-end-forced-labour-in-supply-chains.

54 Jackson *et al.*, 2024.

beyond the international framework remains limited.

One area where this may be further considered is integration of decent work within national climate action plans, also known as Nationally Determined Contributions (NDCs). Responses to adapt and mitigate against climate change will inevitably alter the ways in which people work and the conditions they experience. As a mechanism, action plans should be used as a tool to move beyond the reporting of greenhouse gas emissions required for signatories of the Paris Agreement to expand in scope and include broader actions related to the 'Just Transition'[55]—not only referencing economic diversification but also working conditions. NDCs should outline the process for community engagement to ensure dialogues for climate change interventions focus on coproduction with a diverse range of workers. This is because—as recognised by the ILO[56]—some workers may want to continue to engage with, and indeed rely on, more environmentally damaging sectors (e.g. mining) which can have a broader impact on local communities (e.g. polluted run-off into water sources). In such sectors that may conflict with the decent work and 'Just Transition' agenda, efforts should instead improve environmental and working practices by understanding the needs of all concerned parties. These practices should be actioned through community forums in the design, implementation, and evaluation of the NDCs.

Worker-led and Grassroots Initiatives

Vitally, worker-led and worker-focused organisations are both acting and leading in the fight against climate change.[57] For example, The Coalition of Immokalee Workers' (CIW) Fair Food Program (FFP) provided updated guidance and standards in 2021 after increasing numbers of workers in the United States were experiencing negative health outcomes from heat whilst working in agriculture fields. The standards were updated for heat-related responses and now include mandatory cool-down rest breaks once every two hours, monitoring prevention measures, as well as assessing new employees and their acclimation to hotter climatic conditions. They were also expanded to include training on heat specific information and ensure responses to health conditions, exacerbated or prompted by extreme temperatures, are addressed

55 United Nations Framework Convention on Climate Change (UNFCCC), *Paris Agreement*, United Nations, 2015, https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

56 International Labour Organization (ILO), *Just Transition, Decent Work, and Climate Resilience*, ILO Regional Office for Asia and the Pacific, Bangkok, 2017.

57 L Clarke and M Sahin-Dikmen, 'Workers and Labour Movements in the Fight Against Climate Change', in M Atzeni *et al.* (eds.), *Handbook of Research on the Global Political Economy of Work*, Elgar, Cheltenham, 2023, pp. 209–2018; Barca.

with speed and appropriateness if they occur in the fields.[58]

The global union BWI (Building and Wood Workers' International) have developed a campaign entitled 'Heat-up Workers' Rights, Not the Planet!' to improve working environments through the lens of safe and healthy working spaces whilst highlighting the effects to which climate change is exposing workers across the sector.[59] Trade union activities have also focused on identifying areas where climate change may impact wages and conditions, amongst other issues; on how workers can be protected as the climate changes; and on how climate change concerns should be addressed through policy and collective bargaining activities in the construction sector.[60] International trade unions have also developed frameworks for sectors to engage with that focus on access to decent work for migrant workers impacted by climate change.[61] Further, union membership has been noted as being key to lowering the risks of workers experiencing heat stress and being exposed to unsafe working conditions in Cambodia.[62]

To maximise the effective role of workers, and their representatives, in striving for decent work and recognising the impact this could have to shape the overarching international agenda, sharing knowledge and experiences on good practice is vital. These learnings should be exchanged between sectors and organisational groups, for example, during trade union conferences and sector-wide events. Such knowledge exchange around practical actions and positive outcomes, as well as lessons learnt from failed approaches, could be a further effective step to ensure continued responses to climate change and achieving decent work.

Finally, worker-led initiatives and organisations should also be involved in all discussions related to international, regional, and national responses. Workers and their representatives should advocate for their positions during the design and creation of climate change adaptation and mitigation actions to improve working conditions—but this should equally be undertaken by organisations, such as the ILO, to create, maintain, and ensure an equitable space (e.g. community forums

58 Fair Food Program (FFP), 'Relief from the Heat', FFP, 20 August 2021, https://fairfoodprogram.org/2021/08/20/relief-from-the-heat.

59 Building and Wood Workers' International (BWI), 'Call to Action: Heat Up Workers' Rights, Not the Planet!', BWI, n.d., retrieved 26 November 2024, https://archive.bwint.org/de/de_DE/cms/take-action-heat-up-workers-rights-not-the-planet-3023.html.

60 Building and Wood Workers' International (BWI), 'From Crisis to Action: Unions Mobilise for Climate Justice in Construction', BWI, 21 January 2025, https://www.bwint.org/BwiNews/NewsDetails?newsId=146.

61 ITUC, 2024.

62 Parsons *et al.*, 2024.

and advisory boards) to discuss and respond to decent work in a changing climate that is rooted in worker expertise.

Conclusion

Climate change is causing pressures on workers that are increasingly limiting access to working conditions that would align with the definition of decent work. As climate change worsens, the threats to workers are only going to increase, and they may to lead to more vulnerabilities for communities, pushing them into riskier forms of employment, and more exploitative forms of work.[63] Achieving decent work is being hindered by climate change across sectors such as agriculture, construction, garment manufacturing, and fish processing, with risks from extreme heat and flooding to severe storms and air pollutant exposure harming workers. To ensure workers are protected, decent work must be at the heart of climate action.

Whilst this is being led by workers' organisations and their representatives, and new legislation seeks to draw together efforts for businesses to engage with ESG practices, an innovative and radical restructuring of climate change responses is urgently needed—and must focus on adaptation and mitigation with workers rather than solely on issues arising from sectors' emissions. These responses should centre the knowledge and experience of workers. Such reframing may require a shift away from the quantity towards the quality of jobs that are often limited when considering what work is seen as 'productive' to encompass and achieve all elements of the decent work agenda.

Climate change will only make work more difficult, and without addressing the exposure faced by workers in some of the most precarious working conditions, the risks of extreme forms of exploitation will become worse. The urgency of climate change provides the opportunity to overhaul the normative approaches to addressing climate-influenced impacts on workers through the centring of worker experience and knowledge to develop flexible strategies to adapt, mitigate, and respond to climate change—strategies by workers and for workers. As such, tandem action across the labour–climate divide is the only approach that can ensure a truly 'Just Transition' for workers and guarantee that the minimum standards of decent work for all are met.

[63] Jackson *et al.*, 2021; Decker Sparks *et al.*

Acknowledgements
Funding for the work that has contributed to the formulation of this paper was provided by both WWF US (Contract No. MK10888, awarded to the Rights Lab, 2020–2021) and the University of Nottingham (Nottingham Research Fellowship, awarded to Jackson, 2024–2027). The authors would also like to thank the reviewers for their comments and the editors Borislav Gerasimov, Denise Brennan, and Sallie Yea for their feedback on the initial scope and later drafts of the paper which helped to shape the content and argument.

Dr Bethany Jackson is a Nottingham Research Fellow at the School of Geography and Rights Lab Lead in Decent Work and Climate Change at the University of Nottingham, UK. Email: bethany.jackson1@nottingham.ac.uk

Dr Nicole Tichenor Blackstone is an Associate Professor in the Division of Agriculture, Food, and Environment at the Friedman School of Nutrition Science and Policy at Tufts University, US. Email: nicole.blackstone@tufts.edu

Dr Jessica L. Decker Sparks is an Assistant Professor in the Division of Agriculture, Food, and Environment at the Friedman School of Nutrition Science and Policy at Tufts University, US. Email: jessica.sparks@tufts.edu

ANTI-TRAFFICKING REVIEW 25 (2025): 130-151

Solar Value Chain and Workers: Supporting a just transition in Australia by strengthening human rights due diligence

Phoebe Michelmore and Marinella Marmo

Abstract

A just transition requires climate measures to be implemented in a way that engages and protects affected and vulnerable people and communities. However, due to the prevalence of modern slavery in global renewable energy supply chains, including evidence of people in China's Xinjiang Uyghur Autonomous Region being subjected to state-sanctioned forced labour at various stages of the solar supply chain, the transition to net zero is currently unjust. This paper examines whether Human Rights Due Diligence (HRDD) can be strengthened in Australia to better protect workers in solar value chains, and thus, more effectively support a just transition. By considering a case study of one of Australia's most prominent energy companies, AGL Energy Limited, this paper highlights the gaps in stakeholder engagement and in the identification of a broad range of human rights and environmental risks and impacts along the value chain. This case study also highlights the limitations of HRDD to protect rightsholders located in places with state-sanctioned forced labour programmes. The paper contends that for Australia to credibly position itself as a global leader in addressing modern slavery while advancing its transition to net zero, this aspiration must be underpinned by substantive legislative reform and enhanced regulatory measures to effectively support a just transition.

Keywords: modern slavery, solar value chain, human rights due diligence, Modern Slavery Act, AGL, just transition

Suggested citation: P Michelmore and M Marmo, 'Solar Value Chain and Workers: Supporting a just transition in Australia by strengthening human rights due diligence', *Anti-Trafficking Review*, issue 25, 2025, pp. 130-151, https://doi.org/10.14197/atr.201225258

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

Introduction

There is currently a global push amongst states, businesses, and other actors to transition to net zero. This requires significantly reducing carbon emissions and taking other carbon dioxide removal measures, to the point that some residual emissions are absorbed or stored by nature and zero is left in the atmosphere.[1] In Australia, the transition to net zero will require a significant growth in renewable energy infrastructure. Current estimates indicate that 127 gigawatts (GW) of 'utility scale' solar and wind generation, 86 GW of rooftop and other solar, and 70–110 GW of battery storage will be needed by 2050.[2] However, this transition is not without ethical challenges. Workers within the global supply chains that produce these renewable energy technologies are vulnerable to exploitation, with mounting evidence of modern slavery practices.[3] This includes evidence of people in China's Xinjiang Uyghur Autonomous Region ('Xinjiang') being subject to state-sanctioned forced labour at various stages of the solar supply chain.[4] Notably, the G20 countries import an estimated USD 14.8 billion worth of solar panels annually that are at risk of being produced using forced labour, making solar panels the fourth highest value at-risk product globally.[5]

---

1 United Nations Climate Action, 'For a Livable Climate: Net-Zero Commitments Must Be Backed by Credible Action', United Nations, n.d., https://www.un.org/en/climatechange/net-zero-coalition.

2 Australian Energy Market Operator Limited, *2024 Integrated System Plan for the National Electricity Market: A Roadmap for the Energy Transition*, Australian Energy Market Operator, 26 June 2024, p. 73, https://aemo.com.au/-/media/files/major-publications/isp/2024/2024-integrated-system-plan-isp.pdf; D Davis *et al.*, *Modelling Summary Report*, Net Zero Australia, 19 April 2023, p. 59, https://www.netzeroaustralia.net.au/wp-content/uploads/2023/04/Net-Zero-Australia-Modelling-Summary-Report.pdf.

3 N.a., 'Beyond Compliance in the Renewable Energy Sector: Assessing UK and Australian Modern Slavery Act Statements', Walk Free, 2023, p. 1, https://www.walkfree.org/reports/beyond-compliance-in-the-renewable-energy-sector ('Beyond Compliance').

4 L T Murphy and N Elimä, *In Broad Daylight: Uyghur Forced Labour and Global Solar Supply Chains*, Sheffield Hallam University Helena Kennedy Centre for International Justice, 2021, pp. 7–8, https://www.shu.ac.uk/-/media/home/research/helena-kennedy-centre/projects/pdfs/evidence-base/in-broad-daylight.pdf; N.a., *The Global Slavery Index 2023*, Walk Free, 2023, pp. 55, 67, 149, https://cdn.walkfree.org/content/uploads/2023/05/17114737/Global-Slavery-Index-2023.pdf ('Global Slavery Index'); J Cockayne, E Rodriguez Huerta, and O Burcu, *'The Energy of Freedom'? Solar Energy, Modern Slavery and the Just Transition*, University of Nottingham Rights Lab, 2022, pp. 5–6, 10–12, https://www.nottingham.ac.uk/research/beacons-of-excellence/rights-lab/resources/reports-and-briefings/2022/march/the-energy-of-freedom-full-report.pdf.

5 'Global Slavery Index', p. 147.

According to the 2023 Global Slavery Index, the Australian Government's response to modern slavery was ranked second out of 176 countries,[6] positioning Australia as a leading actor in this space.[7] Much of this is attributed to Australia's Modern Slavery Act 2018 (Commonwealth) ('Act'), which requires certain entities to report on the risks of modern slavery in their operations and supply chains, and on the actions they take to address those risks.[8] Australia also aspires to be seen as a leader in the global transition to net zero, evidenced by its bid to co-host the 31st Conference of the Parties to the United Nations Framework Convention on Climate Change, alongside Pacific nations.[9] A just transition[10] to net zero should ensure climate measures are implemented 'in a way that engages and protects affected and vulnerable people and communities'.[11] To demonstrate leadership in both addressing modern slavery and advancing a just transition,

6 *Ibid*, pp. 28–29.

7 The methodology used in previous versions of the Global Slavery Index has been criticised. See AT Gallagher, 'What's Wrong with the Global Slavery Index?', *Anti-Trafficking Review*, issue 8, 2017, pp. 90–112, https://doi.org/10.14197/atr.20121786. However, some aspects of the methodology have since been updated. See Walk Free, 'Global Slavery Index Frequently Asked Questions', Walk Free, n.d., retrieved 21 August 2025, https://www.walkfree.org/global-slavery-index/methodology/faqs; 'Global Slavery Index', pp. 196–253. The Global Slavery Index can also be critiqued for providing a Western-centric lens and framing of modern slavery, which positions Western nations as the primary definers of the issue, while also attributing responsibility and culpability, often to others. See M Marmo and R Bandiera, 'Modern Slavery: The Harms of State-Corporate Benevolence and the Role of Academic Activism', in M Krambia-Kapardis *et al.* (eds.), *The Palgrave Handbook on Modern Slavery*, Palgrave Macmillan, Cham, 2024, pp. 499–521, p. 503, https://doi.org/10.1007/978-3-031-58614-9_24.

8 Reporting entities are those based or operating in Australia with an annual consolidated revenue of over AUD 100 million. See *Modern Slavery Act 2018* (Cth) sects. 3, 5. Please note that the two main functions of this Act are to establish reporting requirements for reporting entities and the position of the Australian Anti-Slavery Commissioner (see sect. 3).

9 Department of Foreign Affairs and Trade (DFAT), 'International Cooperation on Climate Change', DFAT, https://www.dfat.gov.au/international-relations/themes/climate-change/international-cooperation-on-climate-change; 'Joint Media Release: Australia's International Climate Engagement', Department of Climate Change, Energy, the Environment and Water, 5 November 2022, https://minister.dcceew.gov.au/bowen/media-releases/australias-international-climate-engagement.

10 There are various ways in which the 'just transition' concept has been interpreted. Due to the international law context for this paper, the international climate law interpretation has been favoured. For other interpretations, see: Cockayne, Rodriguez Huerta and Burcu, pp. 27–28; V Johansson, 'Just Transition as an Evolving Concept in International Climate Law', *Journal of Environmental Law*, vol. 35, issue 2, 2023, pp. 229–224, p. 230, https://doi.org/10.1093/jel/eqad017.

11 *Ibid.*, p. 248.

Australia must take decisive action to effectively identify and mitigate modern slavery risks within global renewable energy supply chains.

This paper argues that a critical and timely means for Australia to address these challenges is through the swift adoption of legislative reforms that embed Human Rights Due Diligence ('HRDD'). HRDD has emerged as the internationally recognised standard to prevent and mitigate modern slavery and other adverse human rights impacts by businesses. HRDD refers to a process that requires businesses to proactively identify, assess, and prevent or mitigate actual or potential negative human rights impacts associated with their operations or relationships. HRDD was first elaborated at the international level in the 2011 United Nations Guiding Principles on Business and Human Rights ('UNGPs'), a key soft law instrument in the business and human rights field.[12] The UNGPs establish the responsibility of businesses to respect, at a minimum, all internationally recognised human rights, including the right to freedom from slavery, servitude, and forced labour.[13] By legislating and enforcing HRDD laws, states can take action to protect human rights, a duty which is also established in the UNGPs.[14] Numerous jurisdictions have now passed mandatory HRDD laws, such as France, Germany, Norway, Switzerland, and the European Union.[15]

In Australia, HRDD is not a mandatory requirement. The Act currently requires reporting entities to describe any due diligence processes they undertake to address their modern slavery risks.[16] However, following a recent review of the Act, it was recommended that reporting entities be required to have a due diligence

---

12 F McGaughey, R Rowe, and C Lappel, 'Strengthening Australia's Response to Modern Slavery: Lessons from Comparative Human Rights Due Diligence Laws', *University of Western Australia Law Review*, vol. 51, issue 1, 2024, pp. 62–87.

13 See *International Covenant on Civil and Political Rights,* 19 December 1966, Art. 8; *Universal Declaration of Human Rights,* GA Res 217A (III), 10 December 1948, Art. 4.

14 J G Ruggie, *Report of the Special Representative of the Secretary-General on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises: Guiding Principles on Business and Human Rights: Implementing the United Nations 'Protect, Respect and Remedy' Framework*, A/HRC/17/31, 21 March 2011, annex 13, 8 ('UNGPs').

15 See McGaughey, Rowe, and Lappel, pp. 68–70. For the EU Corporate Sustainability Due Diligence Directive, in June 2025, the EU Council agreed to simplify the sustainability reporting and due diligence requirements. See Council of the European Union, 'Simplification: Council Agrees Position on Sustainability Reporting and Due Diligence Requirements to Boost EU Competitiveness', EU Council, 23 June 2025, https://www.consilium.europa.eu/en/press/press-releases/2025/06/23/simplification-council-agrees-position-on-sustainability-reporting-and-due-diligence-requirements-to-boost-eu-competitiveness. We flag disappointment due to a weakening of the Directive's scope and implementation timeline, as well as concerns about its impact on corporate accountability and human rights protections.

16 *Modern Slavery Act 2018* (Cth) sect. 16(1)(d).

system in place, to explain the activities undertaken in accordance with that system, and to make it an offence for failing to have such a system in place.[17] Should the Australian Government adopt these recommendations, it will be critical to ensure that any resulting HRDD law is effective at addressing modern slavery risks in business operations and supply chains.

This paper adopts a critical lens to examine these developments and acknowledges that the exploitation in global supply chains, including those linked to Australia's renewable energy transition, constitutes broader and serious human rights abuses, including state-imposed forced labour. At the same time, the paper argues that some Western-centric countries, such as Australia, are maintaining the conditions that enable exploitation by taking negligible actions that often normalise and exacerbate the very harms they claim to combat.[18] While this paper focuses on the current legislative context in Australia, it recognises the value of critical interdisciplinary approaches to understanding and addressing such state-corporate harm.[19] Indeed, an underlying argument advanced in this paper is that legislation alone will be insufficient if Australia continues to rely on supply chains connected to jurisdictions where state-imposed forced labour is documented,[20] such as in parts of China's solar manufacturing sector.[21] Given Australia's ambition to lead in both the global shift to net zero and in the fight against modern slavery, it is imperative that HRDD laws be designed not only to meet reporting requirements, but also to effectively safeguard workers and address modern slavery throughout the renewable energy value chain.[22]

---

17 J McMillan, *Report of the Statutory Review of the Modern Slavery Act 2018 (Cth) The First Three Years*, Attorney-General's Department, 2023, Recommendations 11, 20.

18 R Bandiera and M Marmo, '"Knowingly Profiting" from Forced Labour? Australia's Modern Slavery Laws, Ansell, and the Coloniality of State-Corporate Benevolence', in P Green *et al.* (eds), *The Routledge Handbook of State Crime*, Routledge, 2025 (forthcoming).

19 This concept refers to the ways in which state actions and corporate practices can combine to produce harmful outcomes. See M Marmo and R Bandiera, 'Modern Slavery as the New Moral Asset for the Production and Reproduction of State-Corporate Harm', *Journal of White Collar and Corporate Crime*, vol. 3, issue 2, 2022, pp. 64–75, pp. 71–72, https://doi.org/10.1177/2631309X211020994.

20 Here, the focus is on state-imposed forced labour as HRDD laws are unlikely to address the issue on their own. This is because the leverage of one or more businesses is unlikely to be effective at addressing forced labour in supply chains where the forced labour practices are driven by the state. For more, see the 'Implications' section below.

21 Murphy and Elimä, pp. 7–8; 'Global Slavery Index', pp. 55, 67, 149; Cockayne, Rodriguez Huerta, and Burcu, pp. 5–6, 10–12.

22 UN Climate Change Conference UK 2021 'Supporting the Conditions for a Just Transition Internationally', *The National Archives,* 4 November 2021, https://webarchive.nationalarchives.gov.uk/ukgwa/20230313132211/https://ukcop26.org/supporting-the-conditions-for-a-just-transition-internationally.

Without confronting the systemic and geopolitical dimensions of forced labour, Australia risks, at best, undermining the ethical foundations of its net zero transition and diminishing the credibility of its leadership claims, notwithstanding how well the country is assessed in modern slavery indexes. And, at worst, Australia will continue to operate within a framework of 'state-corporate benevolence', a model that invokes the language of humanitarianism while, in practice, advancing the interests of powerful actors, such as corporations, that are resisting changes to maximise profits.[23] This, in turn, will continue reinforcing existing inequalities and structures of exploitation.

This paper is structured into five sections. Following this Introduction, we present a case study examining how AGL applies HRDD to address modern slavery risks within its solar supply chain. This case study was selected due to AGL's dominant market share and status as Australia's largest greenhouse gas emitter, positioning it as pivotal to a just transition. Although focused on a single entity, the case study provides rich, contextualised insights into the practical application of HRDD in the energy sector. The subsequent section explores how HRDD laws could be formulated in Australia to more effectively contribute to a just transition. We then analyse the wider implications of such legislation for suppliers, stakeholders, and rightsholders, while also identifying key limitations, particularly in relation to addressing modern slavery linked to state-imposed forced labour. The paper concludes by emphasising the urgent need for Australia to take meaningful action to protect workers across global renewable energy value chains, and to ensure that its path to net zero is genuinely just. This should include replacing the Act with a standalone and robust Human Rights and Environmental Due Diligence ('HREDD') legislation, supported by complementary regulatory measures. In parallel, we argue that businesses must not passively await legislative reform but should instead proactively embed HREDD into their operations, thereby assuming responsibility for contributing to a just and ethical transition.

Human Rights Due Diligence in Australia: A case study

This case study examines how AGL, a major Australian energy company, addresses modern slavery risks within its solar supply chain. Through an analysis of the company's public disclosures, the study assesses the extent to which AGL's processes align with the HRDD principles articulated in the UNGPs. While the actions of individual corporations are important, this analysis underscores the central argument of this paper: that it is ultimately the responsibility of the Australian Government to adopt meaningful legislative reform and implement effective regulatory measures to address modern slavery risks. Strengthening

[23] Marmo and Bandiera, 2022.

HRDD is essential not only to uphold human rights standards but also to ensure that Australia's transition to net zero is genuinely just. This includes taking decisive domestic action to confront challenges posed by global supply chains, particularly in relation to state-imposed forced labour, rather than shifting responsibility onto corporations or external jurisdictions.

As at 2021, Australia led the world in the amount of rooftop solar installed per capita,[24] with rooftop solar accounting for 11.2 per cent of Australia's electricity supply in 2024.[25] However, it is estimated that USD 1.3 billion worth of at-risk solar panels are imported into Australia each year, with the source country listed as China.[26] Energy companies are likely to comprise a large share of this import market. For example, AGL disclosed it spent approximately AUD 33 million for the 2022–23 financial year, with four direct suppliers in China.[27] Although AGL did not disclose the product(s) supplied, these suppliers were identified as AGL's highest-risk suppliers for modern slavery, and as such, it is possible these are suppliers of solar products.

The modern slavery risk associated with solar panels in China stems from practices occurring in Xinjiang.[28] Xinjiang is a province located in the north-west of China, which is home to the indigenous Uyghur population, as well as other religious and ethnic groups. The Chinese Government has placed members from the Uyghur population and Xinjiang's other religious and ethnic groups into 'surplus labour' or 'labour transfer' programmes, with an estimated 2.6 million people placed as of a November 2020 government report.[29] While the government claims that the workers are engaged voluntarily and that the programmes form part of an overall strategy to alleviate poverty in the region, there is mounting evidence that suggests that these programmes utilise forced labour, with workers facing coercion, threats of re-education and incarceration, and

24 R J Egan and L Koschier, *National Survey Report of PV Power Applications in Australia 2021*, Australian PV Institute, 2022, p. 18, https://iea-pvps.org/wp-content/uploads/2022/08/PViA-Report-2022-AUS_v3.pdf.

25 N.a., 'Rooftop Solar Generates over 10 Per Cent of Australia's Electricity', Clean Energy Council, 16 April 2024, https://cleanenergycouncil.org.au/news-resources/rooftop-solar-generates-over-10-per-cent-of-australias-electricity.

26 'Global Slavery Index', pp. 256–258.

27 AGL Energy Ltd, *Modern Slavery Statement 2023*, AGL, 2023, p. 8, https://www.agl.com.au/content/dam/digital/agl/documents/about-agl/who-we-are/our-commitments/240229-agl-energy-modern-slavery-statement.pdf ('2023 Statement').

28 Murphy and Elimä; 'Global Slavery Index', pp. 55, 67, 149; Cockayne, Rodriguez Huerta and Burcu, pp. 5–6, 10–12.

29 Murphy and Elimä, p. 7.

the inability to leave their jobs.[30] This regime of state-imposed forced labour of Uyghur people and other religious and ethnic groups is occurring against the backdrop of what has been described as a social crackdown on the region since 2017. This has seen the 'mass incarceration of Uyghurs and other ethnic Turkic peoples, as well as mass sterilizations, family separations, ubiquitous surveillance, and cultural indoctrination'.[31] In 2022, the UN High Commissioner for Human Rights concluded that the treatment of Uyghur people and other predominantly Muslim groups in Xinjiang, through arbitrary and discriminatory detention, may constitute crimes against humanity.[32]

Global solar supply chains are exposed to the risk of state-imposed forced labour in Xinjiang at numerous stages. Firstly, the production of photovoltaic ('PV') cell solar panels requires quartz, a raw mineral that is mined and used to produce metallurgical-grade silicon ('MGS').[33] It is estimated that Xinjiang contains 10 per cent of China's quartz reserves, with one site for mining and processing quartz in the province known to engage in labour transfers and host two internment camps. As such, there is a risk of forced labour in the quartz that is mined and processed at this site.[34] Secondly, the production of MGS is associated with a risk

---

30 *Ibid.,* pp. 7, 9–13; Cockayne, Rodriguez Huerta, and Burcu, pp. 6, 12; International Labour Organization (ILO), *Report of the Committee of Experts on the Application of Conventions and Recommendations*, ILO, 2025, pp. 363–364, https://www.ilo.org/sites/default/files/2025-02/Report%20III%28A%29-2025-%5BNORMES-241219-002%5D-EN.pdf; D Mulvaney and M Bazilian, 'Price Volatility, Human Rights, and Decarbonization Challenges in Global Solar Supply Chains', *Energy Research & Social Science*, vol. 102, 2023, pp. 103167, https://doi.org/10.1016/j.erss.2023.103167; O Burcu and B Jackson, 'China's Solar Dominance: Worker Rights in the Pursuit of a Just Transition', *Business and Human Rights Journal*, vol. 10, issue 1, 2025, pp. 172–195, pp. 172–173, https://doi.org/10.1017/bhj.2025.16; A Lehr and M Bechrakis, *Connecting the Dots in Xinjiang: Forced Labor, Forced Assimilation, and Western Supply Chains*, Center for Strategic and International Studies, 2019, pp. 4–8; V X Xu *et al.*, *Uyghurs for Sale: 'Re-Education', Forced Labour and Surveillance Beyond Xinjiang*, Australian Strategic Policy Institute, 2020, p. 29; A Zenz, *Coercive Labor and Forced Displacement in Xinjiang's Cross-Regional Labor Transfer Program: A Process-Oriented Evaluation*, The Jamestown Foundation, 2021, p. 4.

31 K Salcito, 'Automotive Supply Chain Links to the Uyghur Genocide: Reversing a Growing Crisis', *Business and Human Rights Journal*, vol. 8, issue 2, 2023, pp. 265–270, p. 266, https://doi.org/10.1017/bhj.2023.15.

32 United Nations Human Rights Office of the High Commissioner (OHCHR), OHCHR Assessment of Human Rights Concerns in the Xinjiang Uyghur Autonomous Region, People's Republic of China, OHCHR, 31 August 2022, p. 44. See also Human Rights Watch (HRW), 'Break Their Lineage, Break Their Roots'. China's Crimes against Humanity Targeting Uyghurs and Other Turkic Muslims, HRW, 2021.

33 Murphy and Elimä, p. 20.

34 *Ibid.,* p. 22.

of forced labour, with Xinjiang being home to numerous MGS manufacturers. The world's largest producer of MGS is based in Xinjiang and has not only participated in the labour transfer programmes but is also exposed to forced labour through its quartz supplier, as described above.[35] Subsequently, the MGS is ground up and purified further using extremely high temperatures, resulting in polysilicon. As at 2020, four of the six highest-capacity polysilicon producing companies had significant manufacturing bases in Xinjiang, with all four participating in the labour transfer programmes.[36] Finally, polysilicon is then melted into ingots, which are cut into wafers and made into photovoltaic cells, which are then used in solar modules.[37] Regardless of where the manufacture of these final steps takes place, global solar supply chains are already exposed to forced labour from the mining of quartz to the production of MGS and polysilicon in Xinjiang.[38] The forced labour exposure is significant, with an estimated 97 per cent of global solar PV supply possibly containing components tainted by forced labour, as at 2022.[39]

Solar forms part of AGL's principal business activities, such as electricity generation (including through two solar plants), the sale of electricity (including solar products) to customers, and investments in renewable energy.[40] AGL also has publicly available Modern Slavery Statements, which contain relevant information on how it manages its modern slavery risks. To date, AGL has published four Modern Slavery Statements from 2020 to 2023, which are publicly available through the Australian Government's Modern Slavery Statement Register.[41] Finally, AGL was selected for this case study, as it was the only Australian energy company that incorporates solar into its principal business activities, and that also made a submission in its own name to the review of the *Modern Slavery Act 2018* (Cth) ('Act review').

AGL operates the largest private electricity generation portfolio, comprising approximately 20 per cent of Australia's total generation capacity. Accordingly, AGL is Australia's largest greenhouse gas emitter, constituting approximately eight per cent of total emissions. AGL also claims to operate 'the largest portfolio

35 *Ibid.,* pp. 7, 20.

36 *Ibid.,* p. 28.

37 *Ibid.,* p. 37.

38 *Ibid.,* p. 8.

39 *Ibid.*, p. 37; Burcu and Jackson, p. 173.

40 '2023 Statement', pp. 4–5.

41 Australian Government, 'Modern Slavery Statements Register', Attorney-General's Department, 2024, https://modernslaveryregister.gov.au. We note that AGL has since published a subsequent Modern Slavery Statement, which has not been captured in the research for this paper.

of renewable generation and storage assets of any ASX-listed company', with a plan to add a further 12 GW of renewable capacity by 2035.[42] Despite these commitments, AGL, as one of Australia's largest energy providers, must do more to ensure a just transition, evidenced by its just transition score of 3.8/20 in the 2023 World Benchmarking Alliance Electric Utilities Benchmark.[43] As such, AGL has a significant role to play in ensuring Australia's transition to net zero is a just transition, and can be considered a suitable subject for the present case study analysis.

To understand whether AGL's modern slavery risk management approach aligns with the HRDD steps as set out in the UNGPs, each statement was analysed against UNGP Principles 18–21, which relate to risk identification and assessment, integrating findings and taking appropriate action, tracking effectiveness, and communication.[44] The key findings are set out below.

i. Principle 18

Principle 18 requires businesses to identify and assess adverse human rights impacts or risks within their operations and through their business relationships. This process should draw on human rights expertise and involve meaningful consultation with potentially affected groups and other relevant stakeholders.[45]

It appears AGL complies with most of the requirements of Principle 18, despite a clear focus on identifying modern slavery risks, rather than human rights risks more broadly. Nevertheless, their use of human rights expertise, some stakeholder consultation, and ongoing risk identification processes go beyond the Act's requirements to merely describe the company's modern slavery risks. AGL's HRDD processes could be strengthened by meaningfully engaging with potentially affected groups and providing further information about its value chain. While Principle 18 does not provide any specific guidance on how deep into its value chain a business should investigate to identify modern slavery risks, it is expected that HRDD will vary in complexity depending on the size, risk profile, and nature of the business.[46] AGL has identified the risk of modern slavery in its solar supply chain, explicitly referring to the risk of exploitation of Uyghur and Kazakh minorities in Xinjiang associated with the manufacture of some solar products.

---

42 AGL Energy Ltd, *Climate Transition Action Plan 2025*, AGL, 2025, p. 5, https://www.agl.com.au/content/dam/digital/agl/documents/about-agl/company-docs/250813-climate-transitionaction-plan-2025-final.pdf.

43 World Benchmarking Alliance (WBA), 'AGL Energy', WBA, 2023, https://www.worldbenchmarkingalliance.org/publication/electric-utilities/companies/agl-energy-3.

44 'UNGPs', pp. 17–20.

45 *Ibid.,* p. 17.

46 *Ibid.,* p. 16.

AGL has also described the risk of modern slavery at each stage of the supply chain, including the extraction and processing of raw minerals, manufacturing of polysilicon and solar panels, as well as the transport and installation of solar panels.[47] Due to the risk profile of the solar supply chain, it would be reasonable to expect for further information to be reported beyond the source country and international procurement spend information (i.e. percentage of international spend by source country) provided about their tier one suppliers.[48] This could include the location of any suppliers (including sub-suppliers beyond tier one) in China, if those suppliers have suspected or confirmed participation in China's labour transfer programmes, or other similar information about their suppliers beyond tier one, ideally as close as possible to the suppliers sourcing the raw materials.

ii. Principle 19

Principle 19 requires businesses to integrate the findings from impact assessments across relevant functions of the business, and to take appropriate actions to respond to adverse human rights risks and impacts.[49]

It appears AGL has adhered to the requirements of Principle 19 and, by discussing governance structures, has gone beyond the requirements of the Act. AGL has taken action to respond to its modern slavery risks, including supplier due diligence processes[50] and a deep dive on its solar installation business, where their approach to solar procurement, management of modern slavery, and solar supply chain risks were assessed and validated by a third-party consultant.[51]

Despite following the steps of HRDD required by Principle 19, it is unclear whether AGL's actions are 'appropriate' without further information. In its 2023 Statement, AGL determined that 'it is more likely that AGL is directly linked to

47 AGL Energy Ltd, *Modern Slavery Act Statement 2020*, AGL, 2020, p. 11, https://www.agl.com.au/content/dam/digital/agl/documents/about-agl/who-we-are/company-policy/agl-modern-slavery-statement-fy2020.pdf ('2020 Statement'); AGL Energy Ltd, *Modern Slavery Act Statement 2021*, AGL, 2021, p. 12, https://www.agl.com.au/content/dam/digital/agl/documents/about-agl/who-we-are/our-commitments/220215-2021-modern-slavery-statement-nov-2021.pdf ('2021 Statement'); AGL Energy Ltd, *Modern Slavery Act Statement 2022*, AGL, 2022, p. 10, https://modernslaveryregister.gov.au/statements/11142 ('2022 Statement'); '2023 Statement', pp. 16–19.

48 '2023 Statement', p. 8.

49 'UNGPs', pp. 18–19.

50 '2020 Statement', pp. 13–14; '2021 Statement', pp. 14–16; '2022 Statement', pp. 12–14; '2023 Statement', pp. 26–31.

51 '2022 Statement', p. 12.

modern slavery rather than causing or contributing to [it]'.[52] However, they only included hypothetical scenarios as to how they may be directly linked, rather than disclosing specific instances where they have identified that they are, or are at risk of being, directly linked. Consequently, it is difficult to determine whether further actions—such as considering whether to exit a business relationship in accordance with the commentary under this Principle[53]—would be appropriate.

iii. Principle 20

Principle 20 requires businesses to track the effectiveness of their response, which should be based on appropriate indicators, and draw on feedback from internal and external sources, including affected stakeholders.[54]

Overall, it appears AGL has adhered to the requirements of Principle 20 and has gone beyond the requirements of the Act by including qualitative and quantitative measures to track the effectiveness of its response. However, it is unclear to what extent the feedback of affected stakeholders is sought and considered.

iv. Principle 21

Principle 21 establishes that businesses should communicate how they address their human rights impacts in a way that is accessible and provides adequate information to be able to evaluate a business' response to a particular human rights impact.[55]

As AGL's statements are publicly available, they have provided adequate information to undertake the present analysis, and describe the processes by which the company identifies and assesses modern slavery risks, it is reasonable to conclude that AGL meets the requirements of this principle.

Although AGL do not explicitly state that they undertake HRDD and have sought clarification on what is meant by HRDD,[56] a review of their modern slavery statements demonstrates that AGL are largely meeting the requirements of the HRDD processes outlined in the UNGPs. The key gaps in AGL's HRDD approach identified from this review include the company's lack of meaningful engagement with affected or potentially affected stakeholders, considering risks

---

52 *Ibid*., p. 15.

53 This would require considering how critical the business relationship is, the severity of the abuse, and whether exiting the relationship is likely to have adverse human rights consequences. See 'UNGPs', p. 18.

54 'UNGPs', p. 19.

55 *Ibid.,* p. 20.

56 N Andrews, *AGL Response to the Review of Australia's Modern Slavery Act 2018 Issues Paper*, AGL, 22 November 2022, pp. 5, 8, https://www.agl.com.au/content/dam/agl-thehub/221129-agl-response-to-ms-issues-paper.pdf.

within its value chain, and the focus on modern slavery risks over other human rights risks more broadly. There are also concerns about whether its risk mitigation actions go far enough to be considered appropriate.

Strengthening Human Rights Due Diligence in Australia to Support a Just Transition

In 2022, a review of the Act commenced, which focused on its effectiveness in combatting modern slavery. The subsequent report contained thirty recommendations, largely aimed at enhancing the standard and compatibility of reporting, and the enforceability of the reporting obligation.[57] As indicated earlier, there were several recommendations about HRDD, which would require businesses to implement a HRDD system and make it an offence for failing to do so. While it is anticipated that such changes can improve the effectiveness of the Act in combatting modern slavery, the report fails to consider human rights more broadly, the interconnection between environmental and human rights impacts, or the effectiveness of the Act in relation to state-imposed forced labour (see next section), thereby impacting the just transition.

It is imperative that any changes to the Act consider the just transition as Australia implements key strategies and policies to achieve its transition targets. In accordance with its obligations under the Paris Agreement, Australia has committed to reducing its greenhouse gas emissions by 43 per cent below 2005 levels by 2030, and to reduce its net greenhouse gas emissions to zero by 2050.[58]

As Australia's existing policy landscape makes no explicit commitments to a just transition[59] and fails to take the people working as part of global supply chains into consideration, HRDD should be mandated through legislation, consistent with the recommendations made following the review of the Act. The following considerations should also be mandated as part of the HRDD process to ensure modern slavery is addressed more effectively and to better support a just transition.

---

57 McMillan, p. 9.

58 *Climate Change Act 2022* (Cth) sect. 10. While these remain the legislated commitments at the time of writing, Australia has since announced its 2035 target, in which it has committed to reducing emissions by 62–70% below 2025 levels. See Department of Climate Change, Energy, the Environment and Water (DCCEW), 'Setting Our 2035 Target and Path to Net Zero', DCCEW, 18 September 2025, https://www.dcceew.gov.au/about/news/setting-2035-target-path-net-zero#toc_0.

59 R Eckersley and E Fitz-Henry, 'What is a "Just" Transition to Net Zero – and Why is Australia Struggling to get there?', *The Conversation,* 29 November 2023, https://theconversation.com/what-is-a-just-transition-to-net-zero-and-why-is-australia-struggling-to-get-there-218706.

Although the existing Act could be amended to include a HRDD requirement that incorporates the Act review recommendations and following considerations, it is recommended that the Act be replaced by a standalone HREDD law encompassing, at a minimum, these elements, whilst maintaining the provisions that established the Australian Anti-Slavery Commissioner.

Stakeholder and Rightsholder Engagement

Despite being a requirement of the HRDD process and a key feature of a just transition, the case study analysis demonstrated a lack of evidence that AGL has carried out meaningful engagement with potentially affected stakeholders. It also found that any engagement with stakeholders appeared to involve third-party business and human rights experts, as opposed to rightsholders. Here, 'stakeholders' refers to people or groups whose interests are or could be impacted by business activities, whereas 'rightsholders' refers to the 'stakeholders whose human rights are or may be affected'.[60] Examples of impacted and potentially impacted stakeholders and rightsholders include workers within supply chains; unions; local, regional, or national communities; civil society organisations; and governments.[61]

Meaningfully engaging with affected and potentially affected stakeholders and rightsholders is important for businesses to understand the local issues and impacts of their operations and supply chains, and to obtain insights and perspectives regarding adverse impacts and effective remediation;[62] in turn, this can help to address power imbalances inherent in the relationship. Furthermore, given the solar industry is expected to employ approximately 18 million workers by 2050 and has already had a disproportionately negative impact on rural and marginalised populations in less developed states,[63] ensuring meaningful engagement with such groups will be critical for addressing modern slavery and supporting a just transition.

---

60 Organisation for Economic Co-operation and Development (OECD), *OECD Due Diligence Guidance for Responsible Business Conduct*, OECD, 2018, p. 48, https://mneguidelines.oecd.org/OECD-Due-Diligence-Guidance-for-Responsible-Business-Conduct.pdf.

61 *Ibid.*

62 M-T Gustafsson, A Schilling-Vacaflor, and A Lenschow, 'The Politics of Supply Chain Regulations: Towards Foreign Corporate Accountability in the Area of Human Rights and the Environment?', *Regulation & Governance*, vol. 17, issue 4, 2023, pp. 853–869, https://doi.org/10.1111/rego.12526.

63 R Stock, 'Praeclariat: Theorising Precarious Labour Geographies of Solar Energy', *Antipode*, vol. 53, issue 3, 2021, pp. 928–949, https://doi.org/10.1111/anti.12698.

Therefore, the requirement to meaningfully engage with affected and potentially affected stakeholders and rightsholders should be legislated as part of the HRDD obligations. This approach would align with many of the mandatory HRDD laws in other jurisdictions, which require engagement with stakeholders at certain stages of the HRDD process.[64] Consideration should be given to framing this provision as a requirement to ensure the effective participation of such groups in the consultation process to ensure active, rather than passive, participation.[65]

Environmental Due Diligence

In addition to human rights impacts, the solar value chain also has environmental impacts. Generally, the environmental impacts of mining for raw minerals include greenhouse gas emissions, land clearing, biodiversity loss, destruction of natural habitats, and air and water pollution.[66] Additionally, there have been reports of damage to land and marine ecosystems near solar PV production facilities in China as a result of air, water, and solid waste pollution and exposure to toxic substances linked to the production of solar PV in Xinjiang, where coal, chlorine, and mercury are used.[67] The production of polysilicon for solar PV panels also requires extremely high temperatures. These are produced using cheap coal from the Xinjiang region, resulting in high carbon emissions, thereby hindering the objectives of the transition to renewable energy.[68] As such, undertaking Environmental Due Diligence (EDD) to identify, assess, avoid, and address a business's adverse environmental impacts and risks associated with its operations, products, or services[69] is also key to supporting a transition to net zero and environmental sustainability more broadly.

---

64 See McGaughey, Rowe, and Lappel, pp. 81–82.

65 S Deva, 'Mandatory Human Rights Due Diligence Laws in Europe: A Mirage for Rightsholders?', *Leiden Journal of International Law,* vol. 36, issue 2, 2023, pp. 389–414, https://doi.org/10.1017/S0922156522000802.

66 K Bales and B K Sovacool, 'From Forests to Factories: How Modern Slavery Deepens the Crisis of Climate Change', *Energy Research & Social Science*, vol. 77, 2021, pp. 1–9, https://doi.org/10.1016/j.erss.2021.102096.

67 Stock, p. 931; L T Murphy, J Vallette, and N Elimä, *Built on Repression: PVC Building Materials' Reliance on Labor and Environmental Abuses in the Uyghur Region*, Sheffield Hallam University Helena Kennedy Centre for International Justice, 2022, pp. 7–8.

68 *Ibid*., p. 8; Murphy and Elimä, pp. 8, 28; Mulvaney and Bazilian, p. 3.

69 See generally: Organisation for Economic Co-operation and Development (OECD), *OECD Guidelines for Multinational Enterprises on Responsible Business Conduct*, OECD, 2023, pp. 33–38; C Macchi, 'The Climate Change Dimension of Business and Human Rights: The Gradual Consolidation of a Concept of "Climate Due Diligence"', *Business and Human Rights Journal*, vol. 6, issue 1, 2021, pp. 93–119, https://doi.org/10.1017/bhj.2020.25.

Furthermore, there is a growing understanding about the interconnection between human rights and environmental impacts,[70] where human rights are directly affected by environmental degradation and loss of biodiversity,[71] and environmental harms often have corresponding adverse human rights impacts.[72] Specific to modern slavery, there is a two-way relationship with climate change.[73] Firstly, climate change can increase vulnerability to modern slavery due to climate-induced displacement or otherwise create conditions that may drive people to migrate. Secondly, climate change can result in 'resource scarcity, loss of livelihoods, increases in poverty, and unequal access to health and education',[74] which often disproportionately impact those with existing vulnerabilities to modern slavery.[75] On the other hand, modern slavery activities have also been linked to ecological degradation and climate change. This is due to the prevalence of forced labour and debt bondage in environmentally damaging and carbon-intensive industries, such as charcoal, cattle, palm oil, and extractive industries.[76] Therefore, not only is there an overlap between modern slavery risks and environmental risks and impacts,[77] but modern slavery and climate change are connected in a way whereby they may impact and exacerbate the other.[78]

As such, human rights and environmental risks and impacts should be addressed together, not in siloes,[79] such as through an integrated HREDD approach. The

---

70 F Dehbi and O Martin-Ortega, 'An Integrated Approach to Corporate Due Diligence from a Human Rights, Environmental and TWAIL Perspective', *Regulation & Governance*, vol. 17, issue 4, 2023, pp. 927–943, https://doi.org/10.1111/rego.12538; Gustafsson, Schilling-Vacaflor, and Lenschow, p. 862; Bales and Sovacool.

71 Dehbi and Martin-Ortega; Macchi, pp. 93, 108; United Nations Human Rights Office of the High Commissioner (OHCHR), *Understanding Human Rights and Climate Change*, OHCHR, 27 November 2015, pp. 13–26, https://www.ohchr.org/sites/default/files/Documents/Issues/ClimateChange/COP21.pdf.

72 B Albuquerque, 'The Interplay Between Environmental Crime and Corporate Sustainability Due Diligence', *New Journal of European Criminal Law*, vol. 15, issue 2, 2024, pp. 209–224, https://doi.org/10.1177/20322844241253182; B Davidson, 'Labour on the Leading Edge: A Critical Review of Labour Rights and Standards in Renewable Energy', *Energy Research & Social Science*, vol. 97, 2023, pp. 1–18, p. 8, https://doi.org/10.1016/j.erss.2022.102928.

73 D Boyd *et al.*, *Modern Slavery, Environmental Destruction and Climate Change: Fisheries, Field, Forests and Factories*, University of Nottingham Rights Lab, 2018, p. 9.

74 'Global Slavery Index', p. 14.

75 *Ibid.*, p. 63.

76 Boyd *et al.*, pp. 9–11. See also 'Global Slavery Index', pp. 65–66.

77 Cockayne, Rodriguez Huerta, and Burcu, p. 51; 'Beyond Compliance'.

78 Bales and Sovacool, p. 3.

79 See Dehbi and Martin-Ortega, pp. 928–929.

HREDD laws in France, Germany, and the EU have made explicit reference to the need to consider both human rights and environmental impacts throughout the due diligence process.[80] It is, therefore, recommended that Australia's Act be replaced by a standalone HREDD law. Consideration should be given to how to frame the provision to ensure HREDD is undertaken in an integrated and holistic manner to avoid human rights or environmental risks or impacts prioritised over the other. Finally, HREDD laws should prioritise accountability for local environmental impacts, such as pollution impacting access to clean water, while also ensuring accountability for impacts that are more of a global concern, such as climate change and deforestation.[81]

Human Rights

Human rights impacts in global renewable energy supply chains go beyond modern slavery, with the potential for impacts on labour rights, the environment, land rights, and indigenous peoples' rights and culture.[82] In Australia, it is projected that '43 per cent of all clean energy infrastructure required … would need to be sited on Indigenous lands',[83] which demonstrates the potentially large impact of the transition on Indigenous rights and culture. Furthermore, the solar supply chain carries specific risks to the human right to safe and healthy working conditions. Industrial accidents, such as fires and explosions, have occurred at silicon and polysilicon production facilities in China, which have resulted in both fatality and injuries.[84] These sites also expose workers to a range of health hazards, such as coal and PVC dust, carcinogens, and mercury waste, which can lead to respiratory diseases; lung, liver and other cancers; and death.[85] Workers installing solar panels are exposed to the risks of arc flash burns, electric shock, falls, and burn hazards, and workers mining quartz who are exposed to high amounts of silica dust are also at risk of lung diseases and specific forms of lung cancer.[86]

---

80 *Ibid.,* p. 931; McGaughey, Rowe, and Lappel, pp. 69–71.

81 See M Mason, L Partzsch, and T Kramarz, 'The Devil Is in the Detail – The Need for a Decolonizing Turn and Better Environmental Accountability in Global Supply Chain Regulations: A Comment', *Regulation & Governance,* vol. 17, issue 4, 2023, pp. 970–979, https://doi.org/10.1111/rego.12539.

82 World Benchmarking Alliance (WBA), *How Ambitious and Credible are Electric Utilities' Transition Plans? An Analysis of Keystone Companies in 2023*, WBA, November 2023, p. 16, https://assets.worldbenchmarkingalliance.org/app/uploads/2023/11/Electric-Utiltires-Benchmark-Insights-Report-2023.pdf.

83 D Prestipino, 'Indigenous Involvement Crucial to Australia's Renewable Energy Dreams', *National Indigenous Times,* 3 May 2024, https://nit.com.au/03-05-2024/11193/indigenous-involvement-crucial-to-australias-renewable-energy-dreams.

84 Mulvaney and Bazilian, p. 3.

85 Murphy, Vallette, and Elimä, p. 9.

86 Stock, pp. 931–933.

Although HRDD as articulated in the UNGPs requires a focus on all human rights, the Act has a specific focus on modern slavery. It is recommended that HREDD legislation mandates entities to conduct holistic HREDD, in order to consider all human rights, labour rights, Indigenous rights, and environmental rights, as well as their environmental impacts.[87]

Value Chain

Solar products have impacts on human rights and the environment throughout the value chain. Impacts can occur during mining, manufacturing, and shipping of raw minerals and solar PV products (upstream), during the installation of solar panels and construction of solar plants (operations), and in the disposal and recycling of solar panels and energy systems (downstream).[88] Regarding the downstream impacts, it is projected that there will be 200 million tonnes of solar waste globally by 2050. Through recycling solar waste, silicon, glass, and metals such as silver and copper that are necessary for the energy transition can be extracted and re-used. However, recycling solar panels can also be complex, costly, and can carry environmental risks from other toxic metals, such as lead and cadmium. While research is underway to improve the costs and methods involved in recycling solar waste, in the meantime, much of the solar waste is sent to landfill, usually in less developed states.[89] There is a large dumpsite in Ghana, to which e-waste is commonly sent, where poor and socially vulnerable workers are exposed to hazardous substances and are at a heightened risk of severe respiratory illnesses, accidents, and other injuries.[90] To address such impacts, HREDD legislation should require entities to consider the *value chain* when conducting HREDD, as opposed to the *supply chain*, thereby mandating businesses to identify and assess both upstream and downstream risks and impacts as part of its risk screening and assessment activities.

Remediation

Remediation is considered outside the scope of this paper, as it is not part of the HRDD process. However, remediation is a key aspect of the UNGPs,[91] and strong access to remedy provisions help to eradicate barriers that survivors often face

87 Deva, pp. 404–405.

88 Davidson, p. 11; Stock, p. 943.

89 ARENA, 'Low-Cost Recycling Technology for Solar PV', *ARENAWIRE,* 22 September 2023, https://arena.gov.au/blog/low-cost-recycling-technology-for-solar-pv.

90 Stock, p. 935.

91 See 'UNGPs', pp. 20–27.

in accessing grievance mechanisms and remedy.[92] It is suggested that HREDD legislation should provide for effective access to remedy in a way that addresses these barriers and considers the needs of survivors and rightsholders.

Not only should legislation mandate HREDD in accordance with the above requirements, but transparency on the HREDD process and outcomes should also be required in reporting. Where the reporting requirements are strengthened, this can drive stronger and more transparent disclosures and reduce situations where companies may use ambiguity or lack of transparency to maintain the status quo, reduce their accountability, and delay action on modern slavery or other human rights and environmental harms in their value chains.[93]

Implications

The above section suggests replacing the Act with a standalone HREDD law, which prioritises stakeholders and rightsholders and ensures accountability for a broad range of human rights and environmental harms along the value chain, thereby better supporting a just transition. While this recommendation follows a case study analysis of just one company in the renewable energy sector, the proposed HREDD approach should be mandated across all sectors. Not only are there other sectors that are likely to have moderate to high impacts on human rights or the environment, but many businesses will also need to consider these human rights and environment risks and impacts as they decarbonise their operations and value chains.

However, mandatory HREDD provisions can result in subcontractors and suppliers throughout the supply chain bearing the costs of meeting due diligence requirements imposed on them by entities to whom they provide goods or services, and they can also reinforce unequal power structures between such parties. To ensure amendments to the Act do not entrench existing unequal power structures between corporations and rightsholders, or further impose Western-centric standards on others, stakeholders and rightsholders must be engaged as active participants in the design, implementation, and monitoring of any HREDD legislative instruments or amendments.[94]

---

92 See Dehbi and Martin-Ortega, pp. 937–938.

93 Business and Human Rights Resource Centre (BHRRC), *Modern Slavery Act: Five Years of Reporting*, BHRRC, February 2021, p. 10, https://media.business-humanrights.org/media/documents/MSR_Embargoed.pdf; J Meehan and B D Pinnington, 'Modern Slavery in Supply Chains: Insights through Strategic Ambiguity', *International Journal of Operations & Production Management*, vol. 41, issue 2, 2021, pp. 77–101, https://doi.org/10.1108/IJOPM-05-2020-0292.

94 See Dehbi and Martin-Ortega, p. 932-4, 940.

Furthermore, while the proposed HREDD legislation may improve the effectiveness of HREDD to address the human rights and environmental risks and impacts in business operations and value chains, HREDD is limited in its ability to prevent or mitigate state-imposed forced labour.[95] This is because where a supplier is part of a broader programme using state-imposed forced labour, the leverage of one or even multiple businesses collectively is unlikely to be effective at preventing or mitigating the conduct of the state. Where there remain markets and consumers who will continue to accept 'dirty' products, suppliers (and the state) may continue to use forced labour in those products.[96] Therefore, HREDD laws are considered insufficient on their own. Additional regulatory tools and measures, such as economic sanctions (including import bans on goods made with forced labour),[97] corporate and competition law reform,[98] and diplomatic measures[99] should be considered to both target state-imposed forced labour and form a holistic approach to addressing modern slavery and supporting a just transition.[100]

---

95 We recognise that there are likely to be other limitations to HREDD that may influence its effectiveness at addressing human rights and environmental risks and impacts, outside the context of state-imposed forced labour—for example, mapping value chains beyond tiers one and two, and building or exercising leverage to address risks or remediate workers deeper in value chains. Although HREDD efforts might not reach all affected or at-risk workers (or other rightsholders), the UNGPs allow for a risk-based approach, where the most severe risks and impacts to people should be prioritised, wherever prioritisation is necessary (see Principle 24). There are adequate guidance documents (including the UNGPs), tools, platforms, and other resources and initiatives to assist businesses with identifying, appropriately addressing, and remediating risks and impacts—particularly the most salient ones—to ensure that HREDD efforts can yield positive outcomes in many cases.

96 Cockayne, Rodriguez Huerta, and Burcu, p. 47.

97 Such bans have been enacted in the United States (See United States Congress, *Uyghur Forced Labor Prevention Act 19 USC § 1307-4 (2021)*; in Canada (Public Safety Canada (PS), 'Import Prohibition on Goods Produced by Forced Labour', PS, 8 February 2021, https://www.publicsafety.gc.ca/cnt/trnsprnc/brfng-mtrls/prlmntry-bndrs/20210625/10-en.aspx); and in the European Union (See European Parliament, *Prohibiting Products Made with Forced Labour on the Union Market* (Europe) 2022/0269 (COD), https://oeil.secure.europarl.europa.eu/oeil/en/procedure-file?reference=2022/0269(COD)).

98 B Choudhury, 'Corporate Law's Threat to Human Rights: Why Human Rights Due Diligence Might Not Be Enough', *Business and Human Rights Journal*, vol. 8, issue 2, 2023, pp. 180–196, https://doi.org/10.1017/bhj.2023.29; B Sjåfjell, 'How Company Law Has Failed Human Rights – and What to Do About It', *Business and Human Rights Journal,* vol. 5, issue 2, 2020, pp. 179–199, https://doi.org/10.1017/bhj.2020.9.

99 Cockayne, Rodriguez Huerta, and Burcu, p. 82.

100 Regarding the importance of a holistic approach, see: Deva, pp. 413–414.

Conclusion

This paper uses a case study of AGL—one of Australia's largest energy providers with a significant role to play in the transition to net zero—to demonstrate the inadequacy of the current HRDD framing under the Act in supporting a just transition in Australia. Despite Australia being assessed as a leading country in its response to modern slavery, this reputation is insufficient if it is not matched by substantive action. To demonstrate genuine leadership, Australia must strengthen its legislative and regulatory frameworks to more effectively address the human rights and environmental risks embedded in global renewable energy value chains. Ensuring meaningful protection for workers within these supply chains is not only a moral imperative but also essential to realising a truly just and credible transition to net zero.

To strengthen HRDD in Australia, it is recommended that the Act be replaced by standalone HREDD legislation, which includes stakeholder and rightsholder engagement, EDD, and a broad focus on all human rights along the entire value chain. Such new legislation should also provide for effective access to remedy and maintain the provisions that established the Australian Anti-Slavery Commissioner. Moreover, to ensure such legislation does not entrench existing unequal power structures, stakeholders and rightsholders must be engaged as active participants in the design, implementation, and monitoring of any HREDD legislative instruments or amendments.[101] HREDD laws should also be supported by complementary regulatory measures.

Although it appears that further deliberation is required on how to support a truly just transition, the transition is already underway. This paper recommends that businesses should not wait for legislative amendments to be passed to take action. They should take a proactive role in the just transition[102] by conducting HREDD in line with the above recommendations and taking active steps to break down existing unequal power structures with affected and potentially affected stakeholders and rightsholders. Additionally, businesses should make their best efforts to avoid importing products made with forced labour and should promote a culture of transparency in reporting to encourage a collaborative effort to eradicate modern slavery and support a just transition. Such efforts should not be limited to businesses in the renewable energy sector. Given the likelihood that other sectors will also find human rights and environmental risks or impacts in their operations and value chains, particularly as they decarbonise, these efforts should be replicated by businesses across these sectors to promote respect for both human rights and the environment.

[101] See Dehbi and Martin-Ortega, pp. 932, 940.

[102] Johansson, p. 248.

Phoebe Michelmore completed a Master of Laws (International Law and International Relations) at Flinders University in 2024. Her thesis examined the effectiveness of Human Rights Due Diligence in addressing modern slavery in global renewable energy supply chains. Email: mcca0300@flinders.edu.au

Prof Marinella Marmo is a leading expert on human mobility, human rights, and gendered criminology at Flinders University. She has authored over 50 articles and book chapters, and her research has been cited by academics and policymakers worldwide. Email: marinella.marmo@flinders.edu.au

Short Articles

Worker Protections at Sea: Climate change and life aboard distant water fishing vessels

Sallie Yea

Abstract

This short essay discusses the impact of rising temperatures on workers' health in ocean-based labour sectors, such as industrial fishing, which have attracted little scholarly and activist attention. It provides some reflections on the relationship between a heating planet and work by exploring how climate change can lead to injury and death among distant water fishing workers. I focus on two climate change outcomes that impact fishers: the increasing salinity of water and the dramatic reduction in fish species.

Suggested citation: S Yea, 'Worker Protections at Sea: Climate change and life aboard distant water fishing vessels', *Anti-Trafficking Review*, issue 25, 2025, pp. 153-157, https://doi.org/10.14197/atr.201225259

Rising temperatures have dramatically impacted workers' health in many land-based sectors. Heat stress, in particular, has intensified vulnerabilities of those who already live and work in precarious situations, including migrant workers. Brick kilns, agriculture, and mining have attracted particular scrutiny in a growing body of scholarship.[1] This short essay focuses on ocean-based labour sectors, such as industrial fishing, which have attracted far less scholarly and activist attention. It draws from recent (2022–2024) research with Filipino men who worked on industrial distant water fishing vessels owned by Taiwanese and Chinese fishing fleets, as well as with their left-behind family members. It is my hope that these

[1] L Parsons, 'Thermal Inequality in a Changing Climate: Heat, Mobility, and Precarity in the Cambodian Brick Sector', in N Natarajan and L Parsons (eds.), *Climate Change in the Global Workplace*, Routledge, London, 2021, pp. 15–31; C Z de Lima *et al.*, 'Heat Stress on Agricultural Workers Exacerbates Crop Impacts of Climate Change', *Environmental Research Letters*, vol. 16, no. 4, 2021, pp. 044020, https://doi.org/10.1088/1748-9326/abeb9f; S M Taggart *et al.*, 'Heat Exposure as a Cause of Injury and Illness in Mine Industry Workers, *Annals of Work Exposures and Health*, vol. 68, issue 3, 2024, pp. 325–331, https://doi.org/10.1093/annweh/wxae011.

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

men's and their families' experiences begin to fill the gap of knowledge about this labour sector that is rife with egregious exploitation in large part because it is out of sight.[2] In so doing, this essay provides some reflection on the relationship between a heating planet and work by exploring how climate change can lead to injury and death among distant water fishing workers. In this sense, I focus on two climate change outcomes that impact fishers:[3] the increasing salinity of water and the dramatic reduction in fish species. These two outcomes are connected in the context of industrial fishing; vessels must travel further out to sea and remain at sea for longer periods in order to land enough catch to remain profitable. This impacts the availability and quality of both fresh water and fresh food, with deleterious health consequences for migrant fishing crews.

There are over 100,000 men working in distant water fishing; yet there is no database or repository of deaths and injuries among those working in this labour sector. The lack of data reflects these workers' disposability as well as the challenge of enforcing worker protections in the middle of the ocean. The human and labour rights abuses endured by migrant fishers in the sector have now been widely documented, including in two reports I penned in 2010 and 2013, respectively. This documentation continues to highlight fraudulent and deceptive recruitment practices, wrongful deployment, wage theft, degrading and substandard living and working conditions, and high levels of abuse and violence in the workplace.[4]

I see the interviews I have been conducting over the past several years with fishermen, former fishermen, and their family members as a critical intervention that is beginning to fill in a lack of data. During interviews and informal conversations with fishermen and their wives and mothers, the subject of serious illnesses and deaths repeatedly came up. It is startling how often they referred to deaths on board.[5] In the scant scholarly research or reports by international

---

2 D Tinkler *et al.* 'Modern Slavery and the Race to Fish', *Nature Communications*, vol. 9, 2018, article no. 4643, https://doi.org/10.1038/s41467-018-07118-9.

3 'Fisher' is the term formally applied to those who work in paid roles on fishing vessels, as outlined in the *Maritime Labour Convention*. For further discussion, see L Carey, 'The Maritime Labour Convention 2006: The Seafarer and the Fisher', *Australian and New Zealand Maritime Law Journal*, vol. 31, no. 1, 2017, pp. 14–36.

4 S Yea, *Troubled Waters: Trafficking of Filipino Men into the Long Haul Fishing Industry through Singapore*, Transient Workers Count 2 (TWC2), Singapore, 2010; S Yea, *Diluted Justice: Protection and Redress for Trafficked Fishermen in Asia*, Transient Workers Count 2 (TWC2), Singapore, 2013.

5 This sector is a gendered and ethnic labour niche, with men from the Philippines and Indonesia constituting most of the crew. These patterns reflect perceptions of the difficulty and danger associated with this work, and the common view that women would not be capable of undertaking the work or enduring the precarious conditions at sea.

organisations—for example, on migrant fishing crews from Indonesia and the Philippines[6]—there is little to no mention of explicit connections between deaths, illnesses, and climate change.

Qualitative data from my research as well as media reports touch on two main causes of serious illness or death: kidney or renal failure and beriberi, a disease caused by thiamine (or Vitamin B1) deficiency, which primarily affects the nervous and cardiovascular systems.[7] Consequently, the links to climate change are both direct (as the incidence of kidney disorders is caused by the excessive consumption of increasingly salty water) and indirect (in the case of beriberi, which is caused by a lack of decent, nutritious food and safe drinking water).

Tropical and sub-tropical regions are experiencing rapidly rising salt levels.[8] Increasing salination not only has profoundly affected marine life, but also those working and living on the water. With a limited supply of fresh, drinkable water on fishing vessels, fishing crews are drinking this seawater with increasing concentrations of salt. In my interviews with long-time fishers, they describe that on previous stints on distant water fishing vessels the salt water was 'tolerable', but that now the water has become 'undrinkable'. Building a scholarly archive through the detailed narratives of the fishers and their families is crucial to understanding life, and death, on board these vessels.

The Filipino men who participated in my study revealed that they were only given one litre of bottled water per day to be shared amongst four men, or none at all. When the supply of fresh water runs out or is reserved only for senior crew and the captain, workers must try to filter seawater to drink as best they can. Although water filtration devices are plentiful and affordable, in keeping with other cost-cutting measures in deep water fishing fleets, no such devices are available for crew. Even though the men know that drinking increasingly salty seawater would eventually make them sick, they had no choice but to drink the

---

6 N S Pocock *et al.*, 'Occupational, Physical, Sexual and Mental Health and Violence among Migrant and Trafficked Commercial Fishers and Seafarers from the Greater Mekong Subregion (GMS): Systematic Review', *Global Health Research and Policy*, vol. 3, 2018, pp. 1–13, https://doi.org/10.1186/s41256-018-0083-x.

7 Drinking excessive amounts of salt water is a key cause of kidney failure. Because salt water is hypertonic (has a higher salt concentration than bodily fluids), this puts pressure on kidneys to filter and remove the excess salt from the body. Failure to expel the salt can result in severe dehydration.

8 J Ran *et al.*, 'Quantifying the Contribution of Temperature, Salinity, and Climate Change to Sea Level Rise in the Pacific Ocean: 2005-2019', *Frontiers in Marine Science*, vol. 10, 2023, pp. 1200883, https://doi.org/10.3389/fmars.2023.1200883; P Dalpadado *et al.*, 'Rapid Climate Change Alters the Environment and Biological Production of the Indian Ocean', *Science of the Total Environment*, vol. 906, 2024, pp. 167342, https://doi.org/10.1016/j.scitotenv.2023.167342.

'undrinkable' water. Shockingly, they also told of resorting to drinking rusty water from the old air-conditioning units on board, with equally severe health effects.

In the 2024 Manila International Dialogue on Human Trafficking, I raised the issue of safe drinking water when I gave a keynote presentation on the human rights of migrant fishers, suggesting that equipping vessels with cheap filtration devices could save countless lives. Whilst representatives of the Philippine government, foreign embassies, international organisations, local NGOs, and legal firms were all present at this event, not one followed up with a commitment to help support such a project. Some argued that it would further the exploitation of migrant fishers by deflecting the cost of maintaining workers onto third-sector organisations and funding. The argument was lost on me.

Beriberi is one of the most commonly occurring illnesses on distant water fishing vessels. It displays a range of discrete symptoms depending on whether it is 'wet' or 'dry'. In the former cases, those affected suffer a combination of heart and circulatory system failures, presenting as heart failure, oedema (swelling in the joints), shortness of breath, rapid heart rate, and palpitations. Wet beriberi presents most commonly for fishing crew workers, although dry beriberi has also been reported. In these cases, those suffering the condition experience weakness, atrophy (thinning and loss of muscle tissue), numbness and loss of feeling in extremities, and paralysis. If properly treated through Vitamin B supplements and dietary adjustments, beriberi does not necessarily become serious. Prevention through availability of decent food is the key to reducing the incidence of beriberi on fishing vessels.

The fishing vessels, however, can only carry a limited supply of fresh food, including fruit and vegetables. Feeder vessels transport supplies and equipment such as needed for vessel repairs, so that the fishing vessels themselves can remain at sea almost indefinitely. The increasing reliance on feeder vessels to maintain profitability amongst Taiwanese, Chinese, and South Korean fleets in particular is related to the crisis of profitability that is, itself, primarily an effect of climate change. As Tinker *et al.* argue, rising fuel costs coupled with declining fish stocks and changing fish pathways due to the effects of ocean warming and salination have conspired to force distant water fishing vessels further out to sea for longer periods, with attempts to minimise return to port due to the fuel costs involved.[9] The problems associated with the use of feeder vessels are numerous and have been discussed extensively in relation to both illegal, unregulated, and unreported (IUU) fishing and human rights of fishers, as remaining at sea for extended periods places fishers in unfavourable and exploitative working situations. Even where feeder vessels carry supplies of fresh food, its distribution among crew is highly uneven. Filipino crew with whom I spoke related how meat and vegetables

[9] Tinkler *et al.*

would first be served to senior crew, usually Chinese. Stale, expired food and, sometimes, rice comprise the staples of crew members' diet. Punishment for minor infringements of the strict and regimented work environment could also often be meted out as denial of food. Sometimes crew would be so hungry that they would eat fish catch raw.

The aim of this short provocation was to encourage researchers interested in precarious migrant work in all its forms to look at the ways climate change intersects with working conditions in a wide range of sectors, including sea-based work. Precarious workers are often most affected and least able to remedy the ill health effects of conditions produced under changing climate conditions in offshore fishing work. These relationships can be both direct (excessive consumption of increasingly salty water) and indirect (less availability of decent, nutritious food and safe drinking water). The loss of life or negative impacts on the future capacity to work have profound long-term implications for the fishers themselves, as well as their families, which are also yet to be more fully examined. These implications act to reinforce and intensify their health vulnerabilities under climate change.

Sallie Yea is an Associate Professor of Human Geography in the Environmental Science Programme at Charles Sturt University, Albury, Australia. She has been conducting research with precarious migrant workers from or in Asia for more than twenty years. Email: salliellao@gmail.com

ANTI-TRAFFICKING REVIEW 25 (2025): 158-164

What Does It Take to Protect Livelihoods and Forests? Insights from workers and communities in the Brazilian Amazon opposing deforestation and slave labour

Jolemia Nascimento das Chagas, Dionéia Ferreira, and Ginny Baumann

Abstract

In this short article, we explore what needs to be in place for the workers and communities in the Brazilian state of Amazonas to resist slave labour in areas that have recently opened up routes to deforestation, cattle ranching, and mining. Drawing from community-based work in several remote locations in Amazonas state, including individual interviews and discussions with community groups, we argue that long-term work by trusted local organisations, aiming to curb structural violence at community level, is vital, enabling local residents to visibilise the problem of forced labour and slavery-like practices and prompt actions by statutory bodies to protect workers and the environment.

Suggested citation: J N Chagas, D Ferreira, and G Baumann, 'What Does It Take to Protect Livelihoods and Forests? Insights from workers and communities in the Brazilian Amazon opposing deforestation and slave labour', *Anti-Trafficking Review*, issue 25, 2025, pp. 158-164, https://doi.org/10.14197/atr.2012252510

From Protecting the Forests to Holding the Chainsaws

In July 2021, Dr Jolemia Chagas, a coordinator of RETA (Rede Transdisciplinar da Amazônia or Amazon Transdisciplinary Network—a regional network protecting people's rights and livelihoods alongside forest conservation in southern Amazonas state) was visiting a traditional community on the Manicoré River to provide agroecological support. She interviewed a resident who described not just threats to his livelihood due to climate change but violent incursions and theft of natural assets on which he depends for his self-sufficiency: 'Without pity or mercy, firstly, the loggers use legal threats against people. ... He [the logger] wanted to take my land. He said that if I didn't negotiate, then if he went to court, he would win. I don't know him, but the logging company works on the river.'

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

The lives of these local residents depend on fishing from the river and gathering non-timber resources from the surrounding environment. When speaking about climate change, they do not use the jargon of international conferences, instead speaking in more literal terms about the rapid changes they see all around them. For example, during a meeting of riverine community women with RETA staff in July 2024, they described the scorching heat that forces them to go to their fields earlier and earlier; the mass deaths of fish in the torrid and dried up rivers; wildfires in the forest; and the worsening scarcity of drinking water. They explained how poor water quality causes vomiting and diarrhoea, with health risks increased when it is difficult to reach clinics due to the rivers being too low to travel on. Yields of forest products are reduced and small-scale crops are failing due to the unpredictability of the growing seasons and the soil being too hot and dry.

Their sustainable, ancestral ways of life also face a more violent threat,[1] driven by global demand for commodities such as cattle, soya, and gold. In southern Amazonas, the BR-319 highway is opening out new swathes of forest, allowing illegal loggers and miners to access the region's resources and rapidly advance towards these river communities. Trees have already been cut to make room for 1,500 kilometres of side roads. After hundreds of years, and despite this being one of the Amazon's areas that is most strictly protected by existing laws, these riverine and indigenous communities find their forests cut down and cattle pastures encircling them. In this region, large areas of forestry with Brazil nut, palm, and açai trees have been destroyed, seriously reducing both biodiversity and the livelihoods that depend on a healthy forest.

The Brazilian government's substantial social protection programmes could help in this crisis,[2] but they provide little benefit in these remote locations: health and social assistance are often precarious or non-existent. At the same time, the communities' income generation is undermined by the state's lack of understanding of Amazonian family farming, so there is insufficient government investment in services and infrastructure for their real needs. In an age-old pattern called *aviamento*, communities trade their forest products for a pittance so they can buy extortionately priced necessities from urban areas. Communications technology and solar energy that would transform these rural conditions are barely available.

---

1 L Modelli, 'Amazonian River Communities Seek to Boost Hard-Won Land Rights to Fight Loggers', *Mongabay*, 11 October 2022, https://news.mongabay.com/2022/10/amazonian-river-communities-seek-to-boost-hard-won-land-rights-to-fight-loggers.

2 See further information on Brazil's social protection programmes in: M Morgandi *et al.*, *Social Protection for Brazil of the Future: Preparing for Change with Inclusion and Resilience*, International Bank for Reconstruction and Development/The World Bank and UNDP, Washington, DC, 2022, p. 10. https://documents1.worldbank.org/curated/en/099041823131543914/pdf/P1748360cee7150e30857b06a0e80ada814.pdf.

The final tragic twist is that workers from these same communities then often have no choice but to accept jobs to carry out deforestation or mining, further destroying the livelihoods of neighbouring settlements. These workers can be recruited precisely because the conditions required for meeting their basic needs have been removed by the invaders and exhausted by climate change.

Climate Change Driving Exploitation—Driving further destruction

It is a cyclical pattern that is far from unique to the Amazon. While poverty, social exclusion, and lack of labour rights already create risks of slave labour around the world,[3] climate change is now super-charging vulnerability that, in turn, provides the desperate hands to carry out further destruction. The cycle is very well-evidenced, with examples ranging from bonded labourers across the South Asia brick kiln belt; children trafficked for illegal fishing enterprises in Bangladesh in the protected Sundarbans, a mangrove forest area; and young exploited miners in the Democratic Republic of Congo.[4] Workers pushed to the margins of survival are drawn into slave labour that accelerates climate change.

How is it then that global efforts to prevent further climate change rarely engage closely with worker organisations or affected communities in order to understand how to help them avoid and resist ecologically damaging slave labour?[5] Why is this

[3] We use this term as defined in Article 149 of the Brazil Penal Code—*trabalho escravo* (slave labour)—because it is aligned with the contextual realities of forced labour: exhausting work hours, restriction of movement due to debt to the employer, and degrading working conditions.

[4] See, for example, D Brown *et al.*, 'Modern Slavery, Environmental Degradation and Climate Change: Fisheries, Field, Forests and Factories', *Environment and Planning E: Nature and Space*, vol. 4, issue 2, 2019, pp. 191–207, https://doi.org/10.1177/25148486198871 56; J L Decker Sparks *et al.*, 'Growing Evidence of the Interconnections between Modern Slavery, Environmental Degradation, and Climate Change', *One Earth*, vol. 4, issue 2, 2021, pp. 181–191, https://doi.org/10.1016/j.oneear.2021.01.015. For more examples, see *Climate Change and Modern Slavery Hub*, https://www.climate-modern-slavery-hub.org.

[5] Only 17% of adaptation finance across 2017–2021 aimed to build local resilience. See UN Environment Program, *Underfinanced. Underprepared. Inadequate Investment and Planning on Climate Adaptation Leaves World Exposed. Adaptation Gap Report 2023*, Nairobi, 2023, https://www.unep.org/resources/adaptation-gap-report-2023. Likewise, between 2003 and 2016, less than 10% of climate finance was explicitly targeted at the local level. See M Soanes *et al.*, *Delivering Real Change, Getting International Climate Finance to the Local Level,* International Institute for Environment and Development, London, 2017, p. 4, https://www.iied.org/10178iied. Within these locally-led programmes, only a proportion are likely to be focusing on enabling workers to resist exploitation.

focus on the workers themselves—the people forced to operate the chainsaws or fishing nets or bricks—so absent?

Learning from Un-siloed Initiatives

Fortunately, there are a range of initiatives in the Amazon that are helping workers and communities try to leave situations of exploitation and avoid harmful work—and even to blow the whistle on crimes that only they are witnessing.[6]

In order to expand this worker and community-led approach to addressing climate change, it is important to spell out and learn from these emerging initiatives. For example, in April 2024, in an isolated part of the river communities of southeastern Amazonas, community members raised the alert when they saw ferry loads of workers passing through with tractors, excavators, and materials for logging. They informed RETA and a local association.[7] Through these trusted connections, further monitoring was carried out by Greenpeace and the BR-319 Observatory, leading to a joint inspection operation by the Ministry of Labour, IBAMA (Brazil's federal agency for the environment and renewable natural resources), and the Federal Police.

The labour inspector for the government mobile squad found 50 workers, including children, in conditions of slave labour. They had been sheltering in tarpaulin shacks for more than a month, with no access to safe drinking water. Unable to walk away, they cooked, bathed, and drank water from the nearby stream. They had no safety equipment, and one had fractured his collarbone after a tree branch fell on him. The mobile squads took the workers to the municipality headquarters where they received immediate care. They were issued with worker documentation so that they will be compensated. It was the largest deforestation operation detected by the authorities in Amazonas since the start of the year.

---

6 In the states of Pará and Amazonas, one such programme brings together four local organisations working closely with communities severely affected by slave labour and loss of forestry and biodiversity, linking them with national-level labour rights and environmental NGOs with support from the Freedom Fund. (Names of the local organisations are withheld due to security risks). The local work focuses on strengthening the capacity of the communities to guard against slave labour and illegal deforestation, with a community fund investing in livelihoods that value and respect healthy forests. Alongside this, national NGOs strengthen the responsive capacity of labour and environment inspectors and ensure that cases of slave labour lead to businesses being put on the country's 'dirty list' (see footnote 9). Partner organisations are tracing supply chains in order to use national and international mechanisms for corporate accountability with regard to the affected companies.

7 Not named for security reasons.

Unfortunately, the manager of the illegal operation escaped, leading to heightened risks to community members and to organisations denouncing the criminals. Not all of the chainsaws could be found and confiscated.

Importantly, this official inspection process creates reliable, publicly available data on the existence of slave labour, encouraging urgently needed investment in government programmes to tackle the problem and protect frontline communities. The labour inspector, Magno Pimenta Riga, emphasised to us that in the absence of the state in large swathes of the Amazon, the role of local organisations in investigating cases of enslavement is fundamental. Community action allows for cases to be reported as they are actually happening, so that effective enforcement can take place against the criminals and a range of public policies can be activated.[8]

The information and alerts from communities and workers are especially vital to address the presence of slavery and climate crimes within global business supply chains. For example, because of the official registration of slave labour in this recent rescue operation, the case will be added to Brazil's public 'Dirty List',[9] making it harder for the criminals to sell their products or get bank loans. Recent editions of this list have highlighted slavery in the mining, beef, leather, and timber industries within national and global supply chains.[10]

What It Takes to Confront Slave Labour

Raising the alert about forest incursions is not new for these communities. What is new is that this time they were also denouncing slave labour, which brings added legal enforcement power and business sanctions. There were various important factors that made this possible:

8 Email correspondence between Freedom Fund staff and Magno Pimenta Riga (labour inspector, Brazilian Ministry of Labour and Employment), 21 October 2024.

9 The Government publishes a Register of Employers (the 'Dirty List') who have been found by government inspectors to be subjecting workers to slave labour. Listed companies are banned from acquiring credit from state-owned banks and may be refused credit by private banks. Violators are kept on the list for two years and are removed only if they have discontinued use of forced labour and paid all back wages.

10 H Freitas, H Potter, and I Harari, 'Nova "Lista Suja" do trabalho escravo traz 5 fornecedores da JBS e 13 garimpos', Repórter Brasil, 6 October 2023, https://reporterbrasil.org.br/2023/10/nova-lista-suja-do-trabalho-escravo-traz-5-fornecedores-da-jbs-e-13-garimpos; I Harari *et al.* 'Trabalho doméstico infla crescimento da nova "lista suja" da escravidão', Repórter Brasil, 5 April 2024, https://reporterbrasil.org.br/2024/04/escravidao-domesticas-lista-suja.

- **Trust with communities:** RETA is well-known by the community members. They trust RETA staff and volunteers because they have helped them deal with other kinds of emergencies before. No outside organisation could instil this level of confidence, allowing residents to denounce criminal activity despite the connivance of some of the local politicians and officials. RETA can then use its connections to reach beyond this local corruption to activate the federal enforcement agencies.
- **Understanding and rejecting slave labour:** RETA is supporting community members to learn about and form their own understanding of slave labour. They are now better equipped to identify cases of slavery and resist being lured into exploitation. RETA helps them access additional support for processing their sustainable products and accessing fairer markets, which can bolster this resistance. They know how to bring cases to the attention of the authorities in order for action to be taken against slave labour. RETA has been assisting the communities with environmental conservation for over two decades, but only more recently has it focused on the fight against slave labour as a crucial part of the strategy for preserving ways of life in the region. It is working together with expert Brazilian worker rights and anti-slavery organisations to strengthen and deepen collective actions across the most affected areas of the Amazon.
- **Managing risks:** People who alert the authorities to slave labour are risking their lives because the criminals have coopted powerful allies. This is one reason why slavery often remains invisible, with workers and bystanders terrorised and afraid to disclose what is happening. Brazil tops the list of the most dangerous countries for human rights and labour rights activists.[11] For this reason, it is vital that community members who witness such crimes have safe channels for reporting. In the case of the large rescue in April 2024, one of the leaders had to be included in the government's protection programme, following threats.

Conclusion

Initiatives, connections, and resourcing along these lines are essential within so many other global contexts where climate chaos is being unleashed through the use of severely exploited workers or by workers already pushed to the brink of survival by poverty and environmental degradation. In contexts like these, it is only through resident communities' confidence and relationships with frontline

[11] E Hale, 'India, Brazil among Most Dangerous Places for Activists: Report', *Al Jazeera*, 3 May 2023, https://www.aljazeera.com/economy/2023/5/3/india-brazil-among-most-dangerous-places-for-activists-report.

NGOs and movements that they can protect the forests and the climate—and themselves—from exploitation and slave labour.

As one local man explained, 'We're concerned about organising everything so that one day when we go, [our children and grandchildren] will be in a proper environment, an environment where they're respected, where people can live with dignity.'[12]

Dr Jolemia Nascimento das Chagas is a facilitator within the Amazon Transdisciplinary Network (RETA)—a grassroots network operating in communities whose survival is threatened by institutional violence and eco-criminal enterprises. Email: jolemia144@gmail.com

Dionéia Ferreira is a facilitator within the Amazon Transdisciplinary Network (RETA). Email: dioneia_ferreira@hotmail.com

Ginny Baumann is a senior program manager at the Freedom Fund—an organisation that contributes to the global efforts to end modern slavery, partnering with frontline organisations and communities where exploitation and trafficking are highly prevalent. Email: gbaumann@freedomfund.org

[12] Interview, Manicoré River, 1 July 2021.

Fields of Uncertainty: Climate, extraction, and the struggles of rice farmers in the Philippines

Merry Jean A. Caparas and Maria Aurora Teresita W. Tabada

Abstract

As the climate emergency intensifies in the Philippines, extreme weather events increasingly threaten key economic sectors. In response, the government has prioritised infrastructure development, driving up demand for sand and gravel from the extractive industry. This article shares the story of a small agricultural village that was devastated by a super typhoon, forcing rice farmers to sell their land and leading to a rapid expansion of sand and gravel extraction. This situation now endangers the village's irrigation system, its lifeline for farming. The narrative highlights a critical dilemma: while rebuilding after climate disasters necessitates urgent infrastructure development, extractive industries can exacerbate the vulnerabilities of rural communities.

Suggested citation: M J A Caparas and M A T W Tabada, 'Fields of Uncertainty: Climate, extraction, and the struggles of rice farmers in the Philippines', *Anti-Trafficking Review*, issue 25, 2025, pp. 165-170, https://doi.org/10.14197/atr.2012252511

Background

The Philippines is ranked among the most vulnerable countries to extreme weather, according to reports such as the 2025 Climate Change Performance Index.[1] In response, the government launched the Build, Build, Build programme

[1] The index uses a standardised framework to assess and compare the climate performance of 63 countries and the European Union, based on four key categories: Greenhouse Gas Emissions, Renewable Energy, Energy Use, and Climate Policy. In the 2025 ranking, the Philippines placed 7th overall. See: J L Algo *et al.*, 'Climate Change Performance Index – Philippines', Germanwatch, NewClimate Institute, Climate Action Network International, November 2024, retrieved 26 May 2025, https://ccpi.org/country/phl.

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

in 2017—now rebranded as Build, Better, More—to drive economic growth while addressing climate concerns through infrastructure development. However, this initiative has also intensified the extraction of sand and gravel (SAG), compounding the difficulties faced by farmers already burdened by climate-related impacts. As a result, they are increasingly caught in cycles of precarious labour, further deepening both economic challenges and ecological strain.

In 2017, the National Irrigation Administration (NIA) Region 8 reported that SAG extraction in Leyte affected 5,143 hectares of farmland, reducing rice production by 41,144 metric tonnes—a loss valued at PHP 699,448,000 (USD 18,689,020), impacting 207,449 farmers. This surge in SAG extraction is widely attributed to the infrastructure rebuilding efforts following Super Typhoon Haiyan in 2013, which also caused severe devastation to agriculture and irrigation systems. With recovery and repairs proving slow and costly, farmers struggled to sustain their livelihoods. Many were left with little choice but to sell their land, including agricultural fields situated near rivers, which subsequently became prime sites for SAG extraction.

The repercussions of SAG extraction are particularly pronounced in rural areas with high to medium poverty rates, such as Barangay [village] Salvacion in the municipality of Albuera. Home to the Bacan River, this area relies heavily on farming and hosts the Magbangon Communal Irrigation System (MCIS), which supports rice farmers across 140 hectares. The heavy SAG extraction in the river alters its physical characteristics, increasing flood risks during extreme weather and threatening the irrigation infrastructure and rice farming livelihood.

Guarded Hydrology: Irrigation infrastructure amid extraction pressures and flood risk

In 2018, while engaging with the irrigators' association in Albuera, we were invited by *Manong* [Mister] Juan (pseudonym), a member of a local irrigators' association, to attend a public hearing for a mountain quarry application in Barangay Salvacion by a prominent local construction company. The public hearing was attended by the permit applicant, municipal representatives, members of the Provincial Sand and Gravel Task Force, and barangay residents.

Before the hearing, *Manong* Juan warned that barangay residents had been offered PHP 500 (USD 14) by the permit applicant for their signatures, raising concerns about support for the proposal. In the Philippines, mining and non-metallic resource extraction applications require area clearance from local government units, including barangays. Community consent is based on signatures in favour of the application and the absence of major opposition. This requirement is outlined in Chapter VIII of the Department of Environment and Natural Resources Administrative Order (DAO) 2010-21.

Despite being on edge, *Manong* Juan objected to the application during the public hearing, citing irrigation degradation and increased sediment in the river. He emphasised legal restrictions prohibiting extraction within a one-kilometre radius of irrigation infrastructure. However, the permit applicant interrupted, defending their company's role in community support and highlighting desilting efforts to improve water flow for MCIS, especially after floods. Their response was met with audience applause, showing approval and appreciation for the company's contributions. This reaction put *Manong* Juan at a disadvantage, as community support overshadowed his warnings about environmental risks.

Constitutionally, permit holders of extraction activities in the Philippines must implement a Social Development and Management Program to support host communities, as mandated by Chapter XIV of DAO 2010-21. This assistance is not generosity but an obligation, ensuring residents benefit after commercial extraction of state-owned resources within their jurisdiction.

After *Manong* Juan's unsuccessful attempt to resist the new SAG extraction application in Barangay Salvacion, he invited us to walk along the Bacan River towards the upstream portion where the MCIS is located. Upon entering the riverbank, we noticed a guard post with a man watching us. *Manong* Juan told us to ignore him and continue walking. We moved away from the river and followed a trail beneath the shade of a coconut plantation. Pointing to the surroundings, he shared that he and his siblings once owned the land adjacent to the river, inherited from their parents. They had negotiated with the SAG permit holders for payment for the right of way, as backhoes and trucks carrying aggregates damage their crops. However, they had never received any payment and eventually decided to sell their land to one of the permit holders.

The story of *Manong* Juan is just one of many cases illustrating how those directly affected, often farmers, have little recourse and are forced into unfavourable negotiations. This dynamic reinforces the dominance of permit holders over critical local concerns such as livelihoods, ultimately leading to dispossession. His experience exemplifies a broader pattern of systemic exploitation, where communities struggle to secure rightful compensation for damages and remain powerless against industry-level extraction operations.

We continued our walk along the river. Finally, the guard post had disappeared into the distance. Not far from us, we saw an acacia tree. Close to it were piles of SAG ready for transport. Part of the river was almost dry, and just as we realised that we were looking towards the irrigation infrastructure, we understood that the presence of the guard had been no coincidence. This area was shielded from the public or unannounced inspections, controlled by permit holders whose activities seemed to extend beyond what is lawfully allowed.

Permitted extraction is legally required to follow strict regulations, including quarterly inspections led by the Mines and Geosciences Bureau. Permit holders must submit sworn reports detailing the materials extracted and disposed of, ensuring transparency and environmental responsibility. Yet, the Bacan River's condition reveals significant issues. Extraction has disrupted water flow to the irrigation system, threatening its stability. In cases of heavy flooding, the disturbed riverbed could lead to disaster. By 2021, NIA declared that excessive SAG extraction had damaged or washed out four irrigation systems out of seven irrigation infrastructures in Albuera, drastically altering the river's natural channel and intensifying floods, making water movement dangerously unpredictable.



Image 1. Location of the Magbangon Communal Irrigation System. Photo taken in September 2018 by the project team of which the authors were part.

'We Will Soon Eat Sand and Gravel': A community's cry as the river is consumed and voices silenced

At the February 2019 forum organised by Visayas State University's Institute for Strategic Research and Development Studies in partnership with NIA, the then Municipal Mayor of Albuera said, 'Albuera was just a very simple agricultural community. Relying so much on farms for a living. From there, we learnt to maximise the land by employing technology to increase production and ultimately our income. Thus, the Albueranos decide to tap their very own environment to fulfil that dream. So, yes, Albuera is facing the greatest challenge of combating the very effect of our very own dream. Our problem with extractive industries is getting worse.'

But was it ever the dream of the Albueranos to commodify their riverbeds? While the exact turning point remains unclear, most agree the industry surged in 2014 and 2015, following Super Typhoon Haiyan's devastation in 2013. The disaster crippled irrigation and agriculture, forcing rice farmers to sell their land. Initially, SAG extraction was a financial lifeline amid the crisis. However, it then evolved into a threat to rice farming. As storms and typhoons become more frequent due to the climate crisis, the risk of flooding looms ever larger, endangering critical irrigation infrastructure and deepening farming communities' vulnerability.

Through our engagement with the community, NIA, and the Mines and Geosciences Bureau, we uncovered that SAG permit holders in the Bacan River area are operating businesses and living outside Albuera, with most workers coming from outside the town. A deeper investigation into these permit holders revealed a concerning pattern: most belong to a single family, each holding individual commercial permits under separate names. This allows them to evade the stringent requirements set for large-scale commercial applications while maintaining access to different areas of the river.

At another public hearing in a neighbouring barangay, *Manong* Isidro (pseudonym), also a member of a local irrigators' association, recounted a troubling event. Initially, only 11 out of 70 community participants supported the extraction application. On the following day, the applicant returned and promised people money, influencing them to change their decision and cast additional votes in favour. He explained: 'The situation is becoming harder because the community is not cooperating at all. Those few who continue to oppose the operation are being threatened'.

The ongoing SAG extraction, which threatens both irrigation systems and agricultural rice fields, has become a major concern for residents. The phrase 'We will soon eat sand and gravel' has grown common in the town of Albuera, reflecting deep anxieties over the industry's impact. In response, many of the irrigators' associations in Albuera, including those of *Manong* Juan and *Manong*

Isidro, organise themselves through the support of NIA and submit petitions to the Office of the President and the Department of Environmental and Natural Resources. However, their fight is far from over, as the extractive industry remains deeply embedded in the country's development plans.

Reflections

This story reflects a pressing dilemma in managing the climate crisis, particularly in the Global South, where extreme weather events are increasingly severe and frequent, and the recovery process remains slow. On one hand, the urgency to rebuild after climate-related disasters demands rapid infrastructure development to protect lives and restore essential services. On the other hand, when such development is pursued without regard for local realities, it can deepen existing vulnerabilities and expose marginalised communities to even greater climate risks. This raises a difficult but necessary question: whose climate emergency takes precedence? Perhaps the real challenge lies not in choosing between national development and local resilience, but in recognising that they must be addressed together, ensuring that responses do not come at the expense of those most at risk.

Merry Jean A. Caparas is currently pursuing a joint PhD at La Trobe University, Australia and Sheffield Hallam University, UK. She holds a Master of Science degree in Sociology and Water Management and Governance, and was previously a research assistant at the Visayas State University, the Philippines. Email: M.Caparas@latrobe.edu.au

Maria Aurora Teresita W. Tabada is an Associate Professor of Sociology at Visayas State University, with intensive work on community-based natural resources conflict management, particularly on water and mining. Email: tess.tabada@vsu.edu.ph

The Battered Generation: Precarity of ageing people and people with impairments in climate-affected borderlands

Tasnia Khandaker Prova, Era Robbani, and Humaun Kabir

Abstract

All people inhabit the same world, but global warming and subsequent climate adversities do not affect everyone in the same way. People who are already marginalised due to aspects of their identity—race, religion, age, gender, or ability—face compounded vulnerabilities. With a particular focus on elderly people and people with disabilities, this short article presents cases of three families who live in villages spread across the southwestern borderlands of Bangladesh while coping with a less predictable climate. It draws connections between their experiences with erratic climate patterns that collide with structural inequity and social injustice.

Suggested citation: T K Prova, E Robbani, and H Kabir, 'The Battered Generation: Precarity of ageing people and people with impairments in climate-affected borderlands', *Anti-Trafficking Review*, issue 25, 2025, pp. 171-174, https://doi.org/10.14197/atr.2012252512

Satkhira and Jashore are two southwestern districts of Bangladesh, bordered by India on one side and the majestic mangroves of the Sundarbans and the Bay of Bengal on the other. Once home to a diverse ecology, lush greenery, and entangled rivers and waterways, the region has borne the brunt of a changing climate. Deltaic communities struggle to keep pace with the ever-growing intensity and frequency of natural shocks like floods and cyclones, which in turn leads to fast-eroding rivers. As locals grapple with a new climate reality that sways in extremes—of heat waves, cold spells, and erratic rainfall—they must also navigate uncertainties that often plague borderlands. Elderly people and people with disabilities face particularly entangled vulnerabilities. This article brings attention to them by sharing the experiences of Kishor, an 80-year-old man from Munshiganj's Munda

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

community;[1] Aparna, a 90-year-old Hindu woman from Debhata; and Ali, a 55 year-old man with disabilities from Keshabpur.[2]

Environmental degradation and disasters disproportionately affect both vulnerable groups. As a cyclone was approaching her village, Aparna was struck with fear, uncertain of what to do to stay safe. She recounts being outside when she first heard the cyclone alert, yet instead of finding a nearby cyclone shelter, she opted to make the trip to return home to her flimsy thatched house. Her thinking reflects women's long-held fear of multipurpose shelters as unsafe—as well as unprepared for and unreceptive to elderly people's needs.[3] Given that cyclones have become more frequent, many older women like Aparna regularly face impossible choices. Current shelter options collide with deep-seated beliefs about their dangers to such an extent that older women would rather ride out storms on their own.[4]

For those living with disabilities, climate-exacerbated challenges present a shrewd reminder of how institutions can perpetuate exclusion. In the past, Ali used to earn his living by trading raw goods, but an impairment has impeded his ability to move without support. Enlisting himself into the government's disability allowance scheme presented to be a bureaucratic nightmare, with Ali caught up in the whims of corrupt elected officials who consistently disregarded him. He later found two willing journalists who helped with the enlistment, only to realise that the aid he would receive once every three months was far from enough. Ali has explored different income-earning strategies. He and his wife had even migrated for work to India a few years ago, hoping she would earn a higher wage as a day labourer on the other side of the border. Although she earned more money in India, she could not sustain the double responsibility of being a breadwinner and caretaker by herself in a foreign land for long. After they returned home, Ali's wife

---

1 The Munda people are an ethnic group also referred to as *Bunos* (jungle clearers). Their livelihoods have primarily depended on the Sundarbans and adjacent arable land.

2 Munshiganj and Debhata are union councils (the smallest rural administrative unit in Bangladesh) within the district of Satkhira; Keshabpur is a union council in Jashore District. The interactions with respondents were facilitated by a research project funded by the Cross-Border Conflict Evidence, Policy and Trends (XCEPT) research programme, in partnership with the Asia Foundation and sponsored by the UK Government. The interviews and reflections referred to in this article were conducted between 4 and 7 June 2024, and the transcripts remain with the authors. Pseudonyms have been used to retain respondents' anonymity.

3 M Faruk, S A Ashraf, and M Ferdaus, 'An Analysis of Inclusiveness and Accessibility of Cyclone Shelters, Bangladesh', *Procedia Engineering*, vol. 212, 2018, pp. 1099–1106, https://doi.org/10.1016/j.proeng.2018.01.142.

4 Tribune Desk, 'Deadliest Cyclones in Bangladesh's History', *Dhaka Tribune*, 26 May 2024, https://www.dhakatribune.com/bangladesh/347566/deadliest-cyclones-in-bangladesh%E2%80%99s-history.

fell ill and their son began to look after both his parents. As the sole earner of a five-member household that also includes his grandmother and young wife, the son, a clerk at a local clinic, constantly worries about the looming threat of storms stealing the tinned roof over their heads. The post-cyclone water-logged state of their neighbourhood interrupts Ali's son's much-needed income, compounding the family's debt. Bereft of what he describes as 'dignified' choices, Ali now frequents Dhaka, the capital of Bangladesh, to beg for alms.

Kishor, like Aparna and Ali, never attended school. His life, as chartered out by his forefathers, led him to become a farmer. But now his ageing body cannot keep up with the harsh demands of working in the fields, and he finds himself having to rely on his daughter and son-in-law's help to sustain himself. Kishor quietly remarked: 'When he [son-in-law] earns, I eat. When he does not, I starve.' Meanwhile Kishor's daughter left her job as a school teacher to provide round-the-clock care for her ageing parents. Like Ali's son, the burden of her new role intensifies with climate shocks. For example, the stress and fatigue from surviving the last cyclone left Kishor quite ill and knocked down the family's only toilet. Climate disasters make it more difficult for Kishor and families like his in their poor neighbourhood to ever get ahead. In these climate-vulnerable borderlands, elderly people and people with disabilities are a battered generation, witnesses to the climate violence that is shaping their lives. Ageing in this region has meant passively observing a steady stream of shifts in their lifeways.

Both metaphorically and literally, climate-induced changes make life less sweet: a community member in Jashore recounts how his famous *khejur* (date molasses) does not taste the same anymore. Life becomes all the more bitter since the borderlands are far from the support and oversight of the central government. In the void created by the absence of good governance, corruption has flourished. An illegal shrimp farming economy has thrived, which has worsened the increasing climate change-related salinisation of land and water. Kishor describes its effects on his family: 'My family has lived here for generations. I once grew paddy here and raised cows and goats… but not much is possible with salinity-infested waters now. We can neither drink it [the water] nor grow produce with it.' Seeking support from local authorities has resulted in humiliation and harassment. During Eid, while waiting for rice from a local official, Ali's wife was ridiculed. The official taunted her—'Are you pretending that your husband is dead? He is alive!'—implying that a woman is only truly deprived when her husband passes, thus discounting the jarring reality of someone living with a life-altering disability.

The experiences of these individuals, trying to make a living amid climate precarity, reveal the challenges for particularly vulnerable groups such as elderly people and people living with disabilities. Through their stories we also see how suffering is not isolated and engulfs extended families. Kishor, Aparna, Ali, and many others from regions grappling with climate change urgently need a range of social support, financial assistance, and inclusive planning. Otherwise, they

will continue to lurch from one climate crisis to another with no end in sight.

As global climate financing and the international aid sector face shrinkage, advocacy must be leveraged to sound alarms for those with intersectional fragilities to ensure that they are prioritised in future policy-making and responsive action.

Tasnia Khandaker Prova is an independent researcher and former Climate Research Lead at the Centre for Peace and Justice (CPJ) at BRAC University in Dhaka, Bangladesh. Currently pursuing a PhD in Planning at the University of Toronto, she is passionate about uplifting the voices of those disproportionately affected by climate adversities, poverty, and conflict, using non-extractive, ethical, and empowering means. She holds an MSc in International Development Practice from the University of St Andrews, UK. Email: tasnia.prova@mail.utoronto.ca

Era Robbani is a former Research Associate at CPJ, working in critical criminology, assessing how climate change interrupts the peace and security of vulnerable communities in the borderlands. She holds an MSc in Criminology from the University of Dhaka, Bangladesh and is currently pursuing her a second MSc in Global Crime, Security and Justice at the University of Edinburgh. Email: e.robbani@sms.ed.ac.uk

Humaun Kabir is a former Research Assistant at CPJ. His interests include understanding development policies around disability inclusion, social justice, and equality. He holds an MSS in Social Welfare and Research from the University of Dhaka, Bangladesh and is currently pursuing a PhD in Social Work at the University of Texas at Arlington. Email: hxk9749@mavs.uta.edu

Interview: Currents of Despair: The political ecology of migration and trafficking in the Mekong region

David A. Feingold and Denise Brennan

Abstract

One of the special issue guest editors, Denise Brennan, conducted this interview with David Feingold to learn more about his experience of witnessing the impact of climate change and ecological changes on people's lives and livelihoods in Southeast Asia.

Suggested citation: D A Feingold and D Brennan, 'Interview: Currents of Despair: The political ecology of migration and trafficking in the Mekong region', *Anti-Trafficking Review*, issue 25, 2025, pp. 175-183, https://doi.org/10.14197/atr.2012252513

David A. Feingold is a research anthropologist and filmmaker. He has conducted extensive field research in Southeast Asia for over six decades. He served as head of the HIV/AIDS and Trafficking Project at UNESCO, Bangkok, from 1997 to 2002. He is currently Director of the Ophidian Research Institute. His many documentaries include the award-winning film, *Trading Women*. The editors would also like to acknowledge David's love for entering people's lives and thoughtfully portraying them on camera, advocating for their health and wellbeing, and heralding local knowledge in corridors of power. He often did so with anthropologist Heather Peters, his late wife, and partner in everything.

One of the special issue guest editors, Denise Brennan, conducted this interview with David on 15 May 2025 to learn more about his experience of witnessing the impact of climate change on people's lives and livelihoods in Southeast Asia. The interview has been edited for brevity and clarity.

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC-BY). Under the CC-BY license, the public is free to share, adapt, and make commercial use of the work. Users must always give proper attribution to the authors and the Anti-Trafficking Review.

Denise Brennan: David, can you start by giving us some background about your work over the years and how people have been referencing the climate, even if with a different vocabulary, and how they have been articulating their life around nature, the environment, and climate?

David Feingold: I first went to Asia in 1961, as an undergraduate at Dartmouth, to work at the Japanese Atomic Energy Research Institute. Many large companies were building the first atomic energy power plant for the Japanese Government in a small village. I was looking at the social impact of all these engineers and staff from all over the world on this community. Then I went to Vietnam for my senior thesis research and, after that, to Cambodia and Thailand.

When I went back to the United States, I joined the Southeast Asian Studies programme at Yale and studied Thai and anthropology. I had an inspiring teacher, the great French scholar Paul Mus, who was a specialist on, among other things, the Khmer Empire. One of his key points was that the Khmer empire, the Angkor Empire, was a hydraulic empire—not simply economically and politically, but symbolically; Cambodian origin traditions link political legitimacy to water. The origin myth of Cambodia involves an exiled prince or a Brahmin from India landing (sometimes shipwrecked) in Cambodia.[1] He falls in love with a Naga Princess. Nagas are represented as seven-headed cobras, but can take human form. They are water spirits. To marry the Naga princess, her lover had to travel to her father's palace under the sea, clinging to her shawl. The Naga King blessed the marriage and sucked up a vast amount of water, revealing dry land that was given to the couple as a dowry. This was the legitimating myth for both the kings of the Khmer Empire and of Funan before that, linking the rulers to the land and water.

The economic strength of the Khmer Empire derived not simply because of the control of irrigation and surplus rice production, but because of the control of easily accessible fish protein as well. The Tonle Sap, which is where I've been doing work most recently, is probably the most productive freshwater ecosystem in the world, and the third or fourth largest source of freshwater protein in the world. In an average yearly catch in Cambodia, there are about a hundred species of fish. There are 200 species of fish identified in the Tonle Sap lake and 500 in the overall freshwater systems in Cambodia. There are ancient Khmer inscriptions that talk about 'harvesting fish'. The Tonle Sap expands five to six times its area during the rainy season, and contracts during the dry season. The fish would be trapped in small remaining pools of water and women would collect them in baskets. Since ancient times, people have been salting and fermenting fish—it's

[1] The version in which it is a Brahmin who marries a Naga Princess ignores clearly written taboos on Brahmins travelling over the ocean, though there is debate about how strictly these rules were enforced.

called *prahok*—which can be preserved over long periods. It's a vital source of protein, calcium, and other nutrients. Since ancient times, the preservation method meant that fish product could be traded over long distances .

After graduating from Yale, I went to Thailand where I began my research with Akha people, a highland group in the mountains of Thailand, Burma/Myanmar, Laos, and Yunnan province in China. Later, I conducted my dissertation research, spending two years in an Akha village on the Thai-Burma border. At that time, their main livelihood was growing opium and rice. Opium is a very delicate crop: not enough rain early on or too much wind and rain at harvest time, and the whole crop can be wiped out. There could be 300 per cent variation in yields from a field from year to year. Yet, conditional on weather, farmers could predict yields quite accurately through the growth cycle. Moreover, you could often use the same field for twenty years, whereas upland rice fields you could use, at most, for three years.

But you have much higher labour input into growing opium than into growing upland rice. Most of the labour in opium is weeding and harvesting. And when the petals fall off the flower, there is the capsule on a stem. When the top starts turning brown, you go through, you have to walk backwards. Then you use either a double-bladed knife or triple-bladed knife, depending on the group, and you slit the poppy. You have to slit it carefully, because if you don't slit it deep enough, you don't get the maximum resin; if you slit it too much, it goes into the capsule. Then, you go back the next day and you scrape off the resin that's come out—raw opium. And that's a lot of work; about 80 per cent more labour than the input into upland rice. Most of the labour input into upland rice growing was clearing the fields—cutting down trees and burning them—and planting and harvesting the rice. What is interesting is that the work of a woman or a child in opium production was equal to men's labour. In rice production it wasn't, because most of the labour input was in field clearing, which was heavy labour in which men had a comparative advantage. Women and children worked in rice production too. But in terms of labour productivity, their labour wasn't equal to men's labour, whereas in opium production it was.

Thailand ultimately became the world's most successful case of reducing opium production. An unintended consequence, however, was the devaluation of women's labor relative to men's within highland economies. And that pushed women out of the villages, because by going out and migrating, they could earn significantly more to help their families than their labour at home was worth.

I started to work on trafficking in 1996-97. Thirty years earlier, there were no minority women in the sex industry in Thailand. But now you had policies that effectively devalued women's labour and pushed them into the most lucrative source of income that they could go into, which sometimes was highly exploitative.

This is one instance of how political economy and ecology intersect to shape livelihood strategies and mobility.[2]

Denise: And why did opium production drop?

David: It's a complex discussion. Starting in the 1970s, Thailand came under very heavy pressure from the US and the international community to supress opium production. This left highland communities vulnerable to attack and often extortion by law enforcement. I've described this vulnerability as 'defined cultural criminality'—a situation in which a legal or long-tolerated widespread cultural practice (in this case, opium cultivation) is redefined by the State in such a way it creates a large class of 'criminals'.

Even before that, however, other crops became easier to market, because of the expansion of strategic roads into the highlands. A great advantage of opium was high value per amount of weight, and, therefore, lower transport costs. With improved roads and access to vehicles, you had less need for opium now that you could get more varied, less labour-intensive crops to market.

There are other things that happened too. Burma had been—and still is—the main producer of opium in the region. Continuous warfare has plagued Shan and Kachin States since 1962, and political instability favours the production of drug crops over food crops. Suppose you have to run away because the Burmese army is coming to burn down your village. You can carry off a year's production of opium in your wood basket. You can't do that with rice. And there's also the currency function, because in highland economies, traditionally, there was a liquidity problem. Opium was high value, yet infinitely divisible.[3]

Denise: I'm really interested in this political-ecological economy. So what years are you talking about when women started to outmigrate?

David: It started in the 1980s in different areas and by the 1990s, it had really taken off.

---

[2] For a more extended discussion of these issues, see: D A Feingold, 'The Hell of Good Intentions: Some preliminary thoughts on opium in the political ecology of the trade in girls and women', in G Evans *et al.* (eds.), *South China and Mainland S.E. Asia: Cross border relations in the post-socialist age*, Palgrave Macmillan, New York, 2000, pp. 183-203, https://doi.org/10.1007/978-1-137-11123-4_10.

[3] D A Feingold, 'Money, Myths, and Models: Opium, economics, and history on the Thai--Burma frontier', in V Navaratnam *et al.* (eds.), *Opiate Drug Consumption Patterns in Asia*, The National Drug Centre, Penang, 1981, pp. 146-158.

Denise: That's when I started reading about Thai women in sex work and either I didn't notice or the early literature didn't make ethnic distinctions, because I don't recall seeing anything about this.

David: Well, it wasn't until my programme at UNESCO that we noticed it because most people didn't know that and they didn't go in those areas where most ethnic minority women ended up. So in the highlands, you had a movement from smoking opium on to heroin, which is a smuggler's drug, not a consumer's drug, because it takes approximately 10 kilos of opium to make one kilo of heroin, so it's much more compact for smugglers. As the government suppressed opium cultivation, people moved on to heroin. And to biologically more efficient modes of administration—from smoking heroin to shooting it. And this coincided with the arrival of HIV/AIDS. In Thailand, the epidemic began not as a sexually transmitted disease but as an injecting drug users' epidemic. Over time, it spread from injection networks into broader sexual transmission.

The girls and women who had outmigrated and worked in the sex industry, as well as their customers, generally had little accurate knowledge about HIV/AIDS. Moreover, since at the time, about 50 per cent of highland people did not have Thai citizenship and were not allowed to work outside of their district, most were in a position of significant structural vulnerability. This meant that they tended to end up in the lowest, most exploited end of the sex industry with the least ability to exercise choice of customers. If a woman tested positive for HIV, she was sent back home. This was true of lowland Thai women as well. This contributed to the early explosive expansion of the HIV epidemic in the north of Thailand. At the time, there was not yet any effective treatment. The point here is that there was an intimate and complex relationship between the political ecology of opium and the migration and vulnerability patterns of minority girls and women, and patterns of the spread of HIV in Thailand.[4]

But to go back to opium production, the people that I was working with were highly attuned to changes in their environment. I used to go out with people when they were picking the fields. What you wanted for an opium field was alkaline soils, so you looked for limestone outcroppings. In addition, people would sometimes taste the soil. I was out with one of my neighbours one day, and he was picking out a field, and I was looking at it and I said, 'it doesn't look that good to me'. And he said 'I know if I went further away, I'd get a better field. But it would take me half a day to go there and back because we have young children and they walk slowly and play'. So he chose a field that was less fertile, but closer. Akha would also always grow corn in a field before they grew opium, because it would increase the resin output of the opium poppy. In other words, people who live

[4] D Feingold (dir.), *Trading Women*, Ophidian Films Ltd., Philadelphia, 77 min, 2003.

in forests must be attuned to the details of their environment. Because if they weren't, they would starve.

None of this was discussed in terms of climate. I also did a two-year project in Peru in 1990-1991. In Peru, there are about 4,600 different kinds of potatoes. My favourite was what they call the 'make your mother-in-law cry' potato, because it's very knobbly and hard to peel. The belief is that if a girl can peel it successfully, her future mother-in-law will have to let her son marry her, and will cry. Different potatoes are adapted to different temperature, or altitudes. People noticed that potatoes that used to grow at lower heights now only grow at higher heights because of climatic warming. So local people were very much aware of this as climate change early on. Not necessarily the causes, but they had a very concrete measure, which happened slowly, over the years.

Denise: There have long been conversations about women who migrate for sex work because there are no income earning opportunities at home. But was it ever related to the climate and changing weather patterns?

David: In practice, most people don't experience climate change as an abstract global process. They experience ecological change—alterations in their local environment—which can have a variety of complex and reinforcing causes. For example, the fishermen that I've been working with in Cambodia have been experiencing diminished fish yields. And they've been forced, because of food insecurity, to use nets where the holes are too small. They know a lot about fishing and they know this isn't a good thing—because if they catch the juvenile fish, they'll never grow up to be big fish—but the fishers have to eat. Moreover, nets with too small holes are illegal and make the fishing families vulnerable to prosecution, confiscation of their equipment, or shakedowns by the police. They're experiencing differences in the lake level. It's a very complex ecology. You have what's called the flooded forests. In order for the flooded forests to flourish, they need a certain amount of time when they're out of water and then a certain amount of time when they're in the water. Because, when the fish spawn, the small fish swim into the flooded forest; there's lots of bugs for them to eat and the water level has to be too low for the big fish to come in and eat them. The problem is that now in Tonle Sap, you have too much water in the dry season and not enough water in the wet season.

I was part of this big Luce Foundation–funded project looking at the impact of the Mekong dams on communities in the lower Mekong. The Mekong Culture WELL project is centred at Michigan State University and involves Chiang Mai University and Mae Fah Luang University in Thailand, Royal University of Phnom Penh, Massey University of New Zealand, and UNESCO. It's made up of fish specialists, remote sensing people, anthropologists, and geographers. There have been many studies showing that the Tonle Sap system is, if not crashing, then going down dramatically, and that this is having and going to have huge impacts—not

only on Cambodia, but on Vietnam as well. It is not simply that large quantities of fish and crustaceans from the Tonle Sap are shipped to Vietnam. If you go all the way down to the Mekong Delta in Vietnam, one of the most fertile rice growing areas in the world, that continued fertility and productivity is dependent on silt and nutrients that flow down from the Tonle Sap system. The Mekong Delta is what's called a destructive delta, which means that each year, even before the current situation, there was not enough silt deposited to make up for what was being washed away by the sea.

Therefore, you're getting increased salinisation and eventually, rice growers won't be able to grow rice, so many of them will have to go and do something else. This will result in decreased food production and likely increased outmigration. Our question about what was happening in Tonle Sap was: is it the result of climate change or is it the result of the dams? There's a brilliant paper from the project, which disambiguates the impact of dams and climate.[5] And it's not that the climate isn't important in the long term, but most of the change is due to the impact of dams. So the fishing families are experiencing ecological change; they are keenly aware of changes in their environment, but not necessarily of the causes

Now, if you go back twenty years or so, fishing people generally didn't migrate. The most they would do is go to town during the dry season and work in a factory or a market and then go back home. And I'm sure you've read about the exploitation of people working on Thai fishing boats. There are many Cambodians on the boats. But none of them were fishermen in Cambodia. So, the fishing people, because there are whole families that fish—men will pull up the nets and so on and women steer the boat and also sell the fish in the markets—now must change their strategies and think about migration. And the poorest people cannot afford to migrate through the legitimate labour migration channels, and they don't have support networks in Thailand.

Denise: Something that is just driving me crazy is this interest by international organisations and governments on the alleged relationship between climate-related disasters and trafficking.

David: Yes, climate change is like the 'flavour of the month' in anti-trafficking. I mean, everything takes place in the climate, but the connection is often tenuous. You remember the Indian Ocean tsunami of 2004? I was in the US and I got a call from ABC News, wanting to know about trafficking. And I told them that no one can move anywhere; if they find any traffickers, they should hire them to deliver antibiotics.

---

5 H Dang *et al.*, 'Hydrologic balance and inundation dynamics of Southeast Asia's largest inland lake altered by hydropower dams in the Mekong River basin', *Science of the Total Environment*, vol. 831, 2022, pp. 1-12, https://doi.org/10.1016/j.scitotenv.2022.154833.

You had ridiculous things. There was this story on television all over the world, of a little blonde girl in Thailand, who supposedly had been trafficked. What had happened was that her uncle had come and taken her out of the hospital when she was better. It was all done above board and everybody knew about it. So there was no evidence of any trafficking. We did a study and we took every single case that anyone had any evidence of. We found two cases of trafficking, which were in Sri Lanka, and were of two boys trafficked for child soldiers, because it was during the civil war. It had nothing to do with the tsunami. But proving that something doesn't happen is very difficult. Of course, some people later said 'oh, there was no trafficking because we raised awareness'…

The same thing came up with Nargis, the typhoon in southern Burma in 2008. There was this organisation that was collecting money to take kids who were potential trafficking victims and send them to a shelter in northern Thailand. So, the UN couldn't get boats in, but people were getting trafficked? Again, I said, let's hire these traffickers to deliver food, medicines, antibiotics…

Denise: So David, what have we not talked about? What else do you want to add?

David: Well, I am not saying that natural disasters cannot result in situations where people's livelihoods are destroyed. And then they must migrate and can end up getting trafficked. For example, a few years ago there was a dam that collapsed in Laos. The people in that area, in Attapeu, still don't have proper houses. So the chances that some of them might migrate under whatever conditions are available is not unrealistic. But the idea that a natural disaster occurs and immediately there are these traffickers twirling their moustaches and taking people away is just not plausible.

What I find more interesting is to look at the extent to which ecological change influences people's migration strategies. People migrate for all sorts of reasons. But climate change can change things suddenly—what crops you can grow, what inputs you need for those crops… Or it can change things gradually, like you catch less and less fish.

In Cambodia, people in the area around the lake are the highest consumers of fish per capita in the world—by some estimates, between 67 and 76 kg per person. If the availability of fish drops, it means you have less to eat, people have less protein. It can influence the actions of people who are quite a distance away and not necessarily directly observing the causes. However, is also likely to influence their migration strategies.

Many of the fishing people on the Tonle Sap live on floating houses on the lake. In the dry season, they pull them up on land or tie them to trees. There was a government scheme, which was to have these floating houses permanently on the land. The government was trying to diminish the population on the lake to

lessen the stress on the fish populations, so it offered some people land. If they stayed on the land, they would get some money and make their houses permanent. They gave them the land. These people are very good fishers, but they're not very good farmers. And they have fallen into debt because, also, when the government gave them the land, they didn't give them the title to the land, but they were still able to take out loans on land that they didn't have title to. In some places, the government created reserves that included this land, despite no obvious special environmental value (like bird nesting areas, etc.). So the people were left with land they couldn't use and in debt. And from where their land was located, to get to their boats and back was five hours.

I mean, you're dealing with things that impact an ecology, but basically, it's the political ecology that you're dealing with.

Denise: David, this has been amazing, thank you so much for sharing. Is there anything else you'd like to add?

David: The last thing I wanted to say was that water has great cultural significance in Cambodia. For example, I spoke of the founding myth of the country, which can be traced to even before Angkor. The whole political and cultural legitimacy of Cambodia is connected to water and the Nagas, the water spirits. And belief in Nagas and the spiritual qualities of water are not limited to Cambodia. There are believed to be seven Nagas in the Mekong river. And there's a big concern that the dams are now disturbing the homes of the Nagas. So there's this whole ritual and spiritual significance attached to water and different bodies of water. And as the climate changes, you're dealing with more than physicality; you're also dealing with the ways in which people relate to their environment and order their lives.

David A. Feingold is the director of the Ophidian Research Institute and Ophidian Films Ltd. Email: ophidianfilms@hotmail.com

Denise Brennan is a 2025–26 Harvard Radcliffe Fellow where she is writing a new book *Work on A Heated Planet*. She is the author of *Life Interrupted: Trafficking into Forced Labor in the United States* and is Professor and Chair of the Department of Anthropology at Georgetown University, the United States. Email: Denise.Brennan@georgetown.edu

ANTI-TRAFFICKING REVIEW

Guidelines for Contributors

We welcome submissions from a diverse range of actors, including academics, practitioners, trafficked persons and advocates. The *Anti-Trafficking Review* particularly welcomes contributions from those with direct experiences and insights to share.

The *Anti-Trafficking Review* is aimed at a wide readership. It therefore encourages submissions that are in clear, jargon-free English with appropriate but not excessive citation.

Articles should be previously unpublished and should not be under consideration for publication elsewhere. All articles go through a rigorous double-blind peer review process.

Please refer to the journal's website (www.antitraffickingreview.org) for the journal's full style guide and guidelines for contributors.

GLOBAL ALLIANCE AGAINST TRAFFIC IN WOMEN
P.O. Box 36, Bangkok Noi Post Office
10700 Bangkok, Thailand
Website: www.antitraffickingreview.org

anti trafficking review

The Anti-Trafficking Review promotes a human rights-based approach to anti-trafficking. It explores trafficking in its broader context including gender analyses and intersections with labour and migrant rights. It offers an outlet and space for dialogue between academics, practitioners, trafficked persons and advocates seeking to communicate new ideas and findings to those working for and with trafficked persons.

GAATW
Global Alliance Against Traffic in Women
www.antitraffickingreview.org