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**Climate Justice and Neocolonialism in a Digital World:
How the Digital Economy Perpetuates
Climate Harm and Colonial Disparities
between the Global South and the Global North**

Author: Sofia Magaliou

Supervisor: Christophe Maubernard

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ABSTRACT

Contemporary realities are underpinned by interwoven crises, with the climate crisis and the challenges posed by the modern digital economy occupying a prominent place. Once again in human history, certain parts of the world bear the brunt of the development and prosperity of the rest. The Global North is insatiably exploiting the resources and capacities of the Global South, replicating and perpetuating patterns reminiscent of the colonial era, while reshaping them into neocolonial configurations. First, through palpable cases of raw material extraction, serving the manufacture of electronic devices and sustaining the operation of vast digital infrastructures, land appropriation, primarily through e-waste dumping, and data extraction and domination, this thesis seeks to delineate the contextual framework within which digital capitalism unfolds. Second, by examining key international legal instruments on climate protection and corporate due diligence, it aims to illustrate the multiple structural deficiencies of the existing legal architecture – one that could, but fails to, provide an avenue for addressing the climate and human costs of the digital economy’s hidden and manifest externalities. Third, this thesis suggests climate justice as a concept of utmost relevance, with genuine potential to bridge the structural disparities between the Global South and the Global North, serving as a justice-oriented framework that envisions holistic societal transformation and uproots all capitalist and (neo)colonial drivers of climate and human harm.

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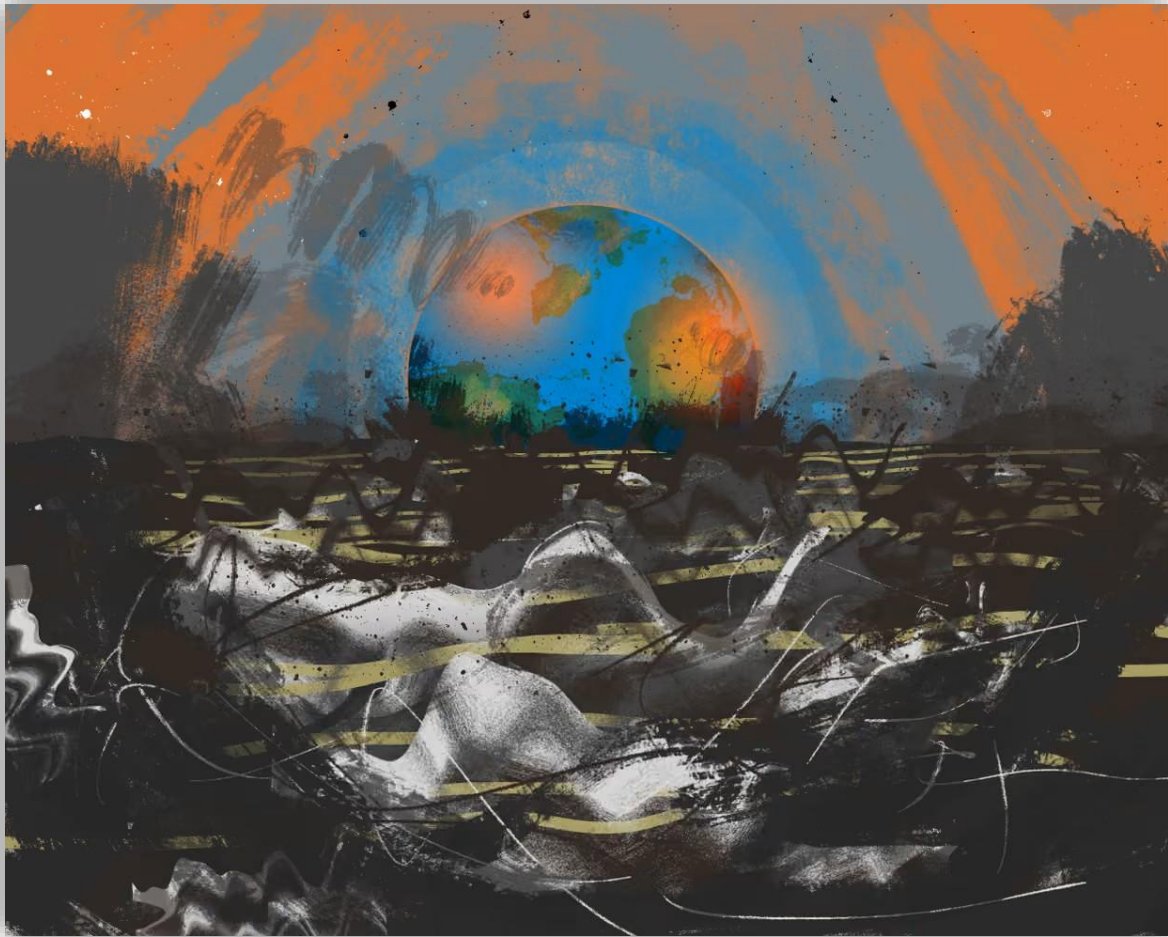
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Nate Kitch/The Guardian

***[What is AI?] “A material product of colonialism,
with its patterns of extraction, conflict, and environmental destruction.”***

~ Kate Crawford, Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence

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INTRODUCTION

Why do some people suffer disproportionately from the effects of the climate crisis,¹ bearing the overwhelming brunt of environmental degradation? Why do some people endure curtailed access to environmental benefits, while key environmental resources embedded in their land could grant them this very access and catalyse their meaningful flourishing? Why are some people systematically excluded from climate-related decision processes, even when they may constitute the most informed or acutely affected stakeholders? Why are some people facing forced displacement, without having contributed to the conditions that precipitate their uprooting? Why are some people plunged into extreme poverty, while global markets run roughshod? Why are some people witnessing their fundamental interests being systematically betrayed or subordinated, while the might of the 1% global elite thrives by shaping economies and democratic institutions?

The list of questions is inexhaustible. It is overt that the modern world is constitutively founded upon inequality. Our societies are underpinned by profoundly entrenched disparities, articulated around the axis of wealth and power. With the climate crisis, on the one hand, rightly characterised as the contemporary defining “multiplier”,² and digital technologies and the platform

¹ The deployment of the term “climate crisis” is deliberate and will be consistently applied throughout this thesis. We are not merely facing “climate change”. Planetary climate shifts have occurred and will continue to manifest throughout Earth’s history. What we face today is an unprecedented, human-induced, unnervingly fast-paced crisis that primarily affects the climate but also generates far-reaching cascading effects that imperil ecosystems, societies and, ultimately, human development and the very existence on this planet. To call it a “change” is to choose a lukewarm euphemism that obscures the severity of reality. To name it a “crisis” is to convey the urgency and the gravity of what is at stake and the dire imperative for immediate action and accountability.

² Mikaela Loach, *It’s Not That Radical: Climate Action to Transform Our World* (London: DK, 2024), 38.

economy, on the other hand, actively reproducing, amplifying, and cementing existing inequalities and unfair global structures, these questions assume an urgent salience.

The present thesis aspires to fill a lacuna at the nexus of climate justice and neocolonialism – a gap reinvigorated and reinforced by the digital economy and its technologies, which carry traditional systems of colonial and capitalist exploitation into uncharted territories. Its added value and objective lie in naming the issues, underscoring their interrelatedness, calling (neo)colonial practices by their name, identifying green extractivism, land grabbing and data colonialism, and addressing them as externalities of capitalism. Despite, or thanks to, its broad scope, this thesis attempts to offer a comprehensive overview of contemporary forms of exploitation fabricated upon existing exploitative systems, tracing their continuities with the old colonial structures.

Framing the climate crisis and climate injustices

The climate crisis is not accidental. It represents the product of a deliberate and continuous prioritisation of profit over environmental and human well-being – a *choice* made repeatedly and knowingly by the ruling classes of the Global North, who govern countries, economies and global markets.³ To this day, entrenched vested interests obstruct decarbonisation efforts and perpetuate climate-harmful practices.⁴ As unequivocally stated by the Special Rapporteur on the promotion and protection of human rights in the context of climate change, “human-induced climate change is the largest, most pervasive threat to the natural environment and human societies the world has ever experienced”,⁵ with far-reaching implications for a wide spectrum of human rights, now unprecedentedly imperilled.⁶

The climate crisis is also structurally unjust and intrinsically biased. People and states that have contributed the least to its development bear a disproportionate brunt of its consequences, while possessing the fewest resources to pursue prevention and adaptation.⁷ This asymmetry in

³ Hamza Hamouchene and Katie Sandwell, eds., *Dismantling Green Colonialism: Energy and Climate Justice in the Arab Region* (London: Pluto Press, 2023), 2.

⁴ Hamouchene and Sandwell, *Dismantling Green Colonialism*, 3.

⁵ Ian Fry, *Promotion and Protection of Human Rights in the Context of Climate Change Mitigation, Loss and Damage and Participation*, Report of the Special Rapporteur on the Promotion and Protection of Human Rights in the Context of Climate Change, UN Doc. A/77/226 (July 26, 2022), <https://docs.un.org/en/A/77/226>, para. 1.

⁶ Fry, *Promotion and Protection of Human Rights*, para. 88.

⁷ Ashima Jha, James Tolosa, and Maria Ramirez, “Rethinking Climate Justice in the Digital Age: Pathways to Resilient Health Systems for Marginalized Communities,” *International Journal of Nursing Information* 4, no. 1 (2025): 32,

climate vulnerability “maps onto existing disadvantages” and mutually reinforces systemic socio-economic, political and geographical challenges,⁸ to the extent that the climate crisis has been framed as a multifaceted phenomenon that demonstrates “the broader social injustice of poor and minority communities”,⁹ and delineates a “landscape where vulnerability is unevenly distributed and often amplified by systemic disparities”, radiating far beyond ecological harm.¹⁰

Besides, this disproportionate burden operates simultaneously across two axes: between the dipole Global South and Global North, but also within all states, where disadvantaged and impoverished populations exist regardless of national wealth.¹¹ Through this prism, the climate crisis is not “the great equaliser” that transcends borders and will leave none unaffected – this is not only naivety; it is privilege in its most exemplary form.¹² Conversely, it constitutes “the great magnifier” of our times, extenuating and amplifying pre-existing inequalities within and across countries.¹³ Moreover, the temporality of the crisis is experienced in an overtly contrasting manner: the Global South is already facing its dire consequences – droughts, heatwaves, fires, floods that vanish entire communities and threaten the existence of many others – whereas the Global North, notwithstanding certain adverse climate impacts, retains the capacity to address them more timely and effectively.

<https://doi.org/10.58418/ijni.v4i1.145>; Ramona Vijeyarasa, “Not Fit for Purpose: The Limits of the UN Guiding Principles on Business and Human Rights for Governing Artificial Intelligence in the Global South,” *The International Journal of Human Rights* 30, no. 4 (2026): 13, <https://doi.org/10.1080/13642987.2026.2680040>.

⁸ Jha, Tolosa, and Ramirez, “Rethinking Climate Justice in the Digital Age,” 32, 37; Loach, *It's Not That Radical*, 37; P. Grace Tee Lewis, et al., “Characterizing Vulnerabilities to Climate Change across the United States,” *Environment International* 172 (2023): 107772, 6, <https://doi.org/10.1016/j.envint.2023.107772>; Fry, *Promotion and Protection of Human Rights*, para. 8; Md Saidul Islam, “Rethinking Climate Justice: Insights from Environmental Sociology,” *Climate* 12, no. 12 (2024): 203, 1-2, 4, <https://doi.org/10.3390/cli12120203>; Nigel Clark and Yasmin Gunaratnam, “Exorbitant Responsibility: Geographies of Climate Justice,” in *Climate Futures: Re-Imagining Global Climate Justice*, ed. Kum-Kum Bhavnani, John Foran, Priya A. Kurian, and Debashish Munshi (London: Zed Books, 2019), 73.

⁹ David Schlosberg and Lisette Collins, “From Environmental to Climate Justice: Climate Change and the Discourse of Environmental Justice,” *Wiley Interdisciplinary Reviews: Climate Change* 5, no. 3 (2014): 362; Marius Bartmann, Aurélie Halsband, and Andrea Schapper, *Climate Justice: Ethical Aspects and Policy Aspects* (Baden-Baden: Verlag Karl Alber, 2023), 30.

¹⁰ Jha, Tolosa, and Ramirez, “Rethinking Climate Justice in the Digital Age,” 31-32; Islam, “Rethinking Climate Justice,” 1.

¹¹ Yet inequality at a global level exceeds the inequality recorded within any given individual state. Oxfam, *Climate Equality: A Planet for the 99%* (Oxford: Oxfam International, 2023), 57, <https://policy-practice.oxfam.org/resources/climate-equality-a-planet-for-the-99-621551/>; Brian Tokar, “On the Evolution and Continuing Development of the Climate Justice Movement,” in *Routledge Handbook of Climate Justice*, ed. Tahseen Jafray (London: Routledge, 2019), 20.

¹² Loach, *It's Not That Radical*, 37.

¹³ Jha, Tolosa, and Ramirez, “Rethinking Climate Justice in the Digital Age,” 31-32.

This is where climate justice comes into play, both as a theoretical framework and a socio-political transformative demand. For decades, the international community has patently failed to grasp the deep interconnectedness of the challenges that “ripple through ecological, economic, social, and technological dimensions”,¹⁴ and thereby, to address them holistically and effectively. Most Global North states have demonstrated a blatant lack of political will to radically curb their emissions, whilst the Global South endures the acute adverse effects of a crisis it did not prompt.¹⁵

Scholars such as Davis and Todd locate colonialism not merely as a historical context, but as the root cause of the contemporary climate crisis.¹⁶ For them, the logic that forces displacement and dispossession and transforms land and ecosystems is not “an unfortunate coincidence or accident”, but rather a “deliberate extension and enactment of colonial logic”.¹⁷ Moreover, for Crutzen and Stoermer, the epoch driven by overarching disruptive human activities and ceaseless appropriation and exploitation of natural resources is an expansion, almost an inevitable outcome, of what they describe as the “anthropocene”.¹⁸ Couldry and Mejias share this stance, arguing that capitalism has simply expanded to demand constant appropriation of human life for data extraction, while it has not ceased to necessitate its traditional exploitative forms – resources and labour. For them, the choice to use reconfigured terms of colonialism, be it neocolonialism, data colonialism or technocolonialism, reveals the same complex structural dynamics upon which both colonialism and capitalism were historically founded.¹⁹

In this historical context, the emergence and proliferation of digital technologies threaten to incite a greater, more sophisticated and subtler rupture in the societal structures. The power relationships are being reshaped as new actors emerge more powerful than states themselves. New technologies, especially when guided by social moral values, are often viewed through a twofold

¹⁴ Jha, Tolosa, and Ramirez, “Rethinking Climate Justice in the Digital Age,” 31.

¹⁵ Bright Kojo Nkrumah, “Ecojustice: Reframing Climate Justice as Racial Justice,” *Journal of Law, Society and Development* 8, no. 1 (2021): 2, <https://doi.org/10.25159/2520-9515/9484>.

¹⁶ Heather Davis and Zoe Todd, “On the Importance of a Date, or, Decolonizing the Anthropocene,” *ACME: An International Journal for Critical Geographies* 16, no. 4 (2017): 763, <https://doi.org/10.14288/acme.v16i4.1539>.

¹⁷ Davis and Todd, “On the Importance of a Date,” 769-771.

¹⁸ Jason W. Moore and Raj Patel, “Unearthing the Capitalocene: Towards a Reparation Ecology,” *ROAR Magazine* (2017), 18; Paul J. Crutzen and Eugene F. Stoermer, “The ‘Anthropocene,’” *Global Change Newsletter* 41 (2000): 18; Carmen G. Gonzalez, “Racial Capitalism, Climate Justice, and Climate Displacement,” *Oñati Socio-Legal Series* 11, no. 1 (2021): 114, <https://doi.org/10.35295/osls.iisl/0000-0000-0000-1137>.

¹⁹ Nick Couldry and Ulises A. Mejias, *The Costs of Connection: How Data is Colonizing Human Life and Appropriating it for Capitalism* (Stanford University Press, 2019), xvi-xvii, 4.

optimistic framing as the answer to both social inequalities and climate harm.²⁰ However, technosolutionism disregards the complex undercurrent relations of political, financial and power order that forge the new digital era, while routinely overshadowing its climate footprint. In reality, new technologies are not positioned to resolve the world's challenges or Global South's shortcomings; they actually ultimately exacerbate them.²¹

Defining core notions

i. Global South and Global North

The terms “Global South” and “Global North” are not intrinsically geographical descriptors delineating the southern from the northern hemisphere, but “geopolitical constructs”.²² They can even prove imprecise in both geographic and geopolitical terms.²³ Ranking nations according to their financial and political power replicates a distorted perception of hierarchy, reminiscent of colonial exploitation.²⁴ Indeed, rooted in longstanding structures of coloniality and racism, this global distinction reflects the “former colonisers and colonised” division,²⁵ it now revitalises the structural dichotomy amongst nations, mirroring and cementing an inherently divisive depiction of the world, overt in global markets, decision-making processes, and socio-political influence.²⁶

²⁰ Fredrik Ludwik Jhon Wanimbo and Erny Riana Wafumilena, “Digital Transformation, Climate Change and Social Justice: Technology as a Force for Good,” *European Journal of Communication* 40, no. 2 (2025): 206, <https://doi.org/10.1177/02673231251326532>.

²¹ Izabela Bludnik, “Digitalisation as a Driving Force for Land Grabbing in the Global South,” *Procedia Computer Science* 207 (2022): 268.

²² Pradeep Narayanan, “Decolonising Corporate Sustainability Due Diligence Directive (CSDDD) Debates: Through the Lens of Anti-Colonial Epistemology,” *The UnBalance Sheet* 6 (Global North Dominance Watch, September 2024): 7, <https://media.business-humanrights.org/media/documents/1728307882345.pdf>.

²³ Though relatively accurate, there are certain exceptions to the general rule. For instance, Australia and New Zealand are technically located in the southern hemisphere yet are firmly considered part of the Global North due to their economic wealth and predominately white population; Singapore and the UAE, whilst situated in the South, are increasingly classified under the Global North umbrella due to their growing economies; India, China and Brazil remain categorised as Global South despite their trajectories of rapid economic development that may place them amongst the Global North countries, complicating any static classification; See also “Brandt Line”; Themrise Khan, Seye Abimbola, Catherine Kyobutungi, and Madhukar Pai, “How We Classify Countries and People – and Why It Matters,” *BMJ Global Health* 7, no. 6 (2022): e009704, <https://doi.org/10.1136/bmjgh-2022-009704>; Danica Anne Sims, “When I Say ... Global South and Global North,” *Medical Education* 58, no. 3 (2024): 286–87, <https://doi.org/10.1111/medu.15263>.

²⁴ Khan et al., “How We Classify Countries and People”.

²⁵ Nick Couldry and Ulises A. Mejias, “Data Colonialism: Rethinking Big Data’s Relation to the Contemporary Subject,” *Television & New Media* 20, no. 4 (2019): 337, <https://doi.org/10.1177/1527476418796632>.

²⁶ Narayanan, “Decolonising Corporate Sustainability Due Diligence Directive (CSDDD) Debates,” 8.

Although the term “Global South” is less flagrantly biased than its predecessors – “Third World”, “developing countries”, “LMICs” (Low/Middle-Income Countries), or “BIPOC” (Black Indigenous and People of Colour) – its deployment nonetheless implicitly echoes notions of white supremacy and saviourism.²⁷ Besides, these terms overemphasise economic growth as the singular axis of global differentiation, overshadowing complex sociopolitical realities and the broader geopolitical power relations that determine the world order.²⁸

Notwithstanding their limitations, “Global South” and “Global North” remain the most widely employed terms in scholarly literature, and this thesis adopts them as such – critically and with full awareness of their inherent biases. In the absence of a more apposite alternative, and not being positioned to coin a new, neutral term, the least I can do to reflect my ethical stance is to register the asymmetry they encode. Accordingly, throughout this work, “Global South” will be consistently placed first in any pairing of the said dipole, inverting the conventional order that unconsciously perpetuates and reinforces the idea of the Global North’s presumed primacy.

One further remark warrants particular attention in the context of data extraction. Couldry and Mejias introduce a substantial nuance, observing that “the epicentre has somewhat shifted”; they identify the United States and China as the predominant global actors in the realm of data, a development that further perplexes the geographical division between Global South and Global North. Notably, they underscore that “external” categorisation of states is becoming increasingly insufficient and impertinent, whereas it is “internally”, within nations, amongst their populations, that the most pivotal and consequential divisions now emerge and crystallise.²⁹

ii. Neocolonialism

Someone might wonder: Why do we still talk about colonial dynamics? Did colonisation not end with the emergence of sovereign nations, freed from any occupying power? Quijano contends that coloniality – a concept designating the enduring effects of processes of oppression and domination³⁰ – was built upon constructions of racial and hierarchical division, structures

²⁷ Khan et al., “How We Classify Countries and People”.

²⁸ Sims, “When I Say... Global South and Global North,” 286-287.

²⁹ Couldry and Mejias, “Data colonialism”, 337.

³⁰ Aníbal Quijano, “Coloniality and Modernity/Rationality” [Colonialidad y Modernidad/Racionalidad], *Perú Indígena* 13, no. 29 (1992): 12, <https://www.lavaca.org/wp-content/uploads/2016/04/quijano.pdf>; Daniela Soto-Hernández, *Lithium Extraction in Chile: Ontological, Ecological and Economic Dimensions* (Routledge, 2025), 18.

curated later within and by the global capitalist system.³¹ Thus, drawing a consequential continuity between coloniality and modern capitalism, he argues that the “social geography” of colonialism, particularly its geographic distribution of control over labour and resources, was what determined capitalism’s contemporary architecture; what we call capitalism today does not merely bear traces of colonialism but contains it interwoven in its foundations.³² Thereby, he implies, neocolonialism persists exactly because traditional colonialism was never truly dismantled.³³ Several states, despite gaining their independence, were never shaped into fully fledged modern nations but were rather reshaped into decolonised replicas of colonial powers operating on new institutional premises.³⁴ For Stoler, though, the current geopolitical distribution of inequalities does not reflect a mere replication or reincarnation of the colonial one but rather a refurbished version.³⁵

Hence, neocolonialism is simply the continuation of colonial relations to date. The term was introduced and popularised by Nkrumah³⁶ and Rodney,³⁷ anti-colonial defenders, to castigate the persisting imperialist, politico-economic dominance and extractivism by the Europeans even after the presumed establishment of decolonisation and independence, mostly in Africa.³⁸ The term now reflects new fragrant or disguised, reshaped or merely replicated forms of the colonial epoch. Through this lens, Nkrumah invites us to reflect upon the Global South’s historic suppression, manufactured dependency and structural “underdevelopment”,³⁹ while Stoler draws attention to the underlying processes that have eroded the very foundations of people’s self-determination and development.⁴⁰

³¹ Gonzalez, “Racial Capitalism, Climate Justice, and Climate Displacement,” 114.

³² Aníbal Quijano, “Coloniality of Power, Eurocentrism, and Latin America,” *Nepantla: Views from South* 1, no. 3 (2000): 539, <https://www.decolonialtranslation.com/english/quijano-coloniality-of-power.pdf>; Aníbal Quijano, “Coloniality of Power and Eurocentrism in Latin America,” *International Sociology* 15, no. 2 (2000): 216, 218-219, <https://doi.org/10.1177/0268580900015002005>; Couldry and Mejias, *Costs of Connection*, 17.

³³ Quijano, “Coloniality of Power, Eurocentrism, and Latin America,” 536.

³⁴ Ibid, 567.

³⁵ Ann Laura Stoler, *Duress: Imperial Durabilities in Our Times* (Duke University Press, 2016), 4-5.

³⁶ Kwame Nkrumah, *Neo-Colonialism: The Last Stage of Imperialism* (London: Thomas Nelson & Sons, 1965), 4, <https://www.marxists.org/ebooks/nkrumah/nkrumah-neocolonialism.pdf>.

³⁷ Walter Rodney, *How Europe Underdeveloped Africa* (London: Bogle-L'Ouverture Publications, 1972), 27, https://monoskop.org/images/8/81/Rodney_Walter_How_Europe_Underdeveloped_Africa_rev_ed_1981.pdf.

³⁸ Diego Andreucci et al., “The Coloniality of Green Extractivism: Unearthing Decarbonisation by Dispossession through the Case of Nickel,” *Political Geography* 107, no. 1 (2023): 2n2, <https://doi.org/10.1016/j.polgeo.2023.102997>.

³⁹ Nkrumah, “Ecojustice,” 5.

⁴⁰ Ann Laura Stoler, “Imperial Debris: Reflections on Ruins and Ruination,” *Cultural Anthropology* 23, no. 2 (2008): 192, <https://doi.org/10.1111/j.1548-1360.2008.00007.x>.

In the modern world, neocolonialism can and does take multiple forms of exploitation and suppression. Nonetheless, the main consideration of this thesis is its structures in the era of digital hegemony: How digital technologies, social media platforms and artificial intelligence (AI) tools, through a dominant and well-established capitalist business model, utilise old practices embedded in colonial dynamics, resuscitate, reshape, and reproduce them, ultimately perpetuating them?⁴¹ I maintain that a parallel can be drawn between colonial resource extraction, land dispossession, and systems of dependency and domination, and current forms of digital and climate exploitation.

To frame coloniality in the contemporary digital context, Madianou argues that colonial empires produce ‘*debris*’ that linger behind, endure and obliquely metamorphose under different circumstances, thereby obfuscating the continuous linkages to colonial structures.⁴² As she further contends, tech giants and their business models resemble old-fashioned empires.⁴³ In her attempt to capture the intricate interplay among colonial asymmetries, datafication and digital innovation, global disparities and the capitalistic system, Madianou coined the term “technocolonialism”,⁴⁴ showcasing “the constitutive role that data and digital innovation practices play in entrenching inequalities”,⁴⁵ emphasising that it is in the digital era that colonial inequalities are materialised and translated into concrete realities.⁴⁶ She further stresses that the structural disparities between the Global South and the Global North are at the core of this notion.⁴⁷

In the same vein, for Stürmer, Nussbaumer, and Stöckli, in the current reality underpinned by “tech hegemony”, the historical patterns of colonial extraction, land domination and enslaved labour are simply reconfigured: major tech companies extract vast quantities of user data as a low-cost resource to generate valuable services and thereby consolidate significant market power – a phenomenon they name “digital capitalism”.⁴⁸

⁴¹ Marie Godin, Derya Ozkul, and Rachel Humphris, “Digital Technologies and Migration: Behind, Beyond and Around the Black Box,” *Journal of Ethnic and Migration Studies* 51, no. 14 (2025): 3573, <https://doi.org/10.1080/1369183X.2025.2513153>.

⁴² Mirca Madianou, “Technocolonialism: Digital Innovation and Data Practices in the Humanitarian Response to Refugee Crises,” *Social Media + Society* 5, no. 3 (2019): 2, <https://doi.org/10.1177/2056305119863146>.

⁴³ Madianou, “Technocolonialism,” 3.

⁴⁴ Godin, Ozkul, and Humphris, “Digital Technologies and Migration,” 3574; Madianou, “Technocolonialism,” 11.

⁴⁵ Madianou, “Technocolonialism,” 10.

⁴⁶ Madianou, “Technocolonialism,” 11; Couldry and Mejias, *Costs of Connection*, xvi-xvii.

⁴⁷ Madianou, “Technocolonialism,” 3, 11.

⁴⁸ Matthias Stürmer, Jasmin Nussbaumer, and Pascal Stöckli, “Security Implications of Digitalization: The Dangers of Data Colonialism and the Way Towards Sustainable and Sovereign Management of Environmental Data”, Report

iii. Climate justice

Climate activists and Global South states have long sought to embed climate justice within international legal instruments, echoing their demands for an equitable and corrective approach that mainstream climate governance has failed – or better, refused – to deliver.⁴⁹ But what does climate justice mean? At its core, it represents both a moral and political demand. It is a call for the transformation of all sociopolitical and economic structures that sustain both climate harm and inequality.⁵⁰ It seeks to unroot ingrained disparities so that no social group bears a disproportionate burden of the climate degradation.⁵¹ Aiming to merge the multitude of heterogeneous perspectives on climate justice, the Glasgow Caledonian University's Centre for Climate Justice defines it as the recognition of "humanity's responsibility for the impacts of greenhouse gas emissions on the poorest and most vulnerable people in society by critically addressing inequality and promoting transformative approaches to address the root causes of climate change";⁵² it thus captures the dual imperative of addressing both the root causes and the adverse implications of the crisis, while stressing the underlying yet pervasive dimensions of justice and equity.⁵³

Climate justice scholarship has showcased that the crisis is not merely "scientific, techno-managerial, or financial",⁵⁴ but rather a fundamentally "moral and justice issue",⁵⁵ one that can be situated, as Gardiner argues, within the broader context of historical and global injustices, spanning

for the Federal Department of Foreign Affairs (FDFA) (Research Centre for Digital Sustainability, University of Bern, 2021), 5, 8, <https://doi.org/10.48550/arXiv.2107.01662>.

⁴⁹ Gonzalez, "Racial Capitalism, Climate Justice, and Climate Displacement," 120.

⁵⁰ Islam, "Rethinking Climate Justice," 1.

⁵¹ Jha, Tolosa, and Ramirez, "Rethinking Climate Justice in the Digital Age," 33; Adetayo Emmanuel Obasa, "Navigating the Storm: Ethical Considerations of Climate Justice and Sustainable Health Equity in Africa," *The Journal of Climate Change and Health* 25 (2025): 100465, 2, <https://doi.org/10.1016/j.joclim.2025.100465>.

⁵² Mandy Meikle, Jake Wilson, and Tahseen Jafry, "Climate Justice: Between Mammon and Mother Earth," *International Journal of Climate Change Strategies and Management* 8, no. 4 (2016): 497, <https://doi.org/10.1108/IJCCSM-06-2015-0089>; Tahseen Jafry, Michael Mikulewicz, and Karin Helwig, "Introduction: Justice in the Era of Climate Change," in *Routledge Handbook of Climate Justice*, ed. Tahseen Jafry (London: Routledge, 2019), 3.

⁵³ Jafry, Mikulewicz, and Helwig, "Introduction: Justice in the Era of Climate Change," 3.

⁵⁴ Bartmann, Halsband, and Schapper, *Climate Justice*, 31-32; Farhana Sultana, "Critical Climate Justice," *The Geographical Journal* 188, no. 1 (2022): 119, <https://doi.org/10.1111/geoj.12417>.

⁵⁵ Sultana, "Critical Climate Justice," 119; Stephen M. Gardiner, "Climate Justice," in *The Oxford Handbook of Climate Change and Society*, ed. John S. Dryzek, Richard B. Norgaard, and David Schlosberg (Oxford: Oxford University Press, 2011), 309, 312, <https://doi.org/10.1093/oxfordhb/9780199566600.003.0021>; Henry Shue, *Climate Justice: Vulnerability and Protection* (Oxford: Oxford University Press, 2014), 1; John Foran, "Reimagining Radical Climate Justice," in *Reimagining Climate Change*, ed. Paul Wapner and Hilal Elver (Abingdon: Routledge, 2016), 150, <https://doi.org/10.4324/9781315671468-9>; Bartmann, Halsband, and Schapper, *Climate Justice*, 9; Dominic Roser and Christian Seidel, *Climate Justice: An Introduction* (London: Routledge, 2017), 1.

slavery, poverty, human rights abuses, migration and climate collapse.⁵⁶ From the manufactured global dependence on fossil fuels to the relentless exploitation of humanity's commons and invisible workers' labour force, as Foran contends, the climate crisis "exemplifies the exploitative character of contemporary structures of power" – precisely what the climate justice movement intends to dismantle, not as symptomatic manifestations but as its root causes.⁵⁷

Climate justice is concurrently an explanatory framework and a practical instrument. To materialise it, we shall first, identify the existing injustices and second, address their underlying structural causes.⁵⁸ As Sultana articulates, it revolves around interrogating "who benefits, who loses out, in what ways, where, and why"; how these dynamics are produced and sustained; why this disproportionate allocation of climate burdens, and how their equitable restitution is possible.⁵⁹ To answer these questions, climate justice often draws on a constellation of academic perspectives, such as feminist, antiracist, anticapitalist, postcolonial, decolonial and indigenous theories,⁶⁰ all considered as "essential correctives" to the predominant Western paradigms.⁶¹ Through this prism, climate justice is a fundamentally interdisciplinary field that amalgamates social and climate visions and aims to join forces amongst social, youth and indigenous movements.⁶²

Increasingly, through a climate justice lens, the interlocking systems of colonialism, capitalism, globalisation, and newly digital hegemony are identified as the structural forces to blame for the production and persistence of uneven climate injustices.⁶³ As Chakraborty and Sherpa observe, "the ongoing impacts of colonial land management and capitalism mimic the impacts of climate change".⁶⁴ Emphasis is also placed on the inequalities generated and exacerbated in the digital era,⁶⁵ where new technologies not only fail to pave the way to emancipation but

⁵⁶ Gardiner, "Climate Justice," 312; Ritodhi Chakraborty and Pasang Yangjee Sherpa, "From Climate Adaptation to Climate Justice: Critical Reflections on the IPCC and Himalayan Climate Knowledges," *Climatic Change* 167, no. 3-4 (2021): 49, 10, <https://doi.org/10.1007/s10584-021-03158-1>.

⁵⁷ Foran, "Reimagining Radical Climate Justice," 150-151.

⁵⁸ Sultana, "Critical Climate Justice," 119.

⁵⁹ Ibid, 118-119.

⁶⁰ Ibid, 119.

⁶¹ Dorothée Cambou and Karin Buhmann, "Indigenous Peoples, Business, and the Struggles for Justice in the Green Transition: Towards a Rights-Based Approach to Just Transitions," *Business and Human Rights Journal* 10, no. 1 (2025): 151, <https://doi.org/10.1017/bhj.2025.19>.

⁶² Sultana, "Critical Climate Justice," 119.

⁶³ Ibid.

⁶⁴ Chakraborty and Sherpa, "From Climate Adaptation to Climate Justice," 10.

⁶⁵ Jasmin Bhawra, "Decolonizing Digital Citizen Science: Applying the Bridge Framework for Climate Change Preparedness and Adaptation," *Societies* 12, no. 2 (2022): 2, <https://doi.org/10.3390/soc12020071>; Fredrik Ludwik

reproduce and entrench the extractive and exploitative logic from which both climate harm and neocolonial disparities stem.

Notwithstanding its shortcomings and fragmentation, climate justice, as will be analysed, has the theoretical tools to serve as a catalyst for more equitable and just societies, rewriting the rules of distribution, participation and recognition. To this end, shifting the focus from climate adaptation-mitigation policies and risk management to climate justice questions is essential.⁶⁶

Jhon Wanimbo and Erny Riana Wafumilena, “Digital Transformation, Climate Change and Social Justice: Technology as a Force for Good,” *European Journal of Communication* 40, no. 2 (2025), <https://doi.org/10.1177/02673231251326532>.

⁶⁶ Chakraborty and Sherpa, “From Climate Adaptation to Climate Justice,” 3, 10.

CHAPTER 1

Neocolonial Disparities through Systems of Digital Technologies

Taking a closer look at the lingering colonial dynamics, we can identify three main areas in which the big technology companies, the so-called Big Tech,⁶⁷ replicate patterns of exploitation and inequality. First, the minerals extraction will be addressed, given its vital underlying role in both the digital modern economy,⁶⁸ serving the manufacturing of electronic devices and sustaining the operation of data infrastructures, as well as in the green transition, grounded on technological innovation. Second, land appropriation will be examined, with a particular focus on transboundary e-waste dumping. Third, data extraction, treatment and conservation will be analysed through the prism of data colonialism.

1.1 Extraction of raw materials

Traditionally, the term “extractivism” refers to the capitalist model of large-scale extraction of natural resources from certain regions of the world and their subsequent export for the benefit of countries in the Global North.⁶⁹ Nowadays, this very extractive logic remains overt, with the

⁶⁷ Big Tech firms, i.e. companies like Google, Apple, Microsoft, Amazon and Facebook (GAFAM); See Stürmer, Nussbaumer, and Stöckli, “Security Implications of Digitalization,” 4 (Glossary).

⁶⁸ Andreucci et al., “Coloniality of Green Extractivism,” 4-5.

⁶⁹ Alberto Acosta, “Extractivism and Neextractivism: Two Sides of the Same Curse,” in *Beyond Development: Alternative Visions from Latin America*, ed. Miriam Lang and Dunia Mokrani (Rosa Luxemburg Foundation and Transnational Institute, 2013), 62; Joanna Allan, Hamza Lakhali, and Mahmoud Lemaadel, “An Unjust Transition: Energy, Colonialism

advancement of digital technologies – the manufacturing of electronic devices,⁷⁰ the operation of data centres⁷¹ – fuelling the rapid depletion of scarce natural resources by intensifying both their demand and extraction. Particularly in the context of the ‘atmospheric phase of capitalism,’ as Hughes defines it, dominated by the overarching expansion of Cloud systems, sustained by huge data centres,⁷² the extraction of raw materials is now well embedded in the circle of the digital supply chain.⁷³

At the same time, in the context of green transition and renewable energy projects, the term “green extractivism” has been introduced,⁷⁴ which, according to Brodie, merely represents the contemporary dimension of territory and resource exploitation, given that it is founded on existing systems of extraction, perfectly aligned with “historically uneven geographies”.⁷⁵ Apart from the environmental strain it entails,⁷⁶ contemporary green extractivism rests on the creation of so-called “sacrifice zones”, namely, countries in the Global South that are, once again, disproportionately targeted for mineral extraction.⁷⁷ In reality, therefore, there is no substantial factor distinguishing the new sustainable extractive activities from the traditional ones.⁷⁸ As Radley observes, after decolonisation, formerly colonised states, once shaped into “economic enclaves” and structurally

and Extractivism in Occupied Western Sahara,” in *Dismantling Green Colonialism: Energy and Climate Justice in the Arab Region*, ed. Hamza Hamouchene and Katie Sandwell (Transnational Institute; Pluto Press, 2023), 52.

⁷⁰ The production of a single smartphone requires approximately 12,760 litres of water, across all production stages, from raw material extraction to final manufacturing; Inemesit Ukpah, “Is Technology Bad for the Environment? Statistics, Trends, and Facts,” *GreenMatch* (blog), May 8, 2024, <https://www.greenmatch.co.uk/blog/technology-environmental-impact>.

⁷¹ The overall electricity consumption of the data centres increased from 5% in 2015 to 22% in 2024, demonstrating a striking 340% increase in less than a decade, outweighing the consumption in both urban and rural households. Central Statistics Office, *Data Centres Metered Electricity Consumption 2024*, CSO Statistical Release, June 10, 2025, <https://www.cso.ie/en/releasesandpublications/ep/p-dcmec/datacentresmeteredelectricityconsumption2024/>; Simon Carswell, “Data Centres Now Consuming More Electricity Than Rural Homes – CSO,” *The Irish Times*, May 3, 2022, <https://www.irishtimes.com/news/ireland/irish-news/data-centres-now-consuming-more-electricity-than-rural-homes-cso-1.4868221>.

⁷² David McDermott Hughes, *Who Owns the Wind? Climate Crisis and the Hope of Renewable Energy* (Verso, 2021).

⁷³ Patrick Brodie, “Smarter, Greener Extractivism: Digital Infrastructures and the Harnessing of New Resources,” *Information, Communication & Society* 28, no. 6 (2025): 1067, <https://doi.org/10.1080/1369118X.2024.2341013>.

⁷⁴ Cambou and Buhmann, “Indigenous Peoples, Business, and the Struggles for Justice,” 147-48.

⁷⁵ Brodie, “Smarter, Greener Extractivism,” 1064.

⁷⁶ Ukpah, “Is Technology Bad for the Environment?”.

⁷⁷ Andreucci et al., “Coloniality of Green Extractivism,” 2; Gonzalez, “Racial Capitalism, Climate Justice, and Climate Displacement,” 119.

⁷⁸ Brodie, “Smarter, Greener Extractivism,” 1064; Daniel Macmillen Voskoboynik and Diego Andreucci, “Greening Extractivism: Environmental Discourses and Resource Governance in the ‘Lithium Triangle’,” *Environment and Planning E: Nature and Space* 5, no. 2 (2022): 798, <https://doi.org/10.1177/25148486211006345>.

linked to the colonising “metropolis”, remained suppressed and dependent, owing to global financial constraints, inflation, debt growth and neoliberal policies.⁷⁹

In the rapidly expanding digital and green economies, certain raw materials are considered primordial. Lithium and cobalt, for example, are key metals primarily for batteries,⁸⁰ cornerstones to the functioning of digital devices and green technologies. With their role in materialising the Paris Agreement’s objectives through the application of clean energy technologies being critical, their demand is estimated to rise significantly, e.g., by 90% for lithium and 60-70% for cobalt, according to the IEA.⁸¹

1.1.1 Lithium extraction

Lithium has been characterised as the “new white gold”,⁸² representing a vital mineral for the transition to low-carbon economies. Yet this inevitably leads to an exponential demand, with its highly intensive extraction resembling the colonial, exploitative legacy of the old gold.⁸³ Veiled behind the pursuit of climate-sustainable economies, this modern form of green extractivism simply imitates the colonial structure targeting indigenous, rural land.⁸⁴ In this sense, a historical asymmetry is perpetuated; valuable resources are insatiably extracted from the Global South only to be employed in new technologies amply enjoyed by the Global North.⁸⁵ According to Soto-Hernández, the “developmentalist narratives associating progress and economic growth with the export of raw materials” haven’t ceased being predominant in the Global North.⁸⁶

⁷⁹ Ben Radley, “Mining Industrialisation in the African Periphery: Disruption and Dependency in South Kivu, DRC” (PhD diss., Erasmus University Rotterdam, 2019), 36-38.

⁸⁰ United Nations Conference on Trade and Development (UNCTAD), *Digital Economy Growth and Mineral Resources: Implications for Developing Countries*, TN/UNCTAD/ICT4D/16 (Geneva: UNCTAD ICT Policy Section, 2020), 4, 11.

⁸¹ International Energy Agency (IEA), *The Role of Critical Minerals in Clean Energy Transitions*, World Energy Outlook Special Report, rev. ed. (Paris: IEA, 2022), 5.

⁸² Soto-Hernández, *Lithium Extraction in Chile*, 7.

⁸³ Ibid.

⁸⁴ Alexander Dunlap and Jostein Jakobsen, *The Violent Technologies of Extraction* (Palgrave Pivot, 2019), <https://doi.org/10.1007/978-3-030-26852-7>; Thea Riofrancos, “What Green Costs,” *Logic Magazine*, no. 9 (December 2019), <https://logicmag.io/nature/what-green-costs/>; Bárbara Jerez, Ingrid Garcés, and Robinson Torres, “Lithium Extractivism and Water Injustices in the Salar de Atacama, Chile: The Colonial Shadow of Green Electromobility,” *Political Geography* 87 (May 2021), <https://doi.org/10.1016/j.polgeo.2021.102382>; Sara Mejia-Muñoz and Sally Babidge, “Lithium Extractivism: Perpetuating Historical Asymmetries in the ‘Green Economy’,” *Third World Quarterly* 44, no. 6 (2023): 1120, <https://doi.org/10.1080/01436597.2023.2176298>.

⁸⁵ Mejia-Muñoz and Babidge, “Lithium Extractivism,” 1120.

⁸⁶ Soto-Hernández, *Lithium Extraction in Chile*, 7.

A particular case of extensive lithium extractivism has been taking place for decades at the Salar de Atacama watershed of Chile. Placed at the heart of the so-called “Lithium Triangle” (Chile-Argentina-Bolivia), it constitutes a major production hub, presenting manifold effects on both wetland ecosystems and indigenous communities.⁸⁷ As Quijano observes, in Latin American states, once subjected to colonial domination, their independence, industrialisation, and subsequent digitalisation were never translated into a true social emancipation; thus, each wave of successive modernisation found merely replicating and reformulating the same underlying colonial dynamics, rather than dismantling them.⁸⁸

The Chilean State considers that closely embedding lithium extraction within its economy, given the country’s vast reserves and lithium’s consolidation as a strategic asset in the global green transition, presents a fundamental opportunity poised to catalyse a transformative advancement in financial prosperity, social progress and environmental sustainability.⁸⁹ In light of this perspective, a Ministry of Mining has been established in Chile,⁹⁰ while its lithium reserves have been declared “non-concessionable strategic resource of national interest” by law, even since the times of the Chilean military dictatorship.⁹¹ Nevertheless, the lithium extraction’s regulatory regime remains relatively lax and ambivalent. Underground hard-rock mining is primarily governed by the Chilean Mining Code, but lithium, since it is extracted from brines in salt flats, eludes its regulatory ambit.⁹²

Despite efforts to associate lithium mining with sustainability and development, the waste emanated and the environmental pollution cannot be disregarded.⁹³ Interestingly, the Chilean government has stated its intention to both intensify lithium extraction in the Atacama Salt Flat and simultaneously expand mining projects to other salt flats.⁹⁴ Yet ironically, both objectives are being pursued under the rubric “Sustainable development of lithium production potential”,⁹⁵ while the mitigation of the mining environmental impacts is also stressed as a key consideration under

⁸⁷ Soto-Hernández, *Lithium Extraction in Chile*, 1.

⁸⁸ Quijano, “Coloniality of Power, Eurocentrism, and Latin America,” 227-228.

⁸⁹ Government of Chile, *National Lithium Strategy: For Chile and its People* (Santiago: Government of Chile, 2023).

⁹⁰ Government of Chile, *National Lithium Strategy*, 13.

⁹¹ Government of Chile, *National Lithium Strategy*, 7; Decreto Ley N° 2.886, de 14 de noviembre de 1979 (Chile); Ley N° 18.097, Orgánica Constitucional de Concesiones Mineras, de 21 de enero de 1982 (Chile); Código de Minería, Ley N° 18.248, de 14 de octubre de 1983, art. 7-9 (Chile); Soto-Hernández, *Lithium Extraction in Chile*, 5.

⁹² Government of Chile, *National Lithium Strategy*, 22.

⁹³ Soto-Hernández, *Lithium Extraction in Chile*, 9.

⁹⁴ Government of Chile, *National Lithium Strategy*, 13.

⁹⁵ Ibid; Soto-Hernández, *Lithium Extraction in Chile*, 7.

the National Plan.⁹⁶ However, the technological innovation and intensive extraction alongside the conservation of biodiversity and protection of the ecological value of the reserves are flagrantly contradictory.⁹⁷ Lastly, despite claiming “40 years of experience in lithium mining operations in salt flats”,⁹⁸ and the already visible ecosystem harm and water scarcity,⁹⁹ long-term social and environmental sustainability considerations are *now* being discussed as *prospective* objectives.¹⁰⁰

A major preoccupation regarding intensified lithium extraction in the region concerns the Lickanantay (Atacameño) population, one of the principal indigenous communities of Chile. As indigenous communities, they have been systematically and historically dispossessed of their land and have been rendered invisible and excluded from the decision-making processes, despite being the ones mostly affected, alongside their surrounding environment.¹⁰¹ Nonetheless, throughout the years, they have been a key driving force of both labour and resistance.¹⁰²

Oftentimes, lithium companies have been discriminating against indigenous labourers, despite their dire need for workers. Besides, they have been constructing their facilities in rural villages, exacerbating the air and visual pollution for the local population.¹⁰³ The resistance of the indigenous people has been echoed. Through their mobilisation in the creation of the Council of Atacameño People, their participation in protests and strikes – including hunger strikes – and the erection of barricades blocking access to mining operations, they have voiced their discontent and opposition.¹⁰⁴

The engagement of indigenous communities and local stakeholders in the lithium industry is also indispensable and, on a positive note, is integrated in the National Lithium Strategy.¹⁰⁵ The ILO Convention 169 on Indigenous and Tribal Peoples (1989)¹⁰⁶ and the Escazú Agreement on

⁹⁶ Government of Chile, *National Lithium Strategy*, 26.

⁹⁷ Soto-Hernández, *Lithium Extraction in Chile*, 9.

⁹⁸ Government of Chile, *National Lithium Strategy*, 13.

⁹⁹ Soto-Hernández, *Lithium Extraction in Chile*, 8.

¹⁰⁰ Government of Chile, *National Lithium Strategy*, 14.

¹⁰¹ Soto-Hernández, *Lithium Extraction in Chile*, 3.

¹⁰² Ibid.

¹⁰³ Ibid, 9.

¹⁰⁴ Soto-Hernández, *Lithium Extraction in Chile*, 8; Martín Arboleda, *Planetary Mine: Territories of Extraction under Late Capitalism* (Verso, 2019), 1.

¹⁰⁵ Government of Chile, *National Lithium Strategy*, 22.

¹⁰⁶ International Labour Organization (ILO), Indigenous and Tribal Peoples Convention, June 27, 1989, ILO No. 169, 1650 UNTS 383.

Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean (2018)¹⁰⁷ are both underscored as highly relevant normative frameworks to be taken into account regarding the stakeholders' participation in the mining industry, including the indigenous groups.¹⁰⁸ However, identity and territoriality matters are often not raised in the context of the Atacameño communities' representation, resulting in a perceived lack of interconnection among these groups.¹⁰⁹

According to Soto-Hernández, a land “increasingly menaced by the extractive projects” presents a striking discrepancy: its people do not realise the global interests at stake in their land; the narratives for a green transition seem puzzling and blurry, while for them, this land is vitally rich and complex, providing food, shelter, medicines and a sacred place for human connections.¹¹⁰ Consequently, the rationale of extractivism “works to fragment worlds, ecologies, and economies”, and can be truly detrimental to indigenous lands under a twofold model of green transition and technological development.¹¹¹ On the contrary, indigenous voices underscore that these territories have the potential to foster green processes without exploiting “fragmented lithium reserves”.¹¹²

1.1.2 Cobalt extraction

Cobalt also constitutes a cornerstone in the context of technological advancement and the transition to green economies,¹¹³ with the Democratic Republic of Congo (DRC) possessing four main reserves rich in cobalt.¹¹⁴ Moreover, the DRC occupies a preponderant position in both cobalt

¹⁰⁷ Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean, March 4, 2018, 3388 UNTS 56654.

¹⁰⁸ Government of Chile, *National Lithium Strategy*, 22, 25.

¹⁰⁹ Soto-Hernández, *Lithium Extraction in Chile*, 12.

¹¹⁰ Ibid, 13.

¹¹¹ Ibid, 4-5.

¹¹² Ibid, 5.

¹¹³ UNCTAD, *Digital Economy Growth and Mineral Resources*, 4, 11; Raphael Deberdt, “Land Access Rights in Minerals’ Responsible Sourcing: The Case of Cobalt in the Democratic Republic of the Congo,” *Resources Policy* 75 (2022), 1, <https://doi.org/10.1016/j.resourpol.2021.102534>; Sarah Katz-Lavigne, “Framing Spaces as (Il)legitimate: ‘Dirty’ Cobalt and the (Mis)uses of Artisanal and Small-Scale Mining Sites in South-Eastern Democratic Republic of Congo,” *Canadian Journal of African Studies / Revue Canadienne des Études Africaines* 58, no. 1 (2024): 113, <https://doi.org/10.1080/00083968.2023.2273500>; Cobalt Institute, *Cobalt Market Report 2022* (London: Cobalt Institute, 2023), 2, 4, <https://www.cobaltinstitute.org/resource/cobalt-market-report-2022/>.

¹¹⁴ Amnesty International and Initiative pour la Bonne Gouvernance et les Droits Humains (IBGDH), *Powering Change or Business as Usual?: Forced Evictions at Industrial Cobalt and Copper Mines in the Democratic Republic of the Congo* (London: Amnesty International, 2023), 6-7.

reserves and global market share. It holds around 56% of global cobalt reserves,¹¹⁵ and accounts for approximately 70% of global cobalt extraction and supply.¹¹⁶ Simultaneously, cobalt exports compose nearly the entirety of the DRC's overall exports.¹¹⁷

Amid fierce competition to meet the growing global demand for cobalt,¹¹⁸ access to land of mining interest and its distribution emerges as a primordial issue.¹¹⁹ The DRC, despite being rich in minerals, faces high rates of poverty and inequality,¹²⁰ while large multinational companies are running rampant in exploiting the country's resources. Besides, the distinction between the different types of mines is particularly salient, carrying further implications. ASM, i.e. artisanal, small-scale mines, are informal, non-mechanised mines, locally run and "domestically anchored".¹²¹ By contrast, LSM, i.e. large-scale mines, are intensively industrialised, amply privatised and foreign-led, typically by vast international firms of the Global North.¹²²

Although these large mining corporations have been deemed responsible for environmental damage and multiple grave human rights abuses, including violations of workers' rights, hazardous labour conditions, and forced relocation of entire local communities,¹²³ local governments continue

¹¹⁵ Sophie Theresia Huber and Karl W. Steininger, "Critical Sustainability Issues in the Production of Wind and Solar Electricity Generation as Well as Storage Facilities and Possible Solutions," *Journal of Cleaner Production* 339 (2022), 3, <https://doi.org/10.1016/j.jclepro.2022.130720>.

¹¹⁶ Cobalt Institute, *Cobalt Market Report 2022*, 3; Deberdt, "Land Access Rights in Minerals' Responsible Sourcing," 1; Katz-Lavigne, "Framing Spaces as (Il)legitimate," 110. Other studies, though, demonstrate more moderate, yet still prevailing numbers in cobalt market share, with 54% of global cobalt exports being attributable to the DRC (See, Xintong Cao, Maria Sharmina, and Rosa M. Cuéllar-Franca, "Sourcing Cobalt in the Democratic Republic of the Congo for a Responsible Net-Zero Transition: Incentives, Risks and Stakeholders," *Resources Policy* 95 (2024), 1, <https://doi.org/10.1016/j.resourpol.2024.105149>).

¹¹⁷ i.e. 99%, in 2019. Cao, Sharmina, and Cuéllar-Franca, "Sourcing Cobalt in the Democratic Republic of the Congo," 1; Extractive Industries Transparency Initiative (EITI), "Democratic Republic of the Congo," last modified October 13, 2022, <https://eiti.org/countries/democratic-republic-congo>.

¹¹⁸ Deberdt, "Land Access Rights in Minerals' Responsible Sourcing," 1.

¹¹⁹ Sarah Katz-Lavigne, "Distributional Impact of Corporate Extraction and (Un)authorised Clandestine Mining at and around Large-Scale Copper- and Cobalt-Mining Sites in DR Congo," *Resources Policy* 65 (March 2020): Article 101584, 1, <https://doi.org/10.1016/j.resourpol.2020.101584>.

¹²⁰ Katz-Lavigne, "Distributional Impact of Corporate Extraction," 1.

¹²¹ Ben Radley and Sara Geenen, "Struggles over Value: Corporate-State Suppression of Locally Led Mining Mechanisation in the Democratic Republic of the Congo," *Review of African Political Economy* 48, no. 168 (2021): 170, <https://doi.org/10.1080/03056244.2020.1865902>.

¹²² Katz-Lavigne, "Framing Spaces as (Il)legitimate," 110; Deanna Kemp and John R. Owen, "Characterising the Interface Between Large and Small-Scale Mining," *The Extractive Industries and Society* 6, no. 4 (2019): 1092, <https://doi.org/10.1016/j.exis.2019.07.002>.

¹²³ Katz-Lavigne, "Framing Spaces as (Il)legitimate," 120; Sarah Katz-Lavigne, "'Qui ne risque rien, n'a rien': Conflict, Distributional Outcomes, and Property Rights in the Copper- and Cobalt-Mining Sector of the DRC" (PhD diss., University of Groningen, 2020).

to favour them by granting them mining permits. Thereby, they are enabled to continue exploiting local territories, while transferring all the resulting profits to the Global North.¹²⁴

All cobalt mining operation across the entire supply chain entails environmental, social and financial risks.¹²⁵ From an environmental point of view, mining requires copious amounts of water and electricity,¹²⁶ while the extraction of cobalt, in particular, produces toxic heavy metals and solid waste that contaminate the waters, soil and air,¹²⁷ jeopardise ecosystems, and thus, threaten the health and livelihoods of people working or living in the vicinity.¹²⁸

Furthermore, on the social aspect of cobalt mining, child labour is one of the major social risks that the DRC faces.¹²⁹ Young children, even at the age of 6,¹³⁰ are being exposed to perilous working conditions and toxic substances,¹³¹ while being remunerated a negligible, unfair wage of US\$ 0,75 per day.¹³² The flagrant underpayment of cobalt workers and the numerous other human rights violations, Sovacool observes, stem from poor or corrupt governance at both the local and national levels.¹³³

Besides, the economic and human rights risks associated with the mining industry in the DRC primarily encompass the widespread risk of forced displacement; indigenous populations are

¹²⁴ Radley and Geenen, “Struggles over Value,” 163-164.

¹²⁵ Cao, Sharmina, and Cuéllar-Franca, “Sourcing Cobalt in the Democratic Republic of the Congo,” 2.

¹²⁶ Xavier Takam Tiamgne, Felix K. Kalaba, and Vincent R. Nyirenda, “Mining and Socio-Ecological Systems: A Systematic Review of Sub-Saharan Africa,” *Resources Policy* 78 (September 2022): Article 102947, 2, <https://doi.org/10.1016/j.resourpol.2022.102947>.

¹²⁷ Tiamgne, Kalaba, and Nyirenda, “Mining and Socio-Ecological Systems,” 4.

¹²⁸ Sri Lakshmi Ramya Krishna Kanamarlapudi, Vinay Kumar Chintalpudi, and Sudhamani Muddada, “Application of Biosorption for Removal of Heavy Metals from Wastewater,” in *Biosorption*, ed. Jan Derco and Branislav Vrana (London: IntechOpen, 2018), 70-71, <https://doi.org/10.5772/intechopen.77315>; Cao, Sharmina, and Cuéllar-Franca, “Sourcing Cobalt in the Democratic Republic of the Congo,” 3.

¹²⁹ Cao, Sharmina, and Cuéllar-Franca, “Sourcing Cobalt in the Democratic Republic of the Congo,” 3; Amnesty International and African Resources Watch (AFREWATCH), *Democratic Republic of Congo: “This Is What We Die For”: Human Rights Abuses in the Democratic Republic of the Congo Power the Global Trade in Cobalt* (London: Amnesty International, 2016), 39, <https://www.amnesty.org/en/documents/afr62/3183/2016/en/>.

¹³⁰ Nir Kshetri, “Blockchain Systems and Ethical Sourcing in the Mineral and Metal Industry: A Multiple Case Study,” *The International Journal of Logistics Management* 33, no. 1 (2022): 2, <https://doi.org/10.1108/IJLM-02-2021-0108>.

¹³¹ Huber and Steininger, “Critical Sustainability Issues,” 1; Amnesty International and AFREWATCH, “*This Is What We Die For*,” 39.

¹³² Kshetri, “Blockchain Systems and Ethical Sourcing,” 2.

¹³³ Benjamin K. Sovacool, “The Precarious Political Economy of Cobalt: Balancing Prosperity, Poverty, and Brutality in Artisanal and Industrial Mining in the Democratic Republic of the Congo,” *The Extractive Industries and Society* 6, no. 3 (2019): 916, <https://doi.org/10.1016/j.exis.2019.05.018>; Cao, Sharmina, and Cuéllar-Franca, “Sourcing Cobalt in the Democratic Republic of the Congo,” 4.

either forcibly evicted from vast geographical zones rich in minerals,¹³⁴ or forced to migrate due to mining-induced conflicts, and the ensuing transformation of the socioeconomic structures and labour market of their territories.¹³⁵ In fact, entire local communities are perceived and treated as “collateral damage” to the altar of mass mining exploitation in the name of energy transitions.¹³⁶

Since the mines are located in close proximity to, or even beneath, residential areas, local and neighbouring communities have faced the risk of losing their homes and ancestral lands.¹³⁷ Without any prior communication or meaningful public consultation, any impact assessment, or the informed consent of the affected population, the mining companies that “run” the territory have proceeded with several waves of forced evictions.¹³⁸ Deberdt underlines that child labour, health and safety considerations, climate risks and “on-the-ground realities” of land access rights should be better addressed through “appropriate land distribution” as it encloses critical geographical and financial facets that do not overlook the root causes entrenched in limited land access rights.¹³⁹

Land access rights prove particularly consequential in “post-colonial settings”, and the case of the DRC stands as a telling illustration.¹⁴⁰ Unlike regimes prevailing in Ghana or Côte d’Ivoire, where land ownership is vested in individuals or communities, in the DRC it remains concentrated in the hands of a narrow set of powerful actors and corporations who keep access to land contingent upon their authorisation.¹⁴¹ In 2002, a Mining Code was introduced in the DRC, further advancing the privatisation of formerly state-owned mining enterprises, attracting foreign investors through an array of fiscal incentives and concessions.¹⁴² Even following its 2018 amendment, the system of authorisation persists, notwithstanding its illegality under international law.¹⁴³

Still, the people, the indigenous communities, who sustain exploitative working conditions, subsistence wages, a degraded environment, depleted resources, compromised health and forced displacement, are nowhere to be found on the cobalt map. The human rights violations documented

¹³⁴ Amnesty International and IBGDH, *Powering Change or Business as Usual?*, 6.

¹³⁵ Cao, Sharmina, and Cuéllar-Franca, “Sourcing Cobalt in the Democratic Republic of the Congo,” 4.

¹³⁶ Amnesty International and IBGDH, *Powering Change or Business as Usual?*, 7.

¹³⁷ Ibid, 9.

¹³⁸ Ibid.

¹³⁹ Deberdt, “Land Access Rights in Minerals’ Responsible Sourcing,” 1-2, 7-8.

¹⁴⁰ Ibid, 4.

¹⁴¹ Ibid, 3.

¹⁴² Ibid; Radley and Geenen, “Struggles over Value,” 171.

¹⁴³ Deberdt, “Land Access Rights in Minerals’ Responsible Sourcing,” 4.

at DRC cobalt mining sites sparked international scrutiny, prompting Amnesty International and African Resources Watch, a Congolese NGO, to publish a report entitled *This Is What We Die For*, exposing the deplorable labour conditions and poor human rights standards attendant upon cobalt extraction.¹⁴⁴ The report triggered a chain of responses, one of which materialised in the form of a lawsuit brought by 14 Congolese families against several major global tech firms, namely Apple, Alphabet, Dell, Microsoft, and Tesla, alleging that their children had been “killed or maimed” in the course of working within the cobalt mining industry.¹⁴⁵ The case was, nonetheless, ultimately dismissed.¹⁴⁶

Tech companies grew increasingly apprehensive about human rights violations associated with cobalt mining, particularly given the risk of reputational damage entailed. For instance, in March 2017, Apple announced that it would temporarily refrain from purchasing cobalt “mined by hand” in the DRC, notably deflecting much of the burden and stigma attached to human rights abuses onto ASM activities.¹⁴⁷ At the same time, Tesla had reportedly contemplated phasing out cobalt from its supply chain altogether.¹⁴⁸ Nonetheless, the firm ultimately concluded a cobalt supply agreement with Glencore, a Swiss LSM company operating in the DRC.¹⁴⁹

In a joint 2023 Report, Amnesty International and the Initiative pour la Bonne Gouvernance et les Droits Humains urge the national authorities of the DRC to accord primacy to the protection of human rights across all mining activities without undermining the rights of local populations to their homes and land. They further advocate for the amendment of the domestic Mining Code, in close consultation with affected communities and in alignment with international standards. The

¹⁴⁴ Amnesty International and AFREWATCH, “*This Is What We Die For*”.

¹⁴⁵ Annie Kelly, “Apple and Google Named in US Lawsuit Over Congolese Child Cobalt Mining Deaths,” *The Guardian*, December 16, 2019, <https://www.theguardian.com/global-development/2019/dec/16/apple-and-google-named-in-us-lawsuit-over-congolese-child-cobalt-mining-deaths> ; Katz-Lavigne, “Framing Spaces as (Il)legitimate,” 111.

¹⁴⁶ Kelly, “Apple and Google Named in US Lawsuit.” ; Katz-Lavigne, “Framing Spaces as (Il)legitimate,” 111.

¹⁴⁷ Katz-Lavigne, “Framing Spaces as (Il)legitimate,” 118 ; Todd C. Frankel, “Apple Cracks Down Further on Congo Cobalt Supplier as Child Labour Persists,” *The Washington Post*, March 3, 2017, <https://www.washingtonpost.com/news/the-switch/wp/2017/03/03/apple-cracks-down-further-on-cobalt-supplier-in-congo-as-child-labor-persists/>.

¹⁴⁸ Andy Home, “Tesla’s Reluctant Commitment to Cobalt a Warning to Others,” *Reuters*, June 23, 2020, <https://www.reuters.com/article/markets/stocks/column-teslas-reluctant-commitment-to-cobalt-a-warning-to-others-idUSKBN23U20F/>; Katz-Lavigne, “Framing Spaces as (Il)legitimate,” 118.

¹⁴⁹ Katz-Lavigne, “Framing Spaces as (Il)legitimate,” 118-119.

organisations additionally call upon mining companies to ensure unwavering compliance with their international due diligence and human rights obligations.¹⁵⁰

Indeed, the ongoing and severe human rights violations underscore the imperative for robust due diligence across the cobalt supply chain, leaving no room for “pick-and-choose” corporate clauses and “adaptive” compliance practices.¹⁵¹ Moreover, Cao, Sharmina, and Cuéllar-Franca stress the significance of enhancing transparency and traceability,¹⁵² whilst Fraser highlights the indispensability of meaningful community involvement in any undertaking towards responsible mining, beyond traditional “corporate social responsibility strategies”.¹⁵³ For Deberdt, the path forward lies in solidifying linkages, concessions, partnerships and collaborative endeavours among all stakeholders concerned, namely the mining industry, local communities and the state.¹⁵⁴

1.2 Land appropriation

Land is largely perceived as *property* not solely for its mineral richness but as an exploitable asset *per se*.¹⁵⁵ As such, land has long been the object of exploitation, controversies, competing interests, and protracted struggles over ownership, access, use and control. The phenomenon of the so-called “land grabbing” has been conceptualised by the International Land Coalition as any form of land acquisition that infringes upon human rights, does not follow the prior consent of the indigenous communities inhabiting the territory and disregards the social and environmental implications.¹⁵⁶ Ajala further offers an incisive definition, eloquently describing it as the “large-scale land acquisition by investors from foreign countries where land is comparatively scarce”,¹⁵⁷

¹⁵⁰ Amnesty International and IBGDH, *Powering Change or Business as Usual?*, 17, 92-98.

¹⁵¹ Katz-Lavigne, “Framing Spaces as (Il)legitimate,” 115.

¹⁵² Cao, Sharmina, and Cuéllar-Franca, “Sourcing Cobalt in the Democratic Republic of the Congo,” 7.

¹⁵³ Jocelyn Fraser, “Mining Companies and Communities: Collaborative Approaches to Reduce Social Risk and Advance Sustainable Development,” *Resources Policy* 74 (2021), 1, <https://doi.org/10.1016/j.resourpol.2018.02.003>; Deberdt, “Land Access Rights in Minerals’ Responsible Sourcing,” 8.

¹⁵⁴ Deberdt, “Land Access Rights in Minerals’ Responsible Sourcing,” 8-9.

¹⁵⁵ Brodie, “Smarter, Greener Extractivism,” 1066.

¹⁵⁶ International Land Coalition, “Tirana Declaration: Securing Land Access for the Poor in Times of Intensified Natural Resources Competition” (declaration, Global Assembly, Tirana, Albania, May 26, 2011), para. 4, <https://www.landcoalition.org/en/about-ilc/governance/assemblydeclarations/2011-tirana/>.

¹⁵⁷ Taiwo Ajala, “Examining the Legal Safeguards Against the Environmental Impact of Land Grabbing in African Countries: A Critical Review of Nigerian Environmental Law,” *Environmental Law Review* 20, no. 1 (2018): 4, <https://doi.org/10.1177/1461452917746153>.

to which she appends as its inevitable corollaries the displacement of indigenous peoples and the far-reaching socio-economic and environmental detrimental impact inflicted upon local communities.¹⁵⁸

A key parameter in the phenomenon of land grabbing is its geographic distribution, the location where climate-related harm materialises. Predominantly operated by foreign investors and actors rich in capital, land grabbing is conceived as a financial opportunity within the territory of formerly colonised host countries, mainly situated across the Global South.¹⁵⁹ Land, as a resource, becomes commodified and commercialised; stripped of its character as a common good or a human right to be enjoyed, it is converted into a financial asset, to the detriment of local interests.¹⁶⁰ As Bludnik aptly suggests, land grabbing constitutes “one of the most drastic forms of financialisation of the natural environment”.¹⁶¹ Several countries of Africa and Asia, bearing the enduring imprint of colonial legacies, now witness the resurgence of neocolonial and neo-imperial patterns,¹⁶² while their developing economies gradually capitulate to global interests that intend to convert their land into capital.¹⁶³ Hall has interpreted this phenomenon as “a neocolonial push [...] to annex key natural resources.”¹⁶⁴

Marx had brilliantly contended that “establishing rights over open-access resources can lead to boundless enrichment of the wealthy class and further impoverishment of the poor class”.¹⁶⁵ And such, precisely, is the case at hand. Countries of the Global South, endowed with abundant

¹⁵⁸ Ajala, “Examining the Legal Safeguards Against the Environmental Impact of Land Grabbing,” 4.

¹⁵⁹ Marc Edelman, Carlos Oya, and Saturnino M. Borras Jr., eds., *Global Land Grabs: History, Theory and Method* (London: Routledge, 2016); Shepard Daniel, “Situating Private Equity Capital in the Land Grab Debate,” *Journal of Peasant Studies* 39, nos. 3-4 (2012), <https://doi.org/10.1080/03066150.2012.674941>.

¹⁶⁰ Izabela Bludnik, “Digitalisation as a Driving Force for Land Grabbing in the Global South,” *Procedia Computer Science* 207 (2022): 266-67, <https://doi.org/10.1016/j.procs.2022.09.059>; Philip Seufert et al., eds., *Rogue Capitalism and the Financialization of Territories and Nature* (Heidelberg: FIAN International / Transnational Institute / Focus on the Global South, 2020), 9, <https://www.fian.org/en/publication/article/rogue-capitalism-and-the-financialization-of-territories-and-nature-2621>.

¹⁶¹ Bludnik, “Digitalisation as a Driving Force,” 266.

¹⁶² Bin Yang and Jun He, “Global Land Grabbing: A Critical Review of Case Studies across the World,” *Land* 10, no. 3 (2021): 5, <https://doi.org/10.3390/land10030324>.

¹⁶³ Yang and He, “Global Land Grabbing,” 5.

¹⁶⁴ Ruth Hall, “Land Grabbing in Southern Africa: The Many Faces of the Investor Rush,” *Review of African Political Economy* 38, no. 128 (June 2011), <https://doi.org/10.1080/03056244.2011.582753>; Yang and He, “Global Land Grabbing,” 6.

¹⁶⁵ Abdul-Hanan Abdallah, Michael Ayamga, and Joseph A. Awuni, “Impact of Land Grabbing on Food Security: Evidence from Ghana,” *Environment, Development and Sustainability* 25, no. 7 (July 2023): 6072, <https://doi.org/10.1007/s10668-022-02294-7>; Karl Marx, *Capital: A Critique of Political Economy*, trans. Ben Fowkes (1867; repr., Seattle: Madison Park, 2010).

mineral reserves, have become a pole of attraction for foreign investors.¹⁶⁶ Land dispossession beyond a state's territorial boundaries and the systematic denial of property rights to local populations have long underpinned the unequal and colonial social dynamics of the past – dynamics to which contemporary land grabbing bears a striking and disquieting resemblance.¹⁶⁷

Furthermore, the land-grabbing perpetuated by big tech companies constitutes an integral part of their territorial expansion,¹⁶⁸ and a primordial element of their broader supply chain that culminates in resource extraction.¹⁶⁹ As Brodie aptly contends, “land continues to shape the flows of digital and energy capital”.¹⁷⁰ Thus, land grabbing targeting the Global South, whether in its traditional guise or camouflaged beneath a green veneer, carries an array of adverse implications, encompassing the curbing of conventionally exploited resources,¹⁷¹ acute environmental harm,¹⁷² and the endangerment of indigenous rights.¹⁷³

Apart from the environmental degradation, deforestation, soil erosion, and water depletion, as primary consequences of large-scale land grabbing, such practices often culminate in the displacement of indigenous people, as their land is appropriated.¹⁷⁴ Concerning indigenous communities, the traces of colonialism are flagrant. Throughout the colonial and post-colonial era, these communities have endured the systematic dispossession of their land and resources and have been profoundly obstructed from exercising their right to determine their own pace of development in accordance with their own interests and needs.¹⁷⁵ Nowadays, when these communities claim human rights protection, they seek first and foremost to reclaim their “self-determination and resource sovereignty”, and they fervently fight against the historical practices of “dispossession,

¹⁶⁶ Ajala, “Examining the Legal Safeguards Against the Environmental Impact of Land Grabbing,” 3-4.

¹⁶⁷ Pádraig Carmody and David Taylor, “Globalization, Land Grabbing, and the Present-Day Colonial State in Uganda: Ecolonization and Its Impacts,” *Journal of Environment & Development* 25, no. 1 (March 2016): 102, <https://doi.org/10.1177/1070496515622017>.

¹⁶⁸ Nick Couldry and Ulises Ali Mejias, “The Decolonial Turn in Data and Technology Research: What Is at Stake and Where Is It Heading?,” *Information, Communication & Society* 26, no. 4 (2023): 788, <https://doi.org/10.1080/1369118X.2021.1986102>.

¹⁶⁹ Brodie, “Smarter, Greener Extractivism,” 1066.

¹⁷⁰ Ibid.

¹⁷¹ Yang and He, “Global Land Grabbing,” 10.

¹⁷² Ajala, “Examining the Legal Safeguards Against the Environmental Impact of Land Grabbing,” 4.

¹⁷³ Yang and He, “Global Land Grabbing,” 10.

¹⁷⁴ Ajala, “Examining the Legal Safeguards Against the Environmental Impact of Land Grabbing,” 4-5.

¹⁷⁵ Cambou and Buhmann, “Indigenous Peoples, Business, and the Struggles for Justice,” 169.

discrimination, assimilation, protectionism, cultural paternalism and resistance” that linger to this day.¹⁷⁶

Notably, the absence of public consultation and prior disclosure of information to the local communities regarding the land being appropriated is often particularly salient.¹⁷⁷ Without prior agreement or at least notice to the concerned population, a violation of their procedural rights is inflicted, as the IACtHR recognises.¹⁷⁸ Nonetheless, even when negotiations with local populations are held, the limited literacy of those concerned, coupled with the highly technical nature of the pertinent knowledge, renders their participation futile and illusory.¹⁷⁹ As De Schutter observes, land acquisition approaches are too often “non-transparent or non-consultative”.¹⁸⁰

Besides, as Hornborg contends, cited by Carmody and Taylor, contemporary land grabbing amplifies an “ecologically unequal exchange” and refers to an “asymmetrical transfer of natural resources and sink capacity”.¹⁸¹ It is manifest that land grabbing proves beneficial exclusively to transnational corporations and local elites in the Global South, whether despite, or even predicated upon, the displacement and impoverishment of the very populations it dispossesses.¹⁸²

1.2.1 E-waste dumping

In this context, e-waste dumping emerges as a notably salient phenomenon. As Madianou phrases it, “globalisation may account for the dumping of technological refuse, but to understand why it is dumped in Africa, we need an account of colonial durability”.¹⁸³

¹⁷⁶ Cambou and Buhmann, “Indigenous Peoples, Business, and the Struggles for Justice,” 149.

¹⁷⁷ Ajala, “Examining the Legal Safeguards Against the Environmental Impact of Land Grabbing,” 7-8.

¹⁷⁸ Inter-American Court of Human Rights, Advisory Opinion AO-32/25, May 29, 2025, Requested By The Republic of Chile And The Republic of Colombia on Climate Emergency and Human Rights, https://www.corteidh.or.cr/docs/opiniones/seriea_32_en.pdf, para. 425; Guiding Principles on Internal Displacement, Resolution 1997/39, 1998, principles 7-9.

¹⁷⁹ Ajala, “Examining the Legal Safeguards Against the Environmental Impact of Land Grabbing,” 8, 12.

¹⁸⁰ Olivier De Schutter, *Large-Scale Land Acquisitions and Leases: A Set of Core Principles and Measures to Address the Human Rights Challenge*, Briefing Document by the Special Rapporteur on the Right to Food, United Nations (June 11, 2009), para. 5; Abdallah, Ayamga, and Awuni, “Impact of Land Grabbing on Food Security,” 6090.

¹⁸¹ “Sink capacity” denotes an ecosystem’s capacity to absorb waste and pollution. Carmody and Taylor, “Globalization, Land Grabbing, and the Present-Day Colonial State in Uganda,” 103; Alf Hornborg, *Global Ecology and Unequal Exchange: Fetishism in a Zero-Sum World* (Abingdon, England: Routledge, 2011); Mariko Lin Frame, “Foreign Investment in African Resources: The Ecological Aspect to Imperialism and Unequal Exchange” (PhD diss., University of Denver, 2014), 15.

¹⁸² Carmody and Taylor, “Globalization, Land Grabbing, and the Present-Day Colonial State in Uganda,” 103.

¹⁸³ Madianou, “Technocolonialism,” 3.

E-waste dumping denotes the practice of discharging obsolete electronic devices, often entailing their export and disposal beyond the borders of the countries in which they were originally produced. When the flow of such practice is directed from countries of the Global North to states of the Global South,¹⁸⁴ SiPeng Wong suggests that it constitutes a form of “waste colonialism”.¹⁸⁵ Aptly enough, e-waste has been characterised as the “effluent by the affluent”,¹⁸⁶ with climate geography echoing Hobbes’ “state of nature”, in which the vulnerable carry the burden of the powerful.¹⁸⁷ Tellingly, Nwagwu and Okuneye incorporate as an integral element into their definition of e-waste the disposal of obsolete and abandoned EEE¹⁸⁸ “in illegal dumpsites in most developing countries”,¹⁸⁹ suggesting that such geographic asymmetry is not incidental, but rather constructive of the phenomenon.

The “not-in-my-backyard” mentality prevailing among countries of the Global North, in conjunction with legal loopholes permitting the transboundary disposal of e-waste, has rendered countries of the Global South receptacles for vast quantities of WEEE. An estimated 80% of e-

¹⁸⁴ Paromita Chakraborty et al., “Electronic Waste Recycling in South Asia: Overview of Associated Risks from a Cocktail of Micro-Pollutants and Recommendations for Sustainable E-Waste Management,” *Journal of Hazardous Materials Advances* 18 (2025): 2, <https://doi.org/10.1016/j.hazadv.2025.100715>; Knut Breivik et al., “Tracking the Global Generation and Exports of E-Waste: Do Existing Estimates Add Up?,” *Environmental Science & Technology* 48, no. 15 (2014): 8736, <https://doi.org/10.1021/es5021313>; Mehreen Iqbal et al., “Emerging Issue of E-Waste in Pakistan: A Review of Status, Research Needs and Data Gaps,” *Environmental Pollution* 207 (December 2015): 308, <https://doi.org/10.1016/j.envpol.2015.09.002>.

¹⁸⁵ Aniruddha Ghosal, “American E-Waste Is Causing a ‘Hidden Tsunami’ in Southeast Asia, Watchdog Report Says,” *AP News*, October 22, 2025, accessed June 14, 2026, <https://apnews.com/article/ewaste-pollution-asia-scrapyards-poison-1bf7eb385cdb21227e0e9815d4a2749b>.

¹⁸⁶ Jim Puckett et al., *Exporting Harm: The High-Tech Trashing of Asia* (Seattle: Basel Action Network, 2002), 2; Breivik et al., “Tracking the Global Generation and Exports of E-Waste,” 8737.

¹⁸⁷ Nkrumah, “Ecojustice,” 17; Michael Moehler, “Why Hobbes’ State of Nature is Best Modeled by an Assurance Game,” *Utilitas* 21, no. 3 (2009): 297.

¹⁸⁸ The term “EEE” stands for Electrical and Electronic Equipment and refers to all kinds of electronic and electrical devices or products with electronic components, from circuitry to batteries. Accordingly, “WEEE” refers to Waste of Electrical and Electronic Equipment and will be used interchangeably with the term “e-waste”. See, United Nations Institute for Training and Research (UNITAR) and International Telecommunication Union (ITU), *The Global E-Waste Monitor 2024: Electronic Waste Rising Five Times Faster than Documented E-Waste Recycling* (Geneva: UNITAR/ITU, 2024), 20, <https://ewastemonitor.info/the-global-e-waste-monitor-2024/>.

¹⁸⁹ Williams Nwagwu and Margaret Okuneye, “Awareness and Attitudes of Small-Scale Information Technology Business Operators in Lagos, Nigeria Toward E-Waste Hazards,” *Journal of Global Information Technology Management* 19, no. 4 (2016), <https://doi.org/10.1080/1097198X.2016.1246934>; Vusumuzi Maphosa and Mfowabo Maphosa, “E-Waste Management in Sub-Saharan Africa: A Systematic Literature Review,” *Cogent Business & Management* 7, no. 1 (2020): 3, <https://doi.org/10.1080/23311975.2020.1814503>.

waste generated in the Global North is illegally offloaded onto countries across Africa and Asia,¹⁹⁰ frequently documented under the guise of “commercial good” transfers.¹⁹¹

Owing to – deliberate or conventionally justified – inconsistencies in documentation and classification practices, vast amounts of imported e-waste are routinely categorised as “second-hand goods”, or even “donations”, thereby eluding to being factored into the official e-waste influx statistics.¹⁹² Such systematic mislabelling of WEEE distorts figures that, once already obscured, are estimated at 1.9 million tonnes annually, a figure that can only be treated as a “conservative proxy” for the true scale of transboundary flows.¹⁹³

The theoretical framework of Political Ecology offers a productive lens through which to examine how global power dynamics and politico-economic structures condition and determine the unequal distribution of environmental harm.¹⁹⁴ As aptly phrased by Shao et al., this framework interrogates phenomena such as the transboundary e-waste dumping from developed to developing nations, the marginalisation of informal recyclers, and the manner in which global capitalism creates environmental externalities disproportionately borne by African communities.¹⁹⁵ The same authors identify as a core issue the “structural asymmetries in global production and disposal systems”, whereby African countries systematically “absorb external e-waste burdens due to weak

¹⁹⁰ Emily A. Yu et al., “Informal Processing of Electronic Waste at Agbogbloshie, Ghana: Workers’ Knowledge About Associated Health Hazards and Alternative Livelihoods,” *Global Health Promotion* 24, no. 4 (2017): 91, <https://doi.org/10.1177/1757975916631523>; Hridoy Roy et al., “A Comprehensive Review on Hazardous Aspects and Management Strategies of Electronic Waste: Bangladesh Perspectives,” *Heliyon* 8, no. 7 (2022): 4, <https://doi.org/10.1016/j.heliyon.2022.e09802>; Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 4.

¹⁹¹ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 4.

¹⁹² Basel Convention Secretariat, *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal* (Geneva: United Nations Environment Programme, 2021), accessed June 14, 2026, <https://www.basel.int/theconvention/overview/tabid/1271/default.aspx>; Deo Shao et al., “Sustainable Digital Transformation and E-Waste Management in Africa: An Ecological Modernisation Perspective,” *Sustainable Futures* 11 (2026): 2, <https://doi.org/10.1016/j.sfsr.2026.101832>.

¹⁹³ Shao et al., “Sustainable Digital Transformation and E-Waste Management in Africa,” 6; Vanessa Forti et al., *The Global E-Waste Monitor 2020: Quantities, Flows, and the Circular Economy Potential* (Bonn: United Nations University/United Nations Institute for Training and Research, International Telecommunication Union, and International Solid Waste Association, 2020), 111, https://ewastemonitor.info/wp-content/uploads/2020/11/GEM_2020_def_july1_low.pdf; Wilson Osarodion Agbondinmwini, “Flows of Waste and Secondhand Items from Developed to Developing Countries: A Case Study of E-Wastes in Nigeria and China” (master’s thesis, University of Gothenburg, 2024), <https://hdl.handle.net/2077/80832>.

¹⁹⁴ Shao et al., “Sustainable Digital Transformation and E-Waste Management in Africa,” 3; Maarten A. Hajer, *The Politics of Environmental Discourse: Ecological Modernisation and the Policy Process* (Oxford: Clarendon Press, 1995); Gordon Walker, *Environmental Justice: Concepts, Evidence and Politics* (London: Routledge, 2012), 71.

¹⁹⁵ Shao et al., “Sustainable Digital Transformation and E-Waste Management in Africa,” 3.

border controls, limited testing facilities, and inadequate regulatory enforcement”.¹⁹⁶ Maphosa and Maphosa further capture as critical e-waste management deficiencies, pertinent to most African countries, the “lack of awareness, policy, and infrastructure”.¹⁹⁷

These disparities between the Global South and the Global North, however, precede the moment of disposal, manifesting as early as the stage of waste generation, which stems from the level of *EEE ownership*.¹⁹⁸ In high-income countries, the average per capita endowment of EEE amounts to 109 items, whereas in low-income countries this figure plummets to a mere 4 items per person.¹⁹⁹ EEE is transformed into e-waste when discarded by its user, with no prospect of reuse.²⁰⁰ From that point onwards, the trajectory of its management becomes critical; how such equipment is disposed of, collected, recycled and repurposed proves of considerable salience.²⁰¹ Yet the flow of e-waste streams is neither linear nor consistently documented.²⁰² Its transboundary movement is oftentimes not merely tacitly condoned but rather actively facilitated, imposing a supplementary burden upon countries that ultimately receive a disproportionate volume of e-waste compared to what they domestically produce.

Against this backdrop, the accumulation of e-waste across the Global South is increasing at an alarming pace.²⁰³ Asante, Amoyaw-Osei and Agusa contend that its proliferation constitutes one of the most rapidly accelerating pollution crises at both global and regional levels, largely driven by the environmental contamination and human health harm it inflicts, which mostly stems from the “primitive way” in which e-waste is processed.²⁰⁴

¹⁹⁶ Shao et al., “Sustainable Digital Transformation and E-Waste Management in Africa,” 2.

¹⁹⁷ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 3.

¹⁹⁸ UNITAR and ITU, *The Global E-Waste Monitor 2024*, 20.

¹⁹⁹ Ibid.

²⁰⁰ Ibid, 21.

²⁰¹ Ibid, 44.

²⁰² Ibid.

²⁰³ Daniel Mmereki, Baizhan Li, and Wang Li’ao, “Waste Electrical and Electronic Equipment Management in Botswana: Prospects and Challenges,” *Journal of the Air & Waste Management Association* 65, no. 1 (2015), <https://doi.org/10.1080/10962247.2014.892544>; Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 9.

²⁰⁴ Kwadwo Ansong Asante, Yaw Amoyaw-Osei, and Tetsuro Agusa, “E-Waste Recycling in Africa: Risks and Opportunities,” *Current Opinion in Green and Sustainable Chemistry* 18 (2019): 112, <https://doi.org/10.1016/j.cogsc.2019.04.001>.

In Africa, this crisis is aggravated by a dual pressure: the continent receives a total e-waste volume of almost two million tonnes annually,²⁰⁵ while simultaneously generating nearly three million metric tonnes yearly, a figure projected to have further risen by 2026.²⁰⁶

The gravest dimension of e-waste dumping resides in the environmental contamination and human health hazards it generates.²⁰⁷ WEEE accumulation entails the release of long-persisting acids, gases and toxic minerals into water, air and soil, substances that subsequently are conveyed to humans through the food chain, via bioaccumulation and biomagnification processes or through direct contact during the collection and dismantling of electronic waste.²⁰⁸ Besides, the dismantling of EEE provokes the leaching of toxic minerals into both terrestrial and maritime ecosystems,²⁰⁹ while open-air burning and incineration – owed to lack of disposal and recycling infrastructure, as well as to regulatory lacuna – culminate in an over-concentration of perilous substances in the atmosphere and the ensuing accelerated degradation of surrounding environments.²¹⁰

Concurrently, humans sustain a constellation of correspondingly detrimental implications. Workers sorting and dismantling EEE with bare hands or rudimentary instruments are exposed to toxic substances and radiation, sustaining carcinogenic diseases and respiratory conditions, such as asthma or persistent coughing, as well as acute infections, chest pain, eye and skin irritation, lacerations and musculoskeletal injuries.²¹¹ Moreover, the harm extends well beyond those directly employed in the treatment chain, though. Entire communities residing in close vicinity of e-waste

²⁰⁵ United Nations Environment Programme, *Global Waste Management Outlook 2024: Beyond an Age of Waste – Turning Rubbish into a Resource* (Nairobi: UNEP, 2024), <https://doi.org/10.59117/20.500.11822/44939>; Agbondinmwin, “Flows of Waste and Secondhand Items,” 2.

²⁰⁶ Kang Liu et al., “A Global Perspective on E-Waste Recycling,” *Circular Economy* 2, no. 1 (2023): 3, <https://doi.org/10.1016/j.ccc.2023.100028>; United Nations Conference on Trade and Development (UNCTAD), *Digital Economy Report 2024: Shaping an Environmentally Sustainable and Inclusive Digital Future*, UN Doc. UNCTAD/DER/2024 (Geneva: United Nations, 2024), <https://unctad.org/publication/digital-economy-report-2024>.

²⁰⁷ Martin Oteng-Ababio, “Electronic Waste Management in Ghana: Issues and Practices,” in *Sustainable Development: Authoritative and Leading Edge Content for Environmental Management*, ed. Sime Curkovic (Rijeka, Croatia: IntechOpen, 2012), 150, <https://doi.org/10.5772/45884>; Omar Ouro-Salim, “Urban Mining of E-Waste Management Globally: Literature Review,” *Cleaner Waste Systems* 9 (2024): 2, <https://doi.org/10.1016/j.clwas.2024.100162>; Cristina A. Lucier and Brian J. Gareau, “Electronic Waste Recycling and Disposal: An Overview,” in *Assessment and Management of Radioactive and Electronic Wastes*, ed. Hosam El-Din Saleh (London: IntechOpen, 2020), 51, <https://doi.org/10.5772/intechopen.85983>.

²⁰⁸ Deblina Dutta, Sudha Goel, and Sunil Kumar, “Health Risk Assessment for Exposure to Heavy Metals in Soils in and Around E-Waste Dumping Site,” *Journal of Environmental Chemical Engineering* 10, no. 2 (2022), 1-2, 7, <https://doi.org/10.1016/j.jece.2022.107269>.

²⁰⁹ Ukpanah, “Is Technology Bad for the Environment?”.

²¹⁰ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 10-11.

²¹¹ Ibid, 9; Dutta, Goel, and Kumar, “Health Risk Assessment,” 1-2, 7.

management facilities face elevated rates of cancers, neurological and mental impairment, blood and brain disorders and congenital disabilities.²¹²

That environmental harm and human health risks are primarily reserved for the people of the Global South is no accident of geography. As Maphosa and Maphosa illustrate, despite e-waste recycling policies and infrastructure developed across the Global North, “it remains lucrative to ship it to the Global South”, where legislative and regulatory frameworks, technical knowledge and proper disposal facilities are massively lacking.²¹³ Along these lines, one can inescapably draw the conclusion that, in the Global South, the environment and human dignity are accorded lesser value. Whilst e-waste exports have been occasionally framed as an opportunity for “reallocation of resources” with potential value,²¹⁴ the asymmetry they entrench is unambiguous: the Global South bears a compounded burden of both imported and domestically produced e-waste with its capacity to manage either remaining critically constrained.²¹⁵

A recurring justification for the import of e-waste into the Global South is the notion that refurbishment and reuse of discarded EEE constitute a reasonable means of “bridging the digital divide”.²¹⁶ In this perspective, obsolete electronic devices cast off by the affluent Global North are presented as reaching their fullest potential when repurposed and recycled in the hands of the poor and marginalised Global South, who can only afford second-hand EEE. Yet even those scholars who do not endorse unrestricted flows and instead advocate for better-regulated and “legalised” transboundary movements,²¹⁷ are in fact proposing the normalisation and perpetuation of the very asymmetry they purport to oppose. Some even tacitly accept that the consumption surplus of the Global North is beneficial insofar as it remains the only means by which the Global South will obtain access to digital technologies and information, without questioning the deeply flawed nature of this assumption.

²¹² Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 10; Asante, Amoyaw-Osei, and Agusa, “E-Waste Recycling in Africa,” 110.

²¹³ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 4.

²¹⁴ Breivik et al., “Tracking the Global Generation and Exports of E-Waste,” 8735-8736.

²¹⁵ Ghosal, “American E-Waste Is Causing a ‘Hidden Tsunami.’”

²¹⁶ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 3.

²¹⁷ Ibid.

It is nonetheless true that “informal” e-waste economy represents a non-negligible source of income for considerable segments of the population in host Global South countries.²¹⁸ Often workers, through informal and unauthorised dismantling of EEE, extract critical metals, such as gold, silver, and copper, earning between US\$ 3,5 per day,²¹⁹ and US\$ 10 USD per week,²²⁰ from their selling.²²¹ Secondary financial opportunities are also unveiled. Extracted materials such as aluminium are repurposed into new utensils, fabricated and sold locally.²²² The scale of this shadow economy is remarkable. The Agbogbloshie landfill in Ghana alone is estimated to employ more than 15.000 e-waste labourers.²²³ Amongst them, the so-called “refurbishers”, concentrated mainly at the Accra and Tema sites, amount to 6.000-9.000.²²⁴ Meanwhile, in Nigeria, more than 30.000 individuals earn their living by working at e-waste recycling sites.²²⁵

Furthermore, another contributing factor to the overwhelming abundance of e-waste is the so-called “planned obsolescence” of modern devices, their artificially contracted lifespan.²²⁶ “Built with a focus on replacement instead of repairing”,²²⁷ their very construction aims at a curtailed operational life, thereby ensuring that a perpetual stream of e-waste is left for the Global South to

²¹⁸ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 4; Ghosal, “American E-Waste Is Causing a ‘Hidden Tsunami.’”

²¹⁹ Richard J. Grant and Martin Oteng-Ababio, “The Global Transformation of Materials and the Emergence of Informal Urban Mining in Accra, Ghana,” *Africa Today* 62, no. 4 (2016), <https://doi.org/10.2979/africatoday.62.4.01>; Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 12.

²²⁰ Augustine A. Acquah et al., “Processes and Challenges Associated with Informal Electronic Waste Recycling at Agbogbloshie, a Suburb of Accra, Ghana,” *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* 63, no. 1 (2019), <https://doi.org/10.1177/1071181319631219>; Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 12.

²²¹ Emmanuel Asampong et al., “Health Seeking Behaviours Among Electronic Waste Workers in Ghana,” *BMC Public Health* 15, no. 1 (2015), <https://doi.org/10.1186/s12889-015-2376-z>; Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 12.

²²² Asante, Amoyaw-Osei, and Agusa, “E-Waste Recycling in Africa,” 109.

²²³ Grant and Oteng-Ababio, “The Global Transformation of Materials”; Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 12.

²²⁴ Asante, Amoyaw-Osei, and Agusa, “E-Waste Recycling in Africa,” 115.

²²⁵ Derica Lambrechts, “Environmental Crime in Sub-Saharan Africa – A Review and Future Challenges,” editorial, *Politikon* 43, no. 2 (2016), <https://doi.org/10.1080/02589346.2016.1213692>; Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 11-12.

²²⁶ Loach, *It's Not That Radical*, 107-108.

²²⁷ Pariatamby Agamuthu, P. Kasapo, and Norazli Azantee Mohd Nordin, “E-Waste Flow Among Selected Institutions of Higher Learning Using Material Flow Analysis Model,” *Resources, Conservation and Recycling* 105 (2015), <https://doi.org/10.1016/j.resconrec.2015.09.018>; Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 3.

absorb. Strikingly, given the rapid EEE replacement, the pace of global accumulation of e-waste is fivefold that of its formal recycling.²²⁸

Within the African continent, Nigeria stands as the predominant e-waste importer, followed by Ghana, Côte d'Ivoire, Benin, Kenya and Liberia.²²⁹ Beyond Africa, India, Malaysia and Mexico emerge as significant concentration points, with Malaysia having been characterised by Puckett as the contemporary “mecca of junk”.²³⁰

Nonetheless, Nigeria and Ghana warrant particular attention. Together, they constitute the continent's foremost hotspots of e-waste inflow, receiving around 40% of the total continental imports, and figure among the countries with the highest concentrations of heavy metals detected in the blood of their populations.²³¹ They are also home to some of the largest e-waste landfills worldwide – the Agbogbloshie landfill, in Ghana, receiving an average of 600 40-foot containers of e-waste per month,²³² and estimated to process more than 15% of the global informally treated e-waste,²³³ and Alaba, in Nigeria, the largest dumping site in West Africa and characterised by its open burning of e-waste practice.²³⁴

Lagos constitutes another key landfill in Nigeria, considered the “computer village” due to its abundant influx of second-hand, and scrapped electronic devices.²³⁵ The near total absence of appropriate recycling and waste treatment facilities across the country is what, alarmingly, renders manual dismantling and burning the “default mode” of e-waste management.²³⁶

²²⁸ Ghosal, “American E-waste”; UNITAR and ITU, *The Global E-Waste Monitor 2024*, 18.

²²⁹ Breivik et al., “Tracking the Global Generation and Exports of E-Waste,” 8739; Thomas Maes and Fiona Preston-Whyte, “E-Waste It Wisely: Lessons from Africa,” *SN Applied Sciences* 4, no. 3 (2022): 72, <https://doi.org/10.1007/s42452-022-04962-9>.

²³⁰ Ghosal, “American E-Waste Is Causing a ‘Hidden Tsunami’.”

²³¹ Asante, Amoyaw-Osei, and Agusa, “E-Waste Recycling in Africa,” 110-111.

²³² David Amuzu, “Environmental Injustice of Informal E-Waste Recycling in Agbogbloshie-Accra: Urban Political Ecology Perspective,” *Local Environment* 23, no. 6 (2018), <https://doi.org/10.1080/13549839.2018.1456515>; Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 11.

²³³ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 10; Lambrechts, “Environmental Crime in Sub-Saharan Africa”.

²³⁴ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 10; Olakitan Ogungbuyi et al., *E-Waste Country Assessment Nigeria: E-Waste Africa Project of the Secretariat of the Basel Convention* (Geneva: Secretariat of the Basel Convention; St. Gallen: Swiss Federal Laboratories for Materials Science and Technology – EMPA, 2012), http://www.basel.int/Portals/4/Basel%20Convention/docs/eWaste/EwasteAfrica_Nigeria-Assessment.pdf.

²³⁵ Innocent Chidi Nnorom and Oladele Osibanjo, “Electronic Waste (E-Waste): Material Flows and Management Practices in Nigeria,” *Waste Management* 28, no. 8 (2008): 1475, <https://doi.org/10.1016/j.wasman.2007.06.012>.

²³⁶ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 10.

In this context, the regulatory landscape is key. Across most African countries, the striking absence of concrete policies and dedicated legislation framing e-waste management constitutes a structural failure. Countries such as Nigeria, have enacted general regulations on hazardous waste and environmental protection,²³⁷ yet without specific provisions governing the import, disposal or treatment of e-waste.²³⁸ Similarly, Ghana mostly relies on broader hazardous waste frameworks to address e-waste.²³⁹ Despite the enactment of e-waste management policies, their weak, fragmented and inconsistent implementation remains a barrier.²⁴⁰ It is also paramount to stress that emphasis should be placed on waste reduction, apart from its disposal, recycling and reuse. This endeavour would require above all systematically keeping track of both imported and domestically generated e-waste – a promising objective substantially obstructed by the vast volume of undocumented,²⁴¹ illegally imported e-waste that evades any accounting form.²⁴²

1.3 Data extraction

The “digital divide” is neither an isolated incidental phenomenon nor a merely technical shortcoming. It is ingrained in, and perpetuated by, pre-existing socio-economic inequalities and geographic divisions.²⁴³ Lack of internet access disproportionately afflicts already disadvantaged populations – rural communities and women, in particular – especially in countries of the Global South, where connectivity remains contingent upon affordability and infrastructural capacity.²⁴⁴ In this regard, the current level of accessibility to digital technologies does not solely reflect the dual-speed development and digital inclusion that characterises the architecture of the global order, but

²³⁷ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 11.

²³⁸ Johnson Ojiyovwi Okorhi et al., “Disconnect between Policy and Practice in Developing Countries: Evidence of Managing E-Waste from Nigeria,” *African Journal of Science, Technology, Innovation and Development* 11, no. 4 (2019), <https://doi.org/10.1080/20421338.2017.1385134>; Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 11.

²³⁹ Maphosa and Maphosa, “E-Waste Management in Sub-Saharan Africa,” 11.

²⁴⁰ Ibid; Kwadwo Ansong Asante et al., “E-Waste Interventions in Ghana,” *Reviews on Environmental Health* 31, no. 1 (2016), <https://doi.org/10.1515/reveh-2015-0047>.

²⁴¹ Maes and Preston-Whyte, “E-Waste It Wisely”.

²⁴² Asante, Amoyaw-Osei, and Agusa, “E-Waste Recycling in Africa,” 110.

²⁴³ Sharifah Sekalala, Pamela Andanda, and Tinashe Chatikobo, “Regulating Digital Health in the Global South: Critical and Decolonial Approaches,” *International Journal of Law in Context* 22, no. 1 (2026): 2, <https://doi.org/10.1017/S1744552325100335>; Richard Heeks, “Digital Inequality Beyond the Digital Divide: Conceptualizing Adverse Digital Incorporation in the Global South,” *Information Technology for Development* 28, no. 4 (2022): 688-89, <https://doi.org/10.1080/02681102.2022.2068492>.

²⁴⁴ Sekalala, Andanda, and Chatikobo, “Regulating Digital Health in the Global South,” 2.

actively replicates and deepens it.²⁴⁵ In Africa, the internet has served as the cornerstone of the continent's digital transformation. The so-called "internet penetration rate", i.e. the access and use of the internet among its population, rose from 15% in 2010 to 37% in 2024,²⁴⁶ a surge that suggests the meaningful progress achieved and the distance yet to be traversed.

Nonetheless, it is data and its commodification that predominantly define and shape the modern digital landscape. Characterised as "the new oil" and "the oxygen" of our contemporary digital era – itself considered "the fourth industrial revolution"²⁴⁷ – data has come to be perceived as the "central driver" of the modern digital economy, as much as a resource to be extracted and exploited.²⁴⁸ Major tech companies are engaged in what has been termed "data grabbing", whereby personal data becomes the raw material underpinning the expansion of their so-called "cloud empires".²⁴⁹ As Sekalala, Andanda and Chatikobo aptly argue, drawing on Kwet,²⁵⁰ "US-based technology firms dominate platforms, infrastructures and standards, creating dependencies that echo prior imperial projects".²⁵¹ Moreover, scholars have characterised data as "a form of capitalist expropriation",²⁵² and its extraction as a process of "capitalist accumulation by dispossession".²⁵³ In this sense, the digital realm reveals a new terrain for exercise of power and capital investment,²⁵⁴

²⁴⁵ Heeks, "Digital Inequality Beyond the Digital Divide," 689.

²⁴⁶ International Telecommunication Union, *Measuring Digital Development: Facts and Figures 2024* (Geneva: ITU, 2024), <https://www.itu.int/itu-d/reports/statistics/facts-figures-2024>; Shao et al., "Sustainable Digital Transformation and E-Waste Management in Africa," 1.

²⁴⁷ David Mhlana and Emmanuel Ndhlovu, "Making Sense of the Fourth Industrial Revolution: An Overview of the Potential Impact on Africa," in *The Fourth Industrial Revolution in Africa: Exploring the Development Implications of Smart Technologies in Africa*, ed. David Mhlana and Emmanuel Ndhlovu (Cham, Switzerland: Springer, 2023), 17, https://doi.org/10.1007/978-3-031-28686-5_1.

²⁴⁸ Brodie, "Smarter, Greener Extractivism," 1066; Revati Prasad, "People as Data, Data as Oil: The Digital Sovereignty of the Indian State," *Information, Communication & Society* 25, no. 6 (2022): 807, <https://doi.org/10.1080/1369118X.2022.2056498>; Sy Taffel, "Data and Oil: Metaphor, Materiality and Metabolic Rifts," *New Media & Society* 25, no. 5 (2023): 980, <https://doi.org/10.1177/14614448211017887>.

²⁴⁹ Stürmer, Nussbaumer, and Stöckli, "Security Implications of Digitalization," 8; Bludnik, "Digitalisation as a Driving Force," 268.

²⁵⁰ Michael Kwet, "Digital Colonialism: US Empire and the New Imperialism in the Global South," *Race & Class* 60, no. 4 (2019), <https://doi.org/10.1177/0306396818823172>.

²⁵¹ Sekalala, Andanda, and Chatikobo, "Regulating Digital Health in the Global South," 2-3.

²⁵² Madianou, "Technocolonialism," 3.

²⁵³ Jim Thatcher, David O'Sullivan, and Dillon Mahmoudi, "Data Colonialism through Accumulation by Dispossession: New Metaphors for Daily Data," *Environment and Planning D: Society and Space* 34, no. 6 (2016): 3, <https://doi.org/10.1177/0263775816633195>.

²⁵⁴ Thatcher, O'Sullivan, and Mahmoudi, "Data Colonialism through Accumulation by Dispossession," 3.

in which, as bluntly formulated by Thatcher, O'Sullivan, and Mahmoudi, our entire lives are “colonised by big money and big power”.²⁵⁵

1.3.1 Facebook's Free Basic

Platforms, as Couldry and Mejjas claim, constitute decisive infrastructural tools that shape the very organisational substance of capitalism, facilitating the articulation of both its social and economic dimensions.²⁵⁶ The true shift in the capitalist business model occurred when data ceased to represent “a peripheral aspect of businesses” and was transformed to “a central resource”,²⁵⁷ enabling vast quantities of data to be extracted and deployed, primarily within the realm of digital communications. Srnicek identifies platforms as a “powerful new type of firm”,²⁵⁸ whose core architecture enables them to “monopolise, extract [and] analyse” data. Concurrently, they fulfil their key purpose, which is to connect users who wish to engage in an activity, while claiming “privileged access” to,²⁵⁹ and control over,²⁶⁰ the data to which they have been granted access.

This is where Facebook's Free Basics comes into play: a programme offering simplified, free internet access to populations across the Global South remained underserved in their access to the World Wide Web.²⁶¹ More than twenty countries, predominantly in Africa, with unreliable or unevenly developed internet infrastructure, were subjected to these programmes, which, as Madianou observes, are inherently exploitative and “colonial in their attitude”.²⁶² Indeed, what Meta, through Facebook, provided was a bare-minimum suite of services and applications, while simultaneously unrestrictedly and unlimitedly extracting personal data.²⁶³

Facebook's business model plainly exemplifies this logic: relying on advertisers for 96.6% of its revenue,²⁶⁴ it treats user-generated data and content as a raw material to be exploited, a good to be sold.²⁶⁵ Terranova takes a step further, arguing that the valorisation and commercialisation of

²⁵⁵ Thatcher, O'Sullivan, and Mahmoudi, “Data Colonialism through Accumulation by Dispossession,” 18.

²⁵⁶ Couldry and Mejjas, *Costs of Connection*, 26.

²⁵⁷ Nick Srnicek, *Platform Capitalism* (Cambridge: Polity Press, 2017), 29.

²⁵⁸ Srnicek, *Platform Capitalism*, 29.

²⁵⁹ Ibid, 30.

²⁶⁰ Ibid, 31.

²⁶¹ Madianou, “Technocolonialism,” 3.

²⁶² Ibid.

²⁶³ Ibid.

²⁶⁴ Srnicek, *Platform Capitalism*, 34.

²⁶⁵ Ibid, 35.

individual data is tantamount to exploiting free labour, in that users remain uncompensated for the value they produce, and the data they yield without true free will.²⁶⁶

Furthermore, what lies at the core of such programmes, plainly exemplified by Facebook's offer, as Couldry and Mejias showcase, is the imperative to systematically normalise data relations across all social structures; to render data extraction ubiquitous and seamlessly ordinary.²⁶⁷ "Free" access to online services enables companies to increasingly expand their reach over wider pools of personal data.²⁶⁸ Therefore, these programmes inevitably entail a cost: the relinquishment of user privacy.

In an attempt to capture the essence of the asymmetrical power relations intrinsic to digital data extraction and commodification, Thatcher, O'Sullivan, and Mahmoudi coined the term "data colonialism",²⁶⁹ with "digital colonialism" similarly present in the scholarly literature.²⁷⁰ For Godin, Ozkul and Humphris, the concept of "data colonialism" underscores the indistinguishable extractive logic of dominance exercised upon people and countries of the Global South, drawing an explicit parallel between "the capture and processing" of data and the historical extraction of land and labour.²⁷¹ Couldry and Mejias advance the analogy arguing that the conquest and appropriation of geographical territories and their resources exhibit no structural divergence from contemporary data appropriation,²⁷² while Sekalala, Andanda and Chatikobo deploy "digital colonialism" as the conceptual framework explaining "how digital infrastructures enact forms of extraction consistent with colonial histories, through the capture of everyday life through infrastructures that transform human activity into data flows for global markets".²⁷³ Data, as a new form of raw material, is not bound by any natural limit; human life is multilayered, with an endless potential to be appropriated and exploited.²⁷⁴ For Couldry and Mejias, data colonialism presents an unprecedented opportunity

²⁶⁶ Tiziana Terranova, "Free Labor: Producing Culture for the Digital Economy," *Social Text* 18, no. 2 (Summer 2000): 51, https://doi.org/10.1215/01642472-18-2_63-33.

²⁶⁷ Couldry and Mejias, *Costs of Connection*, 12.

²⁶⁸ Madianou, "Technocolonialism," 3.

²⁶⁹ Thatcher, O'Sullivan, and Mahmoudi, "Data Colonialism through Accumulation by Dispossession," 3-4.

²⁷⁰ Renata Ávila Pinto, "Digital Sovereignty or Digital Colonialism?," *SUR: International Journal on Human Rights* 15, no. 27 (2018): 15, <https://sur.conectas.org/en/digital-sovereignty-or-digital-colonialism/>; Madianou, "Technocolonialism," 3; Sekalala, Andanda, and Chatikobo, "Regulating Digital Health in the Global South," 2.

²⁷¹ Godin, Ozkul, and Humphris, "Digital Technologies and Migration," 3573; Madianou, "Technocolonialism," 3.

²⁷² Couldry and Mejias, *Costs of Connection*, 5.

²⁷³ Sekalala, Andanda, and Chatikobo, "Regulating Digital Health in the Global South," 2.

²⁷⁴ Couldry and Mejias, *Costs of Connection*, 5.

for capitalism, combining human life and digital technologies,²⁷⁵ to inaugurate a new variation of colonialism and an expanded form of capitalism.²⁷⁶

The implications of the architecture of this digital landscape are threefold. The first is the proliferation of profit-making for Big Tech firms,²⁷⁷ through the privatisation, commodification and sale of personal data, particularly through the algorithmic aggregation of billions of individual data points.²⁷⁸ It is what Thatcher, O’Sullivan and Mahmoudi describe as “big data”, and the point when the commodity becomes a valuable capitalist asset.²⁷⁹ Life itself and its traces, as captured through data, become quantifiable. Life generates capital.²⁸⁰ The new digital order, intertwined with entrenched capitalistic forces,²⁸¹ has constructed an infrastructure to ceaselessly collect data and thereby perpetually generate profit.²⁸² According to Couldry and Mejias, we now witness the “appropriation of human life”,²⁸³ a new capitalistic order in which value is detracted from “life processes” themselves.²⁸⁴ Thus, the modern form of value production under the capitalistic system largely entails extracting direct data input out of human life,²⁸⁵ rendered commodifiable through preexisting capitalistic structures founded upon social and technological arrangements.²⁸⁶

The second implication of data extraction is epistemic. Big data does not merely generate profit through its commodification; most importantly, it yields invaluable intelligence through its retrieval and analysis.²⁸⁷ Entities with the capacity to collect and interpret this data at scale can profoundly influence human behaviour and decision-making,²⁸⁸ methodically channelling them to serve vested sociopolitical and economic interests, shaping the production of knowledge,²⁸⁹ and

²⁷⁵ Couldry and Mejias, *Costs of Connection*, xx.

²⁷⁶ Ibid, xxi.

²⁷⁷ Ibid, xiii.

²⁷⁸ Thatcher, O’Sullivan, and Mahmoudi, “Data Colonialism through Accumulation by Dispossession,” 3.

²⁷⁹ Ibid.

²⁸⁰ Ibid, 4.

²⁸¹ Couldry and Mejias, *Costs of Connection*, xii.

²⁸² Ibid, xiii.

²⁸³ Ibid.

²⁸⁴ Ibid, 31.

²⁸⁵ Ibid, xix, 25.

²⁸⁶ Ibid, xix.

²⁸⁷ Thatcher, O’Sullivan, and Mahmoudi, “Data Colonialism through Accumulation by Dispossession,” 5.

²⁸⁸ Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (London: Profile Books, 2019); Madianou, “Technocolonialism,” 3.

²⁸⁹ Siva Vaidhyanathan, *Antisocial Media: How Facebook Disconnects Us and Undermines Democracy* (New York: Oxford University Press, 2018); Madianou, “Technocolonialism,” 3.

ultimately reshaping our collective understanding of the world.²⁹⁰ It is in this light that Madianou employs the term “digital colonialism” to characterise the business model of several social media platforms that offer services “free” in exchange for the users’ consent to the extraction of their personal data and its sale to advertisers. This model, additionally, encloses the outsized and undue authority that these companies can exert upon knowledge production and diffusion, as well as their ability to influence and shape behaviours across society at large.²⁹¹ Ultimately, this type of data extraction and processing “recalibrates social knowledge” through the reinterpretation of everyday human interactions.²⁹²

The third implication is the commodification of human life itself and the erosion of human fundamentals – privacy and freedom foremost amongst them.²⁹³ As Couldry and Mejias observe, “human life [...] becomes subject to continuous monitoring and surveillance”,²⁹⁴ giving rise to what they term the “social quantification sector”: a new industry premised on quantifying human life across all sorts of social interactions in the pursuit of value extraction and profit generation, through data dispossession.²⁹⁵ Couldry and Mejias further stress that it is indispensable to examine these transformations through their continuity, paying due regard to the inextricable links between colonial legacy and capitalist-rooted systems.²⁹⁶ Moreover, in the context of this new data-colonial structure, a key dimension of the loss of autonomy is the utter deprivation of the right to defuse being tracked; under the pretext of “convenience”, users are made to “consent”, surrendering to having their lives surveilled, stripped of any meaningful alternative.²⁹⁷ For Pinto, the concentration of data in the hands of a small number of platform actors threatens to erode “state sovereignty and democracy”.²⁹⁸

This threat, though, is structural. Data stored on geographically distant servers, governed by transnational regulations and jurisdictional rules, collected and processed by private foreign actors, entails a complete erosion of data sovereignty and a total relinquishment of the digital self-

²⁹⁰ Thatcher, O’Sullivan, and Mahmoudi, “Data Colonialism through Accumulation by Dispossession,” 5-6.

²⁹¹ Madianou, “Technocolonialism,” 3.

²⁹² Couldry and Mejias, *Costs of Connection*, 14.

²⁹³ *Ibid*, xiii.

²⁹⁴ *Ibid*, xiii, xix.

²⁹⁵ *Ibid*, xiii.

²⁹⁶ *Ibid*, xiv.

²⁹⁷ *Ibid*, xv.

²⁹⁸ Pinto, “Digital Sovereignty or Digital Colonialism?,” 16.

determination within a given territory or population. Indeed, as Sekalala, Andanda, and Chatikobo emphasise, “Global South countries are increasingly positioned as testing grounds for ‘responsible AI’ where the rhetoric of innovation obscures the reproduction of inequality”.²⁹⁹

In light of the above, confronting digital-data colonialism can only be achieved by reclaiming digital sovereignty, in the sense of “restoring control and ownership of key information and communications infrastructures” by the state or individuals, and subjecting data to “the laws and governance structures within the nation where it is collected” rather than to the authority of Big Tech companies.³⁰⁰

²⁹⁹ Sekalala, Andanda, and Chatikobo, “Regulating Digital Health in the Global South,” 3; Chaitali Sinha, “Global South-Led Responsible AI Solutions to Strengthen Health Systems: An Emergent Research Landscape,” *Oxford Open Digital Health* 3 (2025): 1, <https://doi.org/10.1093/oodh/oqaf016>.

³⁰⁰ Stürmer, Nussbaumer, and Stöckli, “Security Implications of Digitalization,” 4, 8; Pinto, “Digital Sovereignty or Digital Colonialism?,” 22.

CHAPTER 2

International Climate and Corporate Due Diligence Frameworks: The Available Yet Inefficient Tools

In the following analysis, I attempt to demonstrate how the existing international climate and corporate due diligence framework is structurally insufficient to address the compounding harms of the climate crisis and the modern digital economy. And by “structurally” I intend to stress how the current global regulatory architecture is premised upon and replicates disparities between the Global South and Global North through risk and harm externalisation, liability deferral, and dominance imposition. The continuous, perpetuated asymmetry is striking: states and corporations of the Global North continue their high-polluting trajectories,³⁰¹ while imposing mitigation costs and transition duties disproportionately on the Global South. The international legal instruments are ostensibly framed as neutral, yet they derive from Global North institutions, rely on Global North knowledge and are implemented and monitored by Global North mechanisms. And these constitute fundamental features of the framework’s design, not incidental and occasional defects in its implementation.

³⁰¹ It is worth-noting that existing climate solutions perpetuate energy inequalities and unjust land appropriation, retaining the Global North’s energy privilege at a per capita level at least twice that of the Global South, while convergence and equity are not substantially taken into account. Jason Hickel and Aljoša Slameršak, “Existing Climate Mitigation Scenarios Perpetuate Colonial Inequalities,” *The Lancet Planetary Health* 6, no. 7 (July 2022): e628, e630, [https://doi.org/10.1016/S2542-5196\(22\)00092-4](https://doi.org/10.1016/S2542-5196(22)00092-4).

This thesis aims to point fingers at the truly responsible actors. Thus, the primary focus will be climate responsibility. As the main duty-bearers in the international panel, and after decades of deliberate blindness to the climate crisis, the state's role in combatting the climate crisis shall take precedence. The second axis around which the climate harm is facilitated, and thus shall be tackled, is through the lenses of corporate due diligence. With emerging digital actors currently in a regulatory blind spot, the harm they provoke remains “unnoticed” in legal instruments, while the existing regulatory frameworks fall short of fulfilling their responsibilities.

2.1 The climate framework

2.1.1 Paris Agreement

The Paris Agreement,³⁰² the most substantial and comprehensive international instrument on climate change, is characterised by certain major structural shortcomings.

First, built upon the system of Nationally Determined Contributions (NDCs),³⁰³ and backed up by no enforcement mechanism, it offers states an ample margin of discretion and voluntary compliance,³⁰⁴ no sanctions are provided in case of failure to meet emissions targets or even state-imposed concrete objectives.³⁰⁵ As observed, states' obligation under Article 4 para. 2, as indicated by the use of “shall”, is directed at the process of preparing and pursuing their respective NDCs, and not their actual fulfilment.³⁰⁶ However, even if the submission of NDCs constitutes a merely procedural duty, the demand to adopt mitigation measures and reach their objectives represents, in fact, a substantive obligation of conduct, a duty to act with due diligence,³⁰⁷ yet Fischer observes that delivering on domestic climate commitments is empirically “the exception rather than the

³⁰² United Nations, *Paris Agreement* (Paris, 2015), United Nations Framework Convention on Climate Change, <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>.

³⁰³ *Paris Agreement*, art. 3.

³⁰⁴ Ginevra Le Moli, “The ICJ Advisory Opinion on Climate Change and the Paris Agreement,” *Revue Européenne du Droit*, no. 6, Groupe d'études géopolitiques, <https://geopolitique.eu/en/articles/the-icj-advisory-opinion-on-climate-change-and-the-paris-agreement/>; Lavanya Rajamani, “Ambition and Differentiation in the 2015 Paris Agreement: Interpretative Possibilities and Underlying Politics,” *The International and Comparative Law Quarterly* 65, no. 2 (2016): 500.

³⁰⁵ Severin Fischer, “Climate Policy after Paris: Inconvenient Truths,” *CSS Analyses in Security Policy*, no. 203 (2017): 2, <https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/pdfs/CSSAnalyse203-EN.pdf>.

³⁰⁶ *Paris Agreement*, art. 4, para. 2; Lavanya Rajamani and Daniel Bodansky, “The Paris Rulebook: Balancing International Prescriptiveness with National Discretion,” *International and Comparative Law Quarterly* 68, no. 4 (2019): 1023-40, <https://doi.org/10.1017/S0020589319000320>.

³⁰⁷ Le Moli, “The ICJ Advisory Opinion”.

rule”.³⁰⁸ Hence, given the Agreement’s operation within an international community bound by no coercive governing mechanism, the architecture of the system is highly fragile,³⁰⁹ and even more so, Global South states witness historical emitters being subjected to no binding, commensurate with their cumulative responsibility, obligations.

Second, the Paris Agreement is premised upon the principle of “common but differentiated responsibilities and respective capabilities”. Explicitly articulated as a principle first in the 1992 Rio Declaration,³¹⁰ is now enshrined in multiple climate instruments,³¹¹ and rightly considered “a core guiding principle for the implementation of the climate change treaties”³¹² and “a manifestation of the principle of equity”.³¹³ Originally, it denoted different degrees of responsibility pursuant to each state’s historical contribution to climate degradation.³¹⁴ Yet under the Paris Agreement, the CBDR-RC principle “underwent a conceptual transformation”: within the context of NDCs, now contingent upon “different national circumstances”, a discretionary and contextual assessment, the principle is no longer anchored in historical responsibility and equity, but rather in a “contextual” one that dilutes restorative and redistributive aspirations.³¹⁵ Furthermore, the addition of the term “respective capabilities” entails a dual differentiation: one grounded in “capability” and the other in “contribution” to the climate harm.³¹⁶ Therefore, Global South states are governed by the same

³⁰⁸ Fischer, “Climate Policy after Paris,” 2.

³⁰⁹ Bryan H. Druzin, “The Coming Collapse of the Paris Climate Agreement,” *Harvard Law Journal on Legislation* (August 2017), <https://journals.law.harvard.edu/jol/2017/08/16/the-coming-collapse-of-the-paris-climate-agreement/>.

³¹⁰ UN, *Rio Declaration on Environment and Development*, A/CONF.151/26, June 14, 1992, Principle 7; Lavanya Rajamani, “The Principle of Common but Differentiated Responsibility and the Balance of Commitments under the Climate Regime,” *Review of European Community & International Environmental Law* 9, no. 2 (2000): 120, <https://doi.org/10.1111/1467-9388.00243>; S. R. Choudhary, “Common but Differentiated Responsibility in International Environmental Law from Stockholm to Rio,” in *Sustainable Development and Good Governance*, ed. Konrad Ginther et al. (Dordrecht: Kluwer, 1995), 322, 333-334.

³¹¹ UN Framework Convention on Climate Change (UNFCCC), May 9, 1992, art. 3, para. 1; *Kyoto Protocol*, art. 10; *Paris Agreement*, art. 2, para. 2, and art. 4, para. 3.

³¹² International Court of Justice (ICJ), *Obligations of States in Respect of Climate Change*, Advisory Opinion of July 23, 2025, para. 148.

³¹³ ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, paras. 151, 290.

³¹⁴ UN, *Rio Declaration*, Principle 7; Rajamani, “The Principle of Common but Differentiated Responsibility,” 120; Choudhary, “Common but Differentiated Responsibility,” 322, 333-334.

³¹⁵ Le Moli, “The ICJ Advisory Opinion”; Rajamani, “Ambition and Differentiation,” 497; Livia Regina Batista-Pritchard, “Climate Justice in the Intersection between the CBDR&RC Principle and Intellectual Property Rights: A Critical Reading of International Cooperation,” *Journal of Global Ethics* 20, no. 2 (2024): 180, <https://doi.org/10.1080/17449626.2024.2367409>.

³¹⁶ Harald Winkler and Lavanya Rajamani, “CBDR&RC in a Regime Applicable to All,” *Climate Policy* 14, no. 1 (2013): 102-121; Estefanía Jiménez, “The Principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR&RC) and the Compliance Branch of the Paris Agreement,” 3, <https://shorturl.at/HrxAJ>.

procedural duties, meaning submitting their NDCs, although outcome obligations are diminished to pure rhetorical rather than justiciable standards.

Third, the Paris Agreement is entirely silent on the digital economy's climate footprint, as well as the techno-neocolonial dynamics entrenched in the green transition sought. There is no provision governing the extraction of minerals and raw materials required for a green and digital world, nor the harmful climate practices, such as e-waste dumping, that perpetuate colonial logics.

2.1.2 Loss & Damage Fund

The Loss and Damage mechanism seeks to address the adverse effects of the climate crisis for the “particularly vulnerable” states of the Global South.³¹⁷ Established under the UNFCCC and Paris Agreement regulatory umbrella and placed under the authority of the Conference of the Parties,³¹⁸ it reclaims the deprioritised prevalence of climate finance. Although praised as a historic milestone,³¹⁹ it has yet to be crystallised into concrete commitments,³²⁰ in the absence of any provision on precise institutional and funding arrangements.³²¹ The mechanism is further limited by several conceptual and practical constraints.

First, the Warsaw International Mechanism for Loss and Damage, introduced under Article 8 of the Paris Agreement, remains operational on a voluntary basis. As explicitly stated by a COP21 Decision, Article 8 “does not involve or provide a basis for any liability or compensation”,³²² a stance corroborated by the International Court of Justice in its 2025 Advisory Opinion, drawing

³¹⁷ UN Framework Convention on Climate Change (UNFCCC), *Funding Arrangements for Responding to Loss and Damage Associated with the Adverse Effects of Climate Change, Including a Focus on Addressing Loss and Damage*, Decision 2/CP.27, UN Doc. FCCC/CP/2022/10/Add.1 (March 17, 2023), para. A(1)(a), https://unfccc.int/sites/default/files/resource/2_CP.27.pdf.

³¹⁸ *Paris Agreement*, art. 8; ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 414; UNFCCC, *Sharm el-Sheikh Implementation Plan*, Decision 1/CP.27 (November 20, 2022), para. 24.

³¹⁹ Fatemeh Bakhtiari and Mattias Söderberg, *Loss and Damage at COP28: A Historic Step Forward for Loss and Damage* (UNEP / Copenhagen Climate Centre, 2023), 1, <https://unepccc.org/wp-content/uploads/2023/12/loss-and-damage-at-cop28-web.pdf>; Arthur Wyns, “COP27 Establishes Loss and Damage Fund to Respond to Human Cost of Climate Change,” *The Lancet Planetary Health* 7, no. 1 (2023): e21, [https://doi.org/10.1016/S2542-5196\(22\)00331-X](https://doi.org/10.1016/S2542-5196(22)00331-X); Hamza Hamouchene and Katie Sandwell, eds., *Dismantling Green Colonialism: Energy and Climate Justice in the Arab Region* (London: Pluto Press, 2023), 3.

³²⁰ Le Moli, “The ICJ Advisory Opinion”.

³²¹ Siobhan McDonnell, “The COP27 Decision and Future Directions for Loss and Damage Finance: Addressing Vulnerability and Non-economic Loss and Damage,” *Review of European, Comparative & International Environmental Law (RECIEL)* 32, no. 3 (2023): 421, <https://doi.org/10.1111/reel.12521>.

³²² UNFCCC, *Adoption of the Paris Agreement*, Decision 1/CP.21, UN Doc. FCCC/CP/2015/10/Add.1 (January 29, 2016), 8, para. 51, <https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf>; ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 415.

on the “cooperative and facilitative” nature of the mechanism.³²³ The ICJ observes that limiting the mechanism’s scope to merely “complementary and additional support”, “confirms the intention of the parties not to base the contributions of funds on State responsibility”,³²⁴ reflecting the developed states’ success in narrowing their claimable liability.³²⁵ Entirely voluntary contributions do not inspire confidence in a favourable outcome and erode the mechanism’s potential to achieve substantive justice.³²⁶

Second, the scale of the funds already granted or envisaged is overtly low. A report drafted by 55 vulnerable countries stresses that losses attributable to climate-emanated effects, sustained in two decades since the beginning of the 21st century, amount to US\$525 billion – almost equal to 20% of their cumulative GDP.³²⁷ It is also estimated that to address loss and damage efficiently, developing countries require US\$400 billion per year as a floor-bare minimum, projected only to increase.³²⁸ Yet a threshold collective goal was set at US\$100 billion, a target that was reached for the first time only in 2022, after a two-year delay relative to the initial UNFCCC objective,³²⁹ and still it does not suffice. It is worth noting, for the sake of comparison, that the combined profits of the world’s largest oil companies (i.e., ExxonMobil, BP, Shell, Chevron and TotalEnergies) in the same year reached double this amount.³³⁰

Third, the mechanism lacks vital linkages with the local economies. As observed, climate vulnerability cannot be comprehensively addressed unless the organisational structure and power

³²³ ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 414.

³²⁴ Ibid, para. 415.

³²⁵ Yet, “a COP decision cannot waive general rules of customary international law, and all public international law remedies must remain available to all States”; McDonnell, “The COP27 Decision,” 418, 420; Patrick Bond, “Who Wins From ‘Climate Apartheid’? African Climate Justice Narratives About the Paris COP21,” *New Politics* 15, no. 4 (2016): 87.

³²⁶ Hamouchene and Sandwell, *Dismantling Green Colonialism*, 3.

³²⁷ Climate Vulnerable Forums (V20), *Climate Vulnerable Economies Loss Report: Economic Losses Attributable to Climate Change in V20 Economies over the Last Two Decades (2000-2019)* (V20, 2022), 14, https://www.v-20.org/wp-content/uploads/2022/06/Climate-Vulnerable-Economies-Loss-Report_June-14_compressed-1.pdf.

³²⁸ Julie-Anne Richards et al., *The Loss and Damage Finance Landscape* (Washington, DC: Heinrich-Böll-Stiftung / Loss and Damage Collaboration, 2023), 6, 13, https://cdn.prod.website-files.com/605869242b205050a0579e87/6462710b127e29f1b1e74ce7_The_Loss_and_Damage_Finance_Landscape_HBF_L%26DC_15052023.pdf.

³²⁹ OECD, “Climate Finance and the USD 100 Billion Goal,” <https://www.oecd.org/en/topics/climate-finance-and-the-usd-100-billion-goal.html>.

³³⁰ Julie-Anne Richards and Tariq Jowahir, “The Loss and Damage Fund and Pledges at COP28: Shall I Compare Thee to a Summer’s Day? Or to the Annual Earnings of a Megastar Footballer?,” *The Loss and Damage Collaboration*, December 11, 2023, <https://www.lossanddamagecollaboration.org/pages/the-loss-and-damage-fund-and-pledges-at-cop28-shall-i-compare-thee-to-a-summers-day-or-to-the-annual-earnings-of-a-megastar-footballer>.

dynamics of climate finance undergo complementary transformations that meaningfully facilitate local engagement and genuinely serve local interests.³³¹ The fact that the Fund is hosted within the World Bank, as decided at COP28,³³² evokes concerns. As an institution predominantly governed by the North and its market rules, the World Bank may prove structurally ill-equipped to address the needs of vulnerable states. Besides, climate funds awarded under the guise of loans reinforce a cycle of dependency and vulnerability that developing states cannot escape.³³³

Fourth, it is built on a presupposed asymmetry. Global South states are required to “prove” their climate vulnerability to qualify for access to climate funds, whereas Global North states are under no legally binding obligation to acknowledge their historical climate debt and their causally linked responsibility that grounds their duty to provide funds.³³⁴ Yet, as Shinde stresses, for the Fund to yield transformative fruits, it should be “driven by the motivation to set right historic wrongs”,³³⁵ whilst according to Turkamani, climate equity and justice shall underpin its design and operation.³³⁶

Fifth, no digital or techno-neocolonial dimension is addressed. The Fund encompasses no provision for climate costs related to digital and green innovation, deriving, for instance, from mineral extraction, land appropriation, data collection, energy consumption of data centres, and displacement of communities in Global South countries.

2.1.3 PPP, BPP, APP

The Polluter-Pays, the Beneficiary-Pays and the Ability-to-Pay principles occupy substantive space in the climate discourse, although they are not contained in any international instrument.

³³¹ Sherine El Taraboulsi-McCarthy, Anh Vu, and Irina Federenko-Aula, “COP27 and the Path Ahead: Is the 'Loss and Damage' Fund a Win for the Global South?,” *UNU-CPR*, December 21, 2022, <https://unu.edu/cpr/blog-post/cop27-and-path-ahead-loss-and-damage-fund-win-global-south>.

³³² World Bank, “Funding for Loss and Damage,” <https://www.worldbank.org/en/programs/funding-for-loss-and-damage>.

³³³ UNFCCC, *Summary Report on the 2016 Forum of the Standing Committee on Finance on Financial Instruments That Address the Risks of Loss and Damage Associated with the Adverse Effects of Climate Change*, UN Doc. FCCC/CP/2016/8 (October 18, 2016); McDonnell, “The COP27 Decision,” 419.

³³⁴ Bond, “Who Wins From ‘Climate Apartheid’?,” 87.

³³⁵ Wyns, “COP27 Establishes Loss and Damage Fund,” e22.

³³⁶ Hojjat Salimi Turkamani, “The Loss and Damage Fund: A Solution to Interpretive Conflicts of Responsibility for Climate Change?,” *Netherlands International Law Review* 71, no. 1 (2024): 24, <https://doi.org/10.1007/s40802-024-00259-3>.

2.1.3.1 Polluter-Pays Principle (PPP)

Pursuant to the Polluter-Pays Principle (PPP), as reflected in Principle 16 of the 1992 Rio Declaration, the polluter should bear the cost of pollution.³³⁷ Given the direct causal link between polluting activities and the harm incurred,³³⁸ it is the emitting states that should bear responsibility for this pollution and to whom it should be attributed³³⁹ – in proportion to their contribution to the crisis and according to the extent of past GHG emissions generated within their territory.³⁴⁰ Simply put, whoever causes harm must bear the cost of its remediation. In that, Turkamani contends that the polluter-pays principle is compatible with the notion of climate justice,³⁴¹ in alignment with its historical and corrective dimension, laying the foundation for holding the world's historic emitters accountable and, in turn, allocating the ensuing financial burden to them. Nonetheless, the principle has yet to be recognised as a legally binding norm in any international climate instrument.³⁴² As a non-binding aspiration, it cannot be invoked or judicially claimed under international law and thus cannot give rise to state liability; thereby, the ICJ does not consider it to fall within the ambit of the applicable law before it for its Advisory Opinion.³⁴³

As a result, climate harm falls disproportionately on the Global South, whereas mitigation costs are mutually shared by the Global South and the Global North under the CBDR principle. Yet as OXFAM contends, the PPP could be conceived as a “means of wealth redistribution”, also implying that those most responsible for the climate breakdown should bear the financial brunt of its restoration.³⁴⁴

The PPP is particularly salient as a means of holding corporations accountable since they are the major global emitters. However, the applicability of the principle becomes more complex once a moral weight of emissions enters the equation. Bartmann and Halsband identify three distinct challenges: first, a set temporal point is required to establish the causal link between anthropogenic

³³⁷ UN, *Rio Declaration on Environment and Development*, A/CONF.151/26, June 14, 1992, Principle 16.

³³⁸ Turkamani, “The Loss and Damage Fund,” 9.

³³⁹ Mathias Fridahl and Linn Strandberg, “The Rationalities of Science in Climate Regime Research,” *International Environmental Agreements: Politics, Law and Economics* 14, no. 3 (2014): 310.

³⁴⁰ This is why this principle is also referred to as “contribution-to-problem principle”; Bartmann, Halsband, and Schapper, *Climate Justice*, 74.

³⁴¹ Turkamani, “The Loss and Damage Fund,” 9.

³⁴² ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, paras. 159-160

³⁴³ *Ibid.*, para. 160.

³⁴⁴ Oxfam, *Climate Equality*.

emissions and climate breakdown, and thus to attribute responsibility; second, the harm, its actors, and victims must be identifiable, raising the intergenerational question of who inherits liability for past emissions and who assumes the ability to claim it; third, a clear distinction between culpable and non-culpable actions is essential.³⁴⁵ To overcome these challenges, the two following principles have been developed.

2.1.3.2 Beneficiary-Pays Principle (BPP)

The Beneficiary-Pays Principle (BPP) holds that those who benefit from climate-harmful activities, even where they are not the direct polluters, shall contribute to restoration efforts. It emphasises the distribution of current climate costs by evaluating the unequal present (and future) benefits that states are gaining thanks to their past emissions.³⁴⁶ Thus, the present climate benefits are linked and attributed to past climate wrongdoings.³⁴⁷

Through this lens, the BPP has particular salience from a techno-neocolonial perspective. The Global North – states, corporations, and consumers – has been ceaselessly deriving significant financial benefits both by causing climate degradation and by suppressing states and peoples of the Global South. Nowadays, with the upsurge of the digital economy, these forms of exploitation and extraction are reinforced. Once again, the generated climate harm is borne by the Global South while the Global North enjoys the fruits of digital innovation and captures the economic benefits of the value it accrues without being held accountable for either.

2.1.3.3 Ability-to-Pay Principle (APP)

The Ability-to-Pay Principle (APP) dictates that the distribution of climate burdens is not contingent upon past emissions or the ensuing benefits, but rather upon the actor's current ability to assume the cost of those burdens.³⁴⁸ In this sense, those with the means, the capacity to pay, should bear the brunt of remediation, irrespective of direct causal attribution or actual level of contribution. Embedded in the spirit of Common But Differentiated Responsibilities, as enshrined in Article 4 of the UNFCCC,³⁴⁹ it might be the principle most institutionally integrated among the

³⁴⁵ Bartmann, Halsband, and Schapper, *Climate Justice*, 75-76.

³⁴⁶ Ibid, 76.

³⁴⁷ Ibid, 76-77.

³⁴⁸ Bartmann, Halsband, and Schapper, *Climate Justice*, 78.

³⁴⁹ UNFCCC, art. 4.

three, and the one most closely embedded in the current architecture of climate finance, with the US\$100 billion commitment primarily deriving from it.

Yet it remains the least effective in its redistributive potential. Although accepted in legal terms, it lacks a normative, enforceable, operationalised, and obligatory aspect. Besides, the main critique arising against APP is how the mere ability (*can*) is translated into responsibility (*ought*).³⁵⁰ Even more so, mitigation efforts are not included in the equation, and without acknowledgement of the historical dimension of past emissions, the moral substance and justification of the principle remains weak.³⁵¹ Nevertheless, unlike the responsibility-based PPP, which requires resolving major evidentiary hurdles, such as historical emissions attribution to specific corporate or state actors, and the territorial identification of pollution origins, the APP remains oblivious to historical and causal links; framing the allocation of climate funds solely in terms of ability-to-pay entails that what matters is not the accumulated wealth but rather the amount of wealth currently available,³⁵² which is observable and quantifiable.

However, operability shall not overshadow justice. A convergence of those principles may offer the optimal answer, particularly given the empirical observation that historic emitters and currently wealthy states substantially overlap – though this convergence is complicated by the fact that the APP is lately being strategically instrumentalised by developed states to impose greater commitments on emerging Global South economies such as China, India, and Brazil.³⁵³

2.2 The corporate due diligence framework

Business and Human Rights have yet to be regulated by a binding normative framework at the international level and remain largely governed by the soft-law elaborated below. All existing frameworks stem from the Global North, where negotiated and designed, yet amply cover supply chains and corporate conduct across the Global South, giving the impression of white saviourism,

³⁵⁰ Bartmann, Halsband, and Schapper, *Climate Justice*, 79.

³⁵¹ Ibid, 78-79.

³⁵² Henry Shue, “Subsistence Emissions and Luxury Emissions,” *Law & Policy* 15, no. 1 (1993): 52, <https://doi.org/10.1111/j.1467-9930.1993.tb00093.x>.

³⁵³ Livia Regina Batista-Pritchard, “Climate Justice in the Intersection Between the CBDR&RC Principle and Intellectual Property Rights: A Critical Reading of International Cooperation,” *Journal of Global Ethics* 20, no. 2 (2024): 184, <https://doi.org/10.1080/17449626.2024.2367409>.

perpetuating the neocolonial dynamics.³⁵⁴ Importantly, the climate and digital harm are treated as separate regimes by international instruments, with no single binding tool addressing this nexus. Besides, in the absence of a centralised international body to govern effectively corporate human rights responsibility, the latter is underpinned by “a patchwork of national and international rules, laws, and standards with differing degrees of bindingness and enforceability”.³⁵⁵

Regardless, due diligence is a core notion in the realm of corporate and state responsibility. At its inception, understood as the opposite of negligence,³⁵⁶ it today reflects the principal required standard of conduct.³⁵⁷ According to international courts, it requires states “to use all the means at their disposal” – legislative, administrative and procedural – with a view to efficiently fulfilling their “international obligations” and “intended objectives”.³⁵⁸ It is circumstances-dependent, thus prone to evolution over time,³⁵⁹ and it must be exercised even in case of “plausible indications of potential risks”, otherwise incurring international responsibility.³⁶⁰

Critically, a core aspect of due diligence dictates that states “regulate the conduct of public and private operators” within their jurisdiction and ensure implementation through monitoring and enforcement mechanisms.³⁶¹ Given that the conduct of private actors is not attributable to the state, the latter is bound to meet the due diligence standard as a bare minimum obligation towards third

³⁵⁴ Divin-Luc Bikubanya et al., *Due Diligence in Mineral Supply Chains from the Democratic Republic of Congo* (Bristol: E-International Relations, 2023), 3, <https://www.e-ir.info/pdf/100279>; Christoph N. Vogel, *Conflict Minerals, Inc.: War, Profit and White Saviourism in Eastern Congo* (New York: Oxford University Press, 2022), <https://doi.org/10.1093/oso/9780197659649.001.0001>.

³⁵⁵ René Wolfstetter and Yingru Li, “Business and Human Rights Regulation After the UN Guiding Principles: Accountability, Governance, Effectiveness,” *Human Rights Review* 23 (2022): 3, <https://doi.org/10.1007/s12142-022-00656-2>.

³⁵⁶ Jonathan Bonnitcha and Robert McCorquodale, “The Concept of ‘Due Diligence’ in the UN Guiding Principles on Business and Human Rights,” *The European Journal of International Law* 28, no. 3 (2017): 903, <https://doi.org/10.1093/ejil/chx042>.

³⁵⁷ ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 280; Bonnitcha and McCorquodale, “The Concept of ‘Due Diligence’,” 903.

³⁵⁸ ICJ, *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, I.C.J. Reports 2010, paras. 101, 197; ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, paras 175, 281; International Tribunal for the Law of the Sea (ITLOS), *Request for an Advisory Opinion Submitted by the Commission of Small Island States on Climate Change and International Law*, Advisory Opinion, May 21, 2024, para. 235.

³⁵⁹ ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 280.

³⁶⁰ ITLOS *Responsibilities and Obligations of States with Respect to Activities in the Area*, Advisory Opinion, February 1, 2011, ITLOS Reports 2011, p. 46, para. 131; ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 294.

³⁶¹ ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 282.

parties.³⁶² The ICJ clarifies that a State may be held liable for failing to exercise its due diligence duty if it omits to regulate emissions within its jurisdiction that emanate from private actors,³⁶³ with shared responsibility among states not excluding individual state responsibility.³⁶⁴ It is also stressed that due diligence has become “a cornerstone of global supply chain regulation”,³⁶⁵ while it may prove pivotal in the face of “new scientific or technological knowledge”.³⁶⁶

Schönsteiner and Krajewski observe that, although it is in states across the Global South where most regulatory shortcomings are identified – owing to restricted access to justice, weak institutional oversight, rule of law deficiencies, corruption and frequently absent due diligence and reporting mechanisms – Global North states may also lack due diligence legislative and regulatory frameworks.³⁶⁷

2.2.1 United Nations Guiding Principles on Business and Human Rights

The UN Guiding Principles on Business and Human Rights (UNPGs)³⁶⁸ was the first-ever international instrument formally adopted on Business and Human Rights,³⁶⁹ in light of growing awareness of the adverse impact of business operations on human rights, particularly those of multinational enterprises (MNEs) or transnational corporations (TNCs),³⁷⁰ precisely what they aim to prevent and address.³⁷¹ Articulated around the three pillars of “Protect, Respect and Remedy”, they provide for the state duty to protect through the implementation of effective legislative and regulatory frameworks against human rights abuses stemming from third-party activities (Pillar I),

³⁶² Bonnitcha and McCorquodale, “The Concept of ‘Due Diligence’,” 904; Timo Koivurova, “Due Diligence,” in *Max Planck Encyclopedia of Public International Law*, ed. Rüdiger Wolfrum (Oxford: Oxford University Press, 2010), para. 3.

³⁶³ ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 428.

³⁶⁴ *Ibid.*, para. 430.

³⁶⁵ Bikubanya et al., *Due Diligence in Mineral Supply Chains*, 4.

³⁶⁶ ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 284.

³⁶⁷ Judith Schönsteiner and Markus Krajewski, “Preliminary Conclusions and Prospects for Further Research,” in *Human Rights and Environmental Sustainability in State-Owned Enterprises*, eds. Judith Schönsteiner and Markus Krajewski (London: Routledge, 2024), 194, 195, 197, <https://doi.org/10.4324/9781003291428>.

³⁶⁸ UN Office of the High Commissioner for Human Rights (OHCHR), *Guiding Principles on Business and Human Rights: Implementing the United Nations ‘Protect, Respect and Remedy’ Framework*, UN Doc. HR/PUB/11/04 (2011), https://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf.

³⁶⁹ Peter Muchlinski, “The Impact of the UN Guiding Principles on Business Attitudes to Observing Human Rights,” *Business and Human Rights Journal* 6, no. 2 (2021): 212, <https://doi.org/10.1017/bhj.2021.14>.

³⁷⁰ Muchlinski, “The Impact of the UN Guiding Principles,” 212-213.

³⁷¹ UN Working Group on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises, *Report on Leading by Example: The State, State-Owned Enterprises, and Human Rights*, UN Doc. A/HRC/32/45 (May 3, 2016), para. 37.

the corporate responsibility to respect human rights through due diligence (Pillar II) and access to remedy enabling victims of human rights violations to resort to effective grievance mechanisms (Pillar III).³⁷² It remains the most pertinent and globally authoritative framework on business and human rights. Yet it is normatively soft-law and underpinned by several shortcomings.

First, UNGPs' fundamental defect is that due diligence applies to human rights violations by third parties, but does not inform the corporation's own human rights responsibility.³⁷³ In that, the Principles introduce a legal construct of double standards, imposing different responsibilities for an enterprise's own conduct that may result in human rights violations and different standards for human rights violations arising from the conduct of third actors with which it has business relationships.³⁷⁴ A corporation's responsibility must be justified on an individual note, since it does not derive from a general "do no harm" imperative.³⁷⁵ Yet it gives rise to an obligation to provide a remedy in the case of human rights infringement and participate in remediation efforts.³⁷⁶

Corporations' responsibility for third parties' actions may be traced to the legal doctrines of "complicity" or "sphere of influence",³⁷⁷ may be characterised as a "leverage-based negative responsibility",³⁷⁸ or may even fall under the term "institutionalised voluntarism", which captures the architectural choice behind UNGPs.³⁷⁹ The concept of "institutionalised voluntarism" reflects a compromise, an approach of "principled pragmatism" followed during the Principles' drafting:³⁸⁰ human rights risks in business activities may be regulated by corporate commitments and national legal frameworks, but cannot amount to fully fledged international legal liability for human rights violations.³⁸¹ Hence, voluntarism in its implementation was a structural choice.

³⁷² OHCHR, *Guiding Principles on Business and Human Rights*.

³⁷³ Bonnitcha and McCorquodale, "The Concept of 'Due Diligence'," 901.

³⁷⁴ *Ibid.*, 912-14.

³⁷⁵ Radu Mares, "Responsibility to Respect: Why the Core Company Should Act When Affiliates Infringe Human Rights," in *Siege or Cavalry Charge? The UN Mandate on Business and Human Rights*, ed. Radu Mares (Leiden: Martinus Nijhoff Publishers, 2012), 9.

³⁷⁶ Bonnitcha and McCorquodale, "The Concept of 'Due Diligence'," 912-13; OHCHR, *Guiding Principles on Business and Human Rights*, Guiding Principle 22.

³⁷⁷ Bonnitcha and McCorquodale, "The Concept of 'Due Diligence'," 915.

³⁷⁸ Stepan Wood, "Four Varieties of Social Responsibility: Making Sense of the 'Sphere of Influence' and 'Leverage' Debate via the Case of ISO 26000" (Osgood Hall Law School Research Paper no. 14/2011, 2011); Bonnitcha and McCorquodale, "The Concept of 'Due Diligence'," 912.

³⁷⁹ Muchlinski, "The Impact of the UN Guiding Principles," 219.

³⁸⁰ *Ibid.*, 220.

³⁸¹ *Ibid.*, 219, 225.

Second, the UNGPs do not encompass actual accountability and enforcement mechanisms, thus remaining contingent upon states' goodwill. Primarily for Global South states that bear the brunt of extractive operations and digital innovation, no mechanism compels enterprises to provide a legal remedy, restore the harm inflicted or award compensation in the absence of a justiciable international claim. Moreover, given the emphasis placed on national regulations under Pillar I, Global South states yet again find themselves in a disadvantaged position: weak institutions and judicial capacity, alongside a vast economic dependence on foreign investments, are, in essence, impeded from robustly legislating "against" big corporate actors, a persistent unwillingness that is observed in states worldwide.³⁸²

Third, there is a systemic "impunity gap" ingrained in the UNGPs' architecture. Despite the prominent place the multi- and trans-national corporations hold in the global economy, their liability remains blurred, obfuscated by extraterritorial jurisdiction barriers and the corporate veil; given that parent companies often operate in different jurisdictions from those of their subsidiaries and suppliers, they retain a distinct legal personality, thereby victims of human rights violations incurred by a subsidiary or a supplier, commonly face insurmountable hurdles in holding accountable and seeking redress from the parent company.³⁸³ An exemplary case of "immunised" companies is Big Tech, and more broadly, it is Global North corporations that benefit from the weak judicial mechanisms of the Global South.

Fourth, the UNPGs are underpinned by a digital blind spot. Vijayarasa describes how the UNGPs do not "fit" for governing artificial intelligence in the Global South,³⁸⁴ falling short in addressing businesses' responsibilities that may originate or have already originated from AI; thereby, she argues, the business and human rights agenda shall expand – from visible, material, geographically bounded corporate harm – to include technology-based, potentially cross-border, remote harms to human rights.³⁸⁵ In the absence of sufficient legal protection and accountability

³⁸² Wolfsteller and Li, "Business and Human Rights Regulation," 2.

³⁸³ Ibid, 3.

³⁸⁴ Vijayarasa, "Not Fit for Purpose."

³⁸⁵ Ibid, 2; Alberto G. Acosta, Susan Riordan, and Maria T. Jarrín, "The Environmental and Ethical Challenges of Artificial Intelligence" (T20 Policy Brief, Task Force 7, July 2023), <https://t20ind.org/research/the-environmental-and-ethical-challenges-of-artificial-intelligence/>; Evgeni Aizenberg and Jeroen van den Hoven, "Designing for Human Rights in AI," *Big Data & Society* 7, no. 2 (2020): 1, <https://doi.org/10.1177/2053951720949566>.

frameworks, the Global South is at the whim of data harvesting, new forms of labour exploitation and digital inequality,³⁸⁶ precisely as illustrated in Chapter 1.3 through the lens of data colonialism.

Fifth, access to justice is the weakest pillar, where the largest gap is identified across all continents, owing to lax enforcement.³⁸⁷ Even when remedies are in place, access to justice can be hindered in practice due to high costs for litigation and proof gathering.³⁸⁸

Sixth, framing corporate responsibility as secondary and complementary to the state's is problematic.³⁸⁹ Expecting states to “lead by example”,³⁹⁰ contradicts the quite common reality that big multinational corporations operate across multiple jurisdictions and may even have greater fiscal capacity than many states. No persuasive reason justifies why the international community still refrains from placing on them the “burden” of human rights due diligence, climate protection, social and labour safeguards, etc. Unsurprisingly, the majority of states have yet to enact general and explicit policies on business and human rights.³⁹¹

2.2.2 OECD Guidelines for Multinational Enterprises on Responsible Business Conduct

The OECD Guidelines for Multinational Enterprises on Responsible Business Conduct,³⁹² provide internationally recognised principles and good-practice standards on appropriate business conduct.³⁹³ First introduced in 1976, reviewed in 2011, and most recently updated in 2023, they now encompass provisions on the emergent challenges related to both the environment,³⁹⁴ and the

³⁸⁶ Vijayarasa, “Not Fit for Purpose,” 3-4.

³⁸⁷ Schönsteiner and Krajewski, “Preliminary Conclusions,” 197.

³⁸⁸ Macarena Contreras Soto, Francisco Sánchez Lay, and Judith Schönsteiner, “Due Diligence and Financial Inclusion Policies in the State-Owned Banco Estado,” in *Human Rights and Environmental Sustainability in State-Owned Enterprises*, eds. Judith Schönsteiner and Markus Krajewski (London: Routledge, 2024), 77, <https://doi.org/10.4324/9781003291428>.

³⁸⁹ UN Working Group, *Report on Leading by Example*, para. 88.

³⁹⁰ Ibid, paras. 28, 52, 91, 94; Judith Schönsteiner and Markus Krajewski, eds., *Human Rights and Environmental Sustainability in State-Owned Enterprises*, 1st ed. (London: Routledge, 2024), 3.

³⁹¹ UN Working Group, *Report on Leading by Example*, para. 47.

³⁹² OECD, *OECD Guidelines for Multinational Enterprises on Responsible Business Conduct* (Paris: OECD Publishing, 2023), https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/06/oecd-guidelines-for-multinational-enterprises-on-responsible-business-conduct_a0b49990/81f92357-en.pdf.

³⁹³ OECD, *OECD Guidelines*, 12, para. 1.

³⁹⁴ Ibid, 33, para. 1; 35, para. 67.

new technologies.³⁹⁵ Their implementation is supported by the National Contact Points (NCPs),³⁹⁶ and they are underpinned by the general “risk-based due diligence” policy.³⁹⁷ Yet they are not free from limitations.

First, state representation was largely defined by OECD membership, the vast majority of which comprises Global North states, while the Global South remained underrepresented among non-member adherents as well.³⁹⁸

Second, as another soft-law instrument, it lacks enforceability. The principles and standards enshrined in the Guidelines are “voluntary and not legally enforceable”,³⁹⁹ as explicitly outlined therein. NCPs have no authority to impose sanctions or the performance of certain behaviour. They are only entitled to issue recommendations which, yet again, are “distinct from matters of legal liability and enforcement”.⁴⁰⁰ Moreover, despite acknowledging the blurred boundaries between an enterprise and its suppliers, owing to “technological developments” and “strategic alliances”,⁴⁰¹ and having recognised climate and technological harm as particularly salient modern challenges in their latest update, OECD has taken no further steps to meaningfully address the non-binding nature of corporate commitments.

Third, certain provisions raise concern. In the realm of climate protection, the Guidelines stress their intention not to impose on corporations any additional climate obligations beyond existing commitments,⁴⁰² while diluting the overarching state and corporate responsibility by noting that “achieving environmental objectives requires a whole-of-society approach.”⁴⁰³ Furthermore, in the technology section, the *ad hoc* treatment of adverse impacts on the basis of “the circumstances of a particular situation” and the suggested “risk-based prioritisation” without however concrete due diligence criteria,⁴⁰⁴ appear problematic.

³⁹⁵ OECD, *OECD Guidelines*, 46, para. 1.

³⁹⁶ Caitlin Daniel et al., *Remedy Remains Rare: An Analysis of 15 Years of NCP Cases and Their Contribution to Improve Access to Remedy for Victims of Corporate Misconduct* (Amsterdam: OECD Watch, 2015), 10, <https://www.oecdwatch.org/wp-content/uploads/sites/8/2015/06/Remedy-Remains-Rare.pdf>.

³⁹⁷ OECD, *OECD Guidelines*, 14, para. A.11.

³⁹⁸ *Ibid*, 6, n. 1.

³⁹⁹ *Ibid*, 10, para. 5; 12, para. 1.

⁴⁰⁰ *Ibid*, 10, para. 5.

⁴⁰¹ *Ibid*, 11, para. 7.

⁴⁰² *Ibid*, 37, para. 75.

⁴⁰³ *Ibid*, 35, para. 66.

⁴⁰⁴ *Ibid*, para. 112.

2.2.3 OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas

Pertinent to the modern digital economy and its extractive needs is mineral mining. Thus, the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas proves of particular salience, providing a five-step due diligence framework that governs the responsible management of global mineral supply chains and clarifies the relevant expectations.⁴⁰⁵ Defining which areas are qualified as “conflict-affected” and “high-risk” is a core aspect.⁴⁰⁶ Further, concerning its scope, initially focused on the 3TG (tin, tungsten, tantalum and gold), the Guidance now extends to all relevant minerals, explicitly encompassing copper and cobalt,⁴⁰⁷ and sets due diligence obligations applicable at every stage of the mineral supply chain.⁴⁰⁸ Some major human rights violations it aims to address include war crimes and working conditions-related issues, notably forced labour and child labour.⁴⁰⁹ Nevertheless, it is underpinned by several deficiencies.

First, the DRC, which holds around 70% of global cobalt reserves,⁴¹⁰ was not part of the rule-making table that set the standards governing a key primary resource of it, demonstrating a flagrant representation asymmetry. Second, throughout the Guidance, communities appear to be treated as objects rather than subjects of rights; the affected populations were seldom consulted, let alone actively participated in the prior proceedings.⁴¹¹ Third, the distinction between ASM and LSM operations has given rise to discriminatory biases, associating artisanal, small-scale mining with high-risk areas, while diverting attention from serious problems in LSM.⁴¹² Fourth, climate

⁴⁰⁵ OECD, *Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*, 3rd ed. (Paris: OECD Publishing, 2016), 12, 17-19, <https://doi.org/10.1787/9789264252479-en>.

⁴⁰⁶ OECD, *Due Diligence Guidance for Minerals*, 13.

⁴⁰⁷ Divin-Luc Bikubanya et al., *Due Diligence in Mineral Supply Chains from the Democratic Republic of Congo* (Bristol: E-International Relations, 2023), 4, <https://www.e-ir.info/pdf/100279>.

⁴⁰⁸ OECD, *Due Diligence Guidance for Minerals*, 14.

⁴⁰⁹ Bikubanya et al., *Due Diligence in Mineral Supply Chains*, 1; Sarah Katz-Lavigne, “Framing Spaces as (Il)legitimate: ‘Dirty’ Cobalt and the (Mis)uses of Artisanal and Small-Scale Mining Sites in South-Eastern Democratic Republic of Congo,” *Canadian Journal of African Studies* 58, no. 1 (2024): 116, <https://doi.org/10.1080/00083968.2023.2273500>.

⁴¹⁰ Bikubanya et al., *Due Diligence in Mineral Supply Chains*, 3.

⁴¹¹ Ibid, 4.

⁴¹² OECD stresses that “claims that supply chains are ‘clean’, sustainable, or responsible simply because they do not source ASM material, without providing evidence of comprehensive due diligence should be viewed with scepticism”. OECD, *Interconnected Supply Chains: A Comprehensive Look at Due Diligence Challenges and Opportunities Sourcing Cobalt and Copper from the Democratic Republic of the Congo* (Paris: OECD Publishing, 2019), 35, 46,

considerations are absent despite the acute pollution and environmental degradation generated by mining activities.

2.2.4 EU Corporate Sustainability Due Diligence Directive (CSDDD)

The EU Corporate Sustainability Due Diligence Directive,⁴¹³ imposes mandatory human rights and environmental due diligence obligations on large corporations – both EU and non-EU companies operating in the EU under certain thresholds.⁴¹⁴ It establishes cross-sectoral obligations, applicable to companies' own operations and business relationships,⁴¹⁵ and spans both upstream and downstream activities.⁴¹⁶ It represents the most legally sophisticated corporate accountability binding instrument, in an attempt to “move away from voluntary or recommendatory measures”.⁴¹⁷ Estimated to affect 5,300 companies,⁴¹⁸ the Directive aspires to serve as a global compass and, through transposition and implementation domestic processes, aims to address the adverse human rights and climate effects of businesses' transnational activities.⁴¹⁹ Notwithstanding the EU's vision of “sustainable globalisation”,⁴²⁰ the CSDDD exhibits certain deficiencies.

First, the main obligations apply to the upstream value chain;⁴²¹ due diligence on product end-use is not required.⁴²² Second, the Directive, through its extraterritorial reach, reproduces a

<https://mneguidelines.oecd.org/interconnected-supply-chains-a-comprehensive-look-at-due-diligence-challenges-and-opportunities-sourcing-cobalt-and-copper-from-the-drc.htm>; Katz-Lavigne, “Framing Spaces as (Il)legitimate,” 120-21; Kumi, “CAHRAs: What Are They and Why Do They Matter?,” <https://kumi.consulting/news-and-views/cahras-what-are-they-and-why-do-they-matter>.

⁴¹³ Directive (EU) 2024/1760 of the European Parliament and of the Council of 13 June 2024 on Corporate Sustainability Due Diligence and Amending Directive (EU) 2019/1937 and Regulation (EU) 2023/1542, OJ L, 2024.

⁴¹⁴ Gabriel Felbermayr et al., “Designing EU Supply Chain Regulation,” *Intereconomics* 59, no. 1 (2024): 29, <https://doi.org/10.2478/ie-2024-0007>.

⁴¹⁵ Gabrielle Holly et al., *Making the Corporate Sustainability Due Diligence Directive Work for People: Guidance for Effective Transposition and Implementation* (Copenhagen: Danish Institute for Human Rights, May 2026), 6, 12, https://media.business-humanrights.org/media/documents/DIHR_CSDDD_Guide_digital_May_2026.pdf.

⁴¹⁶ Narayanan, “Decolonising Corporate Sustainability Due Diligence Directive (CSDDD) Debates,” 3.

⁴¹⁷ Morgane Thorens, Nadia Bernaz, and Otto Hospes, “Advocating for the EU Corporate Sustainability Due Diligence Directive Against the Odds: Strategies and Legitimation,” *JCMS: Journal of Common Market Studies* 63, no. 3 (2025): 607, <https://doi.org/10.1111/jcms.13623>.

⁴¹⁸ Nandini Sharma, “On the Sidelines: High Time to Coordinate EU Law with the Global South,” *Welthungerhilfe*, April 2024, <https://www.welthungerhilfe.org/welternahrung/rubriken/wirtschaft-menschenrechte/sorgfaltspflichtengesetze-ohne-nord-sued-dialog>.

⁴¹⁹ Holly et al., *Making the Corporate Sustainability Due Diligence Directive Work*, 10; Thorens, Bernaz, and Hospes, “Advocating for the EU CSDDD,” 620.

⁴²⁰ Thorens, Bernaz, and Hospes, “Advocating for the EU CSDDD,” 607.

⁴²¹ EIRIS Foundation, *Financial Sector Lobbying of the EU Corporate Sustainability Due Diligence Directive: A Social Lobby Map Analysis* (London: EIRIS Foundation, 2024), 7.

⁴²² Narayanan, “Decolonising Corporate Sustainability Due Diligence Directive (CSDDD) Debates,” 3-4.

structural neocolonial asymmetry:⁴²³ despite being conceived and designed within a European institution, reflecting European regulatory priorities, it imposes its standards on non-EU states that had no voice in its drafting.⁴²⁴ As Thorens, Bernaz, and Hospes observe, it “comes from countries in the Global North and predominantly aims to address problems occurring in the Global South”.⁴²⁵ Yet it has been attempted to moralise and rationalise it.⁴²⁶ Third, this further entails that suppliers in the Global South, bearing the costs of due diligence requirements, are exposed to a precarious position, facing the risk of exclusion from global markets. Fourth, access to justice and remediation remain critical yet underserved aspects of due diligence.⁴²⁷ Fifth, financial institutions are exempt from investment constraints in fossil fuels and other harmful activities, falling outside the scope of human rights due diligence.⁴²⁸ Sixth, the CSDDD does not capture systemic digital externalities and their climate footprint.

2.2.5 ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (MNE Declaration)

The ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy, is addressed simultaneously to governments, employers’ and workers’ organisations, and multinational enterprises and governs areas such as employment, training, conditions of work and life, and industrial relations.⁴²⁹ It is, nonetheless, underpinned by several weaknesses.

First, as a soft-law instrument, it entails non-binding and non-enforceable obligations. Its follow-up mechanism does not safeguard compliance. Second, the Global South reality (i.e. often suppressed or externally dominated workers’ unions and governments under investment-attraction pressures) obfuscates the Declaration’s global reach in practice; informal-sector workers, miners, data scrapers, e-waste dismantlers are absent from representation and thereby practically excluded from protection against their Northern employers. Thus, third, the Declaration proves ill-equipped

⁴²³ Thorens, Bernaz, and Hospes, “Advocating for the EU CSDDD,” 607.

⁴²⁴ EIRIS Foundation, *Financial Sector Lobbying of the EU CSDDD*, 14; Thorens, Bernaz, and Hospes, “Advocating for the EU CSDDD,” 607.

⁴²⁵ Thorens, Bernaz, and Hospes, “Advocating for the EU CSDDD,” 607.

⁴²⁶ *Ibid.*, 617.

⁴²⁷ Holly et al., *Making the Corporate Sustainability Due Diligence Directive Work*, 13.

⁴²⁸ Narayanan, “Decolonising Corporate Sustainability Due Diligence Directive,” 4; EIRIS Foundation, *Financial Sector Lobbying of the EU CSDDD*, 10.

⁴²⁹ International Labour Organization (ILO), *Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy*, 5th ed. (Geneva: ILO, 2017), ILO Doc. WCMS_094386.

to address the labour conditions in the digital era, with no substantive adaptations even after its 2017 revision. Fourth, the Declaration does not address the intersection of labour exploitation and climate harm, notwithstanding that health harms and carbon emissions are often related.

2.2.6 The United Nations Draft Treaty on Business and Human Rights

A Business and Human Rights Treaty is still at a draft stage, negotiated as a concrete text since 2014, and as a conceptual obligation since the 1970s.⁴³⁰ Initiated and consistently driven by Global South states,⁴³¹ it systematically faces fierce opposition and reluctance from the Global North,⁴³² whose transnational corporations cause the most transnational harm – an exemplary and enduring divide.⁴³³

Yet there is some promising ground in its latest draft version. First, the “human rights due diligence” definition, encompassing a liability reference.⁴³⁴ Second, the expanded interpretation of its jurisdictional reach under Article 9,⁴³⁵ that, if adopted, will fill a critical lacuna in the existing remedy architecture, especially for claimants of the Global South. However, as long as states refrain from reaching a middle ground, “justice delayed is justice denied...”.⁴³⁶

⁴³⁰ Vijayarasa, “Not Fit for Purpose,” 16.

⁴³¹ Global Campaign for a Binding Treaty, “Leadership from the Global South Drives UN Negotiations to End Corporate Impunity, Says Global Campaign,” Business & Human Rights Resource Centre, October 4, 2025, <https://www.business-humanrights.org/en/latest-news/press-release-claims-global-south-leadership-drives-un-binding-treaty-talks-civil-society-warns-of-corporate-influence/>; UN Human Rights Council, Resolution 26/9 adopted by the following states voting in favour: Algeria, Benin, Burkina Faso, Congo, Côte d’Ivoire, Cuba, Ethiopia, India, Indonesia, Kazakhstan, Kenya, Morocco, Namibia, Pakistan, Philippines, South Africa, Venezuela, Vietnam, China and the Russian Federation.

⁴³² UNHRC, Resolution 26/9 voted against by Austria, Czech Republic, Estonia, France, Germany, Ireland, Italy, Japan, Montenegro, North Macedonia, Republic of Korea, Romania, UK, USA.

⁴³³ CIVICUS, “Business and Human Rights Treaty: A Decade of Struggle for Corporate Accountability,” *CIVICUS Lens*, March 8, 2025, <https://lens.civicus.org/business-and-human-rights-treaty-a-decade-of-struggle-for-corporate-accountability/>.

⁴³⁴ UN Open-Ended Intergovernmental Working Group on Transnational Corporations and Other Business Enterprises with Respect to Human Rights (OEIGWG), *Updated Draft Legally Binding Instrument to Regulate, in International Human Rights Law, the Activities of Transnational Corporations and Other Business Enterprises*, 9th version, UN Doc. A/HRC/WG.16/8/2 (2023), para. 1.8.: “the processes by which business enterprises identify, prevent, mitigate and account for how they address their adverse human rights impacts”.

⁴³⁵ OEIGWG, *Updated Draft Legally Binding Instrument* (2023), art. 9, para. 2.

⁴³⁶ Trócaire, “Five Takeaways from the Tenth Session of the Negotiations for a UN Treaty on Business and Human Rights: Justice Delayed Is Justice Denied,” Trócaire News, January 28, 2025, <https://www.trocaire.org/news/five-takeaways-from-the-tenth-session-of-the-negotiations-for-a-un-treaty-on-business-and-human-rights-justice-delayed-is-justice-denied/>.

2.3 Other relevant frameworks

Concerning waste and e-waste transboundary movements, highly pertinent are: the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal; the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa; the EU Regulation 2024/1157 on Shipments of Waste; and the EU Directive 2012/19 on Waste Electrical and Electronic Equipment (WEEE Directive). Concerning mineral extraction, an additional key instrument is the EU Conflict Minerals Regulation (Regulation 2017/821 laying down supply chain due diligence obligations for importers of tin, tantalum, tungsten, gold). Lastly, complementing the corporate due diligence regime, serving as the operational companion to the OECD Guidelines, the OECD Due Diligence Guidance for Responsible Business Conduct is worth noting.⁴³⁷

⁴³⁷ OECD, *Due Diligence Guidance for Responsible Business Conduct* (Paris: OECD Publishing, 2018), <https://doi.org/10.1787/15f5f4b3-en>.

CHAPTER 3

Climate Justice as the Long-Sought Answer to Long-Standing Disparities

The climate crisis and technological advancement, intertwined with post-colonial disparity, are not isolated phenomena; they are all products of the same rapacious globalised and digitalised capitalist model. Addressing them demands a holistic, intersectional approach to foster more just societies, both environmentally and socially, precisely what lies at the heart of climate justice. In this sense, climate justice offers a compelling and much-needed answer to these interdependent contemporary challenges.

For Heffron and McCauley, it means “sharing the benefits and burdens of climate change from a human rights perspective”⁴³⁸ – an approach that, in the digital era, shall extend to the benefits and burdens of new technologies themselves. For Turkamani, the concept identifies the imbalance between states regarding their exposure to climate harm and their participation in decision-making, and seeks to remedy it.⁴³⁹ Climate justice, for Gonzalez, is grounded in a constellation of human rights, including “the rights to life, health and cultural integrity; the right

⁴³⁸ Raphael J. Heffron and Darren McCauley, “What Is the ‘Just Transition’?,” *Geoforum* 88 (2018): 74, [10.1016/j.geoforum.2017.11.016](https://doi.org/10.1016/j.geoforum.2017.11.016); Cambou and Buhmann, “Indigenous Peoples, Business, and the Struggles for Justice,” 151.

⁴³⁹ Turkamani, “The Loss and Damage Fund,” 15.

to a healthy environment; the right to be free from race and sex discrimination; and the right to information, participation, and access to justice”⁴⁴⁰ – rights now jeopardised both by the climate degradation, and the digital transformation, entailing dispossession and exclusion on the same structural premises.

The Paris Agreement characterises climate justice as important “for some”⁴⁴¹ – perhaps the most illustrative paradigm of how the concept has long been framed, and accordingly, diminished, within international climate discourse, revealing a choice that obfuscates urgency and dilutes accountability. Yet those for whom climate justice is not simply “important” but rather existential represent the overwhelming majority of the global population; entire communities whose survival, livelihoods, and futures are contingent upon the treatment of a crisis they did very little to instigate. The Oxfam 2023 Report “Climate Equality: A Planet for the 99%” captures, even in its title, that the inextricably linked struggles against both extreme economic inequalities and the accelerating global climate crisis concern almost the entire human population.⁴⁴²

Climate justice can be concretised and materialised through multilayered veins. As a bare minimum, though, it contains three constitutive elements: distributional justice, procedural justice and justice as recognition.⁴⁴³ This trivalent approach to justice, as traced by Kortetmäki,⁴⁴⁴ was established by Nancy Fraser,⁴⁴⁵ who elaborated on the essentiality of distribution, recognition, and representation as intrinsically complementary pillars of justice – yet the term “trivalent” itself is attributed to Schlosberg.⁴⁴⁶ Notably, for Hourdequin, this multidimensional conception of justice expands the discourse beyond a merely consequentialist reasoning by perceiving the three elements

⁴⁴⁰ Gonzalez, “Racial Capitalism, Climate Justice, and Climate Displacement,” 113.

⁴⁴¹ *Paris Agreement*, preambulatory clause 13: “[...] and noting the importance *for some* of the concept of ‘climate justice’, when taking action to address climate change”.

⁴⁴² Oxfam, *Climate Equality*.

⁴⁴³ Walker, *Environmental Justice*, 10.

⁴⁴⁴ Teea Kortetmäki, “Justice in and to Nature: An Application of the Broad Framework of Environmental and Ecological Justice” (PhD diss., University of Jyväskylä, 2017), Jyväskylä Studies in Education, Psychology and Social Research, vol. 587, 12, <http://urn.fi/URN:ISBN:978-951-39-7127-4>.

⁴⁴⁵ Nancy Fraser, *Scales of Justice: Reimagining Political Space in a Globalizing World* (New York: Columbia University Press, 2009).

⁴⁴⁶ David Schlosberg, “Reconceiving Environmental Justice: Global Movements and Political Theories,” *Environmental Politics* 13, no. 3 (2004): 521; David Schlosberg, *Defining Environmental Justice: Theories, Movements, and Nature* (Oxford: Oxford University Press, 2007), <https://doi.org/10.1093/acprof:oso/9780199286294.001.0001>; Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 28.

as both inherently autotelic and mutually reinforcing.⁴⁴⁷ As Schlosberg persuasively contends that a “purely distributive approach is not adequately equipped to remedy the complex and interweaving root causes”,⁴⁴⁸ given that injustice manifests in “forms beyond maldistribution”.⁴⁴⁹ The pie metaphor, emphasising the relative size of one’s share of a fixed total, deflects the attention from questions such as “who decides” and “through what process” distributive decisions are made.⁴⁵⁰ Distribution cannot be just if it originates from unfair procedures and unrecognised voices – a structural shortcoming shared by both climate and digital governance.

3.1 Distributional justice

Distributional justice is nonetheless fundamental – if pursued in meaningful articulation with other dimensions of justice, not in isolation. Its core objective is the equitable distribution of environmental harms, namely emissions, climate burdens, and mitigation and adaptation costs.⁴⁵¹ The concept extends beyond geographic proximity and immediate damage, encompassing aspects of “vulnerability, recognition, risk, and responsibility”,⁴⁵² in fact, it calls for an exemplary shift from a “not-in-my-backyard” to a “not-in-anyone’s backyard” standpoint, thereby reframing ethics and commitments. Ultimately, respect and dignity are not solely desirable supplementary features of distributive justice, but its enabling preconditions”.⁴⁵³

Distributional justice emerges as particularly salient within the modern digital economy. Who bears the brunt of the climate costs originating from the expansion of new technologies: rapid mineral extraction, extensive transboundary e-waste dumping, and operation of data infrastructure? Who is permitted to capture the gains from this digital transformation, green extractivism and platform capitalism? And who carries both the climate and social costs of the digital age, while others accumulate the profits of this refurbished, neocolonial asymmetry?

⁴⁴⁷ Marion Hourdequin, “Climate Change, Climate Engineering, and the ‘Global Poor’: What Does Justice Require?,” *Ethics, Policy & Environment* 21, no. 3 (2019): 273, <https://doi.org/10.1080/21550085.2018.1562525>.

⁴⁴⁸ Bartmann and Halsband, “Climate Justice: Ethical Aspects”, 27; Schlosberg, *Defining Environmental Justice*.

⁴⁴⁹ Bartmann and Halsband, “Climate Justice: Ethical Aspects”, 27.

⁴⁵⁰ Hourdequin, “Climate Change, Climate Engineering, and the ‘Global Poor’,” 271; Bartmann and Halsband, “Climate Justice: Ethical Aspects”, 28.

⁴⁵¹ Bartmann and Halsband, “Climate Justice: Ethical Aspects”, 10-11, 18, 62.

⁴⁵² Darren McCauley, Tracy-Lynn Field and Iain Todd, “What is a just transition?,” in *The Future of Just Transitions: Theory and Implementation*, ed. Darren McCauley, Tracy-Lynn Field, Raphael Heffron, and Iain Todd (Cheltenham: Edward Elgar Publishing, 2024), 6.

⁴⁵³ Schlosberg, “Reconceiving Environmental Justice,” 520.

3.2 Procedural justice

Procedural justice is core to the current climate discourse. Premised on the principles of impartiality, fairness and equality of opportunity as substantial criteria for any legitimate climate governance system,⁴⁵⁴ it emphasises the prerequisite to uphold due process.⁴⁵⁵ It asks not only “what is decided”, but “through which processes” and “by whom”.⁴⁵⁶ The questions to be asked are both normative and descriptive: Who should regulate? Yet who actually does? Why are laws produced in the Global North to presumably serve the Global South? When enterprises are situated in the Global North, can “regulating at such a geographic distance” actually be participatory?⁴⁵⁷

The Inter-American Court of Human Rights, in its 2025 Advisory Opinion on Climate Emergency and Human Rights, reiterated that the exercise of procedural rights “contributes to sound environmental governance”, proving particularly significant for vulnerable groups.⁴⁵⁸ In the context of climate justice, its procedural aspect has emerged as the most salient, encompassing a constellation of sub-rights: the right to science and recognition of local, traditional and indigenous knowledge, the right of access to climate information, the right to public participation and the right of access to justice.⁴⁵⁹

Gardiner observes that international negotiation avenues and participatory mechanisms mirror the very underlying injustices they purport to address – colonial dependencies and trade asymmetrical rules.⁴⁶⁰ This is why the ability of international institutions to deliver genuine climate justice remains widely and rightly questioned.⁴⁶¹ For Gonzalez, the procedural aspect of injustice emerges and crystallises to the extent that the Global North “dominates the institutions of global economic and environmental governance” while systematically neglecting the “perspectives and priorities” of the South.⁴⁶² This domination extends into the very production of scientific evidence.

⁴⁵⁴ Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 29.

⁴⁵⁵ McCauley, Field, and Todd, “What Is a Just Transition?,” 6.

⁴⁵⁶ Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 28; Schlosberg, *Defining Environmental Justice*.

⁴⁵⁷ Vijayarasa, “Not Fit for Purpose,” 14.

⁴⁵⁸ Inter-American Court of Human Rights, Advisory Opinion AO-32/25, May 29, 2025, Requested by the Republic of Chile and the Republic of Colombia on Climate Emergency and Human Rights, para. 26, https://www.corteidh.or.cr/docs/opiniones/seriea_32_en.pdf; Inter-American Court of Human Rights, *The Environment and Human Rights*, Advisory Opinion OC-23/17, November 15, 2017, Series A No. 23, para. 64, 67.

⁴⁵⁹ IACtHR, *Advisory Opinion AO-32/25*, paras. 460-587.

⁴⁶⁰ Gardiner, “Climate Justice,” 310.

⁴⁶¹ Ibid.

⁴⁶² Gonzalez, “Racial Capitalism, Climate Justice, and Climate Displacement,” 113; Islam, “Rethinking Climate Justice,” 6.

The concentration of technical and financial resources in the Global North shapes the direction of climate research and knowledge generation, even within the IPCC.⁴⁶³ Interestingly, this procedural exclusion has been recognised in the body of the UNSDGs. In particular, SDG 10, which provides for the reduction of inequalities within and among countries, includes under Target 10.6 the explicit commitment to enhance the representation of developing countries in decision-making processes within international institutions.⁴⁶⁴ Its persistent non-fulfilment, nonetheless, reveals an overt absence of political will rather than a lack of legal and institutional instruments.

The procedural, or participatory, asymmetries of climate governance are reflected in the digital governance in a nearly identical manner. Decisions about platform regulation, data flows and conservation, algorithmic systems, artificial intelligence governing standards, all conceived and implemented in a small number of jurisdictions by an even smaller number of actors, residing in the Global North. In this context, the Global South is denied equal participation in the design of the digital architecture and instead remains a subordinate subject of externally imposed regulatory authority and control.

The voices of those most affected and those advocating for climate justice for all shall not remain marginal at the periphery of the climate debate; they deserve to be placed at the moral epicentre of climate negotiations – and not solely of the climate theoretical discourse. The same demands apply imperatively in the realm of new technologies; marginalised communities exposed to resource and data extraction shall be recognised as equal subjects rather than objects within the digital transformation. Nonetheless, marginal recalibration of distributive structures cannot provide a sustainably just remedy where non-recognition persists, and meaningful participation cannot be ensured without justice as recognition.⁴⁶⁵

3.3 Justice as recognition

Justice as recognition asks who is valued and accorded due respect in climate action,⁴⁶⁶ and who experiences injustices stemming precisely from their non-recognition.⁴⁶⁷ For Schlosberg,

⁴⁶³ Islam, “Rethinking Climate Justice,” 6.

⁴⁶⁴ United Nations, *Sustainable Development Goals*, Goal 10: “Reduce Inequality within and among Countries,” Target 10.6.

⁴⁶⁵ Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 30.

⁴⁶⁶ Walker, *Environmental Justice*, 10.

⁴⁶⁷ Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 10.

recognition, in the sense of social respect, is a pivotal precondition for achieving just distribution and thereby climate and social justice over time.⁴⁶⁸ He emphasises that real justice requires first identifying the reasons and processes that result in maldistribution – and to this end, questions of recognition are indispensable.⁴⁶⁹

Recognition justice rejects the “social arrangements and governance structures that silence or denigrate the perspectives of those in particular cultural groups, or with particular gender, racial, or class identities”, and notably, “those who currently lack dominant voices”⁴⁷⁰ in the field where the decisions are negotiated and made. Enabling people to engage as “full partners in social interaction” demands more than formal participation; it necessitates that they hold similar status and standing as participants – not simply a seat at the table.⁴⁷¹

In the digital epoch, recognition represents a significant yet neglected consideration when it comes to the regulation of artificial intelligence, platforms, and data sovereignty, which remain predominantly governed by a handful of global stakeholders. Historically, non-recognised groups have primarily been women and indigenous peoples across the Global South, amongst others.⁴⁷² Given their comparatively lower socio-economic standing, lower adaptation capacity, and higher presumed climate vulnerability, the climate crisis affects them disproportionately.⁴⁷³ Now, these are the same groups that carry the often-invisible burden of the digital economy: workers mining the cobalt for our smartphones’ batteries, e-waste collectors and dismantlers, data scrapers and AI tool-trainers, all having lost their labour sovereignty and by extension, their very recognition for the value they generate.

3.4 Other forms of transformative justice

In my view, the three dimensions of justice – distributional, procedural, and recognition – are key yet not sufficient. We should undoubtedly pursue a fairer redistribution of climate costs and burdens, advanced participation and meaningful engagement of the most affected – both

⁴⁶⁸ Schlosberg, “Reconceiving Environmental Justice,” 520; Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 31.

⁴⁶⁹ Schlosberg, “Reconceiving Environmental Justice,” 520.

⁴⁷⁰ Hourdequin, Climate Change, Climate Engineering, and the ‘Global Poor’,” 273.

⁴⁷¹ Ibid.

⁴⁷² Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 10, 31.

⁴⁷³ Ibid.

people and states – and due recognition of those whose voices have been disregarded in the international panel for too long. However, these steps should be perceived only as first-order considerations, essential starting points, but not ultimate objectives towards a more just world. The second order shall be reparative and redistributive justice in its fullest sense. The ultimate goal shall be to see those who have historically borne the burden of western civilisation and extractive development now enjoy the fruits of modern progress and the goods of their own lands; to see their voice being heard and echoed, and their rights no longer curtailed and sacrificed on the altar of the greedy wealth of the very few. In the digital era, this reparative vision encloses the emancipation of all data and mining labourers and all communities treated as the world's sacrifice backyard zones to the point where their voices are equally heard, recognised and accorded due consideration.

Gonzalez takes the climate justice discourse a step further by suggesting two additional caveats: the corrective and the social dimension, thus adopting a fourfold approach that extends beyond the distributive and procedural aspects – already elaborated upon.⁴⁷⁴ Through a corrective lens, compensation and redress for climate harm sustained shall be awarded to communities and states that have borne a disproportionate burden – a revendication claimed on the ground that the Global North, as she contends, “has incurred a climate debt for its historic *and current* contribution to climate change” [*emphasis added*, as it remains ongoing and accumulating].⁴⁷⁵ In the same vein, the International Court of Justice stipulates in its latest Advisory Opinion on the “Obligations of states in respect of climate change” the imperative for an equitable distribution of climate burdens on the basis of “*inter alia*, States’ historical and current contributions to cumulative GHG emissions” – reflecting the principle of common but differentiated responsibilities and respective capabilities.⁴⁷⁶

Corrective justice, alternatively called reparative or restorative, first and foremost calls for a historical reckoning. Gardiner stresses that corrective justice is highly pertinent since it entails the notion of restitution for past emissions and seeks to hold accountable the actors responsible for past harm, failures and omissions,⁴⁷⁷ ultimately pursuing to “restore a sense of justice”.⁴⁷⁸ In fact, it represents a historic dimension of climate justice, anchored in the interrelation between present

⁴⁷⁴ Gonzalez, “Racial Capitalism, Climate Justice, and Climate Displacement,” 113.

⁴⁷⁵ Gonzalez, “Racial Capitalism, Climate Justice, and Climate Displacement,” 120.

⁴⁷⁶ ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 148.

⁴⁷⁷ Gardiner, “Climate Justice,” 310.

⁴⁷⁸ McCauley, Field, and Todd, “What is a just transition?,” 5.

maldistribution of climate burdens and past forms of historical injustices, such as colonialism.⁴⁷⁹ It is often linked to a point in time when a division among a given generation could be made; people in different countries experienced industrialisation at different times; thus, their cumulative historical GHG emissions vary significantly.⁴⁸⁰ From 1850 to the early 21st century, Global North states – primarily Europe and North America – emitted 3 times more GHG than the Global South combined – mainly Africa and Latin America.⁴⁸¹ Yet the ethical controversy raised is owed to the fact that both perpetrators and victims of historical emissions and injustices belong, in large part, to past generations – those who committed immoral deeds, and against whom compensatory claims could be sought, are deceased.⁴⁸² Thus, can responsibility for past misdeeds be transmitted across generations?⁴⁸³ Inheritance of blame is unheard of and skewed.⁴⁸⁴ Sometimes, it can be argued that generational chains can give rise to collective blame and thereby to collective responsibility to restore it. Yet when do these chains atone – if so?⁴⁸⁵ In that respect, were these emissions innocuous and therefore somehow morally excusable at the time of their production?⁴⁸⁶ Some scholars claim that only acts inherently contemptible in their historical time – e.g. slavery or the holocaust – can give rise to transgenerational reparative obligations, and that the burning of fossil fuels does not meet this threshold – it is not despicable enough.⁴⁸⁷

In parallel, according to Gonzalez, through a social lens, due attention is drawn to the interrelatedness of socio-economic and environmental registers, in that acute inequalities are systematically produced and exacerbated through a structured order of relentless human and environmental impoverishment. For Gonzalez, climate justice – deeply rooted in human rights – encompasses a constellation of rights within its ambit: “the rights to life, health and cultural integrity; the right to a healthy environment; the right to be free from race and sex discrimination;

⁴⁷⁹ Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 26.

⁴⁸⁰ Jörg Tremmel and Katharina Robinson, *Climate Ethics: Environmental Justice and Climate Change* (London; New York: I.B. Tauris, 2014), 117.

⁴⁸¹ Tremmel and Robinson, *Climate Ethics*, 117.

⁴⁸² *Ibid.*, 119.

⁴⁸³ *Ibid.*, 123.

⁴⁸⁴ *Ibid.*, 124.

⁴⁸⁵ *Ibid.*, 119.

⁴⁸⁶ *Ibid.*, 124.

⁴⁸⁷ *Ibid.*

the right to information, participation, and access to justice”.⁴⁸⁸ These rights constitute concurrently the rights precisely endangered under the digital economy.

Intergenerational justice constitutes another key dimension. Its core premise is that the projected materialisation of acute climate harm in the future jeopardises future generations – yet unable to claim their rights or participate in the decision-making that determines the world they will inhabit.⁴⁸⁹ Incorporated in the body of the UNFCCC,⁴⁹⁰ and present in the preamble of the Paris Agreement,⁴⁹¹ it was reaffirmed as a principle in the ICJ 2025 Advisory Opinion, which stressed that it represents the most exemplary form of equity.⁴⁹² For Sunstein, both the born and the unborn deserve equal attention, suggesting the principle of “intergenerational neutrality”.⁴⁹³ In this context, the Maastricht Principles on the Human Rights of Future Generations provide this moral and aspirational imperative its most developed legal expression. Stressing that human rights law is not confined to present generations,⁴⁹⁴ the Principles intend to inscribe it in a future context, through a progressive and systemic interpretation.⁴⁹⁵ “Intergenerational discrimination”, under the Principles, precisely consists of “shifting the burden of responding to present crises to future generations” and “discounting the impacts and burdens of present conduct”.⁴⁹⁶ For the ICJ, present generations are in fact “trustees of humanity tasked with preserving dignified living conditions and transmitting them to future generations”.⁴⁹⁷

In the climate context, this renders the deliberate delay in taking meaningful climate action a form of discrimination against those who are to inherit the Earth on the verge of climate collapse. Principle 17 crystallises exactly this orchestrated deferral, stipulating that “States must refrain

⁴⁸⁸ Gonzalez, “Racial Capitalism, Climate Justice, and Climate Displacement,” 113.

⁴⁸⁹ Gardiner, “Climate Justice,” 311.

⁴⁹⁰ UNFCCC, art. 3(1).

⁴⁹¹ Paris Agreement, preambulatory clause 11.

⁴⁹² ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, paras. 55, 57.

⁴⁹³ Cass R. Sunstein, *Climate Justice: What Rich Nations Owe the World – and the Future* (Cambridge, MA: MIT Press, 2025), 76, 126.

⁴⁹⁴ *Maastricht Principles on the Human Rights of Future Generations* (adopted 3 February 2023), principle 2.1(a), <https://www.ohchr.org/sites/default/files/documents/new-york/events/hr75-future-generations/Maastricht-Principles-on-The-Human-Rights-of-Future-Generations.pdf>.

⁴⁹⁵ *Maastricht Principles on Future Generations*, 1.

⁴⁹⁶ *Ibid*, principle 6(e).

⁴⁹⁷ ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 56.

from conduct they foresee, or ought reasonably to foresee, will create or contribute to a substantial risk of violations of the human rights of future generations”.⁴⁹⁸

The temporal asymmetry – decisions made now, their impact borne by others later – overt in the climate crisis discourse, is perpetuated in the digital era; the climate and human cost of new technologies is systematically and knowingly deferred onto future generations, in the absence of any effective protective framework to adequately scale the accumulating harm.

To grasp the compounding nature of these injustices, intersectional justice emerges as particularly salient. The notion of “intersectionality” introduced by the feminist scholar Kimberlé Crenshaw,⁴⁹⁹ stresses the interconnectedness and overlap of a multitude of inequalities constructed through interrelated societal formations,⁵⁰⁰ revealed across gender, sexual orientation, race, health condition and poverty,⁵⁰¹ and their “compounding effects” on those who are situated simultaneously on multiple axes of vulnerability. It therefore serves a systemic framing and handling of these intersecting injustices, by addressing their interconnected social root causes.⁵⁰² According to Shue, the “compound injustice” occurs “when an initial injustice paves the way for a second”.⁵⁰³ Making a strong point, pertinent in the climate context, he argues that the colonial exploitation “weakened” colonised states to such a degree that even after their independence, the coloniser state retained the power to impose “unequal treaties” upon them.⁵⁰⁴ Similarly, in the digital context, this intersecting logic applies amply; already climate vulnerable and sociopolitically marginalised communities are

⁴⁹⁸ *Maastricht Principles on Future Generations*, principle 17.

⁴⁹⁹ Kimberlé Crenshaw, “Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color,” *Stanford Law Review* 43 (1991): 1241-99.

⁵⁰⁰ Erin King-Mullins, Elana Maccou, and Pringl Miller, “Intersectionality: Understanding the Interdependent Systems of Discrimination and Disadvantage,” *Clinics in Colon and Rectal Surgery* 36, no. 5 (2023): 356, <https://doi.org/10.1055/s-0043-1764343>; Ashima Jha, James Tolosa, and Maria Ramirez, “Rethinking Climate Justice in the Digital Age: Pathways to Resilient Health Systems for Marginalized Communities,” *International Journal of Nursing Information* 4, no. 1 (2025): 36, <https://doi.org/10.58418/ijni.v4i1.145>; Shahin Kassam, Lenora Marcellus, Nancy Clark, and Joyce O'Mahony, “Applying Intersectionality with Constructive Grounded Theory as an Innovative Research Approach for Studying Complex Populations: Demonstrating Congruency,” *International Journal of Qualitative Methods* 19 (2020): 2, <https://doi.org/10.1177/1609406919898921>.

⁵⁰¹ Patricia E. Perkins, “Climate Justice, Gender, and Intersectionality,” in *Routledge Handbook of Climate Justice*, ed. Tahseen Jafry (London: Routledge, 2019).

⁵⁰² Jha, Tolosa, and Ramirez, “Rethinking Climate Justice in the Digital Age,” 36; Kassam et al., “Applying Intersectionality with Constructive Grounded Theory,” 2.

⁵⁰³ Henry Shue, *Climate Justice: Vulnerability and Protection* (Oxford: Oxford University Press, 2014), 4.

⁵⁰⁴ Shue, *Climate Justice*, 4.

further excluded from forging the new digital reality; they are rendered invisible and demised to simply bear the brunt of the externalities of the digital economy.

Last but not least, Faber suggests the concept of productive justice,⁵⁰⁵ which targets the political and economic structures that generate those harms in the first place. In his words, he puts forward the demand of shifting from a “not-in-my-backyard” to a “not-in-anyone’s backyard’ politics”,⁵⁰⁶ refusing to merely relocate the harm rather than seek to eradicate it. In the context of digital colonialism and extractivism, the harm is merely transposed onto the Global South – exactly what we should fight against. To this end, a more comprehensive and “transformative” interpretation of climate justice is indispensable, encompassing a multitude of diverse aspects and challenging both theoretical and practical aspects.⁵⁰⁷

3.5 Particularly in the digital era

The question that animates this thesis, follows: Can climate justice serve as the answer to both climate harm and neocolonial dynamics produced and entrenched by new technologies? The emerging framework of creative data justice proposes a starting point. As conceived by Arora, at its core, it stresses “the need to challenge the existing power imbalances in global data governance”, suggesting that inspiration can be drawn from “indigenous systems of care” as a key “counterforce to neoliberal values of efficiency and utility”, a formulation that resonates with fair and creative ways to produce value.⁵⁰⁸

Moreover, Shao et al. maintain that emerging economies of the Global South should pursue a “sustainable digitalisation”, in which equal emphasis is accorded to both digital transformation and sustainability, pursued in alignment; in other words, they shall seek digital advancement while being mindful of the environmental challenges. To this end, national digital and climate policies

⁵⁰⁵ Daniel Faber, *Capitalizing on Environmental Injustice: The Polluter-Industrial Complex in the Age of Globalization* (Lanham, MD: Rowman & Littlefield, 2008), 252.

⁵⁰⁶ Faber, *Capitalizing on Environmental Injustice*, 252.

⁵⁰⁷ Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 33.

⁵⁰⁸ Payal Arora, “Creative Data Justice: A Decolonial and Indigenous Framework to Assess Creativity and Artificial Intelligence,” *Information, Communication & Society* 28, no. 13 (2025): 2231-47, <https://doi.org/10.1080/1369118X.2024.2420041>.

should be regulatorily aligned and institutionally coherent.⁵⁰⁹ Particularly e-waste management, as an unavoidable facet of digital transformation, is illustrative of this challenge and thus the pertinent policies to be enacted shall prioritise a robust framework against environmental degradation across the Global South.⁵¹⁰

In this context, climate justice proves to be intrinsically about praxis – the theoretically informed practice with reflection, one where there are continual feedbacks and integrations,⁵¹¹ or as Freire puts it, the “reflection and action upon the world in order to transform it”.⁵¹² In the realm of climate justice, Foran, as cited in Sultana, suggests that critical praxis “encourages the academic theorisations that are empirically derived and contextually appropriate”, in a continuous journey of “unlearning to relearn, collaborate, re-evaluate, and redress various interlocking oppressions”.⁵¹³

But the fierceness and vigour of the climate justice movement is measured by its capacity to mobilise, to stimulate and advance climate action through theoretical, political and normative avenues.⁵¹⁴ Concurrently, it is indispensable to encompass grassroots and activist initiatives that forge alliances and unite forces between all societal groups claiming the advancement of their rights – youth, women, indigenous people.⁵¹⁵ At the end of the day, justice shall be viewed as a concept of “mutual advantage”, guided by the conviction that acting in “cooperation frequently yields greater benefits than acting alone”.⁵¹⁶ To bear fruit, joint efforts shall be coordinated across both space (across both states and communities) and time (across past and future generations).⁵¹⁷

Yet the climate movement is not without its flaws and limitations. Foran identifies three major reasons that render the radicalisation of the climate justice movement more compelling than ever. First, mitigation and adaptation measures, as currently conceived, leave existing unequal and exploitative structures intact, deepening rather than reconfiguring the very formations that cause

⁵⁰⁹ Deo Shao, Nyaura Kibinda, Simon Msanjila, Cesilia Mambile, and Augustino Mwogosi, “Sustainable Digital Transformation and E-Waste Management in Africa: An Ecological Modernisation Perspective,” *Sustainable Futures* 11 (2026): 101832, 2, <https://doi.org/10.1016/j.sft.2026.101832>.

⁵¹⁰ Shao et al., “Sustainable Digital Transformation and E-Waste Management in Africa,” 6.

⁵¹¹ Sultana, “Critical Climate Justice,” 119.

⁵¹² Ibid; Paulo Freire, *Pedagogy of the Oppressed* (New York: Continuum, 1970), 51.

⁵¹³ Sultana, “Critical Climate Justice,” 119; Foran, “Reimagining Radical Climate Justice,” 153.

⁵¹⁴ Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 26-27.

⁵¹⁵ Sultana, “Critical Climate Justice,” 119.

⁵¹⁶ Bartmann and Halsband, “Climate Justice: Ethical Aspects,” 13.

⁵¹⁷ Sultana, “Critical Climate Justice,” 119.

climate harm and socio-economic injustices.⁵¹⁸ Second, states have proven unable – or unwilling – to perceive the climate crisis as “fundamentally a matter of justice”, treating it instead as an issue requiring merely collective action and technical solutions, thereby failing to reach a genuinely robust and viable agreement.⁵¹⁹ Third, the movement itself has been historically produced by white, middle-class men of the Global North, rooted in a distorted prioritisation of development over the pursuit of social justice and inherently ill-equipped to grasp the realities of underprivileged, youth and women populations.⁵²⁰ For decades, it has failed to illustrate the pivotal place that justice shall occupy in addressing the climate crisis, falling short in, first and foremost, identifying its root causes: “economic exploitation, racism, patriarchy, violence, and income inequality”, which Foran identifies.⁵²¹

Climate justice is a concept articulated around ethics, human rights, and accountability that sheds light on geographical and historical parameters,⁵²² in the pursuit of substantially equal, fundamentally democratic, and truthfully compassionate societies, in which due consideration is accorded to both social and environmental foundations,⁵²³ while upholding a holistic, nuanced understanding and targeting collective mobilisation.

⁵¹⁸ Foran, “Reimagining Radical Climate Justice,” 151-152.

⁵¹⁹ Ibid, 152.

⁵²⁰ Ibid.

⁵²¹ Ibid, 153.

⁵²² Sultana, “Critical Climate Justice,” 119.

⁵²³ Foran, “Reimagining Radical Climate Justice,” 155.

CONCLUSION

As illustrated, the same processes of extraction and dependency that emerged during the era of colonisation have continued throughout capitalism in its industrial form and have recently been reshaped into its digitalised phase.⁵²⁴ Couldry and Mejjas use the term “instead” to indicate a displacement from traditional forms of resource extraction and labour exploitation.⁵²⁵ Yet I would argue that it is not “instead” but rather “in addition to and even more so”; natural resources are still extracted to serve new needs and labour is still exploited under different disguises. In parallel, what has indeed emerged today as a new facet of capitalism is the appropriation and exploitation of human life through data collection and commodification.⁵²⁶ Thus, traditional colonialism laid the foundations for the ensuing industrial capitalism, and out of an interwoven evolution of both, data colonialism emerged.⁵²⁷

This convergence of extractive and exploitative logics is what particularly links the climate crisis to the digital economy; they are not two parallel harms, but an inextricably tight continuum, a single construct in which the operation and infrastructure of the one materially depend on the exploitation of the other. Climate harm is multifaceted, manifesting in natural resource depletion, land degradation, and e-waste generation,⁵²⁸ all implications reinforced by an emerging yet fast-

⁵²⁴ Couldry and Mejjas, *The Costs of Connection*, xix.

⁵²⁵ Ibid.

⁵²⁶ Ibid.

⁵²⁷ Ibid.

⁵²⁸ Ukpanah, “Is Technology Bad for the Environment?”.

paced digital economy; our electronic devices necessitate critical raw materials for their fabrication, only to end up in landfills across the globe; social media platforms and AI tools require copious amounts of water and electricity to sustain their digital infrastructures, only to end up extracting our personal data, colonising our privacy and deepening our cognitive dependency. Whether underpinning digital components or infrastructures, Brodie observes that the logic of extractive dispossession is not only perceived as indispensable but also normatively and morally justifiable – precisely as capital dictates.⁵²⁹ It is deeply troubling to observe how uncontested and normalised the industrial complex’s presumed destiny of constant growth is. Rather than entertaining claims that challenge this “development paradigm” without further curtailing the rights of indigenous communities, the “human rights-based approach” adopted merely advocates for the “participation and inclusion” of indigenous people in decision-making processes – a far cry from the structural transformation their circumstances demand.⁵³⁰

The interconnectedness of the climate crisis and the digital economy, interwoven with systems of neocolonial and capitalist asymmetries – as this thesis attempted to illustrate – can be framed under the term “polycrisis”, echoing the unprecedented, multifaceted and interrelated crises of our times, intertwined in vicious circles.⁵³¹ This raises the critical question that animates the present thesis: How can the interdependence of contemporary challenges be addressed? Can the climate crisis and technological advancement, entangled with poverty, postcolonial disparities and capitalist economic logic, be reimagined and reshaped into a sustainable and just future for all human beings and the planet? Through my lens, this is precisely the aspiration and ultimate goal of climate justice.

The contemporary crisis is at least threefold, as Foran argues, resting upon the intersection of economic, social and environmental fragmentations.⁵³² Compounded by neoliberal capitalist globalisation, a democratic deficit, widespread and systemic violence, and the climate crisis as the “wild card”, modern societies face a cascade of interwoven and multilayered crises.⁵³³ And as he aptly phrases it, the climate crisis is “at once expression, symptom, cause, and accelerator” of this

⁵²⁹ Brodie, “Smarter, Greener Extractivism,” 1065.

⁵³⁰ Cambou and Buhmann, “Indigenous Peoples, Business, and the Struggles for Justice,” 166, 169.

⁵³¹ M. M. Lawrence, “‘Polycrisis’ May Be a Buzzword, but It Could Help Us Tackle the World’s Woes,” *The Conversation*, 2022, <https://theconversation.com/polycrisis-may-be-a-buzzword-but-it-could-help-us-tackle-the-worldswoes-195280>.

⁵³² Foran, “Reimagining Radical Climate Justice,” 154.

⁵³³ Ibid.

triple crisis.⁵³⁴ This is why, as he stipulates, it is through the prism of this very articulation that the climate justice movement should seek to operate and radicalise its pursuits, claiming as its ultimate objective the fundamental eradication of all societal misdeeds – not merely their minimisation.⁵³⁵ Addressing the climate crisis, for Foran, implies learning “to connect the dots” between the constellation of intersecting struggles,⁵³⁶ which resonates with Moore and Patel’s argument that all social movements – antislavery, anticolonial, women’s and indigenous peoples’ – have sought to shake capitalism’s rapaciousness in pursuit of social emancipation for the many.⁵³⁷

If a single structure underlies these interlocking and accumulated challenges, it is neoliberal capitalism.⁵³⁸ Its “inherent tendency to deplete the commons”⁵³⁹ and its ceaseless pursuit of growth premised on finite resources and human exploitation coalesce into a system doomed to fail us; its foundational resources are bound to go extinct, and the unparalleled power imbalances between the many who generate the capital and the few who accumulate it are bound to be challenged.⁵⁴⁰ Capitalism’s sole purpose is the accumulation and maximisation of profit – neither the fulfilment of human prosperity nor the ecological restoration, as Hickel and Varoufakis contend.⁵⁴¹ The global capital operates to sustain the subordination of the Global South, relying on its cheap labour and rich natural environment. Specifically regarding new technologies, Hickel and Varoufakis claim that humanity is obstructed from enjoying their benefits; instead, capital deploys digital innovation against collective interests.⁵⁴²

This interplay of climate and digital structures also explains the fate of the green transition narrative. Hamouchene and Sandwell aptly underscore that it is the same power dynamics and oppressive structures that have resulted in the climate crisis in the first place, which are now attempting to address it; they are strategically transforming the narrative of “green transition” into

⁵³⁴ Ibid, 155.

⁵³⁵ Ibid.

⁵³⁶ Ibid.

⁵³⁷ Moore and Patel, “Unearthing the Capitalocene,” 24.

⁵³⁸ Andreucci et al., “The Coloniality of Green Extractivism,” 2.

⁵³⁹ Yanis Varoufakis, *Technofeudalism: Who Killed Capitalism*, 167.

⁵⁴⁰ Loach, *It’s Not That Radical*, 106-107; Foran, “Reimagining Radical Climate Justice,” 157.

⁵⁴¹ Jason Hickel and Yanis Varoufakis, “We Can Move Beyond the Capitalist Model and Save the Climate – Here Are the First Three Steps,” *The Guardian*, February 12, 2026, <https://www.theguardian.com/environment/commentisfree/2026/feb/12/capitalist-model-climate-growth-capitalism-species-humanity>.

⁵⁴² Hickel and Varoufakis, “We Can Move Beyond the Capitalist Model.”

their own terms, reconfiguring it into capitalistic, corporate, exploitative climate solutions.⁵⁴³ Brodie contends that green futures cannot be founded upon development narratives that legitimise extraction and erase local justice, observing that “Big Tech companies infrastructuralise an ethos of green extractivism being recognised globally as a primary emerging logic of capitalism”.⁵⁴⁴

In this regard, the transformations of our contemporary reality should be assessed through the joint prism of colonialism and capitalism,⁵⁴⁵ illuminating and contextualising the historical interrelations; we cannot grasp the scope of human life appropriation driven by current capitalist forces without the colonial dimensions of social dichotomy, and accordingly, we cannot discern the neocolonial resource and land appropriation without the operational structures of traditional social order.⁵⁴⁶ Drawing on the term “Anthropocene”, deriving from the Greek *anthropos* (“human”) and denoting the era ruled by humans, Moore and Patel reduce current crises to “just humans being humans”⁵⁴⁷ – a framing overly fatalistic; human domination over ecosystems is neither inevitable nor irreversible.

Yet diagnosing “it’s all capitalism’s fault” offers no palpable alternative.⁵⁴⁸ Tracing the indisputable causes and those responsible for manufacturing a system of dependencies and climate harm does not suffice. Maybe the solution lies more in politicising than in raising awareness.⁵⁴⁹ Without placing a disproportionate burden on individual responsibility, I contend that, as citizens and consumers, we can contribute to transformative policymaking by pressuring governments to impose stricter compliance and accountability regulations on corporate actors. If harmful practices threaten corporate legitimacy and contradict prevailing moral norms, they become reputationally costly and socially unacceptable, and thus a catalyst for change.

For Loach, ecosocialism and degrowth are the pathways forward, in the sense of toning down overextraction, overproduction, overconsumption and over-waste, combatting the artificial scarcity and the illusory, fabricated needs that sustain the system – which constitute, above all, an

⁵⁴³ Hamza Hamouchene and Katie Sandwell, eds., *Dismantling Green Colonialism: Energy and Climate Justice in the Arab Region* (London: Pluto Press, 2023), 5.

⁵⁴⁴ Brodie, “Smarter, Greener Extractivism,” 1064, 1067.

⁵⁴⁵ Couldry and Mejias, *The Costs of Connection*, 17; Moore and Patel, “Unearthing the Capitalocene,” 24.

⁵⁴⁶ Couldry and Mejias, *The Costs of Connection*, 17.

⁵⁴⁷ Jason Moore and Raj Patel, “Unearthing the Capitalocene: Towards a Reparation Ecology,” *Roar Magazine*, 2017, 18.

⁵⁴⁸ Clément Sénéchal, “En finir avec la sensibilisation,” *Frustration Magazine*, June 9, 2026, <https://frustrationmagazine.fr/finir-sensibilisation>.

⁵⁴⁹ Sénéchal, “En finir avec la sensibilisation.”

anti-imperial and decolonial project.⁵⁵⁰ For Hickel and Varoufakis, it is long overdue that we democratise our economy, rearticulating it around the axes of social and environmental thriving,⁵⁵¹ while Moore and Patel conceptualise “reparation ecology” as a vision grounded in equality and redistribution of “care, land and work”, unveiling the entire web of human interactions of any form of exploitation and violence.⁵⁵² For Murphy, the most powerful global emitters shall demonstrate a sort of “magnanimity” in efforts to address the climate crisis,⁵⁵³ – though this should not rest upon their goodwill but be framed as a historical imperative to redress past and disproportionate misdeeds.

But how do we operationalise transformative climate justice? It requires mobilising all social forces to dismantle all systemic inequalities, with the climate crisis featuring as the overarching context. As Sultana aptly argues, this entails challenging “fossil fuel dependency, capitalist growth imperatives, extractive exploitation, democratic deficits, racial capitalism, and indigenous erasure”.⁵⁵⁴ Uncovering the root causes of the crisis constitutes the first step towards overturning it. It further requires systemic reform through legally binding international accountability mechanisms rooted in historical emissions.⁵⁵⁵ Accountability remains a core claim in climate justice discourse, with Fry identifying “fossil industry elites and the politicians they sponsor” as responsible for human rights violations.⁵⁵⁶ Moreover, binding due diligence and reporting obligations across supply chains and digital infrastructures, backed by sanctions, merit meticulous focus.⁵⁵⁷ Besides, accessible redress mechanisms enabling vulnerable communities to seek justice for damages incurred, compounded by legal tools “determining criminal, civil or administrative liability”, can provide “comprehensive restitution and guarantee of non-repetition”.⁵⁵⁸ Regulatory frameworks should be complemented

⁵⁵⁰ Loach, *It's Not That Radical*, 117-120.

⁵⁵¹ Hickel and Varoufakis, “We Can Move Beyond the Capitalist Model.”

⁵⁵² Moore and Patel, “Unearthing the Capitalocene,” 27.

⁵⁵³ Susan P. Murphy, “Global Political Processes and the Paris Agreement: A Case of Advancement or Retreat of Climate Justice?,” in *Routledge Handbook of Climate Justice*, ed. Tahseen Jafry, 1st ed. (London: Routledge, 2019), 71.

⁵⁵⁴ Sultana, “Critical Climate Justice,” 119.

⁵⁵⁵ Jha, Tolosa, and Ramirez, “Rethinking Climate Justice in the Digital Age,” 43, table 1 (a-d).

⁵⁵⁶ Fry, *Promotion and Protection of Human Rights*, para. 74.

⁵⁵⁷ Vijayarasa, “Not Fit for Purpose,” 13; Muldoon et al., “The Poverty of Ethical AI: Impact Sourcing and AI Supply Chains,” *AI & Society* 40, no. 2 (2023): 541, <https://doi.org/10.1007/s00146-023-01824-9>.

⁵⁵⁸ Fry, *Promotion and Protection of Human Rights*, para. 92 (h).

by empowering domestic jurisdictions across the Global South to engage in climate and labour rights litigation,⁵⁵⁹ while the judiciary can play a critical role in this vein.⁵⁶⁰

Furthermore, financial reparations shall be institutionalised to achieve structural efficiency, while climate debt cancellation would enable low-income states to pursue climate adaptation free from unsustainable financial constraints.⁵⁶¹ Climate finance and technology transfers should be allocated equitably and transparently,⁵⁶² aspiring to recalibrate global disparities. Besides, digital innovation can also support a green and equal transformation, provided that questions of control, access, benefit-sharing and decision-making are placed at the centre, as OXFAM highlights.⁵⁶³ The ICJ, in its 2025 Advisory Opinion on Climate Change, recognised climate action as a matter of existential urgency extending beyond the legal realm, requiring interdisciplinary expertise and foremost, “human will and wisdom”, indispensable for societal and individual transformation.⁵⁶⁴ Chakraborty and Sherpa stress the imperative for meaningful engagement among multidisciplinary scholars, scientists and policy-makers,⁵⁶⁵ while Jha, Tolosa, and Ramirez call for “mainstream intersectionality into climate governance”, recognising overlapping social vulnerabilities.⁵⁶⁶

Nevertheless, the climate justice movement remains stagnant. Gardiner identifies three structural barriers of global political inertia: first, a “tragedy of the commons” situation in which emissions transcend geographical boundaries and disproportionately harm those least responsible and least equipped and resilient to respond – an illustrative case of the “mismatch of vulnerability and responsibility”; second, the intergenerational challenge of deferring costs and harms onto future generations – an ethically corrupt logic; and third, the absence of a compelling theoretical framework to overcome continued – vital in the face of a rapidly accelerating crisis.⁵⁶⁷

Yet this inertia does not occur in a vacuum. It is underwritten and sustained by the global financial architecture that enables the extractive and exploitative status quo to operate relentlessly.

⁵⁵⁹ Vijayarasa, “Not Fit for Purpose,” 17.

⁵⁶⁰ Emeline Pluchon, “Leading from the Bench: The Role of Judges in Advancing Climate Justice and Lessons from South Asia,” in *Routledge Handbook of Climate Justice*, ed. Tahseen Jafry (London: Routledge, 2019), 139.

⁵⁶¹ Jha, Tolosa, and Ramirez, “Rethinking Climate Justice in the Digital Age,” 43.

⁵⁶² Ibid.

⁵⁶³ Oxfam, *Climate Equality*, 72; Anthony B. Atkinson, *Inequality: What Can Be Done?* (Cambridge: Harvard University Press, 2015).

⁵⁶⁴ ICJ, *Obligations of States in Respect of Climate Change*, Advisory Opinion, para. 456.

⁵⁶⁵ Chakraborty and Sherpa, “From Climate Adaptation to Climate Justice,” 10.

⁵⁶⁶ Jha, Tolosa, and Ramirez, “Rethinking Climate Justice in the Digital Age,” 43.

⁵⁶⁷ Gardiner, “Climate Justice,” 313-314.

It is the financial actors who facilitate fossil fuel and raw materials extraction and the expansion of the digital economy by directing capital flows towards corporations responsible for generating climate harm; without their funds, they would not be able to continue business as usual. The issue, therefore, is not a lack of resources but their channelling towards systems that perpetuate climate breakdown – or even more so, towards structures that hamper its restoration. Thus, redirecting capital, including through taxation of wealth and corporations, is key for meaningful change.⁵⁶⁸

The political stakes of the crisis are equally profound. Monbiot contends that the climate emergency and the political erosion are two sides of the same coin,⁵⁶⁹ a view echoed by Varoufakis who claims that capitalism's digital transformation results in a democratic deficit.⁵⁷⁰ This raises a substantial question: can climate justice be achieved within current socio-economic structures, or does it require their deeper dismantlement?⁵⁷¹ As several scholars contend, crises rooted in the very foundations of the modern global system cannot be sustainably addressed within it.⁵⁷²

In my view, these premises necessitate dismantling. For decades, harmful practices have been normalised and capitalist underlying inequalities obfuscated. As Todd and Davis suggest, we should seek not only to re-evaluate our reliance on fossil fuels, but also to reshape our governance, justice, and the natural and social order we wish to inhibit.⁵⁷³ Such transformations should further entail decolonisation processes: granting reparations, returning ancestral territory and enabling the exercise of indigenous communities' minimal rights and self-governance.⁵⁷⁴ For Loach, climate justice offers an unparalleled opportunity to “undo colonial harm” but also class, gender and racial violence.⁵⁷⁵ Hickel and Slameršak call for a “radical convergence” around collective prosperity,⁵⁷⁶ while Bond advocates for a radical “rebooting” of global finance, centring labour and vulnerable

⁵⁶⁸ Oxfam, *Climate Equality*, 49.

⁵⁶⁹ George Monbiot, “We Need to Be Honest about Iran – and How Our Rampant Greed for Oil Is Causing Mayhem,” *The Guardian*, March 19, 2026, <https://www.theguardian.com/commentisfree/2026/mar/19/iran-greed-oil-capitalism-regimes>.

⁵⁷⁰ Varoufakis, *Technofeudalism*, 169.

⁵⁷¹ Jafry, Mikulewicz, and Helwig, “Introduction: Justice in the Era of Climate Change,” 4.

⁵⁷² Bartmann and Halsband, “Climate Justice: Ethical Aspects”, 31-32.

⁵⁷³ Davis and Todd, “On the Importance of a Date,” 776; Janae Davis et al., “Anthropocene, Capitalocene, ... Plantationocene?: A Manifesto for Ecological Justice in an Age of Global Crises,” *Geography Compass* 13, no. 5 (2019): 12, <https://doi.org/10.1111/gec3.12438>; Clark and Gunaratnam, “Exorbitant Responsibility,” 73.

⁵⁷⁴ Davis and Todd, “Importance of a Date,” 774; IACtHR, Advisory Opinion AO-32/25, para. 340.

⁵⁷⁵ Loach, *It's Not That Radical*, 43-44.

⁵⁷⁶ Hickel and Slameršak, “Existing Climate Mitigation Scenarios,” e630.

communities.⁵⁷⁷ For Foran, radicalisation shall start within the climate justice movement itself, popularising and transforming activism into imaginative processes of justice and democracy beyond climate targets, while “a commitment to social justice” shall lie at the core of climate action.⁵⁷⁸ It shall build on solidarity amongst movements, empowering them mutually.⁵⁷⁹

A vision of positive, transformative and radical social change,⁵⁸⁰ what Esteva calls “joyful militancy”,⁵⁸¹ should guide climate strategies, and a belief in “a new political culture of resistance and creation” can offer an alternative to the status quo.⁵⁸² Loach contends that “there is simply no other way to radically transform the world than to believe in it and do it”,⁵⁸³ and I stand as her ally.

⁵⁷⁷ Bond, “Who Wins From ‘Climate Apartheid’?,” 87.

⁵⁷⁸ Foran, “Reimagining Radical Climate Justice,” 151, 158.

⁵⁷⁹ Jafry, Mikulewicz, and Helwig, “Introduction: Justice in the Era of Climate Change,” 4; Foran, “Reimagining Radical Climate Justice,” 158.

⁵⁸⁰ Foran, “Reimagining Radical Climate Justice,” 162; Loach, *It’s Not That Radical*, 236, 239-241.

⁵⁸¹ Gustavo Esteva, “The Ecology of Joy in Our Radical Movements and Spaces,” *Earthling Opinion*, July 31, 2014, <https://earthlingopinion.wordpress.com/2014/07/31/the-ecology-of-joy-in-our-radical-movements-and-spaces/>.

⁵⁸² Foran, “Reimagining Radical Climate Justice,” 151.

⁵⁸³ Loach, *It’s Not That Radical*, 235.

DECLARATION OF USE OF AI

I acknowledge the use of artificial intelligence-based tools for language editing and proofreading throughout this thesis. In particular, I used Gemini for assistance with footnotes and bibliography, and Grammarly and ChatGPT for grammatical, syntactic and linguistic improvements, with all AI-generated suggestions critically assessed and selectively synthesised.

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