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ORIGINAL ARTICLE

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Navigating transformations: Climate change and international law

Laura Mai*

Department of Public Law and Governance, Tilburg University, Tilburg, The Netherlands
Email: l.a.mai@tilburguniversity.edu

Abstract

The global climate crisis response envisioned by the Paris Agreement is commonly understood as demanding transformative change. International law, however, lacks a holistic conceptual framing for making sense of what such change would entail, how it might unfold, and who and what it will involve. Moreover, there has been little critical engagement with the question of what is at stake when invoking the notion of transformation. Contributing to the broader debate about what the climate crisis demands of international law, this article offers a critical conceptual appraisal of the notion of 'transformation'. Conceptually, it describes transformative dynamics as processes which work towards radically different states of affairs that seem practically impossible under the status quo, but which could arguably be realized if different conditions were in place. Developing an ontology of transformative change, the article identifies heterogenous temporality, the actualization of impossible possibilities, and distributed engagement as three central features of transformations in climate crisis. Having laid the conceptual groundwork, the article then takes a critical turn and foregrounds unresolved tensions that run through transformation thinking. The aim here is to connect to critical discourses and show how these tensions can serve as entry points for international law to meaningfully engage with the notion of transformation. The article closes by offering some reflections on what engagement with the notion of transformation might mean for international law's disciplinary identity, rationale, and sense of purpose.

Keywords: climate change; critical transformation thinking; international law; ontology of change; Paris Agreement

1. International law after COP21: The imperative for transformative change

International law has a history of mobilizing conceptual tropes for articulating its identity, rationale, and sense of purpose. It has, for instance, been described as a discourse and discipline 'for', 'about', 'in', and 'of' crisis.[1] As this eclectic linguistic offering suggests, the notion of 'crisis'

*I thank Hans Lindahl for generous and constructive comments. I presented early drafts of this article at the 'Constitutionalizing in the Anthropocene' and 'Jurisprudence, Law, and Philosophy' seminars at Tilburg University, and at a workshop organized by the 'Transformative Effects of Globalisation in Law' network at the University of Amsterdam. I am grateful to all seminar and workshop participants for their comments and responses.

[1]J. d'Aspremont, 'International Law as a Crisis Discourse: The Peril of Worldlessness', in M. M. Mbengue and J. d'Aspremont (eds.), *Crisis Narratives in International Law* (2022), 69, at 71–4; H. Charlesworth, 'International Law: A Discipline of Crisis', (2002) 65 MLR 377. See also A. Orford, 'The Destiny of International Law', (2004) 17 LJIL 441; R. Domingo, 'The Crisis of International Law', (2009) 42 *Vanderbilt Journal of Transnational Law* 1542; W. van Genugten and M. Bultermann, 'Crisis: Concern and Fuel for International Law and International Lawyers', (2013) 44 *Netherlands Yearbook of International Law* 1; D. Otto, 'Decoding Crisis in International Law: A Queer Feminist Perspective', in B. Stark (ed.),

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performs multiple functions for international law. Understood as calamitous moments that deviate from the ordinary run of events, certain instances have selectively been labelled as crises, in particular moments which have significantly shaped the development of international legal norms and practice.[2] Moreover, notions of crisis, as inscribed in the disciplinary logic, sustain the managerialist and solutionist ethos that undergirds international law;[3] and the crisis trope has also been mobilized to articulate discontents with the international legal status quo.[4] The foregoing examples illustrate how the notion of 'crisis' has shaped disciplinary practice and why, by consequence, it warrants careful attention.

In the context of the unfolding climate crisis, perhaps paradoxically, an alternative notion has subversively been (re-)entering the conceptual repertoire of international law: the notion of 'transformation'. Following the adoption of the Paris Agreement at the 21st Conference of the Parties to the UN Framework Convention on Climate Change (COP21) in 2015, international climate law scholars, policy professionals, and climate scientists have begun to describe the treaty as demanding transformative change.[5] In the words of the Intergovernmental Panel on Climate Change (IPCC), reaching the most ambitious temperature goal of the Paris Agreement – limiting global warming to 1.5°C –[6] would require 'the world ... to transform in a number of complex and connected ways'.[7] Building on this perspective, Christina Voigt argues that '[a]ddressing climate change ... will require a global transformation', pointing out that '[i]nternational law is an important tool in this transformation' and that 'international lawyers are the ones to apply it'.[8]

Yet, eight years after the adoption of the Paris Agreement, it is evident that the global community is failing – by a long way – to act on the imperative for transformative change. There exists a gap between the de jure aspirations of the Paris Agreement – the goals articulated in Article 2(1) of the treaty, and the political agenda regarding its implementation. What the Agreement aims to achieve on paper does not match how implementation is being pursued in practice. Greenhouse gas emissions have reached new records, with the onset of the COVID-19 pandemic marking only a temporary dip in global emission trends;[9] people, places, and creatures

International Law and its Discontents: Confronting Crises (2015), 115. These references illustrate how the crisis trope has been taken up by modern international law. For a very brief introduction to its historical use see P. Sands, 'Crisis and its Curators: A Preface', in Mbengue and d'Aspremont, ibid., at vii.

[2]See Charlesworth,ibid.

[3]K. Mickelson, 'Between Crisis and Complacency: Seeking Commitment in International Environmental Law', (2014) 44 *Netherlands Yearbook of International Law* 139.

[4]See, e.g., Stark, *supra* note 1.

[5]L. Hermwille, 'Climate Change as a Transformation Challenge: A New Climate Policy Paradigm?', (2015) 25 *Gaia* 19; R. Kinley, 'Climate Change after Paris: From Turning Point to Transformation', (2016) 17 *Climate Policy* 9; L. Rajamani, *Innovation and Experimentation in the International Climate Change Regime* (2020), at 26: climate change 'can be addressed only if all the major GHG [greenhouse gas] emitters are willing to undertake potentially costly, large-scale transformations in their economic and energy systems ... such transformations require buy-in from citizens, and a corresponding willingness to modify behavioural patterns, adjust lifestyles, and rethink development aspirations. It demands change and sacrifice'.; N. Singh Ghaleigh, 'Article 2: Aims, Objectives and Principles', in G. van Calster and L. Reins (eds.), *The Paris Agreement on Climate Change: A Commentary* (2021), 73, at 87: 'The task of delivering the sort of transformational change necessary to achieve the mitigation necessary to match the ambition of the PA's [Paris Agreement] Article 2 is almost unimaginable'; R. Bodle and V. Noens, 'Climate Finance: Too much Detail, Too Little on the Big Picture', (2018) 3 CCLR 248, at 253: 'Article 2(1)(c) [of the Paris Agreement] has a transformational objective with huge potential implications in the real world'.

[6]UNFCCC, Decision 1/CP.21: Adoption of the Paris Agreement, FCCC/CP/2015/10/Add.1 (2015), Annex, Art. 2(1)(a).

[7]'Global Warming of 1.5°C: An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-industrial Levels and Related Global Greenhouse Gas Emission Pathways in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty', Geneva: Intergovernmental Panel on Climate Change, 2018, at 392, available at www.ipcc.ch/sr15/.

[8]C. Voigt, 'ANZSIL Conference Keynote 2019: Climate Change, the Critical Decade and the Rule of Law', (2020) 37 *Australian Year Book of International Law* 50, at 50.

[9]'Emissions Gap Report 2023: Broken Record. Temperatures Hit New Highs, yet World Fails to Cut Emissions (Again)', Nairobi: UN Environment Programme, 2023, at xvi, available at wedocs.unep.org/bitstream/handle/20.500.11822/43922/EGR2023.pdf?sequence = 3&isAllowed = y.

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across all regions are now undeniably suffering from climate impacts, with those least responsible and most vulnerable hit hardest;[10] and political willingness, or 'ambition' as it is couched in international climate policy speak, to bring about required change remains low – Nationally Determined Contributions (NDCs), climate pledges which Article 4(2) of the Paris Agreement requires governments to submit – remain 'highly insufficient' to meet the goals of the treaty.[11] Given these dire prospects, scientific doomsday scenarios which see the Earth irreversibly entering a 'hothouse state'[12] no longer appear as distant dystopias but emerge as real possibilities that warrant serious consideration.[13] The bottom line: instead of transformation, we see a continuation of business-as-usual. Carbon continues to drive the current socio-economic metabolism, with those responsible refusing to seriously deconstruct existing ways of doing things and setting in motion required processes of change.

If, despite these failures and on-going challenges, international law chooses to hold on to conceiving of the Paris Agreement as demanding transformative change, it will be necessary to 'rethink which elements of the international legal system are fit for a transformative change, which need to be reformed – and which need to be discharged'.[14] This article contributes to this project by beginning to formulate an analytically robust and normatively meaningful concept of transformation. In so doing, it engages with the following questions: Is it possible to arrive at an analytically useful understanding of transformative change? What is at stake when invoking the notion of transformation to make sense of post-COP21 international (climate) law? And, which demands does the logic of transformation make on international law as a discipline? These questions are salient given that, to date, only few contributions have explored the role of law in transformation processes, primarily in the context of specific sectors and jurisdictions.[15] As a result, legal thinking and praxis lacks a holistic conceptual framework of transformation. Moreover, the normative implications of invoking the notion of transformation have not widely been discussed: 'Transformation means different things to different people or groups, and it is not always clear what exactly needs to be transformed and why, whose interest these transformations serve, and what will be their consequences.'[16] As international legal theory is only beginning to engage with the ways in which the climate crisis demands reconfiguration of its conceptual repertoires,[17] reflections on what the notion of transformation might mean for the disciplinary constitution of international law, its identity, rationale, and sense of purpose, are timely and warrant attention.

To be clear, this article does not engage with the question of what transformative international law may look like – in terms of normative substance, specific techniques that characterize international legal knowledge practices, and institutional and procedural infrastructures that support the working of the international legal machinery. Rather, the article focuses on the critical anterior question of what transformative change actually is. Thus, rather than seeing engagement with the notion of transformation as a matter of ideation or semantics, the position taken here is

[10]'Climate Change 2022: Impacts, Adaptation and Vulnerability: Summary for Policymakers', Geneva: Intergovernmental Panel on Climate Change, 2022, at 9, available at www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf.

[11]'The Closing Window: The Climate Crisis Calls for Rapid Transformation of Societies', Nairobi: United Nations Environment Programme, 2022, at 32, available at www.unep.org/resources/emissions-gap-report-2022.

[12]W. Steffen et al., 'Trajectories of the Earth System in the Anthropocene', (2018) 115 PNAS 8252.

[13]L. Kemp et al., 'Climate Endgame: Exploring Catastrophic Climate Change Scenarios', (2022) 119 PNAS e2108146119.

[14]See Voigt, *supra* note 8, at 60.

[15]See, e.g., M. Bowman, *Banking on Climate Change: How Finance Actors and Transnational Regulatory Regimes are Responding* (2015), 149–68, 237–43; G. Ludwig, 'The Role of Law in Transformative Environmental Policies – A Case Study of "Timber in Buildings Construction in Germany"', (2018) 11 *Sustainability* 842; F. Ekardt, *Theorie der Nachhaltigkeit: Ethische, rechtliche, politische und transformative Zugänge – am Beispiel von Klimawandel, Ressourcenknappheit und Welthandel* (2016), 89–96 and Ch. 2.

[16]K. O'Brien, 'Global Environmental Change II: From Adaptation to Deliberate Transformation', (2012) 36 *Progress in Human Geography* 667, at 670.

[17]See, e.g., d'Aspremont, *supra* note 1, at 77–84.

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that it matters – in political and legal terms – how we make sense of it. Accordingly, before seeking to evaluate, assess, and suggest in what ways international law is, and how it should become, implicated in transformations, it is essential to first develop an understanding of what transformations entail, how they unfold, and who and what is involved. The hope is that an analytically robust and normatively meaningful notion of transformation can help to hone sensitivities for unmasking conceptual greenwashing and co-option and provide tools to call out endeavours that perpetuate the status quo under the guise of addressing the climate crisis. At the same time, the article offers some suggestions for how international law, as a discipline, may open up spaces that would allow to reflect on how it could further engage with the notion of transformation.

Making a critical conceptual intervention in emerging debates about international law following COP21, the article brings together strands of literature which, based on their own disciplinary presuppositions, have engaged with notions of transformation. These include human geography, sustainability governance, cultural anthropology, and political theory. Synthesizing insights from these literatures, the article begins by distinguishing the concept of transformation from related notions of 'transition' and 'adaptation' (Section 2), and it describes in what ways the transformation framing can help to make explicit what implementing the Paris Agreement will involve (Section 3). Section 4 then lays out the bulk of the article's conceptual work. Offering an ontology of transformative change, it identifies three central features of transformation processes: (i) a heterogenous temporality that combines climate pasts, presents, and futures across social and geological time scales; (ii) the actualization of what is practically unworkable under current conditions, but which can already be imagined and prefigured; and (iii) distributed forms of engagement which navigate, on the one hand, dynamics of dialogue and collaboration and those of resistance and contestation, on the other. Having elaborated on three central features of transformation processes, Section 5 takes a critical turn and reflects on what is at stake when invoking the notion of transformation. It identifies unresolved tensions inherent in the transformation literatures and shows how international law might engage with them. Section 6 offers some concluding reflections on what the notion of transformation might mean for the discipline of international law.

2. What's in a concept? On transformation and the current critical moment

At the beginning of the twentieth century, Karl Polanyi famously described the rise of the market economy, and the concomitant overturning and replacement of prevailing societal structures, institutions, ideas, and norms, as 'the great transformation'.[18] More recently, automobilization has been described as a process of transformation that shifted societies to a new state of affairs.[19] These historical examples reveal a key characteristic of transformations: a movement beyond what currently exists and what is deemed to be possible under the status quo. In the context of climate change and sustainability governance, the concept of transformation is commonly used alongside notions of 'adaptation' and 'transition'.[20] While these concepts are clearly related, in the sense that they describe change processes, each refers to a qualitatively different manifestation of change. Specifically, the notion of 'adaptation' refers to reactive adjustments which occur in response to changing conditions,[21] while the term 'transition' denotes a process of 'going across',[22] thus

[18]See K. Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (1944).

[19]B.-O. Linnér and V. Wibeck, *Sustainability Transformations: Agents and Drivers Across Societies* (2019), 28–56.

[20]See M. Pelling, *Adaptation to Climate Change: From Resilience to Transformation* (2011); K. Hölscher, J. M. Wittmayer and D. Loorbach, 'Transition versus Transformation: What's the Difference?', (2018) 27 *Environmental Innovation and Societal Transitions* 1.

[21]Oxford English Dictionary Online, 'adaptation, n.', available at www.oed.com/view/Entry/2115?redirectedFrom=adaptation#eid.

[22]Oxford English Dictionary Online, 'transition, n.', available at www.oed.com/view/Entry/204815?isAdvanced=false&result=1&rskey=QYEshw&.

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implying movement from one state or condition to another. Crucially, both adaptation and transition describe dynamics of change which, at least to some extent, seek to retain functional or structural features of the phenomenon that undergoes change. By contrast, the term 'transformation' describes changes in form that lead to profound shifts which affect the defining attributes of the 'thing' which is being transformed.[23] A metaphor which is regularly mobilized to illustrate the quality of transformative change is that of chrysalis. American feminist writer Rebecca Solnit offers a beautiful example:

> When a caterpillar enters its chrysalis, it dissolves itself, quite literally, into liquid. In this state, what was a caterpillar and will be a butterfly is neither one nor the other, it's a sort of living soup ... that will catalyse its transformation into winged maturity.[24]

Solnit describes a transformation that encompasses three distinct forms of existence: the caterpillar, the 'living soup', and the butterfly. By contrast, and drawing on a second comparison, the development of a female calf, to heifer, and finally cow is more adequately described as a transition. Here, the animal does not change its form but matures, thereby 'going across' – transitioning – from one state to the next. Over the course of its life the animal will continuously adapt to changing conditions, such as variations in water supply and temperature. These adaptive responses are adjustments which do not affect the form of the animal. Transformative change, by contrast, centrally implicates and reconfigures defining attributes of that which is being transformed: the appearance of something, its functioning, logic, capacities, and purpose. It, thus, is the quality of change which renders transformations transformative.

To develop a more nuanced conceptual understanding of transformations, then, it is necessary to engage with the phenomenon of change. How is change produced? What does it involve? Where does it come from, and what does it lead to? Drawing on Aristotle, Aquinas, and Marx, legal philosopher Hans Lindahl describes how theories of change centrally turn on the relation between the real and the possible.[25] He explains how, according to Greek thinking, change unfolds in the bringing into being of possibilities that present themselves 'in the perceptual world as already actual or existent'.[26] From this perspective, possibilities, while not yet enacted, are already inherent in the status quo.[27] Contrasting Aristotle's conception of change with Marxist thinking, Lindahl shows how the latter emphasizes human agency to de- and re-make the existing, in the sense that humans are seen to have the capacity to enact possibilities that are not contradicting the status quo: 'in the face of an extant world rife with internal contradictions, human action can call into being a world that meets the condition of non-contradiction'.[28] Building on Lindahl's theoretical work, this article posits that the concept of transformation radicalizes the relation between the real and the possible that is constitutive of modern understandings of change. Rather than seeking to actualize what is possible, transformative change renders real what appears *im*possible – what emerges as unworkable, impracticable, unrealistic, or futile under the status quo.[29] Crucially, however, in directing itself towards the actualization of what seems unworkable, transformations seek to render real what could logically be brought into being under a radically changed state of affairs.

[23]Oxford English Dictionary Online, 'transformation, n.', available at www.oed.com/view/Entry/204743?redirectedFrom=transformation&.

[24]R. Solnit, 'The Impossible has Already Happened: What Coronavirus can Teach us about Hope', *Guardian*, 7 April 2020, available at www.theguardian.com/world/2020/apr/07/what-coronavirus-can-teach-us-about-hope-rebecca-solnit.

[25]H. Lindahl, 'Possibility, Actuality, Rupture: Constituent Power and the Ontology of Change', (2015) 22 *Constellations* 163.

[26]H. Lindahl, *Welfare and Enlightenment: An Enquiry into the Rational Foundations of the Welfare State* (1995), at 71.

[27]See Lindahl, *supra* note 25, at 164.

[28]Ibid., at 165.

[29]B. Waldenfels, *Grundmotive einer Phänomenologie des Fremden* (2018), at 31: describing the impossible as something 'foreign' which lies outside of the existing order and exceeds the scope of 'lived possibility' of that order (author's translation).

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Transformative change, thus, entails the bringing into being of what appears to be impossible under the status quo, but which would not be irrational or paradoxical if one assumed a different state of affairs. Returning to the metaphor of chrysalis: Looking at the caterpillar, the capacity to fly is a practical impossibility for the animal; yet, in its transformed state, it is entirely possible that the butterfly will fly. Flying, from the caterpillar's point of view, is thus an impossible possibility; something impossible that is rendered possible through a change in form – a trans*form*ation. Unlike chrysalis, however, transformations are not innate, organic, or automatic processes. Rather, as the following sections detail, transformations are political projects that involve contestation, struggle, and resistance.

3. Implementing the Paris Agreement: A project of transformation?

In light of the foregoing reflections, it is possible to begin to see how the notion of transformation can help to make sense of what implementing the Paris Agreement will entail. Here, the emphasis on implementation is key. Whereas ahead of COP21 the imperative of the international climate regime had been to broker consensus on a new internationally binding climate instrument through inter-governmental negotiations, with the adoption of the Paris Agreement and the finalization of the 'Paris Rulebook'[30] – the ensemble of COP decisions setting out the operational details of the treaty – central questions now concern how to work towards the goals of the Agreement. As Lavanya Rajamani and Daniel Bodansky already wrote in 2019:

> With the adoption of most elements of the Paris Rulebook, the UN climate regime can now focus on the implementation of the Paris Agreement ... [it] largely completes the negotiation process and allows a shift in focus from negotiation to implementation.[31]

This section sets out how the notion of transformation captures this shift; specifically, how it – compared to earlier conceptual models – allows to put questions of implementation centre stage.

First, the transformation framing makes explicit that the mainstream of Western ('developed') societies cannot continue doing things in the ways they have become used to. There is both a need to stop certain activities, to un-learn and un-do, and a need to experiment with and give resonance to alternatives. While the former can be understood as the 'negative' side of transformation processes that repudiates, the latter implies 'positive', or generative, dynamics. By insisting on both dimensions, the notion of transformation makes clear that the climate crisis cannot be addressed solely by introducing new technologies and practices. It thus provides a powerful counterpoint to narratives that 'green' growth and technological innovation, in themselves, could provide adequate answers. Instead, it makes explicit that the mainstream of Western societies must wean itself from greenhouse gas emissions while giving resonance to alternative ideas.

Second, in addition to countering dangerous narratives of green growth and naïve beliefs in techno-fixes, the transformation framing is attuned to all three elements envisioned by Article 2(1) of the Paris Agreement: climate mitigation (attempts to reduce greenhouse gas emissions), climate adaptation (efforts to prepare for climate impacts), and climate finance (making available funding for mitigation and adaptation projects). Traditionally, it was the collective action paradigm which shaped understandings of climate change as a legal and political

[30]For a full list of Decisions of the Conference of the Parties to the Paris Agreement which, together, constitute the Paris Rulebook see: UNFCCC, Decision 3/CMA.1: Matters Relating to the Implementation of the Paris Agreement, FCCC/PA/CMA/2018/3/Add.1 (2019), para. 4.

[31]L. Rajamani and D. Bodansky, 'The Paris Rulebook: Balancing International Prescriptiveness with National Discretion', (2019) 68 ICLQ 1023, at 1025. See also D. Held and C. Roger, 'Three Models of Global Climate Governance: From Kyoto to Paris and Beyond', (2018) 9 *Global Policy* 527, at 527.

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problem; in particular (but not exclusively) at the international level.[32] Applying an economic perspective and focusing on mitigation, the collective action paradigm conceptualizes the atmosphere and its absorptive capacity as 'global public goods' – 'non-rivalrous' and 'non-excludable' resources to which access cannot be restricted and which multiple actors use simultaneously.[33] Combined with insights from game theory, collective action foregrounds individual actors' immediate and rational self-interests to keep emitting.[34] From this perspective, it is incentives to 'free ride' and delay mitigation action which emerge as central determinants of climate law and politics.[35] Applying the collective action paradigm, scholarship on international climate co-operation analysed law-making practices that enable inter-governmental consensus-building,[36] and proposed legal and institutional designs to apportion responsibility and ensure reciprocity among states.[37]

While the collective action paradigm offered a suitable frame for understanding the complexities of inter-governmental negotiations relating to mitigation, climate adaptation and climate finance (as two further dimensions of the Paris Agreement) do not necessarily fit this frame. Dispersed and varying climate impacts mean that unilateral adaptation action is possible, effective, and necessary; in particular at national and local levels, where the needs, interests, and capacities of affected communities, places, and creatures can be more directly and adequately accounted for.[38] Moreover, in respect of finance, Article 2(1)(c) of the Paris Agreement envisages the 'alignment' of 'finance flows' with the mitigation and adaptation goals of the treaty. Importantly, the notion of 'finance flow' departs from the traditional concept of 'climate finance'. Whereas the latter was primarily used to refer to financial support provided by developed to developing countries,[39] the notion of finance flow is broader. It encompasses not only public climate finance but also funds made available by private institutions, and it has been associated with the activities of regulators and other actors that shape financial markets.[40] Given its traditional focus on inter-governmental dynamics at the international level and the self-interests of states as rational actors, the collective action framing is unable to fully account for the Paris Agreement's aspirations in respect of climate adaptation and finance. And while ideas of

[32]See, e.g., D. Bodansky, 'The United Nations Framework Convention on Climate Change: A Commentary', (1993) 18 *Yale Law Journal* 451, at 471 note 127; N. Stern, *The Economics of Climate Change: The Stern Review* (2006), 453–4; D. H. Cole, 'Climate Change and Collective Action', (2008) *Current Legal Problems* 229; J. Peel, 'Climate Change Law: The Emergence of A New Legal Discipline', (2008) 32 *Melbourne Law Review* 923, at 971; E. Ostrom, 'Nested Externalities and Polycentric Institutions: Must We Wait for Global Solutions to Climate Change Before Taking Actions at Other Scales?', (2010) 49 *Economic Theory* 353; D. Kysar, 'What Climate Change Can Do About Tort Law', (2011) 41 *Environmental Law* 1, 3–4; T. Townsend et al., 'Legislating Climate Change on a National Level', (2011) 53 *Environment: Science and Policy for Sustainable Development* 5, at 5; D. Bodansky, J. Brunnée and L. Rajamani, *International Climate Change Law* (2017), at 2–3.

[33]See M. Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups* (1965); T. Sandler, *Global Collective Action* (2004).

[34]S. Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-making* (2003); P. J. Wood, 'Climate Change and Game Theory', (2011) 1219 *Annals of the New York Academy of Science* 153; P. Chander, *Game Theory and Climate Change* (2018).

[35]T. Bernauer, 'Climate Change Politics', (2013) 16 *Annual Review of Political Sciences* 421, at 424.

[36]J. Brunnée, 'COPing with Consent: Law-Making under Multilateral Agreements', (2002) 15 LJIL 1.

[37]See, e.g., D. G. Victor, *Global Warming Gridlock: Creating More Effective Strategies for Protecting the Planet* (2011); D. C. Etsy and A. L. I. Moffa, 'Why Climate Change Collective Action Has Failed and What Needs to be Done Within and Without the Trade Regime', (2012) 12 *Journal of International Economic Law* 777; W. Nordhaus, 'Climate Clubs: Overcoming Free-Riding in International Climate Policy', (2015) 105 *American Economic Review* 1339; R. O. Keohane and D. G. Victor, 'Cooperation and Discord in Global Climate Policy', (2016) 6 *Nature Climate Change* 570; S. Carattini, S. Levin and A. Tavoni, 'Cooperation in the Climate Commons', (2019) 13 *Review of Environmental Economics and Policy* 227.

[38]T. Chung Tiam Fook, 'Transformational Processes for Community-Focused Adaptation and Social Change: A Synthesis', (2017) 9 *Climate and Development* 5.

[39]A. Zahar, *International Climate Finance Law* (2017), at 23.

[40]See Bodle and Noens, *supra* note 5; M. Bowman, 'Turning Promises into Action: "Legal Readiness for Climate Finance" and Implementing the Paris Agreement', (2022) 16 CCLR 41.

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'polycentric governance' extended the collective action paradigm to account for public and private actor involvement across multiple levels,[41] as Sections 4.2 and 4.3 (below) will show, the transformation framing more adequately acknowledges the central role of collectives in the political and social realm.[42]

Third, the transformation framing highlights the temporal aspects of the climate crisis. As the IPCC has made undeniably clear, the next few years are decisive for actualizing the changes which may allow achieving the Paris Agreement goals by mid-century.[43] While the collective action paradigm cannot fully account for the urgency and the complex relationship between climate pasts, presents, and futures, the transformation framing complicates traditional understandings of time as a linear phenomenon and makes explicit the urgency of taking action. Simply put, efforts to reduce emissions, increase resilience, and provide finance can no longer be reduced to questions of self-interest, reciprocity, and trust that exist in a time vacuum. Rather, in this critical moment, the temporality of the climate crisis has to be explicitly acknowledged and accounted for.

Finally, the notion of transformation advocates, to borrow a phrase from cultural anthropologist Arjun Appadurai, an 'ethics of possibility' that can function as a normative guide.[44] On their own, traditional normative premises, specifically those relating to climate justice and economic efficiency, have proven insufficient.[45] The transformation framing is a potential candidate for filling this gap. It makes clear that an essential part of the global climate crisis response will be to cultivate alternative ways of imagining, thinking, feeling, acting, and relating with a view to rendering real impossible possibilities.

Evidently, the transformation framing is not the first attempt to re-conceptualize climate change. The climate crisis has been described as a decarbonization challenge which requires disrupting entrenched patterns of carbon lock-in across economic and political systems; as a distributive conflict in which vested interests inhibit progress and dictate winners and losers; and as a problem of co-operation which requires sustained and progressively intensifying collaboration between a diverse set of actors.[46] What sets the transformation framing apart from these proposals is its affective purchase. Instead of taking carbon infrastructures, vested interests, and abstractly conceptualized actor preferences as its starting points, the transformation framing describes the climate crisis as something that is lived through, which is continuously navigated, experienced, and felt. As political theorist Chantal Mouffe convincingly argues: 'In order to get involved' there is a need 'to feel that real alternatives are at stake'.[47] In this sense, the notion of transformation provides a frame to hold on and return to when organizing thoughts and actions.

Despite its potential to conceptually capture what implementing the Paris Agreement entails, the notion of transformation needs to be approached with care. Having acquired multiple

[41]See E. Ostrom, 'Polycentric Systems for Coping with Collective Action and Global Environmental Change', (2010) 20 *Global Environmental Change* 550; Ostrom, *supra* note 32. See also D. H. Cole, 'Advantages of a Polycentric Approach to Climate Change Policy', (2015) 5 *Nature Climate Change* 114; A. Jordan et al. (eds.), *Governing Climate Change: Polycentricity in Action?* (2018).

[42]See also C. Mouffe, *Agonistics: Thinking the World Politically* (2013), at 4–5.

[43]See IPCC, *supra* note 7, at 18.

[44]A. Appadurai, *The Future as Cultural Fact: Essays on the Global Condition* (2013), at 295.

[45]F. Green, 'The Normative Foundations of Climate Legislation', in A. Averchenkova, S. Fankhauser and M. Nachmany (eds.), *Trends in Climate Change Legislation* (2017), 85, at 101.

[46]S. Bernstein and M. Hoffmann, 'Climate Politics, Metaphors and the Fractal Carbon Trap', (2019) 9 *Nature Climate Change* 919; M. Aklin and M. Mildenberger, 'Prisoners of the Wrong Dilemma: Why Distributive Conflict, Not Collective Action, Characterizes the Politics of Climate Change', (2020) 20 *Global Environmental Politics* 4; T. Hale, 'Catalytic Cooperation', (2020) 20 *Global Environmental Politics* 73.

[47]See Mouffe, *supra* note 42, at 140.

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meanings in everyday life,[48] academia,[49] policymaking,[50] and media discourse,[51] we lack a robust conceptual understanding of what transformations are, how they unfold, and who and what they involve.[52] And whilst a diverse set of understandings can foster critical discussion, it is key to explicitly acknowledge and address the risks which arise when working with a fuzzy concept. For instance, the ambiguities around the meaning of transformation have led to the term being routinely invoked as a 'catch all' for change processes without clarifying what exactly renders them transformative. Critical sustainability scholars have rightly pointed out that this lack of analytical rigour leaves the notion of transformation vulnerable to being mobilized as a justification for business-as-usual.[53] To begin sketching the contours of a more robust and analytically useful understanding, the following section first identifies shared concerns which run through the multi-disciplinary field of transformation thinking before setting out three features that are central to transformations in climate crisis.

4. Towards an ontology of transformative change: Three central features

Transformation thinking has found entry in sustainability and global environmental governance research, the political sciences, sociology, and human geography. Across these disciplines, three main lines of thinking have been identified: systems-based, structural, and agency-focussed approaches.[54] Scholars mobilizing a systems-perspective describe transformation processes as 'fundamental changes in structural, functional, relational and cognitive aspects of socio-technical-ecological systems that lead to new patterns of interactions and outcomes'.[55] Adopting a primarily descriptive-analytical focus, systems thinking seeks to explain how dynamics and dependencies between humans and technological networks and humans and ecological systems interact to produce patterns such that change is either triggered or hindered.[56] In contrast to systems perspectives, structural approaches focus on how societal institutions and economic and political paradigms hinder or support change.[57] Instead of analysing dynamics between interconnected elements of systems, structural perspectives take institutionalized worldviews, ideas, and narratives as their starting point. Finally, agency-based approaches, rather than focusing on institutions, reflect on the capacities of individuals and social collectives to engender change, including through resistance and activist strategies. Accordingly, agency-based approaches are less concerned with the role of ideas and organizations but with possibilities of emancipation.[58] Structural and agency-based approaches,

[48]See V. Wibeck et al., 'Stories of Transformation: A Cross-Country Focus Group Study on Sustainable Development and Societal Change', (2019) 11 *Sustainability* 2427.

[49]See G. Feola, 'Societal Transformation in Response to Global Environmental Change: A Review of Emerging Concepts', (2015) 44 *Ambio* 376.

[50]See Linnér and Wibeck, *supra* note 19, Ch. 4.3; B. Moore et al., 'Transformations for Climate Change Mitigation: A Systematic Review of Terminology, Concepts, and Characteristics', (2021) 12 *WIREs Climate Change* e738.

[51]See Linnér and Wibeck, *supra* note 19, Ch. 4.2.

[52]See J. Blythe et al., 'The Dark Side of Transformation: Latent Risks in Contemporary Sustainability Discourse', (2018) 50 *Antipode* 1206, 1209.

[53]Ibid.

[54]I. Scoones et al., 'Transformations to Sustainability: Combining Structural, Systemic and Enabling Approaches', (2020) 42 *Current Opinion in Environmental Sustainability* 65.

[55]J. Patterson et al., 'Exploring the Governance and Politics of Transformations towards Sustainability', (2017) 24 *Environmental Innovation and Societal Transitions* 1, at 2.

[56]For overviews see F. Berkes, J. Colding and C. Folke (eds.), *Navigating Socio-Ecological Systems: Building Resilience for Complexity and Change* (2003); J. Markard, R. Raven and B. Truffer, 'Sustainability Transitions: An Emerging Field of Research and its Prospects', (2012) 41 *Research Policy* 955.

[57]See, e.g., Polanyi, *supra* note 18; H. Bender, N. Bernholt and B. Winkelmann (eds.), *Kapitalismus und Dann? Systemwandel und Perspektiven gesellschaftlicher Transformation* (2012).

[58]See, e.g., A. Stirling, 'Emancipating Transformations: From Controlling "the Transition" to Culturing Plural Radical Progress', in I. Scoones, M. Leach and P. Newell (eds.), *The Politics of Green Transformations: Pathways to Sustainability*

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however, tend to share sensibilities for issues of power, plurality, and justice – aspects which the more analytically orientated systems perspectives do not necessarily account for.[59]

With each school of thought working with a different understanding of what it is that undergoes change, where transformations unfold, and how they occur, transformation thinking comprises a field of distinct, but nevertheless related, discourses that span disciplines. Each school of thought applies idiosyncratic theoretical frames and vocabularies and pursues distinct normative projects. Despite this eclecticism, it is possible to identify common ideas and shared concerns that run through the transformation literatures. First, all approaches describe transformations as temporal phenomena. Transformations are generally understood as processes which take place over time and unfold with varying speed. For instance, transformation models are often concerned with 'phases' or 'steps', describe 'pathways' and 'cycles' of activity, and are seen to involve forward- as well as backward-looking dynamics.[60] Second, all three perspectives identify change which fundamentally challenges and re-works the status quo as a central feature of transformation processes. For example, socio-ecological resilience scholars describe 'transformability' as the 'capacity to create a fundamentally new system when ecological, economic, or social (including political) conditions make the existing system untenable'.[61] Meanwhile, agency based and structural approaches describe possibilities for resisting and contesting incumbent power structures, ideas, and interests that perpetuate the status quo.[62] Finally, all three strands of transformation thinking describe change processes which engage a multiplicity of actors from across various societal domains and scales. For instance, progressive perspectives, focusing on individual and collective agency, argue that transformations rely on experiments in societal niches and margins, while simultaneously depending on collaboration with the state and social institutions.[63] Using different nomenclature, researchers who apply a systems perspective make similar arguments. Here, it is 'top down' steering, which allows change to diffuse, while 'bottom-up' action is seen to harness the innovative potential of social experiments.[64] The following sub-sections elaborate on each of these three features in turn.

4.1 Transformative temporality: Temporal dislocations

The first central feature of transformations is that they are temporal phenomena. Climate policy discourse tends to portray transformations as change processes that involve a sequence of steps or stages which occur in a particular order. For instance, in its 2018 Special Report on 'Global Warming of 1.5°C', the IPCC described four emission reduction 'pathways' – model mitigation trajectories for limiting global warming to 1.5°C until 2050.[65] Other metaphors used in climate

(2015), 54; L. Temper et al., 'A Perspective on Radical Transformations to Sustainability: Resistances, Movements, and Alternatives', (2018) 13 *Sustainability Science* 747.

[59]See R. Gillard et al., 'Transformational Responses to Climate Change: Beyond a Systems Perspective of Social Change in Mitigation and Adaptation', (2016) 7 *WIREs Climate Change* 251.

[60]See, e.g., P. Olsson, C. Folke and T. Hahn, 'Social-Ecological Transformation for Ecosystem Management: The Development of Adaptive Co-Management of a Wetland Landscape in Southern Sweden', (2004) 9 *Ecology and Society*, available at www.ecologyandsociety.org/vol9/iss4/art2/; D. Loorbach and J. Rotmans, 'The Practice of Transition Management: Examples and Lessons from Distinct Cases', (2010) 42 *Futures* 237; B. Sharpe et al., 'Three Horizons: A Pathways Practice for Transformation', (2016) 21 *Ecology and Society*, available at www.ecologyandsociety.org/vol21/iss2/art47/.

[61]See B. Walker et al., 'Resilience, Adaptability and Transformability in Social-Ecological Systems', (2004) 9 *Ecology and Society*, available at www.ecologyandsociety.org/vol9/iss2/art5/.

[62]See, e.g., D. Manual-Navarrete, 'Power, Realism, and the Ideal of Human Emancipation in a Climate of Change', (2010) 1 *WIREs Climate Change* 781.

[63]See, e.g., E. O. Wright, *Envisioning Real Utopias* (2010).

[64]See, e.g., F. Westley et al., 'Tipping Toward Sustainability: Emerging Pathways of Transformation', (2011) 40 *Ambio* 762.

[65]See IPCC, *supra* note 7, at 14.

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policy discourse refer to 'milestones' and a 'race'.[66] Connoting travel across time and space, these metaphors imply a continuous and linear forward-reaching from the 'here and now' towards interim, and eventually, end goals. Such spatial-temporal imaginaries are problematic. They suggest that transformative change unfolds along a single temporal axis as a one-directional and incremental movement to achieve preferred future states of affairs. Their main concern are forward-looking dynamics that seemingly have the capacity to create the 'what-is-yet-to-come'. However, as anthropologist Elizabeth Povinelli powerfully argues, the unfolding climate crisis is deeply rooted in our past. To use Povinelli's term, climate change is 'ancestral' in the sense that it keeps 'arriving out of the ground of colonialism and racism rather than emerging over the horizon of liberal progress'.[67] As such, there are no 'empty' futures 'just waiting to be filled'.[68]

While aiming to highlight possibilities for engagement and action in the present,[69] metaphors employed in climate policy discourse convey an overly simplified understanding of the temporality of the climate crisis. Aligning with conceptions of time as the technical horizon for linear human progress, they fail to account for dependencies between pasts, presents, and futures, and the urgency, discontinuities, and uncertainties that are involved in navigating changing climatic conditions.[70] Sheila Jasanoff notes how the climate crisis leads to 'scalar dislocations', including in 'widely held prior conceptions of … time'.[71] As such, when describing the temporality of transformations in climate crisis we need to complicate our understanding of time. Instead of conceiving of transformative temporality as an orderly arranged sequence of steps, it is helpful to work with heterogenous conceptions of time. Accordingly, transformative temporality emerges as a 'heterochrony' – something that is 'temporally dislocated against itself'.[72] To illustrate what heterogenous temporality involves, two alternative metaphors are useful: that of a braided thread which intricately integrates multiple strands of fibre, and that of a telescope tube which consists of connected elements that can be collapsed into each other. Like a braided thread, transformative temporality encompasses interlaced strands of time; and, akin to the physical structure of a telescope tube, climate pasts, climate presents, and climate futures slide into each other.

Regarding the former, in climate crisis, transformations require us to consider, and position into dialogue, social and geological time scales. Here, the notion of braiding helps to explicate that transformations unfold across 'Earth history', the tens of millions of years and geological epochs that mark phases in the evolution of our planet, and 'world history', the last hundreds of years of human activity.[73] It is in this sense that we are required to find ways to knot together human and other-than-human timescales.[74] In addition, it is necessary to acknowledge the co-constitutive assembling of climate pasts, presents, and futures. This requires an exercise of 'temporal telescopy'

[66]See, e.g., C. Figueres et al., 'Three Years to Safeguard our Climate', (2017) 546 *Nature* 593, at 594; António Guterres, 'Remarks at the 2019 Climate Action Summit', 23 September 2019, available at https://www.un.org/sg/en/content/sg/speeches/2019-09-23/remarks-2019-climate-action-summit: 'The climate emergency is a race we are losing, but it is a race we can win … Let's lace up our running shoes and win the climate race for all of us'. See also 'Race to Zero', available at https://racetozero.unfccc.int/system/race-to-zero/?_gl=1*qvkrp7*_ga*NDQ4MjMwMTkyLjE3MDg0NDI0ODY.*_ga_7ZZWT14N79*MTcwOTU1MzA2OS4xNC4xLjE3MDk1NTMwOTIuMC4wLjA.

[67]E. A. Povinelli, *Between Gaia and Ground: Four Axioms of Existence and the Ancestral Catastrophe of Late Liberalism* (2021), at 3.

[68]J. Urry, *What is the Future?* (2016), at 190.

[69]See J. Nordblad, 'On the Difference between Anthropocene and Climate Change Temporalities', (2021) 47 *Critical Inquiry* 328, at 339.

[70]See A. Grear, 'Anthropocene "Time"? – A Reflection on Temporalities in the New Age of the Human', in A. Philippopoulos-Mihalopoulos (ed.), *Routledge Handbook of Law and Theory* (2019), 297; M. Bastian, 'Fatally Confused: Telling the Time in the Midst of Ecological Crises', (2012) 9 *Environmental Philosophy* 23, at 33.

[71]S. Jasanoff, 'A New Climate for Society', (2010) 27 *Theory, Culture & Society* 233, at 249.

[72]See Waldenfels, *supra* note 29, at 51 (author's translation).

[73]D. Chakrabarty, 'Anthropocene Time', (2018) 57 *History and Theory* 5, at 6. See also F. Ginn et al., 'Introduction: Unexpected Encounters with Deep Time', (2018) 10 *Environmental Humanities* 213.

[74]For a practical proposal see F. Hanusch, *The Politics of Deep Time* (2023).

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to conceive of a 'layered temporal heterogeneity' that combines pasts, presents, and futures.[75] Instead of sequential conceptions of time, transformative temporal dimensions slide into each other and become mutually constitutive: climate futures are already existing (or 'antecedent') in pasts and presents; and pasts and presents are spilling into times to come.[76] What matters – simultaneously – are 'the emissions from yesterday, today and those released in the next few years'.[77] Comparing transformative temporality to the object of a telescope thus fundamentally challenges conceptions of the past as that what is done and complete (the 'there and then'), and understandings of the future as a potpourri of opportunities that emerge on the temporal horizon. Rather, as temporal phenomena, transformations require acknowledgement that pasts, presents, and futures interact across social and geological time scales.

4.2 Transformative change: Actualizing impossible possibilities

The second central feature of transformations is the rendering real of what appears to be impossible under the status quo, but which could arguably happen in a changed state of affairs. Accordingly, transformative thinking and doing does not take the currently existing as its point of reference. Instead, it is alternatives that animate transformative dynamics. Such alternatives emerge once we acknowledge that there are other ways of perceiving and making sense of what we think we know. What is needed, thus, are modes of imagining that free individuals and collectives from the familiar and tacitly repeated. Examples include, for instance, thinking antithetically or deliberately adopting a playful mode. Such practices can facilitate engagement with perspectives and ideas that deviate from and disrupt conventional understandings and habitual starting points.[78] To quote Michel Foucault, '. . . from the moment one begins to be unable, any longer, to think things as one usually thinks them, transformation becomes simultaneously very urgent, very difficult, and altogether possible'.[79] It is in this sense that the imagination can open up, and foreclose, opportunities for making material interventions, thus affecting possibilities to respond to climate change.[80] At the individual level, imagining involves 'flights of awareness in which the mind and heart take license to leave the seeming "realities" and "feasibilities" that are supposed to frame experience'.[81] At the collective level, imagining emerges as a social process that sustains worldviews and behaviours which constitute communal life.[82]

Working across international relations and cognitive theory, Manjana Milkoreit suggests the phrase 'socio-climatic imaginaries' to describe collective imagining in times of climate crisis.[83] Milkoreit argues that it is these imaginaries which provide 'the mental source material and motivation for creating change'.[84] Importantly, however, while the imagination has the capacity to

[75]A. Dawson, 'Biohazard: The Catastrophic Temporality of Green Capitalism', (2013) 31 *Social Text* 63, at 65, 71.

[76]See Waldenfels, *supra* note 29, at 50: describing this temporal dislocation with the terms *Vorgängigkeit* and *Nachträglichkeit*.

[77]K. Anderson and A. Bows, 'A New Paradigm for Climate Change', (2012) 2 *Nature Climate Change* 639, at 639.

[78]H. Bender, 'Transformationsstrategien und Wandlungsprozesse', in H. Bender, N. Bernholt and Bernd Winkelmann (eds.), *Kapitalismus und. Dann? Systemwandel und Perspektiven gesellschaftlicher Transformation* (2012), 207, at 213.

[79]M. Foucault, 'Is It Really Important to Think? An Interview Translated by Thomas Keenan', (1982) 9 *Philosophy and Social Criticism* 30, at 34.

[80]K. Yusoff and J. Gabrys, 'Climate Change and the Imagination', (2011) 2 *WIREs Climate Change* 516.

[81]P. Wapner, 'Introduction: Reimagining Climate Change', in P. Wapner and E. Hilal (eds.), *Reimagining Climate Change* (2017), 1, at 5.

[82]M. Milkoreit, 'The Promise of Climate Fiction: Imagination, Story Telling, and the Politics of the Future', in Wapner and Elver, ibid., at 171. See also B. Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (2006).

[83]See M. Milkoreit, 'Imaginary Politics: Climate Change and Making the Future', (2017) 5 *Elementa: Science of the Anthropocene*.

[84]See Milkoreit, *supra* note 82, at 174–5. See also M.-L. Moore and M. Milkoreit, 'Imagination and Transformations to Sustainable and Just Futures', (2020) 8 *Elementa: Science of the Anthropocene*.

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extend 'mental representations' to situations that are not present,[85] it can become captured by existing structures, discourses, and ideas. An example on point is the notion of 'decarbonization'. Conceived as an imaginary, it fails to create the space for envisioning alternative ways of living, instead perpetuating the belief in techno-fixes that would allow to continue with business-as-usual.[86] Rather than radically challenging the fetishization of overconsumption and overproduction, the notion of decarbonization suggests that it would be possible to continue with current lifestyles and economic logics by simply introducing 'green' and more efficient technologies. In this sense, it holds on to, and reinscribes, existing socio-climatic imaginaries. It does not invite engagement with the question what else could become available if things were different. Transformative imaginaries, by contrast, are not merely 'detours' on the 'terrain of reality'. Rather, imaginaries in the transformative sense 'depart from the ground of the real', 'move in the air', and allow to think the unthinkable.[87] They depart from what is currently observable and facilitate 'attempts at thinking other thoughts for other world constructions'.[88] In this sense, transformative imaginaries critically engage with the cognitive horizons which are produced by learnt ways of knowing and doing and scope how things could be otherwise.

On a practical level, transformative imaginaries situate and relate selves, as agents, to climate pasts, presents, and futures. Such dynamics of situating and relating are observable in prefigurative projects. Davina Cooper, whose work combines legal conceptualization and political theory, explains how prefigurative projects 'perform regular daily life ... in a radically different way' and create 'the change they wish to encounter'.[89] In this sense, prefiguration involves acting 'as if' preferred conditions were still, or already, in place, thus undoing the distinction between what is and what could be or have been.[90] By rehearsing such alternatives, prefigurative projects disrupt, while, at the same time, pursuing alternative pathways. In so doing, prefiguration fuses dis- and re-assembling, un- and re-making. Stepping back from existing ways of doing things, prefiguration immanently critiques (*de*-configures) the status quo, and it is in this opening that the status quo can be *re*-configured such that alternatives, which appear impossible, emerge as possibilities. Given that transformative dynamics always entail de- and re-formation,[91] prefigurative projects take up the 'politics of disturbance' that unsettles 'dominant procedures and disrupt the existing arrangements' while insisting on constructing alternatives.[92] Researchers have investigated prefigurative action across diverse contexts, including in protest and activist movements, communal ways of living, children's play, and urban gardening.[93] The transformative potential of these grassroots and counter-initiatives lies in rendering real constructions of social life which demonstrate that, after all, thinking and doing things differently is possible – what seems impossible under a given state of affairs can be rendered possible by de- and re-configuring the

[85]See Milkoreit, ibid., at 174.

[86]M. Paterson, 'The Sociological Imagination of Climate Futures', in Wapner and Elver, *supra* note 81, at 25.

[87]H. Vaihinger, *Die Philosophie des Als Ob. System der theoretischen, praktischen und religiösen Fiktionen der Menschheit auf Grund eines idealistischen Positivismus. Mit einem Anhang über Kant und Nietzsche* (1924), at 82.

[88]A. Escobar, *Territories of Difference: Place, Movements, Life, Redes* (2008), at 169–70.

[89]D. Cooper, *Everyday Utopias: The Conceptual Life of Promising Spaces* (2014), at 2.

[90]D. Cooper, 'Towards an Adventurous Institutional Politics: The Prefigurative "As If" and the Reposing of What's Real', (2020) 68 *The Sociological Review* 893, at 908.

[91]See Waldenfels, *supra* note 29, at 31: 'Every new formation is therefore realised as a deformation of existing formations' (author's translation).

[92]See Mouffe, *supra* note 42, at 11–14.

[93]M. van de Sande, 'The Prefigurative Politics of Tahrir Square – An Alternative Perspective on the 2011 Revolution', (2013) 19 *Res Publica* 223; J. Rohgraf, 'Democracy of the Many? Occupy Wall Street and the Dead End of Prefiguration', (2013) 14 *Distinktion: Scandinavian Journal of Social Theory* 151; F. Fois, 'Enacting Experimental Alternative Spaces', (2019) 51 *Antipode* 107; P. Carroll et al., 'A Prefigurative Politics of Play in Public Places: Children Claim their Democratic Right to the City through Play', (2019) 22 *Space and Culture* 294; M. A. Guerlain and C. Campbell, 'From Sanctuaries to Prefigurative Social Change: Creating Heat-Enabling Spaces in East London Community Gardens', (2016) 4 *Journal of Social and Political Psychology* 220.

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existing. Prefiguration is thus a way to embed transformative imaginaries into practice: making the imagined real entails enacting it.

4.3 Transformative action: Distributed engagement

Finally, in the context of democratic law- and policy-making, transformations are not confined to specific contexts or groups of actors, but involve forms of engagement that are distributed across diverse constituencies. From a governance perspective, collaborative dynamics between multiple actors emerge as central to change processes. Interdisciplinary sustainability scholar Felix Ekardt, for instance, describes dynamics between governments, citizens, businesses, and consumers as 'vicious circles of inaction'.[94] He argues that as one group resists change, others are discouraged from moving beyond the status quo as well. Take, for example, businesses and citizens. In the absence of legal and regulatory frameworks that prescribe change and establish a level playing-field, these groups are less likely to adopt climate-friendly practices at the scale required; conversely, in light of perceived political and economic risks, political decision-makers might refrain from engaging in transformative policy- and law-making in the first place. Giving this argument a positive spin, regulatory scholar Neil Gunningham argues that when a 'critical mass of actors', such as 'governments, businesses, trade unions, international organisations and others', become aligned and unite behind ideas, possibilities to achieve change become available.[95] According to these accounts, what emerge as key features of transformation processes are coalition building, dialogue, and co-operation: across local, national, regional, and global scales; between public and private spheres; and among multiple societal domains.

While pragmatically highlighting collaborative dynamics as levers of transformation processes, however desirable these may be in practice, the governance and regulatory perspectives described above evade and underplay the conflictual nature of transformations. Struggles over representation, and ultimately distribution, are inherent in transformation processes. While some strands of transformation thinking, in particular systems perspectives, tend to describe transformations as apolitical, change processes are likely to be fraught with disagreement, contestation, obfuscation, and withdrawal.[96] Whose view counts as realistic, and what is regarded as outrightly naïve? How are risks going to be allocated? Who is to bear the brunt of the change, and who is to benefit? Who will pay, who will not pay, and who will receive support?

Instead of glossing over struggles, conflicts, and difference that are inherent in transformation processes, the political theory of Chantal Mouffe offers a way to deal with division by putting it front and centre. Mouffe distinguishes between two types of conflictual dynamics: 'antagonistic' and 'agonistic' conflict. While the former refers to 'struggles between enemies' that foreclose the possibility of political engagement, the latter denotes 'struggles between adversaries' who 'recognize the legitimacy of opposing demands'.[97] According to Mouffe, instead of striving for consensus and homogeneity, what is needed are designs that allow conflicts to take an agonistic form by 'hold[ing] in tension what they separate'.[98] Such modalities would, for instance, recognize and give resonance to varying capacities, needs, interests, and points of view while allowing demands of particular groups to find resonance with other constituencies, thus building synergies across difference. Distributed engagement, in other words, eschews the imaginary of a totality of a diversified discourse, instead envisaging a diversity of diverging, and therefore conflictual, discourses that require negotiation – articulation and organization – across difference.[99]

[94]See Ekardt, *supra* note 15, at 122–6.

[95]N. Gunningham, 'Can Climate Activism Deliver Transformative Change? Extinction Rebellion, Business and People Power', (2020) 11 JHRE 10, at 28.

[96]See Gillard et al., *supra* note 59.

[97]See Mouffe, *supra* note 42, at 7, 138.

[98]Ibid., at 40.

[99]E. Laclau and C. Mouffe, *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics* (2001), at 191.

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5. Unresolved tensions in transformation thinking: Entry points for international law

Having identified three central features of transformations, this section takes a critical turn and asks: What is at stake when conceiving of the Paris Agreement as demanding transformative change? Specifically, what comes into view, and what is not seen, when invoking the notion of transformation? Which narratives, assumptions, and biases does the transformation framing uncritically reproduce? Engaging with these questions, this section identifies unresolved tensions in transformation thinking and shows in what ways they connect to international law and legal scholarship. In so doing, it demonstrates how the identified tensions can serve as entry points for international law to meaningfully engage with the notion of transformation.

The first tension running through the transformation literatures relates to understandings of agency, capacity, and responsibility. In climate crisis, are transformations deliberately triggered, carefully planned, and strategically managed processes? Or do they comprise emergent and unruly dynamics that lead to unknown and contested outcomes? The former perspective implies an understanding of climate change as a 'problem' that can be 'fixed' through purposively managed change processes which work towards pre-defined goals in a progression of modulated steps or stages.[100] The latter conceives transformative dynamics primarily as reactions to emergent disruptions in socio-ecological systems.[101] Clearly, both accounts are reductive. While one reproduces the narrative of humans and social institutions as being able to master nature, the other portrays humans as reactive agents who are subjected to transcendental planetary forces.[102]

Another way of approaching this tension takes time into account: Given projected emission trajectories and the rigidity of existing structures and systems, is it, in fact, not already too late for transformative change? Are we passengers of a ship who pretend there was still time to avoid collision, when in fact it is already too late to change course? According to the IPCC, there is still time, albeit alarmingly little, to turn the corner, avoid head-on collision and, perhaps, get away with a major graze in the hull. Most recent scientific models show that without speculative reliance on negative emission technologies, reaching the goals of the Paris Agreement will require global greenhouse gas emissions to peak, at the very latest, by 2025. In the following decades, 'rapid', 'deep', and 'sustained' greenhouse gas emission reductions are needed to stay on course and reach 'net zero' by mid-century.[103] According to this narrative, what we have in front of us are two years to turn the tide, and two more decades of continuous work to stay on a radically changed course. What is missing from this account, however, is acknowledgement that even if we fail to take action within the identified window of opportunity, we cannot absolve ourselves from responsibility. As human geographer Leslie Head writes, '[w]e do not yet know how much transformation will proceed deliberately and how much will be forced on us, but it is likely that we will be forced as much as governed'.[104]

What emerges from the foregoing discussion is that agency in climate crisis cannot be grasped in terms of an 'all or nothing' approach; in the sense that there is either full or no control; that there still is time or that it is already too late; that the project is either to make the transformation or accept climate disaster as the only remaining option. Instead, everything is continuously kept in play; things continuously remain at stake. In this sense, notions of 'living with' and 'living in' climate crisis emerge as entry points for developing a more nuanced perspective. Suggesting strategies for 'learning to live with climate change', multidisciplinary climate scholar Blanche

[100]See, e.g., J. Rotmans, R. Kemp and M. van Asselt, 'More Evolution than Revolution: Transition Management in Public Policy', (2001) 3 *Foresight* 15.

[101]See Walker et al., *supra* note 61.

[102]For a theoretical critique of both anthropocentricism and ecocentrism see A. Philippopoulos-Mihalopoulos, 'Epistemologies of Doubt', in A. Grear and L. Kotze (eds.), *Research Handbook on Human Rights and the Environment* (2015), 28, at 29–33.

[103]'Climate Change 2022: Mitigation of Climate Change. Summary for Policymakers', Geneva: Intergovernmental Panel on Climate Change, 2022, at 30, available at www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SPM.pdf.

[104]L. Head, *Hope and Grief in the Anthropocene: Reconceptualising Human-Nature Relations* (2016), at 3.

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Verlie explains that this does not mean resigning or giving up. Rather, living with or living in climate crisis is about 'engaging with and facing up to the horrific realities of climate change and striving to make things otherwise despite knowing that we may not be able to "save the world"'.[105]

What do notions of living with, or living in, climate crisis mean for international law? Arguably, their implications could be profound. For one, they require problematization of the extent to which law actually has the capacity to govern in climate crisis. The term 'governance' – while having multiple meanings – is commonly associated with modalities of institutionalized steering that pre-suppose agency to intervene and produce change.[106] Critically reviewing attempts to govern climate change at the international level, Stephen Humphreys argues that '[a]ny claim to "governance" must presumably make an initial assumption that the thing to be governed may become a viable object of law – that it is, in short, governable'.[107] Meanwhile, human geographer Mike Hulme foregrounds the fundamentally dispersed and systemic nature of climate change as an object of governance. Hulme argues that governing climate change implies 'governing the full range of human activities and technologies … which emit greenhouse gases and other particulates into the atmosphere'.[108] How might international law be able to meaningfully govern this extensive range of activities and technologies? One option could be to pursue sectoral international agreements, which would, for instance, ban the production and/or use of all or specific fossil fuels and their financing.[109] Alternatively, existing mechanisms in the international climate regime could be relied upon to bring certain sectors into the focus of international mitigation efforts. Governments could, for example, agree to detail national fossil fuel phase-out plans and targets in their NDCs.[110] Needless to say that the current geopolitical climate makes the adoption of such measures unlikely. Yet, these options present themselves as precisely those kind of impossible possibilities that transformative change demands: they appear impossible under the status quo but could arguably happen in a changed political climate.

Building on the foregoing, if international law cannot provide simple 'fixes' for climate change, then it ought at least to enable just living in climate crisis. In this context, the notion of 'climate reparations' is gaining traction in international legal discourse.[111] Sarah Riley Case, for instance, describes the transformative potential of reparative actions as opening up possibilities for moving away: 'from accumulative ways of life that spread from Europe to the world, structuring the present reality. "Reparations" also refers to immediate justices that meet the demands of those who are harmed, because this prefigures the horizon of transformation by disrupting imperialism.'[112] Recent developments in the international climate regime signal tentative movement, even if, given the limitations of the inter-governmental process, they remain dramatically insufficient. COP27 and COP28, for instance, explicitly highlighted the role of Multilateral Development Banks and international financial institutions, calling not only for more climate finance, but explicitly articulating

[105]B. Verlie, *Learning to Live with Climate Change: From Anxiety to Transformation* (2021), at 12.

[106]See D. Levi-Faur 'From "Big Government" to "Big Governance"?', in D. Levi-Faur (ed.), *The Oxford Handbook of Governance* (2012), 3.

[107]S. Humphreys, 'Ungovering the Climate', (2020) 11 *Transnational Legal Theory* 244, at 244.

[108]M. Hulme, *Weathered: Cultures of Climate* (2017), at 143.

[109]A. Burke and S. Fishel, 'A Coal Elimination Treaty 2030: Fast Tracking Climate Change Mitigation, Global Health and Security', (2020) 3 *Earth System Governance* 100046; P. Newell and A. Simms, 'Towards a Fossil Non-Proliferation Treaty', (2020) 20 *Climate Policy* 1043; H. van Asselt, 'Governing Fossil Fuel Production in the Age of Climate Disruption: Towards an International Law of "Leaving It in the Ground"', (2021) 9 *Earth System Governance* 10018; H. van Asselt and P. Newell, 'Pathways to an International Agreement to Leave Fossil Fuels in the Ground', (2022) 22 *Global Environmental Politics* 28.

[110]See G. Pigott et al., 'Swimming Upstream: Addressing Fossil Fuel Supply in the UNFCCC', (2018) 18 *Climate Policy* 1189.

[111]See, e.g., S. Riley Case, 'Looking to the Horizon: The Meaning of Reparations for Unbearable Crises', (2023) *AJIL Unbound* 49; S. Mason-Case and J. Dehm, 'Redressing Historical Responsibility for the Unjust Precarities of Climate Change in the Present', in B. Mayer and A. Zahar (eds.), *Debating Climate Law* (2021), 170; M. Burkett, 'Climate Reparations', (2009) 10 *Melbourne Journal of International Law* 509.

[112]See Riley Case, ibid., at 49.

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the need to 'reform' institutional 'practices and priorities' and define new 'operational models'.[113] These calls for reform of powerful financial actors have been described as breaking 'new ground'.[114]

The background to this shift in gear is what has become known as the 'Bridgetown Agenda' – a strategically placed and carefully orchestrated diplomatic initiative that marries the climate and development agendas.[115] At COP27, Barbados Prime Minister Mia Mottley, who spearheaded the initiative, demanded that the needs of climate vulnerable and developing countries be at the heart of a 'new, global, financial architecture' that would overcome legacies of colonialism and require those profiting from climate harming activities to pay for reparations.[116] Calling, amongst other things, for 'reconstruction grants for any country just imperilled by a climate disaster' and an alleviation of sovereign debt for vulnerable countries, the Bridgetown Agenda rings true with initiatives on loss and damage that have emerged in recent years. For example, new fora, including the Santiago Network and the Glasgow Dialogue, have been set up to discuss issues relating to technical and financial assistance.[117] Most recently, the possibility of a dedicated international financial mechanism for loss and damage finally materialized.[118]

These developments within the international climate regime dovetail with initiatives that have tabled the issue of climate reparations within the broader UN system. These include, amongst others, the recently adopted formal request for an advisory opinion from the International Court of Justice on the obligations of states in respect of climate change. Notably, the request explicitly refers to the issue of 'legal consequences' for causing significant harm to 'small island developing States, which due to their geographical circumstances and level of development, are injured or specially affected by or are particularly vulnerable to the adverse effects of climate change'.[119] In a more radical register, UN Special Rapporteur Tendayi Achiume voiced objections to the

[113]UNFCCC, Decision 1/CMA.4: Sharm el-Sheikh Implementation Plan, FCCC/PA/CMA/2022/10/Add.1 (2023), paras. 61–62; UNFCCC, Decision 1/CP.27: Sharm el-Sheikh Implementation Plan, FCCC/CP/2022/10/Add.1 (2023), paras. 40–41. See also UNFCCC, Decision -/CMA.5: Outcome of the First Global Stocktake, FCCC/PA/CMA/2023/L.17, para. 83.

[114]L. Rajamani et al., 'Re-invigorating the UN Climate Regime in the wider Landscape of Climate Action', (2023), at 20, available at www.unfccc.int/documents/627184.

[115]'Urgent and Decisive Action Required for an Unprecedented Combination of Crises: The 2022 Bridgetown Initiative for the Reform of the Global Financial Architecture', 23 September 2022, available at https://pmo.gov.bb/wp-content/uploads/2022/10/The-2022-Bridgetown-Initiative.pdf; C. Farand, 'Mia Mottley Builds Global Coalition to Make Financial System Fit for Climate Action', *Climate Home News*, 23 September 2022, available at www.climatechangenews.com/2022/09/23/mia-mottley-builds-global-coalition-to-make-financial-system-fit-for-climate-action/.

[116]'Barbados – High-level Segment Statement COP 27', available at www.unfccc.int/documents/623036. See also www.youtube.com/watch?v=5J0egwAfO0w.

[117]UNFCCC, Decision 2/CMA.2: Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts and its 2019 Review, FCCC/PA/CMA/2019/Add.1 (2020), para. 43; UNFCCC, Decision 1/CMA.3: Glasgow Climate Pact, FCCC/PA/CMA/2021/10/Add.1 (2022), para. 73. See also UNFCCC, 'Glasgow Dialogue: Concept Note by the Chair of the Subsidiary Body for Implementation', available at unfccc.int/sites/default/files/resource/Glasgow_Dialogue.pdf.

[118]The Fund was set up at COP27 and operationalized at COP28. See UNFCCC, Decision -/CP.28 -/CMA.5: Operationalization of New Funding Arrangements, including a Fund, for Responding to Loss and Damage referred to in Paragraphs 2-3 of Decisions 2/CP.27 and 2/CMA.4 UNFCCC, FCCC/CP/2023/L.1; UNFCCC, Decision 2/CMA.4: Funding Arrangements for Responding to Loss and Damage Associated with the Adverse Effects of Climate Change, including a Focus on Addressing Loss and Damage, FCCC/CP/2022/10/Add.1 (2023); UNFCCC, Decision 2/CP.27: Funding Arrangements for Responding to Loss and Damage Associated with the Adverse Effects of Climate Change, including a Focus on Addressing Loss and Damage, FCCC/CP/2022/10/Add.1 (2023). For a historical account of loss and damage negotiations within the international climate regime see P. Toussaint, 'Loss and Damage, Climate Victims, and International Climate Law: Looking Back, Looking Forward', (2023) *Transnational Environmental Law* (first view).

[119]United Nations General Assembly, Request for an Advisory Opinion of the International Court of Justice on the Obligations of States in respect of Climate Change, UN Doc. A/77/L.58 (2023). Two parallel advisory opinions are currently under way: (i) to clarify states' obligations relating to climate mitigation and impacts under the UN Convention on the Law of the Sea (see www.itlos.org/en/main/cases/list-of-cases/request-for-an-advisory-opinion-submitted-by-the-commission-of-small-island-states-on-climate-change-and-international-law-request-for-advisory-opinion-submitted-to-the-tribunal), and (ii) to clarify states' obligations in respect of the protection of human rights under the American Convention on Human Rights (see www.corteidh.or.cr/docs/opiniones/soc_1_2023_en.pdf).

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international legal canon as follows: 'To the extent that contemporary international legal principles present barriers to historical responsibility for climate change, UN member states must decolonize … law in a manner that makes it capable of guaranteeing genuine equality and self-determination for all peoples.'[120] International law's (in)capacity to address climate injustices and provide meaningful reparation for harms suffered, thus, emerges as another entry point for how the discipline may engage with the imperative for transformative change.

Questions about agency, capacity, and responsibility to govern in climate crisis provocatively lay bare another unresolved tension that runs through the transformation literature. Returning to the statement that 'we do not yet know how much transformation will proceed deliberately and how much will be forced on us',[121] the question arises who is the 'we' that participates in processes of transformative change. Who contributes, and who counts, in transformative projects? Traditionally, transformation thinking has not explicitly problematized who forms part of transformative projects. It thus sidestepped the question of how the 'we' that participates in transformations is constituted. Tacitly re-inscribing the modern notion of 'we', its foundational fiction of individualism and its exclusionary and extractive claims to universality, it risks perpetuating the illusion that humans were separate from the milieus which make life possible, without adequately accounting for dependencies and continuities between human and other-than-human worlds. What is at stake here, thus, is a politics of in- and exclusion.[122] As Chantal Mouffe argues, when envisaging how to act collectively 'the moment of decision cannot be avoided, and this implies the establishment of frontiers, the determination of a space of inclusion/exclusion'.[123]

The climate crisis, as a symptom of what is commonly (though not uncontroversially) referred to as the 'Anthropocene',[124] presents a radical challenge to such boundary drawing. It calls into question fundamental categories of 'humans' and 'nature', and relations between them, which have been taken for granted in modern Western thinking, including in a critical mass of legal theory.[125] As ecofeminist philosopher Donna Haraway explains, 'human beings are with and of the Earth': humans emerge as one species amongst many, bodies amongst other bodies, always embedded in, dependent on, and continuous with a plurality of living and non-living communities.[126] Importantly, the notion of the human itself cannot be taken as a monolithic category. When used in absolute and undifferentiated terms, it works to reinscribe structures of domination that exclude (more-than-)human alterities.[127] The unsettling of established conceptual categories evidences how the 'we' that is involved in transformative projects in the face of climate change escapes singularization, isolation, and stabilization.

If fundamental categories of 'human' and 'nature' no longer hold, how may it be possible to formulate rights and obligations in a legal register?[128] The concept of 'rights of nature' has established itself in various domestic contexts and academic discourse as a 'disruptive legal

[120]E. Tendayi Achiume, Report of the Special Rapporteur on Contemporary Forms of Racism, Racial Discrimination, Xenophobia and Related Intolerance, UN Doc. A/77/549 (2022), para. 78.

[121]See Head, *supra* note 104, at 3.

[122]For a conceptual account of how law is sustained by forms of in- and exclusion, and how law itself sustains forms of in- and exclusion, see M. Davies, 'Exclusion and the Identity of Law', (2005) 5 *Macquarie Law Journal* 5. For an account of in- and exclusion in global legal ordering see H. Lindahl, *Authority and the Globalisation of Inclusion and Exclusion* (2018).

[123]See Mouffe, *supra* note 42, at 14.

[124]P. J. Crutzen, 'Geology of Mankind', (2002) 415 *Nature* 23; D. Haraway, 'Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin', (2015) 6 *Environmental Humanities* 159.

[125]For a critical account see F. Fleurke et al., 'Constitutionalizing in the Anthropocene', (2024) 15 JHRE 4.

[126]D. Haraway, *Staying with the Trouble: Making Kind in the Chthulucene* (2016), at 55.

[127]A. Grear, 'Deconstructing *Anthropos*: A Critical Legal Reflection on "Anthropocentric" Law and Anthropocene "Humanity"', (2015) 26 *Law and Critique* 225.

[128]See A. Grear, 'The Vulnerable Living Order: Human Rights and the Environment in a Critical and Philosophical Perspective', (2011) 2 JHRE 23; A. Neimanis, 'Alongside the Right to Water, a Posthumanist Feminist Imaginary', (2014) 5 JHRE 5; A. Grear, 'Human Rights and New Horizons? Thoughts Toward a New Juridical Ontology', (2018) 43 *Science,*

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category',[129] and related notions are beginning to find traction in international law.[130] While seemingly progressively moving beyond the anthropocentrism implied by human rights, granting rights to non-human entities risks extending presuppositions of singularity, boundedness, and stability, and uncritically reproduces the colonial and gendered underpinnings of rights as a political and legal institution.[131] As Angela Last perfectly put it, many 'attempts to privilege the nonhuman reaffirm human privileges'.[132] One further critical entry point for engaging with the imperative for transformative change, thus, lies in continuing work that seeks to deconstruct and develop alternatives to existing and emerging repertoires of legal subjectivity.[133]

A final unresolved tension that runs through transformation thinking relates to its ideological underpinnings. Conceptually speaking, transformations comprise positive and negative elements (see Section 3). While the former encompasses narratives of innovation, growth, and progress, the latter sides with more humble conceptions of change that emphasize un-learning and un-doing, and which take seriously broader critiques of consumerism and the capitalist economic logic. While certain strands of transformation thinking, primarily those adopting a systems-approach, have focused on developing strategies for managing technological and societal innovation,[134] others have focused on transformative possibilities that arise from unsettling structures of power and dominant economic paradigms.[135] This tension relating to the ideological underpinnings that shape conceptions of transformative change resonates with on-going debates in international law. Critiques of the principle of sustainable development as articulated in the Rio Declaration on Environment and Development,[136] for instance, epitomize international law's futile struggle to reconcile economic growth, human wellbeing, social justice, and environmental protection.[137] Nevertheless, 20 years after the initial Rio Declaration, the Rio +20 conference, now under the label of 'green growth', re-articulated sustainable development as a cornerstone of multilateral co-operation.[138] The unresolved tension between the objective to protect the environment, on the one hand, and the logic of economic expansion, on the other, have been aptly described as a 'disciplinary double-mindedness':[139] Pretending that the environment and the economy were

Technology and Human Values 129; U. Natarajan, 'Who Do We Think We Are? Human Rights in a Time of Ecological Change', in U. Natarajan and J. Dehm (eds.), *Locating Nature: Making and Unmaking International Law* (2022), 200.

[129]For an overview see, e.g., R. Merino, 'Law and Politics of the Human/Nature: Exploring the Foundations and Institutions of the 'Rights of Nature', in U. Natarajan and J. Dehm (eds.), *Locating Nature: Making and Unmaking International Law* (2022), 307, at 329. See also E. Jones, 'Posthuman International Law and the Rights of Nature', (2021) 12 JHRE 76.

[130]The Inter-American Court of Human Rights, for instance, has recognized natural entities, including animals, plants, stones, and water bodies, as 'interconnecting living beings' under Indigenous cosmovisions. For a discussion see M.-C. Petersmann, 'Contested Indigeneity and Traditionality in Environmental Litigation: The Politics of Expertise in Regional Human Rights Courts', (2021) *Human Rights Law Review* 132.

[131]See, e.g., A. Grear, 'It's Wrongheaded to Protect Nature with Human-Style Rights', available at https://aeon.co/ideas/its-wrongheaded-to-protect-nature-with-human-style-rights; M. Petersmann, 'In the Break (of Rights and Representation): Sociality beyond the Non/Human Subject', (2023) *International Journal of Human Rights* (first view).

[132]A. Last, 'To Risk the Earth: The Nonhuman and Nonhistory', (2018) *Feminist Review* 87, at 88.

[133]See, e.g., N. Naffine, 'Who are Law's Persons? From Cheshire Cats to Responsible Subjects', (2003) 66 MLR 346; A. Grear, 'The Closures of Legal Subjectivity: Why examining "Law's Person" is Critical to an Understanding of Injustice in an Age of Climate Crisis', in A. Grear and L. Kotzé (eds.), *Research Handbook on Human Rights and the Environment* (2015), 79.

[134]For an overview see Markard, Raven and Truffer, *supra* note 56.

[135]See, e.g., D. Manuel-Narravete, 'Power, Realism, and the Ideal of Human Emancipation in a Climate of Change', (2010) *WIREs Climate Change* 781; M. Pelling, D. Manuel-Navarrete and M. Redclift (eds.), *Climate Change and the Crisis of Capitalism: A Chance to Reclaim Self, Society, and Nature* (2012).

[136]United Nations General Assembly, Rio Declaration on Environment and Development, UN Doc. A/Conf151/26 (1992).

[137]See L. J. Kotzé and S. Adelman, 'Environmental Law and the Unsustainability of Sustainable Development: A Tale of Disenchantment and of Hope (2023) 34 Law and Critique 227; S. Adelman, 'Justice, Development and Sustainability in the Anthropocene', in P. Cullet and S. Koonan (eds.), *Research Handbook on Law, Environment and the Global South* (2019), 14.

[138]United Nations General Assembly, The Future We Want, UN Doc. A/RES/66/288 (2012). 'Green growth' has emerged as a label for economic growth that is decoupled from resource use and carbon emissions. For a critique see J. Hickel and G. Kallis, 'Is Green Growth Possible?', (2020) 25 *New Political Economy* 469.

[139]U. Natarajan and K. Khoday, 'Locating Nature: Making and Unmaking International Law', (2014) 27 LJIL 573, at 592.

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independent of each other, international law has turned landscapes into 'sovereign' 'territories'[140] and ecosystems into 'property' and 'resources'.[141]

A discursive technique that sustains this ideological premise of international law is the 'ambition narrative'.[142] Underpinning, for example, the UN's 2030 Agenda[143] and the Paris Agreement itself, the notion of ambition sides with a conception of change that is based on progress and continuous improvement. It portrays 'the international legal landscape to be reliant on a process of constant betterment'.[144] Here, the negative side of transformations, in particular notions of un-learning and un-doing, become marginalized. Instead, the gaze of international law remains firmly fixed on the promise of a better future that is based on international progress, social improvement, economic growth, and technological innovation.[145] What the examples of sustainable development and ambition bring to the fore is how international law's ideological underpinnings, as manifest in the conceptual and discursive canon that sustains the discipline, mirror unresolved tensions in transformation thinking. The final, and perhaps most fundamental, entry point for international law to engage with transformation thinking, thus, lies in radically de- and re-constructing 'disciplinary tenets ... in directions that radically transform the nature of the discipline'.[146]

6. International law: A discipline of/in transformation?

This article critically engaged with the notion of 'transformation' as a paradigm of international (climate) law that has emerged since the adoption of the Paris Agreement at COP21. Taking seriously problematic tendencies to mobilize the notion of transformation as a 'buzzword' with little analytical import,[147] the article developed an ontology of transformative change, identifying transformative temporality, the actualization of impossible possibilities, and distributed engagement as three central features of transformation processes. Having offered a nuanced conceptual understanding of what transformative change entails, the article then took a critical look at the notion of transformation. It brought to the fore tensions that remain unresolved in the transformation literatures and linked them to international law. In so doing, it identified entry points for how international law could further engage with the imperative for transformative change in a meaningful way. These build on emerging discourses in international law scholarship and include: exploring possibilities of sectoral approaches to achieving greenhouse gas emission reductions; acknowledging historical responsibility for climate injustices and providing meaningful reparations for climate harms; reconfiguring notions of 'subjectivity' and 'collectivity' in international legal discourse; and critically engaging with central conceptual tenets of international law.

[140]K. Mickelson, 'The Maps of International Law: Perceptions of Nature in the Classification of Territory Beyond the State', in U. Natarajan and J. Dehm (eds.), *Locating Nature: Making and Unmaking International Law* (2022), 159; T. McCreary and V. Lamb, 'Reflections on a Political Ecology of Sovereignty: Engaging International Law and "the Map"', in ibid., at 134; C. Storr, 'Denaturalising the Concept of Territory in International Law', in ibid., at 179.

[141]I. Porras, 'Appropriating Nature: Commerce, Property and the Commodification of Nature in the Law of Nations', in ibid., at 111; J. Dehm, 'Reconfiguring Environmental Governance in the Green Economy: Extraction, Stewardship and Natural Capital', in ibid., at 70.

[142]L.-A. Duvic-Paoli, 'International Law: A Discipline of Ambition', (2022) 36 LJIL 233.

[143]United Nations General Assembly, Transforming our World: the 2030 Agenda for Sustainable Development, UN Doc. A/RES/70/1 (2015), Preamble, para. 39.

[144]See Duvic-Paoli, *supra* note 142, at 8.

[145]I. Porras, 'Binge Development in the Age of Fear: Scarcity, Consumption, Inequality, and the Environmental Crisis', in B. Stark (ed.), *International Law and its Discontents* (2015), 25.

[146]See Natarajan and Khoday, *supra* note 139, at 575. See also U. Natarajan and J. Dehm, 'Introduction: Where is the Environment. Locating Nature In International Law', in Natarajan and Dehm, *supra* note 140, at 1; J. Viñuales, 'The Organisation of the Anthropocene: In Our Hands', (2018) 1 *International Legal Theory and Practice* 1.

[147]See Feola, *supra* note 49, at 377.

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What emerges from the foregoing is that the transformative project envisioned by the Paris Agreement impels legal scholars to understand international law as centrally implicated in transformation processes. To unpack this further, let us circle back to the introductory section of the article and connect the notion of 'transformation' to that of 'crisis'. Arguably, a focus on crises can lead to a 'truncated and selective reading of events';[148] and notions of crisis may be interpreted to imply 'that we are simply faced with a perilous turning-point of modernity, a brief trial with an imminent outcome, or even an opportunity'.[149] These concerns rightly caution against using the notion of crisis as a catchword. However, when taken seriously, understanding the present moment as critical has analytical and normative implications. As French philosopher Michael Serres writes:

> The term crisis ... describes the state of an organism confronting a growing ... disease to the point where its existence is endangered ... In such a situation, appropriately called critical, the body automatically makes a decision: beyond the limit it has reached, it either dies or takes an entirely different path. It is a fork in the road and also a choice. If it survives the crisis, it goes a different way and recovers ... Recovery implies a new state ... If we are really going through a crisis ... then a return backwards is no good.[150]

In this quote, it is the last two sentences which are key. They explicate that, in crisis, the imperative is to change – to come up with something new. The concept of transformation developed in this article helps to clarify what kind of change is required; namely, change which directs itself towards what seems impossible under the status quo, but which could arguably happen under a radically different state of affairs.

At a theoretical level, this re-opens questions about international law's capacity to induce and support change.[151] Is (international) law's function really confined to stabilizing expectations by providing the means to insist on the normatively articulated (even in cases when expectations of compliance have been disappointed);[152] or can it also encourage and assist emergent ideas and practices that run up against the status quo? Re-articulating this question in a more provocative register one may ask: If transformations continuously keep everything in play, what is the capacity of law to intervene? In transformations, can law hold on to its promise to steer, regulate, reconcile, and co-ordinate? Or does law need to be come humbler, in the sense that it may need to nuance its promise, and claim, of having a 'world-making role'?[153]

In processes of change, law is torn between its dual functions of, on the one hand, regulating and, on the other hand, constituting collective life.[154] As a tool of regulation, law reconstructs pasts in the present to affirm existing norms in the now and project into the future. At the core, thus, law subscribes to a conservative logic. It emerges as an agent of stability. At the same time, however, law is a central conspirator in the construction of lives. It encodes what is possible at any given point in time, for instance in terms of what it means to act politically, which forms of labour and value are recognized, and what kinds of social relations can emerge or not.[155] Assigning meaning, describing relations, creating institutions, recording values, and encoding behaviour, law links reality to future states of affairs. Law, in other words, emerges as 'a system of tension or a bridge linking a concept of reality to an imagined alternative'.[156]

[148]See Charlesworth, *supra* note 1, at 382.

[149]C. Bonneuil and J.-B. Fressoz, *The Shock of the Anthropocene* (2017), at 21.

[150]M. Serres, *Times of Crisis: What the Financial Crisis Revealed and How to Reinvent our Lives and Future* (2014), at xi–xii.

[151]See, e.g., J. Brunnée and S. Toope, 'International Law and the Practice of Legality: Stability and Change', (2018) 49 *Victoria University of Wellington Law Review* 429.

[152]N. Luhmann, 'Recht als soziales System', (1999) 1 *Zeitschrift für Rechtssoziologie* 1, at 5–6.

[153]See d'Aspremont, *supra* note 1, at 83.

[154]See P. Kjaer, 'What is Transformative Law?', (2023) 1 *European Law Open* 760.

[155]See I. Kampourakis, 'Legal Theory in Search of Transformation', (2023) 1 *European Law Open* 808.

[156]R. Cover, 'The Supreme Court 1982 Term. Forward: *Nomos and Narrative*', (1983) 4 *Harvard Law Review* 4, at 9.

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In addition to these theoretical issues, the imperative for transformative change opens up questions about the nature, practice and, more broadly, the discipline of international law, in terms of its identity, rationale, and sense of purpose. Specifically, it challenges international law scholarship to think about its im/possibilities – what international law could, and what it should, become in climate crisis.[157] In this way, the transformation framing pushes the discipline out of learnt ways of engaging with and thinking about law, foregrounding aspects which hitherto have not been regarded as relevant. As such, while international law to some extent continues to perform its functions as an instrument or tool for navigating changing climatic conditions, the imperative for transformative change brings to the fore profound questions about what it means to be, to think about, and engage with law in climate crisis. We already see how technical aspects of international legal forms and practices are starting to be reconfigured. For instance, the Paris Agreement does not limit itself to setting out obligations between states. Rather, it relies on 'productive links' between international procedural obligations, strong climate laws and policies at the national level, and contributions from sub-national and private sector actors.[158] Unsettling established presuppositions about the purpose and function of international (climate) law – what it does, how it works, and who it addresses – the Paris Agreement evidences how the discipline is not only one of, but one *in*, transformation.

[157]See L. Mai, 'The "Question of Possibilities" as a Leitmotif for Re-imagining Law for the Anthropocene', (2022) 13 *Global Policy* 49.

[158]See Rajamani, *supra* note 5, at 189. See also L. Mai, 'The Growing Recognition of Transnational Climate Governance Initiatives in the UN Climate Regime: Implications for Legal Scholarship', (2018) 8 *Climate Law* 183.

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