Transnational Environmental Law, 8:3 (2019), pp. 437–461 © 2019 Cambridge University Press
doi:10.1017/S2047102519000098

SYMPOSIUM ARTICLE

Global Governance, Sustainability and the Earth System: Critical Reflections on the Role of Global Law†

Antonio Cardesa-Salzmann* and Endrius Cocciolo**

First published online 21 May 2019

Abstract

This article begins by questioning the capacity of the concept of sustainable development to stabilize social reproduction and foster global justice. Based on interdisciplinary perspectives on global governance, it discusses the way in which global law fails to cope with the resonance of advanced capitalism in the world society and ecological systems. Our analysis focuses on the regulatory and institutional features of three interwoven functional regulatory regimes (global finance, energy, and environmental protection), which demonstrate structural governance dysfunction at the expense of ecological integrity and justice in the global realm. The article further examines the capacity of global law to foster a 'compositive' and 'compensatory' contribution to global justice and the stability of the Earth system through global constitutionalism. In this context, it concludes that Neil Walker's global law approach provides a fertile analytical framework for describing the patterns of interaction between different species of global law but proves to be particularly 'slippery' in its normative propositions regarding the gap between global law and justice. Drawing from the Earth system approach, we argue in favour of a global material constitutionalism, recognizant of ecosystemic boundaries and socio-environmental impacts of the global socio-economic metabolism. We consider that the gap between global law and global justice is best addressed by devising more deliberative patterns of transnational governance, as well as ecosystem and human rights approaches, in order to accommodate the fair and equitable internalization of material limits

† This contribution is part of a collection of articles growing out of the conference 'Global Environmental Law', held at the Strathclyde Centre for Environmental Law and Governance, University of Strathclyde, Glasgow (United Kingdom (UK)), 4–5 Sept. 2017.

* Strathclyde Centre for Environmental Law and Governance, University of Strathclyde Law School, Glasgow (UK).
Email: antonio.cardesa-salzmann@strath.ac.uk

** Universitat Rovira i Virgili, Facultad de Ciencias Juridicas, Department of Public Law, Tarragona Centre for Environmental Law Studies (CEDAT), Tarragona (Spain).
Email: endrius.cocciolo@urv.cat

The contribution of Endrius Cocciolo to this article is part of the research project 'Global Climate Constitution: Governance and Law in a Complex Context' (Ref. DER2016-80011-P), co-funded by the Spanish Ministry of Economy and Competitiveness (MINECO) and FEDER (EU).

Both authors are grateful to the anonymous reviewers for their comments on this article. We are also grateful to Elisa Morgera for the invitation to participate in this Symposium Collection, as well as for her support and comments on previous drafts of the article. All views and errors are our own.

across global regulatory regimes that act as functionally differentiated economic constitutions of advanced capitalism.

Keywords: Global law, Global constitutionalism, Global socio-economic metabolism, Earth system governance, Anthropocene, Sustainability

1. INTRODUCTION

Sustainable development is a normative concept that was conceived as a paradigm to reconcile competing and conflicting interests in economic development, social welfare and environmental protection from an intra- as well as an intergenerational perspective.[1] In legal terms, sustainable development (SD) has been portrayed in multiple ways, either as a normative matrix for reinterpreting existing legal principles and rules and fostering the emergence of new ones,[2] or as a meta-legal principle that exerts interstitial normativity between antagonistic rules.[3] More recently, it has also been described as a decision-making framework for maintaining and achieving human well-being.[4]

Much has been written about SD in international law since its official launch in the 1987 Brundtland Report and the 1992 Rio Earth Summit.[5] While legal scholars generally remain loyal to its narrative, the perception also spreads that SD may already have seen its best days.[6] Following critical, interdisciplinary literature that focuses on the governmentality underlying this concept,[7] this article questions the discursive elements of SD that legitimize the present global social metabolism and modes of colonization of Nature[8] by resorting to a deflective language of procedural and distributive fairness. Our first assumption is that, in a way, mainstream understandings of SD perpetuate

---

1 World Commission on Environment and Development (WCED), *Our Common Future: Report of the World Commission on Environment and Development* (Oxford University Press, 1987).

2 P.M. Dupuy, 'Où en est le droit international de l'environnement à la fin du siècle?' (1997) 101(4) *Revue générale de droit international public*, pp. 873–903.

3 V. Lowe, 'Sustainable Development and Unsustainable Arguments', in A. Boyle & D. Freestone (eds), *International Law and Sustainable Development: Past Achievements and Future Challenges* (Oxford University Press, 1999), pp. 19–37.

4 J.C. Dernbach & F. Cheever, 'Sustainable Development and Its Discontents' (2015) 4(2) *Transnational Environmental Law*, pp. 247–87.

5 WCED, n. 1 above; United Nations Conference on Environment and Development (UNCED), Rio de Janeiro (Brazil), 3–14 June 1992; M.C. Cordonnier Segger & A. Khalfan, *Sustainable Development Law: Principles, Practice and Prospects* (Oxford University Press, 2004); N. Schrijver, *The Evolution of Sustainable Development in International Law: Inception, Meaning and Status* (Martinus Nijhoff, 2008); M.C. Cordonnier Segger, Y. Saito & C.G. Weeramantry (eds), *Sustainable Development Principles in the Decisions of International Courts and Tribunals: 1992–2012* (Routledge, 2017).

6 J.E. Viñuales, 'The Rise and Fall of Sustainable Development' (2013) 22(3) *Review of European, Comparative and International Environmental Law*, pp. 3–13, at 4.

7 A. Hornborg, J. McNeill & J. Martínez-Alier (eds), *Rethinking Environmental History: World-System History and Global Environmental Change* (AltaMira, 2006); A. Hornborg, *International Trade and Environmental Justice: Toward a Global Political Ecology* (Nova Science, 2010); A. Hornborg, B. Clark & K. Hermele, *Ecology and Power: Struggles over Land and Material Resources in the Past, Present and Future* (Routledge, 2013).

8 M. Fischer-Kowalski & H. Haberl, 'Sustainable Development: Socio-Economic Metabolism and Colonization of Nature' (1998) 50(158) *International Social Science Journal*, pp. 573–87.

the 'vocabulary of private rights … that enabled the universal ordering of international relations by recourse to private property, contract, and exchange' in which informal empire is rooted.[9] Therefore, it looks compelling to disentangle the old notion of *sustainability*[10] – shared by the world's most ancient civilizations[11] – from that of *development* (which is historically and ideologically loaded).[12]

To this end, the normative concept of the Anthropocene and the Earth system approach seem particularly persuasive.[13] Indeed, the critical appraisal of the role of law for 'prompting, sustaining and potentially managing'[14] the Earth system in times of the Anthropocene's ecological crisis calls for a profound review of SD discourse. Earth system science is not a mere development of ecological sciences. It calls for a comprehensive study of the 'coevolution of geosphere, biosphere and the techno-anthroposphere', thus representing a paradigm shift that provides new ways of conceptualizing the Earth 'as an integrative meta-science of the whole planet as an integrated, complex, evolving system, beyond a collection of ecosystems' or isolated global processes.[15]

Indeed, the transition from the Holocene to the Anthropocene signifies a new perception of humankind, in which humans have become an Earth-shaping force of geological proportions.[16] Yet, the ecological instability of the Anthropocene and the worldwide fragmentation of social systems challenge the cultural foundation of modernity as well as its modes of organizing power and our understanding of the creation and role of law.[17]

Against this theoretical background, we further assume the necessity of transcending the hitherto (narrow) rationale of SD discourse regarding environmental law as a platform from which merely to manage negative externalities of social transactions. In order to understand the role of law in the era of globalization, legal scholars, practitioners and activists need to reflect critically on how fundamental legal categories 'have played (and still may play) a role in prompting and sustaining the Anthropocene as well as how they may be adjusted or perhaps replaced in the law of more resilient and more respectful human societies'.[18]

---

9 M. Koskenniemi, 'Empire and International Law: The Real Spanish Contribution' (2011) 61(1) *University of Toronto Law Journal*, pp. 1–36 .

10 K. Bosselmann, *The Principle of Sustainability: Transforming Law and Governance* (Ashgate, 2008).

11 *Gabčíkovo-Nagymaros Project (Hungary* v. *Slovakia)*, Judgment, 25 Sept. 1997, Separate Opinion of Vice-President Weeramantry, (1997) *ICJ Reports*, p. 7, at 107–9.

12 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* (Routledge, 2017), pp. 297–316, at 303; D. French, 'Sustainable Development and the Instinctive Imperative of Justice in the Global Order', in D. French (ed.), *Global Justice and Sustainable Development* (Martinus Nijhoff, 2010), pp. 3–35.

13 F. Biermann, *Earth System Governance: World Politics in the Anthropocene* (The MIT Press, 2014).

14 J.E. Viñuales, 'The Organization of the Anthropocene: In Our Hands?' (2018) 1 *Brill Research Perspectives in International Legal Theory and Practice*, pp. 1–81, at 2.

15 C. Hamilton, 'The Anthropocene as Rupture' (2016) 3(2) *The Anthropocene Review*, pp. 93–106, at 95.

16 Viñuales, n. 14 above.

17 F. Biermann, 'The Anthropocene: A Governance Perspective' (2014) 1(1) *The Anthropocene Review*, pp. 57–61.

18 Viñuales, n. 14 above, pp. 7–8.

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press

To this end, despite criticism regarding its 'slipperiness',[19] we will take as a conceptual and terminological reference Neil Walker's understanding of global law. In this perspective, global law is not a new and distinct body of law but, rather, it encapsulates all forms of legal phenomena sharing 'a practical endorsement of or commitment to the universal or otherwise global-in-general warrant of some laws or some dimension of law'.[20] This fluid and dynamic understanding of global law transcends the classical conceptual trichotomy between the legal realms of the international, the transnational and the domestic, describing it as a decentred, universally applicable legal phenomenon of the 'in-between', or 'inter-legality'.[21] Walker famously maps different types of global law,[22] most of which he classifies among convergence-promoting or divergence-accommodating species. These, in turn, are harnessed through overarching or underlying normative or historical-discursive approaches of law, including particularly global constitutionalism and global administrative law.[23]

Upon these theoretical premises, this article will elucidate whether the methodological and normative claims that are inherent in Walker's global law approach[24] have the potential for devising convergence-promoting and divergence-accommodating models, methods or strategies for constitutionalizing effective counterbalances to the expansive rationale of some societal systems over others, much to the benefit of global distributive justice and sustainability. Indeed, the fair and equitable distribution of economic and environmental goods and burdens is increasingly perceived as indispensable to any viable solution to the global ecological crisis. Halting the deterioration of ecosystems and promoting sustainability are intrinsically linked to equity and justice,[25] and law has a critical role to play in ensuring that human activities remain within planetary boundaries.[26] Therefore, we already anticipate a rather sceptical understanding of the transformative potential of global legal processes, if these were understood independently or autonomously from the inherent material dimension of the global social metabolism and the Earth system.

Accordingly, Section 2 explores critical interdisciplinary perspectives from anthropology, sociology, and economics on global governance for an appraisal of how law – at different levels of ordering (international, transnational, domestic) – deals with the effects of advanced capitalism on individuals, communities, and social and ecological systems. Against this backdrop, Section 3 critically reviews global governance, focusing on regulatory, institutional, and procedural features of two somewhat counter-intuitively,

---

19 R. Collins, 'The Slipperiness of "Global Law"' (2017) 37(3) *Oxford Journal of Legal Studies*, pp. 714–39.

20 N. Walker, *Intimations of Global Law* (Cambridge University Press, 2014), p. 29.

21 P.F. Kjaer, 'Constitutionalizing Connectivity: The Constitutional Grid of World Society' (2018) 45(S1) *Journal of Law and Society*, pp. S114–S134, at SS120–1.

22 Walker, n. 20 above, p. 3.

23 Ibid., pp. 86–106.

24 Collins, n. 19 above, p. 737.

25 P.R. Ehrlich, P.M. Kareiva & G.C. Daily, 'Securing Natural Capital and Expanding Equity to Rescale Civilization' (2012) 486(7401) *Nature*, pp. 68–73.

26 G. Chapron et al., 'Bolster Legal Boundaries to Stay within Planetary Boundaries' (2017) 1(3) *Nature Ecology & Evolution*, pp. 1–5.

but nevertheless deeply interwoven policy areas: global finance and global environmental protection. It seeks to pinpoint the structural inconsistency between the respective rationales and the underlying legal frameworks of the global economic system and the Earth system. Against the backdrop of Walker's global law approach, Section 4 finally turns to discussing the role of law in overcoming the identified systemic mismatches between global constitutional segments of the world society that lead to critically unsustainable patterns of reproduction.

2. SUSTAINABILITY, LAW AND JUSTICE: LEGAL AND EXTRA-LEGAL PERSPECTIVES

Mainstream understandings of *development* have been forged in the Global North and diffused across different geographical, economic, and cultural contexts through globalization. Throughout this process, however, cultural traditions interacting with the natural world according to premises other than material accumulation have been systematically sidelined.[27] Initially framed as a sacred trust of civilization of formerly colonial peoples,[28] development (as opposed to underdevelopment) gradually replaced the former distinction between the civilized and the uncivilized in the course of the twentieth century.[29] Conspicuous social and ecological impacts of the civilizational and developmental agendas have elicited its modulation over time.[30] Indeed, SD is the latest normative concept that qualifies the development paradigm, reshaping it in socially and environmentally more responsible terms. It does so, however, without fundamentally calling into question the underlying governmentality of advanced capitalism.

As Jorge Viñuales has convincingly argued, the intrinsic prescriptive vagueness of SD was part of a 'diplomatic trick' that has been remarkably effective in promoting the growth of global principled agreements between the North and the South for harnessing economic, social, and environmental concerns in a wide range of issue areas. The flip side of this indeterminacy, however, has been SD's wanting normative pull for deciding trade-offs between conflicting interests and cosmologies of the North and the South.[31] SD has thus been unable to effectuate any meaningful behavioural change that would have compromised the mainstream understanding of *development* with the objectives of social equity and ecological sustainability as a matter of global common concern. The argument can be made that, while paying lip service to sustainability, SD discourse actually legitimizes business as usual. Indeed, specific regulatory

27 R. Gordon, 'Unsustainable Development', in S. Alam et al. (eds), *International Environmental Law and the Global South* (Cambridge University Press, 2015), pp. 50–73, at 55.

28 Covenant of the League of Nations, Paris (France), 28 June 1919, in force 10 Jan. 1920, Art. 22, available at: http://avalon.law.yale.edu/20th_century/leagcov.asp.

29 L. Obregón, 'The Civilized and the Uncivilized', in B. Fassbender & A. Peters (eds), *The Oxford Handbook of the History of International Law* (Oxford University Press, 2012), pp. 917–39.

30 W. Twining, *General Jurisprudence: Understanding Law from a Global Perspective* (Cambridge University Press, 2009), p. 329.

31 Viñuales, n. 6 above, p. 4.

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press

approaches in the climate change[32] and biodiversity regimes[33] have opened new perspectives for *development* through the financialization of natural resources. In so doing, however, the SD narrative deliberately conceals the enduring adverse impact that *development* has on the natural world.

From a sociological perspective, globalization – understood as the transition from industrial Fordist capitalism to advanced financial capitalism – has led to the worldwide primacy of the economic system, with its specific rationality of privatization, over other social systems. This prevalence of the economic system over social reproduction has fostered the structural decoupling of different social systems (political, legal, etc.) and the ecological system. The last financial/economic crisis of 2008 and the ongoing ecological crisis are negative consequences of this kind of contemporary postmodern order characterized by radical contingency and uncertainty.[34]

Yet, as we shall argue, the attempt to tackle global governance gaps through the traditional, mainstream regulatory rationality constitutes a failure to recognize the 'constitutional moment' of international – or, rather, global – law,[35] which is arising from the postmodern world society and its post-national ordering. At the same time, this 'constitutional moment' is by no means an uncontested phenomenon. Rather, counter-tendencies throughout the world in the form of resurgent populism, nationalism and authoritarianism – even religious radicalism – are symptoms of illiberal reactions by segments of the world society at odds with the structural changes of the postmodern world. Be that as it may, the worldwide expansion of capitalism has outpaced state-centred society based on national segmentation, and has promoted the emergence of globally operating structures. From a legal perspective, this means a shift from a homogeneous normative space that secures legal certainty – the state – to a fragmented space – the global transnational society – which challenges the very premises of positivism.

International legal scholarship has addressed this shift in the structure of global society from different theoretical premises, the most significant currents being global constitutionalism,[36] global administrative law,[37] post-colonialism,[38] and

---

32 L. Lohmann, 'Financialization, Commodification and Carbon: The Contradictions of Neoliberal Climate Policy' (2012) 48 *Socialist Register*, pp. 85–107.

33 A. Kotsakis, 'Change and Subjectivity in International Environmental Law: The Micro-Politics of the Transformation of Biodiversity into Genetic Gold' (2014) 3(1) *Transnational Environmental Law*, pp. 127–47.

34 O. Kessler, 'The Same as It Never Was? Uncertainty and the Changing Contours of International Law' (2011) 37(5) *Review of International Studies*, pp. 2163–82.

35 Walker, n. 20 above.

36 M. Koskenniemi, 'Constitutionalism as Mindset: Reflections on Kantian Themes about International Law and Globalization' (2007) 8(1) *Theoretical Inquiries in Law*, pp. 9–36; J. Klabbers, A. Peters & G. Ulfstein, *The Constitutionalization of International Law* (Oxford University Press, 2009).

37 B. Kingsbury, N. Krisch & R.B. Stewart, 'The Emergence of Global Administrative Law' (2005) 68 (3&4) *Law and Contemporary Problems*, pp. 15–62.

38 B. Rajagopal, *International Law from Below: Development, Social Movements and Third World Resistance* (Cambridge University Press, 2003); A. Anghie, *Imperialism, Sovereignty and the Making of International Law* (Cambridge University Press, 2004); B.S. Chimni, 'Third World Approaches to International Law: A Manifesto' (2006) 8(1) *International Community Law Review*, pp. 3–27.

pluralism.[39] Despite embodying inherently vague political agendas and having clearly divergent points of focus, common threads and synergistic approaches among them are discernible. Whereas global constitutionalism strives for systemic unity, coherence, and legitimacy of international law and governance, post-colonialism pursues the demythologization of international law as imperialistic and Western-biased and its remythologization in favour of peoples of the developing world, towards a fairer, more balanced global legal system.[40] Both approaches coincide, however, on specific objectives such as the promotion of transparency and accountability by international institutions and transnational corporations, the enhancement of an effective use of the language of rights by injecting peoples' interests in non-territorialized legal orders, and the promotion of sustainability and equity.[41] Global administrative law, in turn, with its relatively narrow focus on the global or transnational administrative space and as a theory of global public authority, has only a limited 'compensatory' ambition of marginal impact for addressing the deep structural fragmentation in global governance.[42]

Equally, pivotal significance is increasingly ascribed to less normative, more analytical and empirical approaches – such as law in context[43] – which acknowledge legal pluralism in global society, and its trans- or multi-civilizational dimensions.[44] Such a nuanced approach is thought to dilute and mitigate West- and state-centrism, especially in global constitutionalism, thus promoting less normative and more sociological conceptions thereof. Against the intuitive perception of an intrinsic antagonism between pluralism and constitutionalism,[45] this purported dichotomy has convincingly been portrayed as false, thus making the case for constitutional pluralism.[46] This eclectic understanding is particularly pertinent to societal constitutionalism.[47]

---

39 G. Teubner, 'Breaking Frames: The Global Interplay of Legal and Social Systems' (1997) 45(1) *American Journal of Comparative Law*, pp. 149–69; A. Fischer-Lescano & G. Teubner, 'Regime-Collisions: The Vain Search for Legal Unity in the Fragmentation of Global Law' (2004) 25(4) *Michigan Journal of International Law*, pp. 999–1046.

40 C. Focarelli, *International Law as Social Construct: The Struggle for Global Justice* (Oxford University Press, 2012), pp. 123–32.

41 Chimni, n. 38 above, p. 7.

42 N. Walker, 'The Gap between Global Law and Global Justice: A Preliminary Analysis', in N. Roughan & A. Halpin (eds), *In Pursuit of Pluralist Jurisprudence* (Cambridge University Press, 2017), pp. 216–38, at 234.

43 W. Twining, *Globalization and Legal Theory* (Butterworths, 2000); W. Twining, 'Law, Justice and Rights: Some Implications of a Global Perspective', in J. Ebbesson & P. Okowa (eds), *Environmental Law and Justice in Context* (Cambridge University Press, 2009), pp. 76–97.

44 Y. Onuma, *A Transcivilizational Perspective on International Law: Questioning Prevalent Cognitive Frameworks in the Emerging Multi-Polar and Multi-Civilizational World of the Twenty-First Century* (Martinus Nijhoff, 2010).

45 N. Krisch, *Beyond Constitutionalism: The Pluralist Structure of Postnational Law* (Oxford University Press, 2010).

46 N. Walker, 'The Idea of Constitutional Pluralism' (2002) 65(3) *The Modern Law Review*, pp. 317–59; A. Stone Sweet, 'The Structure of Constitutional Pluralism: Review of Nico Krisch, Beyond Constitutionalism: The Pluralist Structure of Post-National Law' (2013) 11(2) *International Journal of Constitutional Law*, pp. 491–500.

47 D. Sciulli, *Theory of Societal Constitutionalism: Foundations of a Non-Marxist Critical Theory* (Cambridge University Press, 1992); G. Teubner, *Constitutional Fragments: Societal Constitutionalism and Globalization* (Oxford University Press, 2012); P.F. Kjaer, *Constitutionalism in the Global Realm: A Sociological Approach* (Routledge, 2014).

The above debate reflects mainly the formal dimension of the challenges to international (public) law – such as deformalization, fragmentation, and empire – that arise from shifts in the deep structure of the world society.[48] Yet, a comprehensive appraisal of gaps in global law and governance also requires addressing its material dimension. This research, therefore, builds upon specific extra-legal approaches, methodologies and concepts – above all, global social metabolism, the Earth system approach, and critical systems theory – which allow an empirical appraisal of the socio-environmental impacts of advanced capitalism, while disentangling the underlying ideologically biased governmentality.[49]

Global socio-economic metabolism (GSM) is a notion developed in the social sciences such as anthropology, sociology, and economics from the late 1960s. According to Marina Fischer-Kowalski,[50] the concept of social metabolism attempts to cut across the 'great divide' between natural and social sciences and bring together the biological concept of *metabolism* to describe and assess the material and energetic processes within the economy and society vis-à-vis natural systems. GSM is thus a fully fledged interdisciplinary programme, which maps the interactions between societies and their natural environment. In terms of methodology, it relies on *material flow analysis*,[51] which enables an assessment of the overall material and energetic turnover of national economies, thereby providing 'macroparameters for environmental performance and efficiency that relate well to the established economic macroparameters generated by national accounts'.[52] In the field of anthropology, the metabolic paradigm has been applied to assess global patterns of exchange. Influenced by the work of Marxist economists,[53] structuralists,[54] and world system analysis theorists,[55] Alf Hornborg combines the metabolic paradigm with the notion of 'ecological unequal exchange'[56] to argue that present

48 Koskenniemi, n. 36 above, p. 13.

49 H. Stevenson, 'Alternative Theories of Global Environmental Politics: Constructivism, Marxism and Critical Approaches', in P.G. Harris (ed.), *Routledge Handbook of Global Environmental Politics* (Routledge, 2013), pp. 42–55.

50 M. Fischer-Kowalski, 'Society's Metabolism: The Intellectual History of Materials Flow Analysis, Part I, 1860–1970' (1998) 2(1) *Journal of Industrial Ecology*, pp. 61–78, at 64–9.

51 K.E. Boulding, 'The Economics of the Coming Spaceship Earth', in H. Jarrett (ed.), *Environmental Quality in a Growing Economy: Essays from the Sixth Resources for the Future Forum* (Johns Hopkins Press, 1966), pp. 3–14; R.U. Ayres & A.V. Kneese, 'Production, Consumption, and Externalities' (1969) 59(3) *American Economic Review*, pp. 282–97.

52 M. Fischer-Kowalski & W. Hüttler, 'Society's Metabolism: The Intellectual History of Materials Flow Analysis, Part II, 1980–1998' (1998) 2(4) *Journal of Industrial Ecology*, pp. 107–36, at 122.

53 A. Emmanuel, *L'échange inégal* (François Maspero, 1969).

54 R. Prebisch, 'The Economic Development of Latin America and Its Principal Problems' (Economic Commission for Latin America, United Nations Department of Economic Affairs, 27 Apr. 1950), UN Doc. E/CN.12/89/Rev.I.

55 I. Wallerstein, *The Modern Word System, Vol I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century* (Academic Press, 1974); I. Wallerstein, *The Modern Word System, Vol II: Mercantilism and the Consolidation of the European World-Economy, 1600–1750* (Academic Press, 1980); I. Wallerstein, *The Modern Word System, Vol III: The Second Great Expansion of the Capitalist World-Economy, 1730–1840s* (Academic Press, 1989); I. Wallerstein, *The Modern Word System, Vol IV: Centrist Liberalism Triumphant, 1789–1914* (University of California Press, 2011).

56 S.G. Bunker, *Underdeveloping the Amazon: Extraction, Unequal Exchange, and the Failure of the Modern State* (University of Chicago Press, 1985), pp. 20–31.

cornucopian perceptions of *development* represent a (Western) cultural and ideological illusion that conceals a global environmental 'zero-sum game', in which the economic and technological expansion of the capitalist core nations necessarily occur at the expense of the peripheral areas of the world system. Mainstream discourses on 'sustainability' or – worse – 'resilience'[57] are thus portrayed as empty rhetoric aimed at ideologically disarming the necessary acknowledgement of the world system's present and historical socio-ecological contradictions.[58]

For the purpose of our argument, GSM and ecologically unequal exchange combine structuralist and post-structuralist approaches that make the intrinsic inconsistencies of current global governance discernible. They coincide with the Earth system approach in pinpointing the finite material dimension of the planetary ecosystem and in regarding human societies as an integral part of that system. Yet, they differ from the latter as they propound a distinct neo-Marxist methodology which emphasizes the cultural premises, ideological biases, and socio-economic inequities of the GSM. Ecological economics applies the concepts and methods inherent in the social-metabolic approach to provide a structural account of global socio-ecological or environmental injustice.[59] In turn, anthropology and human ecology add value by bringing in a post-structuralist lens to appraise the cultural premises of the mainstream discourses that sustain the GSM and present patterns of exchange.

3. THE GLOBAL FINANCE-AND-ENERGY COMPLEX VIS-À-VIS GLOBAL ENVIRONMENTAL GOVERNANCE: A TALE OF FRAGMENTATION

Globalization has outgrown traditional Westphalian patterns of international governance. While nation states maintain their formal status in the global political arena, social movements, markets and multinational corporations, boosted by innovation and technologies, are displacing state authority and generating 'complex feedback loops between social and ecological systems'.[60] Global financial markets and climate change are two paradigmatic areas where these gaps are blatant. Relying on interdisciplinary non-legal theories – developed mainly in the fields of ecological economics,[61] cultural anthropology,[62] and

[57] For a critical account of the underlying ideology of the notion of 'resilience' see J. Joseph, 'Resilience as Embedded Neoliberalism: A Governmentality Approach' (2013) 1(1) *Resilience*, pp. 38–52.

[58] A. Hornborg, 'Zero-Sum World: Challenges in Conceptualizing Environmental Load Displacement and Ecologically Unequal Exchange in the World-System' (2009) 50(3&4) *International Journal of Comparative Sociology*, pp. 237–62.

[59] J. Martínez-Alier, *The Environmentalism of the Poor: A Study of Ecological Conflicts and Valuation* (Edward Elgar, 2003); J. Martínez-Alier et al., 'Social Metabolism, Ecological Distribution Conflicts, and Valuation Languages' (2010) 70(2) *Ecological Economics*, pp. 153–8.

[60] E.M. Battaglia, J. Mei & G. Dumas, 'Systems of Global Governance in the Era of Human-Machine Convergence', *arXiv* preprint, arXiv:1802.04255, 14 Feb. 2018, available at: https://arxiv.org/abs/1802.04255.

[61] G. Kallis, C. Kerschner & J. Martínez-Alier, 'The Economics of Degrowth' (2012) 84 *Ecological Economics*, pp. 172–80, at 173.

[62] A. Hornborg, 'The Money-Energy-Technology Complex and Ecological Marxism: Rethinking the Concept of "Use-Value" to Extend Our Understanding of Unequal Exchange, Part 1', *Capitalism*

environmental history[63] – the parallel ongoing financial and environmental crises are portrayed here not as randomly coinciding events, but rather as structural and interconnected phenomena that are rooted in paradoxical developments in the globalized economic system.

As a starting point, we will discuss two of the global economy's structural weaknesses: finance and energy. We will argue that advanced capitalism and its corresponding social metabolism relies on the 'compulsion to growth'[64] based on energy resources exploitation and money mechanism control. Both pillars of economic development lead to systemic risks: one through pollution and climate change, the other arising from the excess of private and sovereign debts and asset bubbles.

Against this background, we will finally portray international environmental law and governance as a set of rules, policies, and institutions devoted to coping with the ecological externalities of the resulting GSM. We will conclude that scattered international institutions are mandated to implement sectoral managerial regimes that are subservient to the overarching rationale of global economic and energy systems. In this setting, SD provides the legitimizing narrative.[65] Under these premises, however, the fundamental question remains whether international environmental law and governance have the capacity to effectively mitigate the deleterious effects of advanced capitalism on individuals, communities, and social and ecological systems.

3.1. *Advanced Capitalism's Finance-and-Energy Complex*

After the Second World War, the Westphalian-Keynesian framework of global economic governance outlined in the Bretton-Woods architecture was indeed an expression of United States (US) political, military, and economic hegemony. Eventually, the withdrawal of the Bretton-Woods arrangement put to an end the 'world-economy' model and the stability of currency exchange anchored to the gold standard. Henceforth, the hegemonic role of the US dollar as an international trade and reserve currency was ensured by stabilizing its exchange rate according to the paradigm of monetary flow balance and the liberalization of capital flows.[66] Implicit in this

Nature Socialism online articles, 22 Feb. 2018, doi: 10.1080/10455752.2018.1440614, available at: https://www.tandfonline.com/doi/full/10.1080/10455752.2018.1440614?src=recsys (Hornborg, Part 1); A. Hornborg, 'The Money–Energy–Technology Complex and Ecological Marxism: Rethinking the Concept of "Use-Value" to Extend Our Understanding of Unequal Exchange, Part 2', *Capitalism Nature Socialism* online articles, 29 Apr. 2018, doi: 10.1080/10455752.2018.1464212, available at: https://www.tandfonline.com/doi/full/10.1080/10455752.2018.1464212.

63 J.W. Moore, 'The Capitalocene, Part I: On the Nature and Origins of Our Ecological Crisis' (2017) 44(3) *The Journal of Peasant Studies*, pp. 594–630; J.W. Moore, 'The Capitalocene Part II: Accumulation by Appropriation and the Centrality of Unpaid Work/Energy' (2018) 45(2) *The Journal of Peasant Studies*, pp. 237–79.

64 G. Teubner, 'A Constitutional Moment? The Logics of "Hit the Bottom"', in P.F. Kjaer, G.Teubner & A. Febbrajo (eds), *The Financial Crisis in Constitutional Perspective: The Dark Side of Functional Differentiation* (Hart, 2011), pp. 3–42, at 5.

65 J. Jaria i Manzano, 'El constitucionalismo de la escasez: derechos, justicia y sostenibilidad' (2015) 30 *Revista Aranzadi de derecho ambiental*, pp. 295–349.

66 G. Di Gaspare, *Teoria e critica della globalizzazione finanziaria: dinamiche del potere finanziario e crisi sistemiche* (CEDAM, 2011).

transition from industrial to financial capitalism is a characteristic shift in economic ideology, with finance increasingly dominating the global understanding of economic mechanics. Accordingly, relying on a somewhat distorted interpretation of Adam Smith's theory of the invisible hand,[67] capital accumulation is thereafter sought primarily through financial channels and opaque, deregulated, over-the-counter markets, rather than traditional paths of production and trade.[68] As credibly argued by Luiz Carlos Bresser-Pereira, this process ultimately induced 'a general malfunction of the genome of finance',[69] understood as the economic science of 'goal architecture'.[70] Indeed, the relationship between society and banks is an issue of major political and constitutional significance[71] and is governed by 'social contract'. According to that contract, public authorities – backed by taxpayers – are responsible for enacting and enforcing any regulatory requirements necessary for the sustainability of the financial sector.[72] However, in contrast to the aspirations outlined above, the complex patterns of interaction between states, markets, and non-state actors in the current global system of 'regulatory capitalism'[73] have three distinctive features:

- formal and informal transnational networks of public and private actors operate largely beyond the control of public authorities;
- the financial industry is largely self-regulated and self-imposes operative standards which are eventually endorsed by public authorities; and
- public authorities and regulators have a structural dependence on private financial expertise, leading to 'regulatory capture'.[74]

The convergence of these factors explains the disproportionate weight of the neoliberal economic rationality in global financial governance.[75] As a result, global financial conglomerates are largely in command of the main source of money creation through the provision of credit guarantees, thereby '[compelling] the real economy to grow to an

67 L.E. Mitchell, 'Financialism: A (Very) Brief History', in C.A. Williams & P. Zumbansen (eds), *The Embedded Firm: Corporate Governance, Labor, and Finance Capitalism* (Cambridge University Press, 2012), pp. 42–59.

68 G.A. Epstein, *Financialization and the World Economy* (Edward Elgar, 2005), p. 3.

69 L.C. Bresser-Pereira, 'The Global Financial Crisis and a New Capitalism?' (2010) 32(4) *Journal of Post Keynesian Economics*, pp. 499–534, at 505.

70 R.J. Shiller, *Finance and the Good Society* (Princeton University Press, 2012), pp. 28–9.

71 Teubner, n. 64 above.

72 M. Ricks, 'Money and (Shadow) Banking: A Thought Experiment' (2012) 31(2) *Review of Banking and Financial Law*, pp. 731–48.

73 D. Levi-Faur, 'The Global Diffusion of Regulatory Capitalism' (2005) 598 *The Annals of the American Academy of Political and Social Science*, pp. 12–32; D. Levi-Faur, 'Varieties of Regulatory Capitalism: Sectors and Nations in the Making of a New Global Order' (2006) 19(3) *Governance*, pp. 363–6; D. Levi-Faur, 'The Regulatory State and Regulatory Capitalism: An Institutional Perspective', in D. Levi-Faur (ed.), *Handbook on the Politics of Regulation* (Edward Elgar, 2011), pp. 662–72.

74 E.S. Cohen, 'Assessing the Impact of the Global Financial Crisis on Transnational Regulatory Governance: The Case of Public–Private Hybrid Regulatory Networks', Third Biennial Conference of the European Consortium for Political Research (ECPR) Standing Group on Regulatory Governance, Dublin (Eire), 17–19 June 2010.

75 Ibid., p. 13.

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press

extent that is socially harmful'.[76] In sum, putting it in Poul Kjaer's terms, '[t]he introduction of a new financial regime upon the basis of monetarist ideology represented an unviable compensatory reaction to structural changes, which led to a partial breakdown of the functional separation between the political and the economic system'.[77] Thereafter, increasing growth rates would be required to maintain the expansionist logic of a hierarchical global financial system and the corresponding elastic approach to law that perpetuates the global core/periphery structure.[78]

From the perspective of the Earth system approach and GSM, moreover, the end of the gold standard stands for the illusory emancipation of governmentality from the material roots of wealth. It signifies the starting point of economic financialization and of an era of unprecedented alienation of humankind from nature.[79] The process of financialization marks the transition towards an untenable pattern of development that threatens global processes of social reproduction, because of the risk of crisis through coalescence,[80] and jeopardizing environmental sustainability by neglecting natural and ecological limits. This compulsion for growth has specific implications, when assessed through the lens of the second law of thermodynamics, or entropy law,[81] which explains the complex coupling between the economic and the energy systems. Economic growth under industrial capitalism required 'that industrial infrastructure – whether a factory, an industrial city, or the global "technomass" – [maintained] an unequal exchange of free energy with its hinterland in order to survive and grow'.[82] In turn, the intrinsic expansionism of the present financialized economy implies the issuance of 'money and debt to keep up the required nominal growth rates that cannot be sustained by the ecological economy', especially in terms of 'exhaustible fossil fuels and [other] materials which are ever more difficult to obtain at the commodity frontiers'.[83] Money is the language,[84] rather than the substance, of the economy and, ultimately, the economy is a function of surplus energy,[85] which depends more on the natural laws of thermodynamics than on artificial market laws. While this intrinsic connection

---

76 Teubner, n. 64 above, p. 5.

77 P.F. Kjaer, 'Law and Order Within and Beyond National Configurations', in P.F. Kjaer, G. Teubner & A. Febbrajo (eds), *The Financial Crisis in Constitutional Perspective: The Dark Side of Functional Differentiation* (Hart, 2011), pp. 395–430, at 417.

78 Katharina Pistor defines the notion of elasticity of law 'as the probability that ex ante legal commitments will be relaxed or suspended in the future; … [whereby] [i]n general, law tends to be relatively elastic at the system's apex, but inelastic in its periphery': K. Pistor, 'A Legal Theory of Finance' (2013) 41(2) *Journal of Comparative Economics*, pp. 315–30, at 319–21.

79 M. Carducci, 'Natura (diritto della)', in R. Sacco (ed.), *Digesto delle discipline pubblicistiche* (UTET Giuridicia, 2017), p. 492.

80 Kjaer, n. 77 above, p. 417.

81 N. Georgescu-Roegen, *The Entropy Law and the Economic Process* (Harvard University Press, 1971).

82 A. Hornborg, 'Footprints in the Cotton Fields: The Industrial Revolution as Timespace Appropriation and Environmental Load Displacement' (2006) 59(1) *Ecological Economics*, pp. 74–81.

83 Kallis, Kerschner & Martínez-Alier, n. 61 above, p. 173; R. Douthwaite, 'Degrowth and the Supply of Money in an Energy-Scarce World' (2012) 84(C) *Ecological Economics*, pp. 187–93.

84 T. Morgan, *Life after Growth* (Harriman House, 2013), p. 218.

85 Ibid., p. 163.

between energy and economy remains largely concealed by governmentality,[86] the 'world market trade orchestrates continuous asymmetric transfers of embodied land, energy, and materials which contribute to capital accumulation in core areas of the world-system', thus contributing to mainstreaming a global finance-and-energy complex.[87]

In conclusion, globalization and advanced capitalism have intensified processes of transnational ordering based on functional differentiation. This intensification, however, has resulted in a dangerous rupture between social systems and the Earth system. The financialization of the economic system has caused a pathological compulsion for growth, leading to cyclical economic crises and heightened ecological degradation and instability in the Anthropocene. The structural coupling of the economic and energy systems, as embodied in entropy law, has thus driven increasing supplies of energy that have backed money creation through credit.[88] Sharply dwindling energy returned on investment (EROI) rates,[89] however, clearly hint at fundamental inconsistencies in the rationale of the economic system and, consequently, at the risk of systemic collapse if the political and legal systems are unable to counterbalance and redress pathological developments.[90]

Rather than a mere technical issue of more regulation and supervision, any reform aimed at resolving this systemic crisis goes right to the heart of the economic constitution: the money mechanism.[91] More importantly, any reform of global governance requires anchoring legal discourse in the limits of the Earth system and meaningfully addressing global injustices in relation to the distribution of material wealth. Such an approach, however, requires acknowledging that 'examining the relationship between capital and energy may be the most important task for understanding the emergence and transformation of the global political economy'.[92] Pervasive neoliberal ideological biases will need to be purged from current global market constitutionalism[93] before a new global material constitutionalism that is both attuned to the limits of the Earth system and geared towards the stabilization of social reproduction can be developed.

---

86 A. Hornborg, *Global Ecology and Unequal Exchange: Fetishism in a Zero-Sum World* (Routledge, 2011), pp. 8–14.

87 Hornborg, Part 1, n. 62 above, p. 5.

88 G.E. Tverberg, 'Oil Supply Limits and the Continuing Financial Crisis' (2012) 37(1) *Energy*, pp. 27–34.

89 D.J. Murphy & C.A.S. Hall, 'Energy Return on Investment, Peak Oil, and the End of Economic Growth' (2011) 1219(1) *Annals of the New York Academy of Sciences*, pp. 52–72; C.A.S. Hall & K.A. Klitgaard, *Energy and the Wealth of Nations: Understanding the Biophysical Economy* (Springer, 2012), pp. 369–84.

90 On the implicit risks of an increasingly expensive carbon energy see S. Trommer & T. di Muzio, 'The Political Economy of Trade in the Age of Carbon Energy', in T. di Muzio & J.S. Ovadia (eds), *Energy, Capitalism and World Order: Toward a New Agenda in International Political Economy* (Palgrave, 2016), pp. 57–76. Hall & Klitgaard, ibid., pp. 385–92.

91 Teubner, n. 64 above.

92 T. di Muzio, 'IPE and the Unfashionable Problematic of Capital and Energy', in di Muzio & Ovadia, n. 90 above, pp. 23–40, at 24.

93 A.C. Cutler, 'The Judicialization of Private Transnational Power and Authority' (2018) 25(1) *Indiana Journal of Global Legal Studies*, pp. 61–96.

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press

3.2. *Limitations on Global Environmental Protection*

International environmental law is a relatively young area of international law, which emerged gradually over the 20th century out of general principles of law applied to issues of transboundary pollution and the management of shared natural resources. Towards the end of the century, however, the sense of urgency to address socio-environmental impacts of worldwide economic activities led to the inception of regional and global treaty-based regimes dealing with planetary environmental problems as issues of 'common concern of humankind'.[94] The 1972 United Nations (UN) Stockholm Conference on the Human Environment and the 1992 UN Rio Conference on Environment and Development are generally regarded as milestones in this development. Respectively, these summits (re)enacted the preventative principle and SD as normative cornerstones of contemporary international environmental law. Yet, the compromises enshrined in the 1992 Rio Declaration on Environment and Development and Agenda 21 concealed a precarious truce in the persistent North-South tensions in international environmental dialogue dating back to the 1972 Stockholm Conference.[95]

These tensions also decisively shaped the fragmented institutionalization of global environmental governance around the UN Environment Programme (UNEP),[96] which has been portrayed as a 'decentralized network of embedded, nested, clustered, and overlapping institutions'.[97] The recent institutional reform brought about by the 2012 UN Rio + 20 Summit[98] introduced only minor, incremental changes to global environmental governance.[99] This loose institutionalization has also been praised for its remarkable adaptiveness to exogenous change[100] and its variety of inter-institutional cooperative arrangements, both for normative regime development and for decision making in individual situations.[101]

This intrinsic flexibility, however, materializes in the absence of an overarching goal, a 'single, legally binding superior norm', able to steer the adaptive process towards

---

94 D. Bodansky, *The Art and Craft of International Environmental Law* (Harvard University Press, 2010), pp. 30–5.

95 Report of the UNCED, n. 5 above, Vol. 1, Resolutions adopted by the Conference, UN Doc. A/CONF.151/26/Rev.1 (Vol. I), Annex I (Rio Declaration), Annex II (Agenda 21), available at: http://www.un.org/documents/ga/conf151/aconf15126-1.htm.

96 M. Ivanova, 'Designing the United Nations Environment Programme: A Story of Compromise and Confrontation' (2007) 7(4) *International Environmental Agreements: Politics, Law and Economics*, pp. 337–61.

97 O.R. Young, 'Institutional Linkages in International Society: Polar Perspectives' (1996) 2(1) *Global Governance*, pp. 1–23, at p. 20.

98 UN Conference on Sustainable Development, Rio de Janeiro (Brazil), 20–22 June 2012.

99 K. Conca, *An Unfinished Foundation: The United Nations and Global Environmental Governance* (Oxford University Press, 2015), Ch. 6.

100 R.E. Kim & B. Mackey, 'International Environmental Law as a Complex Adaptive System' (2014) 14(1) *International Environmental Agreements: Politics, Law and Economics*, pp. 5–24; K. von Moltke, 'Clustering International Environmental Agreements as an Alternative to a World Environment Organization', in F. Biermann & S. Bauer (eds), *A World Environment Organization: Solution or Threat for Effective International Environmental Governance?* (Ashgate, 2005), pp. 175–204.

101 E. Hey, 'International Institutions', in D. Bodansky, J. Brunnée & E. Hey (eds), *The Oxford Handbook of International Environmental Law* (Oxford University Press, 2007), pp. 749–69, at 751–5.

safeguarding the integrity of Earth's life-support system.[102] Rather, what drives regulatory coordination and inter-institutional cooperation in this field are treaty-specific conflict clauses,[103] as well as secondary rules of general international law, such as the rule of consistent interpretation of treaties and the principle of systemic integration,[104] or the principle of mutual supportiveness.[105]

In this context, the interstitial normativity of SD was supposed to play a catalytic role, harnessing competing economic, social and ecological concerns in the implementation of conflicting rules and regimes.[106] Over the years, however, SD has revealed itself as highly ineffective in fostering such synergies between socio-economic development and environmental protection. As Viñuales puts it, when it comes to implementation 'the very strength of the concept of [SD] – its ability to encompass very different issues without clarifying the relations among them – is turning into its main weakness'. This indicates that the purported complementarity between economic development and environmental protection is far from obvious.[107]

This does not take away from the fact that, in attempting to deal with worldwide socio-environmental impacts of the economy, the protection of common interests has undoubtedly shaped the evolution of international environmental law and governance.[108] However, despite this trend towards common versus national interests in global and regional environmental regimes, the dominant underlying understandings of justice – rooted in property rights and self-interested reciprocity – are consistent with neoliberal political economic ideology.[109] Indeed, amidst the optimistic 'end-of-history' atmosphere of the immediate post-Cold War,[110] international environmental protection measures were to be applied through the use of 'smart' regulatory approaches,[111] with a clear trend towards a more prominent use of market-based systems of economic incentive.[112] Advocated as a far more effective means to internalize

---

102 R.E. Kim & K. Bosselmann, 'International Environmental Law in the Anthropocene: Towards a Purposive System of Multilateral Environmental Agreements' (2013) 2(2) *Transnational Environmental Law*, pp. 285–309.

103 R. Wolfrum & N. Matz, *Conflicts in International Environmental Law* (Springer, 2003); N. Matz-Lück, 'Harmonization, Systemic Integration, and "Mutual Supportiveness" as Conflict-Solution Techniques' (2006) 17 *Finnish Yearbook of International Law*, pp. 39–53.

104 C. McLachlan, 'The Principle of Systemic Integration and Article 31(3)(c) of the Vienna Convention' (2005) 54(2) *International and Comparative Law Quarterly*, pp. 279–320.

105 R. Pavoni, 'Mutual Supportiveness as a Principle of Interpretation and Law-Making: A Watershed for the "WTO-and-Competing-Regimes" Debate?' (2010) 21(3) *European Journal of International Law*, pp. 649–79.

106 Lowe, n. 3 above.

107 Viñuales, n. 6 above, p. 6.

108 E. Hey, 'Common Interests and the (Re)Constitution of Public Space' (2009) 39(3) *Environmental Policy & Law*, pp. 152–59, at 154.

109 C. Okereke, 'Global Environmental Sustainability: Intragenerational Equity and Conceptions of Justice in Multilateral Environmental Regimes' (2006) 37(5) *Geoforum*, pp. 725–38.

110 F. Fukuyama, 'The End of History?' (1989) 16 *The National Interest*, pp. 3–18.

111 N. Gunningham, 'Environment Law, Regulation and Governance: Shifting Architectures' (2009) 21(2) *Journal of Environmental Law*, pp. 179–212.

112 R.B. Stewart, 'Economic Incentives for Environmental Protection: Opportunities and Obstacles', in R.L. Revesz, P. Sands & R.B. Stewart (eds), *Environmental Law, the Economy, and Sustainable Development* (Cambridge University Press, 2000), pp. 171–244, at 220–7.

environmental costs and elicit behavioural change, their implementation by national authorities in the quest for SD was ultimately encouraged by Principle 16 of the 1992 Rio Declaration.[113] In this manner, SD has also contributed to accelerating the process of progressively supplementing public environmental regulation with private transnational regulation, thus generating a global 'hybrid' environmental governance regime.[114]

In this context, Chukwumerije Okereke validly argues that 'the compromise over the neoliberal political doctrine has led to aspirations of global environmental justice being downgraded and co-opted for neoliberal ends much to the disadvantage of the South and in negation of the original vision of global sustainability'.[115] Moreover, the progression towards the protection of common (environmental) interests, differential treatment,[116] and formal recognition of the principle of public participation in environmental governance (Principle 10 of the 1992 Rio Declaration) have not been able to redress the hitherto pervasive mismatch between substantive elements and institutional and decision-making patterns in global environmental law.[117]

4. PROMOTING CONVERGENCE AND ACCOMMODATING DIVERGENCE THROUGH GLOBAL LAW? CRITICAL REFLECTIONS ON LEGAL RECIPES FOR INTERCONNECTIVITY

The previous sections have set out our view on current governance gaps in the global realm. The fundamental thrust of our argument lies in the acknowledgement of a critical mismatch between 'the structural composition of the world society and the constitutional structures in place'[118] and, thus, the risk of systemic collapse. While structures that buttress a model of economic reproduction based on advanced capitalism have been extensively constitutionalized, global environmental law – with its rationality of risk management of the economy's ecological externalities – is ill equipped for effectively combating the systemic risks and keeping the global economic system within the Earth system's material boundaries of sustainability. Yet, there is no doubt that constitutionalism is permeating the global realm. At present, however, the degree of constitutionalization varies from one system or sector of the world society to the other, thus leading to a plurality of constitutional fragments in the world society.[119] As

[113] N. 95 above.

[114] O. Karassin & O. Perez, 'Shifting Between Public and Private: The Reconfiguration of Global Environmental Regulation' (2018) 25(1) *Indiana Journal of Global Legal Studies*, pp. 97–130.

[115] C. Okereke, *Global Justice and Neoliberal Environmental Governance: Ethics, Sustainable Development and International Cooperation* (Routledge, 2008), p. 123.

[116] P. Cullet, *Differential Treatment in International Environmental Law* (Ashgate, 2003); L. Rajamani, *Differential Treatment in International Environmental Law* (Oxford University Press, 2006).

[117] E. Hey, 'Global Environmental Law and Global Institutions: A System Lacking Good Process', in R. Pierik & W. Werner (eds), *Cosmopolitanism in Context: Perspectives from International Law and Political Theory* (Cambridge University Press, 2010), pp. 45–72.

[118] Kjaer, n. 77 above, p. 395.

[119] Teubner, n. 47 above, p. 1.

discussed earlier, this process of fragmented, sectoral constitutionalization is deeply imbued by neoliberal ideology.[120]

Our preceding diagnosis of the causes, depth and subsequent risks of this fragmentation is obviously controversial. The phenomenon of fragmentation itself, and the ensuing risk of systemic collapse, however, seem undisputed among different components of the world society. Borrowing Bruce Ackerman's well-known notion and translating it into the global realm, the argument can be made that the world society is currently undergoing a 'constitutional moment'.[121] Arguably, there is widespread recognition among actors within globalized society of the need for structural adjustment in the political and legal ordering and the reproduction of social systems. Along similar lines, but departing from their own distinctive take on international public authority, Armin von Bogdandy, Matthias Goldmann and Ingo Venzke have recently argued that the restructuring of global institutions and regimes to address identified structural mismatches in the world society will need to be legitimated by global public opinion.[122] This has an unmistakable global constitutional dimension. Drawing on Kjaer´s terminology, one might agree on the existence of evidence for a sort of global 'constitutional consciousness'.[123] Such a consciousness relies on 'a specific vision of the future upon the basis of a specific understanding of the past … providing a basis for counterfactual claims concerning a possible constitutional framing of a normative order in its entirety'.[124] Two kinds of development in international and transnational law and governance hint in this direction.

The adoption of the 'integrated and indivisible' Sustainable Development Goals (SDG)[125] and the climate change negotiations leading to the Paris Agreement[126] in 2015 provide first-hand evidence for the broad, polycentric political concern shared by state governments, international institutions, regional and local authorities, transnational private actors, indigenous peoples and communities, as well as the organized civil society, to constitutionalize sustainability at the macro or global level.[127] In reconfiguring the geostrategic balance between key parties in the climate change regime, reinterpreting the principle of common but differentiated responsibilities (CBDR) and acknowledging human rights language, as well as claims for climate justice in its

120 Cutler, n. 93 above, p. 64.

121 Focusing mainly on the discussion of the constitutional history of the US, Ackerman refers to constitutional moments as those '[occurring] when a rising political movement succeeds in placing a new problematic at the centre of … political life' and eventually triggers processes of higher lawmaking: B. Ackerman, 'A Generation of Betrayal?' (1997) 65(4) *Fordham Law Review*, pp. 1519–36. More generally, see also B. Ackerman, *We The People, Vol.1 Foundations* (Harvard University Press, 1993).

122 A. von Bogdandy, M. Goldmann & I. Venzke, 'From Public International to International Public Law: Translating World Public Opinion into International Public Authority' (2017) 28(1) *European Journal of International Law*, pp. 115–45.

123 Kjaer, n. 47 above, pp. 146–7.

124 Ibid.

125 UNGA Res. 70/1, 'Transforming Our World: The 2030 Agenda for Sustainable Development' (25 Sept. 2015), UN Doc. A/RES/70/1.

126 Paris (France), 12 Dec. 2015, in force 4 Nov. 2016, available at: http://unfccc.int/paris_agreement/items/9485.php.

127 A.D. Barnosky et al., 'Approaching a State Shift in Earth's Biosphere' (2012) 486(7401) *Nature*, pp. 52–8.

preamble,[128] the Paris Agreement makes an – admittedly limited – concession to counter-hegemonic claims, thus broadening and somewhat reshaping the discursive foundations of the climate regime.[129] As we argue below, a more prominent role of the language of human rights and obligations derived from the imperative of global justice is also critical for harnessing the global finance and energy complex with the governance of the Earth system in order to preserve its material boundaries. While generally perceived as critical breakthroughs, however, both mechanisms – the SDGs and the Paris Agreement – are also portrayed as weak governance instruments that largely reflect the fragmented structure of global law and governance.[130] Important as these macro-level milestones are, the breadth and intensity of the global constitutional consciousness is further made visible in meso- and micro-level developments, with the emergence of polycentric climate governance,[131] or the worldwide increasing phenomenon of climate change litigation across scales. Even more than high-profile cases such as the *Urgenda* case,[132] the critical significance of low-profile cases has been highlighted recently as crucial for the global coherence of climate change policy,[133] and will arguably have constitutional significance for the bottom-up crystallization of convergence-promoting and divergence-accommodating approaches, both within global climate change law and across different functionally specialized fragments of the global legal order.[134]

At the meso- and micro-levels, another significant manifestation of this constitutional moment or consciousness may be found in the doctrinal and regulatory developments regarding the legal concept of fair and equitable benefit sharing. Relying on a global law approach, Elisa Morgera raises the constitutional distinctiveness of the ecosystem approach vis-à-vis the precautionary principle in order to devise bespoke solutions for the sustainable management of the components of ecosystems in accordance

---

128 L. Rajamani, 'Ambition and Differentiation in the 2015 Paris Agreement: Interpretative Possibilities and Underlying Politics' (2016) 65(2) *International and Comparative Law Quarterly*, pp. 493–514; S. Adelman, 'Human Rights in the Paris Agreement: Too Little, Too Late?' (2018) 7(1) *Transnational Environmental Law*, pp. 17–36; S. Duyck, 'The Paris Climate Agreement and the Protection of Human Rights in a Changing Climate' (2015) 26 *Yearbook of International Environmental Law*, pp. 3–45; C. Okereke, 'Equity and Justice in Polycentric Climate Governance', in A. Jordan et al. (eds), *Governing Climate Change: Policentricity in Action?* (Cambridge University Press, 2018), pp. 320–37.

129 D. Bodansky, 'The Paris Climate Change Agreement: A New Hope?' (2016) 110(2) *American Journal of International Law*, pp. 288–319.

130 R.E. Kim, 'The Nexus between International Law and the Sustainable Development Goals' (2016) 25(1) *Review of European, Comparative & International Environmental Law*, pp. 15–26; Bodansky, ibid.

131 A.J. Jordan et al., 'Emergence of Polycentric Climate Governance and Its Future Prospects' (2015) 5(11) *Nature Climate Change*, pp. 977–82.

132 *Urgenda Foundation (on behalf of 886 Individuals)* v. *The State of the Netherlands (Ministry of Infrastructure and the Environment)*, 1st instance decision, Case No. C/09/456689, HA ZA 13-1396, ECLI:NL:RBDHA:2015:7145, 24 June 2015, District Court of The Hague. See J. van Zeben, 'Establishing a Governmental Duty of Care for Climate Change Mitigation: Will *Urgenda* Turn the Tide?' (2015) 4(2) *Transnational Environmental Law*, pp. 339–57; B. Mayer, 'Case Note – *The State of the Netherlands* v. *Urgenda Foundation*: Ruling of the Court of Appeal of The Hague (9 October 2018)' (2019) 8(1) *Transnational Environmental Law*, pp. 167–92.

133 K. Bouwer, 'The Unsexy Future of Climate Change Litigation' (2018) 30(3) *Journal of Environmental Law*, pp. 483–506.

134 Walker, n. 42 above, pp. 236–8.

with local cultural contexts.[135] Initially developed within the international biodiversity regime,[136] and later diffused to international law for the protection of oceans,[137] the ecosystem approach is defined as a 'strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way'. As such, it relies on the 'application of appropriate scientific methodologies focused on levels of biological organization [encompassing] the essential structure, processes, functions and interactions among organisms and their environment'. However, the distinctive feature of the ecosystem approach – as opposed to the precautionary principle – is that 'humans, with their cultural diversity, are an integral component of many ecosystems'.[138] In line with Article 8(j) of the Convention on Biological Diversity (CBD),[139] the cultural dimension of the ecosystem approach is a further crucial aspect in ensuring that traditional knowledge held by indigenous and local communities is valued equally with and complementary to scientific knowledge when determining the most suitable management strategies. It is equally pivotal for articulating fair and equitable patterns of decision making and benefit sharing.[140] The cultural dimension further intensifies the link between the ecosystem approach and various strands of international human rights law, thereby feeding into the debate on human rights and the environment. In sum, the ecosystem approach and its inherent notion of fair and equitable benefit sharing[141] lends itself to a meaningful cross-fertilization between different strands of international and transnational law. In so doing, it also has the potential to feed into deliberative processes set in motion by the constitutional moment in the world society.

Therefore, returning to the opening assumption of a constitutional moment, in this section we will discuss the transformative potential of these global legal processes for fostering a contribution to global justice and overcoming the critical mismatch identified between the structural composition of the world society and the constitutional structures in place. To that end, we will draw primarily on Walker's global law approach.[142] Walker's theoretical framework is particularly well-suited for grasping

---

135 E. Morgera, 'The Need for an International Legal Concept of Fair and Equitable Benefit Sharing' (2016) 27(2) *European Journal of International Law*, pp. 353–83, at 367; E. Morgera, 'The Ecosystem Approach and the Precautionary Principle', in E. Morgera & J. Razzaque (eds), *Biodiversity and Nature Protection Law* (Edward Elgar, 2017), pp. 70–80.

136 Convention on Biological Diversity (CBD) Secretariat, Conference of the Parties (COP) Decision V/6, 'Ecosystem Approach' (22 June 2000), UN Doc. UNEP/CBD/COP/5/23; and Decision VII/11, 'Ecosystem Approach' (13 April 2004), UN Doc. UNEP/CBD/COP/DEC/VII/11.

137 UNGA Res. 61/222, 'Oceans and the Law of the Sea' (20 Dec. 2006), UN Doc. A/RES/61/222.

138 CBD Secretariat, COP Decision VII/11, n. 136 above, Annex I 'Refinement and Elaboration of the Ecosystem Approach, based on Assessment of Experience of Parties in Implementation', paras 1 and 2.

139 Rio de Janeiro (Brazil), 5 June 1992, in force 29 Dec. 1993, available at: http://www.cbd.int/convention/text.

140 See in this context CBD Secretariat, COP Decision X/42, 'The Tkarihwaié:ri Code of Ethical Conduct to Ensure Respect for the Cultural and Intellectual Heritage of Indigenous and Local Communities' (29 Oct. 2010), Annex I, UN Doc. UNEP/CBD/COP/DEC.X/42.

141 This notion is to be understood as 'the concerted and dialogic process aimed at building partnerships in identifying and allocating economic, socio-cultural and environmental benefits among state and non-state actors, with an emphasis on the vulnerable': Morgera (2016), n. 135 above, p. 382.

142 Walker, n. 20 above.

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press

the complexity of present-day legal phenomena, especially for appraising not only the macro-level, but especially – and most importantly – the globally entangled web of meso- and especially micro-level legal processes. Indeed, combined with comparative law approaches, Walker's approach offers inspiring theoretical and methodological perspectives, especially in the field of global environmental law.[143] The global law approach has an unmistakably descriptive-analytical potential that allows us to grasp and make sense of present-day entangled developments through empirical research, which enables nuanced and accurate conceptualizations of complex challenges.

Yet, by considering the harnessing of the historical-discursive dimension of global law, Walker also features an implicit normative agenda geared towards global justice.[144] Walker ascribes particular stringency or real-world currency to compositive and compensatory understandings of law, as opposed to what he regards as utopian, pessimistic, contingent, or merely apologetic approaches.[145] According to the compositive perspective, which bears similarity with specific currents of global constitutionalism such as societal constitutionalism,[146] the orientation of law towards global justice is 'cumulative, aggregative, and both derivative of and instrumental to various independently conceived transnational political projects';[147] it is 'incomplete and uneven across sectors, with thicker patterns of interconnectedness based on ethics of common concerns and mutual responsibility developing in some sectors and a more limited conception of concurrent interests dominating in others'.[148]

The compensatory perspective, in turn, understands law as a platform from which to mitigate 'some of the justice deficits associated with the traditionally state-centred world order'.[149] Intimately related to global administrative law approaches, this perspective promotes the translation of principles of domestic administrative law traditions for the accountability of public authority beyond the state. Thus conceived, law is only partially autonomous, but can nevertheless 'exert some degree of influence beyond and against the instrumentality of justice-insensitive international legal and political forces'.[150]

While acknowledging the rigour of Walker's cautious and nuanced reasoning, his approach imposes several caveats that, in our view, limit its normative capacity, especially with regard to the governance of the Earth system. Perhaps the most outstanding of these lies in the understanding of 'globalness' that underpins Walker's theory. Indeed, as Richard Collins highlights, the 'globalness' in Walker's approach is adjectival, rather than nominal, in the sense that this specific feature of law is not so much

143 E. Morgera, 'Global Environmental Law and Comparative Legal Methods' (2015) 24(3) *Review of European, Comparative & International Environmental Law*, pp. 254–63.
144 Collins, n. 19 above, p. 737.
145 Walker, n. 42 above, pp. 236–8.
146 Ibid., p. 233.
147 Ibid., p. 232.
148 Ibid., p. 233.
149 Ibid., p. 234.
150 Ibid., p. 235.

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press

about its source or pedigree, but its destination.[151] In Walker's own terms, the globalization of law refers to 'how law has become a more prominent medium of authority in the governance of state polities 'across the globe', so to speak, and even in the construction of some state polities, as it is about law's colonization of the spaces below, across and in-between state polities'.[152]

While not necessarily incompatible with the specific perspective taken in our research, Walker's understanding of the 'globalness' of law does not attach any normative significance to the embeddedness of human societies within the material boundaries of the Earth system. Yet, as Eva Lövbrand, Johannes Stripple and Bo Wiman convincingly argue, the insights from Earth system science and the normative notion of the Anthropocene, as also anticipated by Fischer-Kowalski's critical GSM approach,[153] have far-reaching implications for the dissolution of the Nature-society divide and call for an entirely new governmentality.[154] Walker's global law approach does not go down that path. However, the crafting of such a new governmentality is not necessarily incompatible with Walker's approach. Most notably, from a political science perspective, Frank Biermann has pioneered multidisciplinary research into Earth system governance that seeks to integrate objectives, methods and insights from across the natural and social sciences,[155] and features a specific task force on Earth system law (ESL). Leading members of this task force have argued in favour of a global environmental constitutionalism that transcends the Nature-society divide by properly integrating not only the social, but also the material-ecological dimension into the 'globalness' of environmental governance.[156] They have explored the contours of a hitherto wanting '*grundnorm*', able to steer global environmental law towards the preservation of the Earth's life-support systems.[157]

While any putative developments towards constitutionalizing the material-ecological dimension in global governance would emerge most likely as a gradual crystallization through incremental structural adjustments, global law – as conceived by Walker – offers methodological anchoring points. Perhaps abstract-normative, convergence-promoting approaches such as the mainstreaming of global human rights,[158] although bearing the immanent risks of 'a general, abstract project of administrative empowerment',[159] may provide a first step towards promoting the

[151] Collins, n. 19 above, p. 719.

[152] Walker, n. 20 above, p. 25.

[153] N. 50 above.

[154] E. Lövbrand, J. Stripple & B. Wiman, 'Earth System Governmentality: Reflections on Science in the Anthropocene' (2009) 19(1) *Global Environmental Change*, pp. 7–13, at 11.

[155] Biermann, n. 13 above.

[156] L.J. Kotzé, 'Arguing Global Environmental Constitutionalism' (2012) 1(1) *Transnational Environmental Law*, pp. 199–233, at 215–20.

[157] Kim & Mackey, n. 100 above, p. 17; Kim & Bosselmann, n. 102 above.

[158] Walker, n. 20 above, pp. 70–86.

[159] M. Koskenniemi, 'Human Rights Mainstreaming as a Strategy for Institutional Power' (2010) 1(1) *Humanity: An International Journal of Human Rights, Humanitarianism, and Development*, pp. 47–58, at 54–5. More recently, on the problematic relationship between environmental protection and human rights, see also M.C. Petersmann, 'Narcissus' Reflection in the Lake: Untold Narratives in

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press

interconnectivity between different constitutional segments through a process of 'cross-breeding and creolization'.[160] Indeed, an increasing body of legal-academic literature explores the suitability of articulating human rights approaches to international environmental regimes as a theoretical and normative counter-balance to their underlying rationales, based predominantly on cost-benefit analysis.[161] Such approaches are hailed as further narrowing the discretion of states, transnational actors and institutions in the regulatory development and implementation processes at the interface of economic, social, and environmental governance.[162] They are also regarded as instrumental for deliberative processes of balancing environmental, social, and economic interests in the formulation and implementation of concrete policies, thereby contributing to addressing claims for distributive and procedural justice.

In this regard, notions such as the ecosystem approach, as developed in specific global environmental regimes, provide an empirical testing ground for the effectiveness of human rights for the fair and equitable governance of natural resources within the material boundaries of ecosystems, as well as a model of inspiration for its diffusion and constitutionalization in global environmental law.[163] In the latest report by the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy, and sustainable environment, which features a series of 16 framework principles, the embeddedness of human beings within nature and the strict interdependence between human rights and the environment is unmistakeably underscored:[164]

> A safe, clean, healthy and sustainable environment is necessary for the full enjoyment of human rights, including the rights to life, to the highest attainable standard of physical and mental health, to an adequate standard of living, to adequate food, to safe drinking water and sanitation, to housing, to participation in cultural life and to development, as well as the right to a healthy environment itself, which is recognized in regional agreements and most national constitutions. At the same time, the exercise of human rights, including rights to freedom of expression and association, to education and information, and to participation and effective remedies, is vital to the protection of the environment.[165]

Going even further, the Inter-American Court of Human Rights recently acknowledged the trend towards the recognition of the rights of nature in

---

Environmental Law Beyond the Anthropocentric Frame' (2018) 30(2) *Journal of Environmental Law*, pp. 235–59.

160 Kjaer, n. 21 above, pp. SS132–3.

161 S. Caney, 'Climate Change, Human Rights and Moral Thresholds', in S. Humphreys (ed.), *Human Rights and Climate Change* (Cambridge University Press, 2010), pp. 69–90.

162 L.J. Kotzé, 'Human Rights and the Environment in the Anthroposcene' (2014) 1(3) *The Anthroposcene Review*, pp. 252–75.

163 See UN General Assembly, Human Rights Council, Report of the Special Rapporteur on the Issue of Human Rights Obligations relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment (19 Jan. 2018), UN Doc A/HRC/34/49.

164 See UN General Assembly, Human Rights Council, Report of the Special Rapporteur on the Issue of Human Rights Obligations relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment (24 Jan. 2018), UN Doc A/HRC/37/59, Annex, Preamble, Framework Principles 1 and 2.

165 Ibid., para. 4.

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press

the domestic case law and constitutional arrangements in the South American region[166] as relevant for the interpretation of the right to a healthy environment:[167]

> The right to a healthy environment as an autonomous right, in contradistinction to other rights, protects the components of the environment, such as forests, rivers, seas and others, as legal interests in themselves, even in the absence of certainty or evidence about the risk for individual persons. Nature and the environment are to be protected not only for their connexion with the utility for the human being or for the effects that their decay may have on the enjoyment of other rights of the individuals, such as health, life or personal integrity, but for their importance for the other living organisms with which the planet is shared, which also credit protection in themselves. In this sense, the Court notices a trend to recognize legal personality and, thus, rights, to Nature not only in court rulings, but even in constitutional orders.[168]

5. OUTLOOK

This article started by questioning the capacity of the concept of SD to stabilize social reproduction and contribute in a meaningful way to global justice. Based on interdisciplinary perspectives on global governance ranging from anthropology and sociology to ecological economics, we discussed the ways in which legal orders fail to cope with the adverse effects of advanced capitalism in the world society and ecological systems. In particular, our analysis has focused on the regulatory and institutional features of three interwoven functional regulatory regimes – global finance, energy, and environmental protection – which demonstrate structural governance dysfunction at the expense of ecological integrity and justice in the global realm.

Against that backdrop, the article examines the capacity of Walker's global law approach, in the light of its historical-discursive dimension,[169] to adapt 'older templates of state law to the global domain'[170] in order to foster a 'compositive' and 'compensatory' contribution to global justice and the stability of the Earth system through global constitutionalism. Indeed, understood as a 'critical and normative "shaping" activity that seeks to improve current and future constitutional conditions',[171]

---

166 S. Borràs, 'New Transitions from Human Rights to the Environment to the Rights of Nature' (2016) 5(1) *Transnational Environmental Law*, pp. 113–43. More specifically, see also L.J. Kotzé & P. Villavicencio Calzadilla, 'Somewhere between Rhetoric and Reality: Environmental Constitutionalism and the Rights of Nature in Ecuador' (2017) 6(3) *Transnational Environmental Law*, pp. 401–33; P. Villavicencio Calzadilla & L.J. Kotzé, 'Living in Harmony with Nature? A Critical Appraisal of the Rights of Mother Earth in Bolivia' (2018) 7(3) *Transnational Environmental Law*, pp. 397–424.

167 Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights (Protocol of San Salvador), San Salvador (El Salvador), 17 Nov. 1988, in force 16 Nov. 1999, Art. 11, available at: http://www.oas.org/juridico/english/treaties/a-52.html.

168 *The Environment and Human Rights (State Obligations in relation to the Environment in the Context of the Protection and Guarantee of the Rights to Life and to Personal Integrity – Interpretation and Scope of Articles 4(1) and 5(1) of the American Convention on Human Rights)*, Inter-Am Court HR, Advisory Opinion OC-23/17, 15 Nov. 2017, Series A No. 23, para. 62 (the authors' own translation).

169 Walker, n. 20 above, pp. 86–106.

170 Ibid., p. 86.

171 G.W. Brown, 'The Constitutionalization of What?' (2012) 1(2) *Global Constitutionalism*, pp. 201–28, at 227.

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press

global constitutionalism – and constitutionalization scholarship – 'will need to better clarify the relationship between globalization and constitutionalization and to untangle the various processes that are often assumed to interconnect and similarly motivate the two'.[172]

In this context, we found that Walker's global law approach provides a fertile analytical framework for describing the patterns of interaction between different levels or species of global law but proves to be particularly 'slippery'[173] in its normative propositions with regard to the gap between global law and global justice.[174] As Ellen Hey rightly points out, addressing this gap requires not just a multifaceted system of decision making able to enhance procedural fairness, as a global administrative law approach might suggest, but more generally a broader creative effort to shape and address the structural imbalances of the post-modern world society.[175]

Drawing on the Earth system approach, we argue in favour of a global *material* constitutionalism recognizant of ecosystemic boundaries and socio-environmental impacts of the GSM. This calls for a new understanding of the role of law in the global realm in order to deal effectively with the complexity of the Anthropocene. Emerging from an active dialogue between Earth system science and Earth system governance, ESL[176] seems compelling in that regard, as it addresses the structural need of communication between the legal discipline and the social and natural sciences. In this way, it enables the compatibility assessment between legal orders and the Earth system and expresses a constitutional bounding between the worldwide reproduction of social systems and the sustainability of ecosystems that provide the material basis for those processes. ESL is therefore intrinsically transdisciplinary, principles-based, and resonates with the global law approach by enabling interconnectivity.[177]

Accordingly, we consider that claims for justice in the global realm are best addressed by devising more deliberative patterns of transnational governance, as well as ecosystem and human rights approaches, in order to accommodate the fair and equitable internalization of material limits across global regulatory regimes that act as functionally differentiated economic constitutions of advanced capitalism. By enabling interconnectivity, global law might have the potential of fostering 'convergence-promoting and divergence-accommodating' approaches capable of constitutionalizing effective counter-balances to the expansive rationale of some societal systems over others, much to the benefit of global justice and the ecological limits of the Earth system.

Global human rights law – filtered through processes of cultural cross-breeding and creolization – may provide a platform from which to devise culturally bespoke legal

172 Ibid., p. 219.

173 Collins, n. 19 above.

174 Walker, n. 42 above.

175 Hey, n. 117 above, p. 72.

176 E. Cocciolo, 'Capitalocene, Thermocene and the Earth System: Global Law and Connectivity in the Anthropocene Time', in J. Jaria-Manzano & S. Borràs (eds), *Research Handbook on Global Climate Constitutionalism* (Edward Elgar, 2019) forthcoming.

177 Kjaer, n. 21 above, p. S115.

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press

methods with real-world currency, in the field of environmental decision making and procedural justice in environmental governance. Most importantly, global human rights law also lends itself to globally diffusing substantive environmental standards throughout different and structurally conflicting segments of the world society. Yet, while mainstreaming human rights seems to be a present-day common place within legal scholarship, the limitations and intrinsic risks of this approach also need to be acknowledged.[178] Furthermore, as initiatives such as the Oslo Principles on Global Climate Change Obligations suggest,[179] the global language of rights – regardless of how much it has left behind its anthropocentrism and evolved towards ontological foundations in ecocentrism – requires a simultaneous global language of obligations in order to ensure that the ecological limits of the Earth system are respected.[180]

[178] Koskenniemi, n. 159 above.

[179] Adopted 1 Mar. 2015, available at: http://globaljustice.yale.edu/oslo-principles-global-climate-change-obligations.

[180] L.J. Kotzé & D. French, 'The Anthropocentric Ontology of International Environmental Law and the Sustainable Development Goals: Towards an Ecocentric Rule of Law in the Anthropocene' (2018) 7(1) *Global Journal of Comparative Law*, pp. 5–36.

https://doi.org/10.1017/S2047102519000098 Published online by Cambridge University Press