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Law in a hyperconnected world: Joining the dots for sustainable futures

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EDITORIAL

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1 | SUSTAINABILITY CHALLENGES ON A TELECOUPLED PLANET

We live in a hyperconnected world. Ecosystems and societies are linked across vast distances like never before. The unprecedented movement of people, goods and products and the transfer of capital and information characterise not only the present but also the conceivable future.[1]

Use of the term 'hyperconnected world' started to gain traction in the literature towards the turn of this millennium.[2] Mainstreaming of the internet across societies led to the exploration of global hyperconnectivity across a range of spheres including business,[3] investment[4] and computing.[5] The term gained further prominence with its use by the World Economic Forum in the early 2010s to describe, in particular, economic considerations in a digital age.[6]

Acknowledging that global linkages occur not only across societies and economies but also in interaction with the biophysical processes of our planet, we understand hyperconnectivity in this special issue through the lens of telecoupling.[7] Here, 'tele-' denotes phenomena that occur across long distances. 'Coupling' refers to human and ecological systems being so closely linked that it makes no sense to consider them separately. Telecoupling therefore considers the inextricable nature of intertwined social-ecological systems and the interactions between these systems across vast time, space and governance scales.[8] In other words, telecoupling has at its core an understanding of complex systems. That is, not only that human and ecological components of the system are inextricably interlinked but also that perturbations to one part of the system create a ripple effect of continuous feedbacks throughout the system through a network of relationships.[9]

Examples of telecoupling include growing demand for agricultural and wildlife products interfering with local conservation and land management efforts. The international nature of trade means that price signals to distant consumers can hamper attempts at sustainable production. On the other hand, the hyperconnected nature of global linkages create opportunities, through international consumer pressure on governments and multinational corporations, to regulate supply chains through certification, corporate social responsibility and disclosure.[10]

In this special issue, we recognise that the Earth faces social-ecological disruption at a scale with no parallels in human history.[11] Critically, this unprecedented planetary level change has been brought about by human activity.[12] The telecoupled nature of economic, social and biophysical processes means that sustainability challenges now operate across governance scales, with impacts of particular activities often occurring at distances far away from their source.[13] This is the result of distant connections such as global trade and transportation, transnational land transfer, invasive species and technology transfer.[14] All of this is accelerated and enabled by the pervasiveness of the internet.[15]

Societies, economies and the environment need to be understood, and ultimately regulated, in an integrated manner. Recent global reports, such as the United Nations' Environment Programme's 'Making Peace with Nature'—a scientific blueprint to tackle the climate, biodiversity and pollution emergencies and[16] the joint report on biodiversity and climate of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the

[1] J Liu et al, 'Framing Sustainability in a Telecoupled World' (2013) 18 Ecology and Society 1; J Liu et al, 'Systems Integration for Global Sustainability' (2015) 347 Science 1258832.

[2] The term had been used earlier in an unrelated way in psychology (particularly in relation to the study of epilepsy) See, e.g., DM Bear, 'Temporal Lobe Epilepsy-A Syndrome of Sensory-limbic Hyperconnection' (1979) 15 Cortex 357. Flannery used the term to describe social-political complexity in ancient and modern societies in an archaeology paper in 1972, KV Flannery, 'The Cultural Evolution of Civilizations' (1972) 3 Annual Review of Ecology and Systematics 399. Contemporary forms of telecommunication were, however, in their infancy and not contemplated in this discussion.

[3] EO Welles, 'There Are No Simple Businesses Anymore' (1995) 17 Inc. 66.

[4] S Donald, 'Digital Dej@ Vu: Haven't We Seen All This Before' (2000) 2 Finsia Journal of Applied Finance JASSA 8.

[5] See, e.g., D Fowler, 'NetNews: Whither Windows?' (1998) 2 netWorker 5.

[6] S Dutta and B Bilbao-Osorio, 'The Global Information Technology Report, 2012: Living in a Hyperconnected World' (World Economic Forum and INSEAD 2012); World Economic Forum's Global Agenda Council on Complex Systems, 'Perspectives on a Hyperconnected World Insights from the Science of Complexity' (World Economic Forum 2013); D Chinn et al, 'Risk and Responsibility in a Hyperconnected World' (World Economic Forum 2014).

[7] Liu et al 2013 (n 1); LR Carrasco et al, 'Biodiversity Conservation in a Telecoupled World' (2017) 22 Ecology and Society 1.

[8] M Lim, 'Biodiversity 2050: Can the Convention on Biological Diversity Deliver a World Living in Harmony with Nature?' (2019) 30 Yearbook of International Environmental Law 79.

[9] F Capra and PL Luisi, *The Systems View of Life: A Unifying Vision* (Cambridge University Press 2014).

[10] Carrasco et al (n 7).

[11] P Søgaard Jørgensen et al, 'Evolution of the Polycrisis: Anthropocene Traps That Challenge Global Sustainability', (2024) 1893 Philosophical Transactions of the Royal Society B 20220261; W Steffen et al, 'Planetary Boundaries: Guiding Human Development on a Changing Planet' (2015) 347 Science 1259855.

[12] W Steffen et al, 'The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature' (2007) 36 Ambio 614.

[13] Liu et al 2013 (n 1).

[14] ibid.

[15] Carrasco et al (n 7).

[16] IA Baste et al, 'Making Peace with Nature: A Scientific Blueprint to Tackle the Climate, Biodiversity and Pollution Emergencies' (United Nations Environment Programme 2021).

Intergovernmental Panel on Climate Change (IPCC),[17] both highlight the failure of governance systems to address interconnected global challenges in a holistic manner. The reports also highlight the perverse outcomes that result from the lack of integrated approaches.

Thus, in this collection, we understand sustainability to not only mean that people and planet matter. Intergenerational and intragenerational equity also matters; so too the continuation of human and more-than-human life on the third rock from the Sun. To do this, interactions and trade-offs across vast scales and a range of (often competing) interests need to be reconciled. This calls for new forms of laws and regulation, governance, actors and societal organisation where hyperconnectedness is taken into account.

2 | SUSTAINABILITY LAW AMID HYPERCONNECTED FUTURES

The scale and complexity of the disruption across biophysical systems and global markets continues to escalate with global shocks impacting local livelihoods and well-being. Adger and colleagues therefore emphasise the need for greater creativity to address cross-scale and cross-sector linkages. Such creativity, they highlight, is needed not only in the sciences but also through innovative governance.[18] Laws at the international, transnational and domestic level are, however, ill-equipped to address the hyperconnected challenges of today and do not sufficiently anticipate the emerging risks and opportunities of the future. It is this gap that this special issue seeks to fill.

This special issue recognises the importance of cooperation across sectors, collaborative global efforts and private-public partnerships as well as understanding and regulating across the sub-disciplinary fields of law. The collection emerges from papers presented at the inaugural SMU-Sydney-HKU Law & Sustainability conference on 'Law in a hyperconnected world—joining the dots for a sustainable future', held on 13–14 July 2023 at the Yong Pung How School of Law, Singapore Management University, Singapore. The articles collectively contribute to consideration of what 'sustainability law' might look like in a hyperconnected world. In other words, through discussion of emerging legal developments with an eye towards shaping law today for desirable tomorrows, the special issue considers how more expansive cross-disciplinary, cross-sectoral regulatory frameworks might be conceived beyond traditional 'environmental' law.

In this collection, we distinguish sustainability law from 'sustainable development law'. First, sustainable development law is firmly entrenched in the domain of international law.[19] Schrijver, for example, refers to sustainable development law as being derived from international economic law, international environmental law and international human rights law. Our argument is not that international law is no longer important. It is. Instead, we posit that the thriving multi-species communities envisaged by sustainability need more than international law. At the same time, the search for sustainability solutions cannot be solely confined to public and State-based actors.

Further, a pivot towards *sustainability* law centres 'sustainability' without the qualification of 'development'. While sustainability necessarily encompasses *human* development,[20] the inclusion of 'development' in 'sustainable development' has enabled certain actors to understand the term as economic development with a few concessions to the environment.[21] Nevertheless, we incorporate sustainable development's sub-principles of integration, intra- and intergenerational equity. Here we understand integration to mean the imperative of mainstreaming environmental concerns across all human activities. In doing so, we recognise the importance of safeguarding the essential human needs envisaged by sustainable development's intragenerational equity. At the same time, by embracing a futures perspective we aim to give effect to intergenerational equity.

This collection starts with Kate Owens and Hannah James[22] emphasising the importance of linking local action to global frameworks with their focus on the localisation of technology under the United Nations Framework Convention on Climate Change's (UNFCCC) Technology Mechanism. Much of the hyperconnectedness observed globally is brought about *by* technology. In this article, Owens and James consider the transfer of technology itself. The authors underscore that while the globalised nature of technological innovation is a positive development, such innovation needs to be 'carefully targeted and nurtured to realise its potential'.[23] The authors identify gaps in the international climate law regime as it relates to the localisation of technology transfer. To address these gaps, Owens and James highlight not only the range of State and non-State actors that need to be involved but also the importance of aligning public policy and government frameworks with private interests. Further, while the authors examine North–South transfers of technology; they also emphasise the critical learning that arises from South–South connections. In particular, they find that it is not just technology that is transferred between contexts 'but rather experiences'.[24]

Similarly to Owens and James, Pasha Hsieh[25] also takes a multi-scale approach to sustainability. Through an analysis of current

[17]HO Pörtner et al, 'IPBES-IPCC Co-sponsored Report on Biodiversity and Climate Change' (IPBES and IPCC 2021).

[18]N Adger et al, 'Nested and Teleconnected Vulnerabilities to Environmental Change' (2009) 7 Frontiers in Ecology and the Environment 150, 155–156.

[19]N Schrijver, *The Evolution of Sustainable Development in International Law: Inception, Meaning and Status* (Martinus Nijhoff 2008) 162; MC Cordonier Segger, and A Khalfan, *Sustainable Development Law: Principles, Practices, and Prospects* (Oxford University Press 2004).

[20]M Ul Haq, 'Human Development in a Changing World' (United Nations Development Programme 1992); M Lim, 'Stain-guarding Earth System Law in the Enshittocene' in LJ Kotzé (ed) *The Evolution of Earth System Law: Innovating New Legal Principles for the Anthropocene* (Cambridge University Press fc).

[21]LJ 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; Lim (n 20); Y Song, 'The Incorporation of the Principle of Sustainable Development into Chinese Environmental Law' in J Chaisse and O Stefan (eds), *Advancing the Method and Practice of Transnational Law: Building Bridges Across Disciplines* (Hart 2023) 233.

[22]K Owens and H James, 'Embedding Technology at the Grassroots: Strategies for Localising Technology Transfer Under the UNFCCC Technology Mechanism' (2024) 33 Review of European, Comparative and International Environmental Law.

[23]ibid 1.

[24]ibid 4.

[25]P Hsieh, 'Shaping Green Regionalism: New Trade Law Approaches to Environmental Sustainability' (2024) 33 Review of European, Comparative and International Environmental Law.

international economic governance, Hsieh develops the concept of 'green regionalism'. Hsieh defines green regionalism to mean the normative process by which regional economic frameworks integrate and operationalise environmental sustainability. Hsieh highlights the interconnectedness of trade and environmental law by examining environmental chapters in free trade agreements concluded by major trading blocs, such as ASEAN, the United States and the European Union. Hsieh observes how particular regions have initiated new approaches to environmental protection under FTAs through more stringent enforcement mechanisms, including trade sanctions. However, Hsieh contends that in addition to the enforcement aspect, green regionalism should focus on the often-overlooked market dimension of FTAs. The market dimension relates to the tangible impact of FTAs on climate change, such as the liberalisation of environmental goods and services. Hsieh's examination of the emerging processes of developing regionalised discourse in the trade context also draws attention to a shift, across various areas of law, towards environmental sustainability.

Staying in the economic law space but moving from Hsieh's discussion of trade, Zhu Ying sheds light on the potential normative conflicts between international investment treaties and climate action.[26] Zhu's starting point is the growth of investment arbitration cases where plaintiffs object to host States' actions to phase-out fossil fuels on grounds that this violates obligations under the investment treaty. The article highlights how the bottom-up nature of nationally determined contributions under the UNFCCC's Paris Agreement challenges traditional dichotomies of normative and legitimacy conflicts in investment law scholarship. Here, a normative conflict refers to conflicts between two different types of international obligations, that is, under international investment law and international climate change law. Legitimacy conflicts on the other hand arise due to differences between provisions at different governance scales—most typically where domestic measures implementing the Paris Agreement contradict obligations under investment treaties. Zhu therefore refers to the obligations created by the Paris Agreement as a 'quasi-normative conflict'. To address this, she proposes two alternatives of specific conflict clauses in investment treaties: a first option would establish a subordination of obligations under international investment treaties. Alternatively, a clause could be included seeking harmonisation and coordination between investment and climate treaties without establishing a hierarchy between them.

Like Zhu, with a focus on foreign direct investment, Tien Dat Hoang also calls for a rethink of environmental concerns within investment treaties.[27] Hoang provides important context for discussion through an examination of Vietnam's two most severe environmental disasters—both resulting from foreign direct investment activities. The two incidents underline the deeply intertwined nature of social-ecological systems. Hoang's analysis highlights how foreign investment projects, in principle, have the intention of facilitating economic growth and development. However, insufficient attention to environmental concerns lead not only to significant environmental and social harm but also to economic impact so serious that Vietnam experienced a reduction in gross domestic product in the year of one of the catastrophes discussed. With an impetus to learn the lessons of these environmental disasters, Hoang examines 94 bilateral investment treaties and other international investment agreements (IIAs) that Vietnam has signed as a signatory or as a member of the Association of Southeast Asian Nations (ASEAN). Recognising that environmental provisions are much more common in the IIAs of developed countries, Hoang's analysis finds that few of the IIAs that Vietnam is a party to include language that relates to the environment or to climate change. At the same time, he also finds a lack of alignment between domestic and international law in addressing these concerns. Recognising the interconnected nature of environmental issues and the flow of international capital, Hoang calls on ASEAN (and Vietnam) to urgently reconsider current environmental provisions within IIAs. Doing so, he argues, will safeguard the status of ASEAN and Vietnam as a top investment destination while limiting the risk of severe environmental harm.

Rachel Phang and Yaru Chia provide a highly complementary rounding out of the sustainable finance discussions of Zhu[28] and Hoang.[29] Through a comparative analysis of the sustainability-related corporate disclosure regimes in the Asian financial centres of Singapore, Hong Kong and Shanghai, Phang and Chia emphasise the importance of public-private partnerships.[30] They also provide an important contribution to the literature in this space which, to date, has had an emphasis on the European and American context. An important difference that Phang and Chia highlight is that while the European Union requires reporting of 'double materiality' (i.e., disclosure by corporations of activities and actions that impact on both business and the environment), the three Asian jurisdictions examined reveal a preference for 'single materiality' reporting (i.e., disclosure of environmental impacts only where they would have an impact on the economic bottom-line). A further finding of the research is the way in which the State is interwoven into sustainability reporting in Singapore, Hong Kong and Shanghai. This is due to the prominent role of State-owned enterprises, government linked companies and sovereign wealth funds in these jurisdictions. When it comes to issues of sustainability disclosure, the State, in the jurisdictions examined, therefore wears multiple hats of 'policymaker, regulator and key market participant'.[31] The regulator therefore plays an especially prominent role as compared to other parts of the world. Phang and Chia also point to the emerging trend towards mandatory disclosure measures in the region which so far have been voluntary.

[26]Y Zhu 'A Quasi-Normative Conflict: Resolving the Tension Between Investment Treaties and Climate Action' (2024) 33 Review of European, Comparative and International Environmental Law.

[27]TD Hoang, 'Reassessing Environmental Protection in International Investment Agreements: The Case of Vietnam' (2024) 33 Review of European, Comparative and International Environmental Law.

[28]Zhu (n 26).

[29]Hoang (n 27).

[30]R Phang and Y Chia, 'Sustainability and the Sunlight of Disclosure: ESG Disclosure in Three Asian Financial Centres' (2024) 33 Review of European, Comparative and International Environmental Law.

[31]ibid 14.

They also highlight the role of technology in facilitating sustainability reporting. Critically, by drawing attention to the contrasts between approaches in three Asian financial centres and other parts of the world, Phang and Chia articulate the importance, on the one hand, of the nuance of context. On the other hand, they underscore the need for global coordination in the regulation of sustainability reporting in light of the hyperconnected nature of contemporary business and finance.

Fittingly, in the final article of this special issue, Asanka Edirisinghe and Sandie Suchet-Pearson urge caution and provide inspiration as they reconsider law and legal personhood in the pathways to sustainability in a hyperconnected world.[32] Focused on the question of whether rivers can be legal persons, Edirisinghe and Suchet-Pearson contrast dualist conceptualisations of humans and nature in dominant Western legal systems with the relational ontologies of, in particular, Sri Lankan Indigenous Vedda communities and Aboriginal worldviews from the continent known to some as Australia. In doing so, the authors advocate for plural approaches to law, legal philosophy and the subjects of law in the face of homogenising forces of continued colonisation on an ultra-linked planet. In our current times, trade, technology, the transfer of goods and the movement of people connect the globe in ways novel in their force, impact and magnitude. Critically, against this backdrop, Edirisinghe and Suchet-Pearson remind us of the ultimate connections that are needed for sustainability: human relationships with nature and with each other.

3 | JOINING THE DOTS …

The ellipses of the section title symbolise the necessarily ongoing nature of efforts towards a thriving, equitable planet for multiple more-than-human generations. Many of the contributions to this collection are grounded in subdisciplines beyond 'traditional' environmental law.[33] This points to a growing appreciation across sectors of the inextricable importance of the environment in a range of human endeavours. Environmental law scholarship has been enriched in this collection by expertise focused on some of the key drivers of, and solutions to, sustainability challenges. At the same time, contributions closer to environmental law's disciplinary home similarly urge us to think expansively and creatively about what connections law should enable (e.g. the sharing of experience and not just technology)[34] and even about the very foundations of what law is and what it should be.[35]

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[32]A Edirisinghe and S Suchet-Pearson, 'Nature as a Sentient Being: Can Rivers be Legal Persons?' (2024) 33 Review of European, Comparative and International Environmental Law.
[33]Hsieh (n 25); Zhu (n 26); Hoang (n 27); Phang and Chia (n 30).
[34]Owens and James (n 22).
[35]Edirisinghe and Suchet-Pearson (n 32).