

Regulating humanity's impact on the earth: The promise of transnational environmental law

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Abstract

Transnational environmental law (TEL) is a relatively new field of research that is agitated by the concept of the Anthropocene. Like environmental law, TEL suffers from certain methodological challenges which are exacerbated by the sheer amount of activity involved in the generation of transnational legal norms and regulation. This article argues that, despite some of these challenges, TEL is well placed to evolve further to better regulate human activity in the Anthropocene. It argues that to better reflect on what the Anthropocene means for TEL and how it may develop in practice, it must engage further with power, the problem of erasure of weaker actors, and the legacies of colonialism on the one hand, and the sciences – particularly Earth system science and ecology – on the other. By doing so it would offer a more robust analysis of TEL and insights into its further development in practice.

1 | THE 'ANTHROPOCENE' CONCEPT AND THE AGITATION OF TRANSNATIONAL LAW

The concept of the Anthropocene acknowledges that human activity has interfered with the Earth's biological processes, shifting the planet from the Holocene era of relative stability, in which life flourished, to the instability of the 'Anthropocene' (Crutzen, 2006). As a concept or heuristic, the Anthropocene and evolving understandings of the impact of human activity on the planet on the one hand, and the dependence of humanity on non-humans and non-living processes on the other, offers a new context in which to carry out transnational environmental law (TEL) research (Webster & Mai, 2020). The burgeoning of TEL scholarship is relatively recent and has emerged in response to the perceived inadequacies of international and domestic law, to explain how law has evolved in response to globalization. The Anthropocene concept offers a

second point of agitation that creates the impetus for the further development of TEL theoretically and in terms of its analysis of the law in practice. Additionally, the Anthropocene draws our attention to the fact that only certain humans contribute to the activity that has led to this new epoch. The poorest and most vulnerable, despite not being responsible for the behaviours that have caused a geological impact, are nonetheless those most detrimentally impacted by planetary disruptions.

This article investigates the future of TEL scholarship in the 'era of the Anthropocene'. Section 2 addresses existing definitional and methodological uncertainties and posits how these may be exacerbated in this new context. Section 3 discusses power and the erasure of weaker actors, a problem that TEL may be particularly prone to due to the sheer volume of norms and actors involved within it, but argues that being attendant to power, erasure and coloniality may strengthen TEL in response to the Anthropocene. Section 4 draws on

Earth system law (ESL), a new theoretical approach to international environmental law (IEL), considering how this may be addressed to the evaluation of TEL and its theoretical development.

2 | TRANSNATIONAL ENVIRONMENTAL LAW AND THE ANTHROPOCENE

Transnational law emerged in response to the observations of the changing nature of law in the context of globalization (e.g. Jessup, 1956; Scott, 2009; Zumbansen, 2012b). Scholars have traced the expansion of domestic regulatory governance in some states to the transnational sphere (e.g. Scott, 2009; Zumbansen, 2012b), have drawn attention to the blurring of the public/private divide (e.g. Heyvaert, 2019; Pattberg & Stripple, 2008; Zumbansen, 2012a), and the emergence of multileveled, or polycentric, governance of environmental problems within (Black, 2008) and beyond the state (Ostrom, 2010; Peel et al., 2012; Zürn, 2012). Research has also addressed the relationship between transnational law and the rule of law (e.g. Rijkema, 2013), questioned the meaning of law and legality (Calliess & Renner, 2009; Heyvaert, 2017; Perez, 2013), the legitimacy of transnational law (Aleinikoff, 2008; Cotterrell, 2012) and the nature of authority (e.g. Ayal & Perez, 2013; Black, 2017; Green & Auld, 2017), complexity and experimentation within transnational regimes (Cottrell & Trubek, 2012) and how environmental law is framed (Heyvaert, 2017; Webster & Mai, 2020). It provides an analytical lens through which to evaluate the ways in which transnational law is created, disseminated and interacts with other disciplines, areas of law and social problems. Transnational law has also prompted a reconsideration of how socio-legal theory fits within the globalized world order (e.g. Friedman, 1996), as scholars question the usefulness of pluralist accounts of the law for understanding legal developments within a new transnational context (Boulot & Sterlin, 2022).

Concurrently, new theoretical and analytical interventions have emerged in response to the transnationalization of law, and the processes by which it is generated, diffused and developed (Halliday & Shaffer, 2015; Koh, 1992, 2004; Shaffer, 2012; Shaffer & Halliday, 2016). Used as a methodology, a transnational approach identifies the actors and processes by which norms are generated and internalized into law and practice (Zumbansen, 2012b). TEL research that analyzes the way that the law is used to respond to environmental problems has focused on transnational litigation (Paiement, 2020; Peel & Lin, 2019), private law (Affolder, 2018; Benjamin, 2016; Bouwer, 2020; Seck, 2015), and private regulation (Green & Auld, 2017; Streck, 2020;

Policy Implications

- Transnational environmental law scholarship should be contextualised by the concept of the Anthropocene, to trigger evaluation of TEL and its theoretical and practical sufficiency to regulate human activity.
- TEL scholarship should seek to overcome methodological challenges that inhibit its ability to address global environmental crises.
- TEL Scholarship should be attentive to power, erasure of weak and vulnerable communities and the legacy and continuing impacts and influence of coloniality on transnational law and its structures.
- TEL scholarship should also engage with Earth system science and ecology to better analyze the law, identify and engage with its dominant paradigms and create transformative solutions to better regulate human activity.

Wielsch, 2012), and has been problem-oriented, or sectoral to name but a few themes within a diverse field (Bulkeley et al., 2014; Keohane & Victor, 2011). The recognition of the concept of the Anthropocene adds additional layers to transnational legal theory, in terms of the political distribution of vulnerability and the complexity of human/non-human interdependences which transcend doctrinal and jurisdictional boundaries.

Whether from a theoretical or a normative perspective, TEL forces one to widen the scope of analysis and consider the roles and contributions of private actors and private forms of governance. Regulatory theory and environmental law scholars have long recognized this fact, and the role that private actors play in acting as domestic co-regulators (Black, 2001; Fisher, 2010; Heyvaert, 2011; Lobel, 2012; Trubek & Trubek, 2007). Regulatory theories, such as reflexive regulation (Orts, 1995; Teubner, 1983) and responsive regulation (Ayres & Braithwaite, 1992; Baldwin & Black, 2008; Gunningham & Grabosky, 1998) were developed in response to the transformations from the welfare, or administrative, state to the regulatory (and post-regulatory) state in the post-Second World War period in Europe and North America. These theories have subsequently been applied to transnational situations (Abbott & Snidal, 2013; Calliess, 2002). Such theoretical insights help explain how transnational regulation may change behaviour but also draw attention to the processes involved in creating such changes. The Anthropocene concept adds an additional layer to the mix, challenging the emergence of regulation as a legal

tool, and its utility in contributing to and addressing the profound impact of humanity upon planetary systems (Viñuales, 2020).

However, like environmental law, TEL is a young field of study emerging with force over the last two decades, meaning that methodological approaches are still developing (Fisher et al., 2009; Heyvaert & Duvic-Paoli, 2020) and uncertainty persists. For instance, one problem that emerges is the different, competing and ever evolving understandings of the meaning of 'transnational' and 'law'. 'Transnational law' has thus been defined narrowly as 'law beyond the state', law that impacts more than one jurisdiction such as EU Law, or as law emanating from public and/or private actors (Heyvaert, 2019; Scott, 2009). The latter, socio-legally informed definition of transnational law, includes domestic, international and supranational law within its scope and rules that are purely private in nature (Scott, 2009; Heyvaert, 2019). In this conceptualization, TEL encompasses public and private international and other forms of legal rules addressed to specific problems, including those generated by and addressed to private actors (Friedman, 1996) expanding the conception of 'legality'. It acknowledges that particularly in the context of globalization, actors interact horizontally, vertically and diagonally in recursive processes of norm generation and development in response to specific issue areas (Halliday, 2009; Malets & Quack, 2017). Consequently, this strand of TEL uncovers lacunae in IEL, supranational and domestic responses to global problems such as climate change (Heyvaert & Duvic-Paoli, 2020) and the diverse array of public and private transnational actors that are involved in governance responses and which together or alone generate transnational legal norms (Lin, 2017). While domestic law and EU law is not considered transnational within this conception when addressed inwardly, they are transnational actors feeding into transnational legal processes, and contribute to transnational law when addressed to, or interact with, other transnational actors such as multinational companies and civil society. Definitional and methodological differences within the literature offers an opportunity to develop TEL in an experimental way, and the conceptual tools needed to understand transnational processes (Friedman, 1996). However, this complexity may also create barriers as researchers fail to communicate effectively with each other, creating bodies of 'TEL' research that are, in reality, entirely different in nature.

By decentring the state from processes of law-making, TEL uncovers a 'dizzying array' of actors and norms, increasing the complexity of research in an already complex area (Affolder, 2019, p. 464). Recognizing the roles of and relationships between public and private actors within TEL is helpful both to understand how law is generated and to

aid the evaluation of law's sufficiency in practice. However, complexity is also a methodological challenge, as will be discussed in more detail below, creating practical problems for legal research. The issue of complexity, an existing concern within environmental and climate governance research, is compounded by transnational law (Abbott, 2012; Keohane & Victor, 2011). In practice, TEL research and many of the theories that underpin it, draw attention to the role of power, yet due to the complexity associated with the volume of actors, initiatives and norms addressed to specific issues, the erasure of weaker actors within norm and lawmaking processes is a real problem. Consequently, TEL can privilege powerful actors, such as international institutions, states and multinationals, and obscure vulnerable actors, such as local communities and Indigenous people.

Acting as an agitator or trigger, the concept of the Anthropocene will aid in the further evolution of TEL scholarship. At the same time, it may compound existing methodological and definitional problems. The post-Second World War changes and the advent of globalization have acted as triggers for the development of a new sub-field of environmental law scholarship. The Anthropocene is a second such trigger, as TEL evolves to wrestle with this new reality.

3 | RESPONDING TO THE ANTHROPOCENE IN TEL

The irritation of the Anthropocene is likely to trigger great evolution in TEL scholarship over the coming years. The next section draws attention to just two areas with which TEL scholarship has started and must continue to grapple with. The Anthropocene draws our attention to the fact that humanity has become a geological force. Yet, it is primarily the global North that has contributed to this problem, while the poor and vulnerable from the global South suffer the consequences first and most severely. Thus, the concentration of power within processes of transnational lawmaking, and the potential erasure of vulnerable communities from them, is an area in which TEL faces challenges but also is an avenue of important research. Second, the Anthropocene forces us to confront the way that the law addresses environmental problems. Consequently, drawing TEL into Earth system science, law and governance research could also be a fruitful response to this new reality. Indeed, these two interconnected strands reflect the binary problem that Chakrabarty (2021, p. 67) identifies as posed by the Anthropocene, and with which the law must engage, the 'global – a singular human story – and the planetary, a perspective to which humans are incidental'.

3.1 | Power and erasure in TEL

The dispersal of power within lawmaking and governance processes has long been a subject of interest to legal researchers. For instance, within regulatory governance scholarship attention has been paid to the waning power of the state and the transfer of power to regulatory agencies and private actors (Backer, 2013; Black, 2001; Lobel, 2012). In transnational law, the issues of power and power asymmetries and the distribution of power is more profound. This is because of the vastly greater number of transnational actors involved in the generation of legal norms and the different legal processes involved in their creation and dissemination (Merry, 1992; Shaffer, 2012). On the one hand, power asymmetries, and the ways in which power shapes legal interventions, may be easier to overlook. On the other hand, TEL scholarship can draw attention to the diverse ways in which vulnerable communities can influence transnational processes and ensure the visibility of vulnerable communities by consciously engaging in such research (Affolder, 2019).

The concept of the Anthropocene draws attention to the fact that poor and vulnerable communities, often located in the global South, are at the forefront of the consequences of the human impact upon the Earth, yet the least responsible. Yusoff (2018) points to the fact that the emergence of extractive economies which has resulted in humanity becoming a geological force, is rooted in a racialized process of colonialism. Too often, however, legal scholarship fails to consider the colonial histories and realities that have informed the development of law and its dominant ideologies, which have developed to reflect the interests of the global North (Sonarajah, 2006). Yet, acknowledging the vast power asymmetries between the global North and South and the post-colonial context in which TEL operates, is important given the extent to which powerful actors shape transnational legal norms and processes.

Third World approaches to international law (TWAIL) scholarship has drawn attention to the ways in which power asymmetries 'are reproduced and sustained by official narratives, forms of expertise, normative configurations and managerial practices and in acts of violence, both symbolic and physical' (Eslava & Pahuja, 2020, p. 200). In terms of climate change, the huge contribution to global greenhouse gas concentrations from Northern states has been termed 'carbon colonialism'. Northern states have used the majority of the carbon budget left to limit temperature increases to 1.5°C, while Southern states who have not had the chance to develop using fossil fuels, have been placed under increasing pressure to reduce their emissions (Dehm, 2016). Attention has also been drawn to 'corporate imperialism', the great power that

multinationals possess to shape law in their own interests (Carroll, 2020; Sonarajah, 2006; Udofia, 1984) and who have engaged in transferring economic value from the South to the North (Carroll, 2020; Girvan, 1976). Corporate imperialism has been aided by globalization which established 'informal empires such as those of free trade that intervening states use to serve the interests of their profit seeking companies' (Gathii, 2019, p. 4; Chimni, 2012; Tzouvala, 2020). Consequently, global governance may be viewed through this lens as embodying 'a highly uneven power structure for organising neoliberal globalisation' (Mittelman, 2016, p. 675). Thinking about the colonial structures involved within legal responses to the Anthropocene therefore involves reimagining the ways in which global environmental problems are addressed.

Such an analysis offers the opportunity to identify marginalized communities, the contexts in which they exist, and their participation in transnational processes. For instance, local communities in Nigeria have worked with international NGOs to sue the multinational fossil fuel company Shell plc (formerly Royal Dutch Shell plc) for oil spills that damaged their land, livelihoods and health in the Netherlands, where they were successful. In addition, a claim was brought to the UK Supreme Court, which held that the claimants had an arguable case that the parent company could owe a common law duty of care for the harm caused by its subsidiary (*Four Nigerian Farmers and Milieudefensie v Royal Dutch Shell and others*, 2021; *HRH Emere Godwin Bebe Okpabi and others v Royal Dutch Shell plc*, 2021). Alongside holding parent companies to account for the harm caused to vulnerable communities by their group activities, such activity feeds back into transnational norms concerning corporate responsibility. Nevertheless, the dominance of powerful actors within processes of norm generation and diffusion means that the courts and protest are often the only forums available for weaker actors to participate within them. Acknowledging these communities, the damage they have suffered and their participation within transnational processes raises significant questions regarding the activities of multinational companies in the global South (Atapattu & Gonzalez, 2015; Girvan, 1976; Onimode, 1978), the continuing inequalities between the global South and North including through practices of exporting the negative externalities of consumption (Chimni, 2012; Islam, 2015; Tzouvala, 2020), and further, about the asymmetrical relationship between Northern NGOs and Southern peripheries.

However, TEL may just as well conceal marginalized communities and individuals and re-embed dominant paradigms. Identifying marginalized communities and individuals may be difficult as they may be obscured due to the high complexity of TEL as a result of the volume of actors and legal norms engaged in addressing a specific problem. In addition, as Affolder (2021)

notes, transnational law itself often fails to acknowledge individuals due to its focus on norms and processes. Even when research identifies actors within processes of norm generation these tend towards those with the most power and thus visibility: states, multinational companies, industry organizations, international NGOs and public-private initiatives to name but a few. Locating marginalized communities is a significant barrier, often requiring detailed local knowledge and languages, or access to existing empirical research (e.g. see Affolder, 2019). Communities or individuals identified by reference to international NGOs may obscure those who do not accord with the NGO's priorities, ideology or preferences. Ultimately, identification of all relevant actors, particularly those who are most vulnerable, is incredibly challenging.

Acknowledging the use and structures of power within TEL offers an additional lens through which to analyse transnational environmental norms. For instance, economically and politically powerful states such as the United States, Canada, Australia and those that form the European Union also often dominate proceedings particularly when it is in their interests to do so. These states use their markets as a way to diffuse domestic or supranational law via foreign companies and participate within public-private transnational initiatives, shaping them to their interests (European Union, 2022; Scott, 2014; Webster, 2020). The emergence of the politically and economically powerful BRICS states has acted as a counterbalance, challenging imperialistic Northern states, yet still undermine environmental action when it is in their interests to do so and indeed pursue imperialistic policies themselves. Powerful actors within transnational processes can therefore re-embed and thicken existing inequalities and create new ones, as has occurred at the international level (e.g. Atapattu & Gonzalez, 2015; Carroll, 2020; Islam, 2015). Such an analysis offers a greater richness to TEL research and provides insights into why specific approaches to global environmental harms may be ineffective in some Southern states (see e.g. Durokifa & Ijeoma, 2018).

As a field of research, TEL can draw attention to these actors and their interactions with and dominance over weaker participants – such as local communities – within legal processes, identifying power asymmetries. Yet in order to do so researchers are required to both consciously identify such power structures and engage with research addressing the historical, political and economic context of the North–South relationship (e.g. Anghie, 2012; Gathii, 2019; Gonzalez, 2015; Koch, 2020; Nanda, 2015). Without identifying and contextualizing the specificities of individual states, existing inequalities and vulnerable communities engaged in, impacted by or excluded from the generation and development of transnational legal norms addressed to global environmental problems, a valuable critical tool is lost. In a context in which law, regulation and

governance mechanisms must be deployed in order to address environmental crises, the proliferation of private actors involved in norm generation and the lack of involvement by economically and/or politically weaker states, this is particularly troubling. Thus, it is important to adequately address the position of weak and vulnerable communities and states, particularly to ensure that transnational responses to environmental problems are just in nature.

3.2 | TEL and the Earth system

The 'Anthropocene' acts as a catalyst for new research agendas and theoretical approaches to the law. It draws attention to the limitations of law within a new planetary reality and challenges environmental law to engage with evolving understandings of the natural environment, its function at a planetary scale and the relationship between human conduct and the Earth system (see Viñuales, 2020). Environmental law scholarship has emerged that engages with Earth system science and ecology. TEL scholarship could also benefit from engaging more routinely with these sciences and the scholarship surrounding them, contributing to these strands of literature in turn by applying them to new contexts.

Rather than taking a siloed approach to global environmental harm, Earth system science demonstrates that the 'Earth operates as a single, complex, adaptive system, driven by the diverse interactions between energy, matter and organisms' (Steffen et al., 2020, p. 54). The development of scientific understanding of the way in which the Earth system operates has led to the recognition of humanity as a driver of planetary change (Biermann, 2012). The concept of the Anthropocene is increasingly used to contextualize the evaluation of environmental law, including TEL (e.g. see: Benjamin, 2017; Kotzé, 2020; Lin, 2017; Webster & Mai, 2020; Wheeler, 2019), and 'places climate change, biodiversity loss, pollution and other environmental issues, as well as social issues such as high consumption, growing inequalities and urbanization, within the same framework' (Bleby et al., 2021, p. 23). Such a context both changes the evaluation of specific transnational norms and encourages the consideration of how the norms interact with, benefit or worsen other, interconnected, environmental problems which in turn impact back upon the specific environmental problem at issue. The application of Earth system science to the social sciences and IEL, can be as fruitfully applied to transnational legal analyses (Kotzé & Kim, 2019).

Kotzé and Kim (2020) have argued that Earth system law (ESL) is a more appropriate way to conceptualize of the law than IEL which was developed in the Holocene era of relative stability and, as such, is unfit for the Anthropocene. In terms of using ESL as an analytical

lens to critique the ‘current deficiencies of international environmental law’ (Kotzé & Kim, 2020, p. 464), they draw attention to the fact that TEL and global law:

offer a more honest and realistic reflection of the regulatory reality that law is currently confronted with in the light of the most recent understandings of the Earth system governance challenges ... The natural progression from international environmental law to global/transnational environmental law signals the potential of, and need to continue with, efforts to think about a new legal paradigm that departs from global/transnational environmental law and that is analytically better suited to the type of interconnected earth system governance challenges we observe through the Anthropocene trope.

(Kotzé & Kim, 2020, p. 460)

Drawing on the ESL analytical, normative and transformational ‘lenses’ developed by Kotzé and Kim (2020) to evaluate TEL is an important step in this process. TEL research can draw attention to the content of norms, the dominant paradigms and path dependencies that create them (Kotzé & Kim, 2020). Transnational norms should therefore be analysed in terms of their consistency with ‘prevent[ing] humans from exceeding the limits of earth’s life support systems’ (Kotzé & Kim, 2020, p. 461). Grounding the analysis of the content of norms within understandings of the Earth system is key. Humans are part of, and reliant upon, the Earth system rather than positioned outside of it. Consequently, transnational activities and the norms that emerge to govern them, must be consistent with maintaining a functioning Earth system for present and future generations. In order to analyse transnational environmental norms effectively, the neo-colonial structures within dominant normative approaches to addressing environmental problems, discussed in subsection 2.1 must also be drawn upon.

Connectedly, dominant economic norms should be questioned particularly those that speak to the commodification of nature, and alternative conceptualizations of the human–environment relationship, such as those of Indigenous peoples, considered (Mazzochhi, 2020). The roots of the dominant view of the natural environment as an *economic* resource extend back to the industrial revolution and before, as nature was viewed as a commodifiable and regenerative product upon which economic prosperity could be built, a notion that was universalized by colonialism as the colonizer expropriated natural resources from the colonized (Anghie, 1996; Tzouvala, 2020). Such notions persist in an attenuated form in the guise of ‘sustainable economic growth’ and the – often –secondary place

given to the environment in the implementation of sustainable development (Gordon, 2015; see also United Nations, 2015; Verschuuren, 2017). Although environmental law generally attempts to mitigate and prevent some of the harms that arise from viewing the environment purely as an economic resource, economic concerns and the benefits of environmentally harmful commercial activities still exert a strong influence over the extent to which they are controlled and/or limited. Consequently, transnational environmental norms that align with these economic norms and do not come into conflict with economic concerns or the creation of wealth through commercial activities, are strengthened, while those that come into conflict with them significantly weakened (e.g. see Webster, 2021).

Placing humans within Earth system processes challenges dominant paradigms which often imbue responses to environmental damage. Norms that uncritically adopt the view that the market is best placed to address environmental harm, that the best policies are those that price pollution and carbon, and that environmental damage and degradation can be balanced and often subsumed, to economic gain, can be critiqued by demonstrating that environmental law and regulation up until this point, has been incompatible with scientific reality. While such a context cannot demonstrate the influence of economic norms, it can aid in identifying and questioning norms that embrace technological solutions to problems such as climate change or that prioritize the creation of wealth from commercial activity over the harm that is caused to the environment. In addition, it informs us that harm must be considered more broadly to the system itself, including but not limited to those systems of the biosphere that directly support life.

The normative dimensions of ESL offer ‘a framework to design better laws to better govern a complex Earth system’ (Kotzé & Kim, 2020, p. 465), and are also highly relevant to TEL given the proliferation of transnational legal norms that are generated in response to any one issue area. Kotzé and Kim (2020) suggest that the concept of the planetary boundaries, conceived as a means to maintain Holocene-like conditions may be helpful. Nine boundaries including climate change, biosphere integrity (functional diversity and genetic diversity), land-use, biogeophysical processes and ocean acidification – have been identified and for many, ‘safe operating spaces’ identified, six of which have already been exceeded (Rockström et al., 2009; Steffen et al., 2015). Climate change and biosphere integrity have been positioned as core boundaries that are highly integrated and connected to all the others. For instance, biosphere integrity supports the resilience of the Earth system to deal with changes to the other planetary boundaries (Steffen et al., 2015). Exceeding tipping points with regard to boreal and Amazon forests, resulting in their die back and eventual destruction, will

create feedbacks increasing warming and further impacting other processes creating 'tipping cascades' resulting in greater warming (Steffen et al., 2018).

Recent research concerning the interaction between law and the planetary boundaries concept has also identified the latter as a useful 'conceptual framework to inform environmental law and governance responses' bringing 'multiple critical systems into a single framework' (Bleby et al., 2021, p. 23). The concept benefits from taking the idea of limits, which is already used to govern social and environmental issues, removing economics and politics from the processes of setting them, and instead using 'scientific evidence that puts a specific, measurable number on global ecological limits for the first time' (Garver, 2018, p. 141; see also Bleby et al., 2021). Consequently, the concept also provides space for the use of a variety of different policy choices depending on the circumstances, allowing justice considerations to also be taken into account (Bleby et al., 2021; Viñuales, 2020). Although useful because they provide specific 'environmental target indicators' with which transnational norms can then seek to address human impacts on the Earth system (Biermann, 2012, p. 5), the planetary boundaries concept has been critiqued for, among other things, 'setting the bar too low for restraining human impact on the environment' (Bleby et al., 2021, p. 35) and for being anthropocentric in nature which risks leaving 'the interests of non-human species and elements of nature at risk of domination, exclusion or disposal in favour of humans' (Bleby et al., 2021, p. 36). Environmental limits may be useful in offering a closure from which analyses of distributive and substantive justice may be undertaken in responses to and responsibility for global environmental harms such as climate change. However, there is the possibility of such limits perpetuating injustices in practice, by drawing upon science to justify Northern demands for Southern states to cease environmentally harmful activities without addressing developmental needs and poverty adequately.

The SDGs, interpreted in an environmentally sound way, have also been suggested as useful for ascertaining environmental limits (Steffen et al., 2020) and are drawn upon by a variety of public and private transnational actors. Despite existing failures of implementation of and compliance with the SDGs (Steffen et al., 2020) they offer an approach that addresses some of the difficulties with ascertaining whether and how certain legal norms are consistent with the planetary boundaries in practice while also including social concerns such as poverty. Indeed, the planetary boundaries concept can guide the development of transnational norms and sustainable development in a way that is more ecologically sound, demonstrated by the World Business Council on Sustainable Development's Vision 2050 (WBCSD, 2021). Yet currently, within the

implementation of sustainable development, and the SDGs, the inherent tensions between the three pillars often result in the prioritization of the economic, despite the incompatibility of this with the objective of human flourishing now and in the future (Capra & Mattei, 2015; Kotzé & Kim, 2020; Viñuales, 2013). For example, the SDGs do not unduly challenge the interests of economically powerful actors such as multinationals, who rather draw on them to support their activities, nor 'sustainable' economic growth, an impossibility on a 'finite planet' (Garver, 2018, pp. 143–144).

A second challenge of an environmental limits approach at the planetary level is that the activities that have led us to the Anthropocene often manifest in local spaces. At the same time, local and national ecosystems are impacted by disrupted Earth systems meaning that understanding the impact of commercial activities on the global scale is also important (Wooley, 2021). Ensuring that TEL is also attendant to the impacts of commercial activities upon both ecosystems and Earth systems would strengthen TEL's contribution toward critiquing existing approaches that regulate commercial activity and offer prescriptions for better forms of transnational regulation (e.g. see: Wooley, 2021). Consequently, the use of environmental limits could be strengthened through the concept of ecological integrity.

Ecological approaches to the law view the environment as 'a collection of interconnected ecosystems' (Burdon, 2020, p. 34; Capra & Mattei, 2015), moving the legal order away from a focus on property rights and sovereignty over natural resources, for instance, toward one that 'is consistent with and honors the basic principles of ecology' (Capra & Mattei, 2015, p. 14). While there are a variety of different conceptualizations of 'ecological law' many share a common feature, namely, that they attempt 'to reconfigure law around the environment' while challenging the underlying presumptions and orthodoxies of the law (Burdon, 2020, p. 33; for an alternative view on ecological law see Wooley, 2014). The objective of entwining law and ecology is to move from a situation in which large-scale environmental damage is deemed lawful and permissible to instead privileging the maintenance and restoration of the planet, thereby governing humanity's relationship with the environment in a way that protects both (Wood, 2013). Ultimately, 'ecological' approaches to the law, place the 'Earth as a central reference point for the design of environmental law' in all of its complexity (Bosselmann, 2018, p. 226). The law must recognize and internalize ecological realities or 'it is doomed to fail' (Bosselmann, 2018, p. 227).

A promising concept that could be useful to evaluate and develop better transnational interventions is that of ecological integrity. In the context of the Anthropocene (Bridgewater et al., 2015) Bosselmann and Kim (2015) define the term ecological integrity as meaning:

a system property *vis-à-vis* the scientific concept of robustness or resilience. Robustness is a property that allows a system to maintain its functions in the face of disturbance ... If we apply this to ecosystems, ecological integrity would refer to 'the continued healthy or proper functioning of ... global- and local-scaled ecosystems and their ongoing provision of renewable resources and environmental services'.

(Kim & Bosselmann, 2015, p. 203 citing Mackey, 2005, p. 66)

Maintaining and restoring the integrity of the Earth system and the biosphere is fundamental to humanity's long-term survival (Bosselmann, 2020). Consequently, importing ecological integrity into TEL implies a need to be cognizant of the impact of specific operations on local and regional ecosystems – limiting, mitigating and restoring them in response to localized impacts – but also of the total impact of a specific state or corporation on the planet as a whole (e.g. greenhouse gases, air, terrestrial and water pollutants/pollution, water use, land-use changes) and to limit, mitigate and restore accordingly (Bridgewater et al., 2015). Such an approach may be particularly important because of the volume of initiatives developed to regulate industry, taking sector specific approaches which are pragmatic, but often guided by their participants and their conceptions of what is practicable from a commercial perspective, rather than by ecological reality (e.g. see UNEP and CCAC, 2018). Despite challenges identifying the risks to specific ecosystems, as Woolley (2021) notes, the knowledge exists to inform actors of the consequences of their activities and of the interventions needed to increase resilience.

The final ESL 'lens' directs us toward the need to transform the law to better address the Anthropocene. Kotzé and Kim (2020, p. 466) argue that the transformation of the law involves 'pursuing initiatives that are fully embedded in an earth system law paradigm that can trigger and steer societal transformation toward planetary integrity and justice'. One way they identify that law and regulation could evolve is through regulatory processes that are adaptive and interactive (Kotzé & Kim, 2020). The way that many transnational environmental norms are developed is consistent with this approach, forming in recursive processes of norm generation and development (Halliday, 2009; Malets & Quack, 2017). Indeed, transnational approaches to corporate climate change mitigation demonstrate the flexible and dynamic ways that responses develop. For instance, voluntary climate-related financial risk disclosure is becoming internalized into national law in several jurisdictions (Webster, 2021), and the voluntary development of net zero plans and greenhouse

gas reduction targets are now being considered as binding obligations for certain companies within the EU (European Union, 2022). Consequently, TEL has emerged as a response to the changing nature of law. Its analytical, normative and transformative engagement with Earth system science and ecology may trigger the evolution of TEL scholarship that is better able to respond to the Anthropocene and conceive of more appropriate ways of regulating human activity.

4 | CONCLUSION

Transnational and TEL scholarship has burgeoned over the last decade. Despite methodological and definitional challenges within TEL scholarship, its development offers an opportunity to engage with some of the criticisms of environmental law more generally, but in the context of the unique characteristics of transnational law. The 'Anthropocene' exposes a new reality with which TEL must engage, acting as a second catalyst, the first being globalization, for the development of transnational legal research. This article has drawn attention to two areas that the Anthropocene concept could trigger even greater engagement: power, erasure and coloniality, and, Earth system law, the planetary boundaries and ecological integrity. These two areas mutually reinforce each other, while drawing attention to some of the challenges and opportunities of TEL. Humanity's impact upon the Earth is profound and unsettling, causing many scholars to re-evaluate the law and its contribution to the creation and worsening of global environmental crises, and the terrible cost paid by those most vulnerable to environmental harms. TEL, despite its youth and certain methodological and practical challenges, has great potential to develop into law that is fit for the Anthropocene.

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DATA AVAILABILITY STATEMENT

The author confirm that the data supporting the findings of this study are available within the article.

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