

Barriers to Zero Tropical Deforestation and ‘Opening up’ Sustainable and Just Transitions

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1. Introduction

International efforts such as the UN Sustainable Development Goals (SDGs), the UN Forum on Forests (UNFF), and the UN Framework Convention on Climate Change (UNFCCC) have sought to engender sustainable use of forests—including tropical forests, the focus of this chapter—through reducing deforestation and encouraging reforestation and afforestation. Ambitiously, the SDGs state that by 2020, we need to “promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally” (UN General Assembly 2015). At the same time, tropical forest governance is increasingly decentralised within government departments, taking on public, private and hybrid forms, and bringing diverse actors and alliances into forest politics that interact across scales and with differentiated effects (Arts 2014). Initiatives for governing tropical forests take multiple forms, including ‘zero deforestation’ supply chain initiatives, carbon forestry, Reducing Emissions from Deforestation and Forest Degradation (REDD+), legislative frameworks that intend to cut off markets for illegally harvested timber, and emerging landscape and jurisdictional approaches.

These global commitments demonstrate growing recognition of the urgent need to arrest tropical deforestation to avoid ‘tipping points’ (Walker et al. 2019; Amigo 2020). A tipping point refers to the stage at which forest degradation is such that rainforests can no longer be sustained and shift states to savannah, releasing vast amounts of forest stored carbon with devastating and irreversible repercussions for planetary health (Lovejoy and Nobre 2019; Pereira 2019). A recent study has suggested that such tipping points may be considerably closer than previously imagined, with as much as 40% of the Amazon now at a point at which it could exist as savannah as opposed to rainforest (Staal et al. 2020). However, despite the acknowledgement of the SDGs for ‘transformative’ change, current trends indicate that the SDG 2020 targets on forests and their sustainable management have not been met. The majority of ‘zero deforestation’ commitments, made by private companies as voluntary pledges

to eradicate deforestation throughout their supply chains (Lambin et al. 2018) also fall short of their 2020 targets (as highlighted in the 'Forest 500' report by Global Canopy that found not one of the 500 most influential forest-risk commodity companies and institutions were on course to do so (Rogerson 2019)). Similarly, the five-year progress review of the transnational multi-stakeholder 2014 New York Declaration on Forests (NYDF) shows large commitments but slow implementation, pointing to another missed target (NYDF Assessment Partners 2019).

Rather than meeting these targets, tropical deforestation continues at an alarming rate, with as much as 12 million hectares of tropical tree cover loss recorded in 2018 (World Resources Institute 2019). On a global scale, tropical forest destruction is driven by an ever-growing demand for commodities such as timber, soybean, oil palm and cattle meat, all associated with forest loss (Seymour and Harris 2019), and the expansion of extractive industries and infrastructure development (Sonter et al. 2017; Bebbington et al. 2018). Tropical deforestation is often facilitated by the violent appropriation of land and the expulsion of indigenous communities (Li 2018), a recent example being the surge of violence against indigenous communities in Brazil (Greenpeace 2020). Furthermore, tropical deforestation has a host of other negative impacts felt across scales. Locally, forest degradation and loss erode vital ecosystem services which provide livelihoods, medicines and food for indigenous communities (Tsing 2004; Li 2015), and globally the felling and burning of tropical forests is a major source of anthropogenic greenhouse gases, emitting more carbon dioxide equivalent than the entire European Union (World Resource Institute 2018). Beyond, and linked to, the commodity expansion driven stressors facing tropical forests, environmental changes such as global warming and biodiversity loss exacerbate degradation, with exactly how and to what extent still relatively poorly understood (Cusack et al. 2016). To that end, we argue that careful attention must be paid to the influences of power and politics in forest governance to imagine opportunities for sustainable and just transitions for forests and their use.

Drawing on insights from political ecology and sustainability transitions research, this chapter discusses the barriers to transitioning to zero deforestation. Exploring the possibilities for a sustainability transition for forests, we argue that careful attention must be paid to the influences of power and politics surrounding drivers of deforestation, forest governance and its outcomes, and the need to challenge orthodoxies around economic growth that currently underpin policy responses. It is increasingly clear that transformative reforms are required, departing from the extant governance milieu of neoliberal solutions. This process is profoundly complex due to the inevitable trade-offs and tensions between the ecological, economic and social

aims of transitions to zero deforestation, and the difficulty in challenging the existing power structures that underpin 'business as usual' in forest governance.

2. Power and Politics in Sustainability Transitions

Forest Transition Theory suggests that landscape change is shaped by three distinct processes that occur over time: (1) fragmentation, (2) deforestation and degradation, and then (3) restoration and reforestation; and these three processes correspond with economic development at regional or national scales (Mather 1992). It may be argued that Forest Transition Theory emphasises a natural, unilinear and homogeneous process of 'development' whereby developing countries follow the historical processes of developed countries (Klooster 2003), but the nature of a transition is shaped by situated historical contexts (Rudel et al. 2002). However, the theory remains one of the foundations of current thinking on forest landscape change (Garcia et al. 2020). Given the urgency of addressing the forest crisis, we agree with Garcia et al. (2020, p. 418), who state that "landscapes do not happen; we shape them", and emphasise the role of agency as a key factor and blind spot of current forest policy.

The changes required to halt global trends in deforestation are highly complex and necessitate long lasting reform across social, economic and political spheres. The field of 'sustainability transitions' has increasingly sought to support our understanding of "the complex and multi-dimensional shifts considered necessary to adapt societies and economies to sustainable modes of production and consumption" (Coenen et al. 2012, p. 968). Early literature on sustainability transitions has been critiqued for being overly technocratic and therefore failing to recognise the inherently political, and thus power laden, nature of meaningful change (Meadowcroft 2011; Stevis and Felli 2015). More recent research has recognised that politics and power fundamentally shape the process of sustainability transitions (O'Neill and Gibbs 2020). A multitude of different actors devise, enact, enforce, govern, communicate, shape and resist these processes—including states, international institutions, private actors, civil society and communities. Sustainability transitions are therefore not unilaterally implemented by any one party, but are the product of complex networks of actors, likely to have divergent understandings of what 'success' may look like, and of how it may be achieved (Köhler et al. 2019).

These networks of actors are characterised by an imbalance of power, meaning that powerful actors such as corporations, states and institutions have a disproportionately influential say in setting the transformation agenda (Avelino 2017). Often, elite actors are invested in maintaining the status quo (Routledge et al. 2018),

hindering truly sustainable transitions and perpetuating the environmental injustices that blight those less powerful actors such as indigenous communities. Power then in transition studies can pertain to ‘power struggles’ between incumbent actors and those who are trying to challenge ‘business as usual’ (Köhler et al. 2019). The results of these struggles impact access to resources and the distribution of the burdens and benefits associated with sustainability transitions (Healy and Barry 2017).

The inherently power-laden nature of sustainability transitions has invited researchers to apply a critical lens to their analysis, asking important political economy questions on who is defining the terms of change, who wins, who loses, how and why (Smith and Stirling 2010; Newell and Mulvaney 2013). These questions expose the injustices that arise, or are reinforced, by transitions aiming to achieve sustainability—most commonly addressed in the literature on ‘just transitions’—which have sought to foreground the concerns of marginalised and disproportionately affected actors in transitions (Ciplet and Harrison 2019). Lawhon and Murphy (2012) outline additional critical questions that might further elucidate the impacts of disparate power relations in sustainability transitions such as: At what scale are decisions made? Who is represented in transitions? Whose knowledge counts? What are the intended and actual social outcomes of transitions? Answering such questions enables a root cause analysis of the drivers of, and barriers to, sustainable and just transitions. Next, we unpack some of the barriers to transitioning to zero deforestation to date, considering these critical questions. We do not claim to capture all of the challenges encountered in transitioning to zero deforestation, nor are we dismissive of the efforts undertaken by policymakers, practitioners and researchers in seeking to raise ambition on forest governance. Rather, we attempt to highlight the complexity of the challenges of addressing tropical deforestation and open up discussion on possibilities for transitions.

3. Barriers to Transitioning to Zero Deforestation

3.1. Problem Framing: Contested Definitions of “Forests” and “Deforestation”

Often, forest governance mechanisms are based on technological and market-based solutions to the problem. A case in point is the UN REDD+, in which developing countries receive money from developed countries in order to protect forests. Private governance is also becoming increasingly common, in response to growing public awareness of the extent of private sector-driven deforestation. This has manifested through ‘zero deforestation’ commitments being made by private companies as voluntary pledges to eradicate deforestation throughout their supply chains, often through the use of certification programmes

(Lambin et al. 2018). Challenges in transitioning to zero deforestation may in part relate to significant differences in how different actors define 'zero' (versus 'net' zero), 'forests', and 'deforestation', as well as differences in implementation mechanisms, and success metrics (Garrett et al. 2019). Definitions of deforestation and zero deforestation used by the private sector, government, and non-governmental organisations, vary and lack clarity on whether they relate to zero 'gross' deforestation (reducing primary forest loss) or zero 'net' deforestation (involving new planting or reforestation to compensate for forest loss), whether tree plantations are included, or how past clearance is addressed (Brown and Zarin 2013; Lambin et al. 2018). Examining discourses of how 'forests' and 'deforestation' are defined highlights how different actors interact and potentially influence the deforestation problem and its possible solutions (Bäckstrand and Lövbrand 2006). How these definitions are then encoded into policies and standards fixes meaning in an inherently political process (Turnhout 2018), where power is exercised by actors to challenge or keep power, thus serving particular interests (Fischer and Hajdu 2017).

This diversity and ambiguity makes it difficult to evaluate progress towards 'zero deforestation', and actors can fill the statements with meaning to suit their particular interests (Beland Lindahl et al. 2016). Through the process of defining forests and deforestation, discourses may be 'closed down' to retain hegemony through the reinterpretation of a problem and how it should be solved, and thus which interests should be taken into account (Fischer and Hajdu 2017). For example, zero 'net' deforestation could be considered well-aligned with corporate interests, as 'business as usual' can continue through a spatial-temporal fix of tree planting, apparently reconciling economic growth and conservation (Harvey 2007). However, alienated communities bear the burden of this appropriation of nature (Fairhead et al. 2012), as their use of land and forests is restricted (e.g., Mahanty et al. 2012) and benefits are captured by the elites (e.g., in the case of REDD+, Sikor et al. 2010).

In attempting to operationalise 'zero deforestation', an important process is making forests or deforestation 'calculable' and 'legible'. In the process of operationalisation, forested and deforested areas are defined using standardised categories and metrics, so that categories are commensurable and their values comparable and exchangeable, including through markets (Turnhout 2018). This process of categorisation involves 'experts' who are tasked with undertaking valuations and assessments as part of land use zoning for agricultural expansion or calculating carbon units represented by forests which obscure their diverse values. This has been at the expense of local communities who frequently recognise the plural values of forests beyond zones labelled as 'High Conservation Value areas/forests'

(HCVs) or areas of 'High Carbon Stock' (HCS) (Cheyns et al. 2020). These technocratic processes of zoning—which allow efficient auditing to take place against certification standards—may obscure the exercise of power by experts, who are influential in defining certain visions of forests and their management.

The definitional problems related to deforestation have persisted for decades, and it is clear that previous accounts of deforestation's impacts have important flaws (Forsyth 2004). According to Hamilton and Pearce (Hamilton and Pearce 1988, p. 75 c.f. Forsyth 2004), "The generic term "deforestation" is used so ambiguously that it is virtually meaningless as a description of land-use change ... It is our contention that the use of the term "deforestation" must be discontinued, if scientists, forest land managers, government planners and environmentalists are to have meaningful dialogue on the various human activities that affect forests and the biophysical consequences of those actions". It is clear that definitions of forests and deforestation continue to be contested, with important implications for how the problem is constructed and its solutions. Although it is unlikely that the term "deforestation" will be discontinued, we argue that the complexity of the term must be recognised. More attention is needed to the nuanced drivers and effects of deforestation, which requires consideration of questions of multi-scalar political economic causes of forest loss, in order to develop appropriate and relevant policies. This may require, for example, contesting problematic assumptions and policy narratives about causes of deforestation which lead to ineffective solutions (Ravikumar et al. 2017).

3.2. Governance across Scales: Translations and Enactments of Sustainable Forest Governance

"Zero deforestation", as encoded into SDG 15, private sector statements, and the NYDF, is a bold statement made by actors at the global level to communicate ambition to protect forests. Although this may be considered "the goal" set by actors at the global level, constituting a process of managing sustainability and brand risks or even as a marketing tool, these ambitious statements reshape and influence relations within global value chains, through consolidations, exclusions, and changing practices. Global strategies are enacted differently and unevenly across geographies, through complex politics of translation as they are refracted and reproduced across local-global sites of negotiation (Merry 2006; Newell 2008). Asserting that deforestation is always problematic through claims of 'zero deforestation' and the targets contained in the SDGs may grant insufficient attention to the complexity of how deforestation is carried out, its variety of purposes and impacts (Forsyth 2004). Moreover, implementation of zero deforestation commitments is incredibly complex due to supply chain

structure (Lyons-White and Knight 2018). Issues of leakage when supply chains are ‘cleaned up’ (or ‘deforestation-free’ with non-compliant suppliers excluded) mean that deforestation is displaced rather than eliminated (Garrett et al. 2019), and do not address the root causes of deforestation and may be considered a process of ‘rendering technical’ a complex political economic problem based on inequitable control of forest and forestlands (Li 2011). Myers et al. (2018), based on 742 interviews (in conservation, payment for ecosystem services, and REDD+ projects in Indonesia, Mexico, Peru, Tanzania and Vietnam), found that proponents viewed problems through a ‘technical’ rather than ‘political’ lens, which came at the expense of political solutions such as the representation of local people’s concerns and recognition of their rights.

Current global sustainable forest governance initiatives are underpinned by the notion of forests as a ‘global common good’, which may contrast with local understandings of forests and in turn create barriers to transitioning to zero deforestation (Basnett et al. 2019). ‘Global’ views of legality, such as those defined by the EU Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan, for example, differ from local understandings of legality which are viewed by non-state actors as part of a colonial legacy and imposed upon them (Myers et al. 2020). Global narratives can, in turn, be stabilised within regional narratives, which may not always reflect local realities but still inform policies (Fairhead and Leach 1995).

Measuring, reporting and verification (MRV) systems used to support global forest governance initiatives, while making visible forest loss and regeneration, identify forests as ‘pixels’ or units of carbon, risks further decontextualising the historic processes of deforestation that were—and are—based on a colonial extractivist mindset that persists in national plans and forest policies (Gupta et al. 2012). Galudra and Sirait (2009) argue that scientific discourse was used by the Dutch colonial administration to justify control of 120 million hectares of land as forest reserves, legitimised by the view that customary systems of land tenure and use were ‘inappropriate’ and ‘destructive’. This pattern of land control endures and remains in policy discourses that emphasise and protect private land rights (Mousseau 2019). Under this form of land control, subsistence and artisanal use of forest resources are often declared illegal, while access is enabled for large commercial timber companies or agribusiness (Munro and Hiemstra-Van der Horst 2011).

Through carbon offsetting, a unit of carbon is disembedded from a locality and its conflicts, and through a process of commodification can be bought and sold in global markets, without challenging current consumption patterns and by allowing economic

growth to continue as usual (Cavanagh and Benjaminsen 2014). Private certification has been promoted as an important private forest governance solution, but can reinforce new forms of injustices as it privileges those who can afford to dedicate time and resources to comply with complicated standards (Basnett et al. 2019). According to Sayer et al. (2019, p. 501): “Without an emphasis on integration, wide political and public engagement and greater responsiveness to local needs, SDG 15 risks perpetuating a sectoral, top-down approach”. Inadequate consideration of local contexts gives rise to equity concerns and may thus preclude efforts to challenge root causes of unsustainability and deforestation.

Current sustainable forest governance initiatives go further than decontextualising forests and disembedding the local. Initiatives implicitly blame local actors as driving deforestation, while simultaneously focusing on them as the solution, as is seen in the case of REDD+ and corporate deforestation initiatives (Delabre et al. 2020). In the case of REDD+, Skutsch and Turnhout (2020) highlight how the ‘communities’ narrative may implicitly rest on explanations of the causes of deforestation that have since been discredited, but remains attractive as it focuses attention away from more politically sensitive approaches, e.g., targeting powerful industrial interests, and masking difficult trade-offs. However, such an approach delegates the burden of responsibility to potentially already marginalised communities (Goldman 2001), which may exacerbate existing inequalities and potentially impedes progress against other SDGs. Treating the problem of deforestation as driven by small farmers and actors distracts from attention to the wider political economy of forests and their governance (Ravikumar et al. 2017).

The notion of ‘measurementality’ places transparency alongside effectiveness and efficiency as neoliberal principles in environmental governance (Turnhout et al. 2012). Despite such emphasis on standardised and ‘objective’ science-based measurements, the two main global datasets on deforestation are conflicting. Global Forest Watch (hosted by the World Resources Institute) uses satellite images and on the ground observations to detect tree cover, and estimated global deforestation rates as 72.5 million acres in 2017, whereas the UN FAO Global Forest Resources Assessment, based on registered land use and disclosed by governments, estimates annual net loss, once forest regrowth is taken into account, at 8.2 million acres (Pearce 2018). Despite continuing high rates of deforestation in many locations, statistical uncertainties are often not acknowledged, and as a result, some estimates become seen as factual and unchallenged (Forsyth 2004). Furthermore, the use of ‘big data’ and technologies as industry norms for monitoring and managing deforestation in supply chains brings to the fore a number of challenging questions, some examples of which follow.

Firstly, to what extent are these new technologies for knowing forests legitimate, to whom are they considered legitimate and what are the implications if they fail to gain legitimacy amongst important stakeholders? Secondly, who gains and who loses from the use of these new technologies, what are the power structures and other factors that determine winners and losers, and how might these be dismantled in order to ensure technological advances do not reinforce systems that oppress or harm vulnerable groups? Finally, whose visions of sustainability may be promoted or obscured as measurement is undertaken based on abstracted data, and what are the implications of this?

3.3. Directionality of the Transition: Who Is Represented?

Diverse actors and alliances are involved in the enactment of public, private and hybrid forms of tropical forest governance at global, national and local scales. How these diverse actors perceive forests and their sustainable governance influences their strategies and actions. Different framings of the same problems are often the source of political struggles (Fischer 2003). Thus, who frames the problem of deforestation, and how, is a critical consideration in transitioning to sustainability.

Incumbent actors such as the state, private sector, and powerful NGOs play a disproportionately large role in the directionality of the transition to zero deforestation, and are able to shape particular processes while resisting others. Although on one hand, this multi-actor governance brings diverse perspectives and knowledge and opportunities for dissenting voices to be brought to the table, certain powerful actors may be dominant in setting and enacting (often neoliberal) solutions. If powerful interests and values are over-represented in visioning and framing targets and the means of implementation, this may preclude possibilities for just sustainability transitions, and exclude alternative pathways (Leach et al. 2007).

This can be demonstrated by the different networks and alliances of actors who affect, and are affected by, deforestation and forest governance, who have divergent understandings of what constitutes sustainable land use with important consequences for how tropical forests might be best conserved while obtaining food. These different ideas result in divergent understandings of what ‘success’ looks like (Köhler et al. 2019). For example, there are disagreements on whether sustainable agriculture should be based on a model of ‘land sharing’ or ‘land sparing’ for biodiversity (Phalan et al. 2011), or agroecology or industrial agriculture (McNeill 2019), all of which are context-dependent. This contested discourse reflects both technical issues (i.e., how to assess sustainable land use empirically, and how ecological limits are defined), and political issues (i.e., who benefits and who loses from

particular models). In policy fora, agribusiness concerns are frequently rationalised by a narrative of feeding a growing ‘global’ population based on a model of ‘land sparing’ that allows continued expansion of commodities, with HCS and HCV areas designated within plantation concessions. These zones are privately conserved by agribusiness, with further implications for their fate and the fate of communities dependent on the resources of these areas.

The SDGs make a normative statement about what a high-level sustainability transition seeks to achieve, but within this high-level agenda are embedded assumptions, politics and trade-offs. Spann (2017) argues that embedded in the SDGs is the notion of ‘agriculture for development’, premised on a (problematic) structural transformation whereby, over time, countries shift from being agriculturally based to eventually becoming urbanised. Rather than a natural evolution, this agriculture for development model is a political project that negatively affects smallholders and ecological relations (*ibid.*). Thus, Spann (2017) argues that the SDGs ensure the interests of agribusiness—with whom the SDGs were developed—at the expense of actual (or alternative visions of) sustainable development. This is relevant to transitioning to zero deforestation, given the substantial role of agricultural expansion in tropical forest loss. Thus, the SDGs prioritise a pathway for how land is used for food production, potentially obscuring alternatives that may be more sustainable. Further, this singular pathway neglects attention to governance structures that support continued deforestation, such as harmful incentives, consumption patterns and the fundamental imperative for economic growth, which can be prioritised by states through a process of SDG “cherry-picking” to align with a pre-existing development pathway (Forestier and Kim 2020; Horn and Grugel 2018).

4. ‘Opening up’ Just Sustainability Transitions for Forests

Key questions need to be asked that relate to epistemological diversity and justice to consider whose knowledge counts in decisions for sustainable development and where forests feature. We suggest that a just sustainability transition, *i.e.*, one that seeks to address both the uneven distribution of burdens and benefits inherent in socio-ecological transitions for forests, and the power imbalances that perpetuate them, requires ‘opening up’ (Stirling 2008) multiple, alternative visions of sustainable development that do not have infinite economic growth at their core. ‘Opening up’ examines different framing conditions and assumptions, including marginalised perspectives and considering ignored uncertainties: instead of providing prescriptive recommendations, alternative questions and new options can be considered and governance processes can be better informed, more transparent and accountable

(ibid.). A focus on the conditions that create barriers to zero deforestation supports us in unearthing possibilities and spaces for transformation, where power may be redressed through more equitable solutions. A perspective of a just transition based on political ecology supports an understanding of who wins and loses from current governance arrangements and the assumptions that underpin them, and thus supports researchers in imagining what combinations of co-constructed actions are needed.

As part of the process of ‘opening up’ just sustainability transitions, local actors should be placed at centre stage in decision-making, early on in processes related to land use change, and forest management, rather than rigid tokenistic efforts for consultation following already agreed futures, as has been seen in cases of superficial indigenous ‘participation’ in Low Carbon Development Strategies in Guyana (Airey and Krause 2017), or in impact assessment processes as part of certification standards in Malaysia and Indonesia (Delabre and Okereke 2020). Decision-making processes therefore need to recognise and be sensitive to diverse forms of agency and resistance, especially of previously marginalised actors (De Vos and Delabre 2018).

Recent conceptualisations of integrated landscape-scale governance arrangements hold some promise in this regard, by emphasising engagement between multiple stakeholders and aiming to disentangle complexity of landscapes, facilitating consideration of different courses of action, and reconciling societal and environmental objectives at the landscape scale (Reed et al. 2020; Sayer et al. 2015). Yet, these landscape-scale approaches may also risk exacerbating existing inequalities encountered in other forest governance approaches in complex political economic contexts and across geographies. Reed et al. (2020) highlight the need for concerted transdisciplinary actions in applying and assessing the effectiveness of landscape approaches, being attentive to power asymmetries in sectorial engagements.

Recognising the root causes of forest loss requires acknowledgement of the unsustainability of land use decisions that prioritise GDP growth, embedded in SDG 8, at the expense of other SDGs—highlighted by Menton et al. (2020) as ‘the elephant in the room’. Within a capitalist political economy, neoliberal conservation promises to reconcile unlimited economic growth and forest protection. Recognising this tension highlights the need to develop a more nuanced perspective on the complex drivers of deforestation and thus how problems are confronted. This critical approach requires challenging prevailing political discourses that promise ‘win-win’ solutions with limited scientific evidence (Reed et al. 2020), or simply blame local people for forest loss (Ravikumar et al. 2017). Redistributing the burden of responsibility for implementing zero deforestation will require targeting actors according to the direct

and indirect impacts that their actions have on deforestation and the broader political power they possess (Büscher and Fletcher 2020), pushing for greater accountability for the actions of incumbent actors including companies, states and finance to comply with the commitments they have made themselves.

Following Büscher and Fletcher (2020), we argue that a just sustainability transition for forests requires radical (from the ‘roots’) shifts in how forests are governed. The concept of ‘convivial conservation’ may therefore be a helpful imaginary to support human-nature interactions, including conceptualising the diverse and multiple values of forests as complex social-ecological systems (Büscher and Fletcher 2020) that cannot be isolated or disembedded from their social and historical contexts. Shifting away from a ‘global transition’ to ‘zero deforestation’, a more sustainable and equitable future may require multi-transition pathways that embrace diversity. Some of these processes of transition may have already started, but as we have discussed, many barriers remain. Despite some shifts in how forest governance is enacted, it is clear that more equitable multi-actor processes will require shifts in power and agency. For example, partnerships between corporations and civil society organisations could be based on stronger requirements for companies, in an action to redress power. Civil society organisations play a role in motivating institutional logics and formulating alternative logics. Rather than being deemed ‘too radical’ within ‘pragmatic’ discussions, those civil society organisations play a critical role in pushing the boundaries of the debate (Von Geibler 2013).

Difficult and messy trade-offs are inevitable in implementation of the SDGs, but it is imperative to revisit the problem of deforestation, and to critically analyse the assumptions underpinning current solutions. A coherent, transdisciplinary effort to do so can support in shaping global targets that are appropriate to local contexts, and will be the only way to make transitions both sustainable and ‘just’.

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References

- Airey, Sam, and Torsten Krause. 2017. "Georgetown ain't got a tree. We got the trees"—Amerindian Power & Participation in Guyana's Low Carbon Development Strategy. *Forests* 8: 51.
- Amigo, M. Ignacio. 2020. The Amazon's fragile future. *Nature* 578: 505–7. [CrossRef] [PubMed]
- Arts, Bas. 2014. Assessing forest governance from a 'Triple G' perspective: Government, governance, governmentality. *Forest Policy and Economics* 49: 17–22. [CrossRef]
- Avelino, Flor. 2017. Power in sustainability transitions: Analysing power and (dis)empowerment in transformative change towards sustainability. *Environmental Policy and Governance* 27: 505–20. [CrossRef]
- Bäckstrand, Karin, and Eva Lövbrand. 2006. Planting trees to mitigate climate change: Contested discourses of ecological modernization, green governmentality and civic environmentalism. *Global Environmental Politics* 6: 50–75. [CrossRef]
- Basnett, Bimbika Sijapati, Rodd Myers, and Marlène Elias. 2019. SDG 10: Reduced Inequalities—An Environmental Justice Perspective on Implications for Forests and People. In *Sustainable Development Goals: Their Impacts on Forests and People*. Edited by Pia Katila, Carol J. Pierce Colfer, Wil De Jong, Glenn Galloway, Pablo Pacheco and Georg Winkel. Cambridge: Cambridge University Press, pp. 315–48.
- Bebbington, Anthony J., Denise Humphreys Bebbington, Laura Aileen Sauls, John Rogan, Sumali Agrawal, César Gamboa, Aviva Imhof, Kimberly Johnson, Herman Rosa, Antoinette Royo, and et al. 2018. Resource extraction and infrastructure threaten forest cover and community rights. *Proceedings of the National Academy of Sciences of the United States of America* 115: 13164–73. [CrossRef]
- Beland Lindahl, Karin, Susan Baker, Lucy Rist, and Anna Zachrisson. 2016. Theorising pathways to sustainability. *International Journal of Sustainable Development & World Ecology* 23: 399–411.
- Brown, Sandra, and Daniel Zarin. 2013. What does zero deforestation mean? *Science* 342: 805–7. [CrossRef]
- Büscher, Bram, and Robert Fletcher. 2020. *The Conservation Revolution: Radical Ideas for Saving Nature Beyond the Anthropocene*. London: Verso Trade.
- Cavanagh, Connor, and Tor A. Benjaminsen. 2014. Virtual nature, violent accumulation: The 'spectacular failure' of carbon offsetting at a Ugandan National Park. *Geoforum* 56: 55–65. [CrossRef]
- Cheyns, Emmanuelle, Laura Silva-Castañeda, and Pierre-Marie Aubert. 2020. Missing the forest for the data? Conflicting valuations of the forest and cultivable lands. *Land Use Policy* 96: 103591. [CrossRef]

- Ciplet, David, and Jill Lindsey Harrison. 2019. Transition tensions: Mapping conflicts in movements for a just and sustainable transition. *Environmental Politics* 29: 435–56. [CrossRef]
- Coenen, Lars, Paul Benneworth, and Bernhard Truffer. 2012. Toward a spatial perspective on sustainability transitions. *Research Policy* 41: 968–79. [CrossRef]
- Cusack, Daniela, Jason Karpman, Daniel Ashdown, Qian Cao, Mark Ciochina, Sarah Halterman, Scott Lydon, and Avishesh Neupane. 2016. Global Change effects on humid tropical forests: Evidence for biogeochemical and biodiversity shifts at an ecosystem scale. *Review of Geophysics* 54: 523–610. [CrossRef]
- De Vos, Rosa, and Izabela Delabre. 2018. Spaces for participation and resistance: gendered experiences of palm oil plantation development. *Geoforum* 96: 217–26. [CrossRef]
- Delabre, Izabela, and Chukwumerije Okereke. 2020. Palm oil, power, and participation: The political ecology of social impact assessment. *Environment and Planning E: Nature and Space* 3: 642–662. [CrossRef]
- Delabre, Izabela, Emily Boyd, Maria Brockhaus, Wim Carton, Torsten Krause, Peter Newell, Grace Y. Wong, and Fariborz Zelli. 2020. Unearthing the myths of global sustainable forest governance. *Global Sustainability* 3: 1–10. [CrossRef]
- Fairhead, James, and Melissa Leach. 1995. False forest history, complicit social analysis: Rethinking some West African environmental narratives. *World Development* 23: 1023–35. [CrossRef]
- Fairhead, James, Melissa Leach, and Ian Scoones. 2012. Green grabbing: A new appropriation of nature? *Journal of Peasant Studies* 39: 237–61. [CrossRef]
- Fischer, Frank. 2003. *Reframing Public Policy: Discursive Politics and Deliberative Practices*. Oxford: Oxford University Press.
- Fischer, Klara, and Flora Hajdu. 2017. The importance of the will to improve: How ‘sustainability’ sidelined local livelihoods in a carbon-forestry investment in Uganda. *Journal of Environmental Policy & Planning* 20: 328–41.
- Forestier, Oana, and Rakhyun E. Kim. 2020. Cherry-picking the Sustainable Development Goals: Goal prioritization by national governments and implications for global governance. *Sustainable Development* 28: 1269–78. [CrossRef]
- Forsyth, Timothy. 2004. *Critical Political Ecology: The Politics of Environmental Science*. London: Routledge.
- Galudra, Gamma, and Martua Sirait. 2009. A discourse on Dutch colonial forest policy and science in Indonesia at the beginning of the 20th century. *International Forestry Review* 11: 524–33. [CrossRef]
- Garcia, Claude A., Sini Savilaakso, Rene W. Verburg, Victoria Gutierrez, Sarah J. Wilson, Cornelia B. Krug, Marieke Sassen, Brian E. Robinson, Hannah Moersberger, Babak Naimi, and et al. 2020. The global forest transition as a human affair. *One Earth* 2: 417–28. [CrossRef]

- Garrett, Rachael D., Sam Levy, Kimberly M. Carlson, Toby A. Gardner, Javier Godar, Jennifer Clapp, Peter Dauvergne, Robert Heilmayr, Yann le Polain de Waroux, Ben Ayre, and et al. 2019. Criteria for effective zero-deforestation commitments. *Global Environmental Change* 54: 135–47. [CrossRef]
- Goldman, Michael. 2001. Constructing an environmental state: Eco-governmentality and other transnational practices of a 'green' World Bank. *Social Problems* 48: 499–523. [CrossRef]
- Greenpeace. 2020. As Deforestation Surges, Brazil Moves to Weaken Indigenous and Environmental Safeguards. Available online: <https://unearthed.greenpeace.org/2020/04/29/coronavirus-amazon-deforestation-bolsonaro-brazil-weakens-indigenous-environmental-safeguards/> (accessed on 27 September 2020).
- Gupta, Aarti, Eva Lövbrand, Esther Turnhout, and Marjanneke J. Vijge. 2012. In pursuit of carbon accountability: The politics of REDD+ measuring, reporting and verification systems. *Current Opinion in Environmental Sustainability* 4: 726–31. [CrossRef]
- Hamilton, Larry S., and A. J. Pearce. 1988. Soil and water impacts of deforestation. In *Deforestation: Social Dynamics in Watershed and Mountain Ecosystems*. Edited by Jack Ives and David C. Pitt. London: Routledge, pp. 75–98.
- Harvey, David. 2007. *The Limits to Capital*. London: Verso.
- Healy, Noel, and John Barry. 2017. Politicizing energy justice and energy system transitions: Fossil fuel divestment and a “just transition”. *Energy Policy* 108: 451–59. [CrossRef]
- Horn, Philipp, and Jean Grugel. 2018. The SDGs in middle-income countries: Setting or serving domestic development agendas? Evidence from Ecuador. *World Development* 109: 73–84. [CrossRef]
- Klooster, Dan. 2003. Forest transitions in Mexico: Institutions and forests in a globalized countryside. *The Professional Geographer* 55: 227–37.
- Köhler, Jonathan, Frank W. Geels, Florian Kern, Jochen Markard, Elsie Onsongo, Anna Wieczorek, Floortje Alkemade, Flor Avelino, Anna Bergek, Frank Boons, and et al. 2019. An agenda for sustainability transitions research: State of the art and future directions. *Environmental Innovation and Societal Transitions* 31: 1–32. [CrossRef]
- Lambin, Eric F., Holly K. Gibbs, Robert Heilmayr, Kimberly M. Carlson, Leonardo C. Fleck, Rachael D. Garrett, Yann le Polain de Waroux, Constance L. McDermott, David McLaughlin, Peter Newton, and et al. 2018. The role of supply-chain initiatives in reducing deforestation. *Nature Climate Change* 8: 109–16. [CrossRef]
- Lawhon, Mary, and James T. Murphy. 2012. Socio-technical regimes and sustainability transitions: Insights from political ecology. *Progress in Human Geography* 36: 354–78. [CrossRef]
- Leach, Melissa, Ian Scoones, and Andy Stirling. 2007. *Pathways to Sustainability: An Overview of the STEPS Centre Approach*. STEPS Approach Paper. Brighton: STEPS Centre.

- Li, Tania Murray. 2011. Rendering Society Technical: Government Through Community and the Ethnographic Turn at the World Bank in Indonesia. In *Adventures in Aidland: The Anthropology of Professionals in International Development*. Edited by David Mosse. Oxford: Berghahn, pp. 57–80.
- Li, Tania Murray. 2015. *Social Impacts of Oil Palm in Indonesia: A Gendered Perspective from West Kalimantan*. Occasional Paper 124. Bogor: CIFOR.
- Li, Tania Murray. 2018. After the land grab: Infrastructural violence and the “Mafia System” in Indonesia’s oil palm plantation zones. *Geoforum* 96: 328–37. [CrossRef]
- Lovejoy, Thomas E., and Carlos Nobre. 2019. Amazon tipping point: Last chance for action. *Science Advances* 5: eaba2949. [CrossRef] [PubMed]
- Lyons-White, Joss, and Andrew T. Knight. 2018. Palm oil supply chain complexity impedes implementation of corporate no-deforestation commitments. *Global Environmental Change* 50: 303–13. [CrossRef]
- Mahanty, Sango, Sarah Milne, Wolfram Dressler, and Colin Filer. 2012. The Social Life of Forest Carbon: Property and Politics in the Production of a New Commodity. *Human Ecology* 40: 661–64. [CrossRef]
- Mather, Alexander S. 1992. The forest transition. *Area* 24: 367–79.
- McNeill, Desmond. 2019. The Contested Discourse of Sustainable Agriculture. *Global Policy* 10: 16–27. [CrossRef]
- Meadowcroft, James. 2011. Engaging with the politics of sustainability transitions. *Environmental Innovation and Societal Transitions* 1: 70–75. [CrossRef]
- Menton, Mary, Carlos Larrea, Sara Latorre, Joan Martinez-Alier, Mika Peck, Leah Temper, and Mariana Walter. 2020. Environmental justice and the SDGs: From synergies to gaps and contradictions. *Sustainability Science* 15: 1–16. [CrossRef]
- Merry, Sally Engel. 2006. Transnational human rights and local activism: Mapping the middle. *American Anthropologist* 108: 38–51. [CrossRef]
- Mousseau, Frédéric. 2019. *The Highest Bidder Takes It All: The World Bank’s Scheme to Privatize the Commons*; Oakland Institute. Available online: <https://www.oaklandinstitute.org/highest-bidder-takes-all-world-banks-scheme-privatize-commons> (accessed on 26 June 2020).
- Munro, Paul G., and Greg Hiemstra-Van der Horst. 2011. Conserving exploitation?: A political ecology of forestry policy in Sierra Leone. *Australasian Review of African Studies* 32: 59–78.
- Myers, Rodd, Anne M. Larson, Ashwin Ravikumar, Laura F. Kowler, Anastasia Yang, and Tim Trench. 2018. Messiness of forest governance: How technical approaches suppress politics in REDD+ and conservation projects. *Global Environmental Change* 50: 314–24. [CrossRef]
- Myers, Rodd, Rebecca L. Rutt, Constance McDermott, Ahmad Maryudi, Emmanuel Acheampong, Marisa Camargo, and Hoàng Cẩm. 2020. Imposing legality: Hegemony and resistance under the EU Forest Law Enforcement, Governance, and Trade (FLEGT) initiative. *Journal of Political Ecology* 27: 125–49. [CrossRef]

- Newell, Peter. 2008. Lost in translation? Domesticating global policy on genetically modified organisms: Comparing India and China. *Global Society* 22: 115–36. [CrossRef]
- Newell, Peter, and Dustin Mulvaney. 2013. The political economy of the “just transition”. *Geographical Journal* 179: 132–40. [CrossRef]
- NYDF Assessment Partners. 2019. Protecting and Restoring Forests: A Story of Large Commitments yet Limited Progress. New York Declaration on Forests Five-Year Assessment Report. Climate Focus (Coordinator and Editor). Available online: forestdeclaration.org (accessed on 5 January 2021).
- O’Neill, Kirstie, and David Gibbs. 2020. Sustainability transitions and policy dismantling: Zero carbon housing in the UK. *Geoforum* 108: 119–29. [CrossRef]
- Pearce, Fred. 2018. Conflicting Data: How Fast Is the World Losing its Forests? Available online: <https://e360.yale.edu/features/conflicting-data-how-fast-is-the-worlds-losing-its-forests> (accessed on 24 June 2020).
- Pereira, Joana Castro. 2019. Reducing Catastrophic Climate Risk by Revolutionizing the Amazon: Novel Pathways for Brazilian Diplomacy. In *Climate Change and Global Development*. Cham: Springer, pp. 189–218.
- Phalan, Ben, Malvika Onial, Andrew Balmford, and Rhys E. Green. 2011. Reconciling food production and biodiversity conservation: Land sharing and land sparing compared. *Science* 333: 1289–91. [CrossRef]
- Ravikumar, Ashwin, Robin R. Sears, Peter Cronkleton, Mary Menton, and Matías Pérez-Ojeda del Arco. 2017. Is small-scale agriculture really the main driver of deforestation in the Peruvian Amazon? Moving beyond the prevailing narrative. *Conservation Letters* 10: 170–77. [CrossRef]
- Reed, James, Amy Ickowitz, Colas Chervier, Houria Djoudi, Kaala Moombe, Mirjam Ros-Tonen, Malaika Yanou, Linda Yuliani, and Terry Sunderland. 2020. Integrated landscape approaches in the tropics: A brief stock-take. *Land Use Policy* 99: 104822. [CrossRef]
- Rogerson, Sarah. 2019. *Forest 500 Annual Report 2018—The Countdown to 2020*. Oxford: Global Canopy.
- Routledge, Paul, Andrew Cumbers, and Kate Driscoll Derickson. 2018. States of just transition: Realising climate justice through and against the state. *Geoforum* 88: 78–86. [CrossRef]
- Rudel, Thomas K., Diane Bates, and Rafael Machinguishi. 2002. A tropical forest transition? Agricultural change, out-migration, and secondary forests in the Ecuadorian Amazon. *Annals of the Association of American Geographers* 92: 87–102. [CrossRef]
- Sayer, Jeffrey, Chris Margules, Agni Klintuni Boedhihartono, Allan Dale, Terry Sunderland, Jatna Supriatna, and Ria Saryanthi. 2015. Landscape approaches; what are the pre-conditions for success? *Sustainability Science* 10: 345–55. [CrossRef]

- Sayer, Jeffrey, Douglas Sheil, Glenn Galloway, Rebecca A. Riggs, Gavyn Mewett, Kenneth G. MacDicken, Bas Arts, Agni K. Boedihartono, James Langston, and David P. Edwards. 2019. SDG 15: Life on Land—The Central Role of Forests in Sustainable Development. In *Sustainable Development Goals: Their Impacts on Forests and People*. Edited by Pia Katila, Carol J. Pierce Colfer, Wil De Jong, Glenn Galloway, Pablo Pacheco and Georg Winkel. Cambridge: Cambridge University Press, pp. 482–509.
- Seymour, Frances, and Nancy L. Harris. 2019. Reducing tropical deforestation. *Science* 365: 756–57. [CrossRef] [PubMed]
- Sikor, Thomas, Johannes Stahl, Thomas Enters, Jesse C. Ribot, Neera Singh, William D. Sunderlin, and Lini Wollenberg. 2010. REDD-Plus, Forest People’s Rights and Nested Climate Governance. *Global Environmental Change* 20: 423–25. [CrossRef]
- Skutsch, Margaret, and Esther Turnhout. 2020. REDD+: If communities are the solution, what is the problem? *World Development* 130: 104942. [CrossRef]
- Smith, Adrian, and Andy Stirling. 2010. The politics of social-ecological resilience and sustainable socio-technical transitions. *Ecology and Society* 15: 11. [CrossRef]
- Sonter, Laura J., Diego Herrera, Damian J. Barrett, Gillian L. Galford, Chris J. Moran, and Britaldo S. Soares-Filho. 2017. Mining drives extensive deforestation in the Brazilian Amazon. *Nature Communications* 8: 1–7. [CrossRef]
- Spann, Michael. 2017. Politics of poverty: The post-2015 sustainable development goals and the business of agriculture. *Globalizations* 14: 360–78. [CrossRef]
- Staal, Arie, Ingo Fetzer, Lan Wang-Erlandsson, Joyce Bosmans, Stefan Dekker, Egbert H. van Nes, Johan Rockstrom, and Obbe Tuinenburg. 2020. Hysteresis of tropical forests in the 21st Century. *Nature Communications* 11: 1–8.
- Stavis, Dimitris, and Romain Felli. 2015. Global labour unions and just transition to a green economy. *International Environmental Agreements: Politics Law and Economics* 15: 29–43. [CrossRef]
- Stirling, Andy. 2008. “Opening up” and “Closing Down”: Power, Participation, and Pluralism in the social Appraisal of Technology. *Science, Technology and Human Values* 33: 262–94. [CrossRef]
- Tsing, Anna. 2004. *Friction: An Ethnography of Global Connection*. Princeton: Princeton University Press.
- Turnhout, Esther. 2018. The politics of environmental knowledge. *Conservation and Society* 16: 363–71. [CrossRef]
- Turnhout, Esther, Bob Bloomfield, Mike Hulme, Johannes Vogel, and Brian Wynne. 2012. Conservation policy: Listen to the voices of experience. *Nature* 488: 454–5. [CrossRef] [PubMed]
- UN General Assembly. 2015. Indicators and a Monitoring Framework. Available online: <https://indicators.report/targets/15-2/> (accessed on 5 January 2021).

- Von Geibler, Justus. 2013. Market-based governance for sustainability in value chains: Conditions for successful standard setting in the palm oil sector. *Journal of Cleaner Production* 56: 39–53. [CrossRef]
- Walker, Robert Toovey, Cynthia Simmons, Eugenio Arima, Yankuic Galvan-Miyoshi, Aghane Antunes, Michael Waylen, and Maira Irigaray. 2019. Avoiding Amazonian Catastrophes: Prospects for Conservation in the 21st Century. *One Earth* 1: 202–15. [CrossRef]
- World Resource Institute. 2018. By the Numbers: The Value of Tropical Forests in the Climate Change Equation. Available online: <https://www.wri.org/blog/2018/10/numbers-value-tropical-forests-climate-change-equation> (accessed on 25 June 2020).
- World Resources Institute. 2019. The World Lost a Belgium-Sized Area of Primary Rainforests Last Year. Available online: <https://www.wri.org/blog/2019/04/world-lost-belgium-sized-area-primary-rainforests-last-year> (accessed on 29 June 2020).

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