

FOREST BOND FINANCING IN THE GLOBAL SOUTH: THE ECOLOGICAL AND SOCIAL CONTEXTS OF A MARKET- BASED SOLUTION FOR SUSTAINABILITY OF FORESTS

David Nemecek

mr.david.nemecek@gmail.com

ABSTRACT

This article aims to follow up on the efforts to make a case for critical study of green bonds and, more generally, market-based financing of sustainability of forests. The article introduces the instrument of forest bonds and explores cases of projects in Brazil, Kenya, and Thailand that led to adverse socio-ecological outcomes. By presenting critical secondary evidence through the lens of two opposing theoretical views on market-based financing of nature, the article elaborates on problematic characteristics of the forest bond market. Lastly, it elaborates on recent market and regulatory initiatives that aim to face those issues and explores alternative ways of financing.

KEYWORDS: Forests, green bonds, forest bond, market-based finance, sustainability, neoliberalisation, neoliberalism.

ABOUT THE AUTHOR

David works as an independent researcher and a Senior Associate at E3G. In his work, he focuses on sustainability-oriented financial policy, regulation and banking initiatives, blended finance, sustainable bond market, and biodiversity. Earlier, David worked in advocacy, development finance, export banking, and human rights. David holds MSc degrees in political ecology and business from the School of Oriental and African Studies and the Prague University of Economics and Business respectively, and is an active member of the academic community. He is fascinated by forest ecosystems and is a karateka at the SOAS Jindokai dojo.

INTRODUCTION

Sustainability and resilience of forest ecosystems and forest communities are key in overcoming the climate and biodiversity crises. The Paris Agreement encourages global nations to “conserve and enhance” carbon sinks in forests and take action to avoid their loss,¹ while the Convention on Biological Diversity “addresses forest issues directly through its expanded program of work on forest biological diversity (and) cross-cutting issues, including on traditional knowledge and protected areas”.² Yet, the pace of deforestation and forest ecosystems degradation is unprecedented and the investment needed to avoid further loss is counted in tens of billions of USD. Besides governmental funding, much of which was pledged at COP26,³ market-based finance is expected to help plug the investment gap. While the global carbon markets have been struggling, green bond markets have seen quick growth. The trend motivated the emergence of forest bonds that are hoped to 'unlock' the fast-growing market for forests.

Whereas mainstream literature offers either a positive or rather technical perspective on the green bond market, work offering critical approaches to the phenomenon has been scarce.⁴ This study aims to follow up on those efforts and make a case for a critique of green bonds and, more generally, market-based financing in forests. The article explores cases of projects in Brazil, Kenya, and Thailand that led to adverse socio-ecological outcomes. By presenting critical secondary evidence through the lens of theories on market-based financing of nature, the article elaborates on some problematic characteristics of the forest bond market that are usually not

¹ UNFCCC, *Adoption of the Paris Agreement*, 2015,

https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

² Center for International Forestry Research (CIFOR), *Convention on Biological Diversity (CBD)*, Accessed 2022,

<https://www2.cifor.org/partner/convention-biological-diversity-cbd/>.

³ UK Department for Environment, Food and Rural Affairs et al., “\$12 billion donor support to halt and reverse forest loss and protect land rights”, press release, November 2, 2021, <https://www.gov.uk/government/news/12-billion-donor-support-to-halt-and-reverse-forest-loss-and-protect-land-rights>.

⁴ Norah Berk and Joe Eisen, *Good Money after Bad? Risks and Opportunities for the Green Climate Fund in the Congo Basin Rainforests* (London: Rainforest Foundation, 2019),

<https://www.rainforestfoundationuk.org/media/b3446055-bba4-44b4-aeab-4b4a7a57548c>; Sarah Bracking, “Financialisation, Climate Finance, and the Calculative Challenges of Managing Environmental Change,” *Antipode: A Radical Journal of Geography* 51, no. 3 (2019), <https://onlinelibrary.wiley.com/doi/abs/10.1111/anti.12510>;

Tomaso Ferrando et al., “Capitalizing on Green Debt: A World-Ecology Analysis of Green Bonds in the Brazilian Forestry Sector,” *Journal of World-Systems Research* 27, no. 2 (2022),

<https://jwsr.pitt.edu/ojs/jwsr/article/view/1062/1537>; Sian Sullivan, “Banking Nature? The Spectacular Financialisation of Environmental Conservation,” *Antipode: A Radical Journal of Geography* 45, no. 1 (2013), <https://onlinelibrary.wiley.com/doi/10.1111/j.1467-8330.2012.00989.x>.

covered in the mainstream discourse. It presents most recent initiatives to face those issues and offers alternative approaches.

THEORY OF MARKET-BASED FINANCING: PROPONENTS AND CRITICS

Whereas forest bonds specifically have been discussed by a few authors, market-based initiatives in nature have been discussed broadly. Supporters of those initiatives, the free market environmentalists (FME), follow the ideas of neoclassical economics, whereas opponents, proposing the concept of the neoliberalisation and financialisation of nature (NFON), subscribe to political-economic and -ecological thought originated in Marxism.

Free market environmentalists (FME) believe that the efficiency of rational market agents can secure sustainable economic growth provided that they have access to the market, property rights are protected, and subjects of investments (such as forest ecosystem services) are properly valued and priced.⁵ In such a situation, markets self-regulate based on risk and return considerations—the popular concept of the invisible hand.⁶

FME recognises market failures, such as imperfect information or negative externalities, yet those are thought of as symptoms of an imperfect or unfinished implementation of markets.⁷ Unpriced goods and services need to be internalised, violations of property rights need to be sued and compensated.⁸ On the contrary, common rights and public management are seen as an inefficient mode of resource management. The ‘tragedy of commons’ is to be solved through privatisation.⁹ State interventions are seen as a barrier to sustainable resource management by

⁵ William E. Rees et al., “Valuing natural capital and the costs and benefits of restoration,” *Restoring Natural Capital: Science, Business and Practice*, ed.s James Aronson, Suzanne Milton, and James Blignaut, (Washington D.C: Island Press, 2007), 227-236, <https://research.wur.nl/en/publications/valuing-natural-capital-and-the-costs-and-benefits-of-restoration>.

⁶ Terry L. Anderson and Donald R. Leal, *Free Market Environmentalism* (New York: Palgrave, 2001); Paul Robbins, *Political Ecology: A Critical Introduction* (London: Wiley-Blackwell, 2011).

⁷ Laura Centemeri, “Environmental Damage as Negative Externality: Uncertainty, Moral Complexity and the Limits of the Market,” *e-cadernos CES* 5 (2009): 21-40, <https://journals.openedition.org/eces/266>; Bill Wirtz, “The Essence of Free Market Environmentalism: Protection through Private Property”. *Maastricht University Journal of Sustainability Studies* 3 (2017), <https://openjournals.maastrichtuniversity.nl/SustainabilityStudies/article/view/506/368>.

⁸ Wirtz, “The Essence of Free Market Environmentalism.”

⁹ Robert Smith, “Resolving the Tragedy of the Commons by Creating Private Property Rights in Wildlife,” *Cato Journal* 1, no. 2 (1981): 439–468.

markets since they are not motivated by profit and price signals to ensure sustainability.¹⁰ Nonetheless, the 2008 financial crisis proved some of those concepts deficient, which motivated prominent liberal economists to accept that a certain level of governmental intervention is necessary.¹¹

Critics of FME, on the other hand, see the described assumptions as opportunistic or “unreal programmatic abstractions” that cause damage.¹² Critical geographers, political economists, and political ecologists have been working with the concepts of neoliberalisation and financialisation of nature (NFON) building on the critique of capitalism by Marx and his successors.¹³ The overarching theme is that the ever-expanding capitalism is constantly looking for new means of generating profit, over-exploiting its own conditions of existence (labour and land), inevitably leading to crises.¹⁴ In this sense, nature is a “fictitious commodity” and an irrational market agent that dooms capitalism to its own self-destruction.¹⁵

In this context, “neoliberalism” is the means of capitalism to organise social, economic, and ecological affairs through market mechanisms, as opposed to welfare state interventions, while neoliberalisation is a process of capitalism expanding into new human and nonhuman contexts consisting of elements in Box 1.¹⁶

¹⁰ Anderson and Leal, *Free Market Environmentalism*; Simon Springer, Kean Birch, and Julie MacLeavy, *The Handbook of Neoliberalism* (New York: Routledge, 2016), ISBN 978-1138844001.

¹¹ Paul Krugman, “Who Was Milton Friedman?,” *New York Review of Books*, 15 Feb 2007, <https://www.nybooks.com/articles/2007/02/15/who-was-milton-friedman/>.

¹² Noel Castree, “Neoliberalising Nature: The Logics of Deregulation and Reregulation,” *Environment and Planning A: Economy and Space*, 40, no. 1 (2008a): 141, <https://doi.org/10.1068/a3999>.

¹³ Noel Castree, “Neoliberalism and the Biophysical Environment 2: Theorising the Neoliberalisation of Nature,” *Geography Compass*, 4, no. 12 (2010b), <https://doi.org/10.1111/j.1749-8198.2010.00407.x>.

¹⁴ Scott Prudham, “Commodification,” *A Companion to Environmental Geography*, ed. Noel Castree et al. (Oxford: Wiley-Blackwell, 2009).

¹⁵ Karl Polanyi cited in David Harvey, *A Brief History of Neoliberalism* (New York: Oxford University Press, 2007), ISBN 978-0-19-928326-2.

¹⁶ Taylor Boas and Jordan Gans-Morse, “Neoliberalism: From New Liberal Philosophy to Anti-Liberal Slogan,” *Studies in Comparative International Development*, 44(2009): 137-161, <https://doi.org/10.1007/s12116-009-9040-5>; Noel Castree, “Neoliberalism and the Biophysical Environment 1: What ‘Neoliberalism’ is, and What Difference Nature Makes to it,” *Geography Compass*, 4, no. 12 (2010a): 1725-1733, <https://doi.org/10.1111/j.1749-8198.2010.00405.x>; Springer, Birch, and MacLeavy, *The Handbook of Neoliberalism*.

Neoliberalisation is coupled with the process of financialisation that refers to the penetration of finance into new spatial-temporal contexts for the purpose of power control. A typical example are the US policies that motivated world-wide deregulation, and the domination and monopolisation of financial markets (such as bond markets).¹⁷ This is a process that is reflected in and further deepened by the imperialistic and colonialistic policies of the World Bank imposed on developing countries. Specific outcomes of NFON for both human and nonhuman nature are described in Box 2.

- *Privatisation and/or enclosure* of formerly common resources by corporations or investors that leads to restricted access, use and/or disposal;
- *Commodification*, conversion into a delimited exchangeable form (Polanyi's "fictitious commodities") through alienation, individuation, reduction, and 'decontextualisation' "for the purpose of sale in markets";
- *Securitisation*, transformation into bundled debt instruments for the purpose of perfecting risk profiles and "enter(ing) the orbit of rent-seeking finance capital";
- *Marketisation*, valuation and price denomination for the purpose of trade at markets;
- *Deregulation*, winding up of governmental interventions to create space for markets;
- *Market proxies* by governments that integrate market-based concepts like cost-efficiency or even introduce 'quasi-markets' (such as carbon markets);
- *Flanking mechanisms of non-governmental organisations* that fill the gap after deregulation (forming a 'shadow state') and submit to neoliberalism;
- *Reregulation* by governments 'for' markets but not 'in' markets through laws directly or interventions indirectly (such as by partnering with entrepreneurs).

Box 1: Characteristics of neoliberalisation (others referenced in the box)

¹⁷ Paul Baran and Paul Sweezy, *Monopoly Capital: An Essay on the American Economic and Social Order* (New York: Monthly Review Press, 1966).

- Privatisation and enclosures are often associated with *marginalisation of local communities and violations of their economic, social, and cultural rights*, such as land or cultural rights that formed the identity of forest dwellers. Due to their incalculable value, such lands and resources *cannot be ever fully compensated for*.
- Commodification and marketisation can lead to *overexploitation and degradation of natural resources* directly linked to the stability and existence of markets themselves.
- Deregulation, market proxies, reregulation, and flanking mechanisms lead to *paralysis of counterbalances to market mechanisms* by the state and the civil sector.

Box 2: Outcomes of neoliberalisation (others referenced in the box).¹⁸

Even though most of the critics of neoliberalism are assuming that the process is inherently flawed and prone to negative outcomes in both human and nonhuman ecosystems, even the critical researchers recognise cases of neoliberalisation with positive outcomes (community forestry in British Columbia;¹⁹ conservation in Brazil²⁰). In other words, both FME and NFON conceptual perspectives are useful to evaluate reality but should not be taken as a direct and complete description of reality itself.

DEFINING FOREST BONDS AND THEIR OBJECTIVES

Forest bonds are a type of bond, a debt instrument or a ‘promise-to-pay’, which can be traded in the bond market. It can be issued by a government or a company and sold to investors who are usually interested in financial benefit and sometimes in positive impact. Investors provide

¹⁸ Castree, “Neoliberalism and the Biophysical Environment 1”; Noel Castree, “Neoliberalism and the Biophysical Environment: A Synthesis and Evaluation of the Research,” *Environment and Society: Advances in Research*, 1, no. 1 (2010c): 5-45, <http://dx.doi.org/10.3167/ares.2010.010102>.

¹⁹ James McCarthy, “Neoliberalism and the Politics of Alternatives: Community Forestry in British Columbia and the United States,” *Annals of the Association of American Geographers* 96, no. 1(2006): 84-104, <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-8306.2006.00500.x>.

²⁰ Maria Rodrigues, “Privatization and Socioenvironmental Conditions in Brazil’s Amazonia: Political Challenges to Neoliberal Principles,” *The Journal of Environment & Development* 12, no. 2(2003): 205-238, <https://journals.sagepub.com/doi/abs/10.1177/1070496503012002004>.

the ‘principle’ and are promised to be repaid an interest (or a ‘coupon’), in cash or other valuable papers.

As opposed to conventional bonds, forest bonds are a type of green bond, where the issuer makes an additional promise to investors that the proceeds of the bond will be spent on ‘green’ projects (such as renewable energy) following certain rules. The issuer needs to define a green bond framework, disclosing the goals, the process, and what the proceeds (collected investment) will be spent on (a process called ‘use of proceeds’). Structuring of a green bond follows globally recognised ‘Green Bond Principles’ defined by the International Capital Markets Association (ICMA), a not-for-profit self-regulatory body that overlooks global capital market affairs.²¹ Those principles require issuers to distribute proceeds into sustainable projects, yet they do not specify criteria of what makes such projects sustainable. Such criteria are defined by so-called taxonomies, such as the EU Taxonomy or the Climate Bond Standards by the Climate Bonds Initiative (CBI). In their Forestry Criteria, CBI specifies as eligible: plantation forestry, sustainable forest management, production of non-timber forest products, forest conservation, restoration, and rehabilitation. Issuers are also required to plan sustainable management of soil, water, and biodiversity.²²

Approval of the green bond framework is subject to external verification (such as second opinion or rating) and issuers are expected to report on spending regularly. It is important to note that all the elements of the process of the green bond issuance are voluntary, yet expected by the market. While too many issuers subscribe to ICMA principles without following taxonomies, credibility is key if issuers want to achieve trust and favourable conditions of issuance. Issuers who choose to be less transparent might have issues finding an underwriter or even interested investors.

²¹ International Capital Markets Association (ICMA). *Green Bond Principles: Voluntary Process Guidelines for Issuing Green Bonds* (2018), <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Green-Bonds-Principles-June-2018-270520.pdf>.

²² Climate Bonds Initiative (CBI), *Forestry Criteria* (2018a), https://www.climatebonds.net/files/files/standards/Forestry/Crit%20Forestry%20Criteria%20document_July%202020.pdf.

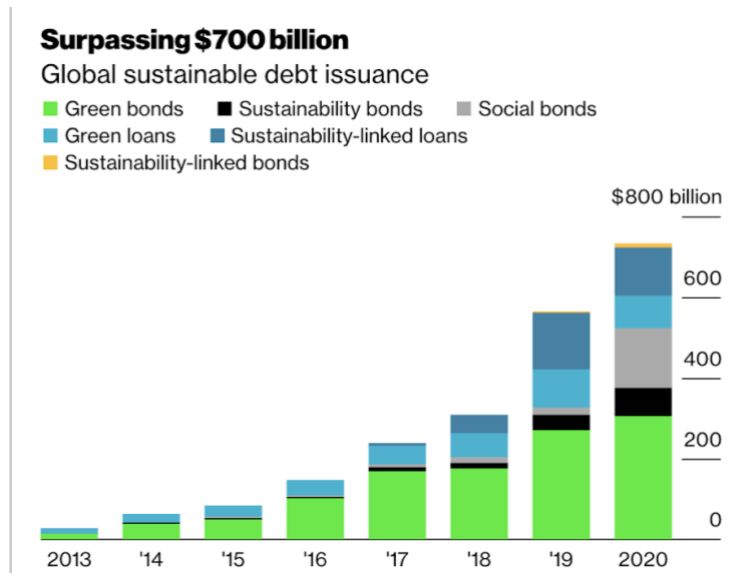


Figure 1: Sustainability debt market 2013-2020 (BloombergNEF)²³

According to the key policy documentation (listed in Box 3), forest bonds aim to achieve mainly three objectives: 1) to cover the forest investment gap, 2) to finance protection of nature, 3) to support local communities.²⁴

COVERING INVESTMENT GAP: SHIFT IN THE GOVERNANCE OF FOREST FINANCE

Forest bonds are envisioned to plug the investment gap in avoiding deforestation and supporting sustainable forest management.²⁵ Considering several differing estimates of this gap (see Table 1), there is a massive need of around 10-60 bn USD annually to 2030 or 300-1,200 bn USD in a five-year period (counted in 2015 for until 2020).

Yet, as shown by the 2019 report of the New York Declaration (Figure 2), the flows of public finance into sustainability of forests have been relatively small. In a reaction, proponents of

²³ Nathaniel Bullard, “The Sustainable Debt Market is All Grown Up,” *Bloomberg*, January 14 2021, <https://www.bloomberg.com/news/articles/2021-01-14/the-sustainable-debt-market-is-all-grown-up>.

²⁴ Even though green bonds as opposed to social bonds focus on environmental issues primarily, policy promises to respect social aspects as well (CBI 2018a).

²⁵ The Prince’s Rainforests Project, *An Emergency Package for Tropical Forests* (2009), http://www.globalbioenergy.org/uploads/media/0903_PRP_-_An_emergency_package_for_tropical_forests.pdf.

- *Key policy negotiations and reports* that have been shaping the field, such as the webinar held by CBI, World Wildlife Fund and Global Canopy Program in London in 2011 and the follow-up report *Unlocking Forest Bonds*.
- *Green bond principles*: the ICMA Green Bond Principles from 2014, the ASEAN Green Bond Standards from 2017 (same as ICMA with additional eligibility and reporting criteria), which standardise the green bond issuance and management of proceeds.
- *Green bond taxonomy* by the CBI ('Green Bonds Standards'), which is a globally used set of criteria defining sustainable projects.
- *Green bond frameworks* as defined by issuers.

Box 3: List of key green bond policy sources (Author)

<i>Investment gap</i>	<i>Aim</i>	<i>Source</i>
30 bn USD	annually to halve deforestation by 2020	Cranford et al. 2011
17-33 bn USD	annually to halve deforestation by 2030	acc. to UNEP; CBI 2018a
30-53 bn USD	annually to achieve net zero deforestation by 2030	acc. to the International Institute for Applied Systems Analysis; CBI 2018a
42 bn USD	annually to stop deforestation by 2020	acc. to the World Wildlife Fund; CBI 2018a
12 bn USD	annually to stop deforestation by 2030	an older UNFCCC source; Blaser and Robledo 2007
359-518 bn USD between 2015-2020	stop deforestation by 2030 and restore 150 hectares	Bonn Challenge target; FAO 2015; Schulte et al. 2019
837-1,208 bn USD between 2015-2020	stop deforestation by 2030 and restore 350 hectares	New York Declaration on Forests target; FAO 2015; Schulte et al. 2019

Table 1: Estimates of the forest investment gap (Author)

forest bonds argued that governments are “unlikely to have the resources or political will to act alone and provide the full level of finance required”.²⁶ Involvement of private investors has been

seen as inevitable. The trend was strengthened by the COVID-19 crisis, inflated public debts, and depressed remittances that led to further deregulation and privatisation, often in the form of 'private-public partnership' projects (PPP).²⁷

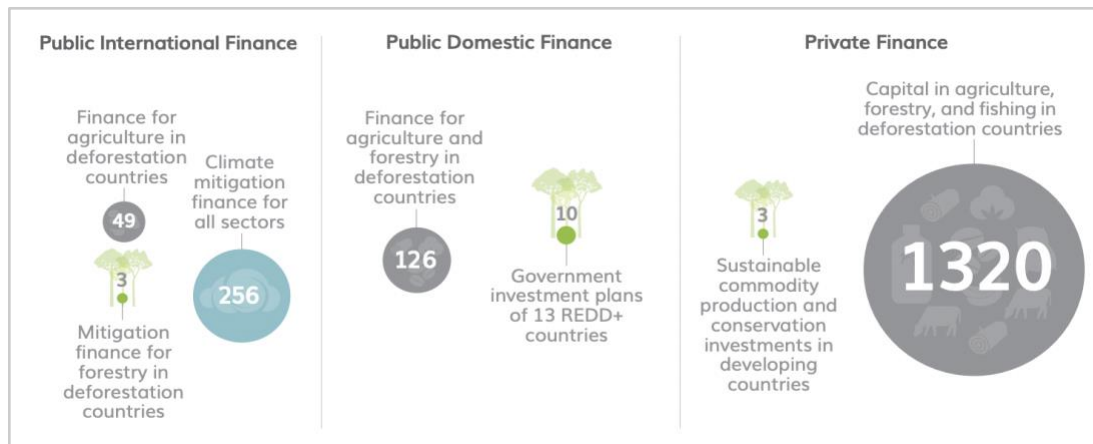


Figure 2: Public and private forest investment estimates for 2010-2019 (bn USD).²⁸

In 2009, Prince Charles' Rainforest Project was the first to propose bond markets as a means to finance protection of forests in the Global South, envisioning the World Bank as the leading institution.²⁹ The proposed model of 'Rainforest Bonds' was put in practice by the International Financial Corporation (IFC) in 2016 when the first forest bond was issued to finance projects in Kenya. The World Bank Group designed the instrument (Figure 3) as a way to bridge the failing voluntary carbon markets and turn their crisis into a win-win (related to the REDD+ scheme³⁰).³¹

²⁶ Matthew Cranford et al., *Unlocking Forest Bonds: A High-Level Workshop on Innovative Finance for Tropical Forests*, Workshop Report, WWF Forest and Climate Initiative, Global Canopy Programme and Climate Bonds Initiative (2011), <https://wwf.panda.org/?201251/Unlocking-forest-bond>.

²⁷ David McDonald, "Covid-19: Disaster Capitalism or an Opportunity to Strengthen Public Water?," *Water Alternatives Forum*, February 15 2021, <https://www.water-alternatives.org/index.php/blog/covid>.

²⁸ NYDF Assessment Partners, *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), 2019, <https://forestdeclaration.org/images/uploads/resource/2019NYDFReport.pdf>.

²⁹ The Prince's Rainforests Project, *An Emergency Package for Tropical Forests* (2009), http://www.globalbioenergy.org/uploads/media/0903_PRR_-_An_emergency_package_for_tropical_forests.pdf.

³⁰ The Reducing Emissions from Deforestation and Degradation market scheme.

³¹ Sarah Bracking, "Financialisation"; Flavia Rosembuj and Sebastiano Bottio, *Mobilizing Private Climate Finance—Green Bonds and Beyond*, International Finance Corporation, Washington, DC. United States of America,

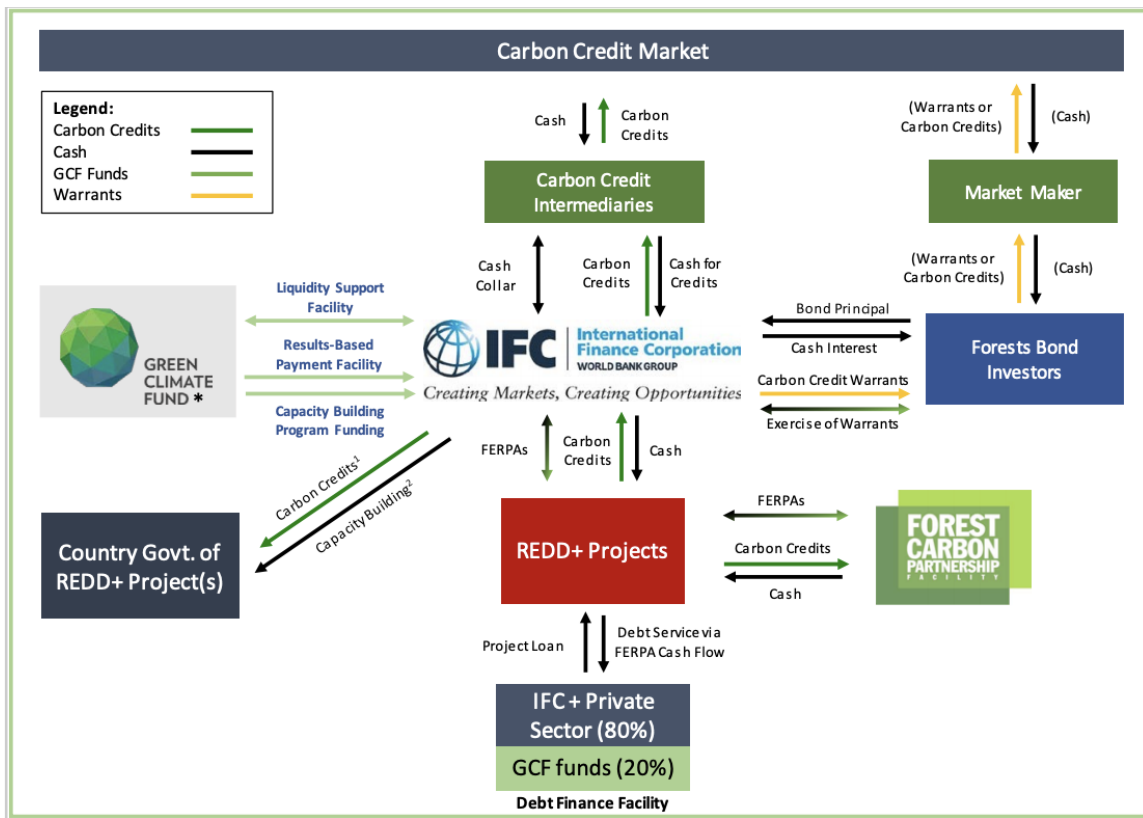


Figure 3: Scheme connecting forest bonds with REDD+ scheme.³²

The emergence of the forest bond market segment was meant to 'unlock' private capital.³³ The issuance was to be guided by the ICMA principles and eventually the CBI taxonomy. Due to the high financial risk of forest projects (often Global South, uncertain cash flows), private investors were meant to be further incentivised by tax incentives and de-risking by guarantees and insurance (such as the Multilateral Investment Guarantee Agency).³⁴ Cranford et al. explicitly compares forest projects to PPPs.³⁵

<https://www.ifc.org/wps/wcm/connect/2996f197-a75b-422a-9e2f-cdc022d8ea96/EMCompass+Note+25+Green+Bonds+FINAL+12-5.pdf?MOD=AJPERES&CVID=lzgXSmr>.

³² International Finance Corporation (IFC), *Multi-country Forest Bonds Program* (2018), <http://redd-monitor.org/wp-content/uploads/2019/07/CF18-5a.-IFC-FCPF-MFB-Program-06132018-FINAL-v.2.pdf>.

³³ Matthew Cranford et al., *Unlocking Forest Bonds*.

³⁴ Matthew Cranford et al., *Unlocking Forest Bonds*.

³⁵ Matthew Cranford et al., *Unlocking Forest Bonds*.

The result of the efforts can be seen in Figures 5 and 6. Land use (agriculture and forestry) formed a marginal proportion of annual issuances—around 3% of all green bond issuances between mid-2014 and mid-2021. Cumulatively for the given period, land use bonds mobilised 62 bn USD. It is unknown as to what proportion is formed by forestry, or even what particular forest-related measure.³⁶ If forestry formed an optimistic 30% of the land use issuance, the 2020 annual issuance would cover 10-42% of the estimated annual gap (15 bn USD total land use, 5 bn USD estimated forestry), and the 2015-2020 cumulative issuance would cover 1-3.4% of the 2015-2020 estimated gap (37 bn USD land use and 12.3 bn USD estimated forestry; for gaps see again Table 1). Overall, the bond financing covered only a limited proportion of the gap. On the other hand, the market has been growing steeply every year.

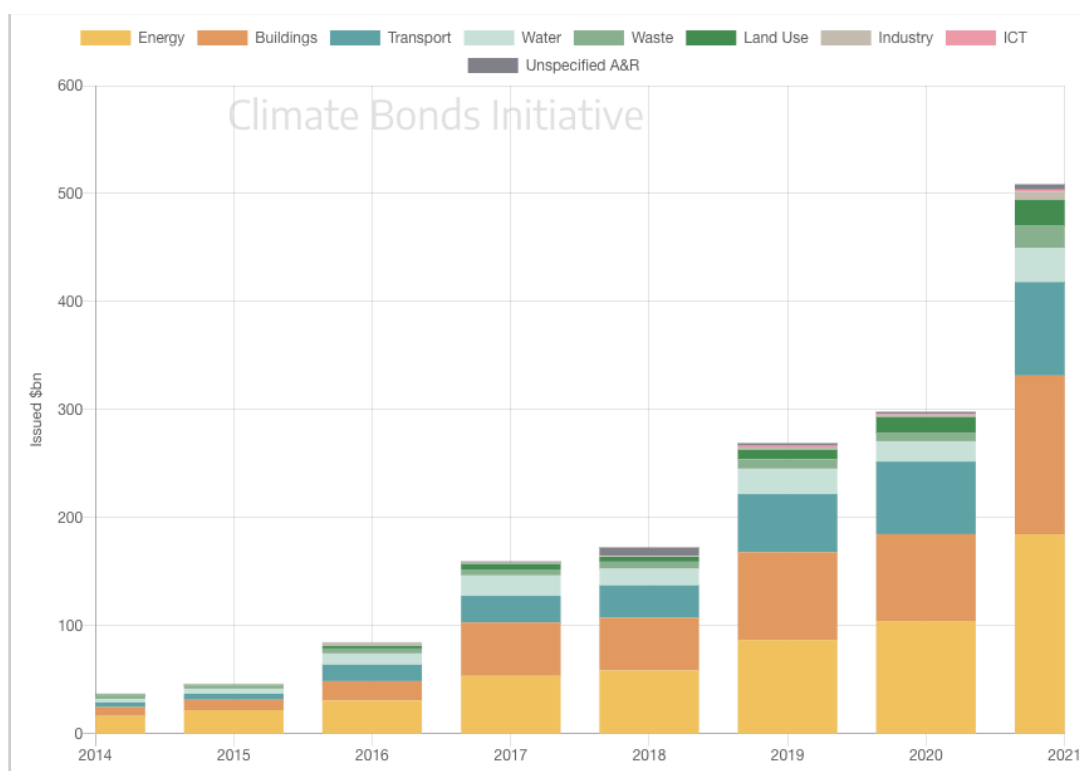


Figure 5: Green bond investments by sectors 2014(H2)-2021(H1)³⁷

³⁶ Climate Bonds Initiative (CBI), *Interactive Data Platform* (2022b), <https://www.climatebonds.net/market/data/>.

³⁷ Climate Bonds Initiative (CBI), *Interactive Data Platform*.

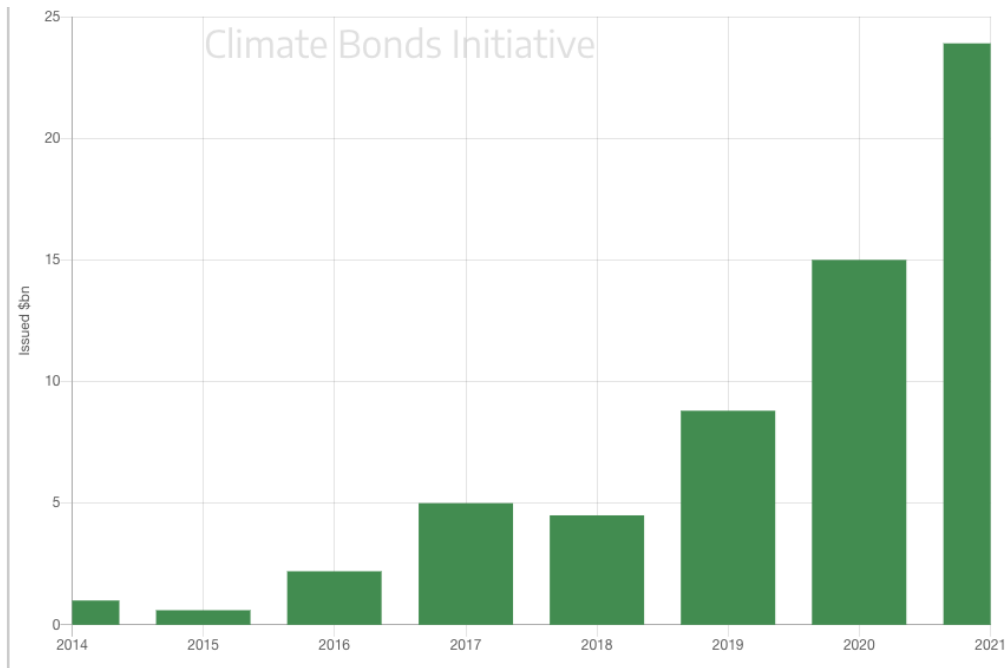


Figure 6: Green bond investments in land use 2014(H2)-2021(H1)³⁸

Beyond the quantitative potential of the forest bond market, attention should be paid to the qualitative aspect. One of the key issues is the questionable accountability of the bond market governance. The standard setters are acting under the risk of a conflict of interest.³⁹ CBI is funded by the HSBC,⁴⁰ and ICMA was under review due to its private business activities.⁴¹ Similarly, green bond verifiers (such as second opinion providers), even though they publish codes of conduct, are economically dependent on issuers who pay them commission for the service. What FME would describe as a self-regulation of the market, NFON describes as deregulated markets ‘binding’ the civil sector in a flanking mechanism to fake regulation.

³⁸ Climate Bonds Initiative (CBI), *Interactive Data Platform*, <https://www.climatebonds.net/market/data/>.

³⁹ Noel Castree, “Neoliberalism and the Biophysical Environment 2”; Climate Bonds Initiative (CBI), *Forestry Criteria* (2018a), https://www.climatebonds.net/files/files/standards/Forestry/Crit%20Forestry%20Criteria%20document_July%202020.pdf; International Capital Markets Association (ICMA), *Green Bond Principles* (2018), <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Green-Bonds-Principles-June-2018-270520.pdf>.

⁴⁰ Climate Bonds Initiative (CBI), *Forestry Criteria*; HSBC, *Climate Bonds Initiative: ASEAN Green Finance Report 2019* (2020), <https://www.about.hsbc.com.sg/news-and-media/climate-bonds-initiative-launches-asean-green-finance-report-2019>.

⁴¹ Nathalie Aubry, “International Capital Market Association,” *Handbook of Transnational Economic Governance Regimes*, ed. Christian Tietje and Alan Brouder (Leiden and Boston: Martinus Nijhoff Publishers, 2009), 385-394.

PROTECTING NATURE: EFFICIENCY CONSTRAINTS

Forest bond policy understands forests as “physical assets that have a value due to their substance and properties”.⁴² That is the main rationale for forests to be ‘wrapped’ in projects, valued (such as according to forest ecosystem services), and overall simplified to be commodified and circulated in markets as a product and a service rather than an ever-complex living organism.⁴³ From the suppliers' side, forests are presented to potential bondholders in terms of cash-flows, carbon sequestration services, their analyses and predictions.⁴⁴ Similarly, the demand side of investors understands forests in terms of fixed income, risk, or sometimes impact (mostly CO2 reduction).⁴⁵

Although markets can hardly ever internalise the complete reality of nature in such simplified terms, a hint of self-reflection is given by Andrew Mitchell, the Founder of the Global Canopy and a key proponent of forest bonds: “costs of degrading natural capital, such as forests, are undervalued and unrepresented in the price of goods.” Still, following the beliefs of FME, he adds: “green economy should recognise the full value of forests, including all of its ecosystem services worth trillions of dollars.”⁴⁶ Yet, some forest ecosystem services, like the cultural-spiritual value of forests, are rather controversial and hardly monetisable.⁴⁷

Even more, CBI’s Background Paper of Forestry Criteria recognises the uncertainty and unpredictability of forests: “(They are) highly heterogeneous in nature (...) uncertainty around net emissions from this sector is high (...) therefore (the UN) encourages improving methodologies

⁴² Climate Bonds Initiative (CBI), *Forestry Criteria*, 5, https://www.climatebonds.net/files/files/standards/Forestry/Crit%20Forestry%20Criteria%20document_July%202020.pdf.

⁴³ Michel Foucault, *Discipline and Punish* (New York: Vintage, 1979); Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford University Press, 2005); Sian Sullivan, “Banking Nature? The Spectacular Financialisation of Environmental Conservation,” *Antipode: A Radical Journal of Geography* (2012). <https://onlinelibrary.wiley.com/doi/10.1111/j.1467-8330.2012.00989.x>.

⁴⁴ Emerald Knight, *EcoPlanet Bamboo - Bamboo Corporate Bond* (2016), <http://redd-monitor.org/wp-content/uploads/2016/09/BambooBond-Key-Facts.pdf>.

⁴⁵ Mark Paterson, “Commodification,” *Critical Environmental Politics*, ed. Carl Death (London: Routledge, 2013).

⁴⁶ Andrew Mitchell in Matthew Cranford, Charlie Parker, and Mandar Trivedi, *Understanding Forest Bonds* (Global Canopy Programme, 2011), 5, <https://globalcanopy.org/insights/publication/understanding-forest-bonds/>.

⁴⁷ Ashish Kothari, Federico Demaria, and Alberto Acosta, “Buen Vivir, Degrowth, and Ecological Swaraj: Alternatives to Sustainable Development and Green Economy,” *Development*, 57(2015); Kathleen McAfee, “The Contradictory Logic of Global Ecosystem Services Markets,” *Development and Change*, 43, no. 1 (2012): 105-131, <https://doi.org/10.1111/j.1467-7660.2011.01745.x>.

over time.”⁴⁸ Still, it is believed to be a matter of ‘improving’ the approach rather than changing it, including in terms of normative framing.⁴⁹ In general, forest bond policies do not attempt to present an insight into the ecology or biology of forests. They do not even specify how a complete sustainability of their nature is to be achieved. On the other hand, CBI's Forestry Criteria do specify what forestry projects should avoid—landscape change and harming resilience of biodiversity.⁵⁰

In practice, the eucalyptus pulp company Fibria, that issued a green bond in Brazil in 2017,⁵¹ admitted that their projects face serious market pressures. As a result, the company invests into research and development of genetically modified (GM) eucalypti to “(leverage) competitiveness, (expand) the limits and (accelerate) the gains.”⁵² To justify their approach, the company (mis)uses Malthusian arguments: “But we have to supply (food, fibre, fuel, and forest) a world with 11.2 billion people by 2100 (or 8 billion in 2025 !!!).”⁵³ The expected growth of productivity planting GM eucalypti can be seen in Figure 7. Cost pressures, further deepened by the green bond market requirements (verification, certification),⁵⁴ on profit-seeking market agents are inherent to markets and the FME approach.

⁴⁸ Climate Bonds Initiative (CBI), *Forestry Criteria: Background Paper* (2018b), 6, https://www.climatebonds.net/files/files/standards/Forestry/BP%20CBI_Background%20Doc_Forests_November%202018%20%281%29%281%29.pdf.

⁴⁹ William Rees et al., “Valuing Natural Capital.”

⁵⁰ Climate Bonds Initiative (CBI), *Forestry Criteria* (2018a), https://www.climatebonds.net/files/files/standards/Forestry/Crit%20Forestry%20Criteria%20document_July%202020.pdf.

⁵¹ Issued by Fibria Celulose S.A. (later acquired by Suzano) to raise 700 mil. USD for new and existing sustainable initiatives in reforestation, waste management, water management, and renewable energy. 10-year maturity, BBB-rating (Donald Baker, John Guzman and Tallat Hussain 2017).

⁵² Environmental Paper Network, *Industrial Tree Plantations and Green Bonds* (2019), <https://environmentalpaper.org/wp-content/uploads/2019/05/EPN-2019-Industrial-tree-plantations-and-green-bonds.pdf>.

⁵³ Fibria, *ENGAGEMENT IN GENETICALLY MODIFIED EUCALYPT: Pursuit of Constructive Dialogue!* (2015), https://www.eucalyptus.com.br/artigos/2015_Cesar+Bonine.pdf.

⁵⁴ CBI costs “1/10th of a basis point of the bond principal”, which in the Fibria case would mean some 7,000 USD (CBI 2021b). Cicero Shades of Green charges 18,000-24,000 USD for one second opinion.

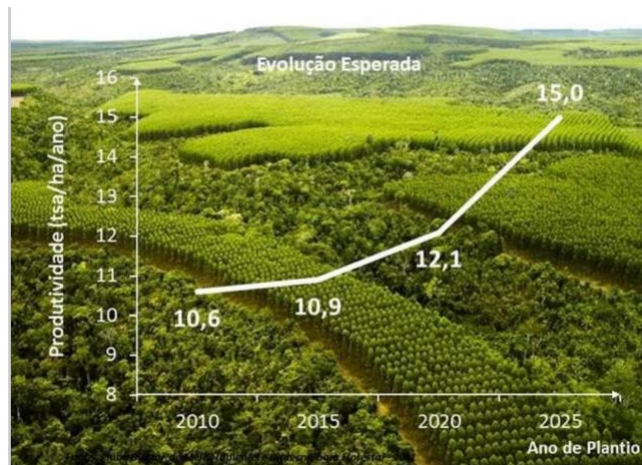


Figure 7: Expected productivity of Fibria's timber business⁵⁵

Even though GM eucalypti might still be in the stage of development, Fibria planting eucalypti in monocultures where those are not native is already an issue. Presence of eucalypti in Amazon leads to a disbalance in the local ecosystem and depletion of water reservoirs for both nature and people.⁵⁶ This adds up to the serious issue of droughts, causing irreversible damage to the Amazon rainforest.⁵⁷ Although these outcomes could arguably have been avoided by the use of green taxonomy and proper impact monitoring, Fibria follows only procedural ICMA principles, and applies FSC and PEFC certifications that have their own issues already (especially when it comes to the level of strictness and indigenous rights compliance).⁵⁸ Whereas Sustainalytics' second opinion recognises all of those issues, it justifies all activities by Fibria's existing policies and reporting commitments (primarily CO2 sequestration, no other

⁵⁵ Fibria, *ENGAGEMENT IN GENETICALLY MODIFIED EUCALYPT*.

⁵⁶ Environmental Paper Network, *Industrial Tree Plantations and Green Bonds* (2019), <https://environmentalpaper.org/wp-content/uploads/2019/05/EPN-2019-Industrial-tree-plantations-and-green-bonds.pdf>.

⁵⁷ Nico Wunderling et al., "Recurrent Droughts Increase Risk of Cascading Tipping Events by Outpacing Adaptive Capacities in the Amazon Rainforest," *PNAS*, 119 (2022), <https://www.pnas.org/doi/10.1073/pnas.2120777119>.

⁵⁸ Dan Klooster, "Environmental Certification of Forests in Mexico: The Political Ecology of a Nongovernmental Market Intervention," *Annals of the Association of American Geographers*, 96 (2006), <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-8306.2006.00705.x>.

environmental impacts).⁵⁹ It is up to investors whether they give any regard to the reputational risk illustrated in massive demonstrations and open letters against Fibria's GM eucalyptus business.⁶⁰

By contrast, it will be interesting to see future developments of the issuance by the Petroleum Authority of Thailand (PTT),⁶¹ which applies the CBI Forestry Criteria (as the first ever bond). It finances interesting projects like the Bangkok urban forest planting, yet PTT is also long known for its predatory eucalyptus monoculture planting.⁶²

The simplification of forests for market purposes can ultimately lead to overexploitation and disequilibria, as described by NFON, especially problematic in crucial contexts like that of the Amazon rainforest which secures oxygen for the whole planet. An example from the fauna can be found in the context of the Forests Bond issued by IFC in collaboration with Wildlife Works Carbon (WWC) in Kenya.⁶³ Bond proceeds are financing projects influenced by a human-elephant conflict. Kamau uncovered that the conflict is rooted in a discourse imposed on the local community during colonial times.⁶⁴ As a result of this framing, locals perceive elephants as

⁵⁹ Sustainalytics, *Fibria Green Bond: FRAMEWORK OVERVIEW AND SECOND PARTY OPINION BY SUSTAINALYTICS* (2016), https://mstar-sustops-cdn-mainwebsite-s3.s3.amazonaws.com/docs/default-source/spos/green_bond_framework_and_opinion_fibria.pdf?sfvrsn=100c84b9_3; Suzano, *Green Bond Report 2021* (2021a), https://s1.q4cdn.com/987436133/files/doc_downloads/2022/09/GreenBond/RA_Suzano_GreenBond2021_ingles.pdf.

⁶⁰ Chris Lang, "Open Letter Denouncing Suzano Papel e Celulose's Glyphosate-resistant Genetically Engineered (GE) Eucalyptus," *REDD MONITOR* (2022), <https://redd-monitor.org/2022/06/13/open-letter-denouncing-suzano-papel-e-celuloses-glyphosate-resistant-genetically-engineered-ge-eucalyptus/>.

⁶¹ Issued in 2020 to raise 65 million USD for reforestation, forest conservation and management of Environmental Learning Centers in Thailand. 3-year maturity, 2.25% interest rate, AAA rating, following ASEAN principles and CBI Forestry Criteria (PTT 2020a; PTT 2020b).

⁶² Terry Fredrickson, *A Forest in the City*, (Bangkok News, 2016), <https://www.bangkokpost.com/learning/advanced/975125/a-forest-in-the-city>; Prasong Jantakad and Donald Allan Gilmour, *FOREST REHABILITATION POLICY AND PRACTICE IN THAILAND* (1999), <http://www.mekonginfo.org/assets/midocs/0002763-environment-forest-rehabilitation-policy-and-practice-in-thailand.pdf>.

⁶³ Issued in 2016 to raise 152 million USD for low-carbon private projects (handicraft, eco-charcoal etc.) to provide the community with an alternative to deforestation. 5-year maturity, following carbon credit Verra standards of Verified Carbon Standard and Climate, Community and Biodiversity Standards (Verra 2021a; Verra 2021b); International Finance Corporation (IFC), *IFC Forests Bond: Annual Report 2019/2020* (2020), https://www.ifc.org/wps/wcm/connect/d4e56d3a-0dc6-43ac-807a-71c8e7543563/IFC+Forests+Bond++Annual+Report_July+2019-+June+2020_Final.pdf?MOD=AJPERES&CVID=nmpd.IZ.

⁶⁴ Peter Ngugi Kamau, "Elephants, Local Livelihoods, and Landscape Change in Tsavo, Kenya" (PhD Thesis, Louisiana State University, 2017), https://digitalcommons.lsu.edu/cgi/viewcontent.cgi?article=5343&context=gradschool_dissertations; David Gilmartin, "Models of the Hydraulic Environment: Colonial Irrigation, State Power and Community in the Indus Basin," in *Nature Culture Imperialism: Essays on the Environmental History of South Asia*, ed.s David Arnold and Ramachandra Guha, (Delhi: Oxford University Press, 1995), 210-236.

politically and economically advantaged over people, and mobilise for “everyday acts of resistance.”⁶⁵ The resulting risk for the already endangered African elephants had to be mitigated by protection measures.⁶⁶ Unfortunately, not always can outcomes of human actions be mitigated, especially in forest ecosystems, considering our decisions today will determine their extremely long lifecycle.

In the context of the Forests Bond, it should also be highlighted that forest ecosystem services in the form of carbon credits are often forwarded to the Broken Hill Proprietary (BHP) mining company for offsetting, adding up to the controversies of the World Bank's project (when bondholders prefer cash to carbon credits; see Figure 8).⁶⁷

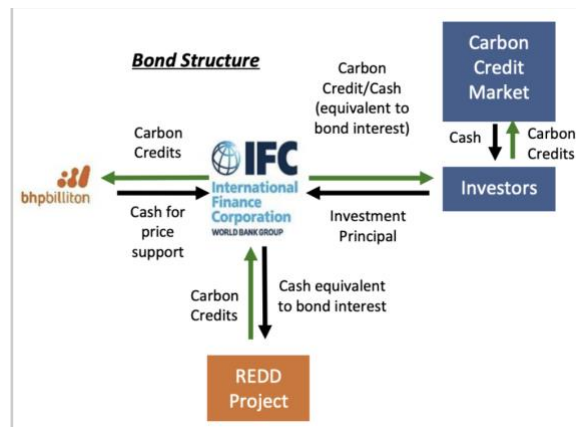


Figure 8: IFC Forests Bond Scheme⁶⁸

⁶⁵ Peter Ngugi Kamau, “Elephants, Local Livelihoods,” 132.

⁶⁶ Peter Ngugi Kamau, “Elephants, Local Livelihoods”.

⁶⁷ Norah Berk and Joe Eisen, *Good Money after Bad?*; Wildlife Works Carbon (WWC), *Wildlife Works REDD+ project in Kenya wins Best Offsetting Project in Environmental Finance* (Connect4Climate, 2017),

<https://www.connect4climate.org/article/wildlife-works-redd-project-kenya-wins-best-offsetting-project-environmental-finance> ; International Finance Corporation (IFC), *IFC Forests Bond: Annual Report 2019/2020* (2020), https://www.ifc.org/wps/wcm/connect/d4e56d3a-0dc6-43ac-807a-71c8e7543563/IFC+Forests+Bond++Annual+Report_July+2019-+June+2020_Final.pdf?MOD=AJPERES&CVID=nmpd.IZ ; International Finance Corporation (IFC), *Forests Bond Factsheet* (2016c),

<https://www.ifc.org/wps/wcm/connect/982eb7ef-1daa-49ca-b9c0-e6f3a2ddcd88/FINAL+Forests+Bond+Factsheet+10-5.pdf?MOD=AJPERES&CVID=lxS1w0E>.

⁶⁸ International Finance Corporation (IFC), *Forests Bond Factsheet* (2016c),

<https://www.ifc.org/wps/wcm/connect/982eb7ef-1daa-49ca-b9c0-e6f3a2ddcd88/FINAL+Forests+Bond+Factsheet+10-5.pdf?MOD=AJPERES&CVID=lxS1w0E>.

RESPECTING LOCAL COMMUNITIES: GREEN BONDS' SECOND PRIORITY

Local communities have an ambiguous role in the green bond policies since they are sometimes one of the causes of natural degradation—“laborers clear-cut much of the dryland forest for firewood and farmland—because survival was at stake.”⁶⁹ They are seen as crucial ‘stakeholders’ in terms of their influence on ecosystem services—“local communities manage land with high carbon stock”.⁷⁰ Policy documents see local communities as essential to deal with because of their land rights over forests,⁷¹ to communicate with to avoid mistrust,⁷² and to mitigate as a physical risk to the project (Ugandan REDD+ experienced illegal logging and attacks against rangers).⁷³

Property rights are the core element of markets as conceptualised by FME. They are especially key to follow when dealing with land management in the Global South. The UN rapporteur De Schutter lists some of the essential property-related rights: “right to own property alone as well as in association with others (...) no one shall be arbitrarily deprived of his property” (Article 17 of UDHR).⁷⁴ Unfortunately, even the well-defined system of rights has not averted market-driven violations of politically marginalised local communities. This is often criticised by NFON. For instance, Alden Wily elaborates on the World Bank's initiatives that enable dispossession of land for commercial purposes.⁷⁵ Reacting to the World Bank's approach, De Schutter writes: “(It is) treating land like any other commodity when it constitutes for many poor

⁶⁹ International Finance Corporation (IFC), *A Bond that Protects Forests and Revitalizes Communities* (2016b), https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/impact-stories/a-bond-that-protects-forests-and-revitalizes-communities.

⁷⁰ Darragh Conway et al., *NYDF 2018 Progress Assessment: Goal 10 Report* (Climate Focus, 2018), <https://climatefocus.com/publications/nydf-2018-progress-assessment-goal-10-report>.

⁷¹ Climate Bonds Initiative (CBI), *Forestry Criteria* (2018a), https://www.climatebonds.net/files/files/standards/Forestry/Crit%20Forestry%20Criteria%20document_July%202020.pdf.

⁷² Matthew Cranford et al., *Unlocking Forest Bonds* (WWF Forest & Climate Initiative, Global Canopy Programme and Climate Bonds Initiative, 2011), <https://wwf.panda.org/?201251/Unlocking-forest-bond>.

⁷³ Ministry of Water and Environment of Uganda, *REDD Readiness Preparation Proposal For Uganda* (2011), <https://www.forestcarbonpartnership.org/system/files/documents/Uganda%20Revised%20RPP%20May%2031%2C%20%202011.pdf>.

⁷⁴ Gudmundur Alfredsson, “Article 17,” *The Universal Declaration of Human Rights: A Commentary*, ed.s Asbjorn Eide, Gudmundur Alfredsson, Goran Melander, Lars Adam Rehof, Allan Rosas, with collaboration of Theresa Swinehart (Oslo: Scandinavian University Press, 1992); Olivier De Schutter, “The Green Rush: The Global Race for Farmland and the Rights of Land Users,” *Harvard International Law Journal*, 52, no. 2 (2011a): 504-559.

⁷⁵ Liz Alden Wily, “Customary Land Tenure in the Modern World,” *Reviewing the Fate of Customary Tenure in Africa* (2012), <https://rightsandresources.org/wp-content/exported-pdf/rightstoresourcesincrisiscompiledenglish.pdf>.

rural households in the developing world their only productive asset”,⁷⁶ and “(it is a) checklist of how to destroy the global peasantry responsibly”.⁷⁷ Even though governments in the Global South are, to a great extent, powerless victims of World Bank's policies, they have the ultimate power to decide about land in their territory and they should, by all means, ensure protection of their own citizens.⁷⁸

In the context of forests, other rights are also key, such as the right to carbon, the cultural right to practise religion, or the right to an adequate standard of living.⁷⁹ To ensure those are followed, the bond market also works with procedural rights of the local community to consent or reject projects being financed. A global standard for such practice is referred to as the Free, Prior & Informed Consent principle (FPIC), required by the CBI criteria but not dealt with by the ICMA principles.⁸⁰ Specifically in Kenya, where the IFC Forests Bond projects take place, forest management and local communities are uniquely articulated in national law, specifically in the Forests Act of 2005 and the Constitution of 2010.⁸¹ Yet, it is reported that those legal initiatives might not have been enough to avoid deforestation or even how effective those rules are in the project region of Kasigau.⁸² Unfortunately, IFC bond policies ignore ICMA and CBI principles, and follow its own IFC Environmental and Social Performance Standards.⁸³ Previously, the World

⁷⁶ Olivier De Schutter, “The Green Rush,” 559.

⁷⁷ Olivier De Schutter, “How Not to Think of Land-grabbing: Three Critiques of Large-scale Investments in Land,” *Journal of Peasant Studies*, 38, no. 2 (2011b): 275, <https://doi.org/10.1080/03066150.2011.559008>.

⁷⁸ Thomas Sikor, Jun He, and Guillaume Lestrelin, “Property Rights Regimes and Natural Resources: A Conceptual Analysis Revisited,” *World Development* 93 (2017): 337-349, <https://doi.org/10.1016/j.worlddev.2016.12.032>.

⁷⁹ Charlotte Streck, *The Right to Carbon, the Right to Land, the Right to Decide* (Ecosystem Marketplace, 2020), <https://www.ecosystemmarketplace.com/articles/the-right-to-carbon-the-right-to-land-the-right-to-decide/>; United Nations (UN), *International Covenant on Economic, Social and Cultural Rights* (1976), http://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-3&chapter=4&lang=en.

⁸⁰ Climate Bonds Initiative (CBI), *Forestry Criteria* (2018a), https://www.climatebonds.net/files/files/standards/Forestry/Crit%20Forestry%20Criteria%20document_July%202020.pdf.

⁸¹ Patricia Kameri-Mbote et al., *Ours By Right: Law, Politics and Realities of Community Property in Kenya* (Nairobi: Strathmore University Press, 2013), <https://su-plus.strathmore.edu/server/api/core/bitstreams/1a4afdcf-11b1-4b46-8505-8015b4bfb23b/content>.

⁸² Jacqueline Klopp, “Deforestation and Democratization: Patronage, Politics and Forests in Kenya,” *Journal of Eastern African Studies* 6, no. 2 (2012): 351-370, <https://www.tandfonline.com/doi/abs/10.1080/17531055.2012.669577>; Patricia Kameri-Mbote et al., *Ours By Right*.

⁸³ International Finance Corporation (IFC), *IFC's Green Bonds Process* (2021), https://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/about+ifc_new/investor+relations/ir-products/ifc+green+bonds+process.

Bank's Forest Carbon Partnership Facility was accused of preferring more limited consultations instead of waiting for consent.⁸⁴

Study of historical context gives a particularly valuable testimony and reveals a complicated background of the region. Colonists left local land in hands of a relatively small Kenyan elite of the Wataita ethnic group, leaving the numerous group of Waduruma marginalised. Wataita people, having lost their traditional knowledge, had grazed until they depleted the land and the commodity market got into a crisis in the 1980s. The Waduruma community could finally take over the land for charcoal production. The injustice was perpetuated again in the context of WWC projects financed by the Forests Bond. As a former Waduruma resident disclosed: "We were (told by the Wataita chief) the new owner was not interested in livestock, but conserving wild animals (and later forests). The eviction notice was abrupt and took us by surprise (...) In 2002, we were violently evicted, (and our houses) were immediately torched by fire".⁸⁵ The same Wataita chief is quoted in the Forests Bond introductory article: "Carbon money helps us meet basic needs and improve our lifestyle."⁸⁶

Further flaws were discovered in the distribution of carbon credit revenues promised to be distributed equally and reported by the Forests Bond.⁸⁷ In fact, revenues were first divided among WWC, ranchers and landowners, and only then the local community (mostly Wataita people) received the rest. Even though locals were promised at least 33%, one year they received only 14%.⁸⁸ The projects managed by the WWC and financed by the Forests Bond reinforce and further deepen inequity and injustice inherited from colonial times. In this light, marginalisation does not seem to be avoided as promised in the green bond policy. Still, the IFC plans to replicate the forest

⁸⁴ Norah Berk and Joe Eisen, *Good Money after Bad?*; Moreover, certification of Forests Bond carbon credits shows that whereas the Kasigau project meets the gold climate and biodiversity standard, it does not meet the community standard focused on wellbeing, culture, and property (Vera 2021a, 2021b).

⁸⁵ Susan Chomba et al., "Roots of Inequity: How the Implementation of REDD+ Reinforces Past Injustices", *Land Use Policy*, 50 (2016): 202-213, <https://www.sciencedirect.com/science/article/pii/S0264837715002926>.

⁸⁶ International Finance Corporation (IFC), *A Bond that Protects Forests and Revitalizes Communities* (2016b), https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/impact-stories/a-bond-that-protects-forests-and-revitalizes-communities.

⁸⁷ International Finance Corporation (IFC), *IFC Forests Bond: Annual Report 2019/2020* (2020), https://www.ifc.org/wps/wcm/connect/d4e56d3a-0dc6-43ac-807a-71c8e7543563/IFC+Forests+Bond++Annual+Report_July+2019-+June+2020_Final.pdf?MOD=AJPERES&CVID=nmpd.lZ.

⁸⁸ Susan Chomba et al., "Roots of Inequity".

bond model in DRC, Madagascar and Peru, as proposed to and shortlisted by the Green Climate Fund.⁸⁹

Another interesting case is the forest bond issued in Thailand by the state-owned PTT in 2020 to raise funds for afforestation and reforestation projects.⁹⁰ The 1990s forest protection and restoration governmental measures led to the exclusion of the forest-dependent communities and conservation NGOs from the decision-making, and their eviction from the newly ‘protected’ areas.⁹¹

(In 1996,) to compensate the deforestation occurred from gas transmission pipeline route (...) and to commemorate the King’s 50th anniversary of his coronation, the PTT in collaboration with the RFD launched a 192-hectare reforestation program (...) land of some (Ton Mamaung) community members were dispossessed (...) the community committee of Ton Mamaung attempted to ask for rights to use the reforested PTT site as their community forest and was rejected (...) in 2003 (when) a community member of Bongti Noi was arrested for using his (dispossessed) agricultural land (...) his plantation was uprooted without warning. Such incidence led to gunfire between the two parties.⁹²

Recent continuation of PTT’s reforestation has been certified by the CBI and raised forest bond funding. The green bond framework follows the ASEAN Green Bond Standard and PTT’s own ‘3P’ approach (prosperity, people, and planet). The company promises: “application of its own experience and expertise for enhancing participatory development that benefits communities and society”, “support of marginalised”, or “respect for human rights”. Considering the history of PTT’s projects, such claims sound controversial and should be subject to future enquiries. According to the certification criteria, impact assessment will be delivered internally by the company, but it will also be subject to external verifications.⁹³

⁸⁹ International Finance Corporation (IFC), *MULTI-COUNTRY FORESTS BONDS PROGRAM* (2018), <http://redd-monitor.org/wp-content/uploads/2019/07/CF18-5a.-IFC-FCPF-MFB-Program-06132018-FINAL-v.2.pdf>.

⁹⁰ Petroleum Authority of Thailand (PTT), *PTT Offers 2 Series of Bonds: 3Y Green Bond and 7Y Bond During 20 - 23 July 2020 with AAA(tha) Rating and the Coupon Rates of 2.25% and 2.85% p.a.* (PTT News, 2020a), <https://www.pttplc.com/en/Media/News/Content-12122.aspx?page=3>.

⁹¹ Prasong Jantakad and Donald Allan Gilmour, *FOREST REHABILITATION POLICY AND PRACTICE IN THAILAND* (1999), <http://www.mekonginfo.org/assets/midocs/0002763-environment-forest-rehabilitation-policy-and-practice-in-thailand.pdf>.

⁹² Natcha Tulyasuwan, *REDD+ AND LAND TENURE: A CASE STUDY OF THAILAND* (AgroParisTech, 2014), 96, <https://agritrop.cirad.fr/577888/1/Tulyasuwan%202014.pdf>.

⁹³ Petroleum Authority of Thailand (PTT), *PTT Green Bond Framework* (2020b), <https://www.climatebonds.net/files/files/PTT%20Green%20Bond%20Framework.pdf>.

SOLUTIONS AND ALTERNATIVES

As illustrated by the presented cases, market-based financing sometimes fails to account for local specificity and the complexity of impact on both nature and people. The prioritisation of climate over other ecological issues by Fibria or the lack of account for colonial-originated injustices by IFC hamper initiatives to achieve complete socio-ecological sustainability. However, this is not to say green bonds are not financing any socio-ecologically sound activities.

The green bond issued in 2017 by Sveaskog to finance sustainable forestry in Sweden follows only the ICMA principles and the FSC standard, yet it also provides an elaborated list of eligible project categories, and reports according to the UN Global Compact and a comprehensive impact framework including GRI metrics.⁹⁴ Beyond the long and established Swedish tradition of sustainable forest management, the credibility of projects is further supported by the location of Sweden, which, as compared to the Global South, decreases the risk of harming vulnerable forest communities. However, even Brazil-located bond-financed projects offer a more comprehensive account for broader socio-ecological implications, such as Klabin's green bond. Whereas Suzano/Fibria green bonds focus predominantly on emission reductions (in addition offering only indicators on hectares of conserved land),⁹⁵ Klabin elaborates further on native species and biodiversity. Their reporting framework offers indicators on endangered species, their reproduction and reintroduction, or protection initiatives involving local communities (involving students).⁹⁶ At the same time, we see an improved approach even from the side of Suzano (formerly Fibria) that, as part of its more recent sustainability-linked bond issuance, reflects the importance of water in nature as one of the KPIs being monitored and reported on.⁹⁷ Also, other projects critiqued in previous sections have positive impact, such as by sequestering global CO₂ or offering local communities employment. Still, the aim of this article is to stress out the issues

⁹⁴ Sveaskog, *Green Bond Framework* (2017), <https://www.sveaskog.se/globalassets/om-sveaskog/finansiering/green-bond-framework.pdf>.

⁹⁵ Suzano, *Green Bond Report 2021* (2021a), https://s1.q4cdn.com/987436133/files/doc_downloads/2022/09/GreenBond/RA_Suzano_GreenBond2021_ingles.pdf.

⁹⁶ Klabin, *Green Bond Report 2021* (2021), https://klabin.com.br/documents/400373575/0/klabin_greenbond_2021_EN_2010_20.10_Final+%281%29.pdf/82d927a9-1fba-6c1b-943f-483ceb43a705?t=1634764578098.

⁹⁷ Suzano, *Sustainability-Linked Securities Framework* (2021b), https://s1.q4cdn.com/987436133/files/doc_downloads/2021/06/Bond/Suzano_SLB-Framework_June2021.pdf.

of forest bond projects and market-based financing as a whole to expose issues that are too often ignored in the mainstream literature and underline the importance of a critical approach.

As illustrated, another key weakness of bond financing is its governance, and a lack of effective checks and balances. Betting on the FME promise that markets will self-regulate seems risky, especially dealing with such urgent challenges and considering the NFOR concern about the market-based capitalism being doomed to self-destruction. In this respect, a prospect of potentially improved integrity of markets is given by initiatives to regulate the green bond market itself. The EU is currently finishing a regulation that requires the use of a taxonomy of sustainable activities (specifically EU Taxonomy) and establishes a centralised certification mechanism for verifiers, promising to direct investors to higher-quality green bonds and projects.⁹⁸ Similarly, an improved carbon market integrity is aimed at by initiatives developed by technology providers or the recent global exercise to come up with an improved global standard by the Integrity Council for Voluntary Carbon Markets.⁹⁹

Interesting initiatives are taking place also on the investor side. Following up on the existing voluntary standards of the United Nations Guiding Principles on Business and Human Rights (UNGP) and the OECD Guidelines for Multinational Enterprises, the EU has been putting together a regulation on the due diligence in value chains. The Directive on corporate sustainability due diligence (CSDDD) will require corporates and investors (both those based in and those operating in the EU) to minimise and compensate ESG impact in their value chains and put together a transition plan where improvement is needed. The regulation also guarantees access to justice, making investors legally responsible, integrating assurance investment contracts, and offering complaint mechanisms. Complaints will be submitted by impacted communities themselves or trade unions and civil society organisations. An effective improvement is expected as courts have been increasingly successful in protection of global greenwashing victims (such as in the UK).¹⁰⁰ Applying such rules into the green bond market, would imply either project owners

⁹⁸ Alexander Lehmann, "The EU Green Bond Standard: Sensible Implementation Could Define a New Asset Class," *Bruegel-Blogs* (2021), <https://go.gale.com/ps/i.do?id=GALE%7CA668482200&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=&p=AONE&sw=w&userGroupName=anon%7Ef15717a0>.

⁹⁹ Joseph Aldy and Zachery Halem, "The Evolving Role of Greenhouse Gas Emission Offsets in Combating Climate Change," RWP22-011 (2022), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4203782.

¹⁰⁰ Paul Krüger Andersen et al., "Response to the Proposal for a Directive on Corporate Sustainability Due Diligence," SSRN, Nordic and European Company Law Working Paper no. 22-01 (2022),

or bondholders being held legally accountable to negative social and environmental impact in their portfolio.¹⁰¹ Furthermore, the EU Corporate Sustainability Reporting Directive (CSRD) requires companies and investors to report on how they manage carbon credits.¹⁰² Yet, ultimately, it is a matter of whether the type of information gathered and reported by investors and investees will account for such complex contexts as elaborated in previous sections.

As shown, green bonds' contribution will cover only a part of the huge investment needed to achieve sustainability of forests. Therefore, other types of financing should be considered. Within private finance, impact-oriented banks and asset managers are offering interesting initiatives. For instance, The Gresham House manages some 3bn USD in forest assets across EU, UK, and Australasia, applying a robust sustainability policy and data framework that considers climate, biodiversity, and local communities.¹⁰³ Still, for various pitfalls of privatisation and market-based financing described in previous sections, closest attention should be paid to public funding.¹⁰⁴ Even though governmental funding in forests has not been achieving the necessary levels, more pledges were recently made, mainly the 12bn USD Glasgow Leaders Declaration on Forests and Land Use, the 1.5bn USD Congo Basin Joint Donor Statement, or the 1.7bn USD Indigenous Peoples' and Local Communities' Forest Tenure Joint Donor Statement, all made at COP26.¹⁰⁵ Promisingly, the last statement pledges to deal with some of the deep social issues in forest financing initiatives (local forest rights, violence against local communities etc.) Yet, those again repeat the need for public-private financing. Since the solution should ultimately be driven

<https://research.cbs.dk/en/publications/response-to-the-proposal-for-a-directive-on-corporate-sustainabil>; Elena Merino Blanco and Ben Pontin, "Vedanta: A New Landmark in Litigating Extraterritorial Torts," *Worktribe* (2016), <https://uwe-repository.worktribe.com/OutputFile/871407>.

¹⁰¹ Almut Schilling-Vacaflor and Andrea Lenschow, "Hardening Foreign Corporate Accountability through Mandatory Due Diligence in the European Union? New Trends and Persisting Challenges," *Regulation & Governance* 17, no. 3 (2021): 677-693, <https://onlinelibrary.wiley.com/doi/full/10.1111/rego.12402>.

¹⁰² Jan Cornillie, "Can the New European Sustainable Finance Rules Improve the Integrity of Voluntary Carbon Markets?" *STG Policy Papers Issue 2022/28* (European University Institute, 2022), <https://cadmus.eui.eu/handle/1814/74989>.

¹⁰³ Gresham House, *Forestry Investment* (2022), <https://greshamhouse.com/real-assets/forestry/>.

¹⁰⁴ Liz Alden Wily, "'The Law is to Blame': The Vulnerable Status of Common Property Rights in Sub-Saharan Africa," *Development and Change*, 42, no. 3 (2011): 679-871, <https://doi.org/10.1111/j.1467-7660.2011.01712.x>.

¹⁰⁵ UK Government, "Press release: \$12 Billion Donor Support to Halt and Reverse Forest Loss and Protect Land Rights", 2021, <https://www.gov.uk/government/news/12-billion-donor-support-to-halt-and-reverse-forest-loss-and-protect-land-rights>.

locally, governments in the Global South could be relieved of their deep indebtedness and incentivised to channel those resources into improved forest management.¹⁰⁶

CONCLUSION

Forest bonds were introduced with the objective to motivate more investment in forests and contribute to a more ecologically and socially sustainable forest governance. Yet, as shown in this study, projects financed by forest bonds are related to adverse socio-ecological outcomes and the markets are governed with limited accountability, enabling greenwashing. Such issues are inherent to the key free market environmentalist principles, which should be subject to critical study, equally as their application in the context of forest bonds.

At the same time, there are numerous green bond-financed forest projects bringing positive impact, past issuers of forest bonds are improving their own approach, and regulatory initiatives promise to deliver improved integrity of the markets. Moreover, while green bonds were shown to have only a limited potential to motivate investment into the sustainability of forests, pledges made at COP26 promise to bring substantial additional public funds. Although most of the sustainability-oriented policy initiatives keep stressing on the need for public-private solutions, the importance of public-public finance initiatives should be recognised and paid attention to.

Going forward, green bond financing will grow in importance and should be closely monitored and assessed, especially where it interacts with the vulnerable context of forests and forest communities. Both green bonds and forests have been forming an integral part of global policy negotiations, like COP27 and COP15, which bring new important initiatives.

¹⁰⁶ Shamshad Akhtar, Jorg Haas, and Ulrich Volz, *Debt Relief for a Green and Inclusive Recovery* (Task Force 7, 2022), <https://www.g20-insights.org/wp-content/uploads/2022/08/Layout-435-Debt-Relief-for-a-Green-and-Inclusive-Recovery-mh.pdf>.

BIBLIOGRAPHY

- Akhtar, Shamshad, Jorg Haas, and Ulrich Volz. *Debt Relief for a Green and Inclusive Recovery*. Task Force 7, 2022. <https://www.g20-insights.org/wp-content/uploads/2022/08/Layout-435-Debt-Relief-for-a-Green-and-Inclusive-Recovery-mh.pdf>.
- Aldy, Joseph and Zachery Halem. *The Evolving Role of Greenhouse Gas Emission Offsets in Combating Climate Change*. 2022. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4203782.
- Alfredsson, Gudmundur. "Article 17." In *The Universal Declaration of Human Rights: A commentary*, edited by Asbjorn Eide, Gudmundur Alfredsson, Goran Melander, Lars Adam Rehof, Allan Rosas, with collaboration of Theresa Swinehart, 255-262. Oslo: Scandinavian University Press, 1992.
- Andersen, Paul Krüger, Niklas Arvidsson, Gintautas Bartkus, Andri Fannar Bergþórsson, Virginijus Bitė, Søren Friis Hansen, Jesper Lau Hansen, Svante Johansson, Morten Kinander, Mårten Knuts, Erik Lidman, Troels Michael Lilja, Paulius Milaiuskas, Matti J. Sillanpää, Gustaf Sjöberg, Daniel Stattin, Therese Strand, Rebecca Söderström, Steen Thomsen, Veikko VahteraSeppo Villa, Andres Vutt, Margit Vutt, Jessica Östberg, Nordic and Baltic Company Law Scholars. *Response to the Proposal for a Directive on Corporate Sustainability Due Diligence*. SSRN: Social Science Research Network. Nordic and European Company Law Working Paper No. 22-01 (2022). <https://research.cbs.dk/en/publications/response-to-the-proposal-for-a-directive-on-corporate-sustainabil>.
- Anderson, Terry L. and Donald R. Leal. *Free Market Environmentalism*. New York: Palgrave, 2001.
- Association of Southeast Asian Nations (AEAN). *ASEAN Green Bond Standards*. 2017. <https://www.sc.com.my/api/documentms/download.ashx?id=75136194-3ce3-43a2-b562-3952b04b93f4>.
- Aubry, Nathalie. "International Capital Market Association." In *Handbook of Transnational Economic Governance Regimes*, edited by Christian Tietje and Alan Brouder, 385-394. Leiden and Boston: Martinus Nijhoff Publishers, 2009. https://brill.com/display/book/edcoll/9789004181564/Bej.9789004163300.i-1081_030.xml.
- Baker, Donald, John Guzman, and Tallat Hussain. "Brazilian Green Bonds: Fibria Celulose S.A." *White & Case LLP*. 2017. <https://www.whitecase.com/publications/alert/brazilian-green-bonds-fibria-celulose-sa>.
- Baran, Paul and Paul Sweezy. *Monopoly Capital* (New York: Monthly Review Press, 1966).
- Berk, Norah and Joe Eisen. *Good Money after Bad? Risks and Opportunities for the Green Climate Fund in the Congo Basin Rainforests*. London: Rainforest Foundation, 2019. <https://www.rainforestfoundationuk.org/media/b3446055-bba4-44b4-aeab-4b4a7a57548c>.

- Blanco, Elena Merino and Ben Pontin. "Vedanta: a new landmark in litigating extraterritorial tort." *Worktribe*. 2016. <https://uwe-repository.worktribe.com/OutputFile/871407>.
- Blaser, Jurgen and Carmenza Robledo. *Initial Analysis on the Mitigation Potential in the Forestry Sector*. UNFCCC, 2007. https://unfccc.int/files/cooperation_and_support/financial_mechanism/application/pdf/blaser.pdf.
- Boas, Taylor and Jordan Gans-Morse. "Neoliberalism: From New Liberal Philosophy to Anti-Liberal Slogan." *Studies in Comparative International Development*. 44 (2009): 137–161. <https://doi.org/10.1007/s12116-009-9040-5>.
- Bracking, Sarah. "Financialisation, Climate Finance, and the Calculative Challenges of Managing Environmental Change." *Antipode: A Radical Journal of Geography*, 51 (2019): 709-729. <https://onlinelibrary.wiley.com/doi/abs/10.1111/anti.12510>.
- Bullard, Nathaniel. "The Sustainable Debt Market is All Grown Up." *Bloomberg*, 2021. <https://www.bloomberg.com/news/articles/2021-01-14/the-sustainable-debt-market-is-all-grown-up>.
- Castree, Noel. "Neoliberalising Nature: The Logics of Deregulation and Reregulation." *Environment and Planning A: Economy and Space* 40, no. 1 (2008a): 131–152. <https://doi.org/10.1068/a3999>.
- Castree, Noel. "Neoliberalising Nature: Processes, Effects, and Evaluations." *Environment and Planning A: Economy and Space*, 40, no. 1 (2008b): 153–173. <https://doi.org/10.1068/a39100>.
- Castree, Noel. "Neoliberalism and the Biophysical Environment 1: What 'Neoliberalism' is, and What Difference Nature Makes to It." *Geography Compass* 4, no. 12 (2010a): 1725–1733. <https://doi.org/10.1111/j.1749-8198.2010.00405.x>.
- Castree, Noel. "Neoliberalism and the Biophysical Environment 2: Theorising the Neoliberalisation of Nature." *Geography Compass*. 4, no. 12 (2010b): 1734-1746. <https://doi.org/10.1111/j.1749-8198.2010.00407.x>.
- Castree, Noel. "Neoliberalism and the Biophysical Environment: A Synthesis and Evaluation of the Research." *Environment and Society: Advances in Research* 1, no. 1(2010c): 5-45. <https://ro.uow.edu.au/sspapers/805/>.
- Castree, Noel. "Neoliberalism and the Biophysical Environment 3: Putting Theory into Practice." *Geography Compass* 5, no. 1 (2011): 35-49. <https://doi.org/10.1111/j.1749-8198.2010.00406.x>.
- Centemeri, Laura. "Environmental Damage as Negative Externality: Uncertainty, Moral Complexity and the Limits of the Market." *e-cadernos CES* 5 (2009). <https://journals.openedition.org/eces/266>.

- Center for International Forestry Research (CIFOR). “Convention on Biological Diversity (CBD).” Accessed 2022. <https://www2.cifor.org/partner/convention-biological-diversity-cbd/>.
- Chomba, Susan, Juliet Kariuki, Jens Friis Lund, and Fergus Sinclair. “Roots of Inequity: How the Implementation of REDD+ Reinforces Past Injustices.” *Land Use Policy* 50 (2016): 202-213. <https://doi.org/10.1016/j.landusepol.2015.09.021>.
- Climate Bonds Initiative (CBI). *Forestry Criteria*. 2018a. https://www.climatebonds.net/files/files/standards/Forestry/Crit%20Forestry%20Criteria%20document_July%202020.pdf.
- Climate Bonds Initiative (CBI). *Forestry Criteria: Background Paper*. 2018b. https://www.climatebonds.net/files/files/standards/Forestry/BP%20CBI_Background%20Doc_Forests_November%202018%20%281%29%281%29.pdf.
- Climate Bonds Initiative (CBI). “Forest Bonds”. Accessed 2021a. <https://www.climatebonds.net/resources/publications/forest-bonds>.
- Climate Bonds Initiative (CBI). *Certification FAQs* (2021b). <https://www.climatebonds.net/certification/faqs>.
- Climate Bonds Initiative (CBI), *Financing Credible Transitions* (CBI and Credit Suisse, 2020a), <https://www.climatebonds.net/resources/reports/financing-credible-transitions-white-paper>.
- Climate Bonds Initiative (CBI). *Interactive Data Platform*. 2022b. <https://www.climatebonds.net/market/data/>.
- Conway, Darragh, Ingrid Schulte, Charlotte Streck, Franziska Haupt, Haseebullah Bakhtary, Duncan MacQueen, and James Mayers. *Improving Governance to Protect Forests: Empowering People and Communities, Strengthening Laws and Institutions-New York Declaration on Forests Goal 10 Assessment Report*. Coordinated by Climate Focus with support from the Climate and Land Use Alliance. 2018. <https://climatefocus.com/publications/nydf-2018-progress-assessment-goal-10-report>.
- Cornillie, Jan. “Can the New European Sustainable Finance Rules Improve the Integrity of Voluntary Carbon Markets?” *STG Policy Papers Issue 2022/28*. European University Institute, 2022. <https://cadmus.eui.eu/handle/1814/74989>.
- Cranford, Matthew, Charlie Parker, and Mandar Trivedi. *Understanding Forest Bonds*. Oxford, UK: Global Canopy Programme, 2011. <https://globalcanopy.org/insights/publication/understanding-forest-bonds/>.
- Cranford, Matthew, I. R. Henderson, A.W. Mitchell, S. Kidney, and D.P. Kanak. *Unlocking Forest Bonds*. WWF Forest & Climate Initiative, Global Canopy Programme and Climate Bonds Initiative. 2011. <https://wwf.panda.org/?201251/Unlocking-forest-bond>.
- Emerald Knight. *EcoPlanet Bamboo - Bamboo Corporate Bond*. 2016. <http://redd-monitor.org/wp-content/uploads/2016/09/BambooBond-Key-Facts.pdf>.

- Environmental Paper Network. *Industrial Tree Plantations and Green Bonds*. 2019. <https://environmentalpaper.org/wp-content/uploads/2019/05/EPN-2019-Industrial-tree-plantations-and-green-bonds.pdf>.
- Ferrando, Tomaso, Gabriela de Oliveira Junqueira, Marcela Vecchione-Gonçalves, Iagê Miola, Flávio Marques Prol, and Hector Herrera. “Capitalizing on Green Debt: A World-Ecology Analysis of Green Bonds in the Brazilian Forestry Sector.” *Journal of World-Systems Research* 27, no. 2 (2022): 411-437. <https://jwsr.pitt.edu/ojs/jwsr/article/view/1062/1537>.
- Fibria. *ENGAGEMENT IN GENETICALLY MODIFIED EUCALYPT: Pursuit of Constructive Dialogue!* 2015. https://www.eucalyptus.com.br/artigos/2015_Cesar+Bonine.pdf.
- Food and Agriculture Organization of the United Nations (FAO). *Sustainable Financing for Forest and Landscape Restoration*. 2015. <http://www.fao.org/in-action/forest-landscape-restoration-mechanism/resources/detail/en/c/412435/>.
- Foucault, Michel. *Discipline and Punish*. New York: Vintage, 1979.
- Fredrickson, Terry. *A Forest in the City*. Bangkok News, 2016. <https://www.bangkokpost.com/learning/advanced/975125/a-forest-in-the-city>.
- Gilmartin, David. “Models of the Hydraulic Environment: Colonial Irrigation, State Power and Community in the Indus Basin.” In *Nature Culture Imperialism: Essays on the Environmental History of South Asia*, edited by David Arnold and Ramchandra Guha, 210-236. Delhi: Oxford University Press, 1995.
- Gresham House. *Forestry Investment*. 2022. <https://greshamhouse.com/real-assets/forestry/>.
- Harvey, David. *A Brief History of Neoliberalism*. New York: Oxford University Press, 2007. ISBN 978-0-19-928326-2. <https://academic.oup.com/book/40603>.
- HSBC. *Climate Bonds Initiative: ASEAN Green Finance Report 2019*. 2020. <https://www.about.hsbc.com.sg/news-and-media/climate-bonds-initiative-launches-asean-green-finance-report-2019>.
- International Capital Markets Association (ICMA). *Green Bond Principles*. 2018. <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Green-Bonds-Principles-June-2018-270520.pdf>.
- International Finance Corporation (IFC). *MOBILIZING PRIVATE CLIMATE FINANCE—GREEN BONDS AND BEYOND*. 2016a. <https://www.ifc.org/wps/wcm/connect/2996f197-a75b-422a-9e2f-cdc022d8ea96/EMCompass+Note+25+Green+Bonds+FINAL+12-5.pdf?MOD=AJPERES&CVID=lzgXSmr>.
- International Finance Corporation (IFC). *A Bond that Protects Forests and Revitalizes Communities*. 2016b. https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/new

s+and+events/news/impact-stories/a-bond-that-protects-forests-and-revitalizes-communities.

International Finance Corporation (IFC). *Forests Bond Factsheet*. 2016c.

<https://www.ifc.org/wps/wcm/connect/982eb7ef-1daa-49ca-b9c0-e6f3a2ddcd88/FINAL+Forests+Bond+Factsheet+10-5.pdf?MOD=AJPERES&CVID=lxS1w0E>.

International Finance Corporation (IFC), *IFC Marks the Listing of World's first Forests Bond on the London Stock Exchange* (2016d).

https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/first-forests-bond-on-the-lse.

International Finance Corporation (IFC). *MULTI-COUNTRY FORESTS BONDS PROGRAM*.

2018. <http://redd-monitor.org/wp-content/uploads/2019/07/CF18-5a.-IFC-FCPF-MFB-Program-06132018-FINAL-v.2.pdf>.

International Finance Corporation (IFC). *IFC Forests Bond: Annual Report 2019/2020*. 2020.

https://www.ifc.org/wps/wcm/connect/d4e56d3a-0dc6-43ac-807a-71c8e7543563/IFC+Forests+Bond++Annual+Report_July+2019-+June+2020_Final.pdf?MOD=AJPERES&CVID=nmpd.IZ.

International Finance Corporation (IFC). *IFC's Green Bonds Process*. 2021.

https://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/about+ifc_new/investor+relations/ir-products/ifc+green+bonds+process.

Jantakad, Prasong and Donald Allan Gilmour. *FOREST REHABILITATION POLICY AND PRACTICE IN THAILAND*. 1999.

<http://www.mekonginfo.org/assets/midocs/0002763-environment-forest-rehabilitation-policy-and-practice-in-thailand.pdf>.

Kamau, Peter Ngugi. "Elephants, Local Livelihoods, and Landscape Change in Tsavo, Kenya." PhD Thesis: Louisiana State University, 2017.

https://digitalcommons.lsu.edu/cgi/viewcontent.cgi?article=5343&context=gradschool_dissertations.

Kameri-Mbote, Patricia, Collins Odote, Celestine Musembi, and Wilson Kamande. *Ours By Right: Law, Politics and Realities of Community Property in Kenya*. Nairobi: Strathmore University Press, 2013.

<https://su-plus.strathmore.edu/server/api/core/bitstreams/1a4afdcf-11b1-4b46-8505-8015b4bfb23b/content>.

Klabin. *Green Bond Report 2021*. 2021.

https://klabin.com.br/documents/400373575/0/klabin_greenbond_2021_EN_2010_20.10_Final+%281%29.pdf/82d927a9-1fba-6c1b-943f-483ceb43a705?t=1634764578098.

Klooster, Dan. "Environmental Certification of Forests in Mexico: The Political Ecology of a Nongovernmental Market Intervention." *Annals of the Association of American Geographers* 96, no. 3(2006): 541-565.

<https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-8306.2006.00705.x>.

- Klopp, Jacqueline. "Deforestation and Democratization: Patronage, Politics and Forests in Kenya." *Journal of Eastern African Studies* 6, no. 2 (2012): 351-370. <https://www.tandfonline.com/doi/abs/10.1080/17531055.2012.669577>.
- Kothari, Ashish, Federico Demaria, and Alberto Acosta. "Buen Vivir, Degrowth, and Ecological Swaraj: Alternatives to Sustainable Development and Green Economy". *Development* 57, no.s 3-4 (2015): 362-375. https://www.researchgate.net/publication/287984144_Buen_Vivir_Degrowth_and_Ecological_Swaraj_Alternatives_to_Sustainable_Development_and_Green_Economy.
- Krugman, Paul. *Who Was Milton Friedman?*. New York Review of Books, 2007.
- Lang, Chris. "Open Letter Denouncing Suzano Papel e Celulose's Glyphosate-resistant Genetically Engineered (GE) Eucalyptus". *REDD MONITOR* (2022). <https://redd-monitor.org/2022/06/13/open-letter-denouncing-suzano-papel-e-celuloses-glyphosate-resistant-genetically-engineered-ge-eucalyptus/>.
- Latour, Bruno. *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford University Press, 2005.
- Lehmann, Alexander. "The EU Green Bond Standard: Sensible Implementation Could Define a New Asset Class." *Bruegel Blogs*, 2021. <https://go.gale.com/ps/i.do?id=GALE%7CA668482200&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=&p=AONE&sw=w&userGroupName=anon%7Ef15717a0>.
- McAfee, Kathleen. "Selling Nature to Save It? Biodiversity and Green Developmentalism." *Environment and Planning D: Society and Space* 17, no. 2 (1999): 133–154. <https://doi.org/10.1068/d170133>.
- McAfee, Kathleen. "The Contradictory Logic of Global Ecosystem Services Markets." *Development and Change* 43, no. 1 (2012): 105-131. <https://doi.org/10.1111/j.1467-7660.2011.01745.x>.
- McCarthy, James. "Neoliberalism and the Politics of Alternatives: Community Forestry in British Columbia and the United States." *Annals of the Association of American Geographers* 96, no. 1 (2006): 84-104. <https://doi.org/10.1111/j.1467-8306.2006.00500.x>.
- McDonald, David. "Covid-19: Disaster Capitalism Or An Opportunity to Strengthen Public Water?" *Water Alternatives Forum*. 2021. <https://www.water-alternatives.org/index.php/blog/covid>.
- Ministry of Water and Environment of Uganda. *REDD Readiness Preparation Proposal for Uganda*. 2011. <https://www.forestcarbonpartnership.org/system/files/documents/Uganda%20Revised%20ORPP%20May%2031%2C%20202011.pdf>.
- NYDF Assessment Partners. *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). 2019.
<https://forestdeclaration.org/images/uploads/resource/2019NYDFReport.pdf>.
- Paterson, Mark. "Commodification." In *Critical Environmental Politics*, edited by Carl Death, 53-62. London: Routledge, 2013. <https://doi.org/10.4324/9781315883076>.
- Petroleum Authority of Thailand (PTT). "PTT Offers 2 Series of Bonds: 3Y Green Bond and 7Y Bond During 20 - 23 July 2020 with AAA(tha)Rating and the Coupon Rates of 2.25% and 2.85% p.a." *PTT News*. 2020a. <https://www.pttplc.com/en/Media/News/Content-12122.aspx?page=3>.
- Petroleum Authority of Thailand (PTT). *PTT Green Bond Framework*. 2020b.
<https://www.climatebonds.net/files/files/PTT%20Green%20Bond%20Framework.pdf>.
- Prudham, Scott. *Knock on Wood*. New York: Routledge, 2005.
<https://doi.org/10.4324/9780203446164>.
- Prudham, Scott. "Commodification". In *A Companion to Environmental Geography*, edited by Noel Castree, David Demeritt, Diana Liverman, and Bruce Rhoads, 123-142. Oxford: Wiley-Blackwell, 2009.
<https://onlinelibrary.wiley.com/doi/10.1002/9781444305722.ch9>.
- Rees, William, Joshua Farley, Éva-Terézia Vesely, and Rudolf de Groot. "Valuing Natural Capital and the Costs and Benefits of Restoration." In *Restoring Natural Capital: Science, Business and Practice*, edited by James Aronson, Suzanne J. Milton, and James N. Blignaut, 227-236. Washington D.C: Island Press, 2007.
<https://research.wur.nl/en/publications/valuing-natural-capital-and-the-costs-and-benefits-of-restoration>.
- Robbins, Paul. *Political Ecology: A Critical Introduction*. Wiley-Blackwell, 2011.
- Rodrigues, Maria. "Privatization and Socioenvironmental Conditions in Brazil's Amazonia: Political Challenges to Neoliberal Principles." *The Journal of Environment & Development* 12, no. 2 (2003): 205-238. <https://doi.org/10.1177/1070496503012002004>.
- Schilling-Vacaflor, Almut and Andrea Lenschow. "Hardening Foreign Corporate Accountability through Mandatory Due Diligence in the European Union? New Trends and Persisting Challenges." *Regulation & Governance* 17, no. 3 (2021): 677-693.
<https://doi.org/10.1111/rego.12402>.
- Schutter, Olivier de. "The Green Rush: The Global Race for Farmland and the Rights of Land Users." *Harvard International Law Journal* 52, no. 2 (2011a): 504-559.
https://journals.law.harvard.edu/ilj/2011/07/issue_52-2_de-schutter/.
- Schutter, Olivier de. "How Not to Think of Land-grabbing: Three Critiques of Large-scale Investments in Land." *Journal of Peasant Studies* 38, no. 2 (2011b): 249-279.
<https://doi.org/10.1080/03066150.2011.559008>.

- Sikor, Thomas, Jun He, and Guillaume Lestrelin. "Property Rights Regimes and Natural Resources: A Conceptual Analysis Revisited." *World Development* 93 (2017): 337–349. <https://doi.org/10.1016/j.worlddev.2016.12.032>.
- Smith, Robert. "Resolving the Tragedy of the Commons by Creating Private Property Rights in Wildlife." *Cato Journal* 1, no. 2 (1981): 439–468. <https://cei.org/wp-content/uploads/2010/10/RJ-Smith-Resolving-the-Tragedy-of-the-Commons-by-Creating-Private-Property-Rights-in-Wildlife.pdf>.
- Springer, Simon, Kean Birch, and Julie MacLeavy. *The Handbook of Neoliberalism* (New York: Routledge, 2016). ISBN 978-1138844001.
- Streck, Charlotte. "The Right to Carbon, the Right to Land, the Right to Decide." *Ecosystem Marketplace*. 2020. <https://www.ecosystemmarketplace.com/articles/the-right-to-carbon-the-right-to-land-the-right-to-decide/>.
- Sullivan, Sian. "Banking Nature? The Spectacular Financialisation of Environmental Conservation." *Antipode: A Radical Journal of Geography* 45, no. 1 (2012): 198-217. <https://onlinelibrary.wiley.com/doi/10.1111/j.1467-8330.2012.00989.x>.
- Sustainalytics. *Fibria Green Bond: Framework Overview and Second Party Opinion by Sustainalytics*. 2016. https://mstar-sustops-cdn-mainwebsite-s3.s3.amazonaws.com/docs/default-source/spos/green_bond_framework_and_opinion_fibria.pdf?sfvrsn=100c84b9_3.
- Suzano. *Green Bond Report 2021*. 2021a. https://s1.q4cdn.com/987436133/files/doc_downloads/2022/09/GreenBond/RA_Suzano_GreenBond2021_ingles.pdf.
- Suzano. *Sustainability-Linked Securities Framework*. 2021b. https://s1.q4cdn.com/987436133/files/doc_downloads/2021/06/Bond/Suzano_SLB-Framework_June2021.pdf.
- Sveaskog. *Green Bond Framework*. 2017. <https://www.sveaskog.se/globalassets/om-sveaskog/finansiering/green-bond-framework.pdf>.
- The Prince's Rainforests Project. *An Emergency Package for Tropical Forests*. 2009. http://www.globalbioenergy.org/uploads/media/0903_PRP_-_An_emergency_package_for_tropical_forests.pdf.
- Tulyasuwan, Natcha. "Redd+ et Foncier: Une Étude de Cas de la Thaïlande" [Redd+ and Land Tenure: A Case Study of Thailand]. PhD Thesis: AgroParisTech, 2014. <https://agritrop.cirad.fr/577888/1/Tulyasuwan%202014.pdf>.
- UK Government. "Press release: \$12 Billion Donor Support to Halt and Reverse Forest Loss and Protect Land Rights." 2021. <https://www.gov.uk/government/news/12-billion-donor-support-to-halt-and-reverse-forest-loss-and-protect-land-rights>.

- United Nations (UN). *International Covenant on Economic, Social and Cultural Rights*. 1976. http://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-3&chapter=4&lang=en.
- United Nations Framework Convention on Climate Change (UNFCCC). *Adoption of the Paris Agreement*. Paris: United Nations, 2015. https://unfccc.int/sites/default/files/english_paris_agreement.pdf.
- Verra. *The Kasigau Corridor Redd Project—Phase I Rukinga Sanctuary*. 2021a. <https://registry.verra.org/app/projectDetail/VCS/562>.
- Verra. *The Kasigau Corridor Redd Project—Phase II the Community Ranches*. 2021b. <https://registry.verra.org/app/projectDetail/CCB/612>.
- Wildlife Works Carbon (WWC). “Wildlife Works REDD+ Project in Kenya wins Best Offsetting Project in Environmental Finance.” *Connect4Climate*. 2017. <https://www.connect4climate.org/article/wildlife-works-redd-project-kenya-wins-best-offsetting-project-environmental-finance>.
- Wily, Liz Alden. *Customary Land Tenure in the Modern World, Rights to Resources in Crisis: Reviewing the Fate of Customary Tenure in Africa—Brief #1 of 5*. Washington, DC: Rights and Resources Institute, 2012. <https://rightsandresources.org/wp-content/exported-pdf/rightstoresourcesin crisiscompiledenglish.pdf>.
- Wily, Liz Alden. “‘The Law is to Blame’: The Vulnerable Status of Common Property Rights in Sub-Saharan Africa.” *Development and Change* 42, no. 3 (2011): 733-757. <https://doi.org/10.1111/j.1467-7660.2011.01712.x>.
- Wirtz, Bill. “The Essence of Free Market Environmentalism: Protection Through Private Property.” *Maastricht University Journal of Sustainability Studies* (2017): 31-45. <https://openjournals.maastrichtuniversity.nl/SustainabilityStudies/article/view/506/368>.
- Wunderling, Nico, Arie Staal, Boris Sakschewski, Marina Hirota, Obbe A. Tuinenburg, Jonathan F. Donges, Henrique M. J. Barbosa, and Ricarda Winkelmann. “Recurrent Droughts Increase Risk of Cascading Tipping Events by Outpacing Adaptive Capacities in the Amazon Rainforest.” *PNAS* 119, no. 32 (2022). <https://www.pnas.org/doi/10.1073/pnas.2120777119>.