



Task Force 2
**Climate Change, Sustainable Energy
& Environment**

Policy brief

FIXING FINANCIAL, ECONOMIC AND GOVERNANCE STRUCTURES TO SAVE FORESTS AND THE OCEAN, AND ENHANCE THEIR CONTRIBUTIONS TO CLIMATE CHANGE SOLUTIONS

SEPTEMBER 2021

Paul De Noon Coalition for Rainforest Nations
R. Andreas Kraemer Oceano Azul Foundation, Ecologic Institute
Leonardo Massai Catholic University of Lille
Mickael K. Orbach Marine Laboratory, School of the Environment,
Duke University
Nico Stelljes Ecologic Institute
Torsten Thiele Institute for Advanced Sustainability Studies
John Virdin Nicholas Institute, Duke University

T20 NATIONAL COORDINATOR AND CHAIR



T20 CO-CHAIR



T20 SUMMIT CO-CHAIR



**Università
Bocconi**
MILANO





ABSTRACT

Forests and the ocean are vital for climate, biological diversity, and human communities, but they are degraded and their ecosystem services are seriously impaired, mainly because financial, economic and governance structures are misconfigured. We propose that G20 help strengthen the REDD+ climate instrument for forests and extend it to Blue Carbon¹ from coastal and marine ecosystems. Scaled up to cover the Earth's two largest, most diverse and most productive ecosystems, these two approaches can deliver significant economic and climate benefits.



CHALLENGE

Financial, economic and governance structures and processes for conserving and restoring forests and oceans need fixing. Forest and ocean ecosystems are the foundation of much of the world's economic activity, yet their continued mismanagement threatens our climate, weather, water systems, agriculture, seafood, food security, coastal, rural, regional and even national livelihoods. It is a problem of financial, economic and governance structures and their configuration and processes.

ECONOMICS

Both forests and oceans can be characterized as common-pool resources: they are shared but exhaustible, often held in trust and managed by governments for the benefit of their citizens. In many instances their resources are not managed efficiently or effectively. These institutional failures are due in part to economic structures that do not reflect the true value of forests and oceans to society, as the goods and services they provide are in some cases not captured in market prices, leading to pricing distortions that encourage underinvestment (Dasgupta 2021).

Essentially, forests and oceans can be characterized as natural capital assets, though the streams of benefits (or “revenue”) they provide are often not documented, undervalued and not protected and managed as well as they should be (Appleton and Recio 2018). For example, the ocean is the Earth's largest productive asset for which there is no adequate accounting, though efforts have grown in recent years to develop and share technical frameworks for “ocean accounting”,² drawing upon United Nations standards and enabled by new technologies that make digital dashboards of indicators easier to produce (Fenichel et al. 2020). All too often, macro-economic balance sheets measure only one side of the ledger: the market value of forest and ocean use, but not the other side: the economic cost of environmental degradation.

FINANCE

Larger and stronger, and more focused financing instruments are a priority among the policies, institutions and instruments needed and yet to be put in place. This is because, in view of the perilous state and rapid degradation of land-based and ocean ecosystems, existing mechanisms are evidently insufficient, and the economic impact of inaction is rising. There is, however, a mechanism in place, namely REDD+ in the framework of the UN Framework Convention on Climate Change (UNFCCC) (World Bank 2017), which is an example of the kind of system we should be developing. Its original objective is the mitigation of climate change through reducing net emissions of greenhouse gases via enhanced forest management in developing countries. REDD+ can and should now be strengthened as well as extended to cover coastal and ocean ecosystems, as proposed in this T20 Policy Brief.



GOVERNANCE

In terms of governance, major challenges are represented by inadequate institutional arrangements in both developed and developing countries and the existence of legislation that is fragmented and not climate change oriented, sometimes even providing perverse incentives that inhibit the effectiveness of the approaches such as the REDD+ mechanism and the Paris Agreement regime. There is a clear need for G20 to call for the full respect and adherence to the international climate regime established by the Paris Agreement, and based on IPCC guidance.



PROPOSAL

To overcome those challenges all states and the international community should create new climate change framework legislation and policies and amend existing laws to complete the implementation of the Paris Agreement, while establishing a clear roadmap to provide clarity on governance issues such as carbon pricing, accountability and robust measuring, reporting and verification systems.

The G20 is an excellent forum for collaboration between economics, finance and governance at the interface of science, practice, and global public and private sector policy, and to help address the financing gap for these activities (Kraemer et al. 2017; Deutz et al. 2020; Mansouri et al. 2020). There is a need for knowledge-sharing and policy development, and for coordination to support effective policy implementation. The overall objective is to integrate forests and ocean biodiversity and sustainability into global environmental and economic policy.

Our proposals focus on new mechanisms for efficacy, efficiency, and coordination, drawing on past experience with international and nation-based results-based climate finance approaches such as REDD+ and Blue Carbon concepts engaging governments, communities and the private sector:

- In the context of the UNFCCC and the Paris Agreement, the REDD+ mechanism is promising because it is a fully developed tool that has already delivered close to nine gigatons of carbon reductions in just six years (UNFCCC 2021), and the restoration of forested land at a global scale remains among the most effective strategies for climate change mitigation (Bastin et al. 2019). REDD+ has the potential to slow, stop and reverse forest loss globally. REDD+ should be expanded and applied universally to blue carbon ecosystems as well as ocean carbon stocks more broadly, with the right conditions attached (Golden et al. 2017; Cisneros-Montemayor et al. 2021).
- Both forests and the ocean provide “renewable” resources (e.g. timber and fish) at various time and spatial scales, and both are critical for biodiversity, human health and the livelihoods of billions of people. Forests and the ocean are two of the largest carbon sinks on Earth; forest carbon stocks exceed all known fossil fuel reserves (Loustau 2010), and ocean sediments are the largest carbon stock on the planet.
- Challenges will be faced in Areas Beyond National Jurisdiction (ABNJ) in the ocean, but we note that expanded international governance systems in the ABNJ are currently being considered by the Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction (UN, n.d.) for the water column, and could be treated through the International Seabed Authority for the ocean floor in the ABNJ.



- Ocean/coastal Blue Carbon solutions based on mangroves are already being integrated into enhanced national contributions to addressing climate change, and benefit from science-based verification mechanisms as well as from trading opportunities when and as carbon prices rise and provide the necessary incentives for decarbonization and carbon removal from the atmosphere. However, further ocean-based carbon reduction and marine protection formats need to be established with urgency, and existing formats and projects need to be de-risked and scaled up. This will require consideration of both the Exclusive Economic Zones (EEZs) of countries and in the ABNJ, as noted above.
- Forests and oceans are currently in a degraded state, but as we begin the United Nations Decade on Ecosystem Restoration, they can still be restored with the right policies, institutions and instruments so that they can provide significantly greater environmental and socio-economic benefits. Coastal Blue Carbon, comprising mangroves, seagrasses and saltmarshes, is among the most effective carbon sinks, yet is at continued risk of degradation (Claudet et al. 2021).
- G20 governments can take policy and regulatory leadership and help to facilitate private sector engagement into projects to better manage carbon in the landscape, coastscape and seascape, both through direct support and blended finance, through risk reduction concepts (Surminski et al. 2020), and by supporting public development banks and other actors. There are also lessons from the development of REDD+ related to the role of government regulation and private sector voluntary efforts that may be applied more widely, including to ocean ecosystems.
- By better accounting for the value of the goods and services that forests and the ocean provide to society, it will become possible to achieve a more equitable distribution of access and benefits from forest and ocean use. Inequity is a systemic feature of the current ocean economy, and is only worsened in developing countries, regions and communities as a result of climate change (Osterblom et al. 2020). Taking account of the profound social challenges, or risk of exacerbating current inequities will build the economic case and political legitimacy for the needed transformations to conserve and restore forests and ocean ecosystems (Bennett et al. 2019).
- All rules for the implementation of the Paris Agreement, including in particular Art. 6 mechanisms, need be completed in 2021 (at COP26 in Glasgow), and these concepts need to be fully applicable for ocean carbon ecosystems.
- We propose to set up a knowledge hub, including a register of forest- and ocean-related commitments (esp. conservation, protection, and green and blue carbon accounting and reduction). The focus needs to be on nature-based solutions to sequester and store carbon and help with adaptation, solutions that produce large co-benefits for biological diversity and ecosystem resilience and the services on which the inhabitants and users of forests, coasts and oceans depend for their survival and livelihoods.



- Mobilizing capital for results-based finance (World Bank 2017) must be supported through better communication of the relevant natural and social science. We have seen positive developments in private finance, where individuals (and some institutional investors) are increasingly willing to align their investments to creating or supporting business models that create or maintain sustainable patterns of production, trade, consumption, and lifestyles that respect the UN Sustainable Development Goals (SDGs) as well as planetary boundaries.
- In that context, nature-based solutions increasingly find investments (Carbon Market Institute 2021), and there is record issuance and growth in “green”, “blue”, “climate”, “sustainable”, or (social) “impact” bonds as well as an increase in the number and ambition of corporate pledges to become “net zero carbon”, which entails greater demand for carbon offsets.
- The REDD+ and Blue Carbon Mechanisms, while they focus on carbon, have to be geared to address co-benefits for biological diversity and the well-being for the billions of people in communities that depend on forests or oceans, recognizing secure tenure rights and equitable access to forests and ocean ecosystems (such as fisheries) (FAO 2012).
- A G20 Ocean Task Force should be formed on the nexus of finance, economics, governance (including investment) and the ocean (including restoration of marine ecosystems), and on promoting valuation and accounting for blue natural capital and ecosystem services, based on the System of Environmental-Economic Accounting – Ecosystem Accounting (SEEA Ecosystem Accounting) just adopted by the UN Statistical Commission (UN StatCom 2021). Particular attention should be paid to governance in the ABNJ (UN2, n.d.).
- Consistent taxonomy, measurement and reporting from the corporate and financial sector is critical (Sumaila et al. 2021). G20 governments, ministers of finance and regulators of the finance sector should ensure that all companies must disclose the impact they have on natural resources and the impact the destruction of natural resources will have on their viability. This can be done by giving prominence, political weight and eventually legal force to standard and efforts like the “EU Taxonomy for Sustainable Activities”, the “Taskforce on Climate-Related Financial Disclosures”, the “Taskforce on Nature-Related Financial Disclosures” and “The Taskforce of Scaling the Voluntary Carbon Markets”.
- The new “Taskforce for Nature-related Financial Disclosures (TNFD)” will need to play a key role in delivering a framework that will serve as a mechanism to help organizations understand, disclose and manage the financial risks and opportunities associated with the deteriorating state of nature and a transition to an economy consistent with meeting future nature-related international agreements such as the UN Convention on Biological Diversity (CBD) and the ambitions set out in its forthcoming “Post-2020 Global Biodiversity Framework”.



- UN StatCom (2021) provides an approach for holistic socio-economic valuation that integrates climate mitigation, adaptation, resilience, biodiversity and local livelihood components into investable natural capital asset classes.
- The G20 should encourage the International Monetary Fund as well as central banks and financial regulators to build on existing steps to further incorporate climate change risks and biodiversity risk (Thiele 2021) into macroeconomic assessments and monetary policy action apply appropriate assessment tools (DNB and PBL 2020; McKinsey 2020; NCF 2021; SASB 2021; WEF 2020).
- These can have significant impact on the allocation of capital if implemented with integrity and aligned with the UNFCCC Paris Agreement and UN Convention on Biodiversity (CBD) post-2020 Framework. The recent joint IPCC-IPBES report (Pörtner et al. 2021) sets out the science for guiding integrated climate and biodiversity finance. This is critical for private sector finance, including through mandatory climate risk reporting for banks, investors and companies. For the development of carbon markets recognized GHG crediting programs with robust procedures are needed to reduce the risk of purchasing credits that are not additional or real.
- The Global Stocktake mechanism offers an opportunity for informing and raising the ambition of countries' NDCs (Schindler et al. 2021). This needs to be accompanied by a commitment to increasing financing for the UNFCCC Green Climate Fund (GCF) as part of delivering on the US\$100 billion per year commitment made to developing countries.
- An international ocean trust fund should be created to support planning, restoration and protection and a sustainable blue economy including blue carbon. This should be based on a global ocean equity tax mechanism (Österblom et al. 2020), reflecting high concentration of revenue in the ocean economy (Viridin et al. 2021).
- Immediate and urgent actions should be taken to fulfill the promise of the Paris Agreement to “provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention” (Article 9.1 Paris Agreement); To date, this funding has been insufficient (Vivid Economics 2020), and this is undermining the response of the poorest countries in combating climate change and promoting a carbon neutral society.
- Promote the implementation of the REDD+ Mechanism as designed by the international community to “slow, halt and reverse forest cover and carbon loss” (UNFCCC 2010). More specifically:
 - Provide the funding required by rainforest nations to:
 - A. build the capacity to establish forest monitoring systems and measure, report and verify GHG emissions from the forestry sector;



- B. implement REDD+ activities as indicated in their national strategies and forest reference levels (FRLs).
- Promote the REDD+ Mechanism in businesses or private sector initiatives like the Taskforce on Scaling Voluntary Carbon Markets as the only emissions reduction crediting standard recognized in the Paris Agreement used to preserve and restore rainforests:
 - Recognizing current budget constraints and rising demand for high quality carbon offsets as more businesses make net-zero pledges;
 - Ensure that the bi- and multi-lateral official funding for rainforest preservation is used to support the COP negotiated and Paris Agreement REDD+ mechanism without prejudice;
 - Support efforts that seek to provide the private sector access to the national scale emission reductions generated from national scale REDD+ programs;
 - Increase the use of REDD+ Results in national, regional and sub-national carbon pricing initiatives (cap-and-trade and carbon taxes).
 - Coordinate policies to end trade in commodities from lands that were illegally deforested, without creating undue economic hardships on rainforest nations. The G20 should take the lead and catalyze investments in sustainable agriculture and forestry practices.
 - Integrate low-carbon development and investments in nature-based solutions in their COVID-19 rescue and recovery measures, including new or updated NDCs and long-term mitigation strategies.
 - The G7 (2021), through the Nature Compact 2030, have committed to increasing their finance contributions for nature-based solutions through to 2025. The G7 leaders are also encouraging all Multilateral Development Banks (MDBs), International Finance Institutions and Development Finance Institutions (DFIs) to embed nature into their analysis, policy dialogue and operations and the G20 should support this effort with additional capital for those institutions that are leading in meeting this challenge. Additional contributions to the Adaptation Fund and increased funding for the Global Environment Facility as well as bilateral support for climate action in developing countries, especially for adaptation and resilience are also required.
 - Ending subsidies for activities that deplete and destroy natural capital is also important, and they provide win-win-win solutions. Abolishing such subsidies and other privileges such as tax exemptions or lower taxation, or caps and waivers on liability directly reduces current and future fiscal expenditure and thus creates “fiscal space”



to meet other challenges (including a reduction of public debt). Subsidy reform would also, over time, obviate the need for remedial expenditure (by other government departments or private actors) to address the consequences of environmental degradation, and thus free up capital for more productive use. Finally, there are the obvious environmental and climate benefits from accelerating the transition for non-sustainable towards increasingly sustainable economic activities.



CONCLUSION

The financial investment urgently required into nature, including into key ecosystems such as forests and the ocean, is significant (Basu 2020). The G20 has a solution for forests: the REDD+ Mechanism. Over 50 governments are working on REDD+ programs and the UN-FCCC has recognized close to 9 billion tons of emissions reductions. With private sector demand for carbon offsets expected to rise over 2 billion by 2030 (TSVCM 2021) funding to pay for these efforts is on the horizon. The G20 can and should give recognition and support to this emission reduction mechanism that is clearly designed to “slow halt and reverse” deforestation and is formalized in Article 5 of the Paris Agreement.

The experience with REDD+ and the expertise increasingly gained with blue carbon³ and blue infrastructure finance (Thiele et al. 2020) means that we have two such opportunities right ahead of us. It is crucial that the G20 use its capacity to direct financing into the rapid and robust use of these vital nature-based solutions. This means in particular that increased funding and strategies for Paris Agreement alignment need to expressly target these approaches. By integrating them in particular into the much larger finance flows for infrastructure, led by MDBs, consistent and effective implementation can be facilitated.

Supportive engagement from donor nations, both in terms of direct funding for relevant mechanisms and in terms of support for relevant finance and governance actions, be it through public development banks or climate finance mechanisms such as the Green Climate Fund or Article 6 implementation following final agreement on its rules at COP26. Only by scaling up and including the private sector into coherent finance approaches that comprehensively target nature-based solutions can we move the dial on climate change. The G20 has a key role to play here to make sure the COP26 agreement optimizes the use of these financing mechanisms.

Our **Key Overall Recommendation** is that G20 should act, but that the G20 should not act alone, and that individual G20 government should not wait until the whole G20 agrees. By combining the necessary transition to emission-free renewable energy along with full implementation of the REDD+ Mechanism and a new “REDD+ Blue Carbon” Mechanism and other mechanisms such as regenerative agriculture, we can expect positive results as we struggle to limit global warming and deal with its effects.



NOTES

¹“Blue Carbon” here refers to approaches to account for and manage the climate change impacts of carbon associated with the ocean.

²See for example the Global Ocean Accounts Partnership <https://www.oceanaccounts.org/>

³See, for instance: <https://bluecarbonpartnership.org/>



REFERENCES

- Appleton A., and E. Recio, (2018), "Summary of the Lisbon Workshop on Blue Natural Capital: 3-4 October 2018", *Blue Natural Capital Bulletin*, vol. 228, no. 6, 7 October <https://enb.iisd.org/download/pdf/sd/enbplus228num6e.pdf>
- Bastin J.-F. et al., (2019), "The global tree restoration potential", *Science*, vol. 365, issue 6448, pp. 76-79 <https://science.sciencemag.org/content/365/6448/76.full>
- Basu M., (2020), "Investing \$1.8 trillion globally in five areas to adapt to climate change can bring \$7.1-trillion worth benefits", *MEAWW*, 25 March <https://meaww.com/climate-change-adaptation-investing-1-8-trillion-adapt-climate-change-benefits-7-1-trillion>
- Bennett N.J. et al., (2019), "Just transformations to sustainability", *Sustainability*, vol. 11, no. 3881
- Carbon Market Institute, (2021), "Nature-based Investment in the Asia-Pacific Region", Scoping Study, June
- Cisneros-Montemayor A.M. et al., (2021), "Enabling conditions for an equitable and sustainable blue economy", *Nature*, vol. 591, no. 7850, pp. 396-40 <https://doi.org/10.1038/s41586-021-03327-3>
- Claudet J., Y. Malhi, N. Ban, J. Blythe, S. Jupiter, E. Mcleod, N. Seddon, T. Thiele, and L. Wedding, (2021), *Transformational Opportunities in Deploying Biodiversity Conservation Initiatives and Nature-Based Solutions to Address Climate Change in Marine Ecosystems French Polynesia: Blue Climate Initiative*, Tetiaroa Society, Blue Climate Initiative (BCI), <https://doi.org/10.5281/zenodo.4549895>
- Dasgupta P., (2021), "The Economics of Biodiversity", *The Dasgupta Review*, London, HM Treasury
- De Nederlandsche Bank (DNB) and PBL Netherlands Environmental Assessment Agency, (2020), *Indebted to nature, Exploring biodiversity risks for the Dutch financial sector* <https://www.pbl.nl/en/publications/indebted-to-nature>
- Deutz A. et al., (2020), *Financing Nature: Closing the global biodiversity financing gap*, The Paulson Institute, The Nature Conservancy, and the Cornell Atkinson Center for Sustainability <https://www.paulsoninstitute.org/key-initiatives/financing-nature-report/>
- Food and Agricultural Organization (FAO), (2012), *The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*, Rome, FAO
- Fenichel E.P. et al., (2020), "Modifying national accounts for sustainable ocean development", *Nature Sustainability*, vol. 3, pp. 889-95
- G7, (2021), "G7 2030 Nature Compact", Cornwall <https://www.consilium.europa.eu/media/50363/g7-2030-nature-compact-pdf-120kb-4-pages-1.pdf>
- Golden J.S. et al., (2017), "Making sure the blue economy is green", *Nature Ecology*



gy & Evolution, vol. 1, no. 0017, <https://doi.org/10.1038/s41559-016-0017>

International Union for Conservation of Nature (IUCN), *Governing areas beyond national jurisdiction*, IUCN Issues Brief www.iucn.org/resources/issuesbriefs/governing-areas-beyond-national-jurisdiction

Kraemer R.A., (2017), *Sustainable Ocean Economy, Innovation and Growth: A G20 Initiative for the 7th Largest Economy in the World*, Centre for International Governance Innovation, Policy brief no. 113, July https://www.cigionline.org/sites/default/files/documents/PB%20No.113WEB_0.pdf

Loustau D., (2010), *Forests, carbon cycle and climate change, Collection Update Science Technologies*, Versailles, Éditions Quae, ASIN B005W9Q82S

Mansouri N.Y. et al., (2020), *Nature-Based Solutions to Climate Change: Towards a Blue Carbon Economy Future*, Policy brief, Task Force 2 - Climate Change and Environment, T20 Saudi Arabia https://t20saudi-arabia.org.sa/en/briefs/Documents/T20_TF2_PB6.pdf

McKinsey, (2020), *Valuing nature conservation. A methodology for quantifying the benefits of protecting the planet's natural capital*, 22 September <https://www.mckinsey.com/business-functions/sustainability/our-insights/valuing-nature-conservation>

Natural Capital Finance Alliance (NCFA), (2021), "Exploring Natural Capital Opportunities, Risks and Exposure", interactive web site at <https://encore.naturalcapital.finance/en>

Österblom H., C.C.C. Wabnitz, D. Tladi et al., (2020), *Towards Ocean Equity*, Washington DC, World Resources Institute www.oceanpanel.org/how-distribute-benefits-ocean-equitably

Pörtner H.O. et al., (2021), *H.TIPBES-IPCC co-sponsored workshop report on biodiversity and climate change; IPBES and IPCC*, IPBES, Scientific Outcome produced by participants in the first-ever IPCC-IPBES co-sponsored workshop which took place in December 2020, 10 June doi:10.5281/zenodo.4782538; <https://zenodo.org/record/5101125#.YTjSvJ0zY2w>

Sustainability Accounting Standards Board (SASB), (2021), "Materiality Map", Value Reporting Foundation SASB Standards <https://www.sasb.org/standards-overview/materiality-map/>

Schindler M.L., V. Romero, and D. Herr, (2021), *Unpacking the UNFCCC Global Stocktake for Ocean-Climate Action*, IUCN, Rare, Conservation International, WWF, and Ocean & Climate Platform

Seymour F. and N.L. Harris, (2019), "Reducing tropical deforestation", *Science*, vol. 365, issue 6455, pp. 756-57 <https://science.sciencemag.org/content/365/6455/756.full>

Sumaila U.R. et al., (2021), "Financing a sustainable ocean economy", *Nature Communications*, vol. 12, no. 3259 <https://www.nature.com/articles/s41467-021-23168-y.pdf>

Surminski S., E. Takáts, T. Thiele, and K. Rodriguez, (2020), "A New Path on Climate Change, Oceans and Financial Risks", in *A New Policy Paradigm for the Post-COVID World. Proposals for change from the Mar-*



Yam Forum platforms, London, London School of Economics, pp. 19-21 https://issuu.com/g20magazine/docs/maryam_forum_ebook_january_2021

Thiele T. (2021), *The Financial System Meets Environmental Protection*, ISPI Commentary, ISPI, 10 June <https://www.ispionline.it/it/pubblicazione/financial-system-meets-environmental-protection-30778>

Thiele T., G. Alleng, A. Biermann et al., (2020), "Blue Infrastructure Finance: A new approach. integrating Nature-based Solutions for coastal resilience", IUCN and Blue Natural Capital Financing Facility (BNCFF), March

Taskforce On Scaling Voluntary Carbon Markets (TSVCM), (2021), "Public Consultation Report", 21 May <https://www.iif.com/tsvcm>

UN StatCom, (2021), "System of Environmental-Economic Accounting – Ecosystem Accounting: Final Draft" <https://seea.un.org/content/ecosystem-accounting>

United Nations, (2021), *Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction* <https://www.un.org/bbnj/>

UNFCCC, (2010), "The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, Decision 1/CP.16 Section C, preamble", FCCC/CP/2010/7/Add.1

UNFCCC, (2021), REDD+ web platform <https://redd.unfccc.int/>

Viridin J. et al., (2021), "The Ocean 100: Transnational corporations in the ocean economy", *Science Advances*, vol. 7, no. 3 <https://advances.sciencemag.org/content/7/3/eabc8041>

Vivid Economics, (2020), *Transformative Climate Finance. Report*, p. 172 <https://www.vivideconomics.com/wp-content/uploads/2020/06/Vivid-Economics-2020-Transformative-Climate-Finance.pdf>

World Economic Forum (WEF), (2020), *Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy*, January http://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf

World Bank, (2017), *Results-Based Climate Finance in Practice: Delivering Climate Finance for Low-Carbon Development* <https://openknowledge.worldbank.org/bitstream/handle/10986/26644/115053-WP-PUBLIC-111p-RBCFinPracticeFinalMay.pdf?sequence=1&isAllowed=y>



ABOUT THE AUTHORS



Paul De Noon Coalition for Rainforest Nations, New York NY (USA)

Director of Policy at the Coalition for Rainforest Nations, he has 36 years of business experience in institutional investment as well as in finance and macroeconomic research.



R. Andreas Kraemer Ecologic Institute, Berlin (Germany)

Founder and Chairman of Ecologic Institute, he teaches at Duke University and the EADA Business School, and serves as Director of the Oceano Azul Foundation.



Leonardo Massai Coalition for Rainforest Nations, New York NY (USA)

Senior Advisor to the Coalition for Rainforest Nations, he has 20 years of experience on international environmental law, climate change mitigation and adaptation, forestry, human rights and carbon markets.



Michael Orbach Duke University, Durham, North Carolina (USA)

Professor of the Practice Emeritus of Marine Policy of Duke University; his research and coastal and marine policy work covered all coasts of the U.S. as well as Mexico, Central America, the Caribbean, Alaska and the Pacific.



Nico Stelljes Ecologic Institute, Berlin (Germany)

Environmental scientist and Fellow at Ecologic Institute where he coordinates research and policy work in coastal and marine studies, including on sustainable blue economy.



Torsten Thiele Institute for Advanced Sustainability Studies, Potsdam (Germany)

Senior Research Associate at the Institute for Advanced Sustainability Studies, he is also the Founder of Global Ocean Trust, and Senior Advisor to the IUCN Blue Natural Capital Financing Facility.



John Virdin Duke University, Durham, South Carolina (USA)

Director of the Ocean Policy Research Program at Duke University's Nicholas Institute for Environmental Policy, and also teaches at the university.