
GAPS AND OPPORTUNITIES FOR SYNERGIES IN INTERNATIONAL ENVIRONMENTAL LAW ON CLIMATE AND BIODIVERSITY TO PROMOTE THE SUSTAINABLE DEVELOPMENT GOALS

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1 Introduction

The Sustainable Development Goals (SDGs)⁵ represent a new mode of governance through shared goals instead of legally binding international agreements.⁶ Nevertheless, global action is required as the sustainability challenges transcend national boundaries. This is particularly true for global environmental commons that make

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⁵ 'Transforming our world: the 2030 Agenda for Sustainable Development', UNGA Res. 70/1 of 25 September 2015.

⁶ Frank Biermann, Norichika Kanie, and Rakhyun E Kim, 'Global Governance by Goal-Setting: The Novel Approach of the UN Sustainable Development Goals', 26 *Current Opinion in Environmental Sustainability* (2017) 26–31.

up the stock of global natural capital and sustain life on Earth. International law recognizes four specific areas of global commons that fall outside of any national jurisdiction: the high seas, the atmosphere, Antarctica and outer space. In the context of sustainable development, other commons which may lie within national or regional jurisdictions, but whose continuing existence confers benefits beyond them, are often mentioned: the tropical rain forests, land and biodiversity.⁷

Although the environmental dimension has been deemed as the main priority for ensuring sustainable development in the long run,⁸ the global environmental commons are currently deteriorating at an unprecedented rate, and the impacts are felt across borders⁹ – unevenly across the world.¹⁰ Moreover, SDG 13 (climate action), 14 (life under water) and 15 (life on land) are expected to be further affected by progress on the socio-economic SDGs in a business-as-usual scenario.¹¹ The required action to reverse the negative trends also includes cooperation through appropriate international legal frameworks.¹²

The global environmental commons are intrinsically linked. For instance, biodiversity is affected by climate change, with negative consequences for human well-being. At the same time, biodiversity, through the multiple ecosystem services it supports, also makes important contributions to both climate-change mitigation and adaptation.¹³ Consequently, conserving and sustainably managing biodiversity is critical for addressing climate change, and vice versa. In order to harness the synergies and achieve cost-effective action in safeguarding the global commons and to reverse their deterioration, these interactions need to be better understood and accounted for in actions spanning multiple scales.

⁷ Independent Group of Scientists Appointed by the Secretary-General (IGS), ‘Global Sustainable Development Report 2019: The Future Is Now – Science for Achieving Sustainable Development’ (2019), available at <<https://sustainabledevelopment.un.org/globalsreport/2019#home>> (visited 29 May 2020).

⁸ David Griggs et al, ‘Sustainable development goals for people and planet’, 495(7441) *Nature* (2013) 305–307.

⁹ Independent Group of Scientists Appointed by the Secretary-General (IGS), ‘Global Sustainable Development’, *supra* note 7.

¹⁰ UN Environment, ‘Global Environment Outlook GEO-6: Summary for Policymakers’ (2019), available at <https://wedocs.unep.org/bitstream/handle/20.500.11822/27652/GEO6SPM_EN.pdf?sequence=1&isAllowed=y> (visited 29 May 2020).

¹¹ Randers, Jorgen, et al, ‘Achieving the 17 Sustainable Development Goals within 9 planetary boundaries’, 2 *Global Sustainability* (2019) e24, 1–11.

¹² Malgorzata Blicharska et al, ‘Biodiversity’s Contributions to Sustainable Development’, 2 *Nature Sustainability* (2019) 1083–1093. ‘Gaps in international environmental law and environment-related instruments: towards a global pact for the environment’, Report of the UN Secretary-General, UN Doc. A/73/419 (2018).

¹³ Blicharska et al, ‘Biodiversity’s Contributions to’, *supra* note 13; Secretariat of the Convention on Biological Diversity: ‘Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change’ (2019), available at <<https://www.cbd.int/doc/publications/cbd-ts-41-en.pdf>> (visited 29 May 2020).

In general, it has been argued that achieving the SDGs requires knowledge about the interactions between different SDGs; i.e., how action to promote a specific goal or target supports or hinders the achievement of the other goals. Previous analysis has identified both trade-offs as well as synergies between efforts that intend to promote different goals.¹⁴ Though the SDGs are grounded in existing commitments expressed in various international agreements and soft law instruments,¹⁵ there is scarce explicit empirical analysis of how the interactions between different SDGs are addressed by the international legal framework, particularly international environmental law (IEL).¹⁶ Most international institutional arrangements tend to operate in relative isolation, and the potential of the SDGs, as ‘integrated and indivisible’, to introduce coherence remains an open question.¹⁷ At the same time, international law provides a normative context in which the SDGs and targets should operate and interact with each other – and hence the fragmented structure of IEL¹⁸ is likely to affect the trade-offs and synergies between various SDGs.¹⁹

In this paper, we focus on the interactions between climate action (SDG 13) and halting (terrestrial) biodiversity loss (SDG 15) vis-à-vis the international legal framework; in particular, the relevant major legal instruments: the United Nations Framework Convention on Climate Change (UNFCCC)²⁰ and the Convention on Biological Diversity (CBD).²¹ First, we review the drivers of climate change and biodiversity loss and identify actions that would likely harness synergies in efforts to promote SDGs 13 and 15 based on existing literature (section 2). An analytical framework, including a set of focus areas and related keywords, is derived from the review. The UNFCCC and CBD are then analyzed for their potential to support harnessing those synergies, as well as the extent to which they address potential trade-offs between SDGs 13 and 15 (section 3). Our focus is on the global goals at the level of their main intent (i.e., halting biodiversity loss and climate change), although we also make some reference to interactions at the level of specific targets under the SDGs.

¹⁴ International Council for Science (ICSU), ‘A Guide to SDG Interactions: From Science to Implementation’ (2017), available at <<http://www.icsu.org/cms/2017/05/SDGs-Guide-to-Interactions.pdf>> (visited 19 December 2019); Måns Nilsson, Dave Griggs, and Martin Visbeck, ‘Map the Interactions between Sustainable Development Goals’, 534 *Nature News* (2016) 320-322; IGS, ‘Global Sustainable Development’, *supra* note 7.

¹⁵ Rakhyun E. Kim, ‘The Nexus between International Law and the Sustainable Development Goals’, 25 *Review of European, Comparative & International Environmental Law* (2016) 15–26.

¹⁶ But see: Mara Ntona and Elisa Morgera, ‘Connecting SDG 14 with the Other Sustainable Development Goals through Marine Spatial Planning’, 93 *Marine Policy* (2017) 214-222; Dona Azizi, Frank Biermann, and Rakhyun E. Kim, ‘Policy Integration for Sustainable Development through Multilateral Environmental Agreements: An Empirical Analysis, 2007–2016’, 25 *Global Governance: A Review of Multilateralism and International Organizations* (2019) 445–75.

¹⁷ Kim, ‘The Nexus between’, *supra* note 15.

¹⁸ UN Doc. A/73/419, *supra* note 12.

¹⁹ Kim, ‘The Nexus between’, *supra* note 15.

²⁰ United Nations Framework Convention on Climate Change, New York, 9 May 1992, in force 21 March 1994, 31 *International Legal Materials* (1992) 849, <<http://unfccc.int>>.

²¹ Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 *International Legal Materials* (1992) 822, <<http://www.biodiv.org>>.

The UNFCCC and the CBD are two of the conventions that opened for signatures at the Rio ‘Earth Summit’ in 1992. The CBD is the main international legal instrument addressing the conservation and sustainable use of biodiversity,²² ratified today by 196 parties.²³ The three overarching objectives of the Convention are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits from the utilization of genetic resources.²⁴ The UNFCCC also has nearly universal membership, ratified today by 197 parties. Its ultimate objective is the stabilization of greenhouse gas concentrations in the atmosphere ‘at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system’.²⁵ Together with the third Rio Convention, the Convention to Combat Desertification (CCD),²⁶ these Conventions are intrinsically linked at the outset. A Joint Liaison Group is to boost cooperation among the three Conventions and to develop synergies in their activities on issues of mutual concern.²⁷

Here, we analyze how those synergies are reflected in the CBD convention text,²⁸ Conference of Parties (COP) decisions, primarily those adopted after 2015 (the starting year of the Agenda 2030 and the SDGs), the Strategic Plan 2011-2020 and its Aichi targets,²⁹ as well as the Zero Draft of the new post-2020 Global Biodiversity Framework³⁰ published in January 2020. These documents reflect the most current status of the ongoing discussion on how to address drivers, potential trade-offs and co-benefits between SDGs 13 and 15 and how to promote synergies under the CBD. COP decisions on biodiversity and climate change that have been adopted before 2015 were taken into account additionally.³¹ Key UNFCCC agreements and relevant COP decisions were analyzed in parallel. The focus was on a large set of COP decisions that addressed land use, land-use change and forestry, including the most recent decisions on agriculture. Additionally, decisions taken at the last two Climate COPs in Katowice (December 2018) and Madrid (December 2019), including those serving as the meetings of the Parties under the Kyoto Protocol³² and

²² UN Doc. A/73/419, *supra* note 12.

²³ Convention on Biological Diversity (CBD), ‘List of parties’, available at <<https://www.cbd.int/information/parties.shtml>> (visited 1 October 2020).

²⁴ Article 1 of the CBD.

²⁵ Article 2 of the UNFCCC.

²⁶ United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and or Desertification, Particularly in Africa, Paris, 17 June 1994, in force 26 December 1996, 33 *International Legal Materials* (1994) 1309, <<http://www.unccd.int>>.

²⁷ UNFCCC, ‘The Joint Liaison Group’, available at <<https://unfccc.int/about-us/about-the-secretariat/the-joint-liaison-group>> (visited 29 April 2020).

²⁸ CBD, ‘Text of the Convention’, available at <<https://www.cbd.int/convention/text/>> (visited 20 April 2020).

²⁹ ‘The Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets’, CBD Dec. 10/2 (2011).

³⁰ CBD, WG2020-02 documents, available at <<https://www.cbd.int/conferences/post2020/wg2020-02/documents>> (visited 20 April 2020).

³¹ All CBD COP decisions can be accessed through <<https://www.cbd.int/decisions/cop/>>.

³² Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto, 11 December 1997, in force 16 February 2005, 37 *International Legal Materials* (1998) 22.

under the Paris Agreement,³³ were assessed. The overarching UNFCCC agreements included were the Convention itself, the Kyoto Protocol, the Copenhagen Accord³⁴ and the Paris Agreement.

Concurrently, we analyze how the interactions between SDGs 13 and 15 are addressed in the context of the United Nations Environment Assembly (UNEA)³⁵ in section 4. UNEA was created at the United Nations Conference on Sustainable Development ('Rio+20') in 2012, when world leaders called for United Nations Environment Programme (UNEP)³⁶ to be strengthened and upgraded.³⁷ It is considered to be the world's highest-level decision-making body on the environment, with the specific role in setting the global environmental agenda and providing overarching policy guidance and defining policy responses to address emerging environmental challenges.³⁸ Though UNEA outcomes – resolutions, decisions and Ministerial declarations – are not international legal instruments, they constitute the outcome of a global political process which is part of the institutional architecture for international environmental governance. This consists of a decentralized web of multilateral institutions, agreements, processes and consultative mechanisms that address environmental and environment-related matters within the broader context of sustainable development.³⁹ Consequently, UNEA outcomes can be considered a complementary source of guidance within the international environmental policy context. In particular, UNEA outcomes influence UNEP which is responsible for supporting governments to develop and implement multilateral environmental agreements (MEAs), fostering collaboration between different intergovernmental environmental institutions, and supporting the science-policy interface.

The outcome documents of the past four UNEA sessions are analyzed in a chronological order to understand the evolution of attention to drivers and SDG interactions in the international discussion, since UNEA-1 held in June 2014 until UNEA-4 held in March 2019 (UNEA-2 and UNEA-3 were held respectively in May 2016 and December 2017). A list of all analyzed CBD, UNFCCC and UNEA documents can be found in Annex 1 of this paper.

In the following sections of this paper, we thus address the questions:

1. What are the drivers behind climate change and biodiversity loss, and what kind of actions would be likely to create co-benefits for SDGs 13 and 15?

³³ Paris Agreement to the United Nations Framework Convention on Climate Change, Paris, 12 December 2015, in force 4 November 2016; 55 *International Legal Materials* (2016) 740.

³⁴ 'Copenhagen Accord', UNFCCC Dec. 2/CP.15 (2009).

³⁵ See <<https://environmentassembly.unenvironment.org/>>.

³⁶ See <<https://www.unenvironment.org/>>.

³⁷ 'The future we want', UNGA Res. 66/288 of 27 July 2012, para. 88.

³⁸ 'Delivering on the 2030 Agenda for Sustainable Development', UNEA Res. 2/5 (2016).

³⁹ 'Relationship between the United Nations Environment Programme and multilateral environmental agreements', UNEA Doc. UNEP/EA.1/INF/8 (2014).

2. How do the key international legal instruments, UNFCCC and CBD, currently address the common drivers of climate change and biodiversity loss? Can potential to support co-benefits for climate and biodiversity action be identified, and how are potential trade-offs between advancing the two goals addressed? Which synergetic aspects are currently not addressed in these instruments?
3. How are interactions between SDGs 13 and 15 addressed in the outcome documents of UNEA? Do they emphasize new or different aspects with regard to interactions, compared to the CBD and UNFCCC?

2 Understanding interactions: drivers of climate change and biodiversity loss

Though climate and biodiversity are interlinked in numerous ways, we focus on a particular angle of investigation that allows us to explore synergies and trade-offs between SDGs 13 and 15 in IEL: the fundamental drivers that contribute to both climate change and terrestrial biodiversity loss at the global level. These drivers are increasingly well-understood and, despite being complex and interlinked, there is considerable scientific consensus on them.⁴⁰ Likewise, there is mounting evidence of the type of actions with potential to produce co-benefits for climate efforts and biodiversity conservation.⁴¹

Biological diversity comprises genetic, species and ecosystem diversity,⁴² underpinning the functioning of ecological systems and human well-being. There is scientific consensus that globally, biodiversity is being lost at an unprecedented rate,⁴³ and the five targets of SDG 15 with a timeline to 2020 (15.1, 15.2, 15.5, 15.8 and 15.9; see below) have mostly seen little or insufficient progress, making them likely to be missed.⁴⁴ The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)⁴⁵ has identified the direct drivers with the largest global impact on biodiversity (starting with those with most impact): changes in land and

⁴⁰ Naomi Oreskes, 'The Scientific Consensus on Climate Change: How Do We Know We're Not Wrong?' in Elisabeth A. Lloyd and Eric Winsberg (eds), *Climate Modelling: Philosophical and Conceptual Issues*, (Springer International Publishing, 2018) 31–64; Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 'Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services' (2019), available at <<https://www.ipbes.net/document-library-catalogue/summary-policymakers-global-assessment-report-biodiversity-ecosystem>> (visited 30 May 2020).

⁴¹ See, for instance, Kristen E. Dybala et al, 'Optimizing Carbon Storage and Biodiversity Co-Benefits in Reforested Riparian Zones', 56 *Journal of Applied Ecology* (2019) 343–53; Hong-Mei Deng et al, 'Co-Benefits of Greenhouse Gas Mitigation: A Review and Classification by Type, Mitigation Sector, and Geography', 12 *Environmental Research Letters* (2017) 123001; Brett A. Bryan et al, 'Designer Policy for Carbon and Biodiversity Co-Benefits under Global Change', 6 *Nature Climate Change* (2016) 301–305.

⁴² Article 2 of the CBD.

⁴³ IPBES, 'Summary for Policymakers', *supra* note 40.

⁴⁴ UN, 'The Sustainable Development Goals Report 2020' (2020), available at <<https://unstats.un.org/sdgs/report/2020/The-Sustainable-Development-Goals-Report-2020.pdf>> (visited 1 October 2020).

⁴⁵ See <<https://ipbes.net/>>.

sea use (causing habitat change, loss and degradation⁴⁶); direct exploitation of organisms; climate change; pollution; and invasion of alien species.⁴⁷

Those direct drivers result from an array of underlying, indirect drivers that include production and consumption patterns, human population dynamics and trends, trade, technological innovations and local through global governance. Agricultural expansion has had the most significant effect on land-use change, along with rapid urbanization and expansion of infrastructure, linked to growing population and consumption. These dynamics support the notion that SDG interactions need to be accounted for to make progress on or to achieve the SDGs. Climate change is a direct driver of biodiversity loss, linked to many of the same underlying drivers mentioned above and compounding the effects of the other drivers.⁴⁸ Hence, the drivers of biodiversity loss are complex, multiple and interlinked. Many of the threats, as well as the habitats, ecosystems or species to which they apply, do not respect national boundaries or are found in areas beyond national jurisdiction.⁴⁹ For instance, international trade and consumption in developed countries drive biodiversity threats in developing countries.⁵⁰

Climate change is among the most important drivers of biodiversity loss. Thus, addressing the drivers of climate change will have indirect benefits for biodiversity – as long as the actions chosen to mitigate climate change do not imply trade-offs for biodiversity. Climate change is caused by anthropogenic greenhouse gas (GHG) emissions resulting from a similarly complex web of interacting drivers,⁵¹ including fossil-fuel combustion related to energy, industry and transportation as well as land use, land-use change, agriculture and forestry (addressed under SDGs 7, 9, 2 and 15, respectively, but also influenced by other SDGs). These, in turn, are driven by economic and population growth, consumption and international trade (addressed in particular under SDGs 8, 12 and 17).⁵² There is great regional variation in the GHG emission patterns. A considerable share of emissions in developing countries is released in the production of goods and services exported to developed countries.⁵³

An estimated 23 per cent of the total anthropogenic GHG emissions (2007-2016) derive from Agriculture, Forestry and Other Land Use (AFOLU). These net emissions are mostly due to deforestation, partly offset by afforestation/reforestation, and

⁴⁶ UN Environment, 'Global Environment Outlook', *supra* note 10.

⁴⁷ IPBES, 'Summary for Policymakers', *supra* note 40.

⁴⁸ *Ibid.*

⁴⁹ UN Doc. A/73/419, *supra* note 12.

⁵⁰ Manfred Lenzen et al, 'International Trade Drives Biodiversity Threats in Developing Nations', 486 *Nature* (2012) 109–112.

⁵¹ Gabriel Blanco, Reyer Gerlagh, and Sangwon Suh, 'Drivers, Trends and Mitigation' in Edenhofer et al (eds), *Climate Change 2014, Mitigation of Climate Change: Working Group III Contribution to the IPCC 5th Assessment Report* (2014) 351–411.

⁵² UN Environment, 'Global Environment Outlook', *supra* note 11; Blanco et al, 'Drivers, Trends and', *supra* note 38.

⁵³ *Ibid.*

emissions and removals by other land use activities. Also changes in land conditions – such as degradation of soils, forests and peatlands as well as desertification – contribute to climate change.⁵⁴ Management of land and forests is particularly important as degradation and deforestation contribute to carbon sources, whereas when well-managed, they function as carbon sinks.⁵⁵

Thus, land use change and degradation contribute to both biodiversity loss and climate change, linked to many of the same interacting drivers. Land use change due to agricultural expansion is projected to increase, driven by population and income growth and changes in consumption patterns.⁵⁶ Conversely, addressing the drivers of land use change and land degradation has potential to create co-benefits for climate action and halting biodiversity loss.

The Intergovernmental Panel on Climate Change (IPCC)⁵⁷ has estimated synergies and trade-offs of climate change mitigation options for different SDGs. Mitigation options that target energy supply with bioenergy and large-scale hydropower (also contributing to SDG 7 on energy) may have trade-offs with SDG 15 due to increased demand for land for bioenergy crops and for dam construction. Those targeting energy demand (behavioural responses, energy efficiency etc.) and land-based mechanisms are largely characterized by synergies.⁵⁸ Such land-based options include limiting the demand for land through sustainable intensification of land-use practices, soil carbon sequestration, livestock and manure management, reduced deforestation, afforestation and reforestation, sustainable forest management, ecosystem and land restoration and changes towards less resource-intensive diets and reduced food waste.⁵⁹

In particular, conservation, restoration, sustainable management and use of forests is often emphasized when seeking co-benefits for the climate and biodiversity, as well as for other SDGs.⁶⁰ Reducing Emissions from Deforestation and Forest Degradation (REDD+),⁶¹ a mechanism developed by Parties to the UNFCCC, seeks

⁵⁴ Valérie Masson-Delmotte et al (eds), *Summary for policy-makers: Climate Change and Land. An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems* (IPCC, 2020), available at <https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM_Updated-Jan20.pdf> (visited 30 May 2020).

⁵⁵ See, for instance, Edward T. A. Mitchard, 'The Tropical Forest Carbon Cycle and Climate Change', 559 *Nature* (2018) 527–534; Lan Qie et al, 'Long-Term Carbon Sink in Borneo's Forests Halted by Drought and Vulnerable to Edge Effects', 8 *Nature Communications* (2017) 1966.

⁵⁶ Masson-Delmotte et al (eds), *Climate Change and Land*, *supra* note 54.

⁵⁷ See <<http://www.ipcc.ch>>.

⁵⁸ Allen et al (eds), *Summary for Policymakers: Global Warming of 1.5 C. An IPCC Special Report on the Impacts of Global Warming of 1.5 C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global* (IPCC, 2018), available at <https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf> (visited 30 May 2020) at 20. Figure SPM.4.

⁵⁹ *Ibid.*; Masson-Delmotte et al (eds), *Climate Change and Land*, *supra* note 54.

⁶⁰ Pia Katila et al, (eds) *Sustainable Development Goals: Their Impacts on Forests and People* (Cambridge University Press, 2019).

⁶¹ UNFCCC, 'REDD+ - Home', available at <<https://redd.unfccc.int/>> (visited 16 January 2020).

to mitigate climate change through results-based payments for carbon storage and enhancement from halting forest area loss and forest degradation, with incremental co-benefits for biodiversity and sustainable development. A large body of academic literature on the biodiversity co-benefits of climate change mitigation efforts focuses on the potential of REDD+ to deliver them.⁶² Yet, the co-benefits are not automatic but context-specific, depending on how the actions are carried out.⁶³ For instance, the impacts on biodiversity of large increases in forest cover would depend on the nature of the land affected, how it is afforested, and the tree species involved. It might also have negative impacts on biodiversity by displacing other land uses, with potential knock-on effects for a range of SDGs.⁶⁴

Kroll et al have found that the associations between SDGs 13 and 15 have strengthened in recent years (2017-2018), showing both clear trade-offs and synergies, but synergies are expected to increase slightly by 2030.⁶⁵ Three key targets of SDG 15 are directly linked to climate action: 15.1 on freshwater ecosystems, including forests and wetlands (which act as carbon sinks and could turn into carbon sources when degraded); 15.2 on sustainable forest management and halting net deforestation; and 15.3 on soil protection and restoration (which will support carbon storage in soil and ensure sufficient land for agriculture and biofuel production). Moreover, four other targets of SDG 15 can be affected by or support climate action under specific circumstances: 15.4 on mountain ecosystems (which will be affected by climate change, with particularly strong impacts on glacier ecosystems); 15.5 on protection of natural habitats (which will contribute to maintaining carbon sinks and may be affected by climate change); 15.8 on invasive species (whereby biofuel and forest plantations can introduce non-native species); and 15.9 on integrating ecosystem and biodiversity values into national and local planning (which will also lead to protection of carbon sinks). All these targets are also linked to climate adaptation as the protection, restoration and appropriate management of ecosystems will ensure resilience and will be much needed actions to adapt to climate change impacts. As the targets of SDG 13 are broadly defined around climate action for both adaptation and mitigation in fairly general terms, all of them are expected to interact with the aforementioned targets of SDG 15. This further justifies an approach that pays attention to the interactions primarily at the level of the goals instead of individual target interactions.

In sum, various land-based actions have potential to create synergies for climate action and halting biodiversity loss. However, the actual mechanisms need to be tailored to local conditions to attain co-benefits and to avoid trade-offs, and they need

⁶² Deng et al, 'Co-Benefits of Greenhouse', *supra* note 41.

⁶³ Wil de Jong et al, 'Synergies, Trade-Offs and Contextual Conditions Shaping Impacts of the Sustainable Development Goals on Forests and People' in Katila et al (eds), *Sustainable Development Goals*, *supra* note 46; Allen et al, *Summary for Policymakers*, *supra* note 44.

⁶⁴ Blicharska et al, 'Biodiversity's Contributions to', *supra* note 13.

⁶⁵ Christian Kroll, Anne Warchold, and Prajal Pradhan, 'Sustainable Development Goals (SDGs): Are we successful in turning trade-offs into synergies?', 5(1) *Palgrave Communications* (2019) 1-11.

to be adaptive.⁶⁶ At the same time, it is acknowledged that governing land requires approaches that better manage globalized flows of land-based resources and address power asymmetries between actors across scales and locations.⁶⁷

We also anticipate that international regulation that addresses the underlying drivers, such as global trade flows, production and consumption patterns (targeted by SDG 12), especially in developed and emerging economies, is highly relevant. Institutional and governance factors, such as policy coherence (SDG target 17.14), capacity-building (SDG target 17.9), promoting cross-sectoral and cross-jurisdictional integration and mainstreaming, adaptive management and strengthening the implementation of environmental laws and policies at various scales, are widely recognized to be crucial.⁶⁸

The following analysis of CBD, UNFCCC and UNEA is based on a thorough reading of the relevant documents, guided by the research questions and an analytical framework based on the above identified drivers and synergy-enhancing actions. This framework includes fossil fuels, climate change and land use change as direct drivers. These drivers will be particularly influenced in the future by the approach and extent of implementation of SDGs 2, 7, 13 and 15. Moreover, the framework includes indirect drivers, namely demographic and socio-cultural, economic and technological, and governance, corresponding to the IPBES categorization of indirect drivers.⁶⁹ These indirect drivers are expected to change in the future as a result of the implementation (or lack thereof) of the SDGs at large. We complemented the direct and indirect drivers in the analytical framework with keywords on key areas of intervention that allow for synergies or easily imply trade-offs: 1) agriculture, food security, food production and consumption (related to SDG 2); 2) biodiversity, ecosystems, environment and forests (most closely associated with SDG 15); 3) sustainable consumption and production (SDG 12); and 4) policy coherence.⁷⁰ Finally, the nature of the legal language used in association with the drivers and keywords and the implications of the relevant provisions (acknowledgement, concrete measure, tool or implementation mechanism) were assessed. While the presentation of the results in sections 3 and 4 focuses on the synergies, trade-offs and gaps, a more detailed analysis of how the direct and indirect drivers are addressed by CBD, UNFCCC and UNEA can be found in Annex 2 of the paper.

⁶⁶ IGS, 'Global Sustainable Development', *supra* note 7.

⁶⁷ *Ibid.*

⁶⁸ *Ibid.*; UN Environment, 'Global Environment Outlook', *supra* note 11; IPBES, 'Summary for Policy-makers', *supra* note 40.

⁶⁹ *Ibid.*

⁷⁰ Policy coherence was considered as particularly important for potential to enhance synergies, reflecting attention to interlinkages and the indivisibility of environmental, social and economic sustainability underlying Agenda 2030. In our analysis, it was understood to include vertical coherence across levels of governance, in addition to horizontal coherence across sectors.

3 CBD, UNFCCC and the potential to mitigate the drivers of climate change and biodiversity loss

3.1 CBD

3.1.1 Addressing direct and indirect drivers with potential for co-benefits

Concrete co-benefits of biodiversity conservation and climate change action are repeatedly pointed out through a variety of CBD COP decisions.⁷¹ The CBD COP of 2004 included ‘biodiversity and climate change’ as a cross-cutting issue under its work.⁷² Since then, *climate change* has been increasingly addressed under the CBD, both as a driver of and being driven by biodiversity loss.⁷³ To address interactions of climate change and biodiversity loss, Parties to the CBD are encouraged to integrate climate concerns in their National Biodiversity Strategies and Action Plans (NBSAPs), and biodiversity and ecosystem-based approaches into their Nationally Determined Contributions (NDCs) under the UNFCCC.⁷⁴ Voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction were adopted by COP14.⁷⁵ Most of the relevant legal documents and guidelines under the CBD have focused on contributions to adaptation, even though Aichi target 15 explicitly includes the ‘contribution of biodiversity to carbon stocks’ and of ecosystem restoration to climate change mitigation and adaptation.⁷⁶ Climate change is reflected in none of the SDG 15 targets or indicators, underlining the Agenda 2030 logic of expressing interdependency at the level of goals rather than of targets.

Preventing *land-use change* through the designation of networks of protected areas is one of the core aims of the CBD (Article 8). The scope of this essential tool is defined in Aichi Target 11 of the current Strategic Plan, which calls for conservation of ‘at least 17% of terrestrial and inland waters and 10% of coastal and marine areas, ... are conserved’ by 2020. This target is reflected in SDG target 15.1 which does not provide a percentage but refers to existing international agreements. In addition, Aichi Target 5 calls for halving and striving to completely reduce the loss of natural habitats and their degradation and fragmentation,⁷⁷ reflected in SDG target 15.3 (‘By 2030, (...) strive to achieve a land degradation-neutral world.’)

⁷¹ CBD, ‘Climate change and biodiversity: background’ (2017), available at <<https://www.cbd.int/climate/background.shtml>> (visited 28 March 2020).

⁷² *Ibid.*

⁷³ ‘Biodiversity and climate change’, CBD Dec. 14/5 (2018).

⁷⁴ *Ibid.* at para. 4.

⁷⁵ *Ibid.* at para. 1.

⁷⁶ CBD Dec. 10/2, *supra* note 29, Annex, para. 13.

⁷⁷ *Ibid.*, Annex

The post-2020 Global Biodiversity Framework (GBF) draft suggests an increase in ambition to 60 per cent coverage of sites of particular importance for biodiversity, including at least 30 per cent of land and seas globally, and at least 10 per cent under strict protection by 2030.⁷⁸ Building on this target, the zero draft of the post-2020 GBF calls for zero ‘net loss’ of ecosystems by 2030⁷⁹ and identifies restoration (also part of SDG targets 15.1, 15.2 and 15.3) as an important means to achieve ‘net increase’ of intact areas and wilderness by 2030.⁸⁰ In that sense, the post 2020 GBF is likely to increase ambition over the related SDG 15 targets, especially those that end by 2020 (15.1, 15.2 and 15.3).

Rehabilitation and restoration were first comprehensively addressed at COP11.⁸¹ COP13 adopted a short-term plan of action and respective guidance on ecosystem restoration and integration of biodiversity concerns.⁸² The CBD considers restoration as complementary to conservation, not substitute.⁸³ The most recent decision on biodiversity and climate change drives special attention to the role of wetlands (also included in SDG target 51.1) and states support for a joint declaration by relevant MEAs on peatland conservation and restoration.⁸⁴

The CBD also addresses land use change through national and sectoral mainstreaming, incentive measures, environmental impact assessments (EIAs), strategic environmental assessments (SEAs) and, more recently, spatial planning.⁸⁵ To facilitate mainstreaming at the national level, Parties are requested to submit and regularly update their NBSAPs in accordance with Article 6 of the Convention.⁸⁶

The importance of the conservation and sustainable use of forests (SDG targets 15.1, 15.2 and 15b) for the achievement of the CBD objectives was acknowledged already at the very first COP in 1994. After COP2, forest issues were dealt with under the programme of work on forest biodiversity. Thereafter, highlights have been the introduction of the ecosystem approach to be applied to forest management as well as identification of synergies with the forest landscape restoration approach.⁸⁷ Focus of work on forests under the CBD has been much on developing indicators

⁷⁸ ‘Zero Draft of the post 2020 Global Biodiversity Framework’, CBD Doc. CBD/WG2020/2/3 (2020), Annex, para. 12(a).

⁷⁹ *Ibid.* at para. 10(a).

⁸⁰ *Ibid.* at para 12(a).

⁸¹ CBD, ‘Ecosystem restoration: background’ (2016), available at <<https://www.cbd.int/restoration/Background/>> (visited 16 March 2020).

⁸² ‘Ecosystem restoration: short-term action plan’, CBD Dec. 13/5 (2016) para. 1 and Annex.

⁸³ *Ibid.* at para. 8.

⁸⁴ CBD Dec. 14/5, *supra* note 73, at para. 8.

⁸⁵ ‘Mainstreaming of biodiversity in the energy and mining, infrastructure, manufacturing and processing sectors’, CBD Dec. 14/3 (2018) para. 13.

⁸⁶ Melina Sakiyama and Christian Schwarzer, *CBD in a Nutshell* (2nd ed., Global Youth Biodiversity Network, 2018).

⁸⁷ Till Pistorius and Laura Kiff, ‘From a biodiversity perspective: risks, trade-offs, and international guidance for Forest Landscape Restoration (UNIQUE forestry and land use GmbH, 2018) 19-20.

for forest biodiversity as well as streamlining of reporting.⁸⁸ In more recent decisions, CBD COP has acknowledged ‘the strong congruence among the forest-related Aichi Biodiversity Targets, the four global objectives on forests, the forest-related provisions under the Paris Agreement’⁸⁹ and called on Parties to ‘give due consideration to the conservation and sustainable use of natural forests and native vegetation and avoiding the potential negative impacts of afforestation of non-forest biomes’.⁹⁰ At COP14, the CBD Secretariat was requested to continue close collaboration with the United Nations Forum on Forests,⁹¹ the Global Partnership on Forest Landscape Restoration⁹² and the Collaborative Partnership on Forests,⁹³ on, *inter alia*, data collection and spatial assessments to advance on biodiversity commitments.⁹⁴

Further co-benefit potential lies in the CBD COP decision on mainstreaming of biodiversity in the energy and mining, infrastructure, manufacturing and processing sectors, which also takes the role of cities into account.⁹⁵ This relates much to *consumption and production patterns* as indirect drivers of both biodiversity loss and climate change that are reflected in Aichi target 4.⁹⁶ Despite repeated CBD calls for Sustainable Consumption and Production (SCP),⁹⁷ a clear definition and strong legal language are lacking. The same applies to the term ‘transformational change’ that has recently entered discussions on how to address drivers of biodiversity loss under the CBD.⁹⁸

Economic and technological drivers are mainly addressed in sectoral approaches under the CBD, on, for instance, agriculture and forestry, energy and mining. The most concrete references to trade and supply chains as well as strong legal language on sustainable production can be found in the decision text dealing with forestry⁹⁹ and fisheries.¹⁰⁰ Parties are urged, *inter alia*, to ‘encourage sustainable forest management to achieve biodiversity outcomes, including by promoting sustainable consumption

⁸⁸ CBD, ‘Forest biodiversity’, available at <<https://www.cbd.int/forest/>> (visited 27 April 2020).

⁸⁹ ‘Forest biodiversity: the role of international organizations in supporting the achievement of the Aichi Biodiversity Targets’, CBD Dec. 13/7 (2016) preamble.

⁹⁰ *Ibid.* at para. 6.

⁹¹ See <<https://www.un.org/esa/forests/index.html>>.

⁹² See <<https://www.forestlandscaperestoration.org/>>.

⁹³ See <<http://www.cpfweb.org/en/>>.

⁹⁴ ‘Cooperation with other conventions, international organizations and initiatives’, CBD Dec. 14/30 (2018) para. 35.

⁹⁵ CBD Dec. 14/3, *supra* note 85.

⁹⁶ CBD Dec. 10/2, *supra* note 29, at Annex.

⁹⁷ See, *inter alia*, *ibid.*; ‘Strategic actions to enhance the implementation of the Strategic Plan for Biodiversity 2011-2020 and the achievement of the Aichi Biodiversity Targets, including with respect to mainstreaming and the integration of biodiversity within and across sectors’, CBD Dec. 13/3 (2016); ‘Updated assessment of progress towards selected Aichi Biodiversity Targets and options to accelerate progress’, CBD Dec. 14/1 (2018); ‘Scenarios for the 2050 Vision for Biodiversity’, CBD Dec. 14/2 (2018); CBD Dec. 14/3, *supra* note 75; ‘Second work programme of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services’, CBD Dec. 14/36 (2018).

⁹⁸ See, for instance, *ibid.* at para. 2(a).

⁹⁹ See, for instance, CBD Dec. 14/1, *supra* note 96; CBD Dec. 13/3, *supra* note 97.

¹⁰⁰ *Ibid.* at paras 69, 71 and 72.

and production of forest products'¹⁰¹ and 'improve enforcement and monitoring of sustainable forest management and the sustainability of timber trade'.¹⁰² Moreover, COP decisions request the continuation or enhancement of collaboration with international organizations dealing with trade and production patterns such as the World Trade Organization (WTO)¹⁰³ or sector-relevant organizations such as the Food and Agriculture Organization (FAO)¹⁰⁴ and the International Tropical Timber Organization.^{105,106} Domestically, CBD recommends mainstreaming of biodiversity considerations throughout sectors, national legislation and financial flows¹⁰⁷ and highlights the need to eliminate harmful incentives, including subsidies, and to increase positive incentives.¹⁰⁸

Adverse impacts of fossil fuel extraction on biodiversity have gained attention, with the increased efforts to address mainstreaming of biodiversity into the energy and mining, infrastructure, manufacturing and processing sectors.¹⁰⁹ An according decision adopted in 2018 recognizes not only that these sectors affect biodiversity but also 'that the loss of biodiversity can impact these sectors negatively'.¹¹⁰

To address *governance and institutional drivers*, the mainstreaming approach, anchored in the Convention text itself,¹¹¹ can be considered the key tool promoted by the Convention. The CBD COP decisions also strongly call for increased policy coherence, at the national as well as at the international level. Close cooperation with other conventions and alignment with the Agenda 2030 are commonly referred to as central measures to alleviate incoherent governance.¹¹² Enhanced cooperation with other conventions, international organizations and initiatives has been explicitly dealt with by an informal advisory group on synergies under the CBD as well as through stand-alone COP decisions.¹¹³ Initially highlighting primarily synergies with other biodiversity-related conventions, the scope has broadened over the past years through encouragement of 'consideration of actions for enhanced synergies among... the Rio Conventions, and other conventions... as they are essential for the implementation of the 2030 Agenda... and the Sustainable Development Goals'.¹¹⁴

¹⁰¹ *Ibid.* at para. 56.

¹⁰² CBD Dec./14/1, *supra* note 97, at para. 14(e).

¹⁰³ See <<http://www.wto.org>>.

¹⁰⁴ See <<http://www.fao.org>>.

¹⁰⁵ See <<http://www.itto.int>>.

¹⁰⁶ CBD Dec. 14/30, *supra* note 94.

¹⁰⁷ See, for instance, CBD Dec. 13/3, *supra* note 98; and CBD Dec. 14/3, *supra* note 85.

¹⁰⁸ CBD Dec. 10/2, *supra* note 29, at Annex, target 3.

¹⁰⁹ CBD Dec. 13/3, *supra* note 97.

¹¹⁰ CBD Dec. 14/3, *supra* note 83, at preamble.

¹¹¹ CBD, 'Biodiversity mainstreaming', available at <<https://www.cbd.int/mainstreaming/>> (visited 26 March 2020).

¹¹² See, for instance, CBD Dec. 14/1, *supra* note 97, at Annex, para. 2(h).

¹¹³ See, for instance, CBD Dec. 14/30, *supra* note 94.

¹¹⁴ *Ibid.* at paras 3 and 4.

The CBD is also increasingly drawing on information provided by the IPCC and referring to provisions made under the UNFCCC.¹¹⁵

Nevertheless, strong legal language on coherence only applies to national planning obligations and mainstreaming, as set out in Article 6 of the Convention.¹¹⁶ In addition, Parties are encouraged ‘to explore possible synergies at the national level, involving all relevant biodiversity-related reporting processes, in order to enhance the alignment and consistency of information and data in national reports’.¹¹⁷ COP14 also highlighted the related need for indicator alignment ‘across different reporting processes on biodiversity and sustainable development’.¹¹⁸

3.1.2 Addressing potential trade-offs

Potential *trade-offs from climate action for biodiversity* are addressed most specifically by the CBD with regard to forests, in particular REDD+, climate-related geoengineering and biofuels.

The special attention given to forests and their emission mitigation potential under the UNFCCC through, inter alia, REDD+ has been addressed at CBD COP10 when Parties called for the enhancement of benefits for, and avoidance of negative impacts on biodiversity from REDD+.¹¹⁹ At CBD COP11, Parties adopted advice on biodiversity safeguards to be applied by REDD+ and other efforts under the UNFCCC.¹²⁰

Geoengineering activities affecting biodiversity are largely rejected. In COP decision X/33, Parties commit to ‘ensure [...] that no climate-related geo-engineering activities** that may affect biodiversity take place, until there is an adequate scientific basis on which to justify such activities and appropriate consideration of the associated risks’.¹²¹

Biofuels are addressed by the CBD, but without clear rules, guidelines or legal implications. COP9 broadly discussed biofuels as part of the work programme on agricultural biodiversity and Parties agreed that ‘biofuel production and use should

¹¹⁵ CBD Dec. 14/5, *supra* note 73.

¹¹⁶ Articles 6(a) and 6(b) of the CBD.

¹¹⁷ ‘Process for aligning national reporting, assessment and review’, CBD Dec. 14/27 (2018) para. 2.

¹¹⁸ ‘Tools to evaluate the effectiveness of policy instruments for the implementation of the Strategic Plan for Biodiversity 2011-2020’, CBD Dec.14/28 (2018), para. 2.

¹¹⁹ ‘Biodiversity and climate change’, CBD Dec. 10/33 (2010) para. 8(q).

¹²⁰ ‘Biodiversity and climate change related issues: advice on the application of relevant safeguards for biodiversity with regard to policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries’, CBD Dec. 11/19 (2012).

¹²¹ CBD, ‘Climate-related Geoengineering and Biodiversity’, available at <<https://www.cbd.int/climate/geo-engineering/>> (visited 25 March 2020); CBD Dec. 10/33, *supra* note 119.

be sustainable in relation to biological diversity'.¹²² To ensure this, Parties were urged to develop coherent policy frameworks and to support technology transfer and best practice exchange.¹²³ At COP10, Parties were explicitly invited to develop national inventories and conduct spatial assessment to identify potential areas for biofuel production without harming biodiversity.¹²⁴ At the same time, the Secretariat was requested to compile tools and approaches 'to assess direct and indirect effects and impacts on biodiversity of the production and use of biofuels'.¹²⁵

Trade-offs from biodiversity protection measures for climate change mitigation are poorly addressed in the CBD. For instance, the designation of protected areas as one of the major tools of the CBD can bear potential trade-offs for renewable energy projects, but such limitations are not addressed. Moreover, there is no mention of the time needed for restored ecosystems to provide the full extent of their ecosystem services which may also cause (temporary) trade-offs for mitigation targets, depending on the purpose they have been designed for.¹²⁶ This is especially relevant for the current suggestion of a long-term goal on '[n]o net loss by 2030 in the area and integrity of freshwater, marine and terrestrial ecosystems, and increases of at least [20 per cent] by 2050, ensuring ecosystem resilience' in the zero draft of the post-2020 GBF,¹²⁷ which allows for offsetting ecosystem destruction by restoring an equal area elsewhere. Time lags in regaining the full carbon stocks of the lost areas in the restored areas have not been resolved.¹²⁸ The most explicit recognition of the need to avoid trade-offs from biodiversity conservation measures affecting climate change mitigation can be found in the safeguards of the voluntary ecosystem-based approaches (EbA) guidelines: 'EbA and Eco-DRR¹²⁹ should neither result in unsustainable resource use nor enhance the drivers of climate change and disaster risks'.¹³⁰

3.1.3 Gaps concerning potential for synergies

Overall, the CBD and the analyzed legal documents maintain a fairly holistic approach in addressing drivers and pointing out potential for co-benefits and synergies. However, a clear gap can be perceived in terms of obligations: the overall legal language of the CBD and its COP decisions is rather weak, and the majority of measures suggested remain at the level of recommendations to Parties – except for the obligation to develop, update and report on national plans and to designate

¹²² 'Agricultural biodiversity: biofuels and biodiversity', CBD Dec. 9/2 (2008) para. 1.

¹²³ *Ibid.* at paras 3 and 6.

¹²⁴ 'Biofuels and biodiversity', CBD Dec. 10/37 (2010) para 7.

¹²⁵ *Ibid.* at para. 11(a).

¹²⁶ Nicola Favretto et al, 'Links between Climate Change Mitigation, Adaptation and Development in Land Policy and Ecosystem Restoration Projects: Lessons from South Africa', 10(3) *Sustainability* (2018) 779 at 781.

¹²⁷ CBD Doc. CBD/WG2020/2/3, *supra* note 78, Annex, para. 10

¹²⁸ David Moreno-Mateos et al, 'The true loss caused by biodiversity offsets', 192 *Biological Conservation* (2015) 552–559.

¹²⁹ Ecosystem-based approaches to disaster risk reduction.

¹³⁰ CBD Dec. 14/5, *supra* note 73, at Annex, Section 2.2.

networks of protected areas. The Strategic Plan sets concrete targets, but these refer to the global level and hence only provide guidance for individual national goals.

In addition, several fields of potential synergies need further consideration, as they are not yet sufficiently explored or anchored in legal text. This is the case for addressing most of the socio-cultural and technological drivers, for instance through joint capacity-building across sectors and with other conventions. Accordingly, COP13 and COP14 decisions requested the Executive Secretary to further promote more systemic and integrated approaches.¹³¹ Progress in this regard, and thereby towards the achievement of the SDGs, relies on enhanced technical and scientific cooperation. Potential for increased synergy can also be identified regarding communication, education and public awareness efforts.

Streamlining of future mainstreaming and reporting obligations represents a necessary enhancement of governance mechanisms and reporting requirements set under the Agenda 2030. They are key in enabling governments to better align their efforts on biodiversity conservation and climate change mitigation, harness synergies and lower administrative burden which is of particular importance for developing countries. Incentives and subsidies are clearly another field under the CBD where synergies could be investigated further.

Regarding land use, attempts to increase synergies could make use of more comprehensive guidance on the application of the land- and seascape approach and integrated spatial planning in the legal documents of the CBD. While synergies in forestry have been addressed in particular concerning REDD+, co-benefits in the field of agriculture are not specified in an equal manner. Regarding specific measures to address common direct drivers, the contribution of biodiversity conservation to climate change mitigation efforts clearly necessitates practical guidance for Parties.

The highest potential for enhanced synergies lies with no doubt in more decisively addressing indirect drivers such as consumption and production, but also more specifically, setting ambitious and binding sectoral targets, in line with relevant SDG targets, for instance on food production (SDG target 12.3) and pollution (SDG targets 12.4 and 12.5). Limitations in this regard arise from the legal mandate of the CBD.

¹³¹ 'Capacity-building, technical and scientific cooperation, technology transfer and the clearing-house mechanism', CBD Dec. 13/23 (2016) preamble; 'Capacity-building and technical and scientific cooperation', CBD Dec. 14/24 (2018) preamble.

3.2 UNFCCC

3.2.1 Addressing direct and indirect drivers with potential for co-benefits

Land use change is one of the key drivers of climate change, accounting for a substantial share of GHG emissions globally. As a result, land use, land-use change and forestry (LULUCF) is one of the major sectors addressed by the UNFCCC legal documents, with multiple decisions exclusively dedicated to this sector, addressing interaction between SDGs 13 and 15; in particular targets 15.1-15.5 which focus on the protection, restoration and sustainable management of forest and other ecosystems, as well as land restoration and degradation prevention. Moreover, the importance of terrestrial and marine ecosystems as sinks and reservoirs of GHG emissions was already recognized in the Convention and the development of methodologies for estimating their net effect on GHG emissions (including as sources) was tasked to the COP.

While forestry and ecosystems were initially not included in the list of core sectors of the Kyoto Protocol (only agriculture, Annex B), countries where LULUCF represented a source of emissions in 1990 were requested to include these net emissions in their baseline. Common reporting formats for LULUCF GHG emissions are imposed through the COP Decision 14/CP.11,¹³² where countries are required to use guidelines and methodologies developed by the IPCC.¹³³ Yet, under the Paris Agreement, it is compulsory only for developed countries to account for economy-wide emission in their NDCs, including LULUCF as a sector, while developing countries can limit their sectoral reporting. Through Decision 1/CP.16,¹³⁴ developing countries that wish to have land-use activities funded must prepare national strategies or action plans. In such situations, they are requested to develop national monitoring systems for forest-related GHG emissions levels or reference levels, and to report on consideration of safeguards (strengthened in subsequent decisions¹³⁵), including environmental protection. Decision 9/CP.19¹³⁶ establishes an information hub web platform to ensure transparency and mutual learning from these activities. In the

¹³² 'Tables of the common reporting format for land use, land-use change and forestry', UNFCCC Dec. 14/CP.11 (2005).

¹³³ Jim Penman et al, 'Good Practice Guidance for Land Use, Land-Use Change and Forestry' (Institute for Global Environmental Strategies (IGES) for IPCC, 2003), available at <https://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/GPG_LULUCF_FULL.pdf> (visited 29 April 2020).

¹³⁴ 'The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention', UNFCCC Dec. 1/CP.16 (2010).

¹³⁵ See, for instance, 'Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention', UNFCCC Dec. 2/CP.17 (2011); 'The timing and the frequency of presentations of the summary of information on how all the safeguards referred to in decision 1/CP.16, appendix I, are being addressed and respected', UNFCCC Dec. 12/CP.19 (2013); 'Guidelines and procedures for the technical assessment of submissions from Parties on proposed forest reference emission levels and/or forest reference levels', UNFCCC Dec. 13/CP.19 (2013); 'Modalities for measuring, reporting and verifying', UNFCCC Dec. 14/CP.19 (2013).

¹³⁶ 'Work programme on results-based finance to progress the full implementation of the activities referred to in decision 1/CP.16, paragraph 70', UNFCCC Dec. 9/CP.19 (2013).

forestry sector specifically, the following activities apply: reducing emissions from deforestation and from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks.¹³⁷ These activities are facilitated through the REDD+ mechanism, supporting SDG target 15.2 on forests.

The Paris Agreement encourages Parties ‘to implement and support... the existing framework [on forest-related activities]... while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches’.¹³⁸ Earlier relevant decisions on LULUCF-related matters recognize that promoting sustainable management of forests and co-benefits, including biodiversity and ecosystem resilience would lead to synergies with national and international forestry objectives.¹³⁹ Moreover, climate change itself is recognized as a driver of biodiversity loss in the UNFCCC and key documents, including the Paris Agreement, indicating that adaptation measures should be taken to enhance the resilience of ecosystems.¹⁴⁰

Economic and technological drivers are primarily addressed through references to production and clean technologies in the international climate legislation. ‘Accelerating, encouraging and enabling innovation is critical for an effective, long-term global response to climate change... Such effort shall be, as appropriate, supported, including by the Technology Mechanism and, through financial means, by the Financial Mechanism of the Convention’.¹⁴¹ In that regard, developed countries (under Annex I and Annex II of the UNFCCC) were strongly requested to promote, facilitate and finance the development and transfer of ‘environmentally sound technologies’ to other Parties already through the Convention. To that end, the Subsidiary Body for Scientific and Technological Advice (SBSTA) is mandated to support countries with the latest available information. Moreover, the Copenhagen Accord decided the establishment of the Technology Mechanism to enhance development and transfer of relevant technologies across countries. The Kyoto Protocol provides a number of measures that countries could take to reduce their emissions, including enhancement of energy efficiency and promotion of technologies such as renewables and carbon dioxide sequestration.¹⁴² More complete lists of technologies and potential measures are provided through guiding documents and the reports of the IPCC.¹⁴³

¹³⁷ UNFCCC Dec. 1/CP.16, *supra* note 135.

¹³⁸ Article 5(2) of the Paris Agreement.

¹³⁹ ‘Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries’, UNFCCC Dec. 4/CP.15 (2009); UNFCCC Dec. 2/CP.17, *supra* note 136.

¹⁴⁰ See, for instance, Art. 4 of the Paris Agreement.

¹⁴¹ Article 10(5) of the Paris Agreement.

¹⁴² Article 2 of the Kyoto Protocol.

¹⁴³ See, for instance, UNFCCC Consultative Group of Experts on National Communications from parties not included in Annex I to the Convention, ‘Training Handbook for Mitigation Assessment for Non-Annex I parties’ (2006), available at https://unfccc.int/resource/cd_roms/na1/mitigation/Handbook/MitigationHandbook_11May2006.pdf (visited 24 April 2020); Edenhofer et al, *Climate Change 2014*, *supra* note 52.

The UNFCCC strongly highlights that climate measures should seek to avoid adverse effects on national economies and should be taken within a timeframe that ‘enable[s] economic development to proceed in a sustainable manner’, recognizing ‘the special difficulties of those countries... whose economies are particularly dependent on fossil fuel production, use and exportation’¹⁴⁴ to reduce GHG emissions. Specific measures to address economic drivers of climate change are not provided in the main legal documents assessed in this paper (except for agriculture and forest-related activities specifically), but the economic sectors (including subsectors) of climate action are made most concrete in Annex A of the Kyoto Protocol: energy (fuel combustion and fugitive emissions from fuels); industrial processes; solvent and other products; agriculture; and waste, plus related subsectors. Relevant co-benefits of economic diversification plans are officially accepted as contributions to mitigation action in the Paris Agreement.¹⁴⁵

The strength of international climate legislation is in addressing *governance drivers*. It is meant to support coordination across the international community, strongly encouraging and facilitating cooperation amongst all countries in tackling the climate crisis. Strong legal language is used to ensure cooperation in providing international financial, technological and capacity-building support and to establish supporting bodies such as the Green Climate Fund¹⁴⁶ or the Technology Mechanism.¹⁴⁷ Moreover, instruments such as Emissions Trading, Clean Development Mechanism and Joint Implementation were developed under the Kyoto Protocol¹⁴⁸ to facilitate cooperation within and between countries in reaching climate goals through trading of Emissions Reduction Units (REUs), including from land-related activities. These measures are aligned with the SDG 13 demand that developed countries keep their commitment of climate finance provision to developing countries (target 13.a) as well as the promotion of mechanisms that support capacity-building for climate-related planning and management in the least developed countries and the small island developing states (target 13.b). In particular, the Paris Agreement’s request for all countries to put forward NDCs to jointly reach the global target of a maximum temperature increase of 2°C, is a strong example of global coordination of action.

Moreover, key governance measures to tackle emissions nationally are suggested in some of the agreements and decisions, such as to directly address market imperfections, fiscal incentives, tax and duty exemptions and subsidies that lead to GHG emissions in all sectors.¹⁴⁹

¹⁴⁴ UNFCCC, Objective and Preamble.

¹⁴⁵ Article 10(5) of the Paris Agreement.

¹⁴⁶ See <<https://www.greenclimate.fund/>>.

¹⁴⁷ See <<https://unfccc.int/ttclear/support/technology-mechanism.html>>.

¹⁴⁸ See Arts 6, and 12 and 17 of the Protocol.

¹⁴⁹ Article 2(1) of the Kyoto Protocol.

The UNFCCC also shows extensive support for capacity-building (also reflected under SDG targets 13.b and 17.9). Already in the Convention, SBSTA was tasked to ‘identify ways and means of supporting endogenous capacity-building in developing countries’¹⁵⁰ and it remains a key part of international support in global climate governance. Additionally, promoting education, training and awareness raising on climate-related issues (with an assigned SDG 13 target, see 13.2) is emphasized throughout, with a dedicated article in the Convention itself, Article 6, which uses strong legal language.

3.2.2 Addressing potential trade-offs

While the UNFCCC recognizes that ‘various actions to address climate change can be justified economically in their own right and can also help in solving other environmental problems’,¹⁵¹ it also stays mindful of potential trade-offs with other social, environmental and economic dimensions. Since the establishment of the Climate Convention, countries were expected to ‘take climate change considerations into account... in their relevant social, economic and environmental policies and actions, and employ appropriate methods... to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change’.¹⁵² This is also in line with the SDG target 13.2 ‘Integrate climate change measures into national policies, strategies and planning’ and reflects the call for policy coherence under target 17.14. While the specific potential environmental trade-offs that need to be addressed are not clarified in the legal documents, a reference is made to key strands of international environmental law that Parties should ensure consistency with in their actions, such as the United Nations Forum on Forests, the United Nations Convention to Combat Desertification and the Convention on Biological Diversity.¹⁵³

Decision 1/CP.16 is a key decision in this regard, establishing relevant guidelines for Parties activities in the LULUCF sector and requesting countries to consider essential safeguards. This decision provides that activities should ‘d) Be consistent with the objective of environmental integrity and take into account the multiple functions of forests and other ecosystems;’, ‘f) Be consistent with Parties’ national sustainable development needs and goals;’ and ‘k) Promote sustainable management of forests’.¹⁵⁴ The safeguards to be promoted include consistency with the objectives of national forest programmes and international agreements and conventions (with no specific mention) and ensured consistency with natural forest conservation and biodiversity protection while also enhancing other social and environmental benefits

¹⁵⁰ Article 9 of the UNFCCC.

¹⁵¹ Preamble of the UNFCCC.

¹⁵² Article 4(1f) of the UNFCCC (emphasis added).

¹⁵³ ‘Reducing emissions from deforestation in developing countries: approaches to stimulate action’, UNFCCC Dec. 2/CP.13 (2007).

¹⁵⁴ UNFCCC Dec. 1/CP.16, *supra* note 134, Appendix I, para. 1.

(with relevance for SDG targets 15.1-15.5 and 15.8).¹⁵⁵ Subsequent decisions request parties to report on these safeguards.

While extensive use of biofuels as well as agricultural activities for food production or other purposes can also lead to significant trade-offs with SDG 15, current strands of work under UNFCCC do not specifically address these potential issues. In general, agriculture and biofuels have not been addressed as extensively as forest-related activities and the current Koronivia Joint Work on Agriculture is still relatively recent and under further development.¹⁵⁶

3.2.3 Gaps concerning potential for synergies

A sector that could be better addressed to ensure synergies is the *agricultural sector*. While agriculture has been recognized as a relevant sector for GHG emissions reductions and was included in the list of reporting under the Kyoto Protocol, there is limited mention of related trade-offs and synergies and little work has been done so far. In fact, the most important work on agriculture has been initiated at COP23, where Decision 4/CP.23 adopted the ‘Koronivia Joint Work on Agriculture’.¹⁵⁷ In the initial phase of this joint work, the work group was mandated to address a number of issues, including with a view to soil health and fertility (SDG target 15.3), improving sustainability of the agricultural systems, and the socioeconomic and food security dimensions. However, no reference is made to the environmental dimension and the lack of a clear definition of the meaning of ‘sustainability’ could leave this dimension inadequately addressed.

Another key area that could be enhanced to address both biodiversity loss and climate change is *trade*. So far UNFCCC makes very little reference to trade as a driver of climate change. The Convention only highlights that climate measures should not take the form of ‘disguised restriction on international trade’¹⁵⁸ further enforced by the Kyoto Protocol.¹⁵⁹

Yet, adequate standards along supply chains could ensure global improvements in production from the perspective of GHG emissions and of biodiversity loss. Such standards could reduce consumption of fossil fuels and would ensure sustainability in the use of land resources and ecosystems. However, given the fact that countries determine their emissions levels only based on domestic production activities, there is little incentive to reduce imported GHG emissions and the related consumption.

¹⁵⁵ *Ibid.* at Appendix I, para. 2

¹⁵⁶ UNFCCC, ‘Issues Related to Agriculture’, available at <<https://unfccc.int/topics/land-use/workstreams/agriculture>> (visited 29 April 2020).

¹⁵⁷ ‘Koronivia joint work on agriculture’, UNFCCC Dec. 4/CP.23 (2017).

¹⁵⁸ Article 3(5) of the UNFCCC.

¹⁵⁹ Article 4(8h) of the UNFCCC.

While UNFCCC's work addresses production through various measures, very little emphasis is placed on *consumption*. In the early years of international climate negotiations, consumption was mainly discussed in the context of vulnerability to climate mitigation measures, where countries with high consumption of fossil fuels or energy-intensive products were seen as particularly vulnerable and in need of international support.¹⁶⁰ The Paris Agreement is the first to recognize that 'sustainable lifestyles and sustainable patterns of consumption and production, with developed country Parties taking the lead, play an important role in addressing climate change'.¹⁶¹ A stronger emphasis on, for instance, sustainable consumption nudges, such as sustainability labels, could support achieving the targets of both Conventions.

4 UNEA and SDG interactions

The four United Nations Environment Assembly sessions convened so far, since 2014, have taken place in the post-2015 Development Agenda era. The first UNEA session was themed 'Sustainable Development Goals and the Post-2015 Development Agenda, including sustainable consumption and production', the second one 'Delivering on the Environmental Dimension of the 2030 Agenda, the third one 'Towards a pollution-free planet' and the fourth one 'Innovative solutions for environmental challenges and sustainable consumption and production'. These titles hold promise for addressing interactions between different sustainable development challenges, including those concerning SDGs 13 and 15. However, the UNEAs have done so to varying degrees.

References to halting climate change and biodiversity loss have gradually increased in the outcome documents of the four UNEA sessions. The Ministerial declaration of UNEA-1 called on the international community 'To undertake urgent actions to address climate change... and to reinforce efforts to halt biodiversity loss and combat desertification'.¹⁶² At the second session, UNEA adopted five specific resolutions addressing climate change and biodiversity out of 25 resolutions totally adopted.¹⁶³ Within the third session and its Ministerial declaration, climate change and biodiversity loss drivers were addressed in four resolutions out of a total number of eleven

¹⁶⁰ *Ibid.*

¹⁶¹ Preamble of the Paris Agreement.

¹⁶² 'Ministerial outcome document of the first session of the United Nations Environment Assembly of the United Nations Environment Programme', UNEA Res. 1/1 (2014).

¹⁶³ 'Supporting the Paris Agreement', UNEA Res. 2/6; 'Sustainable coral reef management', UNEA Res. 2/12; 'Sustainable management of natural capital for sustainable development and poverty eradication', UNEA Res. 2/13; 'Mainstreaming of biodiversity for well-being', UNEA Res. 2/16; 'Enhancing the work of the United Nations Environment Programme in facilitating cooperation, collaboration and synergies among biodiversity-related conventions', UNEA Res. 2/17 (2006).

adopted resolutions.¹⁶⁴ Both direct and indirect drivers have been addressed in the UNEA resolutions, but typically in a separate manner.

Attention to interactions has been largely implicit, though a few explicit references to synergies between efforts to halt biodiversity loss and climate action could also be found. Resolution 1/8 of UNEA-1 on ‘Ecosystem-based adaptation’ explicitly recognized the importance ‘to include and improve ecosystem-based adaptation and community-based adaptation in their national policies, including those on climate change adaptation, food security and sustainable management of forests’. The Resolution addressed the ecosystem-based adaptation mainly from the governance perspective and urged ‘all Member States to ratify, accept or approve the Paris Agreement’. UNEA-2 Resolutions 2/6 ‘Supporting the Paris Agreement’ and 2/17 ‘Enhancing the work of the United Nations Environment Programme in facilitating cooperation, collaboration and synergies among biodiversity-related conventions’ address both climate change and biodiversity loss from a governance and policy coherence perspective. In Resolution 2/17, climate change as highlighted was a direct driver of biodiversity loss, but later UNEA sessions did not emphasize this inter-linkage.

Despite its focus on pollution, an increased attention to interactions is reflected in the Ministerial declaration of UNEA-3. In the declaration, the Ministers of environment ‘acknowledge the links between pollution, climate change, biodiversity loss and ecosystem degradation’. Specific attention was also given to unsustainable land use: ‘unsustainable land use and management can lead to soil degradation and pollution and create phenomena such as forest and biodiversity loss.’¹⁶⁵ In the specific Resolution 3/6, soil pollution and land use are connected to achieving the SDGs: ‘soil is one of the largest reservoirs of biodiversity and that the negative impacts of the contamination of soil undermine productivity and sustainability of ecosystems, biodiversity, agriculture and food security, and clean ground and surface water, potentially hampering the achievement of the Sustainable Development Goals, including Goals 1, 2, 3, 6, 12, 13 and 15.’¹⁶⁶ Resolution 3/2 encourages ‘investments in biodiversity as a means of enhancing the functioning of ecosystems and the services they provide.’¹⁶⁷ Interactions between climate change, biodiversity loss and health are recognized in the Resolution 3/4 ‘Environment and health’.

At UNEA-4, actions with potential to create co-benefits for the climate and biodiversity, both terrestrial as well as marine biodiversity, received explicit attention. The

¹⁶⁴ ‘Pollution mitigation by mainstreaming biodiversity into key sectors’, UNEA Res. 3/2; ‘Environment and health’, UNEA Res. 3/4; ‘Investing in innovative environmental solutions for accelerating the implementation of the Sustainable Development Goals’, UNEA Res. 3/5; ‘Managing soil pollution to achieve sustainable development’, UNEA Res. 3/6 (2017).

¹⁶⁵ Ministerial declaration of the United Nations Environment Assembly at its third session ‘Towards a pollution-free planet’, UN Doc. UNEP/EA.3/HLS.1 (2018).

¹⁶⁶ UNEA Res. 3/6, *supra* note 164.

¹⁶⁷ UNEA Res. 3/2, *supra* note 164.

Environment Assembly adopted resolutions addressing, for instance, innovations to halt biodiversity and land degradation, sustainable management of mangroves, coral reefs, rangelands and pastoralism, and conservation of peatlands.¹⁶⁸ In the Ministerial declaration, the Ministers committed to developing ‘an ambitious and realistic post-2020 global biodiversity framework’ which is expected to be adopted at the 15th CBD COP, to be held in China in 2021.¹⁶⁹ In the Resolution 4/10 ‘Innovation on biodiversity and land degradation’, it is recognized that ‘climate change is a major and growing driver of biodiversity loss and ecosystem degradation, and that conservation and sustainable use of biodiversity, and ecosystem functions and services, contribute significantly to climate change adaptation and mitigation, disaster risk reduction, and food security and nutrition’. Resolution 4/12 ‘Sustainable management for global health of mangroves’ mentions ‘mangroves as an important but fragile ecosystem of invaluable biological diversity that provides vital ecosystem services which are contributing to the anticipated achievement by 2020 of Sustainable Development Goals 2 and 13 and targets 14.2 and 15.5’. The Assembly encourages

Member States to improve research, education and public awareness, build capacity for the sustainable management and restoration of mangroves and related ecosystems... to prepare multipurpose management plans for mangroves, based on scientific information... and invites Member States to take action to prevent mangrove forest conversion, strengthen measures to maintain their integrity and give priority to conserving remaining areas of natural mangrove forests.¹⁷⁰

The Resolution 4/16 on ‘Conservation and sustainable management of peatlands’ addresses land use as a direct driver and focuses on governance as an indirect driver. The Assembly, ‘recognizing also that actions to advance sustainable peatland conservation and sustainable management can also contribute to addressing climate change... urges Member States and other stakeholders to give greater emphasis to the conservation, sustainable management and restoration of peatlands worldwide.’¹⁷¹

Regarding conservation and sustainable use of forests, the EU and its Member States presented at UNEA-4 a resolution titled ‘Deforestation and agricultural commodity supply chains’ as a global call to halt deforestation while contributing to ensure food security and nutrition. However, the resolution failed to be approved by the Assembly as no consensus was reached during the negotiation phase. The failure of this resolution potentially represents a missed opportunity in addressing the interactions between forest use and agriculture within UNEA.

¹⁶⁸ ‘Innovation on biodiversity and land degradation’, UNEA Res. 4/10; ‘Sustainable management for global health of mangroves’, UNEA Res. 4/12; ‘Sustainable coral reefs management’, UNEA Res. 4/13; ‘Conservation and sustainable management of peatlands’, UNEA Res. 4/16 (2019).

¹⁶⁹ Innovative solutions for environmental challenges and sustainable consumption and production’, Ministerial declaration of the United Nations Environment Assembly at its fourth session, UN Doc. UNEP/EA.4/HLS (2019).

¹⁷⁰ UNEA Res. 4/12, *supra* note 168.

¹⁷¹ UNEA Res. 4/16, *supra* note 168.

The strong and repeated attention of UNEA on sustainable production and consumption (SCP) targets one of the key indirect drivers of climate change and biodiversity loss. SCP has been a central theme of UNEA since its first session, where the Ministerial declaration called ‘on the international community... to accelerate and support efforts to promote sustainable consumption and production patterns... and to accelerate actions... to implement the 10-year framework of programmes on sustainable consumption and production.’ At UNEA-2, the Resolution 2/8 ‘Sustainable consumption and production’ echoed SDG 12 but also recognized the role of SCP policies in achieving other sustainability objectives: ‘SCP approaches and policies at all levels... can be useful tools for improving sustainability in different areas, including urban planning, natural resource conservation, resources management, land use management and nutrient management, which can be promoted through regional frameworks and forums and other initiatives.’¹⁷²

UNEA-3 followed suit by considering SCP policies, such as promoting sustainable finance and circular economy, as preventive solutions ‘to tackle pollution and improve health and the environment synergistically.’¹⁷³ In the Resolution 3/5, a wide array of benefits from SCP policies for accelerating the implementation of the SDGs were recognized, including ‘enhancing the capacity of ecosystems.’¹⁷⁴

The fourth session of UNEA fully focused on SCP through its overarching theme ‘Innovative solutions for environmental challenges and sustainable consumption and production’, its Ministerial declaration and the specific Resolution 4/1 on ‘Innovative pathways to achieve sustainable consumption and production’. While recognizing that achieving SCP is an essential requirement for sustainable development, the Resolution focuses on the nexus of production and the efficient use and sustainable management of resources, and identifies several measures to achieve SCP, including regulation, education, awareness-raising, sustainable finance, economic tools, technical standards, product design, and provision of systems, services and information, public procurement and particularly the life-cycle approach.¹⁷⁵ It explicitly recognizes that ‘resource management, climate, biodiversity, water and land use are interlinked, and that resources are at the centre of voluntary initiatives, policies and regulatory frameworks.’¹⁷⁶

Throughout UNEA outcomes, governance aspects are emphasized in relation to addressing the drivers of climate change and biodiversity loss, which is fully consistent with the role of UNEA. This is probably also confirmed by the choice of theme for UNEA-5, expected to take place in February 2021: ‘Strengthening Actions for Nature to Achieve the Sustainable Development Goals’, which suggests growing

¹⁷² Sustainable consumption and production’, UNEA Res. 2/8 (2016).

¹⁷³ ‘Environment and health’, UNEA Res.3/4 (2017).

¹⁷⁴ UNEA Res. 3/5, *supra* note 164.

¹⁷⁵ ‘Innovative pathways to achieve sustainable consumption and production’, UNEA Res. 4/1 (2017).

¹⁷⁶ *Ibid.* at preamble.

attention to the role of natural ecosystems in achieving the SDGs. The fifth UNEA session could also provide an opportunity to more explicitly account for the SDG interactions, and potentially a renewed chance to address forest issues.

5 Discussion and conclusions

In this paper, we have explored how the interactions between SDG 13 (climate action) and SDG 15 (halting terrestrial biodiversity loss) are addressed in the major international legal instruments related to those goals, the CBD and UNFCCC, as well as the UNEA as a complementary political process. In particular, we have focused on synergies, trade-offs and gaps in addressing the shared drivers of climate change and biodiversity loss.

Both CBD and UNFCCC address the direct drivers as well as some of the indirect drivers causing climate change and biodiversity loss, although with varying emphasis. The two Conventions make reference to each other, and the interactions between climate and biodiversity are acknowledged from multiple perspectives; that climate change can lead to biodiversity loss, but climate action could also affect biodiversity and ecosystems, and that biodiversity protection and enhancements are an important element in regulating the climate. Our findings echo previous analysis which has found that biodiversity is the environmental area with most references in climate-related agreements, while climate is the environmental area with the second most references in biodiversity agreements after the ocean issue area – although integration remains low across MEAs.¹⁷⁷

For instance, co-benefits of activities that advance the goals of both Conventions, such as EbA, are well recognized in both Conventions and encouragement to take those benefits into account and enhance them is given. Similar measures are proposed, such as conservation and restoration to counter land-use change, national and sectoral mainstreaming, as well as environmental assessments. Both Conventions also highlight the need to eliminate harmful incentives and address them through fiscal incentives. Nature-based solutions recently entered in the language of both Conventions,¹⁷⁸ but the concept has not yet been defined under either Convention, leaving its potential to promote co-benefits and avoid trade-offs a question mark. The recently published IUCN Global Standard for Nature-based Solutions¹⁷⁹ could help resolve this question.

¹⁷⁷ Dona Azizi, Frank Biermann, and Rakhyun E. Kim, 'Policy Integration for Sustainable Development through Multilateral Environmental Agreements: An Empirical Analysis', 25(3) *Global Governance* (2019) 445-475.

¹⁷⁸ CBD Dec. 14/1, *supra* note 97, at para. 2(q).

¹⁷⁹ IUCN Global Standard for Nature-based Solutions (IUCN, 2020), available at <<https://portals.iucn.org/library/node/49070>> (visited 6 October 2020).

While the CBD applies softer language (i.e. ‘encourage’), the UNFCCC tends to be stricter when it comes to safeguards and considerations relative to land-related projects, making these a requirement, for instance, for funded projects. Moreover, the fact that LULUCF became a sector that must be accounted for in the developed countries’ pledges and reporting is important and encourages synergies, although it does not apply to developing countries. The CBD mostly relies on voluntary action, whereas the UNFCCC had top-down targets that were legally-binding in the past, and now requires countries to submit plans that must be regularly enhanced in ambition and to report on progress. Binding commitments, or voluntary action combined with stronger monitoring, reporting and verification, has also been called for in the case of the CBD.¹⁸⁰ As a more innovative approach, the UNFCCC market mechanisms have brought the advantage of international cooperation to another level by offering countries the opportunity to support each other in meeting national targets (which were imposed in a top-down manner at the time that the market mechanisms were first introduced) with global implications. While the SDGs are comprehensive in their coverage of issues related to sustainable development, they are ‘soft’ law by nature.¹⁸¹ Hence, to ensure their implementation, it is essential that pertinent streams of international negotiations establish accountability mechanisms and provide the needed tools for action, as well as monitoring and evaluation.¹⁸²

The trade-offs resulting from climate change mitigation affecting biodiversity loss have been broadly acknowledged and discussed within the two framework conventions, but important gaps remain. One concerns biofuels. IPCC scenarios for a maximum global warming of 2°C typically rely on extensive use of bio-energy with carbon capture and storage by 2100 to stay within the required carbon budget.¹⁸³ Yet, the impacts of extensive use of biofuels on biodiversity are not appropriately addressed in either of the Conventions. The CBD has indicated, under its work programme on agricultural biodiversity, that biofuel production and use should be sustainable in relation to biological diversity, but the topic has not played an important role in recent discussions and concrete or unified guidelines are not provided. The UNFCCC makes no mention of the issue in the documents assessed in this paper.

Thinking the other way around, trade-offs from biodiversity considerations for climate change mitigation have received even less attention. For instance, protected areas – a key tool promoted by the CBD – by default limit the designation of areas suitable for biofuel production and renewable energy generation. At the same time, scientific evidence supports territorial overlaps of natural carbon stocks (including

¹⁸⁰ UN Doc. A/73/419, *supra* note 9.

¹⁸¹ Åsa Persson, Nina Weitz, and Måns Nilsson. ‘Follow-up and review of the Sustainable Development Goals: Alignment vs. internalization.’ 25(1) *Review of European, Comparative & International Environmental Law* (2016) 59-68.

¹⁸² Kathryn J. Bowen et al, ‘Implementing the “Sustainable Development Goals”: towards addressing three key governance challenges – collective action, trade-offs, and accountability’ 26 *Current opinion in environmental sustainability* (2017) 90-96.

¹⁸³ Edenhofer et al, *Climate Change 2014*, *supra* note 51.

soil carbon) and biodiversity hotspots, which could strengthen the argument for co-benefits provided by protected areas.¹⁸⁴ In this context, stronger emphasis on carbon storage or sequestration capacity of specific ecosystems provides an opportunity to strengthen synergies between the UNFCCC and CBD. So far, this perspective has only been substantially applied to forests while other carbon-rich ecosystems, like wetlands or marine and coastal ecosystems, have gained less attention.

Moreover, different timescales associated with measures that promise co-benefits, such as ecosystem restoration or biodiversity offsetting, may be a source for (temporary) trade-offs. It takes time for restored ecosystems to grow and develop their potential carbon-sink function, especially when biodiversity-promoting aspects such as natural regeneration or native species composition are prioritized.¹⁸⁵ If applied, ‘no net loss’ policies need to respect the mitigation hierarchy (avoid, minimize, restore, offset), with a clear prioritization of the first step¹⁸⁶ – also to minimize potential trade-offs for emission reduction efforts.

An often cited gap in IEL concerns forests – that there is no international agreement on forests.¹⁸⁷ The Rio Conference adopted a set of ‘non-legally Binding Authoritative Statement’ of forest principles, which emphasizes that the utilization of forests is subject to state sovereignty and therefore it has been argued that the principles do not form an adequate basis for a global regime.¹⁸⁸ Although forests are widely referred to in the CBD and UNFCCC, action in this area is mostly voluntary and nationally determined. While the two Conventions bring the global importance of forests into perspective as their transboundary and global effects are acknowledged, the UNFCCC emphasizes forests as a ‘tool’ in climate action, and the CBD focuses on the biodiversity values and indicators. A comprehensive approach, combining multiple ecological, social and economic values of forests, with legal implications, is missing. Academic literature on the global governance of forests is similarly fragmented as the regimes themselves, but it points two major trends: ‘climatization’ – the dominance of climate-related aspects in global policy discourses on forests – as well as a continued rejection of a global forest regime due to domestic influences.¹⁸⁹ The controversy of forests as a global commons versus subject to national sovereignty is also reflected in the failed UNEA-4 resolution on deforestation presented by the EU and its Member States.

¹⁸⁴ Valerie Kapos et al (eds), ‘Carbon and Biodiversity. A Demonstration Atlas’ (UNEP-WCMC, 2008), available at <<https://archive.org/details/carbonbiodiversi08kapo>> (visited 3 July 2020).

¹⁸⁵ Pistorius and Kiff, ‘From a biodiversity’, *supra* note 87, at 16.

¹⁸⁶ Sophus Olav Sven Emil zu Ermgassen et al, ‘The Role of “No Net Loss” Policies in Conserving Biodiversity Threatened by the Global Infrastructure Boom’, 1(3) *One Earth* (2019) 305-315.

¹⁸⁷ UN Doc. A/73/419, *supra* note 9; Jonas Ebbesson, ‘Planetary Boundaries and the Matching of International Treaty Regimes’, 59 *Scandinavian Studies in Law* (2014) 259–284.

¹⁸⁸ *Ibid.*

¹⁸⁹ Benjamin Singer and Lukas Giessen, ‘Towards a donut regime? Domestic actors, climatization, and the hollowing-out of the international forests regime in the Anthropocene’, 79 *Forest Policy and Economics* (2017) 69-79.

In addition, concrete measures towards sustainable agriculture that addresses both GHG emissions and biodiversity protection are mostly missing from the CBD and UNFCCC. Along similar lines, soil degradation (due to agricultural activities, peatland drying and as a result of climate change) could be better addressed, with positive impacts towards the objectives of both Conventions. UNEA has addressed land degradation and peatlands in Res. 4/16 (UNEA-4), making an explicit link to both biodiversity and climate change. However, as already noted, the attempt to address agricultural aspects in a specific resolution at UNEA-4 that targeted deforestation and agricultural commodity supply chains failed due to a lack of consensus.

As scientific advances are made in identifying context-specific trade-offs and co-benefits between climate change mitigation/adaptation through land-based actions and biodiversity-related goals, the challenge remains to account for them in international and national legal frameworks. The FAO has recently produced a strategy on mainstreaming biodiversity across agricultural sectors, with specific goals and activities to assist Member States and enhance capacities in mainstreaming biodiversity, particularly to seize the opportunities for creating synergies and in overcoming trade-offs they may face in pursuing multiple SDGs.¹⁹⁰ While some of the key gap areas may be better addressed under other streams of international negotiations, such as the Convention to Combat Desertification, existing synergies and trade-offs call for integration across all pertinent international agreements. Streamlining of future mainstreaming and reporting obligations, and joint capacity-building across sectors and conventions represents an opportunity in this regard, particularly in the context of the Agenda 2030.

It is also important that increased recognition of co-benefits of biodiversity conservation and climate change mitigation actions does not lead to lower emission reductions in other sectors. Otherwise, conservation and restoration efforts risk becoming mere off-setting instruments, themselves undermined by the major indirect drivers related to the economy, consumption and production, and urbanization. Urbanization, infrastructure development and demographic drivers remain mostly unaddressed in the CBD and UNFCCC. As the world is becoming rapidly urbanized and the footprints of cities are growing, not accounting for the biodiversity and climate change impacts of those trends could undermine achieving both SDG 13 and 15.

Both Conventions lack concrete measures on how to address the underlying economic drivers at the global level, but also nationally, particularly regarding consumption. International trade is only referred to by the UNFCCC in the sense of avoiding adverse effects of climate measures on it, but not as a driver. Concrete measures for SCP could be promoted more both at the national and the international levels.

¹⁹⁰ FAO Strategy on Mainstreaming Biodiversity across Agricultural Sectors (2020), available at <<http://www.fao.org/documents/card/en/c/ca7722en>> (visited 6 October 2020).

Even though SDG 12, the closest to SCP, presented the highest number of trade-offs with other SDGs in a previous analysis of SDG interactions, SDG 12 was also found to be the most synergistic SDG for SDG 15 and one of the best for SDG 13 (aside from SDG 11 and SDG 1), highlighting the importance of SCP in achieving SDGs 13 and 15.¹⁹¹ Within the SCP framework, economic diversification towards lower resource intensity, circular economy, and production standards would support both Conventions by reducing footprints of products and of gross domestic product (GDP) per se.

UNEA has made significant advances in these discussions. While explicit references to interactions between climate change and biodiversity loss are sporadic at best in the UNEA resolutions, and they do not yet seem to represent many new openings on better accounting for interactions in international cooperation, the strongest potential for addressing widely synergistic action concerns the UNEA focus on SCP. UNEA has emphasized SCP as an essential tool to achieve sustainable development, with potential for improving sustainability in various domains and supporting the achievement of different SDGs beyond SDG 12. UNEA has also explicitly established the nexus between production and the efficient use and sustainable management of resources, acknowledging that resource management, climate, biodiversity, water and land use are interlinked. In addition to urging governments to accelerate and support efforts in making production and consumption more sustainable, UNEA has emphasized the essential role of other stakeholders in the implementation of SCP policies, including the business and financial sector.

Hence, following up on resolutions that have consolidated attention to SCP in the international context of UNEA could present an opportunity to achieve widely synergistic benefits for sustainable development, including SDGs 13 and 15. Yet, other important gaps in the IEL persist, notably in addressing deforestation, agricultural drivers and specific fragile but carbon and biodiversity-rich ecosystems such as wetlands and coastal ecosystems (as well as marine ecosystems and SDG 14). International fora such as UNEA could play an important role in addressing those gaps and helping to harness synergies by building the necessary discussion and international consensus towards more legally binding instruments, with the ultimate aim of reducing IEL fragmentation. Improved coordination between UNEA and the CBD and UNFCCC would be also beneficial for strengthening policy coherence and enhancing SDG implementation at regional and national levels.

¹⁹¹ Prajal Pradhan et al, 'A systematic study of Sustainable Development Goal (SDG) interactions' 5(11) *Earth's Future* (2017) 1169-1179.

Annex I

CBD, UNFCCC and UNEA documents included in the analysis

1. United Nations Convention on Biodiversity

Key overarching agreement:

- Convention on Biological Diversity (adopted in 1992; effective from 1993)

Key decisions before 2015:

- UNEP/CBD/COP/DEC/IX/2 Agricultural biodiversity: biofuels and biodiversity (2008)
- UNEP/CBD/COP/DEC/X/2 The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets (2010)
- UNEP/CBD/COP/DEC/X/10 National reporting: review of experience and proposals for the fifth national report (2010)
- UNEP/CBD/COP/DEC/X/33 Biodiversity and climate change (2010)
- UNEP/CBD/COP/DEC/X/37: Biofuels and biodiversity (2010)
- UNEP/CBD/COP/DEC/XI/19 Biodiversity and climate change related issues: advice on the application of relevant safeguards for biodiversity with regard to policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (2012)

Key decisions COP13 (2016):

- UNEP/CBD/COP/DEC/XIII/1 Progress in the implementation of the Convention and the Strategic Plan for Biodiversity 2011-2020 and towards the achievement of the Aichi Biodiversity Targets
- UNEP/CBD/COP/DEC/XIII/2 Progress towards the achievement of Aichi Biodiversity Targets 11 and 12
- UNEP/CBD/COP/DEC/XIII/3 Strategic actions to enhance the implementation of the Strategic Plan for Biodiversity 2011-2020 and the achievement of the Aichi Biodiversity Targets, including with respect to mainstreaming and the integration of biodiversity within and across sectors
- UNEP/CBD/COP/DEC/XIII/4 Biodiversity and climate change
- UNEP/CBD/COP/DEC/XIII/5 Ecosystem restoration: short-term action plan
- UNEP/CBD/COP/DEC/XIII/7 Forest biodiversity: the role of international organizations in supporting the achievement of the Aichi Biodiversity Targets
- UNEP/CBD/COP/DEC/XIII/11 Voluntary specific workplan on biodiversity in cold-water areas within the jurisdictional scope of the Convention

- UNEP/CBD/COP/DEC/XIII/14 Climate-related geoengineering
- UNEP/CBD/COP/DEC/XIII/23 Capacity-building, technical and scientific cooperation, technology transfer and the clearing-house mechanism
- UNEP/CBD/COP/DEC/XIII/24 Cooperation with other conventions and international organizations
- UNEP/CBD/COP/DEC/XIII/31 Key scientific and technical needs related to the implementation of the Strategic Plan for Biodiversity 2011-2020 and related research

Key decisions COP14 (2018):

- CBD/COP/DEC/14/1 Updated assessment of progress towards selected Aichi Biodiversity Targets and options to accelerate progress
- CBD/COP/DEC/14/2 Scenarios for the 2050 Vision for Biodiversity
- CBD/COP/DEC/14/3 Mainstreaming of biodiversity in the energy and mining, infrastructure, manufacturing and processing sectors
- CBD/COP/DEC/14/5 Biodiversity and climate change
- CBD/COP/DEC/14/8 Protected areas and other effective area-based conservation measures
- CBD/COP/DEC/14/22 Resource mobilization
- CBD/COP/DEC/14/24 Capacity-building and technical and scientific cooperation
- CBD/COP/DEC/14/27 Process for aligning national reporting, assessment and review
- CBD/COP/DEC/14/28 Tools to evaluate the effectiveness of policy instruments for the implementation of the Strategic Plan for Biodiversity 2011-2020
- CBD/COP/DEC/14/30 Cooperation with other conventions, international organizations and initiatives
- CBD/COP/DEC/14/36 Second work programme of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

Other:

- CBD/WG2020/2/3 Zero Draft of the post 2020 Global Biodiversity Framework
- CBD/WG2020/2/L.1 Draft report [of the second meeting of the Open-ended Working Group on the post 2020 Global Biodiversity Framework; Rome, 24-29 February 2020]

2. United Nations Framework Convention on Climate change

Key overarching agreements:

- United Nations Framework Convention on Climate Change, FCCC/INFORMAL/84 (adopted in 1992; effective from 1994)
- Kyoto Protocol (adopted in 1997; effective from 2005)

- Copenhagen Accord (agreed on in 2009), FCCC/CP/2009/11/Add.1, Decision 2/CP.15
- Paris Agreement (adopted in 2015; effective from 2016)
- Katowice Climate Conference Decisions (December 2018):
 - FCCC/CP/2018/10/Add.1&2 Report of the Conference of the Parties on its twenty-fourth session, held in Katowice from 2 to 15 December 2018
 - FCCC/PA/CMA/2018/3/Add.1&2 Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018
 - FCCC/KP/CMP/2018/8/Add.1 Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its fourteenth session, held in Katowice from 2 to 15 December 2018
- Madrid Climate Conference Decisions (December 2019):
 - FCCC/CP/2019/13/Add.1&2 Report of the Conference of the Parties on its twenty-fifth session, held in Madrid from 2 to 15 December 2019
 - FCCC/PA/CMA/2019/6/Add.1 Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its second session, held in Madrid from 2 to 15 December 2019
 - FCCC/KP/CMP/2019/8/Add.1 Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its fifteenth session, held in Madrid from 2 to 15 December 2019

Key decisions addressing land-use, land-use change and forestry:

- FCCC/CP/2001/13/Add.1, Decision 11/CP.7 Land use, land-use change and forestry
- FCCC/CP/2003/6/Add.1, Decision 13/CP.9 Good practice guidance for land use, land-use change and forestry in preparation of national greenhouse gas inventories
- FCCC/CP/2005/5/Add.2, Decision 14/CP.11 Tables of the common reporting format for land use, land-use change and forestry
- FCCC/CP/2007/6/Add.1, Decision 2/CP.13 Reducing emissions from deforestation in developing countries: approaches to stimulate action
- FCCC/CP/2009/11/Add.1, Decision 4/CP.15 Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
- FCCC/CP/2010/7/Add.1, Decision 1/CP.16 The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention
- FCCC/CP/2011/9/Add.1, Decision 2/CP.17 Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention
- FCCC/CP/2011/9/Add.2, Decision 12/CP.17 Guidance on systems for providing information on how safeguards are addressed and respected and

modalities relating to forest reference emission levels and forest reference levels as referred to in decision 1/CP.16

- FCCC/CP/2012/8/Add.1, Decision 1/CP.18 Agreed outcome pursuant to the Bali Action Plan
- FCCC/CP/2013/10/Add.1, Decision 9/CP.19 Work programme on results-based finance to progress the full implementation of the activities referred to in decision 1/CP.16, paragraph 70
- FCCC/CP/2013/10/Add.1, Decision 10/CP.19 Coordination of support for the implementation of activities in relation to mitigation actions in the forest sector by developing countries, including institutional arrangements
- FCCC/CP/2013/10/Add.1, Decision 11/CP.19 Modalities for national forest monitoring systems
- FCCC/CP/2013/10/Add.1, Decision 12/CP.19 The timing and the frequency of presentations of the summary of information on how all the safeguards referred to in decision 1/CP.16, appendix I, are being addressed and respected
- FCCC/CP/2013/10/Add.1, Decision 13/CP.19 Guidelines and procedures for the technical assessment of submissions from Parties on proposed forest reference emission levels and/or forest reference levels
- FCCC/CP/2013/10/Add.1, Decision 14/CP.19 Modalities for measuring, reporting and verifying
- FCCC/CP/2013/10/Add.1, Decision 15/CP.19 Addressing the drivers of deforestation and forest degradation
- FCCC/CP/2015/10/Add.3, Decision 16/CP.21 Alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests
- FCCC/CP/2015/10/Add.3, Decision 17/CP.21 Further guidance on ensuring transparency, consistency, comprehensiveness and effectiveness when informing on how all the safeguards referred to in decision 1/CP.16, appendix I, are being addressed and respected
- FCCC/CP/2015/10/Add.3, Decision 18/CP.21 Methodological issues related to non-carbon benefits resulting from the implementation of the activities referred to in decision 1/CP.16, paragraph 70
- FCCC/CP/2017/11/Add.1, Decision 4/CP.23 Koronivia joint work on agriculture

3. United Nations Environmental Assembly

Ministerial declarations

- Ministerial outcome document of the first session of the United Nations Environment Assembly of the United Nations Environment Programme, UNEA-1, 27 June 2014
- ‘Towards a pollution-free planet’, Ministerial declaration of the United Nations Environment Assembly at its third session, UNEA-3, 4-6 December 2017

- ‘Innovative solutions for environmental challenges and sustainable consumption and production’
- Ministerial declaration of the United Nations Environment Assembly at its fourth session, UNEA-4, 11-15 March 2019

Resolutions

- ‘Ecosystem-based adaptation’, UNEA Res. 1/8, 23-27 June 2014
- ‘Supporting the Paris Agreement’, UNEA Res. 2/6, 23-27 May 2016
- ‘Sustainable consumption and production’, UNEA Res. 2/8, 23-27 May 2016
- ‘Sustainable management of natural capital for sustainable development and poverty eradication’ UNEA Res. 2/13, 23-27 May 2016
- ‘Sustainable coral reef management’, UNEA Res. 2/12, 23-27 May 2016
- ‘Mainstreaming of biodiversity for well-being’, UNEA Res. 2/16, 23-27 May 2016
- ‘Enhancing the work of the United Nations Environment Programme in facilitating cooperation, collaboration and synergies among biodiversity-related conventions’, UNEA Res. 2/17, 23-27 May 2016
- ‘Relationship between the United Nations Environment Programme and the multilateral environmental agreements for which it provides the secretariats’, Res. 2/18, 23-27 May 2016
- ‘Pollution mitigation by mainstreaming biodiversity into key sectors’, UNEA Res. 3/2, 4-6 December 2017
- ‘Environment and health’, UNEA Res. 3/4, 4-6 December 2017
- ‘Investing in innovative environmental solutions for accelerating the implementation of the Sustainable Development Goals’, UNEA Res. 3/5, 4-6 December 2017
- ‘Managing soil pollution to achieve sustainable development’, UNEA Res. 3/6, 4-6 December 2017
- ‘Innovative pathways to achieve sustainable consumption and production’, UNEA Res. 4/1, 11-15 March 2019
- ‘Innovation on biodiversity and land degradation’, UNEA Res. 4/10, 11-15 March 2019
- ‘Sustainable management for global health of mangroves’, UNEA Res. 4/12, 11-15 March 2019
- ‘Sustainable coral reefs management’, UNEA Res. 4/13, 11-15 March 2019
- ‘Conservation and sustainable management of peatlands’, UNEA Res. 4/16, 11-15 March 2019

UNEP reports

- ‘Relationship between the United Nations Environment Programme and multilateral environmental agreements’ UNEP/EA.1/INF/8, 30 May 2014

Annex II

Summary of the CBD, UNFCCC and UNEA documents analysis

Analysed documents	Indirect drivers			Direct drivers			Other keywords			
	Demographic and socio-cultural	Economic and technological	Governance and institutions	Fossil fuels	Land use change	Climate change	Food production and consumption/ Agriculture	Environment/ Biodiversity/ Ecosystems/ Forests	Policy coherence	Sustainable Consumption and Production
Convention on Biological Diversity	Red	Red	Red				Red			
Strategic Plan 2011-2020 (& COP decisions)	Green	Yellow	Green				Green			Green
Zero draft of post 2020 GBF	Green	Green	Green		Yellow		Yellow			Green
Thematic COP decisions (2008-2018, mostly >2015)	Red	Green	Green	Yellow						Green
Framework Convention on Climate Change	Green	Green	Green	Yellow						
Kyoto Protocol & Copenhagen Accord	Green	Green	Green				Green			
Paris Agreement & beyond	Green	Green	Green		Yellow		Green	Yellow		Red
LULUCF COP decisions (all years)	Green	Green	Green				Green	Yellow		
UNEA-1	Green	Green	Yellow				Green	White		Green
UNEA-2	Green	Green	Green				Green	Yellow		Green
UNEA-3	Green	Green	Green				Green	Yellow		Green
UNEA-4	Yellow	Yellow	Green				Green	White		Green

■ Low relevance - text mentioned in preamble or annex, without strong legal language
■ Medium relevance - text mentioned in the operational part with general wording
■ High relevance - text mentioned in the operational part with concrete measures; possibly hard legal language used*
■ Not addressed

Analysis of CBD documents

Analysed documents	Indirect drivers			Direct drivers			Other keywords			
	Demographic and socio-cultural	Economic and technological	Governance and institutions	Fossil fuels	Land-/sea-use change	Climate change	Food security, Production & Consumption/ Agriculture	Environment/ Biodiversity/ Ecosystems/ Forests	Policy coherence	Sustainable Consumption and Production
Convention on Biological Diversity	Red	Red	Red	Red	Green	White	Red	Green	Green	White
Strategic Plan 2011-2020	Green	Yellow	Green	White	Green	Green	Green	Green	Yellow	Green
Subsequent COP decisions on the Strategic Plan 2011-2020	Green	Yellow	Green	White	Green	Red	Red	Green	Yellow	Green
Zero draft of post 2020 GBF	Green	Green	Green	White	Yellow	White	Yellow	Green	Green	Green
COP decisions related to climate change	White	White	White	White	Yellow	Green	White	Green	Yellow	White
COP decisions on protected areas and ecosystem restoration	Red	Red	Red	White	Green	Red	Red	Green	Red	Red
COP decision on forest biodiversity	White	White	White	White	White	White	White	Green	Red	White
COP decision on agricultural biodiversity	White	Yellow	Green	Green	White	White	White	Green	White	Green
COP decision on mainstreaming in industry	White	Green	Yellow	Red	Yellow	White	White	White	White	Yellow
COP decisions on national reporting	White	White	Green	Green	White	White	White	Green	Yellow	White
COP decisions on capacity-building and cooperation	White	Green	Green	White	Yellow	White	White	Green	Yellow	White

Red - Low relevance - text mentioned in preamble or annex, without strong legal language

Yellow - Medium relevance - text mentioned in the operational part with general wording

Green - High relevance - text mentioned in the operational part with concrete measures; possibly hard legal language used*

White - Not addressed

Notes on legend: * Hard legal language in the analyzed CBD COP decisions is scarce and Parties are only in a very few cases "urged" to take specific action. "Shall" is only used in the text of the convention. High relevance has additionally been indicated when drivers or key words

(a) were dealt with in stand alone decisions on the topic or

(b) were namely included in targets under the Strategic Plan or Zero-Draft of the post-2020 GBF - even though their remains unclarity about the legal status of the post-2020 GBF.

Brief description of results: The table clearly shows the fairly holistic approach of the CBD, but with a clear lack of strong legal implications or concrete measures in key areas such as addressing demographic and socio-cultural as well as economic and technological drivers or agriculture. Even though many cells appear green, hard legal language is used only in very few cases. The mainstreaming approach promoted in numerous COP decisions as important tool for achieving the goals of the convention has most impact potential with regard to economic drivers. Governance aspects are reflected on different levels as well as horizontally and vertically (e.g. by calling for synergies with other multilateral environmental agreements and other relevant conventions/international processes; integration of global goals and targets in national policies, action plans and strategies across sectors), but less often as drivers but rather as tools for (enhanced) implementation, as in the case of policy coherence - again barely underpinned by hard legal language. The need to respect national circumstances and sovereignty in policy-making clearly limits the level of concreteness and tangibility of governance provisions, especially in terms of measures. With regard to climate change, provisions get most concrete with regard to adaptation. Mitigation contributions have been considered less. SCP is touched upon in multiple decisions, but most of them lack concretization. The keyword analysis has not focused on the exact wording only but included synonyms and content clearly displaying or referring to the relevant concept, underlining the qualitative and analytical character of this research.

Analysis of UNFCCC documents

Analysed documents	Indirect drivers			Direct drivers			Other keywords			
	Demographic and socio-cultural	Economic and technological	Governance and institutions	Fossil fuels	Land-/sea-use change	Climate change	Food security, Production & Consumption/ Agriculture	Environment/ Biodiversity/ Ecosystems/ Forests	Policy coherence	Sustainable Consumption and Production
Framework Convention										
Kyoto Protocol										
Copenhagen Accord										
Paris Agreement										
Katowice COP/CMP/CMA										
Madrid COP/CMP/CMA										
LULUCF COP decisions										

Low relevance - text mentioned in preamble or annex, without strong legal language

Medium relevance - text mentioned in the operational part with general wording

High relevance - text mentioned in the operational part with concrete measures; possibly hard legal language used*

Not addressed

Notes on legend: Drivers and topics (keywords) were considered to be insufficiently addressed (low relevance) if the matter only appeared in the preamble. Stronger relevance was indicated in the case of inclusion of the key drivers or topics in the operational part of the documents. Legal language such as 'note', 'recognize', 'acknowledge', as well as 'invite' or 'encourage' was considered to represent soft law (medium relevance), while wording such as 'shall', 'will' or 'request' was marked as strong legal language (high relevance). The establishment of key international mechanisms relevant to respective topics (e.g. Technology Mechanism) were included under 'high relevance'.

Brief description of results: We found that UNFCCC tends to have a relatively good coverage of the topics assessed and to use strong legal language (i.e. 'shall', 'request') in most of the documents analysed. However, while the above table appears mostly green, the extent to which the drivers/topics are addressed and the depth and breadth of concrete instruments and measures can still be enhanced and strengthened. For instance, demographic and socio-cultural drivers tend to be mostly addressed through education and awareness raising measures, while issues related to lifestyle are briefly and rarely mentioned and nothing is said of population dynamics and urbanization. Similarly, while there is strong support for technological development and transfer through the Technology Mechanism, measures related to economic diversification are only listed as an option that can provide climate co-benefits, but specific action is not directly requested. Fossil fuels are only mentioned in view of the vulnerability of countries dependent on this resource. In the table, we assumed energy-related measures to directly address fossil fuels. In a similar fashion, we included provision that refer to an integral approach in addressing the social, economic and environmental dimensions (horizontal coherence) as well as inclusion and coordination of multiple actors and of policies at local, sub-national, national, regional and international level (vertical coherence) under the section on 'Policy coherence', as this specific terminology became more widely used in international negotiations in recent years. While this cannot necessarily be assumed to have a tangible impact, strong legal language around reporting on measures and emissions with reference to the drivers/topics were also seen as highly relevant. 'Sustainable consumption and production' is the area that appears to be least addressed in the UNFCCC documents. While there is very little mention to this topic, sustainable consumption and production in particular are implied in tackling the various sectors (industry, energy, agriculture, etc.) under UNFCCC reporting. Specific mentions to 'sustainable lifestyles' and diets, as a hint to 'sustainable consumption' is only made in the recent legal documents, such as the Paris Agreement and Katowice decisions.

Analysis of UNEA documents

Analysed documents (1)	Indirect drivers			Direct drivers			Other keywords			
	Demographic and socio-cultural	Economic and technological	Governance and institutions	Fossil fuels	Land-use change	Climate change	Food security, Production & Consumption / Agriculture	Environment/ Biodiversity/ Forests	Policy coherence	Sustainable Consumption and Production
UNEA-1 Ministerial Declaration										
Resolution 1/8 - Ecosystem-based adaptation										
Resolution 2/6 - Supporting the Paris Agreement										
Resolution 2/8 - SCP										
Resolution 2/12 - Sustainable coral reef										
Resolution 2/13 - Sustainable management										
Resolution 2/16 - Mainstreaming of biodiversity										
Resolution 2/17 - Enhancing the work of UNEP										
UNEA-3 Ministerial outcome document										
Resolution 3/2 - Pollution mitigation										
Resolution 3/4 - Environment and health										
Resolution 3/5 - Investing in innovative solutions										
Resolution 3/6 - Managing soil pollution										
UNEA-4 Ministerial Outcome Document										
Resolution 4/1 - Innovative pathways to SCP										
Resolution 4/10 - Innovation on biodiversity										
Resolution 4/12 - Sustainable management										
Resolution 4/13 - Sustainable coral reefs										
Resolution 4/16 - Conservation of peatlands										

- Low relevance - text mentioned in preamble or annex, without strong legal language
- Medium relevance - text mentioned in the operational part with general wording
- High relevance - text mentioned in the operational part with concrete measures; possibly hard legal language used*
- Not addressed

Notes on the legend: UNEA documents are not legally binding and therefore "hard legal language" is meant to be in UNEA documents the use of stronger wording in addressing Member States and/or UNEP's Executive Director such as "urge" and/or "request".

Brief description of results: The table highlights how the direct and indirect drivers for climate change and biodiversity loss have addressed in UNEA documents together with the reference to sustainable consumption and production (SCP). The different colours reflect the different level of relevance that drivers have encountered in UNEA documents analysed. The analysis shows that “land/sea use change” is largely addressed as direct driver, followed by climate change while fossil fuels is not addressed at all in UNEA documents.

Not surprisingly and in consistency with UNEA role, the governance aspects are the most indirect driver addressed in UNEA documents. Biodiversity and ecosystems are key words largely considered together with policy coherence. The SCP policy is addressed in all UNEA sessions gaining more importance since UNEA-3.

Concerning the level of relevance, UNEA has addressed both direct and indirect drivers in a high/medium level being the majority of resolutions “urging and requesting” concrete measures to tackle climate change and biodiversity loss.