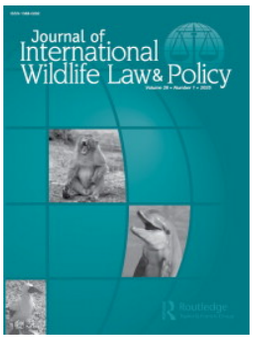

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A Critical Analysis of the Global Biodiversity Framework

Rob Amos*

ABSTRACT

Adopted in 2022 by states party to the Convention on Biological Diversity, the Global Biodiversity Framework has been celebrated as a game changer in the international community's efforts to address dangerous levels of biodiversity loss. Through a detailed analysis, this article argues that this optimism is unfounded, and instead the Framework will fail to halt the decline of the natural world. It begins by locating the Framework in its international legal context before critiquing its regulatory form, described as 'global target, national action'. The remainder of the article provides a comprehensive assessment of the Framework's 2050 Vision for Biodiversity and its associated global goals, and its 2030 Mission and the related 23 action-oriented targets. It concludes by offering brief thoughts on alternative directions international conservation law and policy could go in to address the biodiversity crisis.

1. Introduction

In 2022, parties to the 1992 Convention on Biological Diversity (CBD)[1] adopted the Kunming–Montreal Global Biodiversity Framework (GBF): the new strategy directing efforts to halt biodiversity loss and restore the dangerously degraded natural world.[2] The Framework was heralded as a game changer for biodiversity by individuals involved in its negotiation.[3] Through a close textual analysis of the GBF, this article questions that optimism and argues instead that it is incapable of saving thousands of

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[1]Convention on Biological Diversity (adopted 5 June 1992, entered into force 29 December 1993) 1760 UNTS 79.

[2]Decision 15/4, Kunming–Montreal Global Biodiversity Framework, CBD/COP/DEC/15/4 (2022).

[3]Patrick Greenfield, 'I Still Can't Get over the Fact We Did It': What It Felt Like to Seal Historic COP15 Deal' *The Guardian*, 20 June 2023 <www.theguardian.com/environment/2023/jun/20/what-it-felt-like-to-seal-historic-cop15-biodiversity-deal-aoe>.

species that are at risk of disappearing due to humanity's unsustainable exploitation of the planet.[4]

The need for renewed action to respond to biodiversity loss through the principal global conservation treaty is uncontested. Every year, reports highlight the increasingly precarious state of nature. To give just one example, the latest Living Planet Index indicates that biodiversity has decreased by 73 percent over the past 50 years.[5] What this article challenges are the form and content of this action: specifically, the CBD's dogmatic use of non-binding global targets that constitute international policy more so than international law.[6]

It was never inevitable that the CBD would adopt non-binding targets instead of more robust legal forms as the primary means for guiding conservation action. As a framework convention, it has in Article 28 a mechanism to develop legally binding protocols in a manner similar to that which has proven relatively successful in responding to other global environmental problems.[7] To date, though, only two have been adopted: the 2000 Cartagena Protocol on Biosafety,[8] which addresses the transboundary movement of living modified organisms, and the 2010 Nagoya Protocol on Access to Genetic Resources and Benefit-Sharing.[9] These are important issues, with the Nagoya Protocol being especially significant given the stalled negotiations in the World Intellectual Property Organization on new rules for the protection of communities' traditional knowledge about their natural genetic resources.[10] What they are not, however, are principal drivers of biodiversity loss, which include climate change, habitat

[4]Eduardo Brondizio et al (eds), *Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (IPBES 2019); and Axel Hochkirch et al, 'A Multi-Taxon Analysis of European Red Lists Reveals Major Threats to Biodiversity' (2023) 18 *PLoS ONE* e0293083, which suggests that the 2019 IPBES report underestimated the number of species at risk of extinction.

[5]WWF, *Living Planet Report 2024—A System in Peril* (WWF/ZSL 2024).

[6]Stuart Harrop and Diana Pritchard, 'A Hard Instrument Goes Soft: The Implications of the Convention on Biological Diversity's Current Trajectory' (2011) 21 *Global Environmental Change* 474, 478–479.

[7]A notable example being the protocols to the 1979 Convention on Long-Range Transboundary Air Pollution Convention on Long-Range Transboundary Air Pollution (adopted 13 November 1979, in force 16 March 1983) 1480 UNTS 215. See Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (4th ed, Cambridge University Press 2018) 262–271.

[8]Protocol on Biosafety (adopted 29 January 2000, in force 11 September 2003) 39 ILM 1027. A further protocol has been adopted to the Biosafety Protocol—the Nagoya–Kuala Lumpur Supplementary Protocol on Liability and Redress, Nagoya (adopted 15 October 2010, in force 5 March 2018) 3240 UNTS 1.

[9]Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization, Nagoya, (adopted 29 October 2010, in force 12 October 2014) C.N.782.2010.TREATIES-1.

[10]WIPO General Assembly, Matters Concerning Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, WO/GA/26/6 (2000). See Burton Ong, 'Biotechnology Innovations, Genetic Resources and Traditional Knowledge: Current Developments at the World Intellectual Property Organization' in Michael Jeffery et al (eds), *Biodiversity Conservation, Law and Livelihoods: Bridging the*

destruction, invasive/alien species and trade.[11] Under the CBD, these have instead been primarily addressed through Programmes of Work,[12] the utility of which is doubtful given that progress in halting biodiversity loss through the treaty regime has been minimal,[13] with action coordinated through overarching strategies such as the GBF.

After providing an overview of the GBF, this article locates the Framework within its broader international legal context, specifically its relationships with and contributions to sustainable development and how it represents an emerging international regulatory form, 'global target, national action'. This is followed by a detailed analysis of the goals and targets which comprise the GBF and the measures that states are encouraged to adopt, at all governance levels, to ensure its successful implementation. Discussion of each goal and target will be necessarily succinct, but four core criticisms emerge from this macro-appraisal of the GBF. First, it primarily presents biodiversity as the natural resources of states, neglecting the broader values that different communities associate with nature and its more fundamental ecological values. Related to this is the second criticism: The GBF remains anchored to 'business as usual' models of conservation and natural resource management that prioritize short-term economic gain over long-term ecological imperatives. Third, despite being 'action-oriented', many of the GBF's targets fail to identify specific actions that states might take to achieve them. Fourth, while the GBF identifies key issues that are driving the extinction crisis, it neglects the broader reforms that must be implemented in societal structures and behaviours if these drivers are to be addressed.

Taken together, these criticisms suggest that the GBF merely constitutes more of the same insufficient, ineffective and ecologically inappropriate measures that undermine efforts to address the biodiversity crisis. The article concludes with thoughts on what form a different approach to international conservation might take.

2. The Global Biodiversity Framework

The GBF is the latest in a series of non-binding frameworks guiding states' efforts to address biodiversity loss. In 2002, the CBD's Conference of the

North-South Divide (Cambridge University Press 2008) 553; Rob Amos, *Advancing Agroecology in International Law* (Routledge 2023) 51–52.

[11]Rob Amos, *International Conservation Law: The Protection of Plants in Theory and Practice* (Routledge 2020) 4.

[12]See <https://www.cbd.int/programmes>.

[13]Secretariat to the Convention on Biological Diversity, *Global Biodiversity Outlook 5* (2020).

Parties (COP) adopted a target 'to achieve by 2010 a significant reduction of the current rate of biodiversity loss', accompanied by four Strategic Goals associated with the CBD's implementation.[14] This lacked sufficient detail and ambition, and in 2010, the Third Global Biodiversity Outlook concluded that the target had been missed.[15] It was replaced with the more comprehensive 2020 Strategic Plan for Biodiversity, which comprised the 20 Aichi targets to be achieved by 2020.[16] While offering more specific goals than the 2010 target, for reasons discussed in Part 4, the 2020 Strategic Plan was also a failure, with none of the Aichi targets fully achieved.[17]

After a delay to the negotiations due to the COVID-19 pandemic, the GBF was adopted in an Annex to COP Decision 15/4. As is typical of these instruments, this acknowledges the work behind the Decision, places it in its CBD context and invites various stakeholders to acknowledge and support the GBF. This central Decision is complemented by others addressing, inter alia, planning, monitoring, reporting and review[18]; resource mobilization[19]; and capacity building.[20]

Each of these is an essential component of the GBF, as lack of financial resources and lack of technical capacity have long been considered barriers to developing states' implementation of the CBD.[21] As a consequence, however, they are also features of previous CBD strategies.[22] In certain regards, the GBF goes further than earlier frameworks in trying to create the conditions necessary for the success of such ambitious global policies. COP Decision 15/15 establishes a fund under the remit of the Global Environment Facility specifically to support the implementation of the GBF, for example.[23] Yet the Global Environment Facility is already responsible for coordinating

[14]Decision VI/26, Strategic Plan for the Convention on Biological Diversity, UNEP/CBD/COP/DEC/VI/26 (2002) Annex, Parts B and C.

[15]Harrop and Pritchard (n 6) 477; Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 3* (2010) 9.

[16]Decision X/2, The Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets, UNEP/CBD/COP/DEC/X/2, 2010, Annex.

[17]Secretariat of the Convention on Biological Diversity (n 13).

[18]Decision 15/6, Mechanisms for planning, monitoring, reporting and review, CBD/COP/DEC/15/6, 2022.

[19]Decision 15/7, Resource Mobilisation, CBD/COP/DEC/15/7, 2022.

[20]Decision 15/8, Capacity-building and development and technical and scientific cooperation, CBD/COP/DEC/15/8, 2022.

[21]Ruth Mackenzie, 'Monitoring and Assessment of Biodiversity Under the Convention on Biological Diversity and Other International Agreements' in Anna Lawrence (ed), *Taking Stock of Nature: Participatory Biodiversity Assessment for Policy, Planning and Practice* (Cambridge University Press 2010) 30, 41–43. See also Dec VI/26 (n14) Appendix.

[22]E.g., Decision X/2 (n 16).

[23]Decision 15/15, Financial mechanism, CBD/COP/DEC/15/15, 2022.

international finance in support of CBD priorities,[24] and the funding that has been provided through pre-existing financial mechanisms has been insufficient.[25] At the time of writing, just $383 million had been pledged.[26] Any funding is to be welcomed, but this falls short of the levels of finance called for in the GBF.[27] That sufficient money for the new fund has not been forthcoming suggests that lack of resources will continue to undermine efforts to protect global biodiversity.

Another feature of the GBF that is shared with its predecessors is that it perpetuates the fallacy that humanity is somehow separate from nature. It opens by stating:

> Biodiversity is fundamental to human well-being, a healthy planet, and economic prosperity for all, including for living well in balance and *in harmony with Mother Earth*. We depend on it for food, medicine, energy, clean air and water, security from natural disasters as well as recreation and cultural inspiration, and it supports all systems of life on Earth.[28] (emphasis added)

Humanity must not live in harmony *with* nature. Humanity must live in harmony *in* nature. This might be dismissed as semantics, but to say that we must live in harmony with nature suggests that humanity is somehow 'other' to nature. In reality, we are part of nature, as a basic fact of evolution and because of how society is embedded, tangibly and intangibly, in the natural world. The phrase 'in harmony with nature' is thus symptomatic of the anthropocentric notion that humanity is different from, or superior to, nature that underpins international biodiversity law and is one explanation for why efforts to halt biodiversity loss continually fail.[29]

This anthropocentrism is also reflected in the GBF's use of the term 'Mother Earth'.[30] Many ecofeminists reject Mother Earth as a concept because it is seen as perpetuating the oppression of women and nature

[24]E.g., GEF, *Report of the Global Environment Facility Presented to the Fifteenth Meeting of the Conference of the Parties to the Convention on Biological Diversity* (2022).

[25]Edward B Barbier et al, 'How to Pay for Saving Biodiversity' (2018) 360 *Science* 486.

[26]See <https://www.thegef.org/what-we-do/topics/global-biodiversity-framework-fund>.

[27]See Target 19.

[28]Decision 15/4 (n 2) para. 1.

[29]Amos (n 11) 25–30. See further Alexander Gillespie, *International Environmental Law, Policy and Ethics* (Oxford University Press 2000).

[30]Anthropocentrism per se is not inherently problematic. The issue is the extent to which short-term, mainly economic, anthropocentric interests are prioritized over ensuring the long-term health and integrity of the natural world (Amos (n 11) 25–30). As Bowman et al point out, protecting ecological systems can itself be anthropocentric because of human society's dependence on these: Michael Bowman et al, *Lyster's International Wildlife Law* (2nd ed, Cambridge University Press 2010) 62. This raises a wider question of how useful the dichotomy between eco- and anthropocentrism is when critiquing biodiversity law.

in patriarchal society,[31] although this position is not universal within ecofeminist theory.[32] To call Earth 'Mother', however, does imply that it is there to provide for humanity, even that it has an obligation to provide for humanity, which again reinforces negative stereotypes about women's place in society.[33] This is reflected in nature primarily being presented in international law as resources to be exploited, rather than as entities that warrant a level of respect equivalent to that which is afforded to other members of our own species. Even under the CBD, and notwithstanding the preambular reference to nature's intrinsic value, the conservation of nature is framed as a means of enabling the continued utilization of nature, rather than as an end in itself.[34] A persuasive case can be made that our exploitation of natural resources must be conducted in a manner that is sustainable to be lawful under customary international law, but humanity still considers itself to have the right to exert control over nature.[35]

On the other hand, references to Mother Earth in international documents have been welcomed as legitimizing discussions of alternative ways of perceiving humanity's relationships with nature.[36] There is some merit to this argument,[37] and the term's inclusion has some import given other incidences where non-Western philosophies have previously been challenged in international biodiversity fora.[38] There is little evidence to suggest, however, that acknowledging that some states view nature as Mother Earth, or similar concepts such as Pachamama, has had a discernible

[31]E.g., Maria Karaiskos, 'The Claims of Ecofeminism' (1998) *UCL Jurisprudence Review* 19.

[32]Lori J Swanson, 'A Feminist Ethic that Binds Us to Mother Earth' (2015) 20 *Ethics and the Environment* 83.

[33]Val Plumwood, *Feminism and the Mastery of Nature* (Routledge 1993) 20–22.

[34]Amos (n 11) 25.

[35]Nico Schrijver, *Sovereignty Over Natural Resources: Balancing Rights and Duties* (Cambridge University Press 1997) 165–168. This position has been confirmed by international courts and tribunals, most notably the International Tribunal on the Law of the Sea in *Responsibilities and Obligations of States with Respect to Activities in the Area*, Advisory Opinion, 1 February 2011, *ITLOS Reports 2011*, in which it was held that states had to take certain steps to minimize the environmental impacts of activities conducted in the Area.

[36]Karen Morrow, 'Rio + 20, the Green Economy and Re-orienting Sustainable Development' (2012) 14 *Environmental Law Review* 279, 296.

[37]Stuart Harrop, who kindly reviewed an earlier draft of this work, offers a counter-argument. He made the point that including a metaphor in a document that is intended to advance the agenda of a legal instrument is problematic, especially a metaphor as controversial as 'Mother Earth'. The resulting vagueness only undermines that instrument's normative value. This might be considered another barrier to incorporating non-Western perspectives into international law and is an important point when we consider that clarity is essential for norms to develop as customary international law.

[38]Ulrich Brandt and Alice Vadrot, 'Epistemic Selectivities and the Valorisation of Nature: The Cases of the Nagoya Protocol and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)' (2013) 9 *Law, Environment and Development Journal* 204.

impact on international biodiversity frameworks.[39] Simply noting that some states view nature in this way merely reiterates the position set out in the Outcome Report of the 2012 Rio + 20 Conference.[40]

3. Achieving Sustainable Development Through the Global Biodiversity Framework

It is not just biodiversity frameworks that can be accused of being excessively anthropocentric. The same criticism has been levied against sustainable development, the principal concept underpinning international and national policymaking,[41] including for biodiversity protection.[42] Sustainable development has been subject to various definitions since the international community accepted the need to pursue economic development without causing undue harm to the environment in the 1972 Stockholm Declaration,[43] but each has been interpreted and applied to enable humanity's developmental priorities to override ecological imperatives. Most cited is the definition of the World Commission on Environment and Development (Brundtland), which describes sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.[44]

This construction has been subject to extensive analysis and debate,[45] but it is still worth making two observations that are pertinent to the present analysis of the GBF. First, the quote above is not the totality of the Brundtland Commission's definition of sustainable development. It goes on to say that such development is constrained by various limits, including the ecological carrying capacity of the Earth.[46] Had this idea been more fully embraced, sustainable development could have evolved to more closely resemble a principle of ecological sustainability. Essentially,

[39]Although see the discussion of Target 19 below.

[40]UNGA Resolution 66/288 of 11 September 2012, paras. 39–40.

[41]The precise legal status of sustainable development, and that of its constituent elements, remains contested: Duncan French, 'Sustainable Development' in Malgosia Fitzmaurice et al (eds), *Research Handbook on International Environmental Law* (2nd ed, Edward Elgar 2021) 130.

[42]Amos (n 11) 225–228.

[43]A/Conf.48/14/Rev.1 (1972).

[44]A/42/427 (1987), ch 1, para 27.

[45]E.g., Maria Lee, *EU Environmental Law, Governance and Decision-Making* (2nd ed, Hart 2014) 58–62.

[46]See (n 44). This reflects similar ideas to the earlier Limits to Growth hypothesis: Donella H Meadows, Dennis L Meadows, Jørgen Randers and William Behrens III, *The Limits to Growth* (Club of Rome 1972). Ecological carrying capacity is a difficult concept to translate into measurable standards, but one example can be found in Will Steffen et al, 'Planetary Boundaries: Guiding Human Development on a Changing Planet' (2015) 347 *Science* 736.

this requires policy decisions to respect pre-defined ecological limits of the Earth and as such is arguably more capable of ensuring that the development of human society is genuinely sustainable.[47]

Second, the question of how current generations can meet their needs without compromising future generations' ability to meet their own links to debates concerning weak and strong sustainability.[48] In brief, proponents of weak sustainability argue that it is permissible for current generations to deplete natural capital as this can be substituted with technological alternatives. Strong sustainability, in contrast, requires natural capital to be preserved as this maximizes the options for future generations.[49] Sustainable development has been closely associated with weak sustainability,[50] with the substitution of ecosystem services with human infrastructure being one example of its implications for biodiversity. Studies show, however, that artificial infrastructure often cannot keep pace with changing social and ecological conditions without frequent and costly intervention.[51] Further, while there are positive examples of ecosystem services being preserved because policymakers genuinely recognize their value to nature and human society,[52] in many cases they are only considered a priority because a substitute technology either does not exist or is too costly to be widely deployed.[53] This has led to the suggestion that many policies that protect ecosystem services are merely hollow examples of strong sustainability.[54]

Closely related to the weak/strong sustainability dichotomy are the so-called three pillars of sustainable development: environmental protection,

[47]Klaus Bosselmann, *The Principle of Sustainability: Transforming Law and Governance* (2nd ed, Routledge 2017). On how a principle of ecological sustainability might work in practice, see Amos (n 11) 228–234.

[48]There are of course practical difficulties in how not only to assess what the needs of future generations would be (although presumably these would be similar to our own) but to account for these in decision-making processes as well. One example of how this might be achieved is Wales's Well-being of Future Generations Act 2015. See further Hayden Davies, 'The Well-being of Future Generations (Wales) Act 2015—A Step Change in the Legal Protection of the Interests of Future Generations?' (2017) 29 *Journal of Environmental Law* 165.

[49]There is not space to provide a detailed critique of these positions here. See instead Wilfred Beckerman, '"Sustainable Development": Is It a Useful Concept?' (1994) 3 *Environmental Values* 191.

[50]Andrea Ross, 'Modern Interpretations of Sustainable Development' (2009) 36 *Journal of Law and Society* 32.

[51]E.g., American Rivers, *Naturally Stronger: How Natural Water Infrastructure Can Save Money and Improve Lives* (2017). Available at <https://medium.com/naturally-stronger>.

[52]E.g., James Salzman, 'A Field of Green? The Past and Future of Ecosystem Services' (2006) 21 *Journal of Land Use and Environmental Law* 133, 139–140; JB Ruhl et al, *The Law and Policy of Ecosystem Services* (Island Press 2007) 32–34.

[53]Colin Reid and Walters Nsoh, *The Privatization of Biodiversity? New Approaches to Conservation* (Edward Elgar 2016) 84.

[54]Amos (n 10) 106.

economic development and social equity. In the past, framing sustainable development in this way promulgated the fantasy that these pillars are mutually reinforcing, that is, that gains in one automatically lead to gains in the others.[55] Not only is this patently flawed, as it ignores the inevitable trade-offs that must be made between competing policy objectives, it has legitimized the prioritization of economic development over environmental concerns. For example, sustainable development has justified the watering down of biodiversity protection measures in land-use planning contexts to facilitate socioeconomic agendas.[56]

The three pillars of sustainable development are more accurately understood as necessitating a process of balancing.[57] For each decision, there will be synergies and trade-offs within and between the pillars, with corresponding positive and negative impacts on the interests of different stakeholders, that must be considered in a holistic and participative manner.[58] This idea of having to balance goals, interests and priorities in the pursuit of coherent policies is at the heart of the most recent manifestation of sustainable development, the Sustainable Development Goals (SDGs).[59] These are now ubiquitous not only in law and policy but also in academic discourse.[60] The SDGs comprise 17 Goals and 169 sub-targets that collectively represent the international community's agenda for 'people, planet and prosperity'.[61]

That environmental issues are central to many of the Goals is indicative of the extent to which these are now embedded across international policy.[62] This is also reflected in the links between the GBF and the SDGs, collectively and in relation to individual Goals,[63] and the recognition that achieving one framework will not be possible without achieving the other:

[55]A/CONF.199/20 (2002), Annex, para 5.

[56]Rob Amos, 'Assessing the Impact of the Habitats Directive: A Case Study of Europe's Plants' (2021) 33 *Journal of Environmental Law* 365, 372–374.

[57]Emily Lydgate, 'Sustainable Development in the WTO: From Mutual Supportiveness to Balancing' (2012) 11 *World Trade Review* 621, 622.

[58]This is central to nexus theories of decision-making: Priscila Carvalho and Catalina Spataru, 'Advancing the Implementation of SDGs in Brazil by Integrating Water-Energy Nexus and Legal Principles for Better Governance' (2018) 3 *Sustainability in Environment* 277.

[59]UNGA Resolution 70/1 of 21 October 2015.

[60]Rob Amos, Priscila Carvalho, Silvia Cesa-Bianchi and Jane Holder, *Living Sustainability in Higher Education: Connecting Communities, Learning and Justice* (Routledge 2025, forthcoming) introduction.

[61]UNGA Resolution 70/1 (n 59) preamble.

[62]Sands and Peel (n 7) 50.

[63]Ina Lehmann, 'Inspiration from the Kunming-Montreal Global Biodiversity Framework for SDG 15' (2023) 23 *International Environmental Agreements* 207; Rattan Lal et al, 'Soils and Sustainable Development Goals

> [The GBF] is a contribution to the achievement of the 2030 Agenda for Sustainable Development. At the same time, progress towards the [SDGs] and the achievement of sustainable development in all its three dimensions (environmental, social and economic) is necessary to create the conditions necessary to fulfil the goals and targets of the Framework.[64]

However, and notwithstanding the SDGs' emphasis on holistic policymaking,[65] there is little to suggest that the SDGs are delivering on their biodiversity targets, or are even capable of delivering on them.[66] French and Kotzé have shown how, as a conceptual framework, the SDGs merely reinforce the prioritization of development at the expense of maintaining the planet's ecological integrity,[67] and their arguments have been confirmed in subsequent analyses of how the Goals are being implemented.[68]

Further, the radical vision for a sustainable society that is reflected in the SDGs and the GBF is not matched by the action taken by states to implement these frameworks. Research conducted by the World Resources Institute into SDG-12 (Responsible Production and Consumption) shows that when designing, implementing and tracking policies to reduce the impacts of domestic consumption patterns, developed states typically exclude the environmental and social costs to biodiversity-rich developing states of producing and exporting goods.[69] At best, this is simply unambitious policymaking, with developed states focusing on what they can do rather than what they must do to deliver the SDGs. At worst, it is a modern-day expression of the Western colonialism that has contributed to the ecological crisis.[70]

Further concerns are raised by Reyers and Selig, who argue that states continue to neglect conservation targets in their pursuit of sustainable

of the United Nations: An International Union of Soil Sciences Perspective' (2021) 25 *Geoderma Regional* e00398.

[64]Decision 15/4 (n 2) para 8.

[65]UNGA Resolution 70/1 (n 59) para 18.

[66]Louis Kotzé, 'The Sustainable Development Goals: An Existential Critique Alongside Three New-Millennial Analytical Paradigms' in Duncan French and Louis Kotzé (eds), *Sustainable Development Goals: Law, Theory and Implementation* (Edward Elgar 2018) 41.

[67]Duncan French and Louis Kotzé, 'The Anthropocentric Ontology of International Environmental Law and the Sustainable Development Goals: Towards an Ecocentric Rule of Law in the Anthropocene' (2018) 7 *Global Journal of Comparative Law* 5.

[68]E.g., Nina Eisenmenger et al, 'The Sustainable Development Goals Prioritize Economic Growth Over Sustainable Resource Use: A Critical Reflection on the SDGs from a Socio-Ecological Perspective' (2020) 15 *Sustainability Science* 1101.

[69]David O'Connor et al, *Universality, Integration, and Policy Coherence for Sustainable Development: Early SDG Implementation in Selected OECD Countries* (WRI 2016).

[70]Nussaïbah B Raja, 'Colonialism Shaped Today's Biodiversity' (2022) 6 *Nature Ecology and Evolution* 1597.

development.[71] This is not necessarily because states, at the national level, consider conserving biodiversity to be unimportant. Rather, it may be a demonstration of how biodiversity is frequently traded off against equally legitimate policy objectives that appear to be of more immediate concern to human society. Research by Kok et al, for example, shows how strategies that would deliver major benefits for biodiversity carry significant costs in relation to, inter alia, food security.[72] Their conclusions are based on the amount of agricultural land that would need to be turned over to conservation purposes under the conservation strategies that they assess. Other work, in contrast, highlights the necessity of maintaining and enhancing biodiversity if long-term food security is to be delivered.[73] Of course, it is not the case that land that is designated for purposes of conservation cannot also be used to support food security; properly designed and managed, protected areas and other area-based conservation practices can support all aspects of the SDGs, including their socioeconomic elements.[74] However, this raises the dilemma of how to ensure that biodiversity is given due weight in policies, plans and activities that pursue multiple objectives.

Perhaps recognizing that efforts to deliver sustainable development to date have not adequately responded to the challenges in conserving biodiversity, the GBF seeks to define itself through a theory of change:

> [The GBF] is built around a theory of change which recognizes that urgent policy action is required globally, regionally and nationally to achieve sustainable development so that the drivers of undesirable change that have exacerbated biodiversity loss will be reduced and/or reversed to allow for the recovery of all ecosystems and to achieve the Convention's Vision of living in harmony with nature by 2050.[75]

These are merely vague proclamations of what the international community hopes to achieve and, as noted above, seeking to live 'in harmony *with* nature' is a problematic expression of humanity's relationship with the natural world. What a genuine theory of change might look like is instead presented in Section D of the GBF:

[71]Belinda Reyers and Elizabeth R. Selig, 'Global Targets that Reveal the Social-Ecological Interdependencies of Sustainable Development' (2020) 4 *Nature Ecology and Evolution* 1011.

[72]Marcel TJ Kok et al, 'Assessing Ambitious Nature Conservation Strategies in a Below 2-Degree and Food Secure World' (2023) 284 *Biological Conservation* 110068.

[73]Amos (n 10) ch 1.

[74]Nigel Dudley et al, 'Areas-based Conservation and the Sustainable Development Goals: A Review' (2022) 23 *Biodiversity* 146.

[75]Decision 15/4 (n 2) para 9.

> [The GBF] will place biodiversity, its conservation, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, at the heart of the sustainable development agenda.[76]

If delivered on, this would mark a dramatic shift from 1992 when Principle 1 of the Rio Declaration on Environment and Development stated that 'Human beings are at the centre of concerns for sustainable development'.[77] Reflected in the GBF's emphasis on a whole-of-society approach,[78] success will require significant buy-in from a host of stakeholders, including international organizations, states, individual government departments, local and indigenous communities, industry, women and other demographics, scientists, and civil society.[79] As with the GBF per se, it will also require sufficient expert and financial support to achieve the requisite shift in focus of international and national governance frameworks.[80] There are various directions these alternative governance frameworks might take, ranging from the radically ecocentric along lines proposed by advocates of Wild Law,[81] to the plurinational state that has already been established through the introduction of rights of nature into the Constitution of Ecuador.[82] As the analysis in this work shows, elements of a theory of change are also alluded to, but not embraced, throughout the GBF's targets. Instead, we see repeated reliance on status quos, both in the content and framing of the actions that states are encouraged to take by the GBF, and, as the next section explores, in the overall regulatory form of the Framework as well.

4. Global Targets as a Governance Strategy

Given the myriad and often conflicting values, interests and concerns that states hold in relation to biodiversity and how it should be governed,[83]

[76]Ibid para 8.

[77]A/CONF.151/26 (Vol. I), 1992, Annex I.

[78]Decision 15/4 (n 2) Section C.

[79]Joanna Smallwood et al, 'Global Biodiversity Governance: What Needs to Be Transformed?' in Ingrid J Visseren-Hamakers and Marcel TJ Kok (eds), *Transforming Biodiversity Governance* (Cambridge University Press 2022) 43, 45-47.

[80]Elsa Tsioumani, 'Convention on Biological Diversity: A Review of the Post-2020 Global Biodiversity Framework Working Group Negotiations' (2020) 50 *Environmental Law and Policy* 55, 57.

[81]Wild Law is based on ideas of the Great Jurisprudence, which is essentially an ecological interpretation of natural law theory of international law. The Great Jurisprudence informs the content of Earth Jurisprudence, i.e., laws that maintain and enhance the connections within and between nature and society: Cormac Cullinan, *Wild Law: A Manifesto for Earth Justice* (2nd ed, Green Books 2011) ch 6 and 9.

[82]See Juan M Guayasamin et al, 'Biodiversity Conservation: Local and Global Consequences of the Application of "Rights of Nature" by Ecuador' (2021) 7 *Neotropical Biodiversity* 541.

[83]E.g., Unai Pascual et al, 'Diverse Values of Nature for Sustainability' (2023) 620 *Nature* 813.

finding consensus over the GBF among the 196 parties to the Convention was a success. It does not follow, however, that an agreement resulting from a successful process will be capable of instigating, in a timely manner, the action needed to ensure success in that agreement's stated objectives.[84] Mitchell's work on compliance theory explains how an instrument may never achieve its goals if, for purposes of finding consensus, it was framed so that its implementation aligns with 'business as usual' and thus makes compliance inevitable.[85] International climate change law provides an illustration of this. In 2015, the Paris Agreement was met with similar levels of hope and expectation as the GBF, especially outside the Academy,[86] about how it will transform efforts to cut greenhouse gas emissions and limit the impacts of climate change.[87] To date, however, it has not led to the emission reductions, or even commitments to the emission reductions, necessary to keep the global temperature rise to below 2 °C and close to 1.5 °C.[88] Failure appears increasingly likely, with the Intergovernmental Panel on Climate Change estimating that the world is on track for a temperature rise in excess of 2 °C,[89] the consequences of which would be existential for much of the natural world, and therefore humanity.[90]

A reason why the Paris Agreement is failing to drive emission reductions is that it uses the 'global target, national action' (GTNA) approach to global governance. This entails the international community collectively setting global goals, which however are to be achieved through unilaterally determined actions of states. They are, in other words, 'aspirations *of* states, not obligations *on* states'.[91] Under the Paris Agreement, GTNA has

[84]Although describing the negotiation of the GBF as a 'success' is disingenuous. As the final Recommendation from the Working Group on the Post-2020 Global Biodiversity Framework shows, disagreement on virtually every substantive issue remained immediately prior to the GBF's adoption. It was only as a result of the direct intervention of the COP chairs and CBD Secretariat that a final version that could be agreed was produced. Recommendation 5/1 adopted by the Working Group on the Post-2020 Global Biodiversity Framework, CBD/WG2020/REC/5/1, 2022; Joanne Smallwood, 'Implementing Interactive Biodiversity Law' in Rob Amos and Edward Goodwin (eds), *Research Handbook on Biodiversity and Law: Conservation in a Changing World* (2nd ed Edward Elgar 2026, forthcoming).

[85]Richard B Mitchell, 'Compliance Theory' in Lavanya Rajamani and Jacqueline Peel (eds), *The Oxford Handbook of International Environmental Law* (2nd ed, Oxford University Press 2021) 887.

[86]E.g., Fiona Harvey, 'Paris Climate Change Agreement Enters into Force' *The Guardian*, 4 November 2016 <https://www.theguardian.com/environment/2016/nov/04/paris-climate-change-agreement-enters-into-force>.

[87]Paris Agreement (adopted 22 April 2016, in force 4 November 2016) C.N.92.2016.TREATIES-XXVII.7.d.

[88]Paris Agreement, Article 2. Hoesung Lee et al, *Synthesis Report of the IPCC Sixth Assessment Report* (IPCC AR6 SYR, 2023) 23–27.

[89]Lee et al ibid.

[90]Ibid 33–42.

[91]Amos (n 11) 38.

taken the form of the global temperature goals noted above, which are to be met through states' nationally determined contributions (NDCs) towards emission reductions.[92]

The Paris Agreement's adoption of GTNA is part of a wider trend in international law that Durkee describes as 'pledging'.[93] This represents a marked departure from the traditional form of top-down obligation that has typified Westphalian treatymaking, instead constituting a system of 'coordinated autonomy'.[94] Its purported advantages include greater flexibility and legitimacy as states seek to tackle wicked problems such as biodiversity loss and climate change in a manner that is cognisant of their ecological and socioeconomic circumstances.[95] Critics, in contrast, point out that permitting states to unilaterally determine the action that they will take towards what can be arbitrary global goals, often defined more by political feasibility rather than what will actually address the issue in question,[96] creates a free-rider problem.[97] This in turn leads to doubts over the effectiveness, that is, their ability to deliver their stated objectives, of instruments that employ pledging and GTNA. These concerns appear justified in light of the Paris Agreement's failure to compel states to deliver meaningful action to avoid the worst impacts of climate change.[98]

Similar observations regarding lack of effectiveness can be made when we consider the CBD's experiences of GTNA. As noted, the 2020 Strategic Plan for Biodiversity comprised the 20 Aichi targets. These were global goals to which again action by states merely contributed. Target 11, for example, was for 17 percent of the world's total land and inland waterways to be designated as a protected area by 2020. It was not the case that each state had to designate 17 percent of its own territory, only that the collective total of land designated by states equated to 17 percent. The designation of protected areas is a useful illustration of the appeal of GTNA in facilitating agreement. Here, it allowed the international

[92]Paris Agreement, Article 4(2).

[93]Melissa MJ Durkee, 'The Pledging World Order' (2023) 48 *Yale Journal of International Law* 1.

[94]Ibid 10-15.

[95]Cinnamon P Carlarne and JD Colavecchio, 'Balancing Equity and Effectiveness: The Paris Agreement and the Future of International Climate Change Law' (2019) 27 *New York University Environmental Law Journal* 107, 115.

[96]Frank W Larsen et al, 'Will Protection of 17% of Land by 2020 Be Enough to Safeguard Biodiversity and Critical Ecosystem Services?' (2015) 49 *Oryx* 74, 75.

[97]Kasturi Das et al, 'Making the International Trade System Work for Climate Change: Assessing the Options' (2019) 49 *Environmental Law Review* 10553.

[98]Daniel Bodansky, 'The Paris Climate Agreement: A New Hope?' (2016) 110 *American Journal of International Law* 288, 290.

community to express a direction for states' land-use policies, an area which has proven politically contentious even in the European Union, where greater territorial cohesion across the member states is written into the Treaties.[99] As with the other Aichi targets, though, Target 11 was not fully achieved.[100]

The failure of GTNA in the context of the Aichi Targets was compounded by the 2020 Strategic Plan's characteristics that distinguish it from the Paris Agreement, and that differentiate GTNA from the broader concept of pledging. Under the Paris Agreement, states are required to increase the ambition of their emission targets when revising their NDCs,[101] and detailed rules have been adopted in relation to this.[102] The principal implementation mechanism of the CBD is the National Biodiversity Strategies and Action Plans (NBSAPs) that states are required to produce by Article 6 of the Treaty.[103] These set out a state's approach to delivering on the CBD's objectives of ensuring the conservation and sustainable use of biodiversity, and are a core component of the 'Responsibility and transparency' that states must demonstrate if the GBF is to be successfully implemented.[104]

Unlike the Paris Agreement's NDCs, no formal process has been adopted for states to regularly increase the ambition of biodiversity strategies.[105] Guidance in CBD COP Decision 15/6 merely suggests that NBSAPs 'be revised or updated as needed',[106] with pre-existing strategies brought into alignment with the targets of the GBF where they are compatible.[107] An argument might be made that producing or revising an NBSAP is

[99]Article 3 of the Treaty on European Union. See further Jane Holder and Antonia Layard, 'Drawing Out the Elements of Territorial Cohesion: Re-Scaling EU Spatial Governance' (2011) 30 *Yearbook of European Law* 358.

[100]Secretariat to the Convention on Biological Diversity (n 13) 10.

[101]Paris Agreement, Article 4(3).

[102]Benoît Mayer, 'Article 4: Mitigation' in Geert Van Calster and Leonie Reins (eds), *The Paris Agreement on Climate Change: A Commentary* (Edward Elgar 2021) 109.

[103]NBSAPS are closely related to the national reports that states are required to submit under Article 26. See further Mackenzie (n 21) 41–43.

[104]Decision 15/4 (n 2) Section J.

[105]States party to the CBD are required to periodically report on their implementation under Article 26 but this is not the same as being required to set out more ambitious plans to deliver on the Convention's objectives.

[106]Decision 15/6 (n18) para 3. At the time of writing, only seven states, mostly European, plus the European Union had submitted a revised NBSAP: <https://www.cbd.int/nbsap/post-cop15.shtml>.

[107]Decision 15/6 ibid para 7. It is worth noting that many of the pre-GBF NBSAPs are in place until 2030 and so will need adapting if they are to align closely with the action-oriented targets that are to be achieved by that year: <https://www.cbd.int/nbsap/about/latest>.

resource-intensive and requires consideration of complex and overlapping environmental, economic and social factors. As such, and given the difficulties that developing states in particular face in devising their NBSAPs,[108] not requiring the frequent submission of more ambitious plans might be considered appropriate. The same concerns over complexity apply equally to the adoption of revised NDCs under the Paris Agreement, however, and biodiversity loss is no less critical as a challenge that society must confront than climate change. Further, the CBD's emphasis on simply aligning pre-existing national actions plans to the GBF is either unambitious or dangerously complacent, given that states' current efforts to reverse biodiversity loss are frequently assessed as insufficient.[109] As the following analysis indicates, there is little to suggest that the GBF will change this.

5. The 2050 Vision and Global Goals

There are two core elements to the GBF: the 2050 Vision and its Global Goals, and the 2030 Mission and its Global Targets. The Vision expressed by the GBF is:

> By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.[110]

As Bowman observes, the term 'vision' has been used to such an extent that it risks being met with indifference or cynicism, but it is nevertheless important for policies to clearly express what their objectives are and how these will be achieved.[111] The question, then, is whether the 2050 Vision provides that clarity.

In certain respects, it does. While there may be no single definition of conservation, restoration or 'wise use' in international biodiversity law, there is consensus over what these mean in broad terms, as well as how they relate to each other. Conservation is generally understood as a negative obligation, to prevent further degradation, while restoration is a positive obligation to actively improve the state of the environment (but should not be conflated with recovery).[112] 'Wise use' is most closely

[108]Mackenzie (n 21) 41.

[109]Secretariat to the Convention on Biological Diversity (n 13).

[110]Ibid 9–10.

[111]Michael Bowman, 'Law, Legal Scholarship and the Conservation of Biological Diversity: 2020 Vision and Beyond' in Michael Bowman et al (eds), *Research Handbook on Biodiversity and Law* (Edward Elgar 2016) 6.

[112]Anastasia Telesetsky et al, *Ecological Restoration in International Environmental Law* (Routledge 2017) ch 2.

associated with the Ramsar Convention on Wetlands of International Importance.[113] While this has traditionally been read as an obligation of conduct, that is, decision-makers should review as much information as possible when considering proposals that will impact on a wetland, Goodwin makes the case that there is nevertheless a substantive element. He argues that to act wisely, it is necessary to have a desired outcome in mind and a wise use of a wetland (or other natural resource) will be a use that is compatible with that outcome.[114]

Other elements of the 2050 Vision are problematic. First, it calls for biodiversity to be valued, but nature already is valued, otherwise states would not have deemed it necessary to adopt international agreements for its conservation. The issue is *how* biodiversity is valued. A study of key international agreements reveals that the law is predominately concerned with nature's anthropocentric, specifically its commercial and utility, values. These are legitimate ways of valuing nature, but are not conducive to the creation and implementation of legal frameworks that prioritize the integrity of natural ecosystems.[115]

A further question raised by the 2050 Vision is whether, and if so how, 'benefits essential for all people' differ from ecosystem services. We might construe these benefits to be broader than ecosystem services, which are typically, although not exclusively, defined in terms of critical ecological functions, such as pollination and nutrient cycling, on which society depends.[116] If it is accepted that benefits derived from biodiversity mean something other than or in addition to what is typically understood by ecosystem services, then potentially commercial benefits resulting from the exploitation of nature might fall within the meaning of the Vision. Should commercial benefits really be considered *essential*, however? This links to the question of the difference between needs and interests that is pertinent to the Brundtland definition of sustainable development, as well as the debate over weak versus strong sustainability noted above.[117]

Detail of what the GBF's Vision means in practice is provided by the four Global Goals, each of which is to be achieved by 2050 if the Vision is to be made reality. Goal A states:

[113]Convention on Wetlands of International Importance (adopted 2 February 1971, in force 21 December 1975) 996 UNTS 245

[114]Edward J Goodwin, 'The "Wise Use" of Wetlands' in Royal C Gardner, Richard Caddell and Erin Okuno (eds), *Wetlands and International Environmental Law: The Evolution and Impact of the Ramsar Convention* (Edward Elgar 2025) 105.

[115]Amos (n 11) 30.

[116]UNEP, *Ecosystems and Human Well-Being: A Framework for Assessment* (UNEP 2003) 53.

[117]See text at (n 44).

> The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050;
>
> Human induced extinction of known threatened species is halted, and, by 2050, the extinction rate and risk of all species are reduced tenfold and the abundance of native wild species is increased to healthy and resilient levels;
>
> The genetic diversity within populations of wild and domesticated species is maintained, safeguarding their adaptive potential.

An obvious point to note here is that this is not one goal but three, which reveals the difficulties in reducing the biodiversity crisis to a few statements. It is also possible to criticize each element of Goal A. The principal issue with the first part of the Goal is its ambiguity. Two questions are raised by the commitment to 'substantially increase the area of natural ecosystems by 2050'. First, what would constitute a substantial increase? Some clues are provided in the final Recommendation of the CBD's Post-2020 Working Group, which included suggested targets of 5 percent by 2030 and either 15 or 20 percent by 2050.[118] Whether even the more ambitious of these proposals constitutes a substantial, or even a sufficient, increase is debatable, but it was at least a defined target against which progress could have been measured. Related to this is the second question, which is, against what baseline is progress to be assessed? Establishing baselines for conservation targets is notoriously difficult. Often, data will either be incomplete or lacking entirely, especially in developing states.[119] Despite such challenges, the inclusion of a baseline, even one as vague as 'a natural state' that was posited in the Post-2020 Working Group's Recommendation, would have provided some basis on which to judge whether states had achieved a substantial increase in the area of natural ecosystems. In the absence of a specific target and baseline, Goal A is more a vague promise than a defined goal.

With part two of Goal A, the problem is not so much a lack of clarity, although there is a question of what is meant by 'healthy and resilient levels'. Instead, this aspect of the Goal has been set too narrowly because of its focus on *known* species. There are species, across all biomes, that are undiscovered, many of which will be at risk of extinction.[120] Failing to account for these, which was one option included in the Post-2020 Working Group's final Recommendation through the wording 'all threatened' species,[121] means

[118]See (n 84).

[119]Amos (n 11) 131.

[120]Pablo Tedesco et al, 'Estimating How Many Undescribed Species Have Gone Extinct' (2014) 28 *Conservation Biology* 1360.

[121]See (n 84).

that the GBF's Vision for 2050 is limited.[122] Even for those species that are known to science, there is a severe lack of knowledge over how many of these are threatened. The principal source on threatened species is the IUCN Red List.[123] While this has proven valuable in guiding conservation action and informing research, lack of resources means that many of its inscriptions are out-of-date and key groups of species are underrepresented.[124] This problem is compounded by lists of protected species in legal instruments being woefully inadequate, meaning that legal protection is targeted at only a fraction of endangered species,[125] with some regimes also lacking a mechanism to review and update species lists.[126] A compelling argument can be made that biodiversity law focuses too much on conservation outputs, such as the production of lists and strategies, at the expense of conservation outcomes, that is, actual improvements in species' conservation status, and revising lists of protected species in international treaties will only reinforce this.[127] However, it is arguably a vital step if states are to deliver the GBF because, at present, the black letter of the law simply does not recognize thousands of endangered species as at risk of extinction.

Lastly, for part 3 of Goal A to merely call on states to maintain genetic diversity, which is equally essential to supporting biodiversity as protecting species per se, is the wrong priority. States should instead focus on enhancing the genetic diversity of wild and domesticated species. This is as critical to the SDGs and other global objectives as it is to the GBF, but complicated by the relative lack of knowledge regarding species' genetic diversity.[128] To illustrate, the genetic diversity of crops collapsed during the 20th century due to the so-called Green Revolution, in which farmers were encouraged to switch from locally grown seeds to commercially produced alternatives.[129] While the Green Revolution delivered short-term gains in food availability and nutrition, over the long term the reduction

[122]Including unknown species within the remit of the GBF raises obvious practical difficulties, but they can be accounted for in mechanisms focused on ecosystems and biodiversity hotspots: John C Kunich, 'Preserving the Womb of the Unknown Species with Hotspots Legislation' (2001) 52 *Hastings Law Journal* 1149.

[123]See <https://www.iucnredlist.org>.

[124]Victor Cazalis et al, 'Prioritizing the Reassessment of Date-Deficient Species on the IUCN Red List' (2023) 37 *Conservation Biology* e14139.

[125]Amos (n 11) 67.

[126]Amos (n 56) 386–387.

[127]Harrop and Pritchard (n 6) 479.

[128]Chloé Schmidt et al, 'Genetic Diversity and IUCN Red List Status' (2023) 27 *Conservation Biology* e14064.

[129]Christine Frison, *Redesigning the Global Seed Commons: Law and Policy for Agrobiodiversity and Food Security* (Routledge 2018) 8.

in crop genetic diversity has undermined food security, particularly for vulnerable communities, which in turn is frustrating efforts to deliver many of the SDGs.[130]

Sustainable development is specifically addressed in Goal B:

> Biodiversity is sustainably used and managed and nature's contributions to people, including ecosystem functions and services, are valued, maintained and enhanced, with those currently in decline being restored, supporting the achievement of sustainable development for the benefit of present and future generations by 2050.

As noted, there are important overlaps between the GBF and sustainable development as it is represented by the SDGs.[131] Goal B appears to be inconsistent with the SDGs, however. Sustainable development is widely considered to be a continuous process rather than a destination and this article does not dispute that. However, international frameworks must also be taken at face value, and the SDGs present themselves as an agenda constituting sustainable development that states have committed to *achieving* by 2030. SDG-2, for example, is to achieve zero hunger, that is, an absolute position, by 2030. By setting a deadline for sustainable development of 2050, the GBF might be considered an early, if tacit, admission of failure to deliver the SDGs. Equally, interpreting sustainable development to be a continuous process and as something to be achieved are not mutually exclusive, and the GBF may be an indication of how states view the post-SDG policy landscape. If nothing else, however, constantly shifting the goalposts by picking arbitrary deadlines decades in the future enables decision-makers to justify unsustainable actions that prioritize short-term economic interests because they can still claim to be on track to achieve sustainable development in the future.

Goal C relates to access to genetic resources and benefit-sharing:

> The monetary and non-monetary benefits from the utilization of genetic resources and digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources, as applicable, are shared fairly and equitably, including, as appropriate with indigenous peoples and local communities, and substantially increased by 2050, while ensuring traditional knowledge associated with genetic resources is appropriately protected, thereby contributing to the conservation and sustainable use of biodiversity, in accordance with internationally agreed access and benefit-sharing instruments.

There is not space in this work for detailed discussion of what 'fair and equitable' means in the context of biodiversity. In brief, 'fair' is typically considered to relate to processes, that is, they must be clear, transparent

[130] Amos (n 10) ch 2.

[131] Kok et al (n 72).

and participative, while 'equitable' is associated with more substantive elements of justice.[132] This creates a certain tension, as the former requires stability in societal structures and administrative procedures but the latter entails the proactive redistribution of advantage (whatever that means in the given context) in unequal societies.[133]

As noted above, work to protect indigenous knowledge under the World Intellectual Property Organization is stalled. Some progress has been made under the CBD's Nagoya Protocol, however, lending support to the argument that the CBD would be better served by developing a more robust regime.[134] The Protocol puts in place procedures to ensure that access to a state's natural genetic resources is based on mutually agreed terms, with a clear application process and a mechanism for dispute settlement.[135] There are, though, limits to how far the Nagoya Protocol delivers fairness and equity. It has been observed, for example, that the Protocol fails to distinguish between types of user when identifying the benefits that states of origin might negotiate. This places conservationists at a disadvantage compared to multinational corporations, as they are less likely to be able to meet requests for monetary benefits in return for being granted access.[136] Regarding equity, any rights that communities of origin enjoy under the Protocol are conditioned on them being recognized under national law, and respect for the rights of indigenous and local communities within states is far from comprehensive.[137] Further, considerations of equity are limited to intra-human relationships. There is no space in the Protocol to consider what would be equitable for the natural world in terms of sharing the benefits resulting from the utilization of natural resources. Doing so would be one way to give meaning to the GBF's theory of change.

Finally, Goal D addresses implementation:

> Adequate means of implementation, including financial resources, capacity-building, technical and scientific cooperation, and access to and transfer of technology to fully

[132]Elisa Morgera, 'The Need for an International Legal Concept of Fair and Equitable Benefit Sharing' (2016) 27 *European Journal of International Law* 353, 381, drawing on Thomas M. Franck, *Fairness in International Law and Institutions* (Oxford University Press 1998).

[133]Ibid.

[134]One explanation why states may have been willing to adopt a protocol on this issue, rather than a programme of work, is that it protects a socioeconomic interest, i.e., facilitating the commercial exploitation of natural resources. The same applies to the Biosafety Protocol, which regulates the transboundary movement of living-modified organisms.

[135]Alan Boyle and Catherine Redgwell, *Birnie, Boyle and Redgwell's International Law and the Environment* (4th ed, Oxford University Press 2021) 718–720. Nagoya Protocol, Article 6.

[136]Amos (n 11) 222.

[137]Benjamin J Richardson and Donna Craig, 'Indigenous Peoples, Law and the Environment' in Benjamin J Richardson and Stepan Wood (eds), *Environmental Law for Sustainability: A Reader* (Hart 2006) 210–225.

> implement [the GBF] are secured and equitably accessible to all Parties, especially developing country Parties, in particular the least developed countries and small island developing States, as well as countries with economies in transition, progressively closing the biodiversity finance gap of $700 billion per year, and aligning financial flows with [the GBF] and the 2050 Vision for biodiversity.

The individual features listed here are addressed below in the context of their corresponding Targets.[138] Regarding the overarching Goal, this is an illustration of the 'Catch-22' of international biodiversity law, and other areas of international environmental law. The GBF can only be achieved if there is adequate support for implementation, but adequate support for implementation will only be forthcoming if it is an objective in the GBF. To illustrate, the GBF requires the finance gap to be addressed *now* if its conservation objectives are to be achieved, but this has itself been included in states' ambitions for 2050.

6. The 2030 Mission and Global Targets

Summarising the above, while the 2050 Vision appears laudable, a close reading of its Goals reveals critical flaws in its scope and detail. The Vision is only one aspect of the GBF, however. More important, due to their shorter timeframe, are the 2030 Mission and its associated 23 Targets. By 2030, states intend:

> To take urgent action to halt and reverse biodiversity loss to put nature on a path to recovery for the benefit of people and planet by conserving and sustainably using biodiversity and by ensuring the fair and equitable sharing of benefits from the use of genetic resources, while providing the necessary means of implementation.[139]

The Mission appears to be nothing more than a rewording of the original objectives of the CBD.[140] States' commitment to delivering the GBF through the Mission also appears qualified:

> [The GBF] has 23 action-oriented global targets for urgent action over the decade to 2030. The actions set out in each target need to be initiated immediately and completed by 2030. Together, the results will enable achievement towards the outcome-oriented goals for 2050. Actions to reach these targets should be implemented consistently and in harmony with the [CBD] and its Protocols, and other relevant international obligations, taking into account national circumstances, priorities and socioeconomic conditions.[141]

[138]See section 6.3 below.

[139]Decision 15/4 (n 2) para. 11.

[140]Listed in Article 1 as 'the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding'.

[141]Decision 15/4 (n 2) para. 13.

In other biodiversity contexts, references to 'other relevant international obligations' has been read as primarily meaning states' international trade obligations.[142] This is not as contentious as it might first appear, as the currently defunct Appellate Body of the World Trade Organization (WTO) has recognized that trade-restrictive national biodiversity policies can be compatible with WTO law.[143] Nevertheless, the WTO is concerned with promoting free trade, and its criteria with which states must comply when adopting trade-restrictive measures for other policy purposes appear not to recognize how the CBD functions as a regime. Emphasis is placed by WTO law on internationally agreed standards and procedures when states are seeking to justify trade-restrictive policies; that is, a policy that reflects a common position is less likely to be considered unlawful.[144] Some biodiversity treaties provide such common standards and it would therefore be appropriate for the WTO Dispute Panel/Appellate Body to require states to comply with them when adopting policies that fall within those instruments' remit. One example is the 1973 Convention on International Trade in Endangered Species of Fauna and Flora (CITES), the Appendices of which represent a commonly agreed position on which species are threatened by international trade.[145] The CBD, in contrast, affords significant discretion to states when implementing its provisions, but there appears limited scope under WTO law to recognize the legitimate exercise of this discretion through the adoption of unilateral conservation measures that have a trade-restricting effect in pursuit of the CBD's objectives.[146]

Other qualifications attached to the GBF Targets are also problematic. The reference to states' 'national circumstances, priorities and socioeconomic conditions' is not necessarily controversial and relates to core principles of international environmental law, notably 'common but differentiated responsibilities'.[147] However, a central characteristic of international environmental law is what Fisher et al call its 'inspirational relationship' with

[142]Catherine Redgwell, 'Biotechnology, Biodiversity and International Law' (2005) 58 *Current Legal Problems* 543, 564–568.

[143]*United States—Import Prohibition of Certain Shrimp and Shrimp Products (United States—Shrimp)* WT/DS58/AB/R, 6 November 1998.

[144]E.g., Article 3.2. of the Agreement on the Application of Sanitary and Phytosanitary Measures (adopted 15 April 1994, in force 1 January 1995) 1867 UNTS 493.

[145]Convention on International Trade in Endangered Species of Wild Fauna and Flora (adopted 3 March 1973, entered into force 1 July 1975) 993 UNTS 243. Note, though, the controversies around CITES's listing decisions and states' use of unilateral trade restrictions: Jon Hutton, 'Who Knows Best? Controversy Over Unilateral Stricter Domestic Measures' in Jon Hutton and Barnabas Dickson (eds), *Endangered Species Threatened Convention: The Past, Present and Future of Climate Change* (Routledge 2000) 57.

[146]Amos (n 11) 151–152.

[147]Philippe Cullet, 'Common but Differentiated Responsibilities' in Fitzmaurice et al (n 41) 209.

national regulation. In various environmental contexts, reforms at the state level have been driven by international commitments, including those that are not legally binding.[148] If the GTNA has any value beyond simply being a vehicle for consensus, it is in providing a mechanism through which international environmental law can seek to influence states' priorities. In other words, rather than accept states conditioning their implementation of the GBF on national interests, the GBF should encourage them to recognize that prioritizing biodiversity protection over other national concerns is the correct and necessary course. This would also be a better representation of a theory of change.

The Targets are grouped into three categories: reducing threats to biodiversity (Targets 1–8); meeting people's needs through sustainable use and benefit-sharing (Targets 9–13); and tools and solutions for implementation and mainstreaming (Targets 14–23).

6.1. Targets 1–8: Reducing Threats to Biodiversity

Target 1 raises the important question of how to ensure biodiversity is given sufficient attention in wider policies:

> Ensure that all areas are under participatory, integrated and biodiversity-inclusive spatial planning and/or effective management processes addressing land- and sea-use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.

Broadly, there are two complementary approaches to including biodiversity in spatial planning. First, discussed under Target 3, biodiversity protection can be designated a land use through the establishment of protected areas and other area-based management practices. Second, the need to protect biodiversity can be identified as a relevant consideration for planning authorities when devising development plans or assessing development proposals. An example of this can be found in the United Kingdom's National Planning Policy Framework (NPPF).[149] The NPPF is a 'material consideration' for planning authorities and must therefore be taken into account when decisions are being made over planning applications.[150] However, the provisions regarding biodiversity are weak and

[148]Elizabeth Fisher et al, *Environmental Law: Texts, Cases and Materials* (2nd ed, Oxford University Press 2019) 414–415.

[149]NPPF (2023), paras. 185–188. Available from <https://www.gov.uk/government/publications/national-planning-policy-framework–2>.

[150]Town and Country Planning Act 1990, s. 70(2).

support those who argue that rather than presenting a presumption in favour of sustainable development,[151] the NPPF merely imposes a presumption in favour of development.[152] Paragraph 186 of the NPPF, for example, states that development that would result in significant harm to biodiversity should (not must) be refused unless that harm can be avoided, mitigated or compensated. This has had no discernible impact on administrative decision-making or case law in the United Kingdom. Research on similar regulations in other jurisdictions, though, reveals planning authorities as too willing to accept that these conditions have been met.[153] As with biodiversity being valued, the GBF therefore misses the point. In many states, the problem is not that biodiversity is not included in planning policies; it is that its position in those policies is secondary to socioeconomic concerns.

A further concern with Target 1 is that it only calls for losses of important areas for biodiversity to be brought 'close to zero' by 2030, which, like Goal A, lacks specificity. This weakness is not shared by Target 2:

> Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.

In certain regards, this is one of the strongest targets in the GBF. It is clear and relatively unambiguous, with 'effective restoration' in this context linked to improvements in ecosystem functionality and integrity. Issues can still be raised, however. First, it exemplifies the free-rider weakness of frameworks that employ GTNA. Second, other than 'degraded', which could be almost any extant ecosystem, Target 2 offers little guidance on what areas should be prioritized for restoration, giving states further discretion that enables them to focus on those areas that have no competing socioeconomic use rather than being important for biodiversity.[154] This is addressed to an extent by Target 3, but equally this Target also fails to respond to long-standing issues in conservation law:

[151] NPPF (n 149) para. 11.

[152] William Upton, 'What Is the Purpose of Planning Policy: Reflections on the Revised National Planning Policy Framework 2018' (2019) 31 *Journal of Environmental Law* 135, 143–146. This reinforces the wider criticisms of sustainable development discussed in Part 3 above.

[153] E.g., Paul J Govind, 'Implementing Biodiversity Offsetting in Alignment with the Mitigation Hierarchy—The Experience of Land Use Planning Law in New South Wales' (2023) 7 *Chinese Journal of Environmental Law* 131; Donald McGillivray, 'Compensatory Measures Under Article 6(4) of the Habitats Directive: No Net Loss for Natura 2000?' in Charle-Hubert Born et al (eds), *The Habitats Directive in Its EU Environmental Law Context: European Nature's Best Hope?* (Routledge 2014).

[154] William M Adams, *Future Nature: A Vision for Conservation* (Earthscan 2003) 116.

> Ensure and enable that by 2030 at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically-representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognising indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognising and respecting the rights of indigenous peoples and local communities, including over their traditional territories.

Target 3 risks conflating areas that are important for biodiversity with areas that are important for ecosystem functionality and services. These do not necessarily overlap, and given the relative lack of resources for conservation, one will often need to be prioritized over the other. Even within these, trade-offs need to be made. For example, if the choice is to prioritize areas important for ecosystem services, should the focus be on services of global or local significance?[155]

Further, the GBF presents an obsolete view on the role of protected areas. These have long been an established conservation mechanism, but as a concept in international law are now outdated. In the past, conservation science saw protected areas as a means of safeguarding supposedly 'pristine' parts of nature, and this was reflected in the treaties adopted at the time.[156] The GBF's reference to 'ecologically-representative' areas is the latest manifestation of this focus on the supposedly 'best bits' of the natural world. Today, though, scientific understanding has advanced so that its priority is now supporting ecosystem functionality rather than exemplary ecosystems per se, and, in light of the systemic impacts of climate change, a very different approach to conservation is therefore needed.[157] Trouwborst, for example, proposes that protected areas should be designed to facilitate the movement of species that are migrating due to the impacts of climate change, rather than to preserve them in their historic range.[158]

Conservation law has not undergone a similar transformation, as the GBF itself confirms.[159] Instead, what we have is a focus on connectivity

[155]Rebecca L Goldman et al, 'Trade-offs in Making Ecosystem Services and Human Well-being Conservation Priorities' in Nigel Leader-Williams et al (eds), *Trade-offs in Conservation: Deciding What to Save* (Wiley/ZSL 2010) 56, 58–63.

[156]Rob Amos, 'Protecting Commonplace Biodiversity Under International Conservation Law' (2024) 33 *Biodiversity and Conservation* 1665, 1670–1672.

[157]Georgine M Mace, 'Whose Conservation?' (2014) 345 *Science* 1558.

[158]Arie Trouwborst, 'International Nature Conservation Law and the Adaptation of Biodiversity to Climate Change: A Mismatch?' (2009) 21 *Journal of Environmental Law* 419, 428.

[159]Amos (n 10) 97.

between protected areas. This is important, and responds to criticisms of protected areas based on island theory, that is, that they merely represent genetically isolated islands of species and so are insufficient to ensure their long-term survival.[160] Achieving this connectivity is not easy, however, as the European Union's experiences of trying to establish green corridors to connect its Natura 2000 network demonstrates.[161] This is because it demands significantly more investment, stakeholder buy-in and reform to sectors that undermine ecological connectivity, such as transportation, than has so far been forthcoming.[162] Furthermore, corridors are of little use to species that either cannot or do not move, notably flora, or that require extensive home ranges, such as large predators.[163] To its credit, the GBF recognizes this through its call for protected areas to be integrated into wider land- and seascapes, but assuming integration means more than mere connection, the implementation challenge associated with this is potentially beyond the resources that are currently available for conservation.[164]

Another point that is missed in Target 3, and that builds on the free-rider criticism of GTNA, is that by prioritizing 'important' areas of biodiversity for protection, the GBF places a greater burden on developing states, as it is these states that typically host greater levels of biodiversity.[165] This raises the question of whether the GBF compounds an injustice between the Global South and Global North, that is, that not only is the Global South more impacted by environmental crises driven primarily by societal behaviours of the Global North, but it is expected to do more to address them.[166] It also appears to support a criticism of sustainable development levied by developing states, namely, that developed states use the environmental protection pillar to impose limits on developing states'

[160]Robert MacArthur and Edward O Wilson, *The Theory of Island Biogeography* (Princeton University Press 1967).

[161]Rob Amos and Jane Holder, 'Ecological Coherence and Scales of Decision-Making in Post-Brexit Britain' in Amos and Goodwin (n 84).

[162]Christopher J Lemiuex et al, 'Transformational Changes for Achieving the Post-2020 Global Biodiversity Framework Ecological Connectivity Goals' (2022) 7 *Facets* 1008.

[163]Luca Santini et al, 'Effectiveness of Protected Areas in Conserving Large Carnivores in Europe' in Lucas N Joppa et al (eds), *Protected Areas: Are They Safeguarding Biodiversity?* (Wiley-Blackwell 2016) 122.

[164]One way this integration might be achieved is through the development of biosphere reserves: James D Brown, 'The Integration of Man and the Biosphere' (2001) 14 *Georgetown International Environmental Law Review* 741.

[165]Xiaoli Shen et al, 'Countries' Differentiated Responsibilities to Fulfil Area-Based Conservation Targets of the Kunming-Montreal Global Biodiversity Framework' (2021) 6 *One Earth* 548.

[166]Eric A Posner and David Weisbach, *Climate Change Justice* (Princeton University Press 2010) ch 1.

freedom to pursue economic growth that they themselves ignored.[167] Both these points have merit, but the reality is that developing states do host significantly higher levels of biodiversity. One way to address this would be for greater account to be taken of areas that are not protected through formal designation by a state but as a result of private ownership by, inter alia, non-governmental organisations (NGOs) and conservation-minded individuals. This would increase developed states' contribution to the 30 percent target, and capture additional areas within developing states.[168]

Although not explicit, another way the GBF reflects an old conservation consensus is by maintaining the distinction between measures that protect habitats and measures that protect species. This may be an inevitable consequence of having to translate complex scientific methodologies into implementable frameworks. The continued focus on species and habitats in the GBF is curious, however, given the more holistic approach set out in the CBD's ecosystem approach.[169] As with the habitats targets above, there are also flaws in the GBF's species targets that undermine its utility. The first is Target 4:

> Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for co-existence.

One positive feature, and in contrast to Goal A, is that Target 4 calls on states to both maintain and restore species' genetic diversity. As Robuchon et al observe, delivering this will be key to the GBF's success.[170] However, and reinforcing the GBF's vagueness, there is no indication of what is meant by 'management actions'. For guidance, we might turn to Articles 8, 9 and 10 of the CBD, which set out in and ex situ conservation actions and measures for sustainable use, but only in very broad terms. Regarding species, for example, Article 8(f) merely asks states to 'promote the recovery of threatened species … through the development and implementation of plans or other management strategies'. In the absence of

[167]Kailyn Ellison, 'Rio + 20: How the Tension Between Developing and Developed Countries Influenced Sustainable Development Efforts' (2014) 27 *Global Business and Development Law* 107.

[168]Heather C Bingham et al, 'Privately Protected Areas: Missing Pieces of the Global Conservation Puzzle' (2021) 2 *Frontiers in Conservation Science* 748127.

[169]Decision V/6, Ecosystem approach, UNEP/CBD/COP/DEC/V/6 (2000).

[170]Marine Robuchon et al, 'Conserving Species' Evolutionary Potential and History: Opportunities under the Kunming–Montreal Global Biodiversity Framework' (2023) 5 *Conservation Science and Practice* e12929.

specific actions and goals, such as to halt extinctions, or at least to reduce them by a given amount, it is not clear what the added value of the GBF is for species conservation.

Due to this being a framework, there are limits on how prescriptive the GBF can and should be. States will respond according to their own priorities and circumstances, and different species will have their own ecological requirements. That being said, Target 4 could have gone further by calling for targeted recovery plans to be adopted for those species most at risk of extinction.[171] Species listed under Appendix II of the Convention on Migratory Species (CMS) are those that have an 'unfavourable conservation status' and would therefore benefit from being subject to a specific international Agreement.[172] Only seven of these have been agreed to date, which is just a fraction of the species listed on the Appendix,[173] and not all have received sufficient support in terms of implementation.[174] Where this support is forthcoming, however, the CMS Agreements are delivering their conservation objectives.[175] Similarly, the European Union has developed just four species action plans under the remit of the Habitats Directive,[176] but these again provide a template that could be adapted for other species.[177] Taking advantage of the infrastructure and global scope of the CBD, the GBF could have built on these experiences and called specifically for targeted recovery plans to be developed, especially by endangered species' range states. Not only would this have meant that the GBF went beyond the requirements of its predecessors, it would also have provided one response to the free-rider weaknesses of the GBF. Where a small number of states cooperate in devising and implementing species plans, political and scientific pressure may be brought against those that appear to be failing to support the recovery of the target species.[178]

[171]Friederike C. Bolam et al, 'Over Half of Threatened Species Require Targeted Recovery Actions to Avert Human-Induced Extinction' (2023) 21 *Frontiers in Ecology and the Environment* 64.

[172]Convention on the Conservation of Migratory Species of Wild Animals (adopted 23 June 1979, entered into force 1 November 1983) 1651 UNTS 333; Article IV.

[173]<https://www.cms.int/en/cms-instruments/agreements>. Memoranda of Understanding have been adopted for a wider range of species, but these lack the status of formal CMS Agreements: <https://www.cms.int/en/cms-instruments/mou>.

[174]Elizabeth A Baldwin, 'Twenty-five Years Under the Convention on Migratory Species: Migration Conservation Lessons from Europe' (2011) 41 *Environmental Law* 535.

[175]Rachelle Adam, 'Waterbirds, the 2010 Biodiversity Target, and Beyond: AEWA's Contribution to Global Biodiversity Governance' (2008) 38 *Environmental Law* 87.

[176]Covering the common midwife toad (*Alytes obstetricans*), Danube clouded yellow butterfly (*Colias myrmidone*), European ground squirrel (*Spermophilus citellus*) and bat species: <https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive_en>.

[177]Amos (n 56) 390–391.

[178]A template is the Global Tiger Recovery Program 2.0: <https://globaltigerforum.org/global-tiger-recovery-program-2-0-2023-34>.

The remaining targets under the 'Reducing Threats to Biodiversity' heading respond to specific drivers of biodiversity loss, beginning with utilization and trade in Target 5:

> Ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spill-over, applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities.

This is deceptively simple, as 'use, harvesting and trade' essentially covers all human interactions with nature for purposes of exploitation. Requiring that the exploitation of wildlife be 'legal' is also a curious choice of words. This alludes to the difficulties in the national enforcement of conservation regulation, but might also be read as assuming that legal frameworks have been designed to actually deliver changes in how humanity exploits wildlife. As noted above in relation to Mitchell's compliance theory, this may not be the case.[179] Exploitation that is unsustainable is not necessarily illegal.

That 'the use, harvesting and trade' of wild species are grossly unsustainable, and the consequences of this for society, were manifested by the COVID-19 pandemic. Its origins remain contested but the likely explanation is that transmission to humans first occurred in a Chinese wet market, where wildlife products, including live specimens, are sold.[180] Regardless, humanity's widescale ecological destruction and unsustainable exploitation of wildlife are known to increase the risk of new zoonoses emerging.[181] System-wide change in how society exploits nature is therefore needed, not only to reduce this risk but also improve society's resilience in the event of another outbreak.[182] The international community's response following the COVID-19 pandemic has been renewed focus on the One Health concept. One Health highlights the overlaps between human, wildlife and environmental health and the corresponding imperative of recognizing the synergies between these in policy-making.[183] It is reflected in

[179]Mitchell (n 85).

[180]WHO-convened Global Study of Origins of SAS-CoV-2: China Part, Joint WHO-China Study, 14 January–10 February 2021, available at <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/origins-of-the-virus>.

[181]Emmanuel O Balogun et al, 'Global Warming and the Possible Globalization of Vector-Borne Diseases: A Call for Increased Awareness and Action' (2016) 44 *Tropical Medicine and Health* 38.

[182]Maria A Tigre et al, 'Reframing Global Biodiversity Protection after COVID-19: Is International Environmental Law up to the Task?' (2022) 23 *Vermont Journal of Environmental Law* 124. On the international legal response to zoonoses, see Amos (n 10) 221–227.

[183]Alicia Davis and Jo Sharp, 'Rethinking One Health: Emergent Human, Animal and Environmental Assemblages' (2002) 258 *Social Sciences & Medicine* 113093, 2.

numerous international instruments, including the GBF,[184] with its emphasis on holistic decision-making also aligning with the SDGs.

Much like the GBF and SDGs, it is possible to question whether One Health represents a genuinely different approach or is merely a reframing or re-emphasizing of pre-existing, flawed frameworks. The UN Food and Agriculture Organization has identified laws that would facilitate a One Health approach to agricultural policies,[185] but has not engaged with the reforms necessary to make those laws more compatible with the theories behind One Health and other sustainability agenda.[186] This is captured by the GBF, but as with Target 4 it has failed to identify specific actions that will actually deliver its stated objectives.

Regarding wildlife trade, this is one area in which international regulation appears robust. CITES is widely viewed, in legal scholarship at least, as one of the more effective conservation treaties, due to its specific requirements regarding national implementation and robust non-compliance procedures.[187] It is not without issue, however, with concerns over how listing decisions are politicized due to states being unwilling to limit international trade in economically important species,[188] and that it only covers *international* trade, that is, not the local situation in which COVID-19 is widely viewed as arising. Additionally, while undoubtedly a contributor to species' decline, there is evidence suggesting that trade is rarely the principal cause of extinction.[189] This is because, as a rule, demand for a species decreases as it becomes harder, and therefore less cost-effective, to find.[190] Invasive/alien species (IAS) pose a much greater risk to individual species and the stability of wider ecosystems, and are addressed in Target 6:

> Eliminate, minimize and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 per cent by 2030, and eradicating or controlling invasive alien species, especially in priority areas, such as islands.

[184]Decision 15/4 (n 2) para 7(r).

[185]FAO, *One Health Legislation: Contributing to Pandemic Prevention through Law* (FAO 2020).

[186]Amos (n 10) 226–227.

[187]Bowman et al (n 30) 484–486.

[188]Melissa Blue Sky, 'Getting on the List: Politics and Procedural Manoeuvring in CITES Appendix I and II Decisions for Commercially Exploited Marine and Timber Species' (2010) 10 *Sustainable Development Law and Policy* 35.

[189]Morné A du Plessis, 'CITES and the Causes of Extinction' in Hutton and Dickson (n 145) 13.

[190]The exception being where a species is sought after because of its rarity, with orchids being a noted example: Eric Hansen, *Orchid Fever: A Horticultural Tale of Love, Lust and Lunacy* (Methuen 2001).

This is typical of international law's approach to IAS: They are a threat that must be eliminated. Due to the extensive environmental degradation that has already occurred, both locally and globally, however, a more nuanced approach to IAS is now needed. We can distinguish between three types of IAS: those that have been deliberately introduced by humans[191]; those that have been accidentally introduced by an act of humans[192]; and what we might class as natural migrants, that is, species that are migrating because anthropogenic impacts either have rendered their former range uninhabitable or have created new opportunities for them by expanding suitable habitat.[193] The regulatory response to each of these must be different. For those that are either deliberately or accidentally released by humans, the CBD's current approach is a reasonable starting point but requires reform. This is centred on the Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that Threaten Ecosystems, Habitats or Species, which, like Target 6, call on states to take steps to prevent the introduction or spread of IAS, but if this fails they should exterminate or contain the IAS where ecologically and economically feasible, or otherwise ensure that their spread and impacts are controlled.[194] The Principles' weaknesses are that they are non-binding, with IAS being one issue in particular that could form the subject of a new CBD protocol,[195] and that they explicitly allow for the deliberate introduction of IAS.[196] This must be based on, inter alia, a risk assessment and the prior authorization of the host state, which are sensible precautions and in line with other areas of international environmental law,[197] but given the noted costs of IAS, in terms of both ecological harm and remediation, the inclusion of deliberate release in the Principles is at least questionable.

For natural migrants, the CBD response hierarchy not only is inappropriate but threatens to undermine the GBF. Eradicating alien species that

[191]Cane toads, for example, were deliberately introduced in Australia to control agricultural pests, with catastrophic consequences of Australian biodiversity: Sophie Riley, 'Heads I Win, Tails You Lose: Uncertainty and the Protection of Biodiversity from Invasive Alien Species' (2012) 14 *Asia Pacific Journal of Environmental Law* 139, 139–140.

[192]E.g., through the discharge of ships' ballast waters.

[193]As work on British butterfly species shows, the ability of a species to naturally migrate depends on a range of factors: Jane K Hill et al, 'Responses of Butterflies to Twentieth Century Climate Warming: Implications for Future Ranges' (2002) 269 *Proceedings of the Royal Society B* 2163.

[194]Decision VI/23, Alien species that threaten ecosystems, habitats or species, UNEP/CBD/COP/DEC/VI/23, 2002, Annex.

[195]Amos (n 11) 173–175.

[196]IAS Principle 10.

[197]E.g., the CBD's Biosafety Protocol.

are migrating in response to climate change may simply condemn that species to extinction, and the GBF could have instead followed the CMS's lead in considering such species to be adapting rather than 'invading'.[198] At the same time, though, not controlling natural migrants may incur an ecological cost to the systems in question, highlighting that there may no longer be a 'no extinction' option in many scenarios. More radically, the idea that IAS have a positive role to play in restoring degrading ecosystems is reflected in Pearce's 'new wild' hypothesis, with alien species being instrumental in restoring forest habitats on Puerto Rico following the collapse of the island's agricultural industry used as a case study.[199] Again, destroying such species out of a prejudice against IAS would risk undermining the recovery and viability of degraded ecosystems, contrary to the GBF. These more positive aspects of IAS, and their potential contributions to the GBF, are currently not sufficiently captured by international biodiversity law and policy.[200]

The threat posed by pollution to biodiversity is similar to that of IAS. Both can impact specific species but also can have a wider destabilizing effect on an ecosystems' health and functioning. This is reflected in Target 7:

> Reduce pollution risks and the negative impact of pollution from all sources by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: (a) by reducing excess nutrients lost to the environment by at least half, including through more efficient nutrient cycling and use; (b) by reducing the overall risk from pesticides and highly hazardous chemicals by at least half, including through integrated pest management, based on science, taking into account food security and livelihoods; and (c) by preventing, reducing, and working towards eliminating plastic pollution.

Certain sources and types of pollution have been subject to extensive regulation, demonstrating that if properly designed and implemented, the law can instigate the changes in human behaviour that are necessary to respond to environmental challenges.[201] However, the efficacy of the law varies depending on the substance in question and the societal circumstances in which regulation is being applied. In relation to transboundary air pollution, for example, the 1979 Convention on Long-Range

[198]CMS Resolution 10.19: Migratory Species Conservation in the Light of Climate Change, UNEP/CMS/CCWS2017/Inf.2. See further Arie Trouwborst, 'Transboundary Wildlife Conservation in a Changing Climate: Adaptation of the Bonn Convention on Migratory Species and Its Daughter Instruments to Climate Change' (2012) 4 *Diversity* 258.

[199]Fred Pearce, *The New Wild: Why Invasive Species Will Be Nature's Salvation* (Icon Press 2015) ch 10.

[200]Decision 15/27, Invasive alien species, CBD/COP/DEC/15/27, 2022. Amos (n 11) 191–193.

[201]A notable example being the Convention for the Protection of the Ozone Layer (adopted 22 March 1985, in force 22 September 1988) 1513 UNTS 293.

Transboundary Air Pollution (LRTAP) has proven successful in Europe and North America due to states' willingness to comply with protocols targeting specific pollutants. The 2002 Agreement on Transboundary Haze Pollution,[202] adopted by the Association of South East Asian Nations, in comparison, has had little impact on air pollution in South East Asia due to the region's historical reluctance to adopt more specific protocols for environmental purposes and other issues regarding national implementation and compliance.[203]

We see broader political concerns in other pollution contexts. In contrast to the regulation of marine pollution caused by ships, for example, for which states have adopted a host of technical and specific standards,[204] controls on land-based sources rely more on general principles of international environmental law and broadly framed obligations operating in a fragmented regulatory landscape.[205] It is polluting activities that take place within states' jurisdiction that have some of the greatest impacts on biodiversity, however, and the specific actions called for by Target 7 highlight the extent to which society must undergo systemic change if the extinction crisis is to be addressed. For many communities, including some of the most vulnerable, pesticides are an essential element of their agricultural strategies.[206] Certain pesticides have proven to be exceptionally harmful to biodiversity and human health, however, resulting in birth and behavioural defects, and have been found in regions in which little agricultural or industrial activity takes places.[207]

It is therefore welcome that Target 7 calls for pollution levels to be reduced to levels 'that are not harmful to biodiversity and ecosystem functions and services'. In other words, states must not apply environmental quality standards in their pollution regulation, which merely impose limits on permissible levels of harmful substances, but ecological quality

[202]Agreement on Transboundary Haze Pollution (adopted 10 June 2002, in force 25 November 2003), text available at <https://asean.org/wp-content/uploads/2021/01/ASEANAgreementonTransboundaryHazePollution-1.pdf>.

[203]Laode M Syarif, 'Evaluating the (In)Effectiveness of ASEAN Cooperation Against Transboundary Air Pollution' in S Jayakumar et al (eds), *Transboundary Pollution: Evolving Issues of International Law and Policy* (Edward Elgar 2015) 295.

[204]Henrik Ringbom, 'Vessel-Source Pollution—Some Key Developments' in Rosemary Rayfuse et al (eds), *Research Handbook on International Marine Environmental Law* (2nd ed, Edward Elgar 2023) 196.

[205]David Osborn, 'Land-Based Pollution and the Marine Environment' in Rosemary Rayfuse (ed), *Research Handbook on International Marine Environmental Law* (Edward Elgar 2015) 81.

[206]E.g., Francis Snyder and Lili Ni, 'A Tale of Eight Pesticides: Risk Regulation and Public Health in China' (2017) 8 *European Journal of Risk Regulation* 469.

[207]Eric Dewailly and Christopher Furgal, 'POPs, the Environment, and Public Health' in David L Downie and Terry Fenge (eds), *Northern Lights Against POPs: Combatting Toxic Threats in the Arctic* (McGill-Queen's University Press 2003) 3.

standards, which are set to support the health and functionality of affected ecosystems and their constituent elements.[208] Challenges to delivering ecological quality standards are twofold, and again common across environmental law. First, in line with Mitchell's compliance theory,[209] even if these standards are phrased and interpreted in a way that means that they are obligations of result, the law may still provide states with excessive flexibility when it comes to delivery. This has been observed in relation to the European Union's Water Framework Directive, core to which is the idea of 'good ecological status'.[210] Second, regardless of how robust the law may be, phasing out certain chemicals is not a simple process. States must have sufficient resources and expertise to build the physical infrastructure to collect and destroy substances and to facilitate stakeholder compliance. This requires wider changes in society than simply adopting and enforcing new laws.[211]

Broad societal reform that goes beyond addressing the direct exploitation of biodiversity will also be necessary, and just as challenging, for Target 8:

> Minimize the impact of climate change and ocean acidification on biodiversity, and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

Supporting ecosystems' ability to adapt to climate change is one of the objectives set out in Article 2 of the UN Framework Convention on Climate Change (UNFCCC),[212] although it was not until 2010 that meaningful efforts were made by the CBD COP to coordinate action between the two regimes,[213] and adaptation was not treated as an equal priority to mitigation by the UNFCCC until 2015.[214] As Target 8 indicates, adaptation is closely related to nature's resilience, that is, its capacity to adapt in response to disturbances such as climate change,[215] and evidence shows

[208]William Howarth, 'The Progression Towards Ecological Quality Standards' (2006) 18 *Journal of Environmental Law* 3, 9-12.

[209]Mitchell (n 85).

[210]Directive 2000/60/EC establishing a framework for Community action in the field of water policy OJ L 327/1. Suzanne Kingston et al, *European Environmental Law* (Cambridge University Press 2017) 352–353.

[211]Mohamad M Al-Áfghani and Dyah Paramita, 'Regulatory Challenges in the Phasing-Out of Persistent Organic Pollutants in Indonesia' (2018) 1 *International Chemical Regulatory and Law Review* 12.

[212]UN Framework Convention on Climate Change (adopted 9 May 1992, in force 24 March 1994) 1771 UNTS 107.

[213]Amos (n 11) 120–122. See Decision X/33, Biodiversity and climate change, UNEP/CBD/COP/X/33 (2010).

[214]Sands and Peel (n 7) 325. See Articles 4–7 and 9–14 of the Paris Agreement.

[215]David Chandler, *Resilience: The Governance of Complexity* (Routledge 2014).

how supporting biodiversity can enhance ecosystems' resilience. Note the emphasis here on ecosystems, not species, indicating again that 'no extinction' options may no longer be viable. It may also be the case that those actions that best enable certain species to adapt to climate change, notably reforms to area-based management strategies, could facilitate the spread of IAS and diseases and thus endanger others.[216] Doubts can also be raised on whether international conservation law facilitates adaptation in nature. The concerns raised above regarding naturally migrating alien species and that protected areas remain targeted towards preserving sites are two examples of why this might be the case. Some of these concerns are contradictory, highlighting the challenge in devising strategies to respond to the increasingly complex biodiversity crisis.

6.2. Targets 9–13: Meeting People's Needs Through Sustainable Use and Benefit-Sharing

In Targets 9–13, attention shifts from conserving nature to society's use of nature. There is significant overlap between the two groups of targets, with the wording of this second set supporting analysis of the CBD that suggests that under this regime, conservation is not an end in itself but a means to perpetuating sustainable use.[217] This is particularly evident in Target 9:

> Ensure that the management and use of wild species are sustainable, thereby providing social, economic and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity, including through sustainable biodiversity-based activities, products and services that enhance biodiversity, and protecting and encouraging customary sustainable use by indigenous peoples and local communities.

A first point of interest here is that Target 9 uses the language of management in relation to wild species, not conservation, and that it is coupled with the phrase '*and* use', rather than '*or* use'. In certain contexts, notably agriculture, management speaks to the hybrid nature of those ecosystems that have been subject to extensive human manipulation.[218] To refer to the management of wild species, however, implies a level of intervention that goes beyond what might be necessary for, and compatible with, conservation. That the GBF does so supports the contention that the CBD regime primarily perceives biodiversity as resources.[219]

[216]Georgina M Mace, 'Drivers of Biodiversity Change' in Leader-Williams et al (n 155) 349, 355–356.

[217]Amos (n 11) 25.

[218]Walter de Boef, *Tales of the Unpredictable: Learning About Institutional Frameworks that Support Farmer Management of Agrobiodiversity* (Wageningen University Dissertations and Theses, 2000, 28241026).

[219]Amos (n 11) 25.

Second, Target 9 speaks to another trade-off that must be made in conservation policy, this time between the need to regulate practices harmful to biodiversity and the imperative to protect the rights, cultures and traditions of indigenous and local communities. Certain activities, such as hunting bushmeat, threaten both species and wider ecological and societal health, regardless of their necessity for the livelihood of the individual concerned.[220] These must be addressed if the GBF and other collective objectives, such as reducing the likelihood of a new zoonotic pandemic, are to be achieved. Doing so, however, risks causing or compounding an injustice if communities are compelled to abandon their traditions because they are no longer sustainable due to the more destructive actions of others. Historically, there are numerous examples of often erroneous conservation narratives being used to justify forced evictions and other violations of indigenous communities' rights,[221] and contemporary indigenous rights instruments include protections for communities' traditional uses of natural resources.[222] In other contexts where a local injustice must genuinely be imposed in the name of global sustainability, it is suggested that the only meaningful response may be to educate the community in question about the importance and legitimacy of the locally unjust decision.[223] Education is part of the GBF, but does not respond to this specific point.[224]

That the GBF does little to challenge the predominant view in international law that nature constitute resources is especially evident in Target 10:

> Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches, contributing to the resilience and long-term efficiency and productivity of these production systems, and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services.

[220]Rosemary E Agbor and Wele Elangwe, 'Indigenous Peoples and Agrobiodiversity in Africa' in Gabriela Steier and Alberto Cianci (eds), *Environmental Resilience and Food Law: Agrobiodiversity and Agroecology* (CRC Press 2020) 86–92.

[221]George Holmes, 'Exploring the Relationship Between Local Support and the Success of Protected Areas' (2013) 11 *Conservation and Society* 72, 75.

[222]E.g., The UN Declaration on the Rights of Indigenous Peoples, A/61/L.67 (2007).

[223]Rob Amos and Priscila Carvalho, 'Locating a Course on Environmental Justice in Theories of Environmental Education and Global Citizenship' (2020) 14 *Journal of Education for Sustainable Development* 140.

[224]Decision 15/4 (n 2) Target 16 and Section K.

Like Targets 5 and 8, Target 10 condenses and groups huge, diverse subjects into a deceptively and unjustifiably simplistic statement. All the sectors listed by Target 10 face their own challenges and associated trade-offs between priorities and stakeholder interests if they are to be sustainable.

Forestry has long been a contentious issue in international conservation law, with states proving reluctant to subject their national sovereignty over forests to any form of international oversight.[225] The only global instruments dedicated to forest conservation are non-binding statements of principles,[226] which have had at most minimal impact on their conservation.[227] At the regional level, the 2019 Leticia Pact goes further in facilitating common management strategies to the Amazon but does little to challenge the dominant framing of the rainforest as a resource of its range states.[228] As noted above, deforestation rates remain high as states fail to meet global targets to reduce and eliminate this,[229] and this can be attributed in part to a failure to ground the regulation of forestry industries in the ecological values of forests.[230]

How forestry should be incorporated into climate change mitigation strategies has also been controversial. When the UNFCCC's Clean Development Mechanism (CDM) was introduced, there was debate over whether, and if so how, forestry activities should be included. The principal concern related to how the key criterion of the additionality of any projects, that is, that they would only proceed with financial support coordinated through the CDM, would be satisfied.[231] A pragmatic approach has been taken so that proactive reforestation and afforestation initiatives are eligible, while passive projects such as preventing or reducing deforestation are not. Also relevant here is the Reducing Emissions from Deforestation and Degradation, or REDD+, scheme.[232] This is another economic climate

[225]Amos (n 11) 47–52.

[226]Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, 13 June 1992, 31 ILM 881 (1992), and the Non-Legally Binding Instrument on All Types of Forests, UNGA Resolution 62/98 of 31 January 2008.

[227]Amos (n 11) 47–52.

[228]English language version available at <https://id.presidencia.gov.co/Documents/190906-Pacto-Leticia-Amazonia-Ingles.pdf>; Amos ibid 51–52.

[229]Secretariat to the Convention on Biological Diversity (n 13) 52–57.

[230]Amos (n 11) 47–52.

[231]Dennis D Hirsch, 'Trading in Ecosystem Services: Carbon Sinks and the Clean Development Mechanism' (2007) 22 *Journal of Land Use* 623.

[232]Decision 4/CP.15, FCCC/CP/2009/11.Add.1. The+relates to forest conservation, sustainable management and the enhancement of forests as carbon sinks.

mitigation mechanism that provides funding to developing states in return for reducing deforestation and otherwise managing forests to enhance their carbon sequestration capacity.

While sharing a similar philosophy, namely, that offering economic incentives can be an effective means of driving responses to climate change,[233] the CDM and REDD+ take very different approaches. The operation of the CDM is supported by a substantial system of supranational oversight, including an Executive Body and independent verifiers of a project's eligibility.[234] REDD+, on the other hand, is better described as a bottom-up initiative, with its implementation and operation left to designated national authorities.[235] As approaches to international environmental governance, each has its strengths and weaknesses.[236] Most pertinent to the current discussion are concerns over the extent to which both the CDM and REDD+ ensure that forestry activities are 'managed sustainably' and therefore align with Target 10 of the GBF. Numerous projects supported by the CDM utilize the by-products of palm oil production, for example.[237] Making use of waste products is central to the concept of the circular economy, which is one representation a sustainable society.[238] However, enhancing the economic value of palm oil production enables, rather than challenges, an exceptionally destructive activity that involves substantial deforestation. This is another example of how economic considerations are prioritized over compelling genuinely sustainable reforms to human practices.[239] For REDD+, there are long-standing concerns about how linking payments to the amount of carbon dioxide a forest sequesters may lead to the mass planting of a few species at the expense of maintaining biodiversity.[240] In response, the UNFCCC COP adopted the Cancun

[233]Jos Cozijnsen and Michael J Coren, 'The Role of Project-Based Mechanisms in the Future Carbon Market' in David Freestone and Charlotte Streck (eds), *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond* (Oxford University Press 2009) 548; Robert O'Sullivan and Rick Saines, 'International Market Solutions to Protect Tropical Rainforests' in Freestone and Streck, ibid, 583.

[234]Decision 3/CMP.1, Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol, FCCC/KP/CMP/2005/8/Add.1.

[235]A series of UNFCCC COP Decisions known as the Warsaw Framework guide states' implementation of REDD+: https://unfccc.int/topics/land-use/resources/warsaw-framework-for-redd-plus (last accessed 15/01/2025).

[236]Amos (n 11) 129–135.

[237]See <https://unfccc.int/process-and-meetings/the-kyoto-protocol/mechanisms-under-the-kyoto-protocol/the-clean-development-mechanism>.

[238]Katrien Steenmans, 'The Role of Circular Economy Transitions in Fostering Sustainable Energy Democracy' in Ruven Fleming et al (eds), *Sustainable Energy Democracy and the Law* (Brill 2021) 144.

[239]On how this might be addressed in the context of the CDM, see Amos (n 11) 135.

[240]E.g., Elsa M Ordway et al, 'Oil Palm Expansion and Deforestation in Southwest Cameroon Associated with Proliferation of Informal Mills' (2019) 10 *Nature Communications* 114.

safeguards, a series of COP Decisions that seek to ensure that REDD+ projects enhance a forest's natural diversity, with that diversity itself being important in tackling climate change.[241] Theoretically, these safeguards are sound, but that they are dependent on developing states having the capacity to implement them has limited their effectiveness.[242]

The CDM and REDD+ are not CBD instruments, so mandating specific changes in how they function is arguably beyond the remit of the GBF. What the GBF could have done, though, is challenge more directly the entrenched view that forests are primarily national resources rather than ecosystems of critical global importance. In much the same way as calling for national priorities to be adapted to give greater weight to biodiversity in decision-making processes,[243] this would add substance to the GBF's theory of change and respond directly to what is a key issue in biodiversity law.

Turning to agriculture, we have already observed some of the tensions between biodiversity conservation and food security as policy objectives.[244] That food security is often pursued at the expense of biodiversity protection is concerning, if understandable, not just because any gains will be short-term only, but because reducing biodiversity by clearing land for agricultural production will make delivering long-term food security and other societal objectives, including the GBF, more challenging. It is widely accepted that agriculture is a contributing factor to climate change and a host of other environmental challenges, and agricultural practices therefore require reform.[245] Research conducted by Meng et al shows how the expansion of croplands into protected areas is undermining global conservation targets.[246] Cao et al reach a similar conclusion, finding that an area of wilderness larger than India is at risk from global agricultural and urban expansion, the protection of which is essential if the GBF is to be successful.[247]

[241]Decision 1/CP.16, FCCC/CP/2010/7/Add.1, Appendix I, para. 2(e). Other safeguards relate to the protection of indigenous peoples and ensuring public participation in REDD activities. Further guidance on the implementation of the Cancun safeguards is provided in Decisions 12/CP.17, FCCC/CP/2011/9/Add.2; 12/Cp.19, FCCC/CP/2013/10/Add.1; and 17/CP.21, FCCC/CP/2015/10/Add.3.

[242]Luis F Godoy, 'Complexities in REDD+ Safeguard Development and Implementation' (2016) 20 *New Zealand Journal of Environmental Law* 135.

[243]See text at (n 148).

[244]Kok et al (n 72).

[245]Amos (n 10) 150–151.

[246]Ziqi Meng et al, 'Post-2020 Biodiversity Framework Challenged by Cropland Expansion in Protected Areas' (2023) 6 *Nature Sustainability* 758.

[247]Yue Cao et al, 'Potential Wilderness Loss Could Undermine the Post-2020 Global Biodiversity Framework' (2022) 275 *Biological Conservation* 109753.

In that respect, for Target 10 to call for the sustainable intensification of agricultural production might be thought a welcome development, especially considering the acute political interests associated with national agriculture sectors that make any international discussion of its regulation controversial.[248] The vagueness of the term, however, undermines its utility in policy discussions because, much like sustainable development, it can be adapted (or manipulated) to support any argument.[249] While it is true that examples of what might be described as sustainable intensification activities can be found in different ecological and social contexts,[250] as a concept this risks being captured by vested interests that present agriculture as primarily concerned with production,[251] and their preferred production method as the correct course.[252]

The polarization of the debate surrounding genetically modified organisms (GMOs) is a useful illustration of this. Proponents of GMOs consider them to be a panacea for a host of challenges in crop production, including pests and diseases, extreme climatic variation and the need to improve yields. That GMOs can achieve these without having to increase the area of land needed for crop production means that they are 'sustainable'.[253] To their opponents, GMOs represent an unacceptable risk of ecological harm and threaten the social fabric of traditional farming communities. Instead, organic farming methods, which utilize ecosystem services such as natural pest control, represent the 'sustainable' path forward.[254] Neither position is correct in the absolute but, equally, both positions are correct in certain contexts. The reality is that GMOs have an important place in diverse, sustainable agricultural systems. They offer vulnerable communities opportunities to remain self-sufficient in the face of increasingly hostile environmental conditions. GMOs also carry risks, however, including for

[248]Epitomized by the debate over coexistence in relation to the European Union's authorization of genetically modified organisms: see Lee (n 45) 244.

[249]Michael Jacobs, 'Sustainable Development as a Contested Concept' in Andrew Dobson (ed), *Fairness and Futurity: Essays on Environmental Sustainability and Social Justice* (Oxford University Press 1999) 21.

[250]Forty examples are discussed in Jules N Pretty et al (eds), *Sustainable Intensification: Increasing Productivity in Africa Food and Agricultural Systems* (Routledge, 2011).

[251]Agriculture can instead be understood as farmers seeking to perpetuate the philosophies and methods, e.g., to raise livestock organically, that they have chosen as the means of production: Egon Noe and Hugo F Alrøe, 'Regulation of Agroecosystems: A Social Systems Analysis of Agroecology and Law' in Massimo Monteduro et al (eds), *Law and Agroecology: A Transdisciplinary Dialogue* (Springer 2015) 31, 32–33.

[252]Jules N Pretty and Zareen P Bharucha, 'Sustainable Intensification in Agricultural Systems' (2014) 114 *Annals of Botany* 1571, 1578.

[253]Nina V Fedoroff and Drew L Kershen, 'Agricultural Biotechnology—An Opportunity to Feed a World of Ten Billion' (2014) 118 *Penn State Law Review* 859.

[254]IFOAM, *Genetic Engineering and Genetically Modified Organisms* (IFOAM Position Paper 2016).

communities that rely on organic farming and, given the inherent uncertainties that always follow the deliberate release of a novel lifeform, ecosystems. These risks must be accounted for in GMO authorization processes, which is not straightforward, and mitigated by ensuring that GMOs are just one part of a diverse agricultural system that also contains organic and other means of production.[255]

Sustainable intensification may be better understood as an objective of agricultural production, rather than a means of agricultural production. Pretty and Pervez Bharucha define it as situations in which agricultural yields are increased in a manner that either supports biodiversity and ecosystem services or is at least ecologically benign.[256] In this respect, there is significant overlap between sustainable intensification and the second agricultural framework mentioned in Target 10: agroecology.

Agroecology is essentially the application of ecological science to agriculture.[257] In a narrow sense, it might be perceived as aligning closely with organic agriculture and conservation agriculture, another model for sustainable agriculture.[258] However, it has been persuasively argued that ecology should be given a more pluralistic meaning, so that it captures, inter alia, the cultural, technological, economic and political, as well as the natural.[259] If accepted, this transforms agroecology from mere methodology into a radical paradigm for societal transformation. At the heart of agroecology as a philosophy is the idea of the socioecological network, that is, that a farm is one element in a series of connections between different actors, both natural and human, the interactions and positions of which are affected by the choices and behaviours of all the others.[260] Agroecology posits that the regulatory, political and social systems in place that govern these networks should be reformed so that they prioritize the maintenance of the ecological health and functioning of these networks

[255]Amos (n 10) ch 3.

[256]Pretty and Bharucha (n 252).

[257]Fabio Caporali, 'History and Development of Agroecology and Theory of Agroecosystems' in Monteduro et al (n 251) 3–6.

[258]Peter R Hobbs et al, 'The Role of Conservation Agriculture in Sustainable Agriculture' (2008) 363 *Philosophical Transactions of the Royal Society B* 543.

[259]Andreas Philippopoulos-Mihalopoulos, 'Looking for the Space Between Law and Ecology' in Andreas Philippopoulos-Mihalopoulos (ed), *Law and Ecology: New Environmental Foundations* (Routledge 2011) 1, 1–4, in which the author responds to Commoner's idea that 'everything is connected to everything else': Barry Commoner, *The Closing Circle: Nature, Man and Technology* (Random House 1971) 33.

[260]Amos (n 10) 5–6. Parallels can be drawn here with actor-network theory in sociology: Jonathan Murdoch, 'Inhuman/Nonhuman/Human: Actor-Network Theory and the Prospects of a Nondualistic and Symmetrical Perspective on Nature and Society' (1997) 15 *Environment and Planning D: Society and Space* 731.

above all other considerations.[261] How this is achieved is by maintaining the diversity of agricultural systems: not just biodiversity, but the diversity of cultures, production methods, distribution pathways and so on that define agriculture.[262] Through a process Monteduro describes as trans-law, questions of regulation consequently expand from the traditional content of agricultural law to encompass, more holistically, issues such as how international trade rules, pollution regulation and legal responses to climate change support (or not) the sustainability of food systems, and therefore of society's place in nature.[263]

How agroecology is presented here is just one model for systemic reform to the agricultural sector so that it is genuinely sustainable. By merely raising agroecology as a potential way forward, however, Target 10 is an example of how GBF highlights a critical issue for biodiversity but through its supposedly action-orientated targets fails to identify meaningful steps on how this might be achieved. Similar comments can be made in relation to fisheries and aquaculture. Much like agriculture, aquaculture is central to securing global food security and other related social objectives, such as those represented by the SDGs, but also entails significant impacts on biodiversity that must be addressed.[264] These include damage caused by the installation of infrastructure, the destabilization of ecosystems resulting from nutrient loading and other pollution, and the impacts of IAS following escapes.[265] Work is being done to address these issues, most notably through the UN Food and Agriculture Organization's Blue Transformation.[266] This calls for the regulation and management of aquaculture to be aligned with an ecosystem approach,[267] but offers little detail on what this means in practice. No specific definition of what an ecosystem approach might

[261] Amos (n 10) 5–8. Similarities can be drawn with Wild Law (see Cullinan (n 81)), although agroecology lacks the overt ecocentric underpinnings.

[262] Amos (n 10).

[263] Massimo Monteduro, 'From Agroecology and Law to Agroecological Law? Exploring Integration Between *Scientia Ruris* and *Scientia Iuris*' in Monteduro et al (n 251) 57, 78. On agricultural law, see Christopher Rodgers and Nerys Llewelyn Jones, *Agricultural Law* (5th ed, Bloomsbury 2025).

[264] Amos (n 10) 143–145.

[265] Elizabeth J Cook et al, 'Non-Native Aquaculture Species Releases: Implications for Aquatic Ecosystems' in Marianne Holmer et al (eds), *Aquaculture in the Ecosystem* (Springer 2008) 155; Randall S Abate and Andrew B Greenlee, 'Sowing Seeds Uncertain: Ocean Iron Fertilization, Climate Change, and the International Environmental Law Framework' (2010) 27 *Pace Environmental Law Review* 555; Jana Roderburg, 'Marine Aquaculture: Impacts and International Regulation' (2011) 25 *Australian and New Zealand Maritime Law Journal* 161.

[266] FAO, *Blue—Transformation—Roadmap 2022–2030: A Vision for FAO's Work on Aquatic Food Systems* (FAO 2022).

[267] On the ecosystem approach, see Vito De Lucia, *The 'Ecosystem Approach' in International Environmental Law: Genealogy and Biopolitics* (Routledge 2019).

comprise in the context of aquaculture is provided, with the focus of the Blue Transformation instead being on how regulation of the industry needs to better reflect human rights and associated aspects of justice.[268] These are important, both in their own right and in the context of sustainability and sustainable development,[269] but do not by themselves address aquaculture's impacts on biodiversity. As with both forestry and agriculture, therefore, the GBF is identifying a key sector that needs reform, but stopping short of recommending specific actions that would challenge the current priority being given to the exploitation, not conservation, of nature.

The anthropocentric focus of the GBF is also highlighted in Target 11:

> Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature.

As noted above, ecosystem services are critical functions of nature on which society depends.[270] That they are degrading increasingly rapidly is a further indication of the damage that humanity continues to inflict on the natural world.[271] Since its emergence as a policy concept in the 2005 Millennium Ecosystem Assessment,[272] ecosystem services have received significant attention in international fora, notwithstanding the difficulties in transforming them into implementable standards and frameworks.[273] The emphasis placed on wellbeing by the Millennium Ecosystem Assessment and Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) arguably speaks to individual experiences in a way that has not been captured by the more typical language of 'future generations' associated with sustainable development.[274] Further, to the extent that it aligns with states' instrumental understandings of nature's values, linking conservation to ecosystem services rather than nature per se can be a powerful incentive to protect biodiversity.

[268]FAO (n 266) 9.

[269]Ilias Bantekas and Lutz Oette, *International Human Rights Law and Practice* (Cambridge University Press 2024) ch 14.

[270]See text at (n 116).

[271]Brondizio et al (n 4).

[272]UNEP, *Ecosystems and Human Well-Being: A Framework for Assessment* (UNEP 2003). The idea of ecosystem services was first discussed in scientific fora several decades earlier. E.g., see R. T. King, 'Wildlife and Man' (1966) 20 *New York Conservationist* 8.

[273]Amos (n 10) 99–105.

[274]Ibid 98.

Nevertheless, Target 11 epitomizes critical flaws of the GBF; its action-oriented targets are not actions, and it fails to recognise nature, and society, as part of an ecological whole. How Target 11 is phrased implies that ecosystem services are somehow distinct elements of the natural world that can be identified and managed separately from those natural and human aspects and behaviours through which they are connected. It is impossible to 'restore, maintain and enhance' ecosystem services, however, without halting biodiversity loss, cutting greenhouse gas emissions to reduce and mitigate climate change, reforming key exploitative sections such as those listed in Target 10 and instigating fundamental change in a host of other anthropogenic behaviours that destabilize, degrade and destroy nature.

Nature-based solutions is a further interesting dimension to ecosystem services, but one that the complexities of which the GBF also fails to engage. Aligning with strong interpretations of sustainability,[275] they represent an alternative way of responding to ecological challenges that considers, more holistically, how addressing one can positively impact others.[276] Before delivering on this potential, however, there are issues that must be resolved in how nature-based solutions are designed and implemented. These include a fragmented policy-development landscape, particularly at the national level, that struggles to fully articulate the trade-offs between different ecological, environmental and socioeconomic goals in a manner that protects biodiversity.[277]

A certain type of ecosystem service, supporting health and wellbeing, is addressed in Target 12:

> Significantly increase the area and quality, and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity, and ensure biodiversity-inclusive urban planning, enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature, and contributing to inclusive and sustainable urbanization and to the provision of ecosystem functions and services.

This also suffers from a lack of measurable goals and baselines, but here this cannot be excused by inadequate data as it is (relatively) easy to map how much green space exists in urban areas and different

[275]See text at (n 49).

[276]Nathalie Seddon et al, 'Grounding Nature-Based Climate Solutions in Sound Biodiversity Science' (2019) 9 *Nature Climate Change* 84.

[277]Nathalie Seddon et al, 'Understanding the Value and Limits of Nature-Based Solutions to Climate Change and Other Global Challenges' (2020) 375 *Philosophical Transactions of the Royal Society B* 20190120. On fragmentation at the international level, see W Bradnee Chambers, *Interlinkages and the Effectiveness of Multilateral Environmental Agreements* (UN University Press 2008).

communities' corresponding ability to access this.[278] The idea of access to green and blue spaces introduces a new dimension of biodiversity policy to the GBF and our analysis of it, one that was not addressed in the CBD's 2020 Strategic Plan for Biodiversity. There is a huge body of literature highlighting the benefits to health and wellbeing from having access to nature[279] and the consequent environmental injustice perpetuated against poor and ethnic minority communities who typically lack this access.[280]

How access to greens spaces might be improved returns us to the discussion under Target 1, where it was noted that the issue of biodiversity-inclusive planning that the GBF fails to confront is not *whether* biodiversity is included in planning policies, but *how*. Again, it would be inappropriate for the GBF to be overly prescriptive here; the challenges in ensuring access to green spaces and the most suitable responses to these will vary between states and localities.[281] More guidance could still have been provided by Target 12, however. Reflecting sociological and ecological research, it could have called on states to ensure that people had to travel no more than fifteen minutes by walking or cycling to access a green space,[282] or for local authorities to only use native species when planting public spaces.

It is not enough just to create green spaces; thought must also be given to how their design might facilitate access. Research indicates, for example, that open greens and flower beds in public parks typically attract young families, whereas high hedgerows that reduce visibility encourage antisocial behaviour and dissuade communities from utilizing a space.[283] This speaks to deeper connections between nature and society that are not captured in regulatory and administrative decision-making.[284]

[278]E.g., <https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/parks-green-spaces-and-biodiversity/green-infrastructure-maps-and-tools>.

[279]E.g., Florence Williams, *The Nature Fix: Why Nature Makes Us Happier, Healthier, and More Creative* (Norton 2017).

[280]Nicholas Blomley, 'Enclosure, Common Right and the Property of the Poor' (2008) 17 *Social & Legal Studies* 311.

[281]A series of useful case studies from Sweden, Germany and South Africa is provided in Johan Colding et al, 'Urban Green Commons: Insights on urban Common Property Systems' (2013) 23 *Global Environmental Change* 1039.

[282]The idea of the '15-minute city' has enjoyed significant attention in recent years. While it is better described as a planning concept than a planning strategy, it has proven effective at highlighting inequalities in urban contexts, particularly in relation to the accessibility of public goods such as green space, education and healthcare. See further Luis A Guzman et al, 'Is Proximity Enough? A Critical Analysis of a 15-Minute City Considering Individual Perceptions' (2024) 148 *Cities* 104882.

[283]Mark Francis 'Urban Open Spaces' in Erwin H Zube and Gary T Moore (eds), *Advances in Environment, Behaviour, and Design Vol. 1* (Springer 1987) 87–91.

[284]Rob Amos, 'Reassessing the Role of Plants in Society' (2017) *International Journal of Law in Context* 295, 296-301.

Finally, note should be made of the desire to improve people's 'connection to nature' that is expressed in Target 12. This is an under-appreciated element of biodiversity and broader sustainability policies,[285] as evidence shows that the greater access a person has to nature, the more they feel that they connect to nature and the more likely they are to value it for its non-anthropocentric worth.[286] In the Western world at least, instilling a greater feeling of connection to nature is challenging. Research shows that while a small but discernible increase in people's connection to nature was observed during the COVID-19 lockdowns in the United Kingdom, very quickly after these restrictions were lifted this enhanced connection disappeared.[287] Target 12 identifies one response to this difficulty in improving access to green and blue spaces but, as noted, provides no guidance on specific steps that could be taken to achieve this.

The criticism that the GBF's targets lack specific actions that would address biodiversity loss, despite being action-oriented, also applies to Target 13:

> Take effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources, and by 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.

When we compare the language of Target 13 with that of Goal C of the GBF, there are only two points of significant difference. First, Target 13 includes a deadline of 2030 for an increase in the benefits derived from nature's genetic resources that are shared. No reference is made to this increase being sustainable, or necessarily compatible with the wishes of the local and indigenous communities that possess knowledge about these resources. In this regard, Target 13 can even be considered a regressive step compared to the CBD itself. Article 8(j) of the Convention called for this knowledge to be respected, albeit only to the extent required under national law. This qualification in the treaty means that for the GFB to merely refer to international instruments is insufficient.[288] It could

[285]Kim Friedman et al, 'The CBD Post-2020 Biodiversity Framework: People's Place Within the Rest of Nature' (2022) 4 *People and Nature* 1475.

[286]Helena Howe, 'Making Wild Law Work—The Role of 'Connection with Nature' and Education in Developing an Ecocentric Property Law' (2017) 29 *Journal of Environmental Law* 19, 30–33.

[287]Amos (n 10) 228–229, drawing on data collected through Natural England's People and Nature Survey: <https://www.gov.uk/government/collections/people-and-nature-survey-for-england>.

[288]Although see the discussion of Target 21.

have instead called for greater protections to be afforded to indigenous and local communities at the state level, which would have been another way of giving weight to the GBF's claim to represent a theory of change.

Second, Target 13 calls for 'legal, policy, administrative and capacity-building measures', but other than that these should be 'effective', no guidance is given on what form these measures should take. As noted above, detailed rules can be found in the Nagoya Protocol, but this contains weaknesses that limit its capacity to ensure that access and benefit-sharing are pursued in a manner that is fair and equitable.[289]

The state-centric Nagoya model is not the only framework for access and benefit-sharing that exists in international law. An alternative is the Multilateral System that has been developed under the International Treaty on Plant Genetic Resources for Food and Agriculture (PGRT).[290] In brief, this is a mechanism that allows any stakeholder to access the genetic material of certain crop species, provided that the benefits resulting from that access are shared with farmers in developing states. This is achieved by basing access on a standard material transfer agreement, that is, a contract between the provider and recipient of the material. Benefits that must be shared through the Multilateral System take four forms: information sharing; technology transfer; capacity building; and monetary and other benefits resulting from commercialization.[291]

There are aspects of how the Multilateral System operates that require reform, most important of which is that it does not include certain crops that are vital to farmers in least-developed and developing states.[292] Nevertheless, that it promotes the principle of universal access and benefit-sharing means that the Multilateral System constitutes a form of global commons, and this, it has been argued, is better able to maintain and enhance the crop genetic diversity that is identified as a priority by the GBF.[293] The arguments for and against commons as natural resource management strategies have been well rehearsed,[294] and various examples of

[289]See text at (n 136).

[290]PGRT, Part IV. See <https://www.fao.org/plant-treaty/areas-of-work/the-multilateral-system/landingmls/en>.

[291]PGRT, Article 13.2. For further information on how the Multilateral System operates, see Gerald Moore, 'Protecting the Interests of the Multilateral System under the Standard Material Transfer Agreement' in Michael Halewood et al (eds), *Crop Genetic Resources as a Global Commons: Challenges in International Law and Governance* (Routledge 2013).

[292]Michael Halewood, 'Governing the Management and Use of Pooled Microbial Genetic Resources: Lessons from the Global Crop Commons' (2010) 4 *International Journal of the Commons* 404, 408. The crops covered by the Multilateral System are listed in Annex I of the PGRT.

[293]Amos (n 10) 49–50. See further Frison (n 129).

[294]Garrett Hardin, 'The Tragedy of the Commons' (1968) 162 *Science* 1243; Eleanor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge University Press 2015) ch 3; and

where they have and have not worked can be identified.[295] What is disappointing about the GBF is consequently not that it does not embrace the idea of commons. Rather, it is that the GBF does not acknowledge the fundamental problems with the Nagoya Protocol's state-centric model and that alternative approaches such as commons management should therefore be explored. This again would have justified the GBF's claim to represent a theory of change.

6.3. Targets 14–23: Tools and Solutions for Implementation and Mainstreaming

Ten of the 23 Targets relate to implementation, and build on the call for adequate financing and collaboration in Section I of the GBF. While each is key to developing the enabling environment necessary for achieving the more substantive objectives of the GBF, this reinforces the criticism noted above that international conservation policy focuses too much on conservation outputs, rather than outcomes.[296] It is also necessary to ask why, after over 30 years, these conditions have not yet been established, when many of the points raised in the GBF have long been called for by the CBD regime.

One answer to this question can be found in Target 14:

> Ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, and fiscal and financial flows with the goals and targets of this framework.

Progress has undoubtedly been made in integrating or mainstreaming biodiversity into a broad range of policy areas, although challenges remain.[297] The analysis of Targets 9–13 above, however, suggests that the

Burns H Weston and David Bollier, *Green Governance: Ecological Survival, Human Rights, and the Law of the Commons* (Cambridge University Press 2013).

[295]One example of where commons management has proven effective is the agricultural *subaks* that are connected to Balinese water temples; see J Stephen Lansing, *Perfect Order: Recognizing Complexity in Bali* (Princeton University Press 2006). The international community's difficulties in conserving whales prior to the introduction of the moratorium on commercial whaling under the International Convention for the Regulation of Whaling, Washington, 2 December 1946, in force 10 November 1948, 141 UNTS 72 (as amended 19 November 1956, 338 UNTS 336) (ICRW), illustrates the challenges in managing 'resources' that may be considered as commons; see Bowman et al (n 30) 164–169.

[296]Harrop and Pritchard (n 6).

[297]Penelope R Whitehorn et al, 'Mainstreaming Biodiversity: A Review of National Strategies' (2019) 235 *Biological Conservation* 157.

way it has been integrated does not capture its full range of (non-anthropocentric) values, and that it typically does not enjoy the same status as other policy objectives.

How environmental impact assessment (EIA) has developed as a legal mechanism provides a useful case study of this.[298] EIA first appeared in the United States' National Environmental Policy Act 1969 as a means of (re)introducing ecological science into environmental regulation.[299] It occupies the intersection of different theories of administrative decision-making. Foremost of these are information theories and the belief that 'better', although not necessarily greener, decisions are reached if decision-makers have access to a broad range of information.[300] In particular, EIA offers a means of capturing non-technical public values about biodiversity to which other, more expert-led, decision-making processes are less capable of responding.[301] More radical are the culture theories of environmental assessment. In short, these posit that systematically requiring those in positions of authority to consider the environmental impacts of their decisions will eventually lead to this becoming an inherent part of the decision-making culture, not just a legislative formality.[302] EIA and other environmental assessment mechanisms are consequently seen as a way of embedding an ecological rationality into administrative processes.[303]

While attractive in theory, questions can be asked about how far both information and culture theories of environmental assessment are reflected in practice. In her seminal text on environmental assessment, Holder explores how EIA can be captured by developers, due to their central role in providing the information on which public consultations and any

[298]In brief, EIA is a process through which the environmental impacts of development projects are identified and mitigated. For a detailed discussion, see Jane Holder, *Environmental Assessment: The Regulation of Decision-Making* (Oxford University Press 2004). There are other forms of environmental assessment in international law, a notable example being strategic environmental assessment (SEA) that concerns the potential impacts of plans and programmes. Obligations and related guidance on this are relatively lacking in international agreements compared to that for EIA, however. Compare, for example, Articles 28 et seq. on EIA in the Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (A/CONF.232.2023/4*), and the brief and very vague provisions on SEA in Article 39.

[299]Bradley C Karkkainen, 'NEPA and the Curious Evolution of Environmental Impact Assessment in the United States' in Jane Holder and Donald McGillivray (eds), *Taking Stock of Environmental Assessment: Law, Policy and Practice* (Routledge 2007) 46.

[300]Jenny Steele, 'Participation and Deliberation in Environmental Law: Exploring a Problem-Solving Approach' (2001) 21 *Oxford Journal of Legal Studies* 415.

[301]Holder (n 298) 24.

[302]Ibid 27–29.

[303]Robert V Bartlett, 'Ecological Reason in Administration: Environmental Impact Assessment and Green Politics' in Robert Paehlke and Douglas Torgerson (eds), *Managing Leviathan: Environmental Politics and the Administrative State* (2nd ed, Broadview Press 2005) 54–56.

decisions are primarily based.[304] Certain steps can be taken to address this, such as requiring developers to produce non-technical summaries of complex environmental impact statements and by ensuring that other stakeholders have sufficient opportunity to comment on those statements. Nevertheless, the special status attached to the results of the environmental impact assessment, due to decision-makers typically being required to respond specifically to how they have taken the environmental impact statement and consultations on that statement into account, gives developers, whose first concern is seeing a proposal going ahead rather than minimizing impacts on biodiversity, an outsized role in setting the terms of debate.

A related concern is the issue of whether public participation mechanisms are designed to facilitate the broad stakeholder participation envisaged by EIA and the GBF. A core aspect of environmental justice is recognition, that is, responding to the systemic challenges individuals face in engaging with administrative procedures because those procedures are designed and operated in a way that ignores, perpetuates or exacerbates social inequalities.[305] This touches on important questions that speak as much to power relations between demographics, and the advantages and disadvantages enjoyed by different communities in society, as they do to the design and implementation of different policies.[306] The point in terms of the current discussion is that Target 14 is consequently a further example of how the GBF fails to recognize that its goals can only be achieved through actions that challenge status quos, in how society relates to itself as much as it relates to the natural world.

Lastly, there is evidence suggesting decision-makers approach EIA with the aim of minimizing the scope for subsequent challenge, rather than as an opportunity to genuinely reflect on whether a proposed project is ecologically justifiable.[307] This latter point is one explanation as to why an ecological rationality in administrative processes has yet to emerge, at least in the Global North.[308] Also relevant is that EIA operates in a broad and complex policy and political landscape. Biodiversity protection and other environmental goals may not be a government's priority if it is under

[304]Holder (n 298) 97–99.

[305]David Schlosberg, *Defining Environmental Justice: Theories, Movements, and Nature* (Oxford University Press 2007) 13–20.

[306]E.g., Agyeman's discussion of what constitutes justice in the context of food, place and culture: Julian Agyeman, *Introducing Just Sustainabilities: Policy, Planning, and Practice* (Zed Books 2013).

[307]Tseming Yang, 'The Emergence of the Environmental Impact Assessment Duty as a Global Legal Norm and General Principle of Law' (2019) 70 *Hastings Law Journal* 526, 536.

[308]Ibid.

political pressure to address a cost of living or housing crisis, for example, or must mitigate the domestic impacts of unforeseen events, such as the COVID-19 pandemic and Russia's invasion of Ukraine.[309] Calling for greater mainstreaming biodiversity is therefore insufficient. How it is mainstreamed needs to be reconsidered, a point that is missed both by Target 14 and other aspects of the GBF. One option would be for biodiversity protection to be embedded within state constitutions. Recent experience in Ecuador, where the constitutional protections afforded to nature have led to several landmark judgments protecting biodiversity from proposed mining projects, suggests that this could represent the theory of change that the GBF promotes.[310] At the very least, this would be an indicator of the importance that should be attached to biodiversity by those responsible for the daily administration of policy and justice.[311]

EIA seeks to promote broad stakeholder participation in environmental decision-making. The role of a particular type of stakeholder in biodiversity protection, commercial entities, is the focus of Target 15:

> Take legal, administrative or policy measures to encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions:
>
> a. Regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity, including with requirements for all large as well as transnational companies and financial institutions along their operations, supply and value chains, and portfolios;
> b. Provide information needed to consumers to promote sustainable consumption patterns;
> c. Report on compliance with access and benefit-sharing regulations and measures, as applicable;
>
> in order to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.

This begins with similar language of many of the other GBF targets, that is, 'Take legal administrative or policy measures.' What is different about Target 15 is that it then provides examples of specific actions that

[309] Amos (n 10) 170–171.

[310] Guayasamin et al (n 82).

[311] James R May and Erin Daly, *Global Environmental Constitutionalism* (Cambridge University Press 2015) 36–42.

these measures could entail. Arguably, these actions do not go far enough. Rather than just assessing their impacts on biodiversity, corporations should have been called on to reduce them, for example. Equally, it is not enough just to report on a compliance with access and benefit-sharing regulations; steps should be taken to improve compliance. Nevertheless, Target 15 provides a level of detail that is missing from a majority of the GBF's action-oriented targets.

Cynically, we might think that states were willing to set out more specific actions here because they were actions for other stakeholders, that is, businesses and financial institutions, to take. A more generous interpretation would be that in line with the recognition that success of the GBF depends on the participation of a host of different actors,[312] states have sought to create an environment that promotes positive interactions. The consumer empowerment envisaged by Target 16 depends on there being sufficient information about a company's impacts on biodiversity being made available to the public. Similarly, states will not know if measures adopted pursuant to Target 13 are effective without information regarding whether entities that are accessing natural genetic resources are complying with their access and benefit-sharing obligations.

How to hold corporations to account for their environmentally harmful activities, both lawful and unlawful, is a long-standing issue. It relates to the distributional aspect of environmental justice, that is, how environmentally harmful activities, and the impacts of these, are distributed across and within societies; the question of how to ensure that companies account for costs incurred by the public, in the form of resource depletion and pollution, in their pursuit of private profit[313]; and how best to impose liability in the event of unlawful damage.[314] Different approaches can be identified to respond to these difficulties. These include the internationalization of contracts, that is, the insertion of a clause that commits parties to complying with international environmental and human rights standards,[315] and the adoption of codes of conduct with which corporations voluntarily comply. An important example of this latter approach is the

[312]Marcel TJ Kok and Kathrin Ludwig, 'Understanding International Non-State and Subnational Actors for Biodiversity and Their Possible Contributions to the Post-2020 Global Biodiversity Framework: Insights from Six International Cooperation Initiatives' (2022) 22 *International Environmental Agreements* 1.

[313]Richard Macrory, 'Regulating in a Risky Environment' reproduced in Richard Macrory, *Regulation, Enforcement and Governance in Environmental Law* (Hart 2014) 133–134. Closely related is the 'polluter pays' principle: Priscilla Schwartz, 'The Polluter-Pays Principle' in Malgosia Fitzmaurice et al (eds), *Research Handbook on International Environmental Law* (Edward Elgar 2011).

[314]Fisher et al (n 148) ch 6.

[315]Fabrizio Cafaggi, 'Regulation through Contracts: Supply-chain Contracting and Sustainability Standards' (2016) 12 *European Review of Contract Law* 218.

2003 Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights.[316] These also highlight the limits of international law's ability to compel corporations to comply with international environmental standards. While they are expressed in normative language, they are ultimately non-binding.[317]

Another important role international law has in the context of Target 15 is providing the frameworks through which the complex process of assessing the full impacts of corporations' value and supply chains can be achieved. The UN Food and Agriculture Organization's Sustainability Assessment of Food and Agriculture Systems programme (SAFA) is one of the most comprehensive examples currently in place.[318] This is a tool that enables agricultural enterprises to assess the environmental, social and economic impacts of their operations and supply chains. It establishes indicators across four dimensions of sustainability—good governance, environmental integrity, economic resilience and social wellbeing—which have been recognized as a more ecologically sound interpretation of the three-pillar conceptualization of sustainable development.[319] Importantly, specific guidance is also given on how to define the scope of the assessment in a way that captures those aspects of an entity's supply chain that are beyond its immediate control.[320] Target 15 would have been of greater value had it called for similar frameworks to be adopted for other industries with complex supply and value chains that entail direct and indirect impacts on biodiversity.

While Target 15 focuses on producers, Target 16 is concerned with empowering consumers so that their impacts on biodiversity are reduced:

> Ensure that people are encouraged and enabled to make sustainable consumption choices, including by establishing supportive policy, legislative or regulatory frameworks, improving education and access to relevant and accurate information and alternatives, and by 2030, reduce the global footprint of consumption in an equitable manner, including through halving global food waste, significantly reducing overconsumption and substantially reducing waste generation, in order for all people to live well in harmony with Mother Earth.

Ensuring that consumers have access to information, such as through labelling standards, has long been recognized as important in enabling

[316]E/CN.4/Sub.2/2003/12/Rev.2, 26 August 2003. Para. 14 addresses environmental protection.

[317]Elisa Morgera, *Corporate Accountability in International Environmental Law* (Oxford University Press 2009) 94.

[318]FAO, *SAFA: Sustainability Assessment of Food and Agriculture Systems Guidelines: Version 3.0* (FAO 2014).

[319]Amos (n 10) 181–182.

[320]FAO (n 318) 29.

them to make informed choices about the impacts that products have on the natural world.[321] The more consequential aspect of Target 16 is its reference to education, but its lack of detail raises the questions of education of whom and about what. If it is just about the ecological costs of production processes and the availability of more sustainable alternatives, as seems to be implied by the construction of Target 16, this is a very narrow understanding of the role education could play in the success of the GBF. Work on sustainability learning reveals the transformational impact that embedding the concepts and practices of sustainability into education systems can have on a person's understanding of ecological crises, and their capacity to contribute to solutions called for in frameworks such as the GBF and the SDGs.[322] Taking Target 16's focus on food as an example,[323] incorporating different aspects of sustainability agenda, including biodiversity protection, into food education programmes leads to greater understanding of, inter alia, how competing demands over limited resources such as land and water can be sustainably managed in a way that also enjoys broad community support.[324]

More meaningful measures regarding education are contained in Section K of the GBF, many of which respond to issues identified in its Targets. Paragraph 22(a) speaks of the need to increase awareness of nature's different values, which as noted would enhance people's connection to nature; paragraph 22(d) highlights the importance of adapting communications to reflect the target audience's cultural and socioeconomic background;—that is, it relates to the recognition aspect of environmental justice that was identified as a barrier to certain communities participating in biodiversity decision-making; and, while not using this specific terminology, paragraph 22(f) calls for the holistic incorporation of biodiversity issues into all forms of education in a manner that aligns with theories of sustainability learning. These are all positive steps that would constitute a theory of change in how biodiversity is embedded in education. It is therefore disappointing that they were not included in the GBF's action-oriented targets.

The scope of Target 17 also appears unjustifiably narrow:

[321] E.g., A/CONF.151/26/Rev.1 (vol. I) (1993) (Agenda 21), para. 4.21.

[322] Amos et al (n 60).

[323] The focus on food is another curious feature of Target 16. While this is undoubtedly important, other issues (e.g., water usage: Secretariat of the Convention on Biological Diversity, *Water and Biodiversity—Natural Solutions for Water Security* (2013)) and industries (e.g., fashion: Kirsi Niinimäki et al, 'The Environmental Price of Fast Fashion' (2020) 1 *Nature Reviews Earth & Environment* 189) are just as relevant to the sustainability of consumption patterns.

[324] Amos et al (n 60) ch 6.

> Establish, strengthen capacity for, and implement in all countries, biosafety measures as set out in Article 8(g) of the Convention on Biological Diversity and measures for the handling of biotechnology and distribution of its benefits as set out in Article 19 of the Convention.

Articles 8(g) and 19 do not contain specific measures. As would be expected from a framework convention, they set out generic obligations phrased in language similar to many of the GBF's targets. Article 8(g), for example, simply calls on states to 'Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology.' Specific measures concerning biosafety have, however, been agreed through the Biosafety Protocol. These include detailed notification and risk assessment obligations before a living modified organism can be released.[325] The Biosafety Protocol is flawed as a biodiversity protection instrument, as it does not contain provisions on how should states respond if a released organism has a worse environmental impact than was anticipated.[326] It is still significantly more detailed than the provisions cited in Target 17, however, and with 173 parties at the time of writing, engagement with the Protocol is not so lacking that recourse needed to be made to the parent treaty.

As indicated in Part 2 of this work, there is a significant shortfall in global financing for biodiversity protection. One part of the GBF's solution to this contained in Target 18:

> Identify by 2025, and eliminate, phase out or reform incentives, including subsidies, harmful for biodiversity, in a proportionate, just, fair, effective and equitable way, while substantially and progressively reducing them by at least $500 billion per year by 2030, starting with the most harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.

Addressing perverse incentives, that is, policies or schemes that encourage landowners to manage their land in a way that harms biodiversity,[327] is another long-standing concern of the CBD regime.[328] One report estimates that in 2019, while $142 billion was made available for conservation through, inter alia, states' national spending, development assistance and green financial products, $542 billion was provided in subsidies to the

[325]Articles 7, 8 and 15. For a detailed overview of the Biosafety Protocol, see Christoph Bail et al (eds), *The Cartagena Protocol on Biosafety: Reconciling Trade in Biotechnology with Environment & Development?* (Earthscan 2002).

[326]Amos (n 10) 73–74.

[327]The European Union's Common Agricultural Policy has long been criticized in this regard, despite numerous reforms in an effort to 'green' how it operates: Guy Pe'er et al, 'A Greener Path for the EU Common Agricultural Policy' (2019) 365 *Science* 449.

[328]Eliminating harmful subsidies was included in Target 3 of the Strategic Plan for Biodiversity.

agriculture, forestry and fishery industries to support activities harmful to biodiversity.[329] As indicated in the discussion of Target 10 above, addressing this issue depends as much on a broader cultural shift within policymaking about how nature is valued as it does on reforms to specific mechanisms.

Developing positive incentives for landowners is also complex. Research shows that more robust schemes, with long-term contracts and strong enforcement mechanisms, lead to greater biodiversity gains but are less likely to attract participation from stakeholders.[330] Thought must also be given to the ecological connectivity of the separate parcels of land that are covered by any management scheme.[331] Such initiatives will also only be effective if they are accompanied by broader regulatory reform to improve biodiversity protection standards, especially those required of industries that contribute to biodiversity loss.[332]

Addressing incentives is a major part of GBF's strategy to respond to the global shortfall in biodiversity funding. The second element of the GBF's strategy to increase funding for biodiversity protection is the aim in Target 19 to mobilize an additional $200 billion per year by 2030:

> Substantially and progressively increase the level of financial resources from all sources, in an effective, timely and easily accessible manner, including domestic, international, public and private resources, in accordance with Article 20 of the Convention, to implement national biodiversity strategies and action plans, mobilizing at least $200 billion per year by 2030, including by:
>
> d. Increasing total biodiversity related international financial resources from developed countries, including official development assistance, and from countries that voluntarily assume obligations of developed countries Parties, to developing countries, in particular the least developed countries and small island developing States, as well as countries with economies in transition, to at least $20 billion per year by 2025, and to at least $30 billion per year by 2030;
> e. Significantly increasing domestic resource mobilization, facilitated by the preparation and implementation of national biodiversity finance

[329]Andrew Deutz et al, *Financing Nature: Closing the Global Biodiversity Financing Gap* (Paulson Institute 2020) 16.

[330]Michael G Sorice et al, 'Increasing Participation in Incentive Programs for Biodiversity Conservation' (2013) 23 *Ecological Applications* 1146.

[331]David J Lewis et al, 'The Efficiency of Voluntary Incentive Policies for Preventing Biodiversity Loss' (2011) 33 *Resources and Energy Economics* 192.

[332]Esther Turnhout et al, 'Enabling Transformative Economic Change in the Post-2020 Biodiversity Agenda' (2021) 14 *Conservation Letters* e12805.

plans or similar instruments according to national needs, priorities and circumstances;
f. Leveraging private finance, promoting blended finance, implementing strategies for raising new and additional resources, and encouraging the private sector to invest in biodiversity, including through impact funds and other instruments;
g. Stimulating innovative schemes such as payment for ecosystem services, green bonds, biodiversity offsets and credits, and benefit-sharing mechanisms, with environmental and social safeguards;
h. Optimizing co-benefits and synergies of finance targeting the biodiversity and climate crises;
i. Enhancing the role of collective actions, including by indigenous peoples and local communities, Mother Earth centric actions and non-market-based approaches including community based natural resource management and civil society cooperation and solidarity aimed at the conservation of biodiversity;
j. Enhancing the effectiveness, efficiency and transparency of resource provision and use.

It was noted in relation to Goal D that an inherent flaw in global biodiversity law and policy is that the finance gap of $700 billion needs to be addressed *now* to prevent further biodiversity loss, but must be set as a long-term target as part of the GBF to be delivered. The target of $200 billion also assumes that the remaining $500 billion will be met via the positive incentives called for by Target 18, which seems unduly optimistic considering states' poor track record on reversing negative incentives in key industries. Even for the more immediate, and more modest, finance targets, doubts can be raised over whether they will be met. In July 2025, only $8 billion worth of finance commitments had been announced, that is, just 40 percent of the $20 billion called for by 2025.[333]

The lack of progress towards Target 19 is concerning, and certainly falls short of calls such as that from McCleery et al, who argue that conservation requires funding on the scale of the support that states provided to their domestic economies in response to the COVID-19 pandemic.[334] This is a further demonstration of the weakness of GTNA as a regulatory strategy. An alternative approach would be to set a specific spending target for each state to achieve. On average, wealthier states spend the equivalent of just 0.3 percent of their gross domestic product (GDP) on supporting

[333]See <https://www.naturefinance.info>.

[334]Robert A McCleery et al, 'Conservation Needs a COVID-19 Bailout' (2020) 369 *Science* 515.

biodiversity.[335] In comparison, many states have committed to the United Nations' target of spending 0.7 percent of their GDP on official development assistance,[336] and members of the North Atlantic Treaty Organization (NATO) have agreed to spend 2 percent of their GDP on defence, raising this to 5 percent by 2035.[337] Obviously, these targets operate in very different historical and contemporary contexts, and many states consistently fail to reach them.[338] Still, they are specific targets for states to achieve individually and are standards by which they can be held accountable if they fail to do so, both internationally and domestically.[339]

When confronted with specific challenges, states have also been shown to respond by meeting such targets. Many NATO members are increasing defence spending following the renewed threat from Russia and concerns over the implications of a second Trump presidency, for example.[340] This raises the question of why indisputable evidence of the extinction crisis has not led to greater efforts to meet biodiversity funding commitments. One answer may be that biodiversity loss lacks a sufficiently strong and politically engaged domestic constituency. Dai argues that a reason why European states were willing to fulfil their obligations under the LRTAP was that air pollution and acid rain impacted on key national demographics and were therefore considered a political priority.[341] Biodiversity loss does not have the same immediate impact on individuals and so does not enjoy the same level of attention within national publics. This underscores the importance of developing people's connection with nature under Target 12; only by enhancing this connection will sufficiently large domestic constituencies that demand action on biodiversity loss emerge.

Three other points regarding Target 19 are worth highlighting. First, encouraging private investment will be essential and new financial

[335]Andrew Seidl et al, 'The Effectiveness of National Biodiversity Investments to Protect the Wealth of Nature' (2021) 5 *Nature Ecology and Evolutions* 530.

[336]This target was first officially adopted in UNGA Resolution 2626 (XXV) of 24 October 1970 para 43.

[337]See the 2014 Wales Declaration on the Transatlantic Bond, text available at <https://www.nato.int/cps/en/natohq/official_texts_112985.htm>; and the 2025 Hague Declaration, text available at <https://www.nato.int/cps/en/natohq/official_texts_236705.htm>.

[338]For 2023, it is estimated that just 11 NATO countries will spend 2% of their GDP on defence spending: NATO, *Defence Expenditure of NATO Countries 2014–2023* (NATO press release, 7 July 2023) 3.

[339]Evidenced by pressure, most notably from the United States, on NATO members that have consistently failed to meet the 2% target, and the political backlash in the United Kingdom against the previous Conservative Government's decision in 2021 to cut the foreign aid budget to 0.5% of GDP.

[340]See <https://www.nato.int/cps/en/natohq/news_222664.htm>.

[341]Xinyuan Dai, 'Why Comply? The Domestic Constituency Mechanism' (2005) 59 *International Organization* 363, 385-387.

instruments to achieve this are being developed.[342] Forest bonds, for example, use forests themselves as collateral to raise finance for their conservation.[343] There are risks, however, in commercializing nature in this way. It conditions the conservation of nature on it being a good economic, not ecological, investment, which may be contrary to the values necessary for establishing the stronger connection to nature called for in Target 12.

Second, there are limitations to what can be achieved through the schemes listed in paragraph (d). At the local level, payments for ecosystem services (PES) have proven effective at supporting landowners in managing their land so that it delivers public goods for which they would ordinarily have little economic incentive in maintaining.[344] On an international scale, PES have been less effective, as the failure of Norway's agreement with Liberia to reduce deforestation in return for $150 million illustrates.[345] This highlights the importance of there being a sufficiently robust regulatory system in place to ensure that PES schemes are properly implemented. As with many of the other issues raised in the GBF, broader reforms in how society operates may be required for this system to exist. PES depend on the property rights over the relevant natural elements being sufficiently clear, which may not be the case if ownership of the land and the resources on it are split between an indigenous community and another party, for example.[346] Some work on PES and related schemes has been completed under the CBD,[347] and they were included in the incentive measures called for in Target 3 of the 2020 Strategic Plan for Biodiversity. As previously noted, however, this Target was not met.

Other concerns can be raised over biodiversity offsetting, that is, compensating for the loss of biodiversity in one area by creating or restoring habitats in another. Proponents believe offsetting offers a more flexible approach to preserving nature and is an example of how trade-offs between conservation and socioeconomic development might be made in a way

[342]The positive impact that private finance can have in supporting the implementation can be seen in Prince Albert II of Monaco's support of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (adopted 24 November 1996, in force 1 June 2001) 2183 UNTS 303. See, for example, <https://www.fpa2.org/en/projects/accobams-survey-initiative-00554>.

[343]Matthew Cranford et al, *Unlocking Forest Bonds: A High-Level Workshop on Innovative Finance for Tropical Forests* (WWF Forest & Climate Initiative 2011).

[344]James Salzman, 'A Field of Green? The Past and Future of Ecosystem Services' (2006) 21 *Journal of Land Use and Environmental Law* 133, 139-140.

[345]See <https://www.smithsonianmag.com/smart-news/norway-paying-liberia-stop-deforestation-180952824>; <https://www.globalforestwatch.org/dashboards/country/LBR>.

[346]Jennifer Tridgell, 'Seeing REDD: Carbon Forest Programmes and Indigenous Rights' (2016) *Australian Journal of Environmental Law* 86.

[347]Decision IX/6, Incentive measures (Article 11), UNEP/CBD/COP/DEC/IX/6 (2008). See further, Amos (n 10) 105–110.

that maintains ecological functionality.[348] Review of the scientific evidence suggests this not the case, however, due to, inter alia, the time needed for ecosystems to become established and the inherent complexities of ecological processes that cannot be anticipated in advance.[349] There are numerous examples of decision-makers being too willing to accept scientifically questionable assurances of how quickly an alternative site will deliver equivalent functionality to the ecosystem that will be degraded or destroyed by the proposed activity.[350] Biodiversity offsetting is consequently another example of how socioeconomic interests are prioritized over biodiversity in planning processes.[351]

Third, whereas other references to Mother Earth in international law, including in the GBF, have been limited to recognizing the legitimacy of non-Western ways of perceiving the natural world,[352] Target 19 goes further by calling for states to enhance the role of 'Mother Earth centric actions'. A footnote to Target 19 defines these as:

> Ecocentric and rights-based approach enabling the implementation of actions towards harmonic and complementary relationships between peoples and nature, promoting the continuity of all living beings and their communities and ensuring the non-commodification of environmental functions of Mother Earth.

This is a sound definition of ecocentric legal approaches to conservation. It captures the pragmatic approach to giving nature legal rights employed by New Zealand to reflect the Māori's relationships with their traditional lands[353]; community-led instruments such as the He Whakaputanga Moana (Declaration for the Ocean) Treaty, announced by indigenous communities in the South Pacific recognizing the legal personhood of whales[354]; and the polycentric constitutionalism that has developed in Ecuador.[355] That it has only been adopted in the context of mobilizing finance limits its

[348]Moritz Reese, 'Habitat Offset and Banking—Will It Save Our Nature? Perspectives for a More Comprehensive and Flexible Approach to Nature Protection' in Born et al (n 153).

[349]Roger KA Morris et al, 'The Creation of Compensatory Habitat—Can It Secure Sustainable Development?' (2006) 14 *Journal of Nature Conservation* 106.

[350]McGillivray (n 153) 113–114.

[351]Hendrik Schoukens and Geert Van Hoorick, 'No Net Loss and Forest Offsets in the Flemish Region: A Cautionary Tale of How Not to Reconcile Science-Based Conservation Policies with Economic Interests and Vested Rights?' in Barbara Pozzo and Valentina Jacometti (eds), *Environmental Loss and Damage in a Comparative Law Perspective* (Cambridge University Press 2021) 499.

[352]See text at (n 36).

[353]Katherine Sanders, 'Beyond Human Ownership'? Property, Power and Legal Personality for Nature in Aotearoa New Zealand' (2018) 30 *Journal of Environmental Law* 207.

[354]See <https://ecojurisprudence.org/initiatives/he-whakaputanga-moana-declaration-for-the-ocean-treaty>.

[355]Guayasamin et al (n 82).

immediate impact. Had this been included in conservation-focused targets, it would have justified the GBF's claims to be based on a theory of change. It does, however, provide a new point of engagement for those who favour reframing international discussions about how humanity must relate to other species and the rest of the natural world.[356]

In Target 20, attention turns to other factors in the successful implementation of international environmental agreements:

> Strengthen capacity-building and development, access to and transfer of technology, and promote development and access to innovation and technical and scientific cooperation, including through South-South, North-South and triangular cooperation, to meet the needs for effective implementation, particularly in developing countries, fostering joint technology, development and joint scientific research programmes for the conservation and sustainable use of biodiversity and strengthening scientific research and monitoring capacities, commensurate with the ambition of the goals and targets of the Framework.

The CBD's approach to technology transfer has been described as collaborative and is closely linked to its provisions on access and benefit-sharing.[357] In short, developing states facilitate developed states' access to their natural genetic resources in return for favourable terms when negotiating the provision of new technology resulting from that access, including that covered by intellectual property rights. This is yet another area where states, especially developed states, have typically fallen short and the GBF offers little in the way of new measures.[358]

The lack of progress made by developed states on their technology-transfer commits is compounded by the limited research capacity that exists in the Global South to support conservation, especially in those countries with the greatest levels of biodiversity.[359] In addition to its direct impacts on conservation efforts, this reinforces the epistemological hegemonies that favour the Global North,[360] which may be one explanation as to why alternative ways of perceiving the natural world, grounded in the cultures and traditions of the Global South, have gained little traction

[356]Amos (n 11) ch 10.

[357]Shawkat Alam, 'Technology Assistance and Transfers' in Rajamani and Peel (n 85) 956, 962–963. See Article 16 of the CBD.

[358]Secretariat to the Convention on Biological Diversity (n 13) on Aichi Target 19. This observation is not unique to the GBF or the CBD. Technology-transfer provisions are common in international environmental law but due, inter alia, to developed states' prioritization of intellectual property rights, any obligations are typically phrased in weak language and implementation of them is generally poor: Alam, ibid.

[359]Lu Zhang et al, 'Growing Disparity in Global Conservation Research Capacity and Its Impacts on Biodiversity Conservation' (2023) 6 *One Earth* 147.

[360]Muez Ali et al, 'Bridging the Divide in Energy Policy Research: Empirical Evidence from Global Collaborative Networks' (2023) 173 *Energy Policy* 113380.

in international biodiversity fora. An example of how this issue might be addressed is the 'Reverse the Red' initiative, a stakeholder partnership that bridges South/North divides by channelling financial and expert resources to support data-driven approaches to the national implementation of conservation law and policies.[361] To the extent that such schemes are alluded to in Target 20, the GBF can be said to provide detail on the type of action that might address the lack of research capacity in the Global South.

Target 21 is one of the broadest of the GBF, and what it adds to the Framework is, on first reading at least, unclear:

> Ensure that the best available data, information and knowledge are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management and, also in this context, traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities should only be accessed with their free, prior and informed consent, in accordance with national legislation.

These issues are already addressed by other targets in the GBF. Ensuring that decision-makers have access to the best available data is a necessary element of the mainstreaming of biodiversity into urban planning called for in Target 12, and a consequence of the full integration of biodiversity across all regulatory activity required by Target 14. Targets 14–16 deal with communication, awareness raising and education across different sectors and stakeholders, and Target 13 already states that local and traditional knowledge should only be accessed 'in accordance with applicable international access and benefit-sharing instruments'.

Essentially, Target 21 underscores best practice in biodiversity decision-making. In certain respects, though, it makes important contributions to the GBF. It was noted that the role of education was defined very narrowly under Target 16 but here it appears meant in a more general sense. The lack of detail has its own issues, and Target 21 is consequently another example of an action-oriented target that lacks specific actions, but it does at least allude to the broader role education must play in biodiversity policy.[362]

A second point of note is that Target 21 specifically states that communities' traditional knowledge should only be accessed with *their* free, prior and informed consent, and so goes further than Target 13, which omitted references to the rights of communities. Target 21 also falls short

[361] See <https://www.reversethered.org>.

[362] Meredith Root-Bernstein et al, 'Tools for Thinking Applied to Nature: An Inclusive Pedagogical Framework for Environmental Education' (2014) 48 *Oryx* 584.

of calling for strengthening the rights of local and indigenous communities over their traditional knowledge, however.

The rights of indigenous communities are further addressed in Target 22:

> Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by women and girls, children and youth, and persons with disabilities and ensure the full protection of environmental human rights defenders.

This reflects a point made previously in this work, that it is not enough to create mechanisms for public participation in biodiversity decision-making; these structures must also respond to the obstacles that different demographics and communities face when engaging with those mechanisms.[363] Indigenous communities have traditionally been excluded or marginalized from policymaking, even in formal biodiversity fora such as the IPBES.[364] This is not necessarily as a result of deliberate persecution but because the knowledge they have is not considered 'proper' under administrative procedures that demand evidence that conforms to Western scientific standards.[365] Various schemes have been developed, both through international organizations and instruments and at the grassroots level, to address this issue.[366] In Canada, for example, indigenous communities have been trained to collect data on how environmental pollution is impacting themselves and their lands in a manner that is acceptable to official procedures.[367] To the extent that such initiatives ensure that indigenous perspectives are reflected in decision-making, they are positive. However, they might also be considered a particularly insidious modern form of cultural assimilation. Rather than recognize the intrinsic legitimacy of how indigenous communities perceive, understand and communicate the natural world, they are being forced to adopt Western scientific practices.[368]

[363]See text at (n 305).

[364]Brandt and Vadrot (n 38).

[365]Ibid.

[366]Lawrence (n 21).

[367]Sidra Sabzwari and Dayna Nadine Scott, 'The Quest for Environmental Justice on a Canadian Aboriginal Reserve' in Yves Le Bouthillier et al (eds), *Poverty Alleviation and Environmental Law* (Edward Elgar 2012) 85.

[368]Similar observations have been about other well-meaning initiatives that seek to promote the place of indigenous communities in contemporary society but not on their own terms. E.g., Dan Henhawk and Richard Norman, 'Indigenous Peoples, Sport and Sustainability' in Rob Millington and Simon Darnell (eds), *Sport, Development and Environmental Sustainability* (Routledge 2019).

Ensuring the protection of environmental human rights defenders is a further interesting feature of Target 22, and another novel feature of the GBF in the CBD context. It is a tacit recognition that many frontline conservationists are frequently intimidated, threatened and killed in their efforts to protect the natural world.[369] Additionally, it underscores that how nature is valued, and the priority that is afforded to biodiversity in policies, are not just obscure questions of regulatory process and design. Providing protection for conservationists and other environmental activists is perhaps more an issue for states' human rights and criminal laws, a point underscored by the clearest treaty provision concerning the rights of environmental defenders being Article 9 of the Regional Agreement on Access to Information, Publication Participation and Justice in Environmental Matters in Latin America and the Caribbean.[370] International biodiversity policy nevertheless has a role, not just in awareness raising, which Target 22 achieves, but in bringing together stakeholders to explore the threats facing conservationists in different contexts, assess the efficacy of relevant national laws and propose reform.

Lastly, Target 23 focuses on the engagement of another group of stakeholders, women:

> Ensure gender equality in the implementation of the Framework through a gender-responsive approach, where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention, including by recognizing their equal rights and access to land and natural resources and their full, equitable, meaningful and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity.

Supporting the role of women in conservation has long been a matter of concern. There are of course numerous examples of women who are pioneers of conservation and environmental activism.[371] The success of such women can, though, mask the very real barriers others face in the pursuit of a conservation career. There is, regrettably, nothing surprising

[369]Global Witness estimates that 2,000 environmental defenders were murdered between 2012 and 2022: <https://www.globalwitness.org/en/press-releases/almost-2000-land-and-environmental-defenders-killed-between-2012-and-2022-protecting-planet>. In an incredibly poignant report, they profile a number of those killed: Global Witness, *Decade of Defiance: Ten Years of Reporting Land and Environmental Activism Worldwide* (2022).

[370]Regional Agreement on Access to Information, Publication Participation and Justice in Environmental Matters in Latin America and the Caribbean (adopted 4 March 2018, in force 22 April 2021) UNTC XXVII-18. See also Decision VII/9 (2021) from the Meeting of the Parties to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters 1 (adopted 25 June 1998, in force 30 October 2001) 2161 UNTS 447, which establishes a rapid response mechanism for the protection of environmental defenders.

[371]A fascinating range of profiles is provided in Shauna M Lange, 'Saving Species, Healthy Humanity: The Key Role of Women in Ecological Integrity' in Laura Westra et al (eds), *Ecological Integrity in Science and Law* (Springer 2020) 85.

here, with studies showing how women in conservation face the same gender bias, sexual harassment and other forms of discrimination that are prevalent throughout society.[372] How this might be addressed in the conservation industry (for want of a better term) includes developing what Jones and Solomon describe as structural supports, such as in-house training and mentoring schemes and robust diversity, equality and inclusion policies.[373]

Professional careers are only one aspect of women's engagement with conservation. Just as important is the role of women in community-based conservation. Ecofeminist literature argues that humanity's destructive relationship with nature is reflective of the exploitation and denigration of women in society,[374] and in conservation this manifests in different ways.[375]

First, patriarchal social and cultural structures condition where, why and how women interact with nature. This restricts both their access to natural resources that may be essential for their livelihoods, thus increasing their dependence on male relatives,[376] and their ability to engage with decision-making processes.[377] Second, and related to this, is that women experience nature differently to men. They therefore have different knowledge and understandings about biodiversity. Limitations on women's ability to engage with decision-making processes consequently mean that decision-makers lack these insights.[378]

Third, there is often insufficient consideration of the inequalities suffered by women when devising conservation strategies.[379] In other words, a core aspect of environmental justice, recognition, is neglected.[380] This can result in a fourth observation, which is that the failure to properly consider

[372]Robyn James et al, 'Gender Bias and Inequity Holds Women Back in Their Conservation Careers' (2023) 10 *Frontiers in Environmental Science* 1056751.

[373]Megan S Jones and Jennifer Solomon, 'Challenges and Supports for Women Conservation Leaders' (2016) 1 *Conservation Science and Policy* e36, 7.

[374]E.g., Plumwood (n 33).

[375]Robyn James et al, 'Conservation and Natural Resource Management: Where Are All the Women?' (2021) 55 *Oryx* 860.

[376]E.g., Kirsten Bradford and Robert Eliakim Katikiro, 'Fighting the Tides: A Review of Gender and Fisheries in Tanzania' (2019) 216 *Fisheries Research* 79.

[377]Bill Buffum et al, 'Equity in Community Forests in Bhutan' (2010) 12 *The International Forestry Review* 187, 195–196.

[378]YC Ethan Yang et al, 'Gendered Perspectives of Ecosystem Services: A Systematic Review' (2018) 31 *Ecosystem Services* 58.

[379]Jack Baynes et al, 'Equity for Women and Marginalized Groups in Patriarchal Societies During Forest Landscape Restoration: The Controlling Influence of Tradition and Culture' (2019) 46 *Environmental Conservation* 241.

[380]See text at (n 305).

women in conservation strategies can embed or exacerbate pre-existing social inequalities,[381] or result in environmental and social harms that make women reluctant to engage with conservation programmes in the future.[382]

This is only a brief overview of some of the challenges women in communities face in the context of conservation. As with a host of other issues, the GBF therefore highlights a critical concern for biodiversity policymakers, but without providing detail actions that might be taken to address it. It also fails again to engage with the broader reforms to societal and regulatory structures that are needed before its targets can be achieved. In certain communities in India, for instance, women enjoyed an elevated status as the traditional owners of seed. The widespread replacement of locally produced seed with commercially produced seed that is subject to the intellectual property rights of corporations has undermined the position of these women in what are otherwise patriarchal social structures.[383] This is just one example of how pre-existing regulatory structures serve to embed the inequalities and unsustainable behaviours that they purport to address.[384]

What is also evident from the above summary, and not typically captured in policy instruments, is that women are not a homogeneous group. In the same way that there is significant diversity in indigenous communities, different women have different perceptions of nature, influenced by their age, race, culture, location and socioeconomic status, as well as individual life experiences.[385] This leads to a final issue, one not addressed by the GBF and many other international environmental instruments. Progressive developments in social attitudes and understanding, at least in many parts of the world, demand consideration of additional demographics, a key one being the LGBT+ community. Research on other environmental legal issues suggests that there would be rich scholarship in exploring how queer legal theory might inform the design and implementation of biodiversity law.[386] This raises an entirely new set of challenges, including for the Academy.

[381] Juliet Kariuki and Regina Birner, 'Are Market-Based Conservation Schemes Gender-Blind? A Qualitative Study of Three Cases from Kenya' (2016) 29 *Society and Natural Resources* 432, 442–444.

[382] Susana Costa et al, 'What Does Conservation Mean for Women? The Case of the Cantanhez Forest National Park' (2017) 15 *Conservation and Science* 168.

[383] Pallab Paul and Kausiki Mukhopadhyay, 'Growth via Intellectual Property Rights Versus Gendered Inequity in Emerging Economies: An Ethical Dilemma for International Business' (2010) 91 *Journal of Business Ethics* 359.

[384] Amos (n 10) ch 12.

[385] James et al (n 372) 864.

[386] Steven Vaughan and Brad Jessup, 'Backstreet's Back Alright: London's LGBT+ Nightlife Spaces and a Queering of Planning Law and Planning Practices' in Maria Lee and Carolyn Abbot (eds), *Taking English Planning Scholarship Seriously* (UCL Press 2022) 35.

Table 1: Criticisms of the GBF

Criticism	Relevant Global Goals (A–D) and Action-Oriented Targets (1–23)
Nature as resources	C, 9, 10, 11, 14, 18, 19, 20, 22, 23
Lack of specific actions	2, 4, 8, 10, 11, 12, 13, 16, 17, 20, 21, 23
Unsustainable status quos	B, 4, 5, 8, 10, 14, 15, 18, 19
Failure to consider broader reforms	A, D, 1, 3. 5, 6, 7, 12, 14, 17, 19, 21, 22, 23

There can be tensions, for example, between redressing power imbalances between the Global South and Global North by locating major conferences and events in developing states, but thereby limiting participation of LGBT+ individuals if the host state in question criminalizes or otherwise denounces who they are.[387] This highlights the broader relevance that biodiversity protection has in sustainability agenda. Had the GBF addressed specifically the role other demographics and communities play in conservation, it could have constituted a theory of change for how humans relate not just to the natural world, but to each other as well.

7. Conclusion

The CBD is just one of a suite of international instruments concerned with the conservation and protection of nature, and the GBF is only one element of the CBD, albeit an overarching one. There is also significant conservation work undertaken by scientists operating independently of these regimes that in many respects is more consequential for the fate of endangered species.[388] By itself, the law cannot protect nature.

It is also necessary to acknowledge that biodiversity declined throughout the 1970s and 1980s when international conservation law was primarily grounded in stronger treaties than the CBD, although the extent to which the obligations of the Ramsar Convention, the World Heritage Convention,[389] the CMS and even CITES constitute hard law is debatable. The fate of endangered species, therefore, does not rest on the GBF alone, and neither is the CBD's use of GTNA strategies solely to blame for current rates of biodiversity loss. Nevertheless, the GBF is significant because it is the principal framework directing conservation law and policy over the coming decades, and the GTNA approach that it employs has to date proven ineffective at catalysing meaningful efforts to respond to biodiversity loss and other critical environmental challenges.

[387]Smriti Mallapaty, 'Conferences Failing to Protect LGBT+ Researchers' (2020) 584 *Natures* 335. For proposals to support LGBT+ participation in conservation events see Ayesha IT Tulloch, 'Improving Sex and Gender Identity Equity and Inclusion at Conservation and Ecology Conferences' (2020) 4 *Nature Ecology & Evolution* 1311.

[388]Penny F Langhammer et al, 'The Positive Impact of Conservation Action' (2024) 384 *Science* 453.

[389]Convention Concerning the Protection of the World Cultural and Natural Heritage (WHC) (adopted 16 November 1972, entered into force 17 December 1975) 1037 UNTS 151.

Each Goal and Target of the GBF could (and should) be subject to more comprehensive and in-depth analysis than was possible to provide in this article.[390] Four broad criticisms emerge from the discussion, however, summarized in Table 1: an emphasis on biodiversity being resources; the perpetuation of unsustainable status quos that prioritize the economic over the ecological; a lack of specific actions in the action-oriented targets; and a failure to consider broader transformations that society must go through if the drivers of biodiversity loss are to be addressed.

Ultimately, what we can conclude is that the GBF is a framework for what society *is*: aware of the monumental challenges it faces and that change is consequently needed. What the GBF is not is a framework for what society must *become*. It does not map out meaningful, concrete actions that would represent a genuine theory of change to the unsustainable status quos that underpin how humanity values and exploits the natural world, and therefore drive the extinction crisis. An alternative approach to that represented by the GBF is urgently needed.

It is not possible to provide detailed consideration of what this alternative approach should comprise in this work, but various suggestions have been made. One option is to develop a more robust conservation framework through the adoption of protocols to the CBD that contain legally binding obligations and respond directly to key drivers of biodiversity loss.[391] This could provide a greater suite of measures to hold states to account and, more importantly, to support them in meeting their conservation obligations in the event of non-compliance.[392] On the other hand, states are clearly reluctant to accept any limits on their sovereignty over natural resources, that is, biodiversity, so doubts can be raised over whether a more assertive conservation regime would attract the level of state participation necessary to address the global biodiversity crisis.[393] Smallwood, in comparison, makes the case for focusing on supporting the collaboration between different stakeholders that is necessary to achieve

[390]A troubling thought is that each already has and yet long-standing problems persist. As this article illustrates, the issues raised in the GBF are not new. They have all been subject to extensive debate in the scholarship of lawyers, scientists, sociologists, economists, political theorists etc.

[391]Klein advocates the adoption of protocols on methane emissions from livestock and deforestation: Catherine Klein, 'New Leadership Needed: The Convention on Biological Diversity' (2016) 31 *Emory International Law Review* 135. Other proposals include protocols on sustainable agriculture, invasive/alien species and forests. See Amos (n 10) 27–29 and 38; and Richard G Tarasofsky, 'The Global Regime for the Conservation and Sustainable Use of Forests: An Assessment of Progress to Date' (1996) 56 *Heidelberg Journal of International Law* 668.

[392]Edward Goodwin, 'The World Heritage Convention, the Environment, and Compliance' (2009) 20 *Colorado Journal of International Environmental Law and Policy* 157.

[393]Evidenced by Japan's withdrawal from the ICRW following the International Court of Justice's decision that their so-called scientific research programme was unlawful due to, *inter alia*, the excessive use of lethal methods. See further Richard Caddell, 'Dispute Resolution and Scientific Whaling in the Antarctic: The Story Continues' (2016) 1 *Asia-Pacific Journal of Ocean Law and Policy* 139.

successful implementation of biodiversity law and policy at the national level.[394] As noted, biodiversity protection depends on a broad range of actors, so facilitating this cooperation is critical. Equally, however, evidence suggests that the implementation of the legal framework necessary to underpin this collaboration depends on there being sufficiently robust oversight by a supranational body.[395]

In truth, a combination of top-down/bottom-up, hard/soft law approaches is required, but while not explicit in their endorsement, proponents of both the positions described here support Bowman's contention that the progressive development of international conservation law is best served by building on current governance frameworks.[396] This article does not necessarily reject that proposition, notwithstanding the merits of Third World analyses of the law that link its contemporary structures to the same histories and practices of colonialism considered to be root causes of today's ecological crisis.[397] What it does do, however, is sound a note of extreme caution. Shortly after the CBD was adopted, Professor Alan Boyle opined that it may evolve merely as a piece of political symbolism.[398] How the regime has developed suggests that his concerns were well founded. Far from representing a theory of change, the GBF will likely prove just as ineffective at responding to the extinction crisis as the failed CBD strategies of the past.

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[394]Joanne Smallwood, *Implementing International Environmental Law* (Routledge 2024) ch 7.

[395]Alon Tal and Jessica A Cohen, 'Bringing "Two-Down" to "Bottom-Up": A New Role for Environmental Legislation in Combating Desertification' (2007) 31 *Harvard Environmental Law Review* 163.

[396]Bowman (n 111) 8–16.

[397]Kishan Khoday, 'Decolonizing the Environment: Third World Approaches to the Planetary Crisis' (2021) 19 *Indonesian Journal of International Law* 189.

[398]Alan E Boyle, 'The Rio Convention on Biological Diversity' in Michael Bowman and Catherine Redgwell (eds), *International Law and the Conservation of Biological Diversity* (Kluwer Law International 1996) 33, 49.