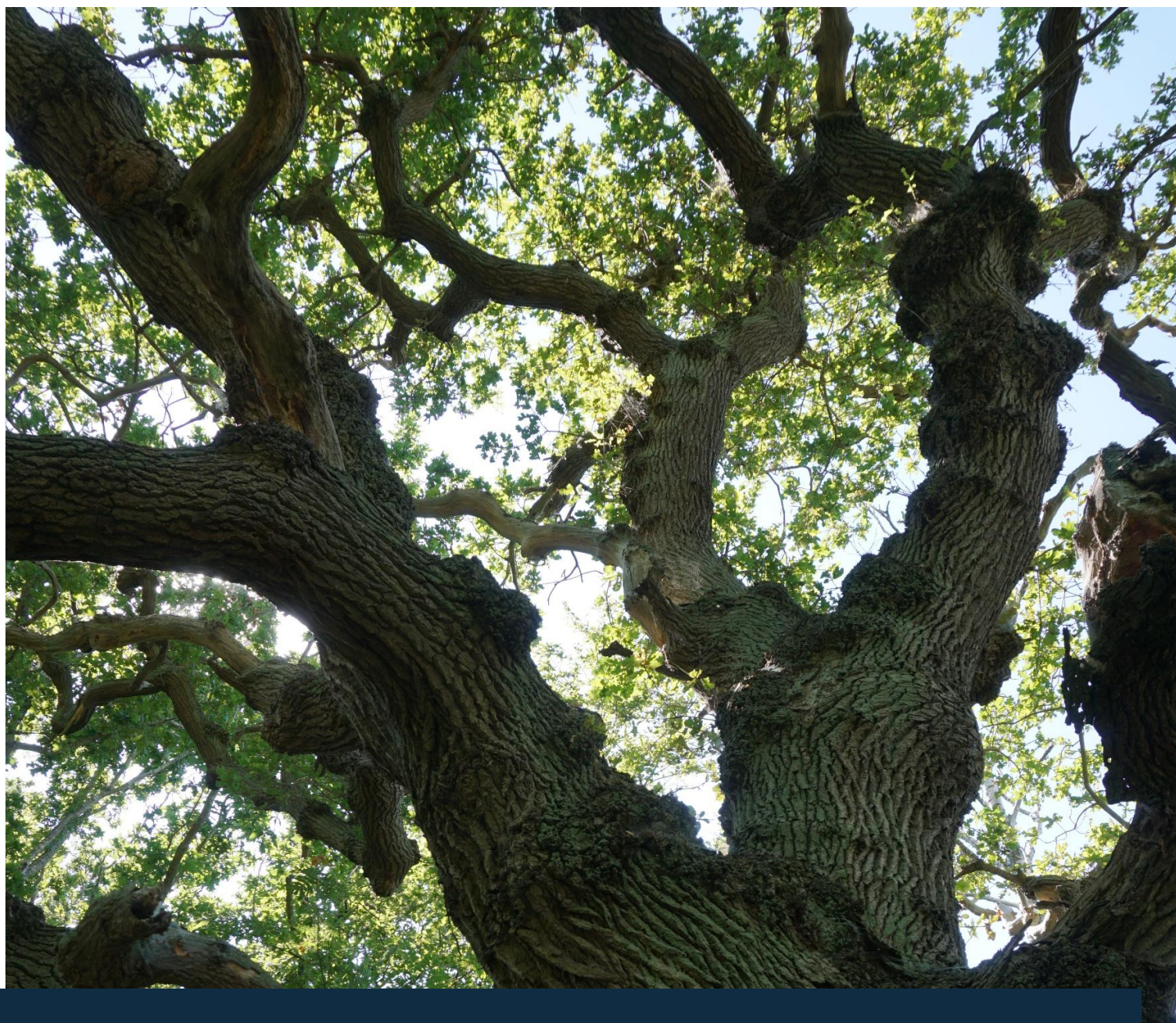




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Strengthening synergies for biodiversity and climate

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DISCUSSION PAPER

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Table of Contents

Summary	5
Zusammenfassung.....	7
1 Introduction	9
2 Key concepts and definitions.....	10
2.1 Trade-offs and synergies	10
2.2 Nature-based solutions and beyond	12
3 Strengthening synergies between biodiversity and climate policy and governance.....	14
3.1 Transformative governance	15
3.2 Principles of environmental law.....	16
3.3 Global policy frameworks and instruments	18
3.4 Policy frameworks and tools at the supranational, national and local level	19
3.5 Recommendations and research needs.....	21
4 Social dimension in achieving biodiversity and climate benefits	22
4.1 Guiding considerations and principles	23
4.2 How to make it happen – practical ideas.....	24
4.2.1 Project design and implementation	25
4.2.2 Social safeguarding.....	26
4.2.3 Communication	28
4.3 Recommendations and research needs.....	28
5 Unlocking and redistributing funding for nature-based solutions.....	29
5.1 Key challenges	29
5.2 Key opportunities	31
5.3 Recommendations to make funding work on the ground.....	34
Conclusions and recommendations	36
List of figures	39
List of tables	39
List of boxes.....	39
List of abbreviations	40
List of references.....	42

Summary

The two interlinked crises of climate change and biodiversity loss endanger our human health, food, livelihoods and wellbeing. In response, the recently adopted Kunming-Montreal Global Biodiversity Framework of the Convention on Biological Diversity (CBD) explicitly recognises the need to jointly tackle biodiversity and climate issues. In August 2022, the German Federal Agency for Nature Conservation hosted the international workshop “Strengthening synergies for biodiversity and climate in multifunctional landscapes” to delve into the topic together with experts from policy, science and practice. This publication is based on the workshop’s inputs and discussions. It explores ways to implement and scale up the respective synergetic approaches, and transmits the following key messages:

- **Actions to achieve biodiversity and/or climate goals can result in various environmental and socio-economic benefits and burdens** (synergies and trade-offs). To maximize synergies and eliminate and minimise trade-offs, it is important to:
 - Invest significant efforts into **strengthening knowledge and understanding** of biodiversity-climate **synergies and potential trade-offs** across stakeholders, sectors and policy domains.
 - **Carefully plan interventions** prior to implementation in a transparent, stakeholder-oriented process, and be ready to find compromises and adapt.
 - **Simultaneously address the root causes of both crises and utilise nature-based solutions** (NbS) where possible. Make use of the Global Standard for NbS™ of the International Union for Nature Conservation (IUCN) and ensure that robust safeguards are applied, to better align on- the-ground implementation with broader policy frameworks and tools, while recognising that NbS do not replace the need for rapid, deep and sustained reductions in greenhouse gas emissions.
- Transformative change requires **transformative governance**. This involves:
 - Recognizing biodiversity-climate interlinkages across policies and governance levels. **Better coordination and implementation** across vertical and horizontal scales of policy domains is needed to capture all relevant stakeholders and sectors. For this, **clarifying roles and responsibilities** at all governance levels, and ensuring the **institutional capacities**, including administrative capacities and procedural powers, are necessary.
 - **Enabling national governments** to strategically address synergies in national policies and at transboundary level, but also **strengthening the role of local governments** to decentralise decision-making processes and provide a meaningful platform for people to contribute to policy design, planning and implementation locally. Such devolution of power should be coupled with provision of sufficient resources at each level, ensuring that **financing reaches actors on the ground** without fail.
 - **Monitoring and evaluating** policy implementation and governance mechanisms and **increasing accountability** for decisions and action both at national and local levels. **Useful tools already exist**, for example through legal and environmental law principles and strategic policy implementation guidance.

- Designing and implementing any kind of biodiversity and climate interventions should always **integrate a social perspective**. This requires:
 - Enacting **rights-based and gender responsive policies and project or programme implementation** for nature conservation and climate action;
 - Acknowledging and advocating for **plural knowledge systems** to include all forms, types and sources of knowledge into synergetic solutions such as NbS;
 - Adjusting **projects and programmes** as well as their funding to be **inclusive, flexible and tailored** to the local conditions and needs. **Social safeguards** and **eye-level and two-way communication** are among the necessary tools to represent and protect interests of various stakeholders, indigenous peoples and local communities.
 - In broader contexts, a conscious **shift from exclusively anthropocentric approaches in policy-making and planning processes** achieved through representation and integration of diverse worldviews and values, can help balance the outcomes of decision-making at all levels from local to global and allow true progress towards sustainable and just futures.
- Upscaling implementation of synergetic solutions requires **incentives** and **direct funding**. In this regard, **national governments** should take the lead, acting on:
 - **Removal of harmful subsidies, mainstreaming NbS into existing legislation**, and creating regulations **obliging businesses to assess and disclose their biodiversity and climate impacts**.
 - Diversifying **funding opportunities**, while also taking steps to increase **attractivity of conditions for private funding significantly**, inter alia through **lifting respective market barriers** and using **blended public-private financing** mechanisms.
- In general, to scale-up NbS, generating wide-spread and common **understanding and knowledge** on NbS and their **governance, social, and financial dimensions** will be critical, in order to capture synergies for both, biodiversity and climate.

Zusammenfassung

Die beiden Zwillingskrisen Biodiversitätsverlust und Klimawandel gefährden unsere menschliche Gesundheit, Ernährung, Wohlstand und Sicherheit. Beide gehen auf gemeinsame Ursachen zurück und verstärken sich wechselseitig. Es ist daher zwingend notwendig, **Biodiversität und Klima stets zusammenzudenken und gemeinsame, synergetische Lösungen voranzutreiben**. Um die dafür notwendige Trendwende einzuleiten, wurde bei der 15. Weltnaturkonferenz 2022 ein neuer globaler Rahmen für die biologische Vielfalt (Kunming-Montreal Global Biodiversity Framework, GBF) beschlossen, welcher die enge Verbindung der beiden Krisen explizit anerkennt und Synergien fördert. Im August 2022 veranstaltete das Bundesamt für Naturschutz den internationalen Workshop "Stärkung von Synergien für Biodiversität und Klima in multifunktionalen Landschaften", um das Thema gemeinsam mit Expertinnen und Experten aus Politik, Wissenschaft und Praxis zu vertiefen. Das vorliegende Diskussionspapier basiert auf den Beiträgen und Diskussionen des Workshops. Es untersucht Möglichkeiten zur Umsetzung und Ausweitung synergetischer Ansätze, mit Schwerpunkt auf naturbasierte Lösungen (NbS), und vermittelt die folgenden Kernaussagen:

- Maßnahmen zur Erreichung von Biodiversitäts- und Klimaziele können sowohl verschiedene ökologische und sozioökonomische Vorteile als auch Belastungen mit sich bringen (Synergien und Zielkonflikte / "Trade-offs"). Um **Synergien zu maximieren und negative Trade-offs zu minimieren bzw. zu eliminieren**, ist es wichtig:
 - Den **Wissens- und Kenntnisstand** zu Biodiversität-Klima Synergien und potenziellen trade-offs für alle Beteiligten zu stärken, über Interessensgruppen, Sektoren und Politikbereiche hinweg.
 - Die Umsetzung von Aktivitäten sorgfältig zu planen; **einen transparenten, Stakeholder-orientierten Prozess** zu gewährleisten; bereit zu sein, **Kompromisse** einzugehen.
 - Die **Grundursachen** beider Krisen gemeinsam zu bekämpfen.
 - **Naturbasierte Lösungen** (NbS) einzusetzen, wo immer möglich. Hierbei sollte der Globale Standard für NbS™ der Weltnaturschutzunion IUCN angewendet werden, der strenge **soziale und ökologische Kriterien** für die Umsetzung vor Ort aufstellt. Dabei ist festzuhalten, dass auch die großflächige Umsetzung von NbS **keinen Aufschub** der umgehend erforderlichen, tiefgreifenden und dauerhaften **Reduktion der globalen Treibhausgasemissionen** rechtfertigt.
- **Transformativer Wandel erfordert transformative Politikgestaltung**. Dies beinhaltet:
 - Die Anerkennung der Zusammenhänge zwischen Biodiversität und Klima auf allen Politik- und Verwaltungsebenen. Dies erfordert u.a. eine bessere **horizontale und vertikale Koordinierung und Umsetzung über verschiedene Politikbereiche hinweg**, um alle relevanten Interessengruppen und Sektoren einzubeziehen. Dafür muss eine klare **Rollenverteilung** mit entsprechenden Verantwortlichkeiten auf allen Verwaltungsebenen gegeben sein. Zudem müssen die notwendigen **institutionellen Kapazitäten**, einschließlich der Verwaltungskapazitäten und Verfahrensbefugnisse, zur Verfügung stehen.
 - Die Befähigung von nationalen Regierungen, **Synergien in der nationalen Politik und auf grenzüberschreitender Ebene** strategisch anzugehen. Auch die Rolle der **regionalen und kommunalen Regierungen** sollte gestärkt werden, um

- Entscheidungsprozesse zu dezentralisieren und eine Plattform für lokale Gemeinschaften zu bieten, um bei der Politikgestaltung, Planung und Umsetzung von Maßnahmen vor Ort mitzuwirken. Hierfür müssen **ausreichende Mittel** (auf lokaler, regionaler und nationaler Ebene) bereitgestellt werden, um sicherzustellen, dass die **Finanzierung die Akteure vor Ort** erreicht.
- Monitoring und Evaluierung von **Politikumsatz- und Steuerungsmechanismen**. Hierfür sollten Regierungen mehr Verantwortung übernehmen, besonders für konkrete Entscheidungen und Maßnahmen auf nationaler und lokaler Ebene. Nützliche Instrumente existieren hierfür bereits, z.B., die Grundprinzipien des Umweltrechts und Empfehlungen zur strategischen Politikumsatz, existieren hierfür bereits.
 - Die **Planung und Umsetzung von Biodiversitäts- und Klimamaßnahmen** sollten immer eine **soziale Perspektive beinhalten**. Dies erfordert:
 - Die Umsetzung von **menschenrechtbasierten und geschlechtergerechten** Politiken, Projekten oder Programmen für Natur- und Klimaschutz.
 - Die Anerkennung und Anwendung von **pluralistischen Wissenssystemen**, inklusive verschiedener Formen, Arten und Quellen des Wissens, in der Entwicklung von synergetischen Lösungen, wie NbS.
 - Die Anpassung von Projekten und Programmen sowie ihrer Finanzierung, damit sie **inklusiv, flexibel und auf die lokalen Bedingungen und Bedürfnisse zugeschnitten** sind. Dies erfordert die Berücksichtigung **strenger sozialer Kriterien sowie eine offene Kommunikation auf Augenhöhe**, um die Interessen verschiedener Akteure, darunter indigene Völker und lokale Gemeinschaften (IPLCs) zu vertreten und zu schützen.
 - Darüber hinaus kann eine bewusste Abkehr von ausschließlich anthropozentrischen Ansätzen bei politischen Entscheidungs- und Planungsprozessen, durch die Vertretung und **Integration verschiedener Weltanschauungen und Werte**, dazu beitragen die Ergebnisse der Entscheidungsfindung auf allen Ebenen - von der lokalen bis zur globalen Ebene - auszubalancieren und Fortschritte in Richtung einer nachhaltigen und gerechten Zukunft zu ermöglichen.
 - Die verstärkte Umsetzung von Synergielösungen erfordert **finanzielle Anreize und Fördermittel**. Nationale Regierungen sollten eine Führungsrolle übernehmen und folgende Maßnahmen ergreifen:
 - Die **Abschaffung schädlicher Subventionen, die Integration von NbS** in die bestehende Gesetzgebung, und die Verpflichtung von **Unternehmen**, ihre Auswirkungen auf die Biodiversität und das Klima zu bewerten und offenzulegen.
 - Die **Diversifizierung von Fördermöglichkeiten**, während gleichzeitig Maßnahmen ergriffen werden, um die Bedingungen für **Finanzierung im Privatsektor** deutlich attraktiver zu machen, u.a. durch die Aufhebung entsprechender Marktbarrieren und den Einsatz gemischter öffentlich-privater Finanzierungsmechanismen.
 - Insgesamt wird es **für die Ausweitung von NbS** entscheidend sein, ein **gemeinsames Verständnis** über NbS und deren Governance, soziale und finanzielle Dimensionen zu schaffen sowie entsprechendes **Wissen und Kenntnisse** breit zu etablieren, um Synergien für Biodiversität und Klima zu nutzen.

1 Introduction

Tackling the twin crises of biodiversity loss and climate change demands urgent and transformative action (ENCA 2021). The unprecedented decline of biodiversity and nature's benefits to people endanger human health, livelihoods and well-being (IPBES 2019; Dasgupta 2021). Meanwhile, human-induced climate change is already adversely affecting the lives of billions of people around the world, with further irreversible impacts approaching (IPCC 2022). According to the World Economic Forum's Global Risk Perception Survey, failure to mitigate and adapt to climate change, natural disasters and extreme weather events, as well as biodiversity loss and ecosystem collapse are recognized as the most severe risks the world faces in the next ten years (WEF 2023).

Yet neither climate change nor biodiversity loss can be overcome in isolation. To effectively address these crises, it is essential to recognize how closely interlinked they are. Biodiversity loss and climate change share many root causes, such as increasing energy consumption, unsustainable use and overexploitation of natural resources and the unprecedented transformation of landscapes, freshwater systems and oceans (Pörtner et al. 2021). Furthermore, the biodiversity and climate crises are mutually reinforcing each other. Climate change is a key driver of biodiversity decline, while the loss and degradation of carbon-rich ecosystems further accelerates climate change (IPBES 2019; IPCC 2022). This means that only by considering biodiversity and climate as parts of the same complex problem, solutions can be developed that avoid maladaptation and maximize beneficial outcomes. Contrastingly, one-sided solutions often exacerbate the problem further - especially measures narrowly focused on technological or grey infrastructure solutions to the climate emergency that neglect impacts on the environment can pose serious threats to nature (Pörtner et al. 2021).

There is growing international recognition that the twin crises of biodiversity loss and climate change can only be overcome in synergy, i.e., through multipurpose solutions which benefit both nature and climate (Secretariat of the Convention on Biological Diversity 2022; Tsioumani 2022; De Lamo et al. 2020). This means that both biodiversity and climate objectives must be pursued jointly and coherently in policy and decision-making, to minimize trade-offs, maximize the positive impact and potentially deliver additional societal benefits (Förster 2022; Tsioumani 2022). Achieving this will require integrated approaches across scales, sectors, systems and communities. Business as usual is not an option.

In August 2022, the German Federal Agency for Nature Conservation hosted the international workshop "Strengthening synergies for biodiversity and climate in multifunctional landscapes" to delve into the topic together with experts from policy, science and practice. This discussion paper, prepared based on the workshops' inputs and discussions, aims to showcase a range of opportunities to strengthen synergies for biodiversity and climate and highlights prerequisites for successful implementation. It will first clarify key concepts and definitions, before presenting possible pathways for implementing synergies at scale. A special focus lies on improving policy coherence, integrating social considerations, and unlocking funding for synergy measures. Given the international scope of this paper, the authors acknowledge that diverse governance systems, cultural and economic contexts exist globally that could deliver for both biodiversity and climate in very different ways.

2 Key concepts and definitions

To foster synergies for biodiversity and climate, it is key to build on shared definitions of the underlying concepts and terms. Building knowledge and capacities across stakeholders, sectors and policy domains is crucial for the meaningful implementation of approaches, tools and measures in the context of biodiversity-climate action. This would encompass: strengthening knowledge of how biodiversity-climate synergies work best; recognising benefits and trade-offs which arise from simultaneously pursuing both biodiversity and climate targets; and developing a common understanding of related terms and concepts such as NbS.

2.1 Trade-offs and synergies

Actions to achieve biodiversity and climate objectives can result in a mixture of environmental and socio-economic benefits and burdens, depending on which outcomes are prioritized and which are not (Scherer et al. 2018). E.g., technological climate solutions aiming to support merely the transition towards renewable energies may come with negative environmental impacts (so called negative externalities), such as driving the expansion of mining sites to provide required metal or mineral resources, among others (World Bank 2020). This trade-off could be allayed through measures reducing overall energy consumption in synergy with further sustainability goals.

Trade-offs are a combination of positive and negative (positive/negative) outcomes that appear when one aspect is favoured at the detriment of another, affecting the distribution of the quality and quantity of benefits resulting from an intervention (Pérez-Cirera et al. 2021, also see Figure 1). A potentially negative outcome is not always easy to observe and may be unintentionally ignored. Different stakeholders can experience outcomes differently, being affected by assumptions and narratives (Galafassi et al. 2017). How trade-offs are understood may also depend on the discipline, e.g., economists look at trade-offs differently from ecologists (Portugal Del Pino & Fredricson 2023). Nevertheless, recognizing, acknowledging and minimizing the potentially negative outcomes from trade-offs is critical to maximise the environmental and socio-economic benefits resulting from any intervention.

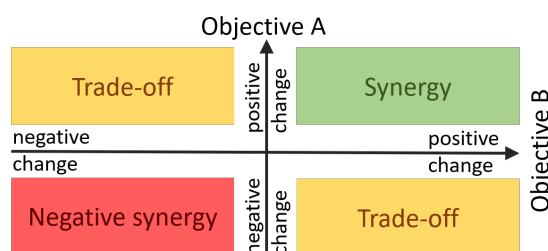


Figure 1: Synergies and trade-offs (adapted from Gusenbauer & Franks 2019)

Synergies are a combination of positive and positive (positive/positive) outcomes resulting from an intervention, meaning that no aspect is favoured at the detriment of another. Diverse solutions that value nature can support other global goals in multiple ways, creating benefits and even co-benefits (additional positive results from the perspective of other objectives). Seeking out synergies also contributes to coherence in policy, planning and implementation processes. By considering the interlinkages between biodiversity and climate, the strengths of joint solutions can be taken advantage of, while common obstacles that must be overcome

can be identified. Such a mutually supportive approach provides room for innovation and prevents actions that could lead to negative externalities.

Biodiversity-climate synergies can be realized for example by jointly addressing the drivers of biodiversity loss and climate change. Especially demand-side measures that tackle the root causes, e.g., changes in per capita consumption, shifts in diets and progress towards sustainable use of natural resources, have significant potential to deliver synergies for biodiversity and climate (Pörtner et al. 2021). An important step for realizing such synergies is aligning local, national and international biodiversity and climate policies (see Chapter 3). If implemented well, synergetic solutions for biodiversity and climate can also provide additional synergies (or avoid trade-offs) with other sustainability objectives, e.g., by enhancing ecosystem service provisioning and generating further social and economic co-benefits.

Box 1: Types of trade-offs in the biodiversity-climate context

Biophysical: Appear when choosing a tangible benefit in the landscape over another, such as choosing between provisioning and regulating ecosystem services (e.g., draining a peatland to increase agricultural production) or choosing development activities over ecosystem functions and services (e.g., expanding a city over coastal wetlands).

Temporal: Consider different time-frames of outcomes in the short-term, medium-term and long-term horizon, as a form of economic discounting. For example, prioritizing immediate economic benefits over long-term sustainable income.

Scale: Aspects that have different outcomes at different geographical areas (e.g., avoided deforestation in one area may cause “leakage” in terms of increased logging in another region or landscape) or at different levels within the same area (e.g., different priorities at local, regional or national level).

Governance: Deal with the power dynamics among and between different stakeholder groups when it comes to prioritizing a specific outcome (e.g., some stakeholders holding more influence than others) and the equitable distribution of benefits for a specific outcome (e.g., only an elite group capturing benefits, or men benefitting more than women).

Costs and benefits: Outcomes and benefits are experienced differently between stakeholders from diverse background, and what is beneficial for one stakeholder may not be equally beneficial for another. This aspect can be observed e.g., in prioritizing provisioning ecosystem services over cultural ones because of their tradability in markets.

(Source: IUCN Commission on Ecosystem Management 2021)

Careful planning is required prior to implementing an action to prevent trade-offs, minimise their impact, and/or to integrate trade-offs and negotiate the outcome. Any intervention must clearly weigh potential costs and benefits and involve the affected stakeholders in a transparent process (Bush & Doyon 2019). Addressing possible trade-offs may involve reconsidering expected outcomes, finding compromises and potentially changing the original proposal (Galafassi et al. 2017). This holds true for all levels, from international to local action. In the context of natural resource management, various integrated approaches already exist that aim to include stakeholders and can help to address synergies and trade-offs, for example the ecosystem approach and the landscape approach (see also Chapter 4).

2.2 Nature-based solutions and beyond

To implement synergies between biodiversity conservation and climate action, nature-based solutions (NbS) for climate change mitigation or adaptation are a key approach (IUCN (a) 2020). In the last few years, the relevance of NbS has been increasingly recognized in policy, research, and financing agendas. In 2022, the United Nations Environment Assembly (UNEA) adopted a resolution on Nature-based Solutions for Supporting Sustainable Development, thus providing an internationally agreed definition (see Box 2 below).

The concept of NbS builds on and operationalizes the ecosystem approach which has been promoted by the Convention on Biological Diversity (CBD) for over twenty years (e.g., see CBD COP 5 Decision V/6). Neither of the two closely-related concepts is limited in scope to addressing only climate change, both are equally applicable to other key challenges of global change (e.g., pollution control, sustainable development etc.). This is different to the concept of ecosystem-based approaches (EbApr) that focuses on mitigation and adaptation to climate change.

Box 2: Internationally agreed definition of nature-based solutions

Nature-based solutions are actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits (UNEP/EA.5/Res.5).

Climate-focused NbS include, for example, the protection, restoration or creation of natural ecosystems which store and sequester carbon (e.g., rewetting peatlands), or which contribute to protecting people from climate change impacts (e.g., restoring river floodplains, creating new urban green spaces), while providing benefits for biodiversity and adhering to social safeguards.

Although NbS can effectively address societal challenges, the concept has also been subject to concerns around the following issues (Seddon 2022; Terton 2022):

- Misbranding activities as NbS that are ineffective or even harmful for biodiversity (e.g., afforestation of biodiverse open-land habitats, resulting in tree monocultures and loss of habitat for locally adapted open-land species).
- NbS being used in “greenwashing”, deflecting the need to reduce emissions and decarbonize the economy.
- Measures being executed through top-down decision-making approaches that do not consider local rights, values and traditional knowledge systems.

To address these justified concerns, evidence-based guidance on what constitutes a NbS has been developed. Most notably, the IUCN Global Standard for NbS™ offers eight criteria for designing and verifying NbS, including e.g., that NbS must result in a net gain to biodiversity and ecosystem integrity, and that NbS must be based on inclusive, transparent and empowering governance processes that uphold the rights of all affected stakeholders, including indigenous peoples and local communities (IUCN (a) 2020). These developments aim to build a

common language around NbS and set a baseline quality level of interventions, including safeguards, which prevent the misuse or greenwashing of the concept.

Although the importance of NbS for climate change mitigation is recognized, global climate targets can only be reached through a significant and fast decarbonization of the economy (UNEP & IUCN 2021). Implementing NbS is not an alternative to keeping fossil fuels in the ground. It is internationally acknowledged that NbS do not replace the need for rapid, deep and sustained reductions in greenhouse gas emissions (UNEP/EA.5/Res.5).



Figure 2: Rewetting drained peatlands is an effective NbS for reducing greenhouse gas emissions and restoring rare habitats for endangered species. (Photo: S. Wulf)

Beyond NbS, a range of additional approaches exist which also make use of nature to combat climate change. For example, ecosystem-based approaches (EbApr) to climate change mitigation (EbM) and adaptation (EbA) build on the broad recognition that stable and healthy ecosystems are essential for resolving the climate crisis (e.g. see CBD 2018). EbM imply the use of an ecosystem's ability to store and sequester carbon to aid climate change mitigation, while EbA are defined as the use of biodiversity and ecosystem services as part of an overall strategy to adapt to the adverse effects of climate change (Doswald & Osti 2011). EbApr (EbM and EbA) can be applied in various contexts and sectors such as agriculture, forestry, tourism etc. and usually result not only in positive outcomes for both biodiversity and climate, but also provide benefits for human-well-being, in which case ecosystem-based approaches can be placed under the umbrella of NbS. However, the actual relation between the two concepts requires further analysis and commonly-agreed definition.

Furthermore, the Intergovernmental Panel on Climate Change (IPCC) highlights the importance of land-based mitigation measures in the sector of Agriculture, Forestry and Other Land Uses (AFOLU) to limit global warming to 1.5°C or 2°C (IPCC 2021). Yet, such bioeconomy-focused measures can result in either positive or negative impacts on biodiversity.

“Where carefully and appropriately implemented, AFOLU mitigation measures are positioned to deliver substantial co-benefits and help address many of the wider challenges associated with land management. If AFOLU measures are deployed badly then, when taken together with the increasing need to produce sufficient food, feed, fuel and wood, they may exacerbate trade-offs with the conservation of habitats, adaptation, biodiversity and other services.” (IPCC 2021, p. 84)

AFOLU measures which can provide synergies with biodiversity include, for example, those targeting the protection of remaining forests and other ecosystems from deforestation and nature degradation. Whether such an intervention also counts as a NbS would need to be evaluated on a case-by-case basis, based on the criteria and social safeguards outlined above.

It is important to recognize that not every measure which results in the growth of something green is a NbS, or even beneficial for nature at all. The most typical example of an approach mislabelled as NbS is the growth of feedstocks for biofuel production to replace fossil fuels for energy generation or transport. According to the IPCC, the provision of biomass for bioenergy and other bio-based products represents an important share of the total mitigation potential associated with the AFOLU sector (IPCC 2021). From a nature conservation perspective, this is of grave concern, since these measures are extremely land intensive. The first generation of biofuels depend on fuel crops like palm oil, soy or maize, usually grown in large-scale monocultures with detrimental impacts on biodiversity (Tudge et al. 2021). More advanced biofuels are based on residues or by-products from forestry and agriculture, for which a range of sustainability standards have been developed, yet they still need to be assessed carefully from a biodiversity perspective. In most cases the promotion of bioenergy is therefore not a NbS.

3 Strengthening synergies between biodiversity and climate policy and governance

This chapter aims to emphasise the importance of policy and good governance for enhancing synergies between biodiversity and climate frameworks. We highlight key barriers and opportunities in utilising policy and governance to address environmental challenges and provide recommendations for policy- and decision makers at local, national and global levels to strengthen the effectiveness of policies.

Box 3: Exploring the definition of Governance

Öko-Institut e.V. provides a good insight into the definition of governance which can be adhered to in the context of biodiversity and climate action. The term “governance” encompasses various aspects of political activity (governing, regulating, controlling, coordinating). Governance may be in the hands of state bodies, like the federal government, agencies at various levels or local authorities, but companies and actors from other sectors of society also contribute to the governance of our common life. In relation to nature and the environment, governance refers to approaches that help to protect the environment, cut resource consumption, mitigate climate change, reduce pollution or conserve biodiversity. Such approaches may involve the establishment of constitutional principles and a wide range of policy instruments such as orders and prohibitions, taxes and information campaigns. Governance also encompasses consultations with organisations and associations and opportunities for public participation. Finally, governance tools include voluntary commitments, private-sector management approaches (such as corporate sustainability strategies), trade association standards (e.g., on sustainability certification) and round tables with diverse stakeholders” (Öko-Institut 2023).

To preserve and enhance natural capital, we need transformative change, defined as a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values (IPBES 2019). Yet, the mechanisms to achieve this transition and ensure that it occurs in a just and equitable manner, are under discussion (Visseren-Hamakers et al. 2021). Policies based on sound scientific evidence, supported by strong legal frameworks and implemented through principles of good governance are key to mobilising

transformative change across all temporal and spatial scales. It is the inter- and intragenerational responsibility of governments at all levels (be it international, supranational, national or local), to provide delivery mechanisms (e.g., incentives, regulations, advice) to ensure long-term sustainable livelihoods. This is based on ensuring the maintenance and improvement of natural capital and the mainstreaming of good environmental governance across sectoral policies.

International Environmental Governance is the continuing process of interactive decision-making in international environmental matters. It includes institutions and organizations as well as binding agreements, policy instruments and procedures that regulate environmental protection at the international level (UNEP 2017). While there is no internationally agreed definition of “good governance”, according to the UN it may span the following topics: full respect of human rights, the rule of law, effective participation, multi-actor partnerships, political pluralism, transparent and accountable processes and institutions, an efficient and effective public sector, legitimacy, access to knowledge, information and education, political empowerment of people, equity, sustainability, and attitudes and values that foster responsibility, solidarity and tolerance (OHCHR 2023). Principles of good governance exist at different levels and for different target groups e.g., corporate good governance principles, human rights good governance principles. The UN has used 8 good governance principles in the context of good environmental governance (UNEP 2017): participation, rule of law, transparency, responsiveness, consensus oriented, equity and inclusiveness, effectiveness and efficiency, accountability.

There is significant potential to utilise existing tools and instruments to support biodiversity and climate synergies. However, within the governance framework this may require overcoming several institutional and structural barriers.

3.1 Transformative governance

Cross-sectoral policies that recognise the interlinkages between biodiversity and climate, as well as socio-economic and political interests are needed to facilitate transformative change. This requires policy- and decision-makers to understand and consider the complex temporal and spatial characteristics of the drivers and impacts of climate change and biodiversity loss which is not always the case. In the future, transformative governance approaches will be needed to restructure policies with biodiversity-climate synergies in mind.

Visseren-Hamakers et al. (2021) define transformative governance as: *“the formal and informal (public and private) rules, rulemaking systems and actor networks at all levels of human society that enable transformative change, in our case towards sustainability.”* They describe four transformative governance approaches that should be applied in addressing sustainability issues: **“integrative**, to ensure local solutions also have sustainable impacts elsewhere (across scales, places, issues and sectors); **inclusive**, to empower those whose interests are currently not being met and represent values embodying transformative change for sustainability; **adaptive**, enabling learning, experimentation, and reflexivity, to cope with the complexity of transformative change; and **pluralist**, recognizing different knowledge systems”. Linking these governance approaches would imply better coordination and implementation of actions to address intrinsically related societal challenges such as climate mitigation, and the conservation and sustainable use of biodiversity (Rusch et al. 2022). Such coordination and implementation would include governance approaches that account not only for vertical linkages

between policy domains, but also horizontal coordination approaches to capture all relevant stakeholders, relevant sectors and parts of government.

Trade-offs and co-benefits can result from the policy implementation and enforcement processes themselves over different timescales and at various spatial scales. In this case, NbS can be a useful vehicle for the integration of climate change and biodiversity goals into policy frameworks and implementation tools. The UNEA definition and IUCN Global Standard for Nature-based Solutions™ provide a solid basis to ensure sufficient safeguards and monitoring mechanisms are in place, that are adaptable to local contexts (see Chapter 2).

3.2 Principles of environmental law

The global assessment of environmental rule of law (United Nations 2019) finds weak enforcement to be a global trend that is exacerbating environmental threats, despite prolific growth in environmental laws and agencies worldwide over the last four decades. Despite a 38-fold increase in environmental laws put in place since 1972, failure to fully implement and enforce these laws is one of the greatest challenges to mitigating climate change, reducing pollution and preventing widespread species and habitat loss. This is in part because: laws lack clear implementation guidelines / standards or necessary mandates; others are not tailored to national and local contexts and therefore fail to address local conditions; implementing ministries are often underfunded and politically weak; and a backlash has occurred as environmental defenders are threatened and funding for civil society is restricted.

From the environmental law perspective, a promising approach to enhance the coherence across different legal systems are the sequential ten-year Montevideo Programmes by UNEP. These intergovernmental programmes promote and implement environmental rule of law and establish communication and coordination channels between key stakeholders (e.g., national governmental focal points, intergovernmental organizations, civil society, private sector). The Fifth Montevideo Programme for the Development and Periodic Review of Environmental Law (UNEP 2020) aims to: support the development of adequate and effective environmental legislation and legal frameworks at all levels to address environmental issues; strengthen the effective implementation of environmental law at the national level; support enhanced capacity-building for increased effectiveness of environmental law for all stakeholders at all levels; support national Governments, upon their request, in the development and implementation of environmental rule of law; and promote the role of environmental law in the context of effective environmental governance.

Nevertheless, the effectiveness of environmental laws depends on their application and interpretation by governments and courts. Although clear environmental principles to support environmental law exist (table 1), each legal system follows its own tradition to determine the legal nature of environmental principles, and there is no universal standard. For example, in some jurisdictions, the precautionary principle is a well-established principle of environmental and public health law, while in others, the 'principle' is merely known as a broad approach to guide environmental decision-making. This can reflect the different legal cultures e.g., European civil law system vs. Anglo-American common law system. Essentially, the importance of principles is not so much determined by their legal status (i.e. whether they are established in customary international law), but by their interpretation through governments, courts and other decision-makers (Bosselmann 2016). This highlights the need to distribute knowledge on the importance of biodiversity-climate synergies across all levels of society.

Table 1: Principles and concepts for environmental law first elaborated in the 1972 in the Stockholm Declaration for the Human Environment and later restated in the 1992 Rio Declaration on Environment and Development (United Nations, 1992)

Principle/Concept	Explanation
Do no harm principle (Rio Principle 2, also found in the CBD)	Preventing damages of activities within the jurisdiction of one state to the environment of another state or areas beyond the limits of national jurisdiction. It is premised on the idea that preventing environmental harm is cheaper, easier, and less environmentally dangerous than reacting to environmental harm that already has taken place. A key tool in relation to the do no harm principle, are Environmental Impact Assessments (EIAs) (Rio Principle 17). The do no harm principle provides a legal backbone for environmental protection, conservation and governance and underscores that ecosystems are connected across boundaries. In the context of NbS this supports assessing interventions at scale, for instance by considering water cycles and hydrological flows that go beyond a single jurisdiction.
Precautionary principle (Rio Principle 15, also found in the CBD and UNFCCC)	Where there are “threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” This provides guidance on decision-making under uncertainty and ensures that scientific uncertainty does not become an argument for delayed conservation action. The precautionary principle promotes conservation and restoration and does not allow existing uncertainties in the impact of ecosystem degradation on climate conditions justify delays in conservation actions.
Polluter pays principle (Rio Principle 16)	Environmental harm is caused by producers who “externalize” the costs of their activities. Accordingly, the purpose of many environmental regulations is to force polluters to bear the real costs of their pollution, triggering potential compensation and remediation actions by the polluter. The polluter pays principle can contribute significantly to ecosystem health as it deters potential polluters. This is particularly relevant with regards to agriculture, where run-off can cause significant harm to surrounding areas.
Access to information principle (Rio Principle 10)	The participation of citizens, the sharing of information and access to justice are essential to ensure inclusive, equitable and just decision-making. The access to information principle can thus support inclusive governance processes in which stakeholders can hold decision makers accountable on environmental decisions including e.g. NbS planning and implementation. This is particularly important for indigenous peoples and local communities and other underrepresented groups.
Integration principle (Rio Principle 4)	Integration of environmental protection into decision-making processes through environmental impacts assessment mandates and other provisions is essential to achieve sustainable development. Principle 4 asks for environmental considerations to be mainstreamed. Albeit this early recognition 50 years ago in the 1972 Stockholm Declaration (Principle 13) and later in the 1992 Rio Declaration, integration and coordinated approaches remain a major challenge. The integration principle anchors the environment solidly as one pillar of sustainable development. It could be considered as a legal entry-point for making the case for the simultaneous benefits that NbS aim to achieve – namely human well-being (this could be considered analogous to the right to development) and biodiversity benefits (the aspect related to the protection of the environment and more recently the narrative around the right to a healthy environment and live in harmony with nature).

3.3 Global policy frameworks and instruments

The Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC) are the two most important Multilateral Environmental Agreements (MEAs) for biodiversity and climate. Both conventions have integrated biodiversity and climate change considerations into their work programmes respectively and the interlinked nature of the twin crises is gaining recognition. The CBD stipulates in its Article 22(1) that "The provisions of this Convention shall not affect the rights and obligations of any Contracting Party deriving from any existing international agreement, except where the exercise of those rights and obligations would cause a serious damage or threat to biological diversity." This implies that biological diversity should be considered in the realisation of other international legal obligations, including those under the UNFCCC. However, coordinated approaches between various MEAs are still lacking.

Momentum is growing at the global level to enhance biodiversity and climate synergies under MEAs, for example through international initiatives (e.g., Leader's Pledge 4 Nature, High Ambition Coalition for Nature and People), the adoption of the Kunming-Montreal Global Biodiversity Framework (e.g., Targets 8 and 11, which explicitly recognise the need to jointly tackle the biodiversity and climate crises using NbS and/or EbApr), the UNFCCC Nairobi Work Programme, the UNFCCC COP27 Decision (Decision -/CP.27 which for the first time includes NbS and highlights the critical role of protecting, conserving and restoring nature and ecosystems to deliver benefits for climate adaptation and mitigation), and the Local Communities and Indigenous Peoples Platform (LCIPP). Additionally, the Agenda 2030 with the Sustainable Development Goals (SDGs) provides ample opportunity for uptake of biodiversity and climate synergies into policy frameworks.

The UN General Assembly resolution on the human right to a clean, healthy and sustainable environment (UNEA A/RES/76/300), adopted in 2022, also constitutes an important milestone in recognising the intrinsic relationship between people and nature and the negative implications of biodiversity loss and climate change for present and future generations. While a legally non-binding political instrument, the resolution opens a more focused discourse on biodiversity and climate synergies, placing human wellbeing at the centre.

At the global environmental governance level, establishing coordinating bodies to strengthen coherence across MEAs can support biodiversity and climate synergies and prevent siloed policies that conflict or contradict each other. For example, the Joint Liaison Group was established by the secretariats of the UNFCCC, CBD and the UN Convention to Combat Desertification (UNCCD) to enhance coordination amongst the conventions and share information on work programmes and operations. Nevertheless, at the implementation level, there remains a lack of coordination and procedural alignment, with mismatching timelines and deadlines for targets and limited mainstreaming of biodiversity and climate synergies throughout the implementation mechanisms i.e., plans and programmes (see 3.4) and intergovernmental science-policy platforms (Intergovernmental Panel on Climate Change, IPCC and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, IPBES). Therefore, although a coordination mechanism exists between the CBD and UNFCCC, this is not necessarily effective and implementation challenges need to be addressed. A successful example is the cooperation between the Stockholm, Rotterdam and Basel Conventions that coordinate efforts through a shared Secretariat. Furthermore, the joint IPBES-IPCC workshop in 2021 on biodiversity and climate change (Pörtner et al. 2021) shows the necessity to establish

synergies at the interface between science and policy despite administrative and procedural challenges.

3.4 Policy frameworks and tools at the supranational, national and local level

Synergies and trade-offs need to be addressed more strategically, particularly in the development and implementation of Nationally Determined Contributions (NDC), National Adaptation Plans (NAP), and National Biodiversity Strategies and Action Plans (NBSAP), which are the key implementation tools of the UNFCCC and the CBD respectively (Terton et al. 2022). For example, integrating synergy-enhancing approaches like NbS into development strategies and sectoral planning instruments (e.g., into the design and implementation of NBSAPs and NDCs) can be helpful for a broad-scale integration of biodiversity and climate goals (Box 4).

Box 4: Nature-based solutions in the EU Green Deal

The EU has adopted a set of proposals under the European Green Deal to streamline action on climate change and environmental degradation across its sectors. NbS are integral to achieving the goals of the European Green Deal and in particular its sub-components like the EU Biodiversity Strategy, the EU Strategy on Adaptation to Climate Change and the Farm to Fork Strategy. NbS are explicitly or implicitly supported by most primary policies in the EU environmental and climate change legislative framework (see Figure 3):

Support and integration of NBS in EU policies

EU policies, strategies and approaches	Level of NBS support	Type of integration
European Green Deal	Strong	Explicit
Biodiversity Strategy for 2030	Strong	Explicit
Bioeconomy Strategy	Medium	Explicit
Forest Strategy	Medium	Implicit
Green Infrastructure Strategy	Strong	Explicit
LULUCF Regulation	Medium	Implicit
Action Plan on the Sendai Framework	Strong	Explicit
Adaptation Strategy	Strong	Explicit
Common Agricultural Policy	Medium	Implicit
Farm-to-Fork Strategy	Medium	Explicit
Water Framework Directive	Medium	Implicit
Floods Directive	Strong	Implicit
Urban Agenda	Medium	Explicit

Figure 3. Support and integration of NbS in EU policies (Source: Castellari & Davis 2021)

The proposed EU Nature Restoration Law is the first ever legal requirement for large-scale nature restoration, aiming to introduce area-based restoration measures for at least 20% of the EU's land and sea area by 2030 and all ecosystems needing restoration by 2050. NbS are a key tool to achieve these targets whilst contributing to climate change mitigation and adaptation. Furthermore, NbS research and innovation is being developed

through funding programmes like Horizon 2020 and knowledge platforms and networks like BiodivERsA ERA-Net. Overall various funding mechanisms aim to mobilise sustainable investments for biodiversity and climate (e.g., European Green Deal Investment Plan, InvestEU Programme) and policies like the Taxonomy Regulation and Just Transition Mechanism have been developed to enforce standards for green investments. Although specific aspects of the EU Green Deal and its policies have been criticised by EU Member States (e.g., criticisms that planned subsidies under the Green Deal Industrial Plan will disproportionately benefit wealthier EU Member States), the framework can fast track large-scale action on NbS with the dedicated support from Member States to leverage the full potential of NbS, across sectoral policies (IUCN (a) 2020).

The NbS concept can be used to support communication and mainstreaming of biodiversity values beyond the conservation community. However, more clarity is required to ensure the effective deployment of such concepts i.e., core standards and clear relationships with other approaches and its implementation on the ground (Terton et al. 2022). The IUCN Global Standard for Nature-based Solutions™ provides an important tool towards this end. The Standard serves as a benchmark of NbS interventions grounded in science-based and widely consulted parameters that include clarification of the roles of rights holders and duty bearers, adoption of inclusive governance approaches and policy mainstreaming across sectors at all levels, including global-local linkages (IUCN (a) 2020).

Making biodiversity and climate key components of impact assessment (e.g., Environmental and Social Impact Assessments (ESIA) and Strategic Environmental Assessments (SEA)) processes across sectors, is another approach to minimise negative externalities and sensitise businesses and practitioners regarding the effects of their projects and actions on nature conservation and climate change mitigation and adaptation goals. For example, by enhancing the uptake of biodiversity-inclusive impact assessments in trade, urban development, public health policies (CBD voluntary guidelines for biodiversity-inclusive impact assessments) other sectors will be held more accountable for their potential impacts on the environment and SDGs – safeguard mechanism. For instance, the EU developed a methodology in 2021 to better assess the impacts of trade liberalisation on biodiversity and ecosystems, with indicators that better capture changes in biodiversity status and trends. There is also guidance on how to include climate change and biodiversity in EIAs (EU 2013:1) and SEAs (EU 2013:2) and from the International Association of Impact Assessment (e.g., IAIA 2018).

However, tracking investments and the policy impact itself is critical to adapt to ongoing changes and enhance effectiveness of measures on the ground. This requires monitoring frameworks and feedback loops that enable adaptive policy making processes and management. Inter-institutional, cross-sectoral coordination and inclusive governance underpinned by rights-based and multi-stakeholder approaches ensure decision-making at appropriate levels and increase accountability for such decisions (Terton et al. 2022).

Local governments play an important role in decentralising decision-making processes and providing a meaningful platform for people to contribute to policy design, planning and implementation on the ground. The United Cities and Local Governments¹ (UCLG) has

¹ The United Cities and Local Governments: <https://www.uclg.org/en/agenda/global-agenda-of-local-regional-governments>

emphasised that effective local governance can be a key pathway to solving the various challenges in development at the global level. Therefore, being the closest to their communities, local and regional governments have the advantage of putting people at the centre of decision-making processes. Local level governments have more direct access to practitioners, spatial planners etc. and have a shorter decision-making pathway, which can lead to quicker implementation of policy developments. Supporting the devolution of power, including the provisioning of sufficient resources (also financing that reaches actors on the ground) to sub-national governments, indigenous peoples and local communities can enhance biodiversity and climate synergies on the ground, while demonstrating best practices that can be taken up in national policies (Morchain & Terton 2022).

Good environmental governance calls for access to information, public participation in decision-making and access to justice, ensuring that those affected by biodiversity loss or climate change are included in decision-making processes that concern their livelihoods and well-being. The Aarhus Convention offers a robust framework for this at the European level, ensuring environmental democracy prevails. Particularly, the local notion of sustainable development and the views of indigenous peoples and local communities need to be embedded into the design of initiatives and interventions. This requires effective multi-level governance to enhance implementation at all levels and create platforms for exchange between local, regional and national actors (as described by the example in Box 5).

Box 5: The crucial role of local governments

In South Africa ecosystem-based adaptation falls under the mandate of several ministries (e.g., Department of Environmental Affairs; Water and Sanitation; Agriculture, Forestry, and Fisheries; Rural Development and Land Reform; Mineral Resources; Department of Science and Technology) while the implementation of on-the-ground actions is the responsibility of the South African National Biodiversity Institute, the Expanded Public Works Programme, provincial departments, municipalities, and the Land Care programme. In this situation, multi-level governance with effective coordination both horizontally between departments and programmes, and vertically from the national to the provincial and the local level, is crucial for ensuring robust and efficient policy development and implementation. Coordination mechanisms include representatives from national and provincial departments and partner organisations (Amend 2019).

3.5 Recommendations and research needs

- National governments should **strengthen the environmental rule of law at the national level** and streamline existing environmental law principles and policies across MEAs. At the local, regional and national level there needs to be more focus on identifying and filling existing legal gaps and establishing prioritization frameworks to strengthen biodiversity-climate synergies e.g., integrating synergy-enhancing approaches like NbS into development strategies and sectoral planning instruments and utilising action plans (e.g., for the design and implementation of NBSAPs and NDCs) for a broad-scale integration of biodiversity and climate goals.

- Governments and courts need to show **stronger commitment for holding actors accountable for their environmental impacts and responsibilities** to address the biodiversity and climate crises, for example by more frequently utilising legal mechanisms e.g., raising complaints with the European Court of Justice, and using the EIA and SEA frameworks carefully.
- **Clear responsibilities in a multi-level governance** need to be established, from local, regional to (supra)national level to clarify implementation pathways and better track on-the-ground implementation. This requires effective communication and coordination across decision-making bodies, especially from local governments to national ministries.
- Policy makers need to ensure the **meaningful integration of social dimensions** (e.g., gender equality, fair and equitable access to benefits) and promotion of inclusive and multi-level governance, so that indigenous peoples and local communities are actively included in decision-making processes. The principles and concepts of environmental law (table 1) need to be built on and become operationalized.
- It is important to **integrate realistic time scales into policy-making processes** to ensure the public and investors recognise the long-term potentials of policy implementation but receive concrete benefits in the short-term e.g., integrate the long-term co-benefits of NbS implementation into policies and legal frameworks but do not ignore short-term benefits as useful steppingstones. This requires increased communication and coordination between the research and policy-making communities. Nevertheless, action should not be delayed at the expense of the next generation and the Global South countries in particular.

4 Social dimension in achieving biodiversity and climate benefits

In this chapter we address the need to integrate a social perspective into designing and implementing any kind of synergetic solutions for biodiversity and climate. Achieving a habitable climate and healthy biodiversity is impossible without the transformation of economic structures and processes, and profound shifts in society (Pörtner et al. 2021). At the same time, our ways of coping with the fundamental environmental challenges impact people's quality of life and have important implications for both intra- and intergenerational equity (ibid.). It is therefore necessary to gain a better understanding of the potential socio-economic trade-offs which emerge as we design pathways towards biodiversity and climate goals, and to explore how the synergetic solutions can instead meet the needs of various societies, communities, social groups and individuals, including the poorest and most vulnerable, and help reduce social and environmental injustice and harness additional co-benefits.

4.1 Guiding considerations and principles

One of the significant barriers to achieving social² and environmental³ justice relates to long standing power asymmetries and subsequent exclusion of entire populations, i.e. vulnerable/ minority/ persecuted groups and individuals, from the decision-making processes and designing solutions. Rights and voices of many humans have been historically oppressed, their worldviews, values and forms of knowledge have been overlooked meanwhile environmentally unsustainable and socially unjust approaches to land and resource use, beneficial for those in power, were broadly established (e.g., IPBES 2022). This is especially pronounced in the history of indigenous peoples who have faced significant threats to their livelihoods stemming from widespread pursuit of economic growth by colonising nations and the resulting land use change (UNPFII 2009). Furthermore, having contributed least to global warming, it is the nations and communities with predominantly indigenous populations that are most vulnerable to the consequences of climate change (ILO 2017).

Regrettably, the echoes of colonialism can be also found in the model of environmental protection dominating the world today, with land being identified and reserved for nature conservation and climate measures, whilst too often excluding local people and paying no regard to their needs (Boyd & Keene 2021). Likewise, projects mislabelled as NbS can pose a threat to the existence of indigenous peoples and local communities if their design and implementation do not adhere with safeguards, such as provided in the IUCN Global Standard for NbS™. There is a risk of creating trade-offs that reinforce existing inequalities and power imbalances, and of too narrow focus on economic growth ideologies, potentially leading to greenwashing (Melanidis & Hagerman 2022).

Many of the most biodiverse places on the planet have been successfully stewarded by indigenous peoples and local communities (IPLCs) over centuries (IPBES 2019; Schuster et al. 2019). This could still be, if a wider recognition of different forms and sources of knowledge and action – those bound to healthy ecosystems and a deep connection with nature – were given (ILO 2017; Melanidis & Hagerman 2022; Recio & Hestad 2022). Rights-based approaches to resolving biodiversity and climate issues and close collaboration with IPLCs have therefore to become an unequivocal norm. Potential trade-offs and benefits of the interventions have to be timely assessed. Projects should be co-designed with local knowledge holders and actors, in a way that avoids reinstating “fortress conservation”⁴, and centres ecological debt and environmental justice, in all locations.

² Herewith we refer to the definition by the United Nations which explains that social justice is based on equal rights for all peoples and the possibility for everyone, without discrimination, to benefit from economic and social progress around the world (United Nations 2020).

³ Herewith we refer to the definition of the United States Environmental Protection Agency, quite broadly used in the international context, including by the UN agencies: environmental justice implies equitable treatment and meaningful involvement of people of all races, cultures, nations, and socioeconomic backgrounds in the development, implementation, and enforcement of environmental programmes, laws and policies (UNDP 2022).

⁴ This term is used to describe a conservation model which bases on the creation of strictly protected areas for terrestrial or marine wildlife and is often associated with the coerced displacement or exclusion of the existing inhabitants, inter alia evicting local people who are dependent on the natural resources and restricting their customary rights to water, fishing, hunting, etc. See: <https://sk.sagepub.com/reference/environment/n432.xml>

Box 6: What laws can deliver: Nature as a legal person and intergenerational justice

One way to incorporate indigenous worldviews into environmental policy-making has been by adapting a western legal system to confer personhood and legal rights on to non-human entities. This approach has been implemented, for example, in Ecuador where the national constitution (2008) recognizes Mother Nature as having rights that the government is required to protect, in Bolivia (Law of the Rights of Mother Earth (2011)), and in New Zealand (granting legal personhood to river Whanganui and its surrounding ecosystem through the Whanganui River Claims Settlement Bill (2017)). Also, the intergenerational component of justice can be facilitated through embedding the respective responsibility in laws - e.g., Well-being of Future Generations Act (2015) in Wales (UK) requires public bodies to think about the long-term impact of their decisions.

Another manifestation of the hefty imbalance to address is the dominating attitude towards knowledge: more precisely, a tendency to follow a linear scientific approach to knowledge accumulation that assumes more knowledge will reduce uncertainties and promote action (Hulme 2018). Whilst scientific knowledge is crucial in supporting a good quality of life and tackling the biodiversity and climate crises, other forms of knowledge and intelligence, e.g., local or indigenous, place-based and implicit, should not be neglected and understated (IPBES 2022). Hulme (2018) suggests that in the case of the environmental and social emergencies the world faces today the main barrier to action is waiting for all the right answers rather than the amount of knowledge and evidence already in place. Instead, the attention and resources should be focused on building “appropriate public spheres of contestation and deliberation about multiple and diverging worldviews, beliefs, and value systems” to help identify the appropriate action, who will take it, what it will achieve and for whom (ibid.).

Finally, there is a strong need for critical assessment of the anthropocentric worldviews and western-centred approaches to life on earth, at a global scale (IPBES 2022). Though technological advances have raised living standards for many people, this is certainly not universal. Furthermore, they directly or indirectly threaten our ability to secure a liveable future (IPCC 2022). Tackling exploitation and overconsumption of natural resources, especially by the Global North / ‘western economies’, but also critically addressing these issues by the BRIC countries with their rapidly increasing resources footprint (Wu et al. 2017) is crucial. Reframing our relationship with nature, stepping away from prioritising its instrumental values, shifting towards bio/eco-centric and pluricentric worldviews (IPBES 2022), truly sustainable lifestyles and economic approaches that recognise environmental limits and tipping points of planetary boundaries (e.g., Doughnut Economics, the Economy of the Common Good, etc.) could provide a better way forward on individual, local, sub-national and national levels bringing positive changes for biodiversity, climate and society.

4.2 How to make it happen – practical ideas

Transformative change entails consistently dealing with intangible and highly sensitive categories such as historical legacy, culture, rights, and value systems. While at the systemic level it relies to a large part on political will and may consequently take a long time to achieve, we need to raise action and ambition significantly, and certain steps can be taken directly when working on the ground – through applying approaches and tools that are aware of bias and

that promote and enable social inclusion, engagement at an early stage as well as environmental justice. For example, a *landscape approach* (where the landscape is a spatial context within which managed and natural ecosystems interact) can be useful to better recognise the social-ecological system that is organised around distinct ecological, historical, economic and socio-cultural characteristics. Landscape governance and integrated landscape management, based on collaboration between multiple stakeholders and sectors, can enhance understanding amongst them of the values, conditions and dynamics within a landscape. This can provide a more just and balanced governance of natural resources, especially if they are limited, and a better means for monitoring their production and use for the benefit of all sides involved, therefore creating opportunities to achieve more nature-positive and community-driven development pathways (Diaz-Chavez & van Dam 2020; PBL 2022).

4.2.1 Project design and implementation

Nowadays project thinking dominates our approaches to tackling issues and advancing developments. Projects are temporary activities which aim at final delivery, usually through team efforts, within a set deadline. They have clear objectives, a pre-defined scope and cost constraints (unavoidably leading to certain trade-offs). Their design is subject to assumptions and must consider possible risks (e.g., ISO 21500:2020). Though projects, as discrete and time-bound interventions, cannot replace global transformative processes, they offer – due to their very nature – a promising framework for integrating the guiding principles described above. Projects can be considered as “experimental grounds” of limited scale for various collective efforts towards the desired vision. They are well suited for testing novel approaches and tools, should welcome creative ideas and can serve for scaling up promising solutions. Extensive deliberation, co-creation and constant joint learning made customary will not only benefit the concrete engaged stakeholders and help reduce possible socio-economic trade-offs but will also harness projects’ sustainability through closing multiple feedback loops.

The graph below illustrates what concrete adjustments in project design and management – in international research and development cooperation on biodiversity and climate, but also within respective national programmes – can help make further steps towards realization and upscaling of the principles of social justice and inclusivity.

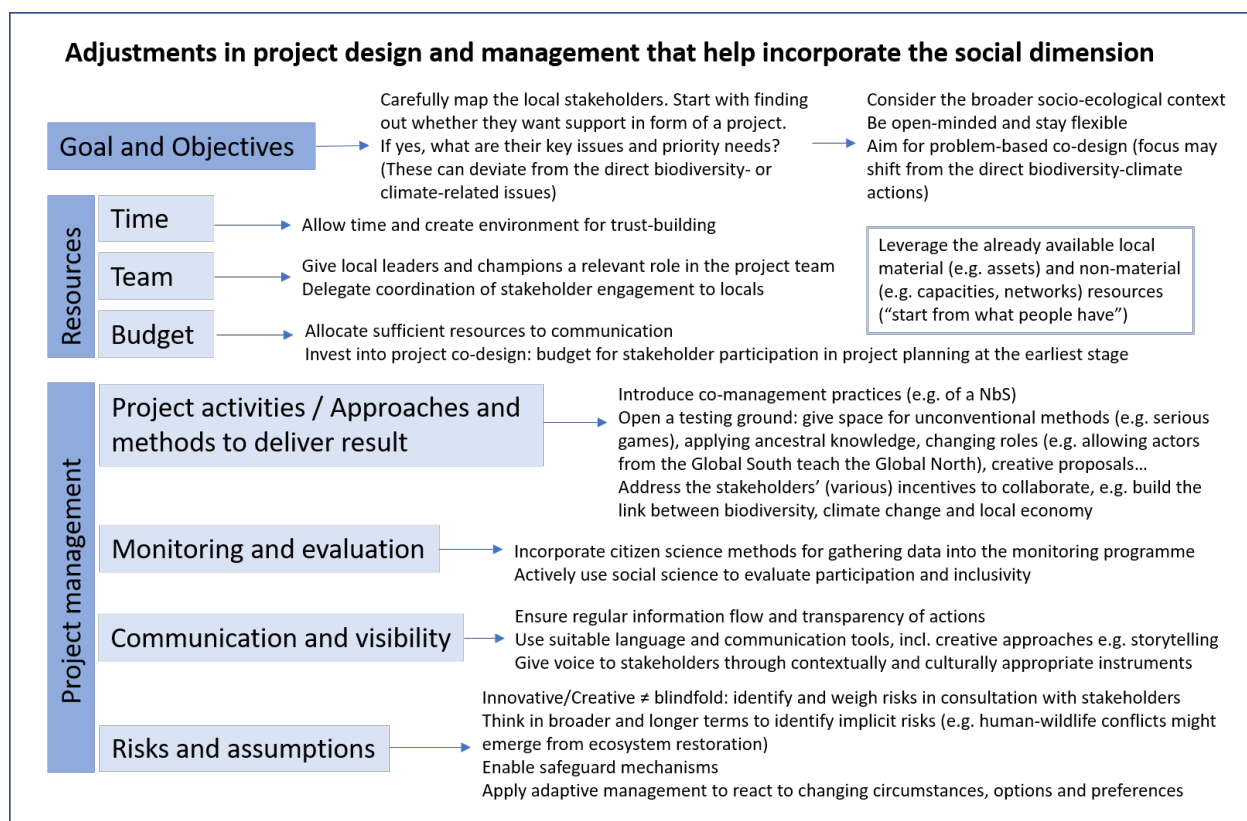


Figure 4: Suggested adjustments in project design and management (additionally consulted works: Ansari et al. 2021; SDC 2016; Swithern 2019; Wolff et al. 2022)

4.2.2 Social safeguarding

Nature conservation and climate protection initiatives bear the risk of impacting local populations who, for example, depend on specific natural resources for their livelihood (Bennett et al. 2021). Social safeguards are instruments or plans which stipulate activities to foster inclusion of stakeholders and duly identify, reduce and mitigate possible negative outcomes for them (IUCN 2016). A solid Stakeholder Engagement Plan and an effective and culturally appropriate Grievance Mechanism are two key tools that will ensure that people [potentially] affected by certain measures will have opportunities to engage in the planning and implementation of these, up to reconsidering the interventions if not wished. Other instruments such as a Process Framework for Access Restriction aim at mitigating income losses caused by restricted access to resources and develop pathways to benefit from alternative or improved livelihood measures. Designing safeguards also provides a good opportunity to make projects gender-responsive, thus making sure that gender equity is mainstreamed into the activities on the ground. A Gender Action Plan can help consolidate these efforts. All of these instruments can be included in an Environmental and Social Management System (IFC 2015).

It is important to ensure that, while there are standard tools, implementing social safeguards is not just a compliance exercise on paper. Projects and programmes should approach safeguard implementation with a spirit of collaboration and openness towards those that have been living with and from nature for a long time, and they should tailor mitigation measures to the local context (World Bank 2017). There is thus an ethical imperative and a practical advantage to include affected stakeholders, as it upholds people's right to determine their own livelihoods and may also increase their support for conservation measures. In some cases,

lack of acceptance could lead to projects not being implemented further, due to their potential/felt impacts for local stakeholders.

Safeguard design and implementation follows several steps: first, any risks and potential impacts – both positive and negative – should be assessed. Stakeholder input is crucial in this process, since it yields useful information on local conditions and practices. Implementing organisations should also use existing information and assessments, and consider national regulations on risk assessments. Then individual safeguard tools should be drafted, using a mitigation hierarchy: try to avoid negative impacts e.g. resulting in socio-economical trade-offs, minimize them if full avoidance is not possible, and as a last resort mitigate them, i.e. compensate for a negative impact. Once a project is running, social safeguards should be implemented and their effectiveness monitored.

Box 7: Case study: Marine conservation project in Sao Tome and Principe⁵

Conserving the ocean is crucial for combatting climate change, as a healthy ocean is needed for carbon storage and it enables climate change adaptation for ecosystems, species and people. A marine conservation project in São Tomé and Príncipe aims to establish a network of Marine Protected Areas (MPAs) across the two islands. The long-term benefit of protecting biodiversity will come at the cost of shorter-term social impacts, such as reduced income due to marine access restrictions for fishers. The project addresses these issues by engaging with local stakeholders – fishers, fish traders, other local community members, government officials and other relevant players – both in the design and planning of these new MPAs as well as by planning the co-management of the future MPAs and training local community members to participate in this. A Grievance Mechanism, meaning a dedicated communication channel to the implementing NGO, allows local stakeholders to raise concerns or provide feedback related to the interventions. Regular townhall meetings and co-management assemblies form the core of the project and facilitate the collection of information from people affected by it. These meetings are planned for and documented in a Stakeholder Engagement Plan. Additionally, a Process Framework addresses the specific risk of income loss. By including local fishers and fish traders in the design of the MPA zonation, the NGO running the project tries to avoid cutting people off completely from the resources. Since negative impacts on their income generation cannot be fully avoided, the project also implements alternative livelihoods interventions, such as establishing community enterprises. This is an example of social safeguards being part and parcel of biodiversity protection rather than an add-on. By considering the needs of affected local communities and by including them in the design and implementation, the project ensures that their rights are respected and in turn benefits from their knowledge and support.

⁵ Marine conservation project in Sao Tome and Principe: https://www.blueactionfund.org/wp-content/uploads/2018/10/Factsheet_FFI.pdf

4.2.3 Communication

Fine-tuned communication is needed for building functional links between a wide range of stakeholders, including civil society, for the successful joint work [on synergies for biodiversity and climate]. Communication in its broader sense is a universal attribute of any process, programme or project, and implies exchanging - rather than channelling – information (this can be also referred to as “two-way communication”). This means leaving no one behind, making sure the messages are received and understood by the target audience, getting and using feedback on the delivered information as well as actively engaging all sides in an open debate, generation of new knowledge and building consensus (Mefalopulos 2008; SDC 2016). Formal approaches to communication often do not meet these criteria. It is therefore necessary to improve the standards for designing and delivering communication strategies of the planned interventions as well as to properly select communication tools. It is also important to mainstream good communication practices, e.g., application of indicators described in Box 8 below, also into those development sectors that are not traditional environmentalists.

Box 8: Indicators for eye-level and two-way communication

Ansari et al. (2021) have identified eight holistic indicators for assessing and improving the quality of communication in a framework of a research or development cooperation project on biodiversity or climate. Application of these indicators at different stages of project planning and implementation has the potential to advance communication towards post-colonial moments meaning overcoming the challenging heritage of the colonial past, such as uneven power relations. We suggest that more generally, these indicators can steer bringing all parties together to engage in **eye-level and two-way communication**:

1. Acknowledgement of the role of communication and the resources it requires
2. Analysis of the power relations
3. Reflection on environmental injustice
4. Deconstruction of technoscientific concepts
5. De-hierarchisation of communication
6. Inclusion of local narratives
7. Appreciation of diverging worldviews, beliefs and value systems
8. Decentring of knowledge and value systems

4.3 Recommendations and research needs

- To achieve equitable and sustainable change, it is crucial that **policymakers enact rights-based and gender responsive policies and project/programme implementation** for nature conservation and climate protection, ensuring that approaches rooted in the colonial past are identified and removed or at least adjusted accordingly.
- **Policymakers should acknowledge and advocate for a diversity of knowledge systems** in order to include all forms, types and sources of knowledge into integrated approaches such as NbS. Researchers and practitioners should facilitate transition towards multiple knowledge systems for the benefit of biodiversity and climate through collecting and demonstrating **good practice examples and success stories** including on the concrete formats for deliberating and braiding knowledge, on operational tools deriving from plural knowledge systems, and on acting under uncertainty.

- At subnational level, **projects and programmes, as well as their funding should be inclusive and flexible**, adapting to the local conditions and potentially changing circumstances. This means that also donors should adjust their requirements to allow for adaptive planning and implementation. **Social safeguards** (including gender aspects) should be part of every project/programme starting at the design phase and should include local stakeholders' views and concerns. Implementing **indicators for eye-level and two-way communication** should be promoted as best-practice in delivering project/programme communication.
- In broader contexts, conscious **shift from exclusively anthropocentric approaches in policy-making and planning processes** achieved through representation and integration of diverse worldviews and values, can help balance the outcomes of decision-making at all levels from local to global and allow true progress towards sustainable and just futures.

5 Unlocking and redistributing funding for nature-based solutions

Addressing the biodiversity and climate crises relies on the transformation of the socio-economic system (Pörtner et al. 2021). This includes a behavioural shift in public and private sectors and in society as a whole. Among other necessary steps, this requires the removal of harmful subsidies (see e.g., CBD GBF Target 18) and moving towards sustainable consumption to reduce the negative impacts on biodiversity and climate at scale. While transformative change is gaining momentum in public and political discourse, it is also crucial to pursue synergistic on-the-ground solutions such as NbS without any further delays. Access to funds is a prerequisite for the implementation of these actions and can be achieved through a number of approaches in parallel. First, consolidation of efforts in biodiversity and climate funding is essential to avoid overlaps between measures, to manage trade-offs, and to streamline the use of limited resources (Terton 2022; UNFCCC et al. 2022). (Herewith, the success will largely depend on the alignment and successful implementation of policies at various levels as discussed in Chapter 3). Furthermore, it is necessary to identify and unlock public funding especially with regard to utilizing climate funds for biodiversity conservation and restoration, and to scale up private investment in synergy measures. In this chapter we focus on the key challenges to mobilize and redistribute capital for NbS from the economic and financial perspective and discuss approaches for overcoming them.

5.1 Key challenges

The ongoing loss of nature has become a systemic risk for the global economy (WEF 2020). Therefore, providing funding for integrated biodiversity and climate solutions is a joint task of both public and private sectors (Dasgupta 2021; Terton 2022; Wharton et al. 2021). The current investments in NbS amount to USD 133 billion – most of which comes from public sources (86% public vs. 14% private finance). If the world is to meet climate change, biodiversity, and land degradation targets, it still needs to close a USD 4.1 trillion financing gap in nature by 2050, for which further merging public funding with private investments is key (UNEP 2021).

The public sector, as a buyer, regulator and enabler, plays a fundamental role in creating opportunities and demand for private investment in NbS (UNEP 2021). However, these opportunities are not being realised due to different factors. Although various funding sources may exist (see section 5.2), an individual country's ability to access and utilise them may depend

on their readiness and capacity, knowledge and technical expertise, mechanisms to capture NbS benefits and foresight to plan NbS investments and the skills to finance such investments (Swann et al. 2021). Besides, the grey infrastructure bias in policy still prevents public investments from going towards NbS or hybrid solutions⁶ (Haasnoot et al. 2020). In this respect, further advocacy work, awareness raising and capacity-building in the public sector are necessary.

From the perspective of private investors, bringing the concept of NbS into life is especially challenged by the current market structure (Baralon et al. 2021). High implementation and potentially long-term operational costs of NbS interventions and long periods of investment returns are significant “red flags” for investors. Furthermore, risks related to NbS interventions are often perceived higher than for more conventional investment opportunities like in grey infrastructure. This perception is, however, often erroneous: e.g., NbS for flood control can be perceived as risky, but can be more reliable and cost-effective over the long term than mere technological solutions to flood control (OECD 2020).

The misperception of risks shows that potential investors often lack a deeper understanding of the NbS concept, while the needed expertise is still limited and not broadly accessible. Besides, public unawareness of the NbS concept and the public benefits NbS can offer, leads to a lack of broader stakeholder support for project ideas, reducing the appeal for investors.

For those that do intend to invest there is a lack of investment structures for NbS such as platforms, insurance tools, clear and transparent business models. The transition costs are high, and the required coordination between multiple involved agencies and stakeholders is demanding and not always effective.

Yet, the above-mentioned factors are implementation barriers which can be removed. NbS poses an opportunity for private sector investment in pursuit of sources of revenue, to reap the benefits of increased resilience and cost-effectiveness and to enhance reputation and purpose. As businesses become more sophisticated in their understanding of NbS opportunities, there will be a role for financial de-risking products such as guarantees and insurance, to create attractive risk-return profiles for large, mainstream investors (UNEP 2021). However, for this to be achieved, the fundamental market feature of NbS interventions, which produce major public benefits (in monetary terms, these can reach 8-38 euros per 1 euro of investment, in the EU context⁷), but low (explicit) financial benefits for the private sector, need to change. In this situation government action is critical to (1) create incentives for businesses, and (2) correct market failures through regulations and market creation.

Additionally, “typical” impediments of (infrastructure) projects also need to be taken into consideration. These include corruption, poor accountability, overlapping governmental responsibilities, and lack of institutional capacities (e.g. Pérez-Cirera et al. 2021). Without addressing these issues, scaling up investments in NbS is unlikely and will not result in successful

⁶ “Hybrid solutions” imply a combination of ecosystem elements and hard engineering approach. For more guidance on opportunities to apply hybrid solutions and green-grey infrastructure in the biodiversity-climate context see e.g., <https://www.eea.europa.eu/publications/nature-based-solutions-in-europe> and https://www.conservation.org/docs/default-source/publication-pdfs/ci-green-gray-practical-guide-v08.pdf?Status=Master&sfvrsn=62ed4b48_2

⁷ Background information on the EU Nature Restoration Law: https://environment.ec.europa.eu/topics/nature-and-biodiversity/nature-restoration-law_en

implementation on the ground. Based on all of the above, it is enabling policies and regulatory frameworks that are the key to unlocking funding for the biodiversity-climate synergies.

5.2 Key opportunities

More than 50 % of global GDP depends on nature and its services (Herweijer et al. 2020). Systemic risks not only related to climate change but also to biodiversity loss are being increasingly recognised by the financial sector. The Network for Greening Financial Systems (NGFS) acknowledges that such risks can have significant macroeconomic and financial implications and calls on central banks to assess related risks and mobilise investment for a more biodiversity-positive economy (NGFS 2021).

Consideration of the role of biodiversity and ecosystem services for businesses is also reflected in the recent developments in corporate accounting and reporting standards: attempts are made to integrate, along the carbon footprint, also biodiversity criteria into voluntary and mandatory reporting standards (Förster et al. 2022). Some of the recent activities on that include the Global Reporting Initiative (GRI), EU Corporate Sustainability Reporting Directive (CSRD), Taskforce on Nature-related Financial Disclosure (TNFD), IFRS International Sustainability Standards Board (ISSB). Target 15 of the Kunming-Montreal GBF is asking Parties to the CBD to ensure that large corporations report their biodiversity impacts and dependencies. The European Sustainability Reporting Standards (ESRS) are currently in the process of being established as part of the adoption of the EU Corporate Sustainability Reporting Directive (CSRD), which includes also reporting standards on biodiversity and ecosystems⁸. From 2024 onwards, about 50.000 businesses and corporations will have to assess and disclose their biodiversity impacts including their dependencies on ecosystem services (Förster et al. 2022). This includes their own operations and value chains. Such integration is significant both for sustainable business models and transparent and targeted investment processes and also for addressing potential “greenwashing”. There is the hope that such reporting requirements contribute to mainstreaming biodiversity considerations into relevant economic sectors.

With the growing awareness of nature-related risks for societies and business and the promotion of the “green solutions” the private interest in investing in environmental initiatives has been increasing (Spinaci 2021). Furthermore, it was concluded by the World Economic Forum that investing in nature offers the opportunity to generate USD 10 trillion in business value and create 395 million jobs (WEF 2020). This opportune moment should not be missed, but encouraging investments into NbS and securing their stability requires multifaceted action from the governments’ side. Firstly, support to raising awareness for the concept of NbS should be provided, with the aim to promote the concept, build the respective expertise and enable engagement for investors of various scale. There is also a clear need for institutional arrangements that create enabling environments for investments (Terton 2022): regulatory changes (national policies and legislation) that make the necessary “corrections” to the market structures and create incentives for private investors, and governance mechanisms to provide an adequate framework for managing the investments.

Another opportunity for unlocking funding, albeit connected to high risks of abuse and therefore requiring a critical and cautious approach, is scaling up the private sector’s role in

⁸ The draft version of the European Sustainability Reporting Standards, ESRS E4 Biodiversity and Ecosystems can be found at: <https://www.efrag.org/lab6>

managing nature-related public goods, such as establishing biodiversity markets (cap and trade system) (Zadek et al. 2021). Such markets should be seen as a last resort after avoiding and mitigating all possible environmental impacts including greenhouse gas (GHG) emissions. They need a well-developed reliable and transparent system, with social and environmental safeguards, strong standards, and compliance mechanisms. It is also crucial to note that NbS as biodiversity offsets can only work if they meet the globally agreed criteria (see Chapter 2).

Meanwhile, the public sector is already allocating significant funds that can be used for joint biodiversity-climate action on the ground. Internationally, one of the most prominent sources is the Green Climate Fund. It was established in the framework of the UNFCCC in 2010, with the aim to limit or reduce GHG emissions in developing countries, and to help vulnerable societies adapt to the impacts of climate change⁹. It is also now tasked with establishing a fund for the implementation of the CBD Post-2020 Kunming-Montreal GBF. The “Loss and Damage” fund – one of the UNFCCC COP27 outcomes – is also a promising source of funding for biodiversity-climate solutions, especially in the Global South. Regionally, e.g. within the EU, efforts are undertaken to integrate NbS into various sectors, at least to create pre-conditions for them. With regard to agriculture a proposal for carbon farming is currently being developed. This includes: a) a legislative proposal to develop a regulatory framework for certifying carbon dioxide removals (CDR) based on robust and transparent carbon accounting, b) developing the standardisation of monitoring, reporting and verification methodologies to provide a clear and reliable framework for carbon farming, c) the promotion of carbon farming practices under the Common Agricultural Policy (CAP) and other EU programmes and d) providing improved knowledge, data management and tailored advisory services to land managers. Other opportunities for NbS arise within EU regional structural funds, research funding, LIFE programme, etc. Herewith, it is worth noting again that not all potential measures will in the end qualify as NbS. At national level, biodiversity and climate funds and funding programmes are being established worldwide: from the Global North (e.g. the multiannual “Federal Action Plan on Nature-based Solutions for Climate and Biodiversity” in Germany which put aside 4 billion Euro for a period till 2026¹⁰), to the Global South (e.g. Papua New Guinea Biodiversity and Climate Fund¹¹).

Yet, there is an explicit need to adjust the public funding design to ease access to financing for businesses of different types and scales (incl. start-ups) and to provide greater support to pioneer solutions, e.g. through payments for ecosystem services. Furthermore, building public-private partnerships and using blended finance mechanisms can help mitigate certain investment risks and increase the financial attractiveness of (NbS) interventions (Kuhlow et al. 2021). In blended schemes, public capital serves as a guarantee for the private partners or as first-loss capital (Wharton et al. 2021).

Beyond this, there are a range of actions that public and private actors can implement over the short, medium and long-term to scale up NbS investments. Some of these are illustrated in Figure 5 and further described in the UN State of Finance for Nature report (UNEP 2021).

⁹ The Green Climate Fund: <https://www.greenclimate.fund>

¹⁰ The German „Federal Action Plan on Nature-based Solutions for Climate and Biodiversity“: <https://www.bmu.de/en/download/federal-action-plan-on-nature-based-solutions-for-climate-and-biodiversity>

¹¹ The Papua New Guinea Biodiversity and Climate Fund: <https://pngbcf.org/>

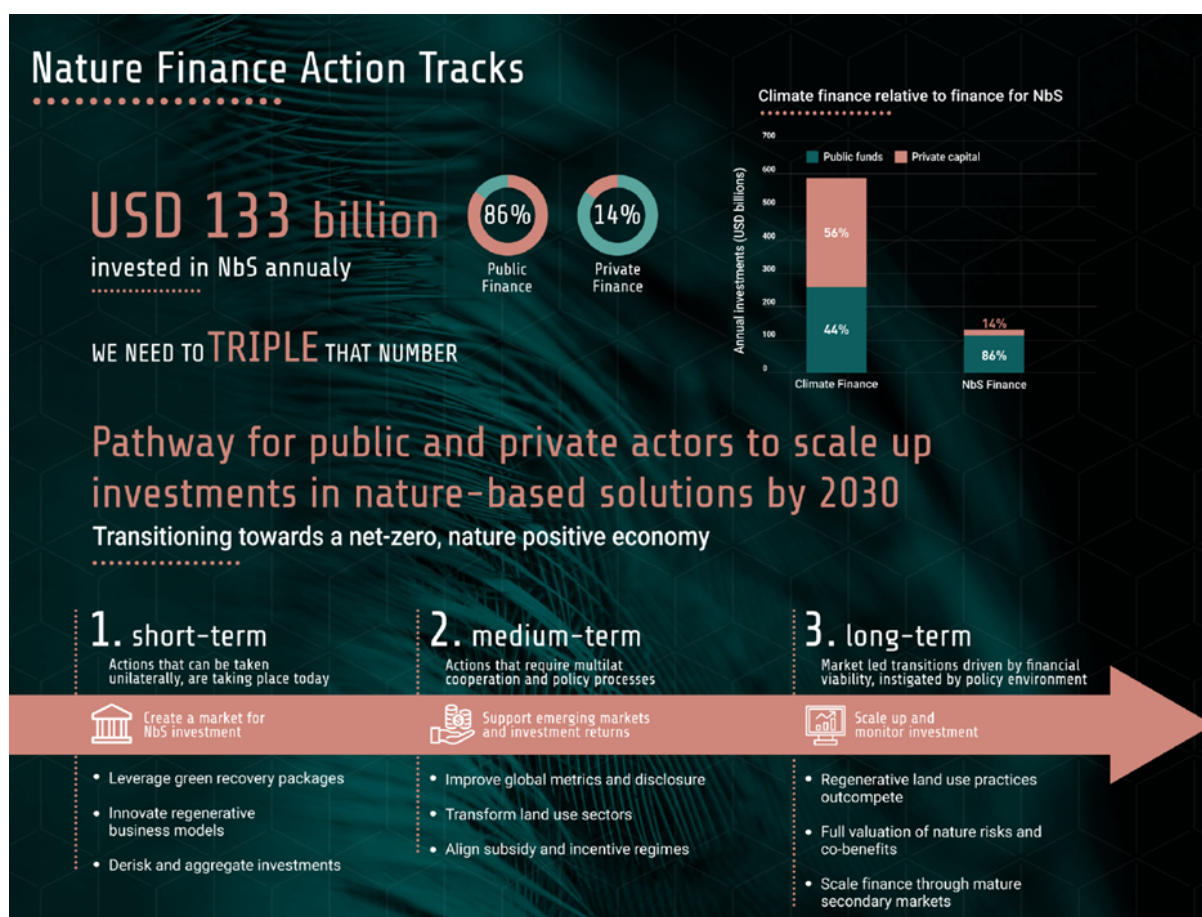


Figure 5: Overview of NbS funding and a suggested pathway for public and private actors to scale up investments in NbS by 2030 (UNEP 2021).

Box 9: Examples of good practices, useful tools and promising approaches

- Sectoral policies driving application of NbS – e.g., building regulations mandating green roofs (in place in several major German cities, including Munich since 1996), storm-water management regulations requiring use of green infrastructure, etc.
- Tools for natural capital accounting and assessing risks and opportunities – e.g., EN-CORE (Exploring Natural Capital Opportunities, Risks and Exposure); SEEA-EA framework as a prominent tool for ecosystem accounting (<https://seea.un.org/ecosystem-accounting>)
- Platforms for aggregating NbS interventions to tackle the issue of a gap between scales of investment preferred by private finance, and the cost and revenue from projects – e.g., XILVA Global Forest Marketplace (<https://www.xilva.global/>) developed by a private provider to bring together potential projects with potential financiers.
- Conscientious offsetting – e.g., the concept “Biodiversity Net Gain” for land management in England (<https://www.local.gov.uk/pas/topics/environment/biodiversity-net-gain-local-authorities>) which requires that status of biodiversity in and around developments should be not just balanced, but improved. A special statutory biodiversity credits scheme is a part of the approach;

- MoorFutures (<https://www.moorfutures.de/>) – created in Germany in collaboration between federal states, universities and farmers, this scheme for financing peatland restoration through voluntary payments for offsetting CO2 emissions is not a marketable, but nevertheless interesting and very successful instrument.
- Scalable models for enabling NbS on the ground – e.g., Wendling Beck Environment Project (<https://www.wendlingbeck.org/>) – blended-funding restoration project in England which will deliver “environmental credits” to the private sector; LIFE IP Artisan Project – EU-funded project in France aimed at triggering implementation of NbS for climate adaptation at national scale.
- Developments under the EU Green Deal to mainstream biodiversity conservation across sectors and hold actors accountable for environmental damages – CAP agro-environment-climate schemes for biodiversity-carbon synergies (depends on how Member States choose to distribute funds); EC carbon farming proposal; EU taxonomy regulation; EU sustainable finance strategy; partially also the regulations on bioeconomy and bioenergy

5.3 Recommendations to make funding work on the ground

To ensure that more funding is successfully allocated for synergetic biodiversity-climate solutions it is important to take stock of the already available resources and tools and fill in the gaps, aiming at enabling existing possibilities and eliminating harmful/potentially harmful funding channels. This requires a multi-pronged approach, not only tackling the economic side of the issue, correcting the market failures and transforming processes in the public sector, but also adopting relevant approaches discussed in the contexts of policy, governance and social dimension.

- **Environmental ministries advocating for NbS should clearly identify opportunities for NbS funding** in the existing policy instruments and funding programmes and effectively communicate these to funding bodies, executive agencies, private investors and other relevant stakeholders.
- **NbS can be ‘mainstreamed’ into existing legislation**, for example by requiring that NbS solutions should be considered among others to meet existing legislative requirements (e.g., requiring the consideration of NbS in the EU Floods Directive and EU Urban Wastewater Treatment Directive)
- **National governments should facilitate enabling conditions for private funding** through (a) **lifting the identified barriers** (e.g., correcting the information and market failures), and (b) **creating incentives for private investors** and removing harmful subsidies/incentives. Alongside other measures, **allocating seed capital for NbS** should be considered as this form of support is key to discovering breakthrough ideas. Additionally, governments should further promote the use of **aggregated investment models / blended public-private financing mechanisms** which help to channel private sector finance in light of the limited readiness for risk taking.
- Regulations for making it **mandatory for corporates and businesses to assess and disclose their climate and biodiversity impacts** should be put in place. Thereby, corporates could be held accountable to reduce negative impacts while encouraging them to

enhance investments into more biodiversity positive management practices. It could also encourage the private sector to account for synergies between addressing climate change and biodiversity loss.

- Public authorities, research institutions, Think Tanks, NGOs and broader expert community should continue efforts for **capacity-building on the synergetic solutions**, e.g., on the IUCN Global Standard for NbS™, among public funding managers, businesses and practitioners. This includes inter alia developing **guidelines for implementing business opportunities for NbS**, and fostering **exchange on policies for NbS** among public institutions across countries.

Different international funds, including government aid agencies (ODA) should work in collaboration rather than in silos or as independent bilateral collaborations.

Conclusions and recommendations

On the basis of the above analysis we would like to conclude and recommend the following:

- To tackle the twin crises of biodiversity loss and climate change in synergy, urgent and transformative action is needed. Synergies are realized when an intervention generates positive outcomes for multiple objectives or interest groups. In contrast, trade-offs occur when one objective is pursued at the detriment of others, e.g., one-sided climate action resulting in biodiversity loss, or projects negatively impacting certain stakeholder groups. Potential trade-offs must be recognized to avoid or minimize their negative impacts.
- In the biodiversity-climate context, synergetic approaches include addressing root causes and drivers of both crises (e.g., overexploitation of natural resources) simultaneously, aligning the respective policies and planning processes, and applying multipurpose solutions which benefit both biodiversity and climate. In this regard, nature-based solutions (NbS) for climate change mitigation or adaptation are a key approach which is increasingly taken up in policy and planning. NbS should ensure social and ecological safeguards, as implied in their internationally agreed definition (UNEP/EA.5/Res.5) and available standards like IUCN Global Standard for NbS™, to facilitate successful implementation. If implemented well, NbS can provide synergies with other sustainability goals, e.g., by enhancing ecosystem service provision and generating further social and economic co-benefits.
- The success of synergetic interventions for biodiversity and climate depends on various factors, including policy and governance frameworks, people's needs, views, will, capacities and capabilities, and the availability of resources. This stipulates the need for:
 - Improving policy coherence and establishing functional multilevel governance mechanisms;
 - Integrating social considerations into the biodiversity and climate interventions;
 - Unlocking funding for synergy measures.
- From the policy and governance perspective, better coordination across governance levels and instruments and more integrated decision-making are required. There have been significant advances to combine biodiversity and climate agendas at the global level. A number of useful intergovernmental mechanisms (e.g., Montevideo Programmes by UNEP) and international initiatives and agreements (e.g., Kunming-Montreal Global Biodiversity Framework) already exist. These advancements should be supported by broad and consistent transposition and by creating effective leverages at national and subnational levels: through integrated strategies and plans, stronger accountability, clear roles and responsibilities in different governance structures, and improved communication.
- Ensuring social and environmental justice is critical when designing, planning and implementing synergetic measures, e.g., NbS. Until now, in many instances biodiversity and climate action has suffered from power asymmetries and exclusion of stakeholders from decision-making processes. Therefore, rights-based approaches need to become the norm, where NbS projects are co-designed and co-implemented with stakeholders, specifically IPLCs where affected, embedded within an overall critical assessment of the relationship we have with nature. Locally, concrete adjustments in project design and management framed by carefully planned safeguards and communication strategies can

upscale the principles of social justice and inclusivity and contribute to equity and sustainable change.

- Targeted, effective and sufficient financial resources facilitate the implementation of synergistic solutions. At first place, the public sector can provide opportunities for NbS investments, but existing structures need to be altered to ensure easier access to these. On the other hand, private investments could possibly generate much more resources for NbS, if enabling policies and regulatory frameworks lower transaction costs and provide sufficient incentives, while at the same time ensuring social and ecological safeguards.
- Within the financial sector, a greater understanding and recognition of the opportunities resulting from investing in nature and its contributions is needed. As reporting standards and multilateral funds are being developed, there is significant potential to raise awareness for NbS and enhance biodiversity-climate synergies also locally. By enhancing efforts from public and private sector actors, across the short, medium and long-term, financial resources can be redistributed, allocated and/or increased for the implementation and upscaling of rights-based and ecologically sound synergistic solutions.
- Overall, knowledge and understanding of biodiversity-climate synergies, of the associated potential opportunities and benefits, and of the practical ways to achieve them, need to be strengthened across stakeholders, sectors and policy domains. Such awareness raising and capacity-building is a cornerstone of effective and efficient transition towards biodiversity- and climate-proof decision-making.
- In conclusion, this discussion paper draws upon recent developments in policy, social and financial realms which have already enhanced our understanding of biodiversity and climate synergies and have supported the uptake, design and implementation of respective measures. We have made suggestions on how the existing concepts, systems and frameworks can be further improved and strengthened – especially for the upscaling of synergistic solutions.
- There are various integrated approaches and concepts, like the landscape approach or the ecosystem approach, that recognise the varied components and interlinkages within their relevant systems and develop multi-level, multi-purpose solutions. NbS has become a well-known umbrella term, and with the UNEA definition and IUCN standard, there is a tool in place to guide implementation that is socially and environmentally just. Therefore, we suggest focusing implementation efforts on upscaling NbS to enhance biodiversity-climate synergies across spatial and governance scales.
- In this context, monitoring and evaluation frameworks will be important to track implementation, understand feedback loops and adjust actions adaptively. Inter-institutional, cross-sectoral coordination and inclusive governance underpinned by rights-based and multi-stakeholder approaches are necessary to ensure decision-making at appropriate levels and increase accountability for such decisions.
- Most importantly, this paper highlights the need to act, and to act now. Prevailing uncertainties and knowledge gaps do not justify further delays in tackling the biodiversity and climate crises. There is a wealth of knowledge already in existence (including in local or indigenous, place-based and implicit forms), which enables immediate steps. If implemented in an integrated and adaptive manner, most synergistic solutions are low-regret options that can create valuable co-benefits. In contrast, inaction or one-sided

approaches endanger the natural foundation of human life and well-being. Therefore, we suggest that strengthening synergies at all levels, as well as significantly scaling up the implementation of NbS on the ground, needs to be our immediate priority.

List of figures

Figure 1:	Synergies and trade-offs (adapted from Gusenbauer & Franks 2019)	10
Figure 2:	Rewetting drained peatlands is an effective NbS for reducing greenhouse gas emissions and restoring rare habitats for endangered species. (Photo: S. Wulf)	13
Figure 3:	Support and integration of NbS in EU policies (Source: Castellari & Davis 2021).....	19
Figure 4:	Suggested adjustments in project design and management (additionally consulted works: Ansari et al. 2021; SDC 2016; Swithern 2019; Wolff et al. 2022).....	26
Figure 5:	Overview of NbS funding and a suggested pathway for public and private actors to scale up investments in NbS by 2030 (UNEP 2021).	33

List of tables

Table 1:	Principles and concepts for environmental law first elaborated in the 1972 in the Stockholm Declaration for the Human Environment and later restated in the 1992 Rio Declaration on Environment and Development (United Nations, 1992)	17
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List of boxes

Box 1:	Types of trade-offs in the biodiversity-climate context	11
Box 2:	Internationally agreed definition of nature-based solutions.....	12
Box 3:	Exploring the definition of Governance	14
Box 4:	Nature-based solutions in the EU Green Deal	19
Box 5:	The crucial role of local governments	21
Box 6:	What laws can deliver: Nature as a legal person and intergenerational justice ..	24
Box 7:	Case study: Marine conservation project in Sao Tome and Principe	27
Box 8:	Indicators for eye-level and two-way communication	28
Box 9:	Examples of good practices, useful tools and promising approaches	33

List of abbreviations

Abbreviation	Explanation
AFOLU	Agriculture, Forestry and other Land Use
BfN	Federal Agency for Nature Conservation (Bundesamt für Naturschutz)
BRIC	Brazil, Russia, India, and China
CAP	Common Agricultural Policy
CBD	Convention on Biological Diversity
CDR	Carbon Dioxide Removal
COP	Conference of the Parties
EbA	Ecosystem-based approach to adaptation
EbApr	Ecosystem-based approaches
EbM	Ecosystem-based approach to mitigation
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
ESRS	European Sustainability Reporting Standard
EU	European Union
GBF	Global Biodiversity Framework
GDP	Gross Domestic Product
GHG	Greenhouse Gas
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IPLC	Indigenous Peoples and Local Communities
IUCN	International Union for Conservation of Nature
LCIPP	Local Communities and Indigenous Peoples Platform
MEA	Multilateral Environmental Agreement
MPA	Marine Protected Area
NAP	National Adaptation Plan
Nbs	Nature-based Solutions

Abbreviation	Explanation
NBSAPs	National Biodiversity Strategies and Action Plans
NDCs	Nationally Determined Contributions
NGFS	Network for Greening Financial Systems
NGO	Non-Governmental Organisation
ODA	Official Development Assistance
SDGs	Sustainable Development Goals
SEA	Strategic Environmental Assessment
UCLG	United Cities and Local Governments
UNCCD	United Nations Convention to Combat Desertification
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WEF	World Economic Forum

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Biodiversity loss and climate change must be addressed together through synergetic approaches that jointly tackle the root causes and impacts of both these global and interlinked crises. This discussion paper outlines prerequisites to implementing successful biodiversity-climate synergies, considering policy and governance, social dimensions and funding. It explores opportunities, recognises possible trade-offs and highlights the key role of nature-based solutions in implementing synergies between biodiversity conservation and climate action.

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