

Policy Paper

Biodiversity:Act Now for Nature and Humanity

13

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Biodiversity

Summary

Only if healthy ecosystems sustainably provide services that are essential for survival can humans also live healthy lives. This requires successful climate protection and biodiversity conservation. In the case of biodiversity, the Kunming-Montreal Global Biodiversity Framework and the new UN Agreement on Biodiversity Beyond National Jurisdiction offer a unique window of opportunity. The WBGU recommends the guiding concept of a multifunctional mosaic of land and ocean uses: i.e. integrating our thinking on conservation and use in such a way that multiple benefits are created for nature and humanity. Germany should take decisive action internationally and launch processes to implement both agreements, set up dialogue forums and pioneering coalitions, and launch an education and communication offensive. Promoting biodiversity should not be financed with tax revenues alone, but also involve the private sector, for example by reallocating environmentally harmful subsidies and by ensuring clear reporting and taxonomy. The costs of inaction should be understood.

In 2022, the international community agreed on a new Global Biodiversity Framework (GBF) and in 2023 on the Agreement on Biodiversity Beyond National Jurisdiction (BBNJ). This political consensus reflects the scientifically proven urgency of biodiversity conservation and demonstrates the willingness to cooperate on this topic even in years of strained international relations. Biodiversity is a common good and an essential prerequisite for a healthy future for humans and all species with which they share the Earth. It enables ecosystem services, e.g. the provision of clean drinking water or the pollination of crops and wild plants; in order to secure such services, species and ecosystems need suitably large and interconnected areas. The WBGU proposes implementing the GBF's area-based targets according to the guiding concept of a multifunctional mosaic of land and ocean uses in which thinking on conservation and use is integrated in such a way that multiple benefits are generated for nature and humanity. This guiding concept offers all actors an orientation for behaviour that protects and promotes biodiversity.

Five principles for improved action on biodiversity

In order to achieve the global biodiversity transition set in motion by the GBF and BBNJ agreements, the WBGU has formulated five principles, stating that we need to: (1) see humans as part of biodiversity, (2) integrate our thinking on biodiversity and health or human wellbeing, (3) integrate our thinking on the land and the sea,

including the transition areas between the two, (4) integrate our thinking on biodiversity and climate, and (5) integrate our thinking on the conservation, restoration and sustainable use of biodiversity and ecosystem services in a spirit of solidarity, while sharing costs and benefits fairly.

Implementing the area-based targets

Important area-based biodiversity targets have been agreed internationally. The WBGU recommends the following for specifying and implementing them:

- **1.** Enable and promote a multifunctional mosaic approach: The implementation of a multifunctional mosaic of land and ocean uses should be enabled and promoted by means of integrated terrestrial and marine spatial planning.
- 2. Protect at least 30% of terrestrial and marine areas worldwide with protected-area systems: In addition to protected areas that are strictly for biodiversity conservation, protected-area systems can also include zones that are networked with them, that promote biodiversity but permit graduated use at the same time. Protected-area systems should also have a positive effect on the planning and use of the remaining 70% of terrestrial and marine areas. The average use intensity of a mosaic of land and ocean uses should lead to a net gain in biodiversity.
- 3. Define and take other effective area-based conservation measures (OECMs): OECMs should be defined

internationally according to globally harmonized minimum standards; their implementation should be promoted. On the high seas, corresponding areas should be selected on a scientific basis by the Parties to the BBNJ Agreement.

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- 4. Incorporate all stakeholders in implementation: Civilsociety, private and public stakeholders, e.g. landowners, associations and municipalities, as well as Indigenous and local communities should be involved in the selection and implementation of measures for conservation and use.
- 5. Strengthen Indigenous and local communities: Recognizing and respecting their rights are explicit prerequisites when it comes to fleshing out the area-based targets under the GBF. They should be able to live autonomously in natural habitats, and their ways of life and autonomy should be respected and strengthened.

Germany's international role

In line with its position as a leading international political and economic power, Germany should visibly assume responsibility for action on biodiversity. The WBGU recommends:

- **1.** Moving forward resolutely, putting the content of the GBF and BBNJ in more concrete terms and coordinating implementation: Germany should stand firmly behind the GBF's area-based targets, work with other countries to swiftly submit proposals for area-based conservation measures and push for coherence and coordination between different environmental treaties.
- 2. Initiating and designing dialogue forums and collaborations beyond thematic silos: All political levels must work together to protect biodiversity as a common good. Platforms for inter- and transdisciplinary exchange promote mutual understanding and the effective implementation of internationally agreed biodiversity targets. Furthermore, transformative cooperation projects should be initiated.
- 3. Creating pioneering coalitions: Germany should initiate 'coalitions of the willing' and promote the concept of multilateral cooperation alliances. For example, standards for dealing with biodiversity could be jointly defined or conservation alliances set up to protect particularly valuable ecosystems from irreversible destruction and restore them.
- **4.** Preparing the first BBNJ Conference of the Parties: Together with other countries, Germany should launch an initiative to this end and work towards using the multifunctional mosaic of land and ocean uses as a guiding principle for the designation of protected areas and area-based conservation measures at sea.

5. Launching an education and communication offensive for biodiversity: The aim is to raise awareness in society, the economy and politics of the importance of biodiversity as part of the life-support system for humanity and nature and to firmly establish the promotion of biodiversity as a cross-cutting political task. Research must be strengthened in order to achieve this.

Financing the promotion of biodiversity

Promoting biodiversity needs sufficient funding. Not exclusively taxpayers' money should be used for this purpose; rather, new sources of funding should also be tapped and the framework conditions for economic activities adapted in such a way that business and companies are made co-responsible for financing in accordance with the polluter-pays principle. The WBGU recommends:

- 1. Strengthening international biodiversity financing: Germany should work to ensure that the funding contributions in the context of the GBF are made as quickly as possible, not just gradually increased, and total well over US\$200 billion per year.
- 2. Reallocating environmentally harmful subsidies in favour of biodiversity and quantifying the costs of inaction: Reducing subsidies could free up considerable financial resources for biodiversity-friendly measures. Criteria of climate-change mitigation and biodiversity conservation should be taken into account when designing existing and new subsidies; the costs and benefits of both inaction and action should be quantified and options for action comprehensively researched.
- 3. Promoting international cooperation by both marketbased and non-market-based instruments: Corresponding mechanisms could support countries in achieving more ambitious biodiversity targets than would be possible on their own territory. The extent to which market-based approaches such as international trading in biodiversity credits might be possible and expedient should be carefully examined in view of the foreseeable complexity, as well as possible land-use conflicts and human-rights violations.
- 4. Making the private sector take responsibility for financing through clear reporting and taxonomy: Germany should work to ensure that the EU's approaches to including biodiversity in reporting and taxonomy are internationally adopted, standardized and made mandatory worldwide.
- 5. Prioritizing biodiversity in international financial instruments: In both bilateral and multilateral cooperation, measures for the sustainable use, restoration and conservation of biodiversity should be promoted and prioritized in loans and guarantees, e.g. through the use of debt-for-biodiversity swaps.

Biodiversity – now

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Biodiversity – i.e. genetic diversity, the diversity of species and the diversity of ecosystems - is a common good that is indispensable for the vision of 'healthy living on a healthy planet' (WBGU, 2023). Only if healthy ecosystems with their biodiversity are sustainably able to provide ecosystem services that are locally to globally important can humans also live healthily in the long term. Biodiversity is therefore of essential value for a healthy future for humans and the species with which they share the Earth.

However, biological diversity is currently declining rapidly, both worldwide and regionally, due to the use of land and sea, habitat destruction, climate change, environmental pollution and the spread of invasive species by humans (IPBES, 2018; IPBES, 2019; IPCC, 2022). This is also increasingly impairing human quality of life (Naeem et al., 2016; Haahtela, 2019) - above all where habitats are destroyed - and runs counter to the objectives of international conventions as well as European and German nature conservation law.

The Kunming-Montreal Global Biodiversity Framework (GBF), adopted in 2022, and the UN Agreement on Biodiversity Beyond National Jurisdiction (BBNJ, see also Box 1 on page 10), agreed in 2023 - the first multilateral agreement on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction - have opened a unique political window of opportunity for biodiversity. The parties to these agreements now have the task of ensuring that they are implemented. Swift and decisive action is needed to bend the curve of biodiversity loss (Fig. 1). This also includes stopping global warming as an essential prerequisite for long-term biodiversity conservation. There is very little time to implement the GBF, whose targets are to be achieved by 2030. For this reason, we must immediately start capitalizing on the political window of opportunity to flesh out the GBF and the BBNJ.

There is only one Earth

In order to live and function, species and ecosystems need large and interconnected areas that satisfy their needs. Overall, such areas are currently too small and too fragmented for many species and ecosystem types; therefore, the GBF's first three targets focus on comprehensive spatial planning, restoration and the conservation and designation of protected areas (see Box 1).

35% of the Earth's land surface is used for agriculture, while 28% is covered by forests, 10% by shrubland and grassland, and 2% by freshwater. 14% is barren land, e.g. deserts, salt plains and rocks, and 10% are glaciers. Only 1% of the global land area is used for urban purposes, i.e. covered by human infrastructure. About 80% of all agricultural land is used for livestock (Ritchie and Roser, 2023) in the form of pastures or fodder cultivation.

Around 17% of global terrestrial and freshwater areas and 7% of the ocean surface are currently protected (CBD, 2020). This means that an additional 13% of land and 23% of the oceans need to be protected - or other effective area-based conservation measures (OECMs) need to be taken - within the next seven years. It is important that not only quantitative area-based targets but also the quality of the areas is taken into account in nature conservation. The 30% of the global surface area designated as protected areas and other biodiversitypromoting areas (GBF Target 3; Box 1) should represent all ecosystem types, not just a few.

In order to achieve the global biodiversity transition heralded by the GBF and the BBNJ Agreement, the WBGU formulates five principles for improved action on biodiversity and five proposals respectively for dealing with the available areas of land and sea, for Germany's role as an international actor, and for biodiversity financing (Fig. 1).

Five principles for improved action on biodiversity

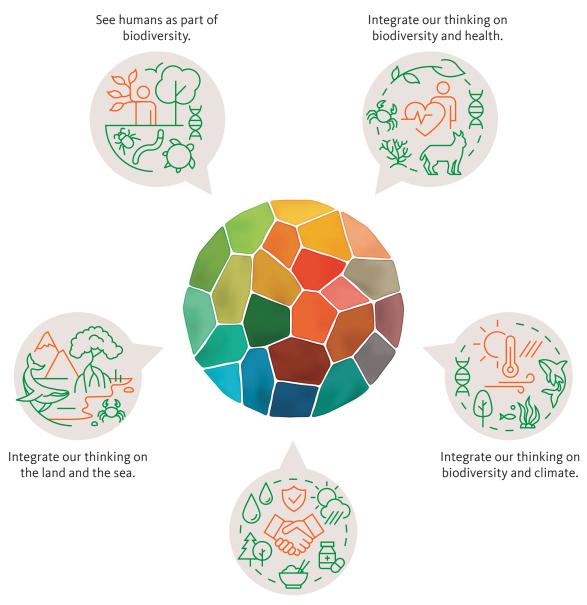
On the basis of the normative compass, which serves as its guiding normative foundation (WBGU, 2023: 61 ff.), the WBGU formulates the following five principles for dealing with biodiversity (Fig. 2):

- 1. See humans as part of biodiversity.
- 2. Integrate our thinking on biodiversity and climate.
- 3. Integrate our thinking on biodiversity and health or human well-being.
- 4. Integrate our thinking on the land and the sea, including the transition areas between the two.
- **5.** Integrate our thinking on the conservation, restoration and sustainable use of biodiversity and ecosystem services in a spirit of solidarity, while sharing costs and benefits fairly.

Figure 1
'Bending the curve': The conceptual figure illustrates the unique political window of opportunity following the adoption of the Kunming-Montreal Global Biodiversity Framework (GBF) and the UN Agreement on Biodiversity Beyond National Jurisdiction (BBNJ). Ambitious implementation of these agreements can counteract the business-as-usual scenario of a continuing loss of biodiversity and its components, and reverse the curve of biodiversity loss in the regions. The three fields of action described in this policy paper can make a decisive contribution to this.

Source: WBGU, based on Leclere et al., 2020; graphics: Wernerwerke.

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Integrate our thinking on the conservation and use of nature in a spirit of solidarity and fairness.

Figure 2

Five principles for dealing with biodiversity. The WBGU's scientific policy advice is guided by its normative compass, which, based on human dignity, strives for a balanced interaction between sustaining the natural life-support systems, inclusion and Eigenart (a German word meaning character, uniqueness; WBGU, 2020, 2023). It forms the background to the principles. Source: WBGU, incorporating the logo of The Biodiversity Plan (CBD, 2024), graphics: Wernerwerke.

Multifunctional mosaic of land and ocean uses as a guiding concept

When it comes to the practical implementation of the area-based targets of the GBF and the BBNJ Agreement, the WBGU proposes taking our orientation from the guiding concept of a multifunctional mosaic of land and ocean uses. The basic idea of this concept is to integrate our thinking on conservation and use across the entire area, and to design the use of the various sub-areas in a way that maximizes multiple benefits generated for nature and humans (Pörtner et al., 2023; IPCC, 2022; WBGU, 2020). To achieve this, the smallest possible areas of intensive land use (e.g. industrial or agricultural land) should be combined with areas of sustainable use, supplemented by biodiversity-promoting areas of nature conservation, including those with strict biodiversity conservation (Fig. 3). The aim of generating multiple benefits for nature and humans not only guides the establishment of protected-area systems, it is also pursued when embedding existing and new infrastructure such as roads, power lines or wind turbines into the landscape mosaic. In this way, the conservation and sustainable

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use of biodiversity can also be guaranteed in particular outside of nature conservation areas. Migration corridors can also make a significant contribution by promoting the exchange and climate-appropriate colonization of species. The guiding concept of the multifunctional mosaic of land and ocean uses provides an orientation for all stakeholders on how they can act – in conjunction with their other objectives at all levels - in a way that conserves and promotes biodiversity.

A multifunctional mosaic of land and ocean uses is characterized by the use of biodiversity for the benefit of nature and humans, based on the principles mentioned above that are also illustrated in Fig. 2. Such a mosaic approach can also - with great additional benefits for the local population – contribute to a broader understanding of nature conservation and the promotion of biodiversity in regions of the world where biodiversity conservation has so far been associated exclusively with the strict absence of humans.

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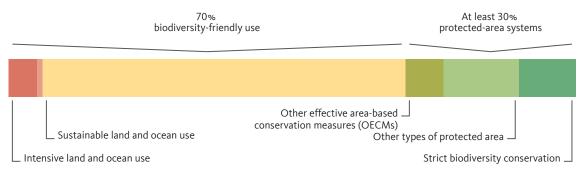


Figure 3

Schematic representation of a multifunctional mosaic of land and ocean uses. In the model of a multifunctional mosaic of land and ocean uses, the conservation and use of biodiversity are combined in a graduated way, shown here schematically: exclusively intensive land and ocean use (red) should only take up a small proportion of the mosaic. Solidarity in using the land reduces goal conflicts and generates multiple benefits for all stakeholders through the sustainable use of biodiversity (yellow). Protected-area systems (green) consist of zones of strict biodiversity conservation (dark green), other types of protected area that are managed or used to promote biodiversity (light green), and other effective area-based conservation measures (OECMs, overlapping areas of green and yellow).

Source: WBGU; graphics: Wernerwerke.

Box 1

New international agreements on biodiversity

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Kunming-Montreal Global Biodiversity Framework

The Kunming-Montreal Global Biodiversity Framework (GBF), which was adopted at the 15th Conference of the Parties to the Convention on Biological Diversity (CBD), lays down the internationally negotiated framework for dealing with biodiversity. Its mission is "to take urgent action to halt and reverse biodiversity loss to put nature on a path to recovery for the benefit of people and planet by conserving and sustainably using biodiversity and by ensuring the fair and equitable sharing of benefits from the use of genetic resources, while providing the necessary means of implementation" (CBD, 2022). The hope is that the four long-term goals for 2050 and the 23 global targets for 2030 will lead to "a world of living in harmony with nature". To make communication more accessible, the GBF is also referred to as 'The Biodiversity Plan'.

The area-based targets 1 to 3 are fundamental for the protection and promotion of biodiversity:

"Target 1: Ensure that all areas are under participatory, integrated and biodiversity inclusive spatial planning and/or effective management processes addressing land- and sea-use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.

Target 2: Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland-water, and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.

Target 3: Ensure and enable that by 2030 at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation

outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories" (CBD, 2022).

Targets 4 to 23 can be found in the text of the GBF (CBD,

UN Agreement on Biodiversity Beyond National Jurisdiction

The Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ; UN, 2023) is the third implementing agreement under the Convention on the Law of the Sea (UNCLOS).

The marine area beyond national jurisdiction, i.e. the high seas, is the area of the ocean that lies beyond the continental shelf and the exclusive economic zones of states, i.e. more than 200 nautical miles from the coastline (UN, 1982, Art. 86). Accordingly, the BBNJ Agreement is also known as the High Seas Treaty. The BBNJ Agreement is of key importance for, among other things:

- > preventing the loss of biodiversity on the high seas,
- protecting the oceans,
- the promotion of equity and fairness in the use of the ocean and its resources.
- > the fight against environmental degradation and
- > the fight against climate change (European Commission,

Among other things, it lays down a procedure for establishing large-scale marine protected areas on the high seas, supporting the aim laid down in the GBF of effectively conserving and managing 30% of global terrestrial and marine areas by 2030. Furthermore, it sets up a mechanism for the fair and equitable sharing of benefits from marine organisms, which in the treaty are called marine genetic resources, contains clear rules for conducting environmental impact assessments as a prerequisite for human activities on the high seas, and provides for capacity building and the transfer of marine technologies between the Parties.

The BBNJ Agreement was drafted and developed for over a decade under the auspices of the United Nations, and adopted by consensus at the fifth session of the BBNJ Intergovernmental Conference in New York in June 2023. The BBNJ Agreement will enter into force under international law as soon as 60 signatory states have ratified it.

Five proposals for implementing the area-based targets

Important area-based biodiversity targets have been agreed internationally (Box 1). However, there is a lack of indicators, measures and instruments for their realization. What level of quality should be aimed for when placing areas under protection to conserve biodiversity? What should be done with the remaining 70% of the area that is not protected? These questions have not yet been adequately answered by international agreements. The WBGU recommends implementing the area-based targets in line with the guiding concept of a multifunctional mosaic of land and ocean uses on the basis of five particularly important measures: (1) enable and promote a multifunctional mosaic approach, (2) protect at least 30% of the Earth's surface by means of protected-area systems, (3) define and take other effective area-based conservation measures, (4) involve all stakeholders in implementation, and (5) strengthen Indigenous and local communities.

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1. Enable and promote a multifunctional mosaic approach

The implementation of a multifunctional mosaic of land and ocean uses should be enabled and promoted by integrated terrestrial and marine spatial planning, so that uses and biodiversity promotion can be coordinated. Examples of this include promoting biodiversity and mitigating climate change simultaneously, e.g. by a combination of photovoltaic systems, peatland rewetting and paludiculture, or the biodiversity-friendly production of timber (WBGU, 2020) in order to minimize competition for use. A multifunctional mosaic should also be implemented on the high seas. For example, locating sustainably fished zones next to unfished zones may also promote biodiversity in the former (Lenihan et al., 2021). The surplus production of unfished stocks can migrate out of protected areas and thus also benefit fisheries in the fished zones. In addition, in economically used zones, floating wind farms,

for example, can create structures and hiding places for the colonization of organisms that otherwise live on or near the ocean floor.

2. Protect at least 30% of terrestrial and marine areas worldwide through protectedarea systems

In addition to zones of strict biodiversity conservation, protected-area systems can also include zones that are networked with these areas, which promote biodiversity and permit graduated use at the same time (WBGU, 2020: 95). In this way, protected-area systems in a multifunctional mosaic for land an ocean uses reduce conflicts and generate multiple benefits for nature and humanity. Strict conservation here means a form of nature conservation with as little human influence as possible, in which natural processes can develop freely. In Germany, this roughly corresponds to the level of protection that must be guaranteed in nature-conservation areas (Naturschutzgebiete) and in the core and buffer zones of biosphere reserves (Biosphärenreservate; Sections 23 and 25(3) of the Federal Nature Conservation Act, BNatSchG). In many cases, such areas fulfil other functions in addition to biodiversity, e.g. the sequestration of carbon by forests or peatlands. Similarly, areas where other effective area-based conservation measures (OECMs) are taken also benefit biodiversity and can be part of protected-area systems (WBGU, 2020). This point will be further elaborated on in the third proposal on the implementation of the area-based targets.

Protecting at least 30% of terrestrial and marine areas within protected-area systems, including at least 10% for strict biodiversity conservation, should also have a positive effect on the planning and use of the remaining 70% of terrestrial and marine areas, which in turn should be used as sustainably as possible. Examples include the ecosystem services provided by beneficial organisms such as pollinators - and other important services that also have a positive impact outside protected-area systems (IPBES, 2016).

Apart from using the remaining 70% of terrestrial and marine areas as sustainably as possible, the areas with high use intensity and low biodiversity in particular should account for a maximum of around 5% and at least be designed in a biodiversity-friendly way. The aim must be that the average use intensity of a multifunctional mosaic of land and ocean uses leads to a net gain in biodiversity, i.e. that the biodiversity in an area is higher after restoration, compensation, conservation or support measures have been taken than it was before.

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Germany should implement the European Union's Nature Restoration Law (EU, 2024) by passing ambitious national legislation that goes beyond the target of implementing restoration measures (for specific habitats and species) on 20% of the EU's land and sea areas. Germany should also promote sustainable nature-restoration projects worldwide. However, formerly degraded but now restored areas should only be allowed to be part of protected-area systems if it can be ensured that the quality of the restored areas contributes to the promotion of biodiversity in the long term.

In view of the often lengthy processes leading up to the successful protection of areas, it is particularly important to tackle the GBF's Target 3 immediately and decisively. It should be noted in this context that protecting 30% of an area often – but not always – enables the conservation of, and a net gain for, biodiversity and ecosystem services in that area. In the Amazon rainforest, for example, at least 80% of its area needs to be protected in order to maintain its biodiversity and to do justice to its importance for the global climate (Pörtner et al., 2023; see also Box 2 on conservation alliances).

3. Define and take other effective area-based conservation measures

Area-based measures should aim to harmonize different uses in a biodiversity-friendly way and to create corridors between areas that promote biodiversity. This includes the 'other effective area-based conservation measures' (OECMs) listed in the GBF's Target 3, such as biosphere reserves or areas inhabited by Indigenous and local communities. Although OECMs are not necessarily protected areas, they nevertheless have a positive long-term impact on the conservation of biodiversity and ecosystem services (CBD, 2018). OECMs are also highly important for cultural, religious, socio-economic and other locally relevant values (CBD, 2018). Accordingly, OECMs should be defined internationally in accordance with globally applicable, uniform minimum standards and their implementation promoted. As part of protected-area systems, OECMs could serve as a bridge between different use intensities in a multifunctional mosaic of land and ocean uses (Fig. 3).

On the high seas, the selection of areas to be protected should be science-based and carried out by the Parties to the BBNJ Agreement. Synthesis reports on the ocean (e.g. the World Ocean Assessment of the UN General Assembly, specific publications of the World Biodiversity Council IPBES, or the Intergovernmental Panel on Climate Change IPCC) should provide the scientific basis for this. In this context, special attention should be paid to the inclusion of different science systems with equal representation of experts from Asia, Australia and Oceania, Africa, Latin America, North America and Europe. Support programmes such as the MeerWissen initiative (MeerWissen, no date) financed by the German Federal Ministry for Economic Cooperation and Development (BMZ) should be further expanded in order to maintain and further develop corresponding cooperation structures between science systems in different regions of the world.

4. Involve all stakeholders in implementation

Civil-society, private and public actors representing different interests - e.g. landowners, associations and municipalities, as well as Indigenous and local communities should be involved in the selection and implementation of conservation and use measures.

The integrated landscape and marine approach as described by the WBGU (WBGU, 2020: 42) allows the comprehensive involvement of all stakeholders in planning and decision-making processes in favour of a multifunctional mosaic of land and ocean uses. Suitable formats for this purpose include multi-stakeholder formats that meet regularly and have a long-term focus, bringing together all the key players essential for the special design of the area - and explicitly not just agriculture, forestry and fisheries. These multi-stakeholder formats should offer transparent processes, identify and integrate the rights and responsibilities of stakeholders, and enable them to reduce imbalances in knowledge and power.

5. Strengthen Indigenous and local communities

Indigenous and local communities have a special role to play in the implementation of area-based measures for the conservation, restoration and sustainable use of biodiversity. They own and cultivate about 25% of the world's land and, at the same time, about 40% of terrestrial protected areas and ecologically intact areas (Garnett et al., 2018). With their local ecological knowledge and collective ownership they contribute significantly to the conservation of biodiversity. The conservation and sustainable use of biodiversity is a matter of course for Indigenous and local communities. This is already a cornerstone for the preservation of the life-support systems and well-being of the world's population.

Recognizing and respecting the rights of Indigenous and local communities are explicit prerequisites when it comes to fleshing out the area-based targets under the GBF. To this end, Indigenous rights and their enforcement (OHCHR, 2007), as well as the role of Indigenous and local communities in international negotiations and local implementation projects, must be strengthened – also in GBF reporting. A rights-based approach that respects the sovereignty, self-determination, self-governance and collective agency of Indigenous and local communities should be promoted in the implementation of the GBF and institutionally anchored, e.g. through safeguards. Indigenous and local communities should be able to live autonomously in near-natural habitats; their ways of life and personal autonomy should be respected and strengthened. A distinction should be made in this context between national responsibility for equality and justice, a country's cultural and natural identity, and international interest.

Germany's international role: five suggestions

In order to initiate international and national implementation and enforcement processes, Germany should visibly assume responsibility in action on biodiversity in line with its position as a leading international political and economic power. To this end, the WBGU recommends that Germany should proceed as follows in its role as an international player: (1) move forward resolutely, specify the content of the GBF and BBNJ and coordinate implementation, (2) break down silos and promote cooperation in an objective manner with the help of dialogue forums, (3) form pioneering coalitions, (4) prepare the first BBNJ Conference of the Parties, and (5) launch an education and communication offensive for biodiversity.







1. Move forward resolutely, specify the content of the GBF and BBNJ and coordinate implementation

Germany should resolutely support the GBF's area-based targets. Together with other countries, proposals should be submitted without delay for the development and implementation of area-based conservation measures. Wherever appropriate, attention should be paid to involving Indigenous and local communities.

In addition to initiating the protection of specific areas and developing conservation measures, Germany should press for coherence in and coordination between different environmental agreements. For example, coordination with regional agreements or commissions is relevant, e.g. the Convention for the Protection of the Marine Environment and the Coastal Regions of the Mediterranean (Barcelona Convention) or the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), as well as with international organizations (e.g. the International Whaling Commission) or other multilateral environmental agreements (e.g. the Convention on the Conservation of Migratory Species of Wild Animals, CMS).

This not only serves to increase the level of acceptance, but also allows synergies in implementation, e.g. when regional fisheries organizations have enforcement rights in their respective regions.

2. Initiate and design dialogue forums and collaborations across thematic silos

A cross-topic dialogue and corresponding cooperation are necessary to ensure the detailed specification of biodiversity-related agreements and their coordination. This concerns the GBF and BBNJ, but also, for example, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the CMS and the Ramsar Convention.

This applies equally to the UN and EU levels. All political levels, including the national level, must work together to protect biodiversity as a common good. Platforms for inter- and transdisciplinary exchange promote mutual understanding and the effective implementation of internationally agreed biodiversity targets. Dialogue and discussion forums - such as the Petersberg Climate Dialogue in the field of climate protection and the Hamburg Sustainability Conference on the topic of sustainability – can serve as models. Comparable formats are needed to implement the biodiversity targets, especially the area-based targets. For example, a remake and consolidation of the Bern Consultations, which brought together different biodiversity-relevant conventions, would be a promising idea. This could pool strengths and help to identify and overcome conflicts and inconsistencies between the agreements.

In addition to the necessary coordination between biodiversity-relevant agreements, cross-topic formats should be established. These could break down silos and make it possible to discuss links and synergies between biodiversity promotion and, for example, climate protection, adaptation to climate change, combating pollution, and developments in agriculture, forestry, fisheries and mining. The Quadripartite, which focuses on strengthening the OneHealth concept, could serve as a model here. It is a collaboration and forum of the United Nations Food and Agriculture Organization (FAO), the United Nations Environment Programme (UNEP), the World

Box 2

Global conservation alliances for particularly important ecosystems

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For some supraregionally or globally important ecosystems, such as the Amazon rainforest, the protection of 30% of their surface area is insufficient to maintain their biodiversity and do justice to their importance for the global climate (Pörtner et al., 2023). In such cases, conservation alliances, as proposed by the WBGU in its flagship report 'Rethinking Land in the Anthropocene: from Separation to Integration', can offer a comprehensive solution (WBGU, 2020: 283 ff.).

Conservation alliances are alliances of states and other stakeholders that join forces with the aim of conserving and restoring valuable ecosystems in member countries. The aim is to prevent ecosystem tipping points from being exceeded. Conservation alliances are directly geared towards conserving global commons, particularly towards protecting and restoring important ecosystems and their services for the global community. These can be, for example, landscape areas with valuable biodiversity or special CO₂ sink functions. Conservation alliances can, for example, jointly lease such areas and, in this way, move beyond the often passive role of being mere 'donor countries' and assume joint responsibility together with local actors. Such a global responsibility initiative promoting a new way of working together can help overcome national blockades. However, in order to meet different needs, it must constitutively involve local actors in integrated and empowering development concepts in the sense of an integrated landscape and marine approach.

Health Organization (WHO) and the World Organization for Animal Health (WOAH).

In addition to science-based cooperation between different UN institutions, accompanying political dialogue forums should be set up, e.g. in a similar way to the World Economic Forum, to make decision-makers in politics, business and society more aware of the importance of biodiversity. Biodiversity conservation and promotion together with climate protection – serve to preserve our life-support systems and should be taken into account in all policy areas, especially in transport, agriculture, research and economic policy.

Not only dialogue forums but also transformative cooperation projects should be initiated. In this context, bilateral and multilateral cooperation on specific issues should be promoted and its implementation unwaveringly followed up with a focus on the knowledge-based dialogue. Its effectiveness could be significantly improved by a regular, target-oriented dialogue between the donors and recipients of funding.

3. Create pioneering coalitions

Germany should initiate 'coalitions of the willing' as a sign of its political and practical leadership, in a similar way to the recently founded Climate Club. With strong leadership, such associations of countries can send out clear political signals. In the GBF's already existing High Ambition Coalition for Nature and People, Germany should take a distinct and prominent stand to ensure that the area-based targets are achieved. The NBSAP Accelerator Partnership initiated by Germany and Colombia to ambitiously shape the National Biodiversity Strategies and Action Plans (NBSAPs) contributes to achieving the goals of the GBF and pursues a whole-of-society and whole-of-government approach. This broad-based cooperation, which has already been launched, is to be welcomed and should ambitiously pursue the aim of gaining many more members at the international level.

Germany should promote the concept of multilateral cooperation alliances (WBGU, 2020: 277 ff.) and, in the spirit of setting a good example, initiate and maintain such alliances itself. An association of states in the sense of a supranational alliance - the European Union is an example of this - could define common standards on how to approach biodiversity. Global conservation alliances, which, for example, assume sponsorships for the conservation of protected areas in third countries (Box 2), should be established to protect and restore particularly important ecosystems. Communities of sub-national regions should also be established – e.g. between neighbouring regions of the Amazon basin – in order to designate protected areas on a supraregional and supranational basis and to develop and take measures in the sense of a multifunctional mosaic of land and ocean uses.

4. Prepare the first BBNJ Conference of the Parties

The adoption of the BBNJ Agreement is the starting signal for an effective protection of biodiversity on the high seas. The Parties have committed themselves to taking all necessary legislative, administrative or political measures to implement the Agreement in national law. Germany should take a lead here and initiate corresponding processes even before the Agreement is ratified or enters into force. As regards monitoring the implementation of the BBNJ Agreement, the Parties have undertaken to submit and publish interim reports to the Conference of the Parties. This is to be supported by the Implementation and Compliance Committee, which also reports periodically to the Conference of the Parties. The rules of procedure of the Conference of the Parties, which have yet to be adopted, should state that these reports – similar to the recommendations of the Compliance Committee of the Aarhus Convention – can be adopted by the Conference of the Parties in order to give them special weight.

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Germany should campaign for the idea of using the proposed multifunctional mosaic for land and oceans uses as a guiding concept for the designation of marine protected areas and formulate area-based conservation measures accordingly. In order to specify and codify these and other goals and measures, Germany, together with other states, should launch a widely supported initiative to specifically prepare the first Conference of Parties, e.g. in the context of the Blue Leaders group of countries. They could, for example, prepare a list of possible new marine protected areas and their interconnections for discussion at the first Conference of the Parties (Gjerde et al., 2022).

It is therefore to be welcomed that the Thematic Call of the International Climate Initiative (IKI) has focused on projects that can support low- and middle-income countries in identifying marine protected areas. The UN General Assembly's World Ocean Assessment, like the IPBES and the IPCC, can contribute to defining the framework conditions for biodiversity conservation on the high seas and in various marine habitats. It may also help in identifying and, where possible, closing existing knowledge gaps during the UN Decade of Ocean Science for Sustainable Development, which will run until 2030.

5. Launch an education and communication offensive for biodiversity

Germany should launch a comprehensive education and communication offensive for biodiversity. The aim is to raise awareness in society, business and politics of the importance of biodiversity as part of the life-support system for humanity and nature, and to firmly establish the promotion of biodiversity as a cross-sectional political task.

Basic knowledge about biodiversity, its significance for humanity, the climate, health and sustainability, and about options for promoting biodiversity is a prerequisite for the effective implementation of environmentally relevant political objectives, including the GBF. Existing knowledge about biodiversity is often not disseminated sufficiently. Many citizens and decision-makers are not aware of what exactly biodiversity is – e.g. that it is more than species diversity – or of the extent to which local and global biodiversity loss affects our well-being. Furthermore, many people who want to help promote biodiversity are unaware of the options open to them. A comprehensive communication offensive for biodiversity that targets politics and society is therefore needed. Transformative

knowledge collaborations that focus on mutual learning, target-group-oriented science-policy-society dialogue schemes (Geschke et al., 2023) and broad communication to the public can contribute to this.

In addition, awareness of biodiversity in the context of production and consumption should be increased. According to GBF Target 16, consumers are to be encouraged and enabled to make sustainable consumption choices. This should already form part of school curricula in the sense of a transformative education (WBGU, 2011: 23), but should certainly be integrated into training and study courses that have an economic focus. At the local level, environmental education centres that offer low-threshold educational and cultural activities to both young people and adults should be promoted more strongly, making it possible to bring even complex issues and objectives to life in practical activities. The content of corresponding projects, such as the German 'Achtung Artenvielfalt!' campaign week, should be expanded and further developed. Furthermore, environmental journalism could be specifically promoted and expanded as a bridge between scientific complexity and socially and politically understandable language (Geschke et al., 2023).

The education and communication offensive should lead to a fundamental understanding of the value and importance of biodiversity for all life on Earth, and thus also to an adequate consideration of biodiversity and ecosystem services in decision-making processes.

Parallel to this, basic research and research into target and transformation knowledge on biodiversity – e.g. as part of the Research Initiative for the Conservation of Biodiversity (FEdA) launched by the German Federal Ministry of Education and Research (BMBF) – should be greatly strengthened and funded in the long term.

Five proposals on how promoting biodiversity can be financed

Biodiversity

Promoting biodiversity in the sense of a multifunctional mosaic of land and ocean uses requires sufficient financial resources to protect land and marine areas and use them in a way that promotes biodiversity. The WBGU recommends not focusing exclusively on using taxpayers' money for this purpose, but also tapping new sources of funding and adapting the framework conditions for economic activities in such a way that business and companies are made co-responsible for financing in accordance with the polluter-pays principle. This involves: (1) strengthening international biodiversity financing, (2) reallocating environmentally harmful subsidies in favour of biodiversity and quantifying the costs of inaction, (3) promoting international cooperation using both market-based and non-market-based instruments, (4) making the private sector take responsibility for financing through clear reporting and taxonomy, and (5) prioritizing biodiversity in international financial instruments.







1. Strengthening international biodiversity financing

Within the GBF, it was agreed to substantially and progressively increase financial resources for the implementation of national biodiversity strategies so that at least US\$200 billion will be mobilized by 2030. The GBF Fund was set up under the Global Environment Facility for this purpose. Its function is to provide funding for the implementation of the GBF. The aim is to achieve the GBF's targets, including their funding, by 2030, but this deadline will not be reached if the available funding is only increased gradually. Commitments for the year 2030 will come too late if the funds do not start flowing immediately. In addition, the targeted sum of at least US\$200 billion per year as from 2030 seems much too low in view of relevant estimates of the finance needed to protect biodiversity and ecosystem services (UNEP, 2023; Koplow and Steenblik, 2022; Dasgupta, 2021). Germany should work to ensure that the funding contributions in the context of the GBF are made as quickly as possible, not just gradually increased, and total well over US\$200 billion per year. Integrated climate and biodiversity financing could also contribute to this, for example through investments in biodiversity and ecosystem services from revenues of the European Carbon Border Adjustment Mechanism (CBAM). Countries with a particularly large potential for promoting biodiversity or with ecosystems of particular global importance could be given special consideration.

How the implementation of the BBNJ Agreement is to be financed is also still an open question in many respects and will be discussed at the first Conference of the Parties, which has not yet been scheduled. Here too, public and private funding will be needed to achieve a global biodiversity transition. Germany - as one of the world's largest economies - should make sufficient financial resources available as an investment in the future and in view of the expected long-term benefits. At the first BBNJ Conference of the Parties, Germany should advocate setting an ambitious funding target for the special fund for the conservation and sustainable use of biological diversity on the high seas. In this context, the fishing industry could also be obliged to make a financial contribution on the basis of the polluter-pays principle, depending on the intensity of use.

2. Reallocating environmentally harmful subsidies in favour of biodiversity and quantifying the costs of inaction

The GBF calls for a reduction in incentives harmful for biodiversity by at least US\$500 billion by 2030. The first step is to phase out the most harmful subsidies and create incentives for the conservation and sustainable use of biodiversity. For example, subsidies that are harmful to biodiversity in agriculture reduce incentives for biodiversity-friendly soil management and the resource-efficient use of machinery and new technologies, as recently discussed in the context of the tax reduction on agricultural diesel in Germany in 2023. Agricultural subsidies under the EU's Common Agricultural Policy (CAP) are an example of this (Box 3). Subsidies that are harmful to biodiversity can also be found in the areas of transport, tourism and energy, for example concerning the burning of fossil resources or the inadequate pricing of water extraction.

Biodiversity

Phasing out subsidies would lead to considerable savings, which could free up financial resources that benefit biodiversity-friendly measures in the sense of a multifunctional mosaic of land and ocean uses or for the promotion of biodiversity. According to a study published in 2021, the 29 most relevant subsidies with a direct or indirect negative impact on biodiversity together total around €67 billion per year in Germany alone (Zerzawy et al., 2021).

The often unsustainable way we deal with biodiversity causes many additional costs over and above the subsidies, for example as a result of health impacts (WBGU, 2023), the acceleration of climate change, or inadequate climate adaptation (WBGU, 2020). For these reasons, too, subsidies that are harmful to biodiversity and the environment

in general should not only be urgently reformed or phased out, but the funds released should be reallocated in a biodiversity-friendly or biodiversity-promoting manner. Criteria of climate protection and biodiversity conservation should be taken into account in all sectors when designing existing and new subsidies, for example in the context of sustainability-orientated promotion of bioenergy under the EU's Renewable Energy Directive. Similarly, potential multiple benefits for the climate and biodiversity have also hitherto not been sufficiently taken into account when promoting investment in tourism, local businesses and village development. For example, landowners should be encouraged to include the protection of biodiversity and ecosystem services as a key criterion in lease agreements when leasing agricultural land.

In addition to subsidies, since many of the costs of unsustainable biodiversity management are externalized, the exact costs of policy inaction are not fully understood, nor are the monetary benefits of consistent action. The WBGU sees a great need for research in this area, not least in order to enable a more consistent internalization of the benefits and costs of biodiversity conservation. Comprehensive research should be conducted specifically into the costs and benefits of both inaction and action by politicians, business and society in relation to our approach to biodiversity – and the corresponding options for action.

Box 3

Example: Subsidies in European agriculture that are harmful to biodiversity

European agriculture is greatly influenced by financial payments from the EU to farmers, which are regulated under the Common Agricultural Policy (CAP). However, agricultural subsidies in the form of direct payments per unit of land that are not linked to effective environmental standards do not provide incentives for biodiversity-friendly land management. In addition, they can promote biodiversity loss by economically stabilizing harmful practices. Annual direct payments from the first pillar of the CAP in Germany amount to €4.85 billion. With the last reform of the CAP, the "greening" (WBGU, 2020: 118) provided for in the first pillar was replaced by eco-schemes, the specific organization of which is left to the member states. The targets are often so lacking in ambition that the payments hardly have any additional effect in terms of leading to more sustainable agricultural practices (Baldock and Bradley, 2023).

Although direct payments under the first pillar were also linked to the condition of meeting the standards of Good Agricultural and Environmental Conditions (GAEC standards), the minimum proportion of non-productive land proposed within this framework has been criticized by environmental organizations as insufficient. Furthermore, some member states do not promote environmental and climate-change-mitigation measures beyond the GAEC standards at all or only insufficiently (Baldock and Bradley, 2023).

The CAP has also been reformed in terms of implementation.

EU-wide, only targets and intervention categories are specified. Although, when they draw up national strategy plans, the member states must set out how they intend to achieve the targets, there is still a great deal of room for manoeuvre. An analysis of 17 national plans shows that the majority of them are either inadequate in terms of environmental protection, or their chances of success are reduced by low funding or a limited scope of application (Nemcová et al., 2022).

Agricultural subsidies should therefore be harmonized with objectives of the European Green Deal, especially with the biodiversity strategy and the Farm-to-Fork Strategy (Cuadros-Casanova et al., 2023). Germany should use its room for manoeuvre when designing the instruments. Public payments should be consistently linked to contributions to public goods, e.g. the creation and conservation of landscapes that provide many ecosystem services. This can be achieved, for example, by means of more ambitious minimum standards, minimum shares of funding for environmental objectives, and the exclusive use of these funds for measures that actually have an environmental impact. Accordingly, funds from direct payments should be reallocated to agri-environmental and climate-change-mitigation measures, and the budget share for eco-schemes should be increased (SDSN Germany, 2021). The next funding period should in principle include a transition from a Common Agricultural Policy (CAP) to a consistent Common Ecosystem Policy (CEP) in the sense of a multifunctional mosaic of land and ocean uses (WBGU, 2020: 259 ff.). Such a transition would also allow a coordinated sustainability regulation of biomass in all sectors that covers all land types, uses and types of biomass, including imports, in order to avoid displacement effects (WBGU, 2020).

3. Promoting international cooperation using both market-based and non-marketbased instruments

Biodiversity

The focus on biodiversity in international and transregional cooperation should be intensified within the framework of existing bilateral and multilateral cooperation and by specifically promoting new forms of multilateral cooperation. Ongoing work on market-based and nonmarket-based cooperation approaches under the Paris Agreement can provide orientation for identifying suitable cooperation mechanisms in the biodiversity sector.

When implementing their Nationally Determined Contributions (NDCs), the Parties to the Paris Agreement can voluntarily pursue market-based approaches to cooperation that lead to the international transfer of mitigation achievements, provided that they promote sustainable development and ensure environmental integrity and transparency. Furthermore, Parties can engage in non-market-based forms of cooperation, for example in the areas of climate-change mitigation and adaptation, finance, technology transfer and capacity building, to enable more ambitious mitigation and adaptation measures, and to promote sustainable development and environmental integrity (UNFCCC, 2015).

The development of similar mechanisms for biodiversity conservation could help states and regions to achieve more ambitious biodiversity targets than would be possible if they were restricted to their own territory. To what extent market-based approaches such as international trading with biodiversity credits, analogous to credits for the reduction or removal of one tonne of CO₂ equivalent, would be possible and appropriate should be carefully examined due to the anticipated complexity, possible land-use conflicts and human-rights violations. The advantage of a system for biodiversity credits could be the promotion of voluntary efforts by companies if nonstate actors such as companies were integrated alongside state actors. In this case, however, an early involvement of non-state actors in the design of the system would be essential in order to avoid possible fragmentation into numerous voluntary markets and standards for biodiversity credits.

4. Making the private sector take responsibility for financing through clear reporting and taxonomy

Directing private financial flows towards addressing biodiversity has so far been decided on a voluntary or autonomous basis. The financial industry, for example, is increasingly integrating biodiversity risks into product portfolios and risk-management systems, as the loss of biodiversity and changes to ecosystems and ecosystem services are increasingly having economic consequences.

However, the consideration of biodiversity in private and corporate investment and decision-making processes is still in its infancy and does not yet reflect the true importance of biodiversity and ecosystem services for the economy and society. Furthermore, the availability of data for measuring the effects of biodiversity in the corporate context is very fragmentary since the corresponding impact mechanisms are often unknown to the companies or not communicated transparently (OECD, 2019).

The GBF has led to the need for a regulatory framework which, in the WBGU's view, makes it necessary to fully take into account the biodiversity impacts of large and transnational companies in particular. The first approaches to reporting in the EU are the Principle Adverse Impact Indicators of the Sustainable Finance Disclosure Regulation (EU) No. 2019/2088 (Regulation on sustainability-related disclosures in the financial services sector, SFDR) for capital-market actors, the Corporate Sustainability Reporting Directive (EU) 2022/2464 (CSRD), and the European Sustainability Reporting Standard E4 (EU, 2023) for companies. However, reporting requirements according to the CSRD are subject to a materiality analysis and are not applicable to all companies. Nevertheless, the reporting obligations represent a basis according to which companies and investors are required to fulfil their societal responsibility for biodiversity and other key environmental issues.

In addition, the Taxonomy Regulation (EU, 2020) specifies the conditions that must be met for certain activities to be categorized as sustainable (Nagel et al., 2022; Baumüller et al., 2022). As from 2023, the environmental goal of the "protection and restoration of biodiversity and ecosystems" has also been taken into account (EU, 2020, Art. 27(2) lit. b, Art. 9 lit. f). To this end, Annex IV of the Delegated Regulation (EU) 2023/2486 to the Taxonomy Regulation lays down "technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to the protection and restoration of biodiversity and ecosystems" or avoids "significant harm to any of the other environmental objectives".

Germany should work to ensure that the EU's approaches to including biodiversity in corporate reporting and taxonomy are adopted, standardized and made mandatory worldwide.

5. Prioritizing biodiversity in international financial instruments

In both bilateral and multilaterally facilitated collaborations, measures for the sustainable use, restoration and conservation of biodiversity should be particularly promoted and prioritized in loans and guarantees.

One possibility would be to reduce the debt burden of low-income countries by means of debt swaps (WBGU, 2023: 298), where the lender – often, but not always, a state – waives repayment of a loan granted. In return, the borrowing state agrees to use a predetermined sum to finance a domestic development project for biodiversity conservation. The aim is to contribute to achieving objectives such as the restoration and conservation of biodiversity.

Such debt-for-nature swaps (Fresnillo, 2023) – or specifically debt-for-biodiversity swaps - have the potential to ensure that the funds are used for the intended purpose and can provide effective further incentives to secure protected-area systems or OECMs. Debt-for-biodiversity swaps should therefore be increasingly used when providing public funds for development services. On the one hand, efforts should be made to standardize the process of debt-for-biodiversity swaps at the international level and, on the other hand, these instruments should be used to a greater extent. Germany should set a good example here and work together with countries whose governance systems work with debt-for-biodiversity swaps, ensuring accountability, transparency and fact-based management. For this reason, appropriate impact orientation in planning and effectiveness in implementation must be ensured by existing evaluation mechanisms in the international cooperation system.

Outlook: Biodiversity conservation as the key to the transformation towards sustainability

Biodiverse spaces make it possible to fulfil the needs of nature and people in equal measure. Multifunctional mosaics of land and ocean uses make it possible to reverse biodiversity loss locally and regionally and to halt it globally; they provide valuable ecosystem services and form the basis for sustainable development. Together with climate-change mitigation, biodiversity conservation preserves the life-support system for nature and humanity.

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The momentum of the GBF and BBNJ must now be harnessed by resolute implementation and, with regard to the process for formulating new sustainability goals after 2030, the great importance of biodiversity and the options for action associated with it for the transformation to sustainability must take central stage. Germany should lead by example and demonstrate international leadership - in the EU, at the G7 and G20, in multilateral environmental agreements and in the Summit of the Future process.

References

Baldock, D. and Bradley, H. (2023): Transforming EU land use and the CAP: a post-2024 vision. Brussels: Institute for European Environmental Policy (IEEP). https://ieep.eu/wp-content/uploads/2023/09/Transforming-EU-land-use-and-the-CAP-a-post-2024vision-paper-IEEP-2023.pdf.

Baumüller, J. et al. (2022): Erstanwendung der Berichtspflichten gem. Taxonomie-VO: Überblick und Handlungsempfehlungen. Zeitschrift für internationale Rechnungslegung 2, 77-84.

CBD - Convention on Biological Diversity (2018): Report of the Conference of the Parties to the Convention on Biological Diversity on its fourteenth meeting. CBD/COP/14/14; p. 81. Montreal, Canada: CBD.

CBD (2020): Global Biodiversity Outlook 5. Montreal, Canada: CBD. https://www.cbd.int/gbo/gbo5/publication/gbo-5-en.pdf.

CBD (2022): Kunming-Montreal Global Biodiversity Framework. CBD/COP/DEC/15/4. Montreal, Canada: CBD. https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf

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- CBD (2024); Branding Toolkit, Montreal, Canada: CBD, https://www.cbd.int/gbf/branding, accessed on 22.03.2024.
- Cuadros-Casanova, I. et al. (2023): Opportunities and challenges for Common Agricultural Policy reform to support the European Green Deal. Conservation Biology 37 (3), e14052. https://www.doi.org/10.1111/cobi.14052.
- Dasgupta, P. (2021): The Economics of Biodiversity: The Dasgupta Review. London: HM Treasury.
- EU European Union (2020): Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088. Official Journal No. L 198/13 of 22.06.2020. Brussels: EU.
- EU (2023): Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards. Official Journal No. L 1/284 of 22.12.2023. Brussels: EU.
- EU (2024): European Parliament legislative resolution of 27 February 2024 on the proposal for a regulation of the European Parliament and of the Council on nature restoration. (COM(2022)0304), P9_TA(2024)0089. Brussels: EU. Note: At the time this policy paper went to press, the regulation had not yet been adopted and published in the Official Journal of the EU.
- European Commission (n.d.): Protecting the ocean, time for action. Brussels: EU. https://oceans-and-fisheries.ec.europa.eu/ocean/ international-ocean-governance/protecting-ocean-time-action_en, accessed on 22.03.2024.
- Fresnillo, I. (2023): Miracle or mirage: Are debt swaps really a silver bullet? Brussels: European Network on Debt and Development (EURODAD). https://www.eurodad.org/miracle_or_mirage.
- Garnett, S. T. et al. (2018): A spatial overview of the global importance of Indigenous lands for conservation. Nature Sustainability 1, 369-374. https://www.doi.org/10.1038/s41893-018-0100-6.
- Geschke, J. et al. (2023): Science journalism and a multi-directional science-policy-society dialogue are needed to foster public awareness for biodiversity and its conservation. PLOS Sustainability and Transformation 2 (10), e0000083. https://www.doi.org/10.1371/journal.pstr.0000083.
- Gjerde, K. M. et al. (2022): Getting beyond yes: fast-tracking implementation of the United Nations agreement for marine biodiversity beyond national jurisdiction. npj Ocean Sustainability 1 (1), 6. https://www.doi.org/10.1038/s44183-022-00006-2.
- Haahtela, T. (2019): A biodiversity hypothesis. Allergy 74 (8), 1445-1456. https://doi.org/10.1111/all.13763.
- IPBES Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (2016): The assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on pollinators, pollination and food production [Potts, S. G. et al. (eds.)]. Bonn: IPBES secretariat. https://doi.org/10.5281/zenodo.3402857.
- IPBES (2018): Summary for policymakers of the regional assessment report on biodiversity and ecosystem services for Europe and Central Asia of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services [Fischer, M. et al. (eds.)]. Bonn: IPBES secretariat.
- IPBES (2019): Global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Service [Brondízio, E. S. et al. (eds.)]. Bonn: IPBES secretariat.
- IPCC Intergovernmental Panel on Climate Change (2022): Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Pörtner, H.-O. et al. (eds.)]. Cambridge, UK and New York, NY, USA: Cambridge University Press. https://www.doi.org/10.1017/9781009325844.
- Koplow, D. and Steenblik, R. (2022): Protecting Nature by Reforming Environmentally Harmful Subsidies: The Role of Business. Cambridge, MA: Earth Track.
- Lèclere, D. et al. (2020): Bending the curve of terrestrial biodiversity needs an integrated strategy. Nature 585, 551-556. https://www.doi.org/10.1038/s41586-020-2705-y.
- Lenihan, H. S. et al. (2021): Evidence that spillover from Marine Protected Areas benefits the spiny lobster (Panulirus interruptus) fishery in southern California. Scientific Reports 11 (1), 2663. https://doi.org/10.1038/s41598-021-82371-5.
- MeerWissen African-German Partners for Ocean Knowledge (o.J.): About the MeerWissen Initiative. Bonn: German Development Cooperation (GIZ). https://meerwissen.org/about, accessed on 22.03.2024.
- Naeem, S. et al. (2016): Biodiversity and human well-being: an essential link for sustainable development. Proceedings of the Royal Society B: Biological Sciences 283 (1844), 20162091. https://www.doi.org/10.1098/rspb.2016.2091.
- Nagel, S. et al. (2022): Nachhaltige Investitionen im System der Offenlegungs-VO und Taxonomie-VO zur aufsichtsrechtlichen Einordnung von Impact-Fonds. Zeitschrift für Bank- und Kapitalmarktrecht, 360-365.
- Nemcová, T. et al. (2022): New CAP unpacked ... and unfit. Brussels: BirdLife Europe and Central Asia, EEB, NABU. https://eeb.org/ wp-content/uploads/2022/12/New_CAP_Unpacked-6.pdf.
- OECD Organisation for Economic Co-operation and Development (2019): Biodiversity: Finance and the Economic and Business Case for Action. Paris: OECD. https://www.oecd-ilibrary.org/content/publication/a3147942-en.
- OHCHR Office of the United Nations High Commissioner for Human Rights (2007): United Nations declaration on the rights of indigenous peoples. New York, Geneva: United Nations (UN). https://www.ohchr.org/sites/default/files/Documents/Publications/ Declaration_indigenous_en.pdf.
- Pörtner, H.-O. et al. (2023): Overcoming the coupled climate and biodiversity crises and their societal impacts. Science 380 (6642), eabl4881. https://doi.org/10.1126/science.abl4881.
- Ritchie, H. and Roser, M. (2023): Our World in Data: Land Use. Oxford: Our World in Data, University of Oxford. https://ourworldindata.org/land-use, published on 1.09.2019.
- SDSN Germany Sustainable Development Solutions Network Germany (2021): Naturschutzpolitischer Aufbruch jetzt: Für ein Jahrzehnt des naturschutzbasierten Klimaschutzes und der Biodiversitätspolitik. Bonn: SDSN Germany.
- UN United Nations (1982): United Nations Convention on the Law of the Sea. New York: UN.
- UN (2023): Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction. New York: UN.
- UNEP United Nations Environment Programme (2023): State of Finance for Nature: The Big Nature Turnaround -Repurposing \$7 trillion to combat nature loss. Nairobi: UNEP. https://doi.org/10.59117/20.500.11822/44278.
- UNFCCC United Nations Framework Convention on Climate Change (2015): Paris Agreement. New York, Geneva: UNFCCC.
- WBGU (2011): World in Transition: A Social Contract for Sustainability. Flagship Report. Berlin: WBGU.
- WBGU (2020): Rethinking Land in the Anthropocene: from Separation to Integration. Flagship Report. Berlin: WBGU.
- WBGU (2023): Healthy living on a healthy planet. Flagship Report. Berlin: WBGU.
- Zerzawy, F. et al. (2021): Umweltschädliche Subventionen in Deutschland: Fokus Biodiversität. Berlin: Green Budget Germany (GBG).

Abbreviations

BBNI Biodiversity Beyond National Jurisdiction BMBF Bundesministerium für Bildung und Forschung

German Federal Ministry of Education and Research

BMZ Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

Biodiversity

German Federal Ministry for Economic Cooperation and Development

CBD Convention on Biological Diversity CBAM Carbon Border Adjustment Mechanism

CCAMLR Commission for the Conservation of Antarctic Marine Living Resources

CITES Convention on International Trade in Endangered Species of Wild Flora and Fauna

CMS Convention on Migratory Species

CO₂ Carbon dioxide

CSRD Corporate Sustainability Reporting Directive

EU European Union

FEdA BMBF-Forschungsinitiative zum Erhalt der Artenvielfalt BMBF-Research Initiative for the Conservation of Biodiversity

G7 Group of Seven (Canada, France, Germany, Italy, Japan, United Kingdom, United States of America)

G20 Group of Twenty (industrialized countries of the G7, emerging economies of the O-5, EU)

CAP Common Agricultural Policy

GBF Kunming-Montreal Global Biodiversity Framework GAEC Good Agricultural and Environmental Conditions

Common Ecosystem Policy

IPBES Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

IPCC Intergovernmental Panel on Climate Change NBSAPs National Biodiversity Strategies and Action Plans NDCs Nationally Determined Contributions

OECMs Other Effective Area-based Conservation Measures

SFDR Sustainable Finance Disclosure Regulation

United Nations

UNCLOS United Nations Convention on the Law of the Sea UNFCCC United Nations Framework Convention on Climate Change

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