



Biodiversity for Asset Managers: why it matters and how to address it



Content index

■ Introduction to Biodiversity	.....	4
■ The role of Biodiversity in managing Climate Change mitigation and adaptation	.....	8
■ Overview of Regulatory and voluntary disclosure Frameworks	.....	13
■ Sustainable Finance and Biodiversity conservation	.....	21
Case Study: Green BTP issuance to finance the Protection of the environment and biological diversity	.....	22
■ Engaging Issuers on the topic of Biodiversity	.....	24
Case Study: Eurizon Naturewatch screening	.....	25
■ A specific initiative to promote Biodiversity: Bioforests & Flower Strips	.....	32
■ References	.....	36



Introduction to Biodiversity

Introduction

“Biodiversity”, or “Biological diversity” means the variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Biodiversity loss is a pressing global issue with far-reaching implications for economies, societies, and ecosystems; all economic activities depend on and impact biodiversity and ecosystem services, either

through their direct operations or through their supply chains. A key challenge for financial risk assessment and business continuity at the time of ecosystems collapse and biodiversity loss is to achieve transparency of dependencies and impacts.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), an independent intergovernmental body that provides governments with assessments of biodiversity and nature, divides the causes of biodiversity loss into direct and indirect drivers.

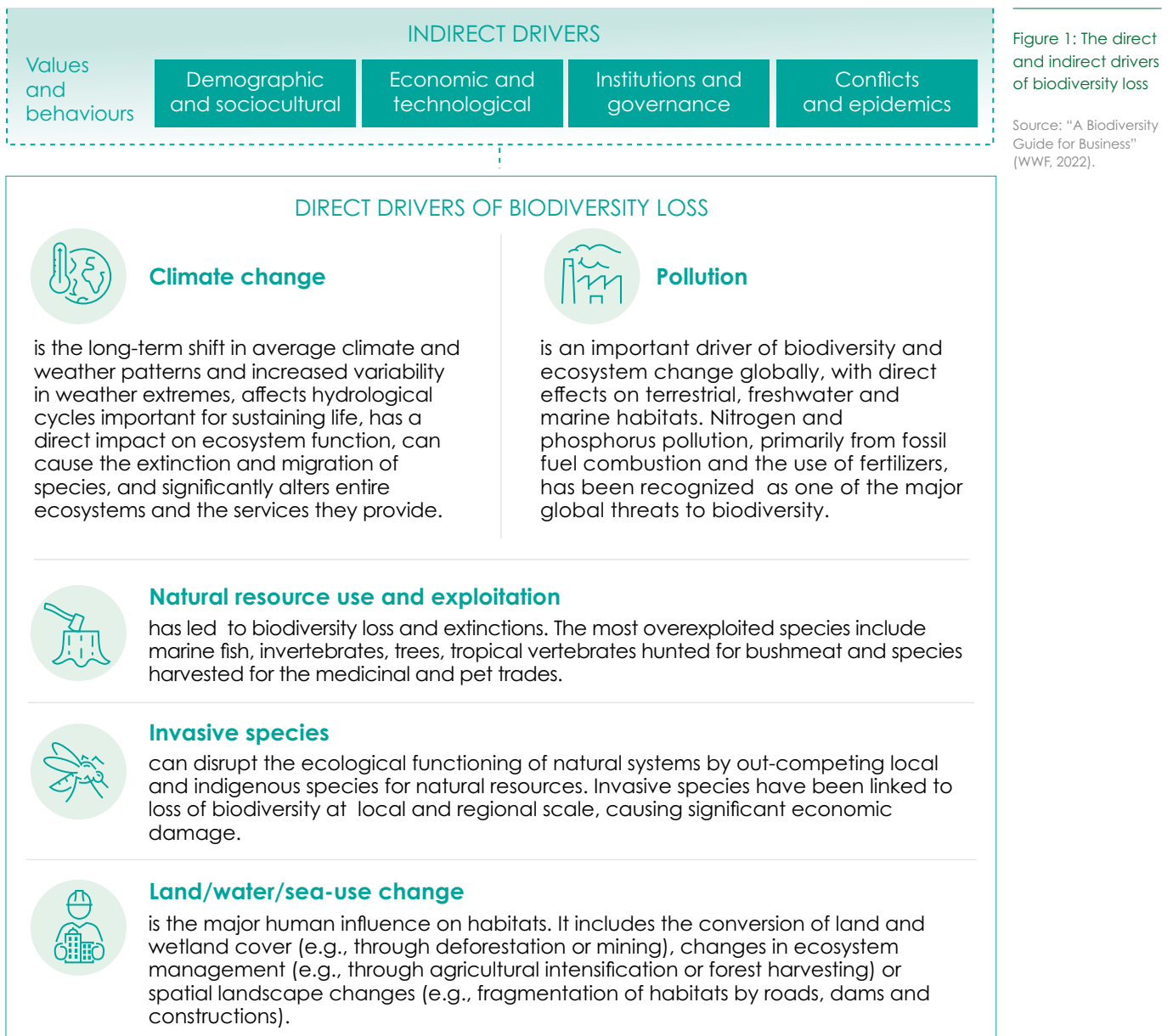


Figure 1: The direct and indirect drivers of biodiversity loss

Source: "A Biodiversity Guide for Business" (WWF, 2022).

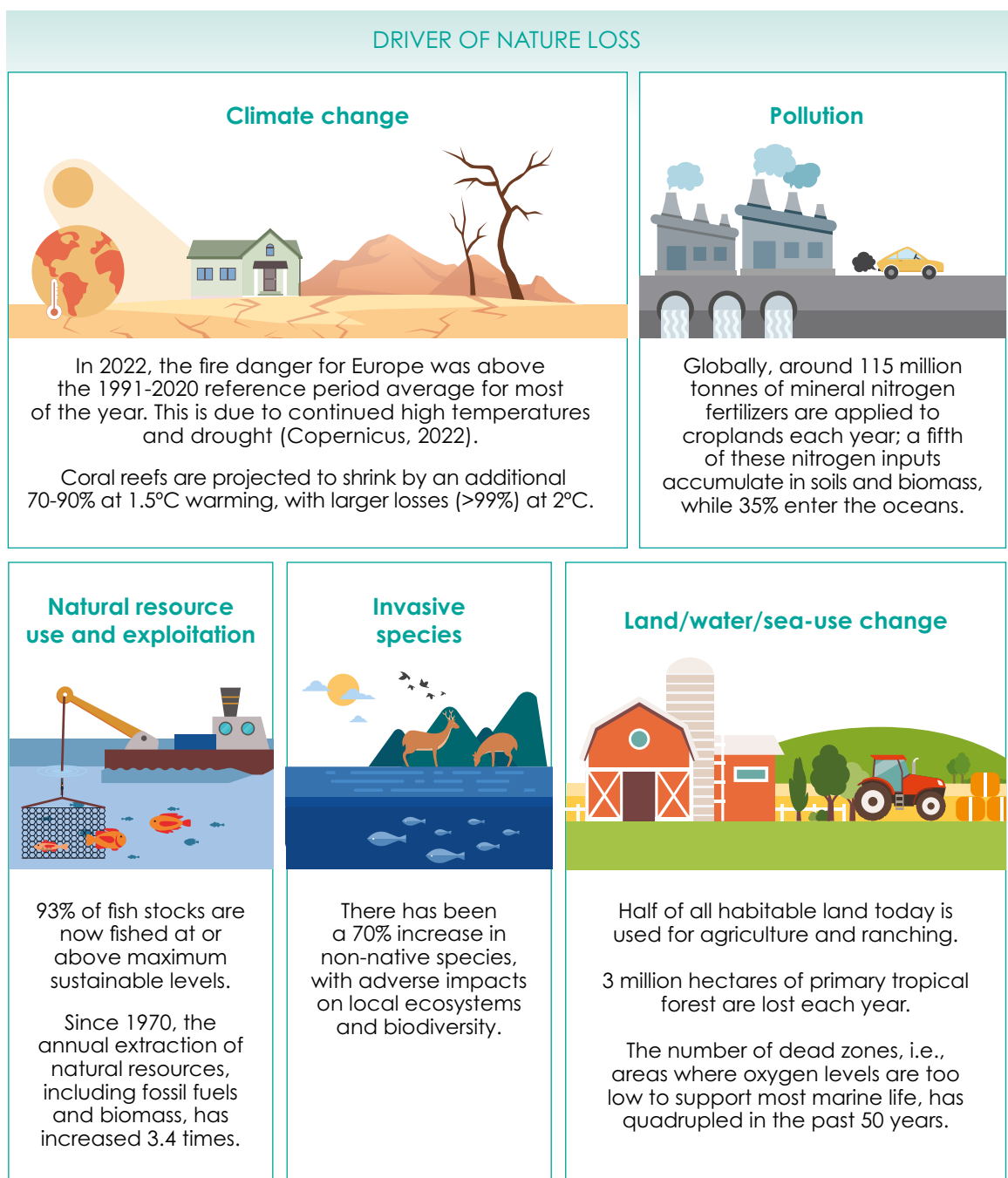
Businesses have a direct impact on nature through their operations and supply chains: whether through changes in land and sea use, overexploitation, climate change, invasive species or pollution, companies' activities can have long-lasting negative impacts on nature. In addition, businesses are exposed to indirect drivers of biodiversity loss, that are broader, more systemic and play a major role in influencing the direct drivers (also referred to as 'underlying causes'): these include demographic and societal values, economic factors, technology, governance and epidemics (IPBES, 2019).

Nature is disappearing at an unprecedented rate: WWF's Living Planet Index shows that monitored wildlife populations - an indicator of healthy ecosystems - have declined by an average of 69% since 1970 (WWF, 2022); many ecosystems are now close to a breaking point beyond which they may not be able to recover.

In addition, \$44 trillion of economic value - more than half the world's GDP - is potentially at risk because of business dependence on nature and its services, according to the first report in the World Economic Forum's New Nature Economy Report

Figure 2: The five direct drivers and their impact on nature

SOURCE: "Nature Risk Rising" (WEF, 2020)



(NNER) series, Nature Risk Rising (WEF, 2020).

With specific reference to financial institutions, the Organisation for Economic Co-operation and Development (OECD) has stated that the loss of biodiversity has a serious impact on the performance of the sector, increasing both

the costs and risks of operations (OECD, 2019). Although the financial sector has limited direct dependencies and impacts on biodiversity, it is indirectly exposed through loans, investments, and underwriting activities. These risks fall into five main categories: ecological, legal, regulatory, reputational and market risk. ■

RISK TYPE	DESCRIPTION	POTENTIAL BUSINESS IMPACT
 Ecological	Risks related to biodiversity-related ecological impacts and dependencies, linked to biodiversity loss or ecosystems degradation	Operational risks associated with resource dependency, scarcity and quality, increased raw material or resource costs (e.g. limited natural resources like timber or fresh water), deteriorated supply chains (e.g. because of resource scarcity or more variable production of key natural inputs), or disrupted business operations
 Liability	Risks where parties seek compensation for biodiversity-related loss/damage	Extra legal costs and compensation expenses; increased insurance premiums
 Market	Changes in consumer preferences or purchaser requirements	Shift in demand, need to adapt products and services, potential loss of market share
 Financial	Risks linked to policy, law, technology, or market changes	Access to capital, compliance costs, depreciation of asset values, loss of investment opportunities
 Reputational	Increasing pressure to assess, report and manage ESG risks, including biodiversity risks	Brand image and trust, consumer and investor relations, potential boycotts or divestments

Figure 3: Biodiversity-related risks

Source: "Biodiversity: Finance and the Economic and Business Case for Action Annexes to the Report" (OECD, 2019)



The role of Biodiversity in managing Climate Change mitigation and adaptation

Biodiversity and climate risks and impacts are inextricably linked and mutually reinforcing:

while biodiversity loss can have an impact on the ability of ecosystems to regulate climate and natural processes, some climate change mitigation measures can have negative impacts on nature, leading to negative trade-offs or undesirable effects. Biodiversity also provides an important defence against climate impacts, such as increasing the resilience of human settlements to extreme weather events and improving water security.

Notably, **anthropogenic climate change is currently responsible for between 11% and 16% of biodiversity loss** (WEF, 2020), making



decarbonisation of the economy essential to limit biodiversity loss in the long term. However, as important and challenging as decarbonising the economy is, it will not be enough unless the other direct drivers of nature loss are also addressed.

A team of scientists has quantified nine global limits for the planet (the “planetary boundaries”) with regards to the impacts of human activities on the Earth system: each planetary boundary is intricately intertwined and crossing these ‘safe operating spaces’ means that irreversible changes will occur, and the environment may not be able to self-regulate anymore. The planetary boundaries are biosphere integrity, climate change, ocean acidification, stratospheric ozone depletion, biogeochemical nitrogen and phosphorus cycles, global freshwater use, land-system change, chemical pollution or novel entities and atmospheric aerosol loading (Katherine Richardson et al., 2023).

In addition, the Intergovernmental Panel on Climate Change (IPCC)¹ has defined tipping points as “critical thresholds” that, when exceeded, can lead to significant changes in the state of the system that are difficult to predict. With regards to climate change, there is significant scientific uncertainty around how and when tipping points might be reached due to the difficulty of assessing and projecting future climate impacts that are outside the scope of historical human experience.

Crossing a planetary boundary does not necessarily mean crossing a tipping point: planetary boundaries are established to prevent tipping points from being crossed anywhere in the Earth system; in the case of climate change, for example, the level of the planetary boundary has been set to ensure that the change in global temperature from pre-industrial levels remains well below the tipping point.

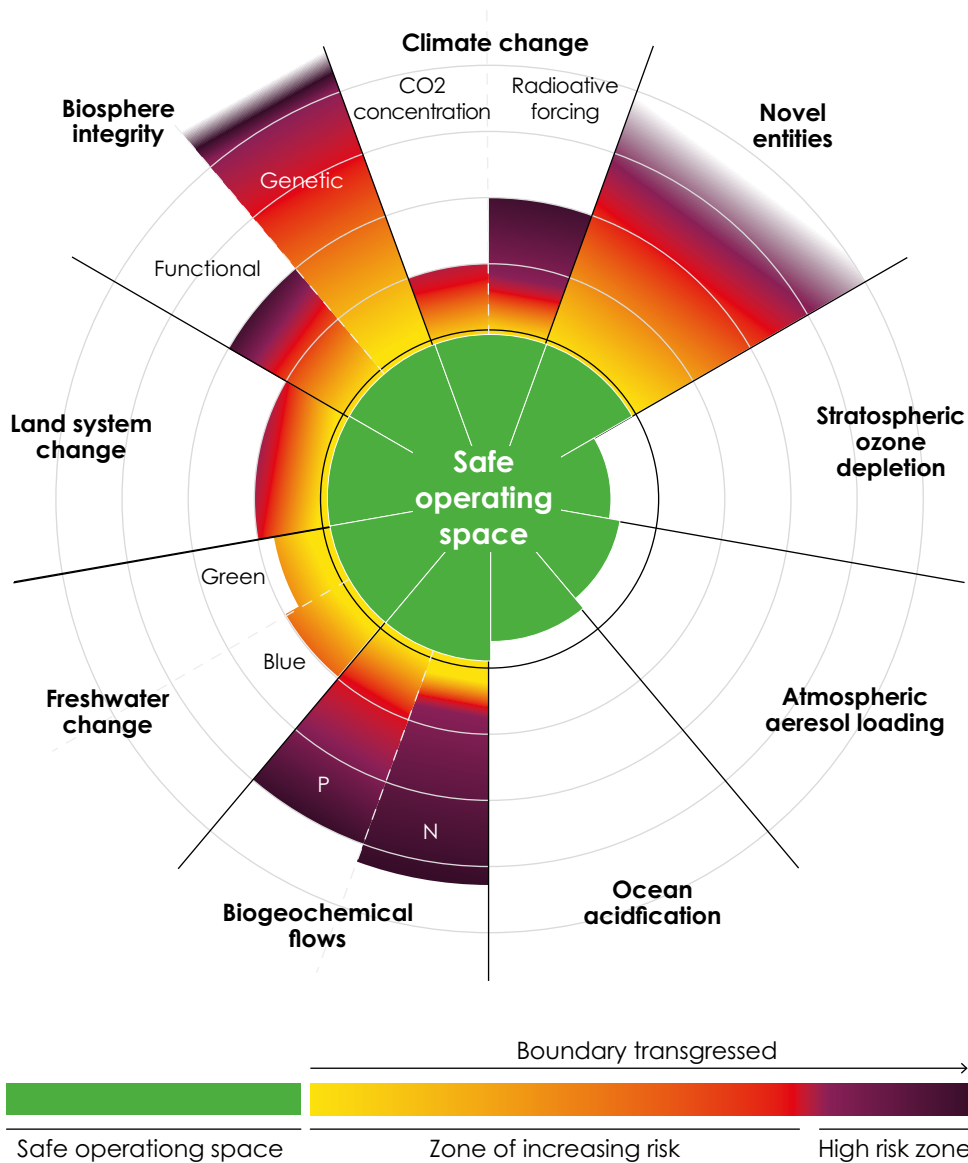
However, tipping points are relevant not only for planetary boundaries with evidence of tipping point behaviour (e.g. the climate system), but also for boundaries without such evidence (e.g. the hydrological cycle), because the processes are interrelated.

¹ The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.

The following graph shows the nine planetary boundaries with the safe operating space (green area), the increasing risk zone (yellow-red area) and the high-risk zone (purple area), where the conditions of the Earth system have been transgressed with high confidence.

Figure 4: The nine planetary boundaries

Source: "Earth beyond six of nine planetary boundaries" (Katherine Richardson et al., 2023).



At present, six planetary boundaries have been crossed, and the rate of breach has increased over the last ten years (Katherine Richardson et al., 2023). The first planetary boundaries to be crossed were Climate change, Biosphere integrity and Biogeochemical flows in 2009 (Rockström, J., Steffen, W., Noone, K. et al., 2009).

The **Biosphere Integrity** boundary comprises genetic diversity (calculated through the extinction rate) and functional diversity (based on the Biodiversity Intactness Index (BII), an empirically based metric of human impact on population abundance).

Species extinction is a natural process, however, there has been a massive acceleration in the rate of biodiversity loss due to human intervention: species are disappearing at rates not seen since the last global mass extinction. With an estimated one million species at risk of extinction, more than 10% of the genetic diversity of plants and animals having been lost in the last 150 years, the safe limit for the integrity of the biosphere was exceeded in the 19th century and we are now in the 'high risk' zone (Katherine Richardson et al., 2023).

As already mentioned, biodiversity and ecosystems are affected by rising global



temperatures. For the planetary boundary of **Climate change**, the safe zone limit was set at 350 parts per million (ppm) of CO₂ ≈ 1°C), with the zone of increasing risk ranging from 350 to 450 ppm (roughly corresponding to a range of global mean surface temperature increases between 1°C and 2°C) and the high risk zone higher than 450 ppm. Based on the annual report from NOAA's Global Monitoring Lab, global average atmospheric carbon dioxide was 419.3 parts per million in 2023 (NOAA, 2023).

Furthermore, temperature rise, and human activities can impact **Biogeochemical flows**, i.e. nitrogen and phosphorous fluxes in the biosphere and oceans, with serious consequences for climate and human health. For example, nitrogen surplus lowers plant diversity in terrestrial ecosystems, and the combination of nitrogen and phosphorous surplus in the water supply leads to algal blooms and eutrophication².

In 2015, the scientists declared the crossing of the fourth boundary, **land system change** (Will Steffen et al., 2015). Indeed, through activities such as deforestation and agriculture, humans are changing the landscape at a rate that exceeds the planet's capacity to adapt.

In 2022, the planetary boundary **Novel entities** was declared crossed (Linn Persson et al., 2022). Substances alien to nature and the Earth system, so-called 'new entities', include chemical and synthetic substances (e.g., microplastics, endocrine disruptors and organic pollutants); anthropogenically mobilised radioactive materials, including nuclear waste and nuclear weapons; and genetically modified organisms. As well as affecting the health of humans and other living creatures, these man-made substances can damage the climate. The production and disposal of plastics alone accounts for about 4.5 percent of global GHG emissions.

² According to the European Environment Agency, eutrophication is a "process of pollution that occurs when a lake or stream becomes over-rich in plant nutrient; as a consequence, it becomes overgrown in algae and other aquatic plants. The plants die and decompose. In decomposing the plants rob the water of oxygen and the lake, river or stream becomes lifeless. Nitrate fertilizers which drain from the fields, nutrients from animal wastes and human sewage are the primary causes of eutrophication."

In 2023, scientists showed that the planetary boundary **Freshwater change** had been crossed, pushing the Earth's freshwater system far beyond stable conditions (Katherine Richardson et al., 2023). Human pressures such as dam building, large-scale irrigation and global warming have altered freshwater resources to such an extent that their ability to regulate vital ecological and climatic processes is at risk.

Quantifying the interactions between the boundaries remains a major challenge. However, there is growing evidence that the crossing of either climate change or biosphere integrity can alter risk hierarchies for other boundaries: a two-level hierarchy of boundaries is implied, in which climate change and the biosphere integrity are recognised as the "core" planetary boundaries through which the other boundaries operate. (Anderies, J. M., Carpenter, S. R., Steffen, W., & Rockström, J., 2013).

Restoring and maintaining biodiversity is therefore key to climate change mitigation and adaptation, economic prosperity, and social well-being. Conversely, the impacts of climate change on biodiversity will affect its ability to provide essential ecosystem goods and services on which many people and businesses depend, such as water and food.

This link is also acknowledged in Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC) which recognises the importance of limiting temperatures to a level that would allow ecosystems to adapt naturally to climate change.

According to the IPCC scenarios, keeping the temperature increase close to the 1.5°C target of the Paris Agreement will require not only a massive and rapid decarbonisation of society, but also a significant contribution from nature-based solutions (NbS), which refer to actions to protect, sustainably manage and restore ecosystems³.

Conserving and restoring land, especially forests and peatlands, could provide a significant proportion of the mitigation needed to keep warming within the Paris Agreement targets, as they have the highest carbon stocks per hectare of all-natural terrestrial/coastal ecosystems. Some estimates suggest that by 2030, NbS can save around 10 Gt of CO₂e per year, contributing to around 30% of the global mitigation required by 2030/2050 to meet the Paris Agreement target (IUCN, 2023).

Terrestrial and marine carbon sinks can absorb a significant amount of carbon dioxide from the air. Forests alone absorb about 15.6 billion gigatons of CO₂ each year, three times the annual carbon emissions of the United States. Halting deforestation and reversing forest degradation is "one of the most effective and robust options for mitigating climate change" according to the IPCC. Blue NBS such as seagrass, mangrove forests could reduce the current gap in the level of decarbonisation required to stay within a 2.0°C scenario by up to 47% (High level panel for a sustainable ocean economy, 2023).

The close links between climate change and biodiversity loss mean that financial institutions need to address the two issues as if they were linked. For this reason, climate change strategies to engage companies in high emitting sectors need to be adapted and integrated with strategies to mitigate biodiversity loss. ■

Restoring and maintaining biodiversity is therefore key to climate change mitigation and adaptation, economic prosperity, and social well-being

³ The European Commission defines nature-based solutions as "Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions." (European Commission, s.d.)



Overview of Regulatory and voluntary disclosure Frameworks

Recognizing the critical role of financial systems in addressing Biodiversity loss, **there is a growing global momentum towards integrating biodiversity considerations into asset management practices**, with several international agreements providing an overarching legal framework.

The Earth Summit held in Rio de Janeiro in June 1992 was an unprecedented event in terms of its media impact. The Summit produced two major legally binding agreements:

- The Convention on Biological Diversity (CBD), now signed by 196 parties;
- The United Nations Framework Convention on Climate Change (UNFCCC), signed to date by 198 parties.

The **Convention on Biological Diversity (CBD)** entered into force on 29 December 1993 and is a landmark treaty that sets out principles for:

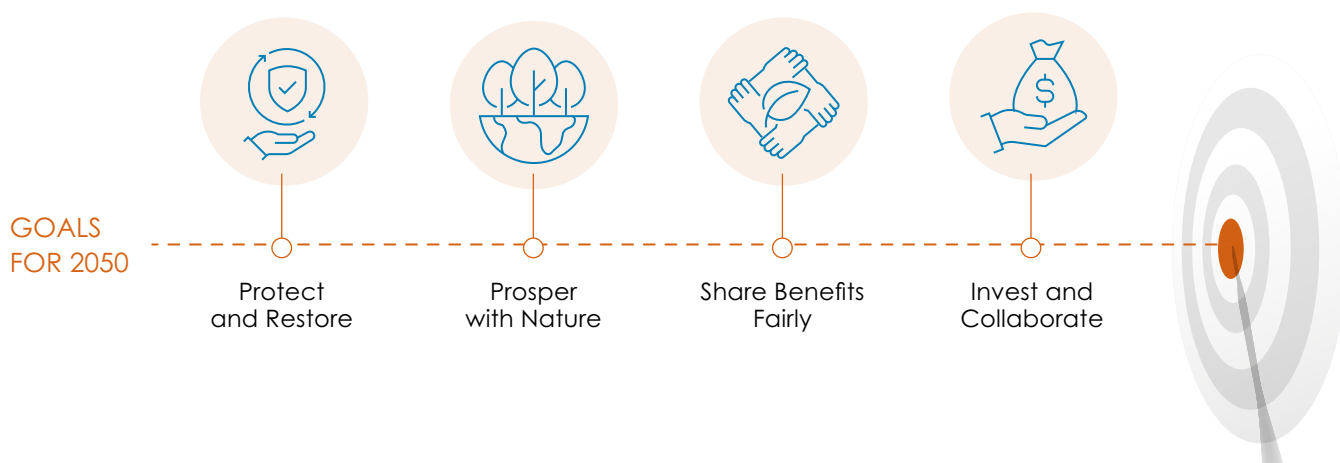
- The conservation of biological diversity;
- The sustainable use of the components of biological diversity;
- The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Building on the Convention's strategic plans, the **Kunming-Montreal Global Biodiversity Framework (GBF)**, adopted during the fifteenth meeting of the Conference of the Parties (COP 15) and modelled on the Paris Agreement, supports the achievement of the Sustainable Development Goals and sets out an ambitious pathway to reach the global vision of a world living in harmony with nature by 2050. Among the Framework's key elements are 4 goals for 2050 and 23 targets for 2030; actions to reach these targets should be implemented consistently and in harmony with the Convention on Biological Diversity and its Protocols, and






other relevant international obligations, taking into account national circumstances, priorities and socioeconomic conditions. In adopting the Kunming-Montreal Global Biodiversity Framework, all Parties committed to setting national targets to implement it, while all other actors have been invited to develop and communicate their own commitments.

Among the 23 targets for 2030, **target n. 14** and **target n. 15** specifically highlight the requirement by 2030 for biodiversity to be fully integrated in **policies and regulations**, as well as **strategic planning** and **impact assessment** across all industries, including the financial sector, to encourage and enable businesses to **monitor, assess** and **disclose** their **risks, dependencies** and **impacts on biodiversity**, along their operations, supply and value chains, and portfolios in order to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.



TARGETS FOR 2030

 Reducing threats to biodiversity	 Meeting people's needs through sustainable use and benefit-sharing	 Tools and solutions for implementation and mainstreaming
1 Plan and manage all areas to reduce biodiversity loss	9 Manage wild species sustainably to benefit people	14 Integrate biodiversity in decision-making at every level
2 Restore 30% of all degraded ecosystems	10 Enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and forestry	15 Businesses assess, disclose and reduce biodiversity-related risks and negative impacts
3 Conserve 30% of land, waters and seas	11 Restore, maintain and enhance nature's contributions to people	16 Enable sustainable consumption choices to reduce waste and overconsumption
4 Halt species extinction, protect genetic diversity, and manage human-wildlife conflicts	12 Enhance green spaces and urban planning for human well-being and biodiversity	17 Strengthen biosafety and distribute the benefits of biotechnology
5 Ensure sustainable, safe and legal harvesting and trade of wild species	13 Increase the sharing of benefits from genetic resources, digital sequence information and traditional knowledge	18 Reduce harmful incentives by at least \$500 billion per year, and scale up positive incentives for biodiversity
6 Reduce the introduction of invasive alien species by 50% and minimize their impact		19 Mobilize \$200 billion per year for biodiversity from all sources, including \$30 billion through international finance
7 Reduce pollution to levels that are not harmful to biodiversity		20 Strengthen capacity-building, technology transfer, and scientific and technical cooperation for biodiversity
8 Minimize the impacts of climate change on biodiversity and build resilience		21 Ensure that knowledge is available and accessible to guide biodiversity action
		22 Ensure participation in decision-making and access to justice and information related to biodiversity for all
		23 Ensure gender equality and a gender-responsive approach for biodiversity action

The European Union (EU) has taken significant actions in promoting biodiversity integration in asset management. In 2020, the **EU Biodiversity Strategy for 2030** was released with the aim to mainstream biodiversity considerations across all policy areas, including finance through a long-term plan to protect nature and reverse the degradation of ecosystems. The Strategy contains over 100 specific actions and commitments ranging across several policy areas.

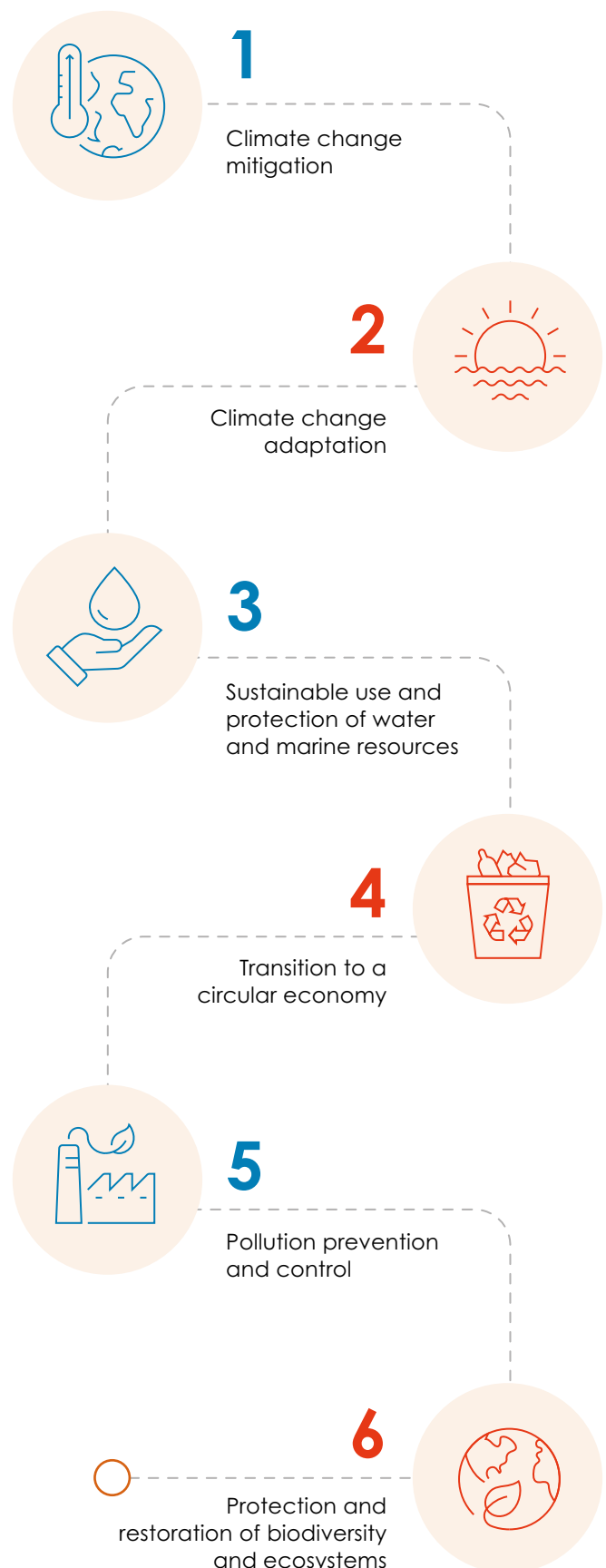
In addition, the **EU Taxonomy** (Regulation (EU) 2020/852), that entered into force on 12 July 2020, establishes a framework to identify environmentally sustainable economic activities, including those that substantially contribute to protection and restoration of biodiversity and ecosystems.

The EU biodiversity strategy for 2030 is a comprehensive, ambitious and long-term plan to protect nature and reverse the degradation of ecosystems

The EU Taxonomy provides a common language for a range of European sustainable finance regulations, including **Sustainable Finance Disclosure Regulation (SFDR, Regulation (EU) 2019/2088)**, applicable to Asset Managers: indeed, products that are promoting environmental or social characteristics (as per SFDR art. 8) or that have a sustainable objective (as per SFDR art.9), are required report on the alignment of their investment strategies with the envisaged technical screening criteria for economic activities that are aligned with a net zero trajectory by 2050 and the broader environmental goals other than climate.

In addition, as part of the mandatory sustainability disclosures introduced by the SFDR, investors must report on **Principal Adverse Impacts (PAIs)** of their portfolios through a dedicated PAI statement on their website and describe PAI in pre-contractual information. PAIs relate to negative effects on sustainability at entity and, when relevant, also at product level.

Figure 5: The six climate and environmental objectives of the Taxonomy Regulation



PAI indicator n. 7 concerns Biodiversity and requires Asset Managers to disclose 'the share of investments in companies with sites or operations located in or near to biodiversity-sensitive areas, which negatively affect those areas'); in particular, the latest guidance published provides the following formula for disclosure purposes:



'Activities negatively affecting biodiversity-sensitive areas' shall be calculated in accordance with the following formula:

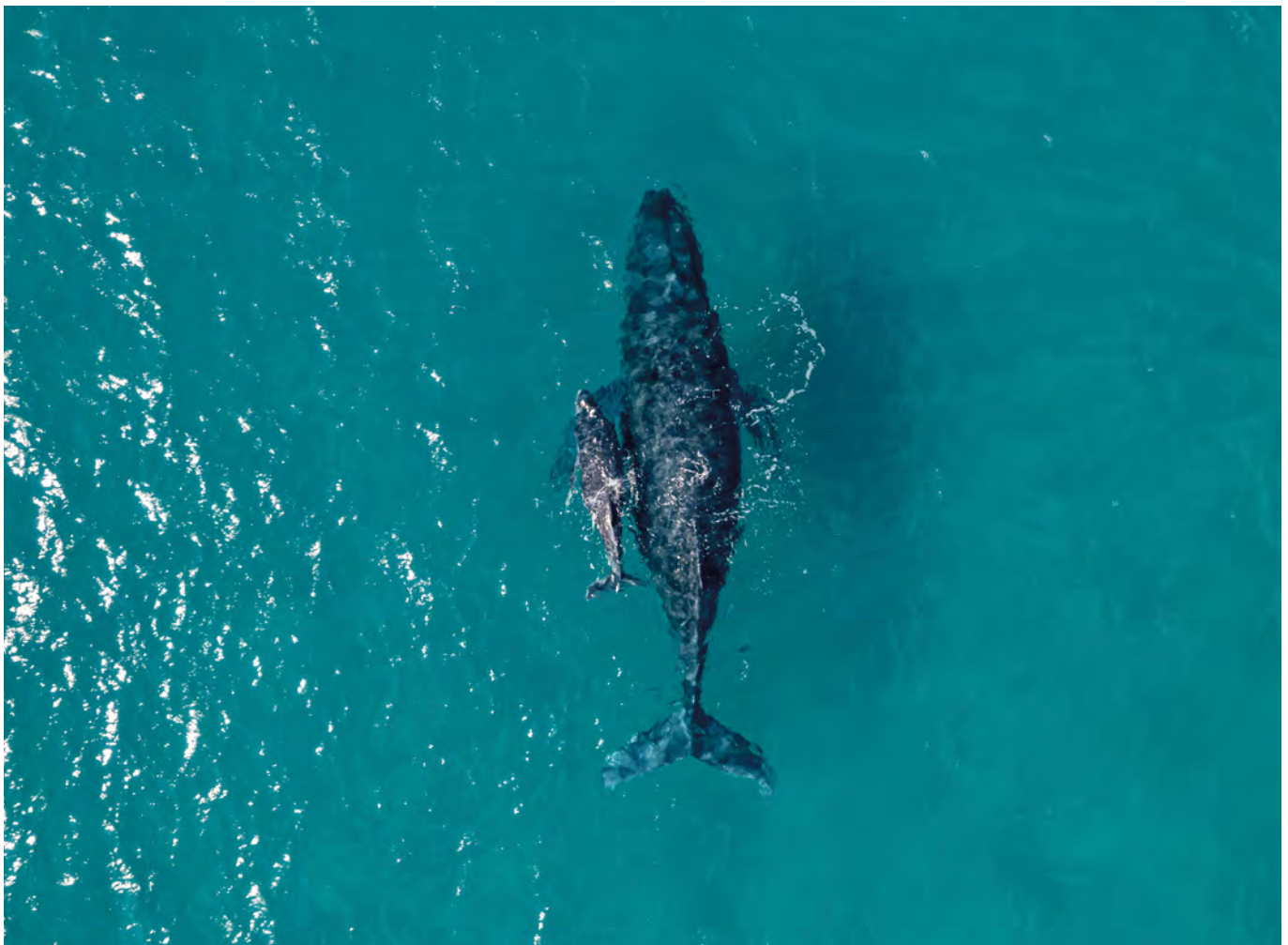
$$\frac{\sum_{i=1}^n \left(\begin{array}{l} \text{current value of investment}_i \text{ in investee} \\ \text{companies with sites or operations} \\ \text{located in or near to biodiversity sensitive} \\ \text{areas where activities of those investee} \\ \text{companies negatively affect those areas} \end{array} \right)}{\text{current value of investment}}$$

where n is the number of investee companies in the investments

At national level, many countries have also introduced legislation to promote the integration of biodiversity into asset management practices: for example, article 173 of the French Energy Transition Law mandates institutional investors to disclose the environmental impact of their investments, including biodiversity considerations; in Brazil, the Forest Code sets out requirements for the protection of native vegetation, imposing obligations on asset managers to align with sustainable biodiversity practices.

Finally, corporate governance codes and reporting standards play a crucial role in facilitating the incorporation of biodiversity into asset management.

Enhanced transparency through reporting enables investors to make informed decisions also with regards to biodiversity risks and opportunities.



Notably, the **Corporate Sustainability Reporting Directive (CSRD, Directive 2022/2464)** and the **European Sustainability Reporting Standards (ESRS)** are indeed expected to foster increased reporting on biodiversity at company level: ESRS E4, comprising "Biodiversity and Ecosystem standards", defines disclosure requirements for the undertaking's impacts on terrestrial, freshwater and marine habitats, ecosystems and populations of related fauna and flora species, including diversity within species, between species and of ecosystems, and their interrelation with indigenous

peoples and other affected communities.

Data points, under ESRS E4 are expected to start being reported in 2025 by in scope companies (larger companies with 500 or more employees; SMEs starting from the financial year 2028).

Furthermore, voluntary reporting initiatives such as **CDP Non-Disclosure Campaign**, targeting the areas of Climate, Water and Forest, the **Task Force on Nature-related Financial Disclosures (TNFD)** have recently been created with the aim

THE UNDERTAKING SHALL PROVIDE ⁴ THE FOLLOWING INFORMATION TO MEET THE OBJECTIVE OF THE STANDARD:	
Governance	No specific requirements
Strategy	<ul style="list-style-type: none"> The undertaking shall disclose where its impacts, dependencies, risks and opportunities originate from, and how they can trigger adaptation of its strategy and business model The undertaking shall disclose a list of material sites, including those under its operational control in relation to the disclosures
Management of impacts, risks and opportunities	<ul style="list-style-type: none"> Description of the undertaking's process to identify material impacts, risks, dependencies and opportunities Policies for managing the undertaking's material impacts, risks, dependencies and opportunities related to biodiversity and ecosystems Actions and resources allocated to their implementation
Metrics and targets	<ul style="list-style-type: none"> Targets set to support the undertaking's biodiversity and ecosystem policies and address its material related impacts, dependencies, risks and opportunities Metrics related to the undertaking's material impacts on biodiversity and ecosystems Anticipated financial effects of material biodiversity - and ecosystem-related risks and opportunities

Figure 6: ESRS E4 "Biodiversity and Ecosystem standards" - Disclosure requirements

⁴ Certain exemptions from the requirements apply.

to specifically encourage the assessment and reporting of their nature-related dependencies, impacts, risks and opportunities through a set of disclosure recommendations and guidance that

will enable businesses and finance to integrate nature into decision making.

The current legal framework surrounding the integration of biodiversity in asset management is evolving rapidly at the international, regional, and national levels. While progress has been made, challenges remain

The **Science Based Targets Network (SBTN)**, a global coalition of 80+ environmental non-profits and mission-driven organizations, aims to set specific, measurable targets to address biodiversity loss and ecosystem degradation based on scientific evidence. This concept is analogous to the "Science-Based Targets Initiative" that focuses on setting climate targets aligned with scientific consensus to limit global warming.

By setting science-based targets for nature, stakeholders can ensure that their actions are in line with the latest scientific knowledge and contribute effectively to biodiversity conservation and sustainable development efforts.



SBTN has released the first corporate science-based targets for nature targeting freshwater and land in order to enable companies to improve their impacts on freshwater quality (specific to nitrogen and phosphorus) and freshwater quantity as well as protect and restore terrestrial ecosystems.

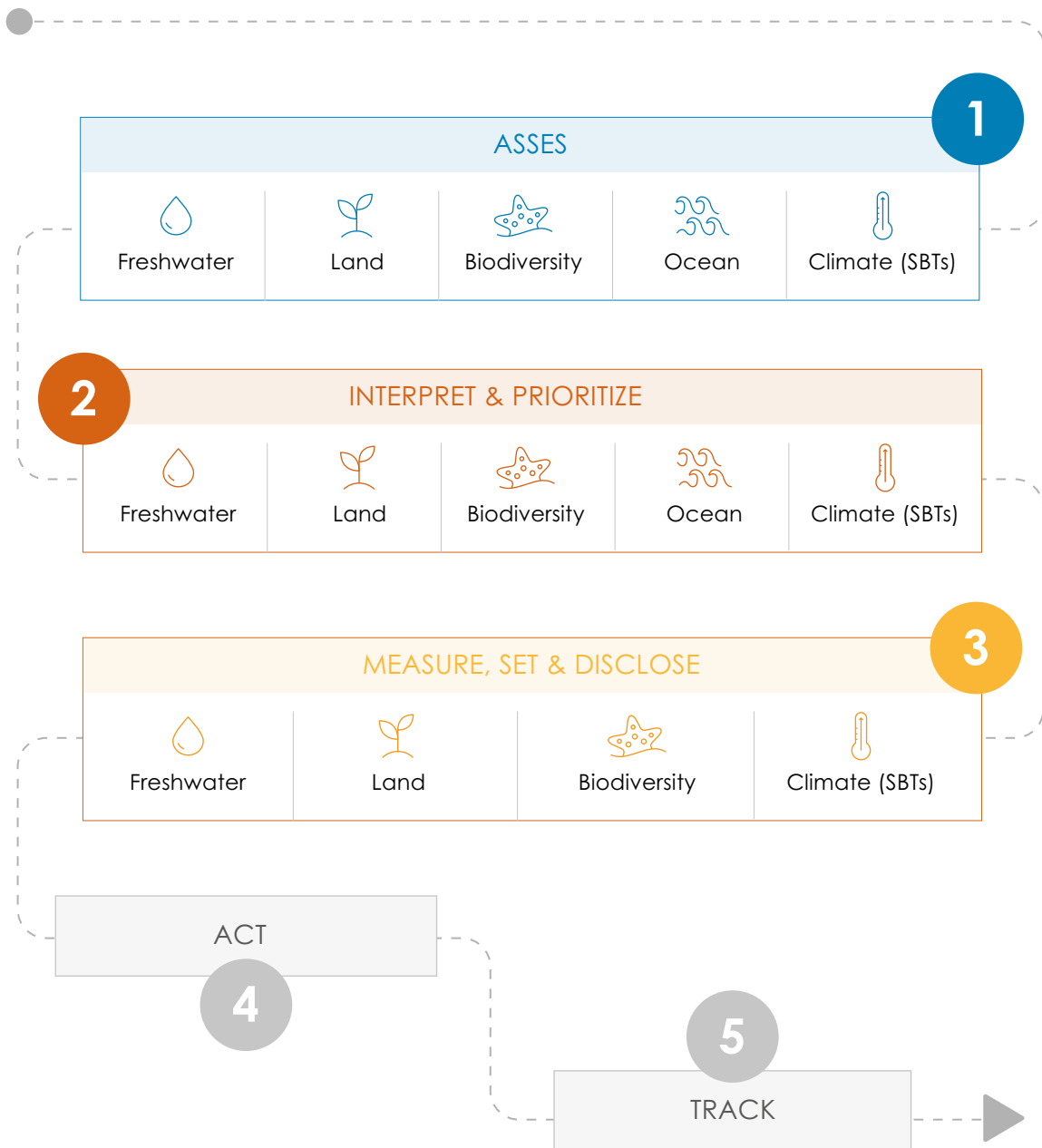
asset management is evolving rapidly at the international, regional, and national levels. While progress has been made, challenges remain, such as the lack of standardized biodiversity metrics and inconsistent reporting practices.

In conclusion, the current legal framework surrounding the integration of biodiversity in

Continued collaboration between policymakers, investors, and other stakeholders will be essential in driving further progress towards a more sustainable and biodiverse financial system. ■

Figure 7: Scope for 1st release of SBTs for nature

Source: (Science Based Targets Network, s.d.)





Sustainable Finance and Biodiversity conservation

Green bonds are debt instruments specifically designed to finance projects that have positive, measurable environmental impacts, including those aiming to prevent biodiversity loss: by issuing green bonds, issuers can raise capital dedicated to initiatives such as restoring habitats, protecting endangered species, promoting sustainable land use practices, and implementing conservation efforts.

According to the Climate Bond Initiative, GSS⁵ bonds recorded USD 4.39 trillion of cumulative issuance as of year-end 2023 (Climate Bonds Initiative, 2023). Sustainable Fitch highlighted that about 16% of GSS bonds issued in 2023 included projects targeting biodiversity conservation, up from just 5% in 2020 (Sustainable Fitch, 2023); there was also a rise in “blue bond”⁶ issuance over 2023 – although they remain a niche segment of the ESG debt market. In 2023, the sustainability theme constituted around a third of GSS issuance, according to data by Environmental Finance, highlighting linkages between activities to preserve and enhance nature, and the ecosystem services that benefit communities.

In particular, data from the Climate Bond Initiative shows that Latin America is the only region where sustainability bonds constitute the largest share GSS debt market, reflecting the region’s unique socio-environmental landscape, characterised by approximately 60% of the world’s terrestrial biodiversity, and a myriad of marine and freshwater species (UNEP, 2016).



Sustainable Fitch further highlights that increased issuance was driven by growing interest among sustainability-focused investors. Indeed, by giving investors the ability to provide the necessary funding for projects that support biodiversity conservation (while also receiving a financial return), these bonds have the potential not only to facilitate the allocation of resources towards preserving ecosystems and biodiversity but also to create a direct link between sustainable finance and environmental conservation, encouraging the integration of sustainability goals into investment strategies. ■

4.1 Case Study:

Green BTP issuance to finance the Protection of the environment and biological diversity

Italy has fully endorsed and is committed to the European Commission’s framework for achieving climate neutrality by 2050 and the goals set out in the European Green Deal. To this end, in February 2021, it published its **Framework**

for the Issuance of Sovereign Green Bonds (GBF)⁷. Green BTPs are sustainable finance government bonds designed to support, through their proceeds, public expenditures with positive environmental impact contributing

⁵ GSS refers to Green, Social and Sustainability-labelled bonds.

⁶ Debt instrument issued to raise capital to finance marine and ocean-based projects that have positive environmental, economic and climate benefits.

⁷ Source: https://www.dt.mef.gov.it/export/sites/sitodt/modules/documenti_en/debito_pubblico/presentazioni_studi_relazioni/documentazione_btp_green/Framework_for_the_issuance_of_Sovereign_Green_Bonds.pdf.

at the same time to the country's ecological transition.

The Framework identifies public expenditures of the State budget concerning the following six categories indicated in the GBF:

1. Renewable sources for electricity and heat production;
2. Energy efficiency;
3. Transport;
4. Pollution prevention and control and circular economy;
- 5. Protection of the environment and biological diversity;**
6. Research.

With regards to the "Protection of the environment and biological diversity", examples of Eligible Green Expenditures include expenses for:

- **Reforestation or protection** interventions of **forest and forestry, wildlife and fish heritage;**
- **Conservation and restoration** of threatened **marine, river and swamp ecosystems;**
- **Protection of the environmental heritage** against fire, drought, floods;
- **Ecosystem services;**
- **Water collection** and support of **water-saving** interventions;
- **Monitoring water quality;**
- **Preservation** of parks, protected areas and reserves.








	2045 GREEN BTP	2035 GREEN BTP	2031 GREEN BTP
Overall net proceeds amount (Euro)	13.26bn	7.94bn	13.8bn
 6 CLEAN WATER AND SANITATION Allocation to Protection of the environment and biological diversity	1,493bn (11% of overall net proceeds)	885m (11% of overall net proceeds)	1.555bn (11.2% of overall net proceeds)
 12 RESPONSIBLE CONSUMPTION AND PRODUCTION MOSE and Venetian lagoon preservation	362m	147m	159m
 13 CLIMATE ACTION Water infrastructures	388m	136m	174m
 14 LIFE BELOW WATER Protected Marine Areas, National Parks and State Nature Reserves	233m	413m	111m
 15 LIFE ON LAND Soil protection and interventions against hydrogeological instability	457m	55m	829m
 15 LIFE ON LAND Environmental protection, certification and protection of biodiversity	1m	17m	187m
 15 LIFE ON LAND International cooperation for environmental protection	53m	116m	96m

Figure 8: Allocation of net proceeds⁸

Environmental, economic and social impact of financed expenditure with the proceeds of the 2031 Green BTP in the category 'Protection of the Environment and Biological Diversity'⁹



250
Reduction of CO₂
(ktons/year)



581
Gross Domestic Product
(million euro/year)



9,4000
Employment
(work units/year)

8 Source: https://www.dt.mef.gov.it/export/sites/sitodt/modules/documenti_en/debito_pubblico/btp_green_post_emissioni/2023-Allocation-Impact-Report-Italy-Sov-Green-Bond-IT-20230616-EN.pdf
https://www.dt.mef.gov.it/export/sites/sitodt/modules/documenti_en/debito_pubblico/btp_green_post_emissioni/Report-2024-Allocation-Impact-Report-Green-Bond-25.06.2024.pdf

9 Source: https://www.dt.mef.gov.it/export/sites/sitodt/modules/documenti_en/debito_pubblico/btp_green_post_emissioni/Report-2024-Allocation-Impact-Report-Green-Bond-25.06.2024.pdf



Engaging Issuers on the topic of Biodiversity

As environmental, social, and governance (ESG) factors have overtime become increasingly material in investment decision-making, Asset Managers recognise the importance of engaging with issuers, with the aim of better understanding certain risk exposures and positively influencing managements' decisions.

Active ownership is important for several reasons: it can help to assess the long-term sustainability of business operations, for example, or how potential regulatory changes could affect a company's operations, and therefore its performance and value. Biodiversity engagement is particularly important because it's a relatively new issue to assess and monitor for most companies, information is generally fragmented and of poor quality, and the data availability is still limited (although improving). Biodiversity loss can pose material risks to companies across industries and engagement with issuers could enable Asset Managers to identify biodiversity-related risks in their investment portfolios.

In addition, shareholders, customers, employees, and regulators are placing increasing importance on biodiversity management, so engaging with issuers on biodiversity could enable Asset Managers to better align with evolving stakeholder expectations.

In this context, **Nature Action 100**, the first global investor engagement initiative to address the urgent crisis of nature and biodiversity loss around the world, was launched in 2023 with the aim

Biodiversity loss can pose material risks to companies across industries and engagement with issuers could enable Asset Managers to identify biodiversity-related risks in their investment portfolios

of engaging 100 companies in key sectors. The 190 participating institutional investors, including Eurizon Capital SGR, pledge¹⁰ to seeking explicit commitments from target companies to:

- Publicly commit to minimising contributions to the main drivers of nature loss and to conserving and restoring ecosystems;
- Assess and disclose nature-related dependencies, impacts, risks and opportunities at the operational level and throughout the value chain;
- Set time-bound, context-specific and science-based targets;
- Develop a company-wide plan for achieving the targets;
- Establish board oversight and disclose management's role in assessing and managing nature-related dependencies, impacts, risks and opportunities;
- Engage with external parties, including value chain actors, industry associations and policy makers.

5.1 Case Study: Eurizon Naturewatch screening

Eurizon's addresses Biodiversity mainly through Active Ownership – Engagement, an ESG strategy applicable to across its products. In fact, through specific engagement activities involving target issuers, Eurizon aims to encourage companies to assess (i) their energy

transition potential and the degree of alignment to the so called "net zero" pathway and (ii) their impact on biodiversity and ecosystems, including through value chains.

Furthermore, Eurizon's Sustainability Policy aims

¹⁰ Source: <https://www.natureaction100.org/investor-expectations-for-companies/>

to mitigate negative impacts of investment decisions on Biodiversity, such as Negative Screening (exclusions or restrictions) being applicable to Issuers that: (i) generate revenues from activities considered highly detrimental for the environment and from a carbon emission perspective (mining and electricity generation from thermal coal and oil sands extraction); (ii) are potentially highly-exposed to environmental issues, as signalled by the 'CCC' ESG rating provided by MSCI ESG Research.

In order to identify issuers whose sites or operations are located in or close to biodiversity-sensitive areas and have negative impacts on these areas, since 2024 Eurizon has adopted a proprietary screening model: **"Eurizon Naturewatch"**, inspired by the principles contained in the GBF.

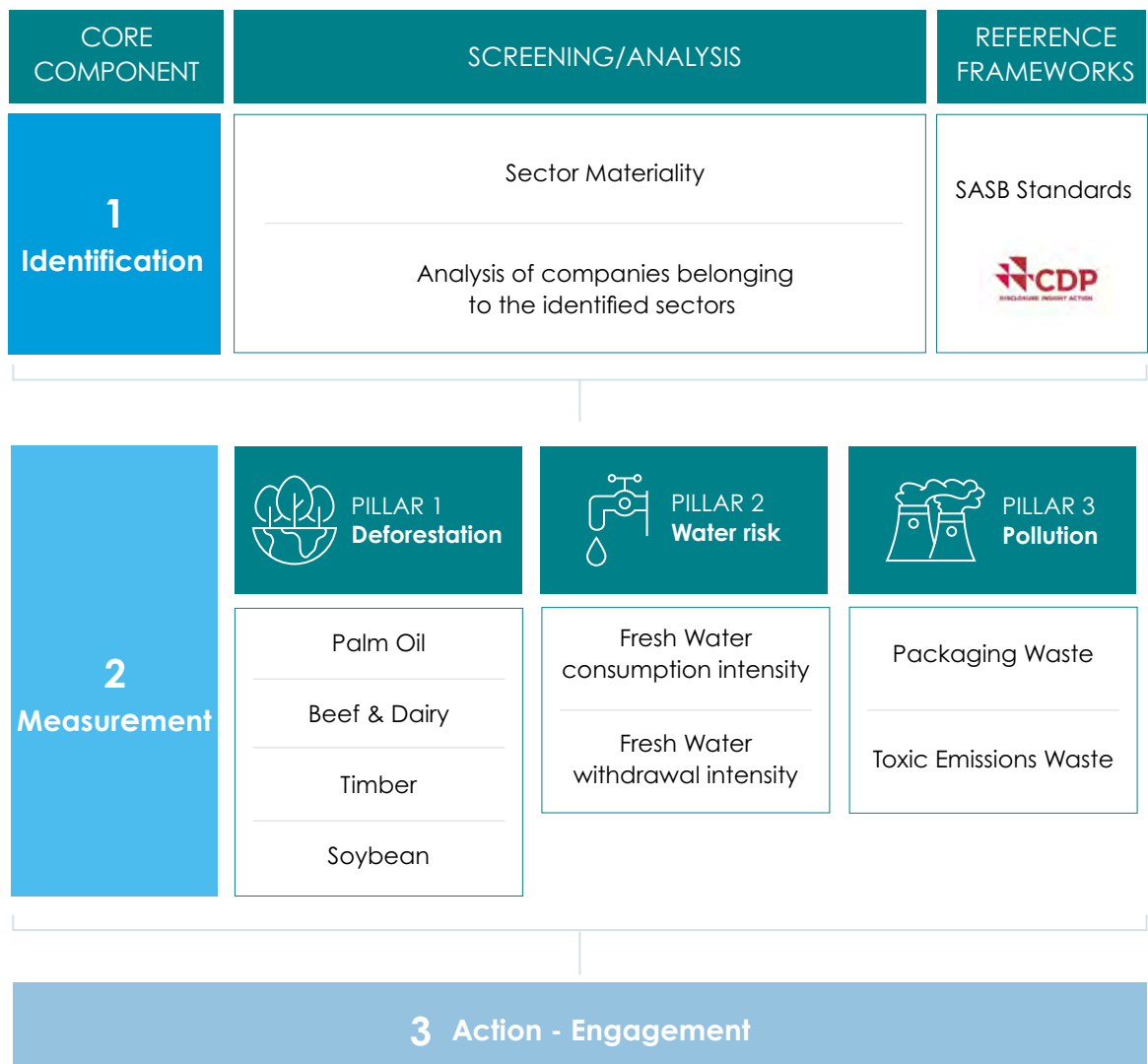
The methodology uses data from (i) MSCI ESG

Research, (ii) CDP, and (iii) public data platforms specialised in screening issuers on deforestation, and is built around three key phases:

- **Phase 1: "Identification"**
 - companies are assessed according to their potential negative impact on biodiversity based on their sector and the geographical location of their operations/production sites;
- **Phase 2: "Measuring"**
 - companies' activities are assessed according to their dependencies and impacts on biodiversity;
- **Phase 3: "Engagement"**
 - companies identified through Phase 1 and 2 are targeted for specific engagement activities in order to encourage them to take corrective measures and to implement initiatives aimed at more sustainable development over time.

Figure 10: Eurizon Naturewatch

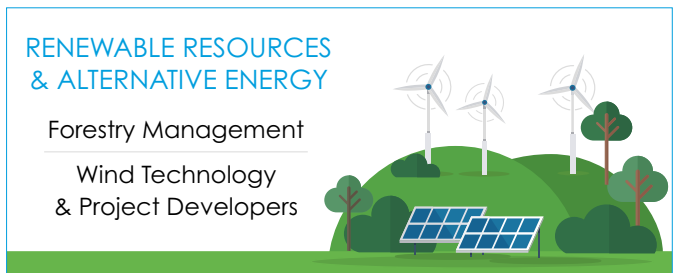
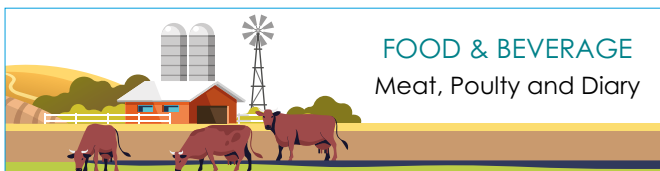
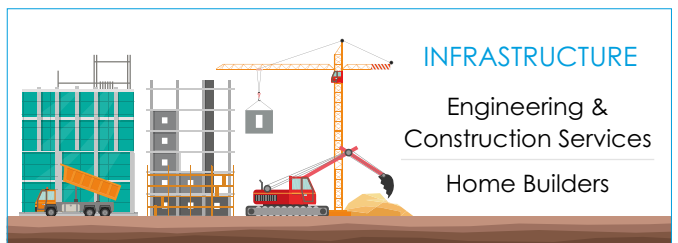
Source: <https://sasb.ifrs.org/standards/materiality-finder/>



1 - Identification

The identification phase uses the Sustainability Accounting Standards Board (SASB)¹¹ materiality matrix to identify those sectors that are most prone to ecological impacts, mapped to the Statistical Classification of Economic Activities in the European Community (NACE)¹².

Within the most impactful sectors, companies with high-impact operations and assets in fragile ecosystems and biodiversity sensitive areas are identified, analysed and scored using indicators related to management oversight and the existence of policies and actions to reduce biodiversity loss.



INDICATORS	CRITERIA
Operations	Companies with more than 20 percent of operating assets in business segments with potential negative impact on terrestrial or marine ecosystems
Location of assets in fragile ecosystems	Percentage of the company's assets located in fragile ecosystems and biodiversity-sensitive areas
"Management Biodiversity Awareness Score"	<ul style="list-style-type: none"> Board-level oversight and/or executive management-level responsibility Public commitment and endorsement of biodiversity initiatives Assessing the impact of the company's value chain on biodiversity Actions taken in relation of Biodiversity-related commitments Indicators to monitor biodiversity performance

¹¹ SASB is an independent nonprofit organization that proposes the establishment of common standards aimed at developing a single language on the financial impacts of sustainability to help both companies and investors.

¹² General classification system used to systematize and standardize definitions of economic/industrial activities in the states that are part of the European Union. In this regard, sectors attributable to NACE A-D; F; H-I are material.

2 - Measurement

Subsequent to the analysis carried out during the Identification phase, companies are assessed based on their activities and possible negative impacts on biodiversity: (i) deforestation; (ii) water risk; (iii) pollution, packaging disposal and toxic emissions.

Deforestation

We analyze companies that can directly and indirectly impact deforestation.

The methodology used to define issuers exposed/involved in deforestation activities includes the analysis of the following indicators:



INDICATORS	CRITERIA
Direct or indirect production of products linked to deforestation risk and/or Failure to respond to CDP Forests ¹³	<ul style="list-style-type: none"> • Companies with products linked to potential deforestation practices • Companies which derive more than 20% of their revenue from a product with potential forest impact • Target companies of CDP Non-Disclosure Campaign
“Management Deforestation Awareness Score”	<ul style="list-style-type: none"> • Assessment of deforestation-related risks and their potential strategic-financial impact • Board-level oversight and/or senior management responsibility of investee companies with respect to deforestation • Presence of a board member with expertise in deforestation issues • Existence of incentives for senior management or board members to address forestry issues • Policy including risk/opportunity management related to deforestation • Public engagement and support for deforestation-related initiatives • Targets related to forest impact mitigation • Traceability systems to monitor the origin of products and certification schemes to verify the origin and sustainability of raw materials • Working with smallholders farmers to promote good agricultural practices and reduce deforestation and/or conversion of natural ecosystems • Dialogue with communities prior to the establishment of new sites and application of the principle of Free, Prior and Informed Consent¹⁴
Sorting and selecting companies by product	Selection of companies active in: <ul style="list-style-type: none"> • Palm oil production • Livestock and dairy production • Logging related production activities • Soybean production
Targeting a subgroup of companies for the engagement activity	For each product-related sector, the explicit commitment to sustainable sourcing of raw materials, traceability, and the level of certification by external bodies to international standards are assessed.

¹³ The CDP Non-Disclosure Campaign identifies companies for whom deforestation is an environmental and financial issue, and who are not currently disclosing the data needed to measure risk and opportunity in this area.

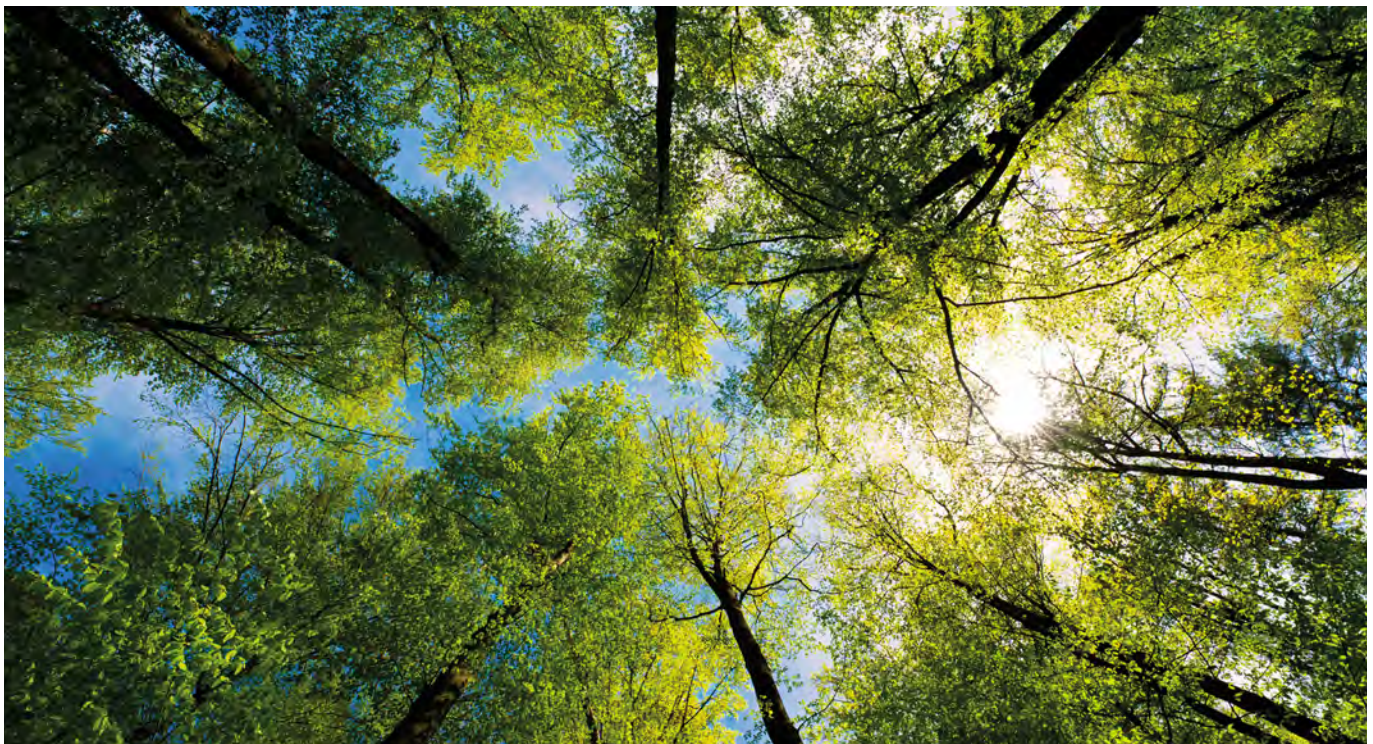
¹⁴ Free, Prior and Informed Consent (FPIC) is a specific right of indigenous peoples recognised by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which is in line with their universal right to self-determination.

Water risk

The methodology used to define issuers exposed to water risk include:



INDICATORS	CRITERIA
<p>Identifying companies that threaten biodiversity through intensive water use / withdrawal</p>	<ul style="list-style-type: none"> • Companies with more than 50% of their assets located in water-intensive regions • Companies with an increasing trend in freshwater use intensity
<p>“Management Water Security Awareness Score”</p>	<ul style="list-style-type: none"> • Assess water safety risks and their potential strategic-financial impact and opportunities • Assess the impact of the value chain on the operations' water safety and the existence of specific water management requirements for suppliers • Penalties for non-compliance with water regulations • Identification and classification of potential water pollutants that could adversely affect aquatic ecosystems or human health • Board-level oversight and/or senior management responsibility for water resource management • Presence of a board member with expertise in water risk management • Presence of incentives for senior management or board members to manage water issues • Policies that include water security-related risk/opportunity management • Qualitative-quantitative targets for reducing water consumption/abstraction • Public engagement and sponsorship of water management initiatives



Pollution, packaging disposal and toxic emissions

Eurizon is committed to monitoring the impact of companies' activities on the ecosystem through the production and use of packaging materials and/or the release of toxic emissions.



INDICATORS	CRITERIA
Identifying companies whose activities pollute the atmosphere and/or the environment through packaging	<ul style="list-style-type: none"> Companies that derive more than 50% of their revenues from countries or regions where regulations on packaging materials and/or disposal are strict and/or likely to be tightened; Companies whose products are highly dependent on the production or use of packaging materials; Companies that derive more than 50% of their revenues from disposable products with significant packaging.
"Management Packaging Pollution Awareness Score"	<ul style="list-style-type: none"> Assess the management of risks/opportunities throughout the value chain and their potential financial or strategic impact; Transparency on the type of materials used in packaging and mapping of plastics used and/or produced in the value chain; Assessment of the potential environmental and human health impacts of the use and/or production of plastics; Packaging with improved environmental characteristics and/or products subject to recovery efforts by the company; Company strategy for implementing improvements in the environmental impact of packaging and/or targets related to the use of plastics.

Toxic Waste Pollution

INDICATORS	CRITERIA
Identification of companies whose activities pollute the atmosphere and/or the environment through toxic emissions	<ul style="list-style-type: none"> Companies whose products are characterised by high toxicity, carcinogenicity, and hazardous waste; Companies that derive more than 50% of their revenues from activities that typically generate large amounts of toxic emissions; Positioning of the company in relation to the toxic emissions intensity of competitors; Assessing the risk of incurring liabilities related to pollution, contamination, and emissions of toxic and carcinogenic substances.
"Management Toxic Waste Pollution Awareness Score"	<ul style="list-style-type: none"> Assessment of risk and opportunity by the Company's Management Presence of a strategy and targets to reduce the company's toxic emissions Commitment and/or strategy to reduce toxic emissions associated with its supply chain

3 - Engagement

During the engagement phase, companies that are characterised by a higher dependency on activities that may have a negative impact on biodiversity and/or that lack management awareness are targeted with the aim of encouraging possible remedial actions such as (i) the definition of public commitments and possible improvement targets; (ii) the implementation of robust governance measures; (iii) the implementation of specific internal policies; (iv) supply chain management, including traceability of raw materials used; (v) transparency on the results achieved and on the performance against any targets identified.

The results of engagement activities are reported to the ESG Committee at least quarterly and the Committee decides, as part of its engagement escalation procedure, on the potential divestment of companies for which critical issues have been identified without any willingness to remediate.

Eurizon is committed to developing its sustainability and engagement policy in order to assess the consistency of the methodologies adopted in relation to the evolution of best practices developed nationally and internationally. ■





A specific initiative to promote Biodiversity: Bioforests & Flower Strips

Bioforests in urban and suburban areas are specifically designed to conserve and enhance local biodiversity. They generally comprise different trees and shrub species typical of the area in which they are planted and functional to the type of biological and ecosystem services that need to be maximised: protection of avifauna, pollinators, mammals.

These ecosystems can provide multifunctional benefits to society: the ability to absorb and store atmospheric CO₂, to improve air quality and reduce the urban heat island effect, and to create a biodiversity hotspot. In addition, they also contribute to:

- The reduction of soil degradation,
- The improvement of soil permeability, resulting in better infiltration and drainage of heavy rainfall,
- The counteracting of land consumption.

In addition, the development of Bioforests can be accompanied with "Flower strips for beneficials", that are sections of land dedicated to growing flowers with the aim of promoting biodiversity in agricultural landscapes and beyond, by supporting pollinators, creating habitats, enhancing genetic diversity, improving ecosystem, and contributing to climate resilience. More specifically, the main ways in which flower strips can contribute to the preservation and conservation of biodiversity are the following:

- **Habitat Creation:** providing additional habitats for a wide range of pollinators, including bees, butterflies, and other beneficial insects. These strips offer food sources, shelter, and breeding sites, especially in intensively managed agricultural areas where natural habitats are limited;
- **Pollinator Support:** attracting pollinators essential for the reproduction of many plant species and contribute to ecosystem resilience through pest predation;
- **Biodiversity Hotspots:** supporting a variety of plant species, insects, birds, and other wildlife. This increased diversity can have cascading benefits for ecosystem and overall ecological resilience; experiments have shown that densities of the harmful cereal-leaf beetle in adjoining fields of winter wheat were 40 to 53% lower than when no flower strips were sown at the field margin (Swiss Confederation, 2021);
- **Genetic Diversity:** connecting fragmented habitats and providing corridors for species movement, flower strips help maintain genetic



The main purpose of flower strips is to enrich the biodiversity of the soil fauna with pollinators and beneficial species that reduce the density of pest populations

- diversity that is critical for species adaptation to changing environmental conditions and for long-term species survival;
- **Erosion Control and Water Quality:** help mitigating soil erosion by reducing surface runoff and enhancing soil structure;
- **Climate Resilience:** flower strips could be an option for increasing croplands' stock of organic carbon: a study by the Aarhus University in Denmark showed that converting 1 % of the total German cropland area into flower strips would lead to a mitigation of equivalent of 0.4% of agricultural greenhouse gas emissions in Germany (Harbo Laura Sofie, Jan 2023);
- **Educational Value:** raising awareness about the importance of biodiversity conservation and sustainable land management practices.



Bioforests and Flower Strips in Parco Nord with Rete Clima

In April 2024, Eurizon partnered with Rete Clima¹⁵ to plant 300 trees and create 30 meters of flower strips in Parco Nord, Nova Milanese, an area identified for its high ecological potential. Flowers planted include poppies, cornflower, yarrow and borage.

According to Rete Clima estimates, this project could contribute to:

- +40% increase in soil water retention, more moisture for longer due to wood chips placed on top of the soil;
- +39% rate of soil compaction, greater possibility of soil aeration, with more oxygenation;
- +20-25% water infiltration rate, increased water permeability of the soil;

Thus resulting in:

- up to +65% increase in the growth rate of plant species;
- +55% increase in presence of insect species;
- +10-25% increase in bird presence;
- Increase in small mammals.



¹⁵ A charitable donation was made to Rete Clima ONLUS, pursuant to the offering documentation of certain funds belonging to the Eurizon "Ethical System"



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