Iceberg Data Lab

Enabling Sustainable Goals

Corporate Biodiversity Footprint- Methodological guide

Version: April 2022

Introduction

This guide explains Iceberg data Lab's methodology to assess the annual biodiversity impact of Corporates, Financial Institutions and Sovereign issuers. The methodology is called Corporate Biodiversity Footprint ("CBF"). It was designed to support the needs of financial actors related to their investment strategies (portfolio or index development, exclusions, risk management), reporting requirements, stewardship, and engagement policies. The CBF is based on the impact of the underlying activities of a Corporate which are the sources of its impact on nature. The CBF follows the generally accepted environmental accounting rules, uses a science-based approach covering all the material impacts of the corporates supply chain, processes, and products throughout their value chain.

Date	Version	Main author	Reviewer	Diffusion
April 01, 2022	V2	Benoît Maréchal	Matthieu Maurin	Clients

Contents

I. The overall context

Often referred to as the sixth mass extinction, the current acceleration of global biodiversity loss is one of the most significant threats to society (OECD, 2019). The steep increase of the rate of species loss since 1900 provides a measure of the scale of this global phenomenon (IPBES, 2019). The average abundance of native species in most major land-based habitats has fallen by at least 20% and 25% of all species are threatened today with extinction (IPBES, 2019). Of the global limits set for the nine Earth processes essential to sustain human life on Earth, three have already been exceeded[1,2] as shown in figure 1. Of these, the global biodiversity limit has been exceeded the most. Through the reduction in the provision of ecosystem services, estimated to be worth US$125-140 trillion annually, and natural resources, this extinction threatens the sustainability of economic models and the financial system[3].

For corporates and financial institutions, the degradation of global biodiversity poses both a direct threat, through the depletion of the natural capital resources they exploit and the ecosystem services that support their business. This double materiality of biodiversity was also recognized by the EU in recent regulation developments, namely the Corporate Sustainability Reporting Directive (CSRD) and the Sustainable Finance Disclosure Regulation (SFDR), which require companies and financial institutions to report on some aspects related to their impacts on biodiversity.

In this context, and lacking clear visibility of their environmental impact, some companies and financial institutions are increasingly interested in natural capital accounting to mitigate their impacts and measure their risk. A new set of indicators are needed to supplement the traditional financial key performance indicators.

[1] Lucas, P., Wilting, H., Paul Lucas, A., Wilting Supervisor Olav-Jan van Gerwen, H., 2018. TOWARDS A SAFE OPERATING SPACE FOR THE NETHERLANDS: Using planetary boundaries to support national implementation of environment-related SDGs. Policy Brief. The Hague.

[2] Rockström, Johan, Will Steffen, Kevin Noone, Åsa Persson, F Stuart Chapin III, Eric F Lambin, Timothy M Lenton, et al. 2009. « A safe operating space for humanity ». *Nature* 461 (September): 472.

[3] Suttor-Sorel, L., 2019. Making Finance Serve Nature. From the niche of Conservation finance to the mainstreaming of Natural Capital approaches in financial systems.

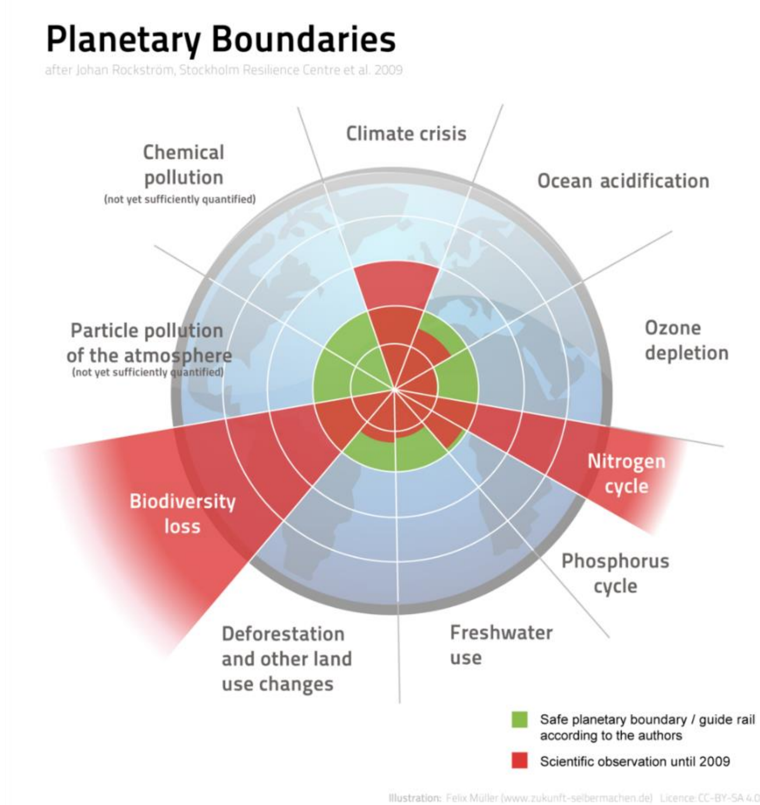

Figure 1: Illustration of the planetary limits for the nine Earth system processes that are essential for maintaining favourable conditions for human development (Rockström et al., 2009).

II. The Corporate Biodiversity Footprint Methodology

The MSA to quantify the impact on Biodiversity

The « **Mean Species Abundance** » (**MSA**) is a biodiversity indicator expressing the average relative abundance of native species in an ecosystem compared to their abundance in undisturbed ecosystems. This indicator is based on species abundance. It is therefore an indicator that measures the conservation status of an ecosystem in relation to its original state, undisturbed by human activities and pressures. For instance, an area with an MSA of 0% will have completely lost its original biodiversity (or will be exclusively colonised by invasive species) whereas an MSA of 100% reflects a level of biodiversity, equal to an original, undisturbed ecosystem.

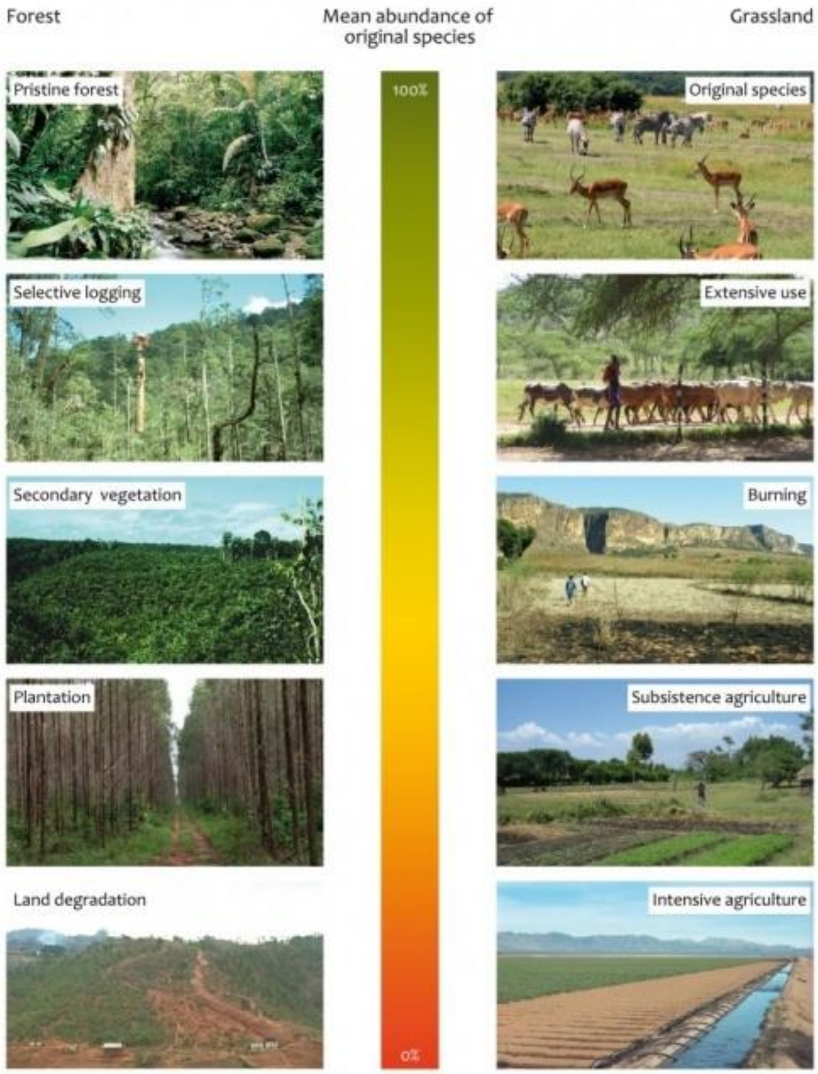

Figure 2: Photographic illustration of MSA variation for forest and grassland ecosystems (GLOBIO, 2019).

This indicator was proposed as part of the development of the GLOBIO3 model, the objective of which is to simulate the impact of different human pressure scenarios on biodiversity. The GLOBIO model was developed by PBL Netherlands Environmental Assessment Agency and is designed to inform and support decision-makers by quantifying global human impacts on biodiversity. GLOBIO calculates the local terrestrial biodiversity intactness, expressed by the MSA indicator. The core of the model consists of quantitative pressure-impact relationships that have been established based on extensive terrestrial biodiversity databases.

The CBF methodology uses the Mean Species Abundance (MSA) to express its biodiversity score because:

- it offers the largest and more robust toolbox in terms of damage functions in the scientific literature for the following reasons,
- it is a holistic approach of the biodiversity impact of corporates adapted to appraise portfolios, unlike more microscopic indicators (endangered species, availability of specific ecosystem services) which are fitter for project analysis,
- it is endorsed by the international scientific community and multilaterals (IPBES, IPCC, 2007), and recommended by the United Nations for the measurement of biodiversity (CBD, 1997),

- It is a commonly used metric for measuring the biodiversity footprint of companies, of which several case studies have already been published[4, 5, 6, 7]

Factoring the pressures from the corporates' businesses

The CBF models the impact of corporates through four main environmental pressures on species and habitats. These pressures are calculated along the whole value chain of the corporate, appraising their processes, products, and supply chains. All pressures are aggregated into scope 1, 2 and 3 according to the definitions and boundaries set forth in the GHG Protocol.

• Change of land use

• Climate change with greenhouse gases emissions

• Air Pollution, leading to the ecosystems' disturbance due to eutrophication and acidification (Nitrogen and Sulphur)

• Water Pollution: Release of toxic compounds in the environment

Calculation of the CBF

1 Assess the products purchased and sold by the company throughout its value chain based on our internal physical Input/Output and allocate the company's product flows by NACE[8] sector,
2 Calculate the company's environmental pressures based on its products' flows,
3 Translate the pressures through pressure-impact functions into the same biodiversity impact unit, which is km^2.MSA,
4 Aggregate the different impacts into an overall absolute impact and calculate several ratios (physical and financial ones). It allows to avoid biases due to entity size or more accurately assess the impact of financing the entity.

---

[4] Baltussen, W, T Achterbosch, E Arets, A de Blaeij, N Erlenborn, V Fobelets, P Galgani, et al. 2016. *Valuation of livestock eco-agri-food systems: poultry, beef, and dairy*. *Wageningen, Wageningen University and Research, publication 2016-023*.

[5] Chaplin-Kramer, Rebecca, Sarah Sim, Perrine Hamel, Benjamin Bryant, Ryan Noe, Carina Mueller, Giles Rigarlsford, et al. 2017. « Life cycle assessment needs predictive spatial modelling for biodiversity and ecosystem services ». *Nature Communications* 8 (1): 15065. https://doi.org/10.1038/ncomms15065.

[6] Bie, Steven De, et Jolanda Van Schaick. 2011. « COMPENSATING BIODIVERSITY LOSS Dutch companies' experience with biodiversity compensation, including their supply chain, The 'BioCom' Project. De Gemeynt, Klarenbeek. »

[7] Wilting, H.C., van Oorschot, M.M.P., 2017. Quantifying biodiversity footprints of Dutch economic sectors: A global supply-chain analysis. J. Clean. Prod. 156, 194–202. https://doi.org/10.1016/j.jclepro.2017.04.066

8 The European classification system of economic activities

Translating the pressures in the same biodiversity impact unit

Each environmental pressure is translated into a quantified impact on terrestrial or freshwater biodiversity, expressed in km²MSA. A negative result indicates an overall negative contribution to biodiversity conservation (i.e. decrease of biodiversity abundance).

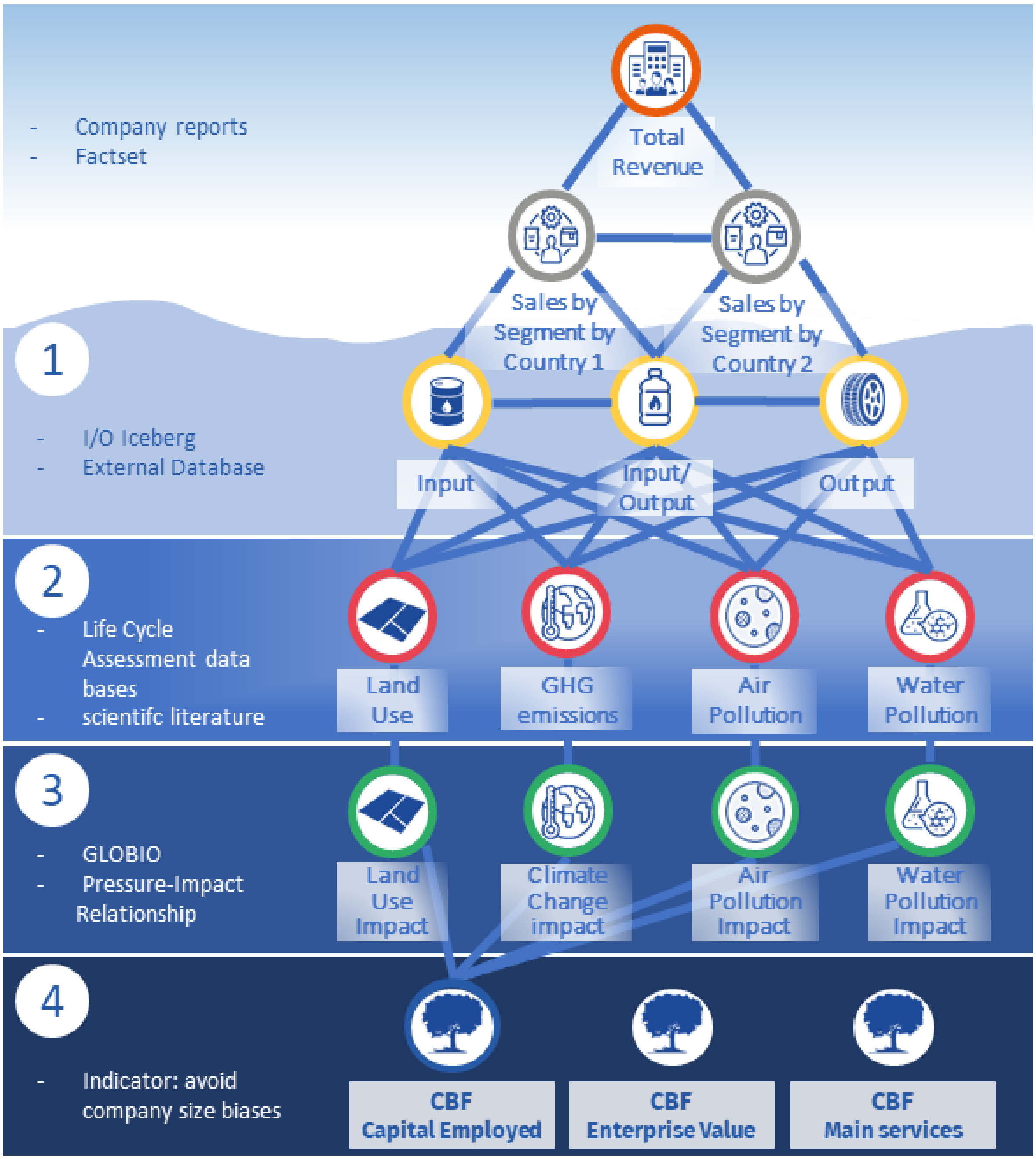

Figure 3 – The Iceberg model of the CBF

III. The different sources of pressures

The Corporate Biodiversity Footprint aims at covering the most material pressures on Biodiversity, as summarized in the IPBES reports (i.e. land and sea use change, pollution, climate change, overexploitation of biological resources, invasive species).

The capacity of data providers to assess the impact of corporates relies on the robustness, comprehensiveness and availability of science-based approaches developed by academics and consultants. The main limiting factor is the existence of robust relation between the pressures and the impact expressed in MSA.km² and the availability of data at corporate level to document the most material impacts. Of particular importance are the capacity to provide a level playing field to compare issuers in a same sector and to provide a correct "merit order" of the pressures/impacts/corporates.

The Corporate Biodiversity Footprint assesses the most material pressures on terrestrial biodiversity shown in Figure 4.

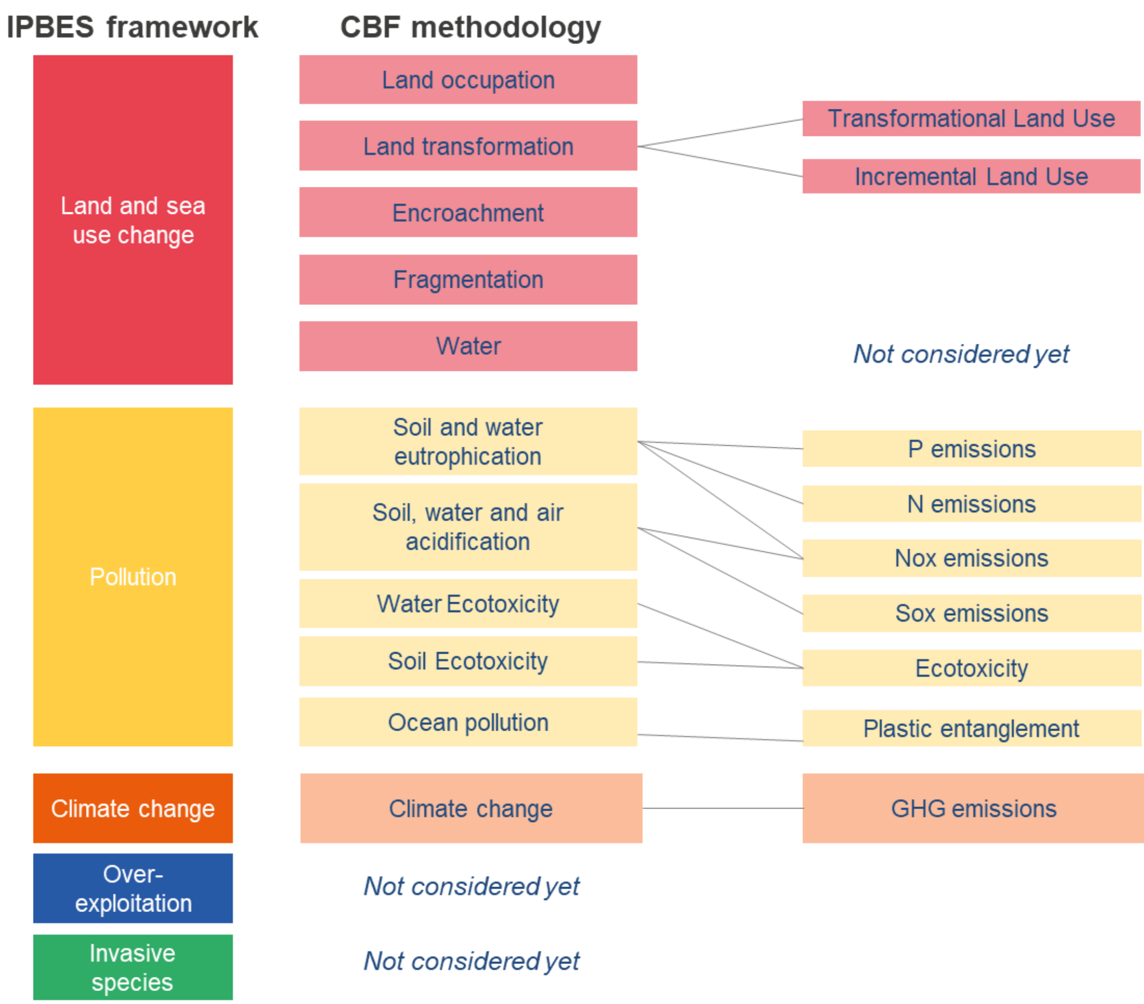

Figure 4 - Pressures considered in CBF methodology. Source: Authors, Apr. 2021

The pressures in scope are presented in more details below.

Change of Land use

Land use is defined as the human use of a specific area for a certain purpose (such as residential; agricultural; recreation; industrial, etc.) whereas land use change refers to a change in use or management of land by humans (IPBES 2020). Land use change is the leading cause of global biodiversity loss due to its direct impact on habitats of species.

Within the "Change of Land use" pressure, the CBF methodology currently models four sub-pressures:

- land occupation
- land transformation
- Fragmentation
- Encroachment

Land occupation corresponds to maintaining an area in different biodiversity level than before due to a current operation, which prevents its return to a pristine state. Land occupation impacts correspond to the biodiversity loss due to the ongoing operation of the company (for instance, operating a factory).

Land transformation corresponds to the transformation of an area from one land use to another, with an improved or deteriorated biodiversity abundance. Land transformation impacts correspond to the difference in biodiversity abundance before and after transformation, over the area considered and the time required for a spontaneous return to a pristine state, which is the relaxation time. Two secondary sub-pressures result in Land transformation:

- Transformational land use refers in our model to the area of land that is transformed during the year to maintain the same level of production and consumption as in the previous year. For some activities, e.g. mining, transformational land use occurs if the resources of the previous occupied surface are depleted, and the activity needs to move to an area where the necessary resources are available to maintain a stable output.

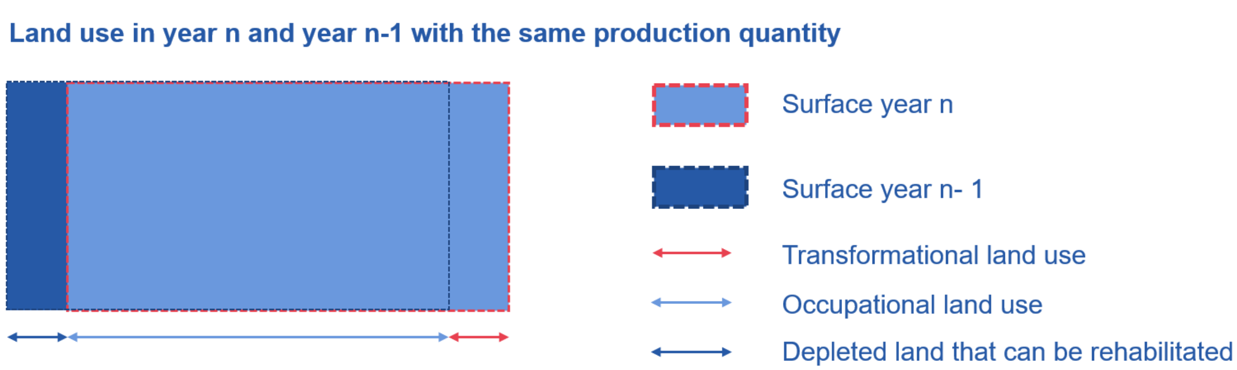

Figure 5 – Occupational and transformational land use

Relaxation time

The concept of relaxation time comes from Life Cycle Analysis and represents the time required for an ecosystem to return naturally to its initial state. Due to ecological considerations, such a concept is of course very locally dependent. Ranges go from 7 years required for open biomes to restore to 1000 years for natural forests, depending on sources, the definition of restoration, past degradation, etc.
Based on location hypotheses, available data and type of commodity, different relaxation times are used to calculate the transformational, incremental and the occupational land use.

- Incremental land use corresponds to the additional surface that a corporate occupies compared to the previous year. This incremental land use is triggered by the increase of production or consumption which leads globally to a change of land use and reflects the evolution in the production level of the company. In comparison to transformation land use, the incremental land use does not necessarily convert land. However, the Incremental land use leads generally to the transformation of natural landscapes into agricultural or industrial areas.

Artificialization ratio

The Land Use calculation factors an artificialization ratio because an increase of activity of a producer may reflect an evolution in market share and does not necessarily reflect a higher use of land.

For instance, in the real estate sector, a purchased building is already built, so the growth of an asset manager does not lead to an incremental land use.

Fragmentation emphasis the impact of human activities through the splitting of natural landscape like forests or grassland. Divided in several pieces, those ecosystems are less resilient and local biodiversity tends to decrease.

Encroachment corresponds to the perturbation induce through lights and noises that can lead to biodiversity loss. This perturbation affects an area around the occupied area, the size of the area obviously depends on the type of assets occupied. It typically occurs around transport infrastructure such as highways or railways.

Pollution

The Corporate Biodiversity Footprint considers several types of pollution, air, and water pollution. Depending on the sectors, and on their contribution to global emissions of pollutants, diverse pollution flows are considered.

Air Pollution

"Air pollution" aggregates terrestrial acidification and terrestrial eutrophication. Our model factors the most material sources of air pollution, which are the emissions of Nitrogen (impacts on acidification and eutrophication) and of Sulphur (acidification impact).

Figure 6 –Air Pollution Pressures

Acidification	**Eutrophication**
Terrestrial acidification is a natural process occurring in various ecosystems (forests, grasslands mainly) consisting in a decrease in soil pH. Acid precipitations are the main driver of anthropogenic terrestrial acidification, and they are caused by the release and reactions of Sulphur and Nitrogen in the air. These emissions are ultimately deposited and dissolved in soil solutions. These impacts drive to low soil fertility (yellowing of plant leaves, seed germination failure, decrease in new root production, etc.). This finally results in a lower local biodiversity.	Eutrophication is a natural phenomenon due to an excess of Nitrogen and Phosphorus compounds in the ecosystem. Eutrophication usually happens in water (freshwater or marine), but the concept can also be extended to land. In terrestrial environment, an additional input of nutrients (Nitrogen mainly) on a natural ecosystem induces a natural selection of nitrophilous/phosphorous plants, which changes the species distribution of the ecosystem (leaves, seed germination failure, decrease in new root production, etc.). This finally results in a lower local biodiversity.

The impact of air pollution on biodiversity differs from sector to sector. Generally speaking, Air Pollution is high in sectors with combustion and high-temperature processes like, for instance, the Power sector.

Water Pollution

The CBF model quantifies the biodiversity loss in freshwater ecosystems caused by the release of organic or inorganic chemicals into environment by companies. The CBF uses toxicity data from several reference sources (UNEP, SETAC) which characterizes the ecotoxicological impacts of chemical emissions in life cycle assessment.

For instance, the graph below shows a non-exhaustive list of chemicals released due to soy cultivation, leading to the Water Pollution impact on that Product.

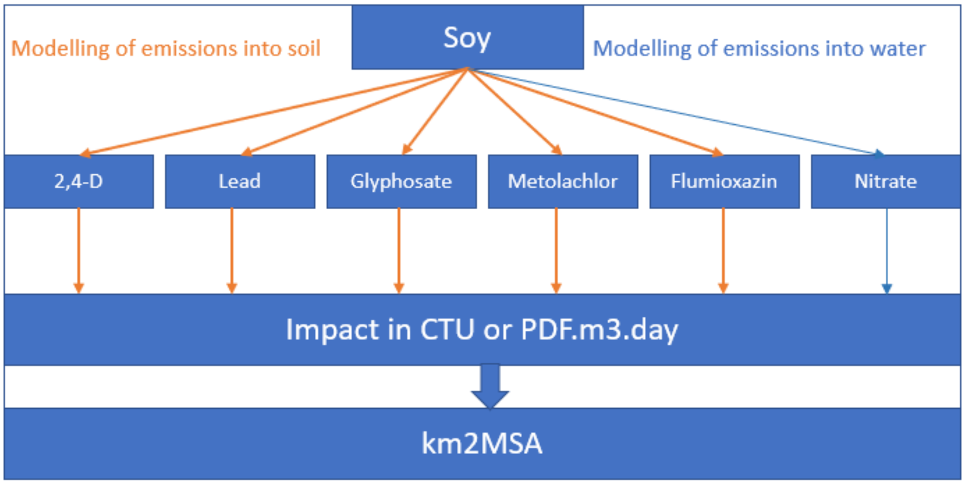

Figure 7 – Water pollutants factored in for soy production

The biodiversity impact of Water Pollution is especially material in sectors using a great amount of chemicals like, for instance, the Metals and Mining sector.

Plastic entanglement refers to a marine organism entrapped in plastics which leads to death or impaired movement or growth.

Climate change

Climate change affects biodiversity by causing shifts in species distribution, often associated with decreases in local species population[9] as some species often cannot adapt as quickly as needed to climate change. The increase of the global average temperature leads to a biodiversity loss of all biomes of the planet.

The link between GHG emissions and biodiversity impacts expressed in relative MSA is based on scientific literature[10].

With the global surface of the biomes and the integrated absolute global average temperature increase potential of CO_2 on a 100-year time horizon, we are able to model the biodiversity loss in km^2.MSA as a function of GHG emissions (tonnes of CO_2eq emitted into the atmosphere).

GHG emissions and their contribution to biodiversity loss is especially important for sectors like Oil & Gas or Power.

9 Alkemade, Rob, Michel Bakkenes, et Bas Eickhout. 2011. « Towards a general relationship between climate change and biodiversity: An example for plant species in Europe ». *Regional Environmental Change* 11 (SUPPL. 1): 143-50. https://doi.org/10.1007/s10113-010-0161-1.
10 Joos, F., R. Roth, J. S. Fuglestvedt, G. P. Peters, I. G. Enting, W. Von Bloh, V. Brovkin, et al. 2013. « Carbon dioxide and climate impulse response functions for the computation of greenhouse gas metrics: A multi-model analysis ». Atmospheric Chemistry and Physics 13 (5): 2793-2825. https://doi.org/10.5194/acp-13-2793-2013.

Scope

Depending on the responsibility of the company to those pressures a "scope" is attributed:

- "Scope 1" : the direct pressures generated by a company, for GHG emissions they come from the combustion of fossil fuels, or chemical reactions, for Land Use they're linked to surface artificialized or occupied directly by the company.

- "Scope 2" : the pressures of a company induced by its electricity, heat, and cooling purchase

- "Scope 3" : all indirect pressures induced by the activity of a company. This scope is very often split in 2 sub scopes : scope 3 upstream and scope 3 downstream. Each of this sub scope is furthermore split in several "sub-sub scope". The scope 3 upstream is associated with the product purchased by the company, while the scope 3 downstream corresponds to the product sold and the investment of the company (for banks and financial institutions for instance).

The Data Quality Level Indicator

With each data point, a Data Quality Level Indicator (DQL) is calculated and based on the input used for the calculation. This shows the sources used for the calculation and the transparency level of the analysed entity or asset. This indicator reflects therefore the degree of uncertainty of the final result.

Four levels of input data quality are available:

- Environmental data reported by companies are considered as best (DQL of 1)
- If no environmental data are not reported, consumption and production data are used to model environmental pressures (DQL of 2).
- If only sales are reported, the volumes are modelled sing our customized Input/Output model (DQL of 3).
- When no data is available, a biodiversity footprint is modelled from sectoral average (DQL of 4)

Indicator

For each impact, an indicator is computed as the ratio of the impact and another metric (see list below). It allows comparison between entity. Iceberg Data Lab calculate 4 different indicators :

- Capital Employed: This ratio assesses the additional biodiversity loss per €Mn of additional capital used by the entity,
- Turnover: This ratio assesses the biodiversity loss per €Mn of revenues of the entity,
- Enterprise Value: This ratio, when multiplied by the €Mn invested in the company, assesses the biodiversity loss attributed to the investor,
- Main services : This ratio assesses the biodiversity loss per unit of commodities or services provided by the company.

IV. Sectoral specificities

Agri-Food & Tobacco

The Agri-food and Tobacco sectors stand out with a high land use in their upstream value chain. The land use is based on the agricultural commodities or processed food. The land use for one ton of agricultural commodity depends on its country of origin and the yield in the corresponding country and year.

Power

The main impact in the sector comes from GHG emissions. The level of land use is based on the capacity, not on the production.

Forest & Paper

The main impact in this sector comes from the land use (forest harvesting) due to the supply chain of pulp and paper manufacturing. Different levels of impacts are modelled depending on the nature of the forest management.

Mining & Metals

The Metals & Mining sector has a direct and significant biodiversity impact mainly arising from the release of toxic compounds and land use. The Transformational Land Use is an important pressure in this sector because it depletes the area's resources and to keep the same extraction level, new area needs constantly to be transformed.

The manufacturing of metals requires the energy-intensive processing of large amounts of ores which emits GHG and creates tailings, sludge, and toxic waste, next to the visible impact in the natural landscape.

In case of the Coal mining, GHG emissions are also a main contributor to the biodiversity footprint due to the GHG emitted during the combustion of the coal.

Industrial equipment

The main material impact of the sector comes from the final use of industrial equipment. Indeed, most industrial equipment (such as engines, machinery, generators, ovens…) are very energy-intensive and they mainly are powered by fossil fuels. Hence, the GHG emissions tend to be the main impact of the sector. Additionally, the sector has an impact on biodiversity as industrial equipment manufacturing requires a great deal of metals which leads to water and soil pollution (see Mining & Metals).

Retail and Wholesale

The main impact in this sector comes from the land use in the upstream value chain due to the purchased products (see Agri-food). This sector does not factor yet the transportation impact.

Automotive & Logistics

The most material impact arises from the upstream value chain through the change of land use due to the sourcing of parts and raw materials to manufacture vehicles. Another important material impact are the GHG emissions and air pollution that arise from the final use of vehicles where fossil fuels are by far the main energy source.

Materials

The Materials sector and its impacts is mostly comprised of companies manufacturing cement and other binding materials for use in construction. Raw materials such as limestone and gypsum are often sourced from quarries which carry significant land use and land transformation impacts, and the transformation of raw materials into clinker requires vast amounts of energy from energy sources with high energy densities and releases high amounts of GHGs through the decarbonation process.

Financial services

The capital provided, in the form of financing and investment, has an indirect impact and is the most material impact (scope 3 downstream). The difference between constituents arises from the specificity of their sectoral allocation.

Electronics

The Electronics sector has an impact on biodiversity mainly arising from the upstream value chain through the land used for the extraction of raw materials needed for the manufacture of electronic devices.

Another material driver of the impact on biodiversity arises from GHG emissions induced by the electricity needed during the use phase of devices, as the world electricity mix still heavily relies on fossils fuels.

Transportation

The transportation sector is divided into 4 means of transport: road, rail, sea, and air and 3 segments: equipment manufacturers, infrastructures operators and fleet operators.

Land fragmentation is a major impact in the road transportation sector, due to the impact of infrastructures that split natural habitats like forests or grassland.

On the other hand, air and sea transportation main impacts come from the GHG emission and air pollution related to use phase of vehicles

Pharmaceutical

The pharmaceutical sector is comprised of companies manufacturing basic pharmaceutical products and medical supplies. The main impact of basic pharmaceutical products comes from water pollution downstream, related to their high toxicity.

For manufacturers of medical supplies and equipment, the main impact comes from the raw materials used (metals, plastic, textile, etc.).

Chemicals

The causes of the impact on biodiversity in the chemical sector differ greatly depending on the main activity. For producers of pesticides and other agricultural inputs, the impact arises from water pollution related to the use of such products. Companies producing plastics also have an impact on water pollution through plastic entanglement as 5% of plastic produced ends up in the ocean.

The main impact of manufacturers of basic chemical products comes from the Change of Land Use related to their raw materials (proteins, alcohol, etc.)

Electrical equipment

Most of the Electrical equipment sector's impact on biodiversity mainly arises from their upstream value chain through the land used for the extraction of raw materials.

Beverages

The beverage sector's main impact on biodiversity is limited and due to the land used for the cultivation of fruits and grains needed to manufacture beverages products.

Internet & Data

The Internet & Data sector has an impact on biodiversity arising mainly from GHG emissions across the whole value chain:

- through scope 3 downstream emissions coming from online users' use of internet & data services
- through scope 2 emissions induced during the operation of data centres.

Building products

The impact of Building Products are due to the Change of Land Use for raw material extraction - mostly stone, sand, and other aggregates.

The impacts of chemicals produced upstream on freshwater sources and ecosystems are also significant.

Finally, carbon emissions represent around a quarter of the overall impact in the sector due to the need for smelting, drying, and heating during the manufacturing phase of products.

Water

The Water sector has a limited impact on biodiversity, driven by GHG emissions during the treatment of used water. The land used for infrastructure networks is also material for this sector.

Waste

The waste sector has a very limited impact on biodiversity, mostly due to GHG emissions from the combustion of fossil fuels for the waste collection.

Construction & Real Estate

The Construction and Real Estate sector's most notable impacts on biodiversity are induced by the land and energy footprints of buildings. The disruptive direct and indirect impacts on habitats and ecosystems for sourcing raw materials in quarries are also significant – with new building construction in non-urban settings typically leading to a higher negative impact on the surrounding Biodiversity.

Insurance

The Biodiversity impact of the sector is very limited and related to the energy consumption on their direct scope.

Healthcare

The health sector comprises companies focused on care and hospital activities. The main impact of those companies comes from the change of land use, mainly related to consumables in health care facilities: cultivation of raw materials for food distribution, extraction of metals for the manufacture of medical equipment. Water pollution, linked to the use of medicines, is the second driver of impact in this sector.

Services

The Biodiversity impact of the sector is very limited and related to the energy consumption on their direct scope

Telecommunications

The main impact of biodiversity of the telecommunications sector comes from the GHG emissions in the scope 1 and 2 related to the use of offices, computer equipment and the telecommunication infrastructures.

Hotel and accommodation

Overall, the hotel and accommodation sector has a limited impact on biodiversity. Its main contributors are the Change of Land Use due to the upstream food supply chain, the occupational land use of properties and GHG emissions from their energy consumption.

Household goods

The household goods sector comprises of companies manufacturing products intended for end use by households.

The sector's impacts are the highest in the raw material extraction and manufacturing stages, where large quantities of metal, wood and stone are extracted, transported and transformed - which often implies land transformation in rural areas. For some goods, the use phase carbon emissions also present high impacts - particularly those intended for space heating and cooling.

Textiles

The largest biodiversity impact of the textile sector arises from the land occupation, mostly in the supply chain, related to raw materials used to manufacture wearing apparel. Animal-related fabrics such as leather or fur are the most material commodity, due to the breeding and feeding of livestock. Cotton also has a significant impact on land occupation and soil degradation.

V. Methodological bias and limits

The CBF covers the most material biodiversity impacts, and the model is continuously improved. All material biodiversity impacts calculated are supported by robust scientific frameworks (damage functions, pressure factors).

However, there are methodological bias and limits to the CBF methodology, the most important ones being listed below:

- the CBF covers terrestrial biodiversity and partially marine biodiversity, which are in the scope of many inventories, reviews, and damage functions
- the CBF is limited by data availability. Production, consumption, and prices are needed for the Input/Output model and when national sectoral data lack, regional or global data are used

Some pressure factors are not modelled yet, due to the lack of robust models and will be developed over time:

- Invasive species: The introduction and spread of invasive species threatens biodiversity by intruding the habitat of native species. To model this impact, more data of species distribution and movements due to human activities are needed. Further, the impact of introduced species varies according to the species, which cannot be modelled with existing data and limit the possibility to quantify their biodiversity impact.
- Resource consumption: The use of natural resources can have an impact on local biodiversity, which depends on factors such as resource availability in the region, consumption, and renewal rate and on dependencies of species on the concerned resource. More research and data are needed on these issues to implement an approach.

VI. Future developments

The following impacts and indicators are also planned:

- Positive biodiversity impact: several activities like landscape restoration, afforestation and specific agricultural practices can lead to a local increase of biodiversity, approach which will be developed in 2022. This indicator will be split in 3 subcomponents: reduce, avoid, and compensate,

- Dependency: in order to qualify the reliance of companies on Biodiversity and ecosystem services provided by it.

VII. Methodology benchmark

The CBF was developed to be used by financial institutions to report and manage their impact on Biodiversity.

Comprehensiveness:

Its advantages over other approaches are its comprehensiveness. The CBF performs an analysis based on products and assesses their impact throughout the value chain of a Corporate. The CBF uses a very granular Input/Output model, which is regularly improved and updated based on various databases and research. In each sector the most material impacts are assessed.

Additionally, on top of modelled data the CBF uses reported or extrapolated data from company reports and other publicly available information. This allows to get a very company-specific approach, which is more robust than the approaches based on sectoral averages, which fell short of appraising the performance of corporates' products and processes.

Similarly, the CBF uses a Life-Cycle-Assessment approach, calculating the impact throughout a value chain. This ensures that the most material impacts of a company are factored in, even if they are located upstream or downstream of its own operations.

Science-based:

The CBF was developed by a team of environmental and modelling experts in 2019 and expanded in partnership with the environmental expertise of I Care, which steered the expansion of the methodology to all sectors in 2020, leveraging on its own biodiversity expertise.

The methodology and any new development are supervised by a scientific committee to ensure the quality and the relevance of the CBF. The role of the scientific committee is to advise on the key scientific pillar of the methodology, the latest scientific developments and its alignment with best available resources and methodology to account for Biodiversity impacts.

Actionable and recognized:

The CBF was developed by financial professionals to serve the needs of financial institutions with data solutions that are fit to their constraints (auditability, traceability, scalability). It won the call for expression of interest[11] launched in September 2019 by Mirova, Axa IM, BNPP AM and Sycomore AM[12] and is used by major financial institutions to report on their biodiversity footprint[13].

Comparability

The use of indicators allows the comparability of actors either in the sector or in the investment universe.

Public Benchmarks of other biodiversity impact methodologies

The CBF has been reviewed and compared with other methodologies by several organizations:

- the EU Business for Biodiversity platform, whose report can be accessed at:
https://ec.europa.eu/environment/biodiversity/business/tools-and-resources/index_en.htm

- WWF in their report "Assessing Portfolio Impacts Tools to Measure Biodiversity and SDG Footprints of Financial Portfolios" accessible at:
https://wwfint.awsassets.panda.org/downloads/wwf_assessing_portfolio_impacts_final.pdf

Contact and information:

www.icebergdatalab.com
contact@icebergdatalab.com

---

[12] https://www.mirova.com/en/news/iceberg-data-lab-icare-consult-selected-first-biodiversity-impact-measurement-tool

[13] See for instance, https://www.cnp.fr/en/cnp/content/download/9603/file/CNP-BILAN-RSE-2020-EN-01.pdf