Measuring the biodiversity impact of your portfolio

Launch of Biodiversity Impact Analytics Database powered by the GBS®

Agenda

12h30 : Welcoming words
12h35 : Carbone 4 and CDC Biodiversité's common positioning
12h45 : Carbon4 Finance and CDC Biodiversité partnership
12h50 : GBS® core concepts and metrics
13h00 : BIA-GBS® construction and future developments
13h10 : Analysis of the STOXX600 biodiversity footprint using BIA-GBS®
13h25 : BIA-GBS® platform demonstration
13h30 : First users' testimonies
13h50 : Q&A session
14h00 : Final words

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Welcoming words

Marie-Anne Vincent

CEO of Carbon4 Finance

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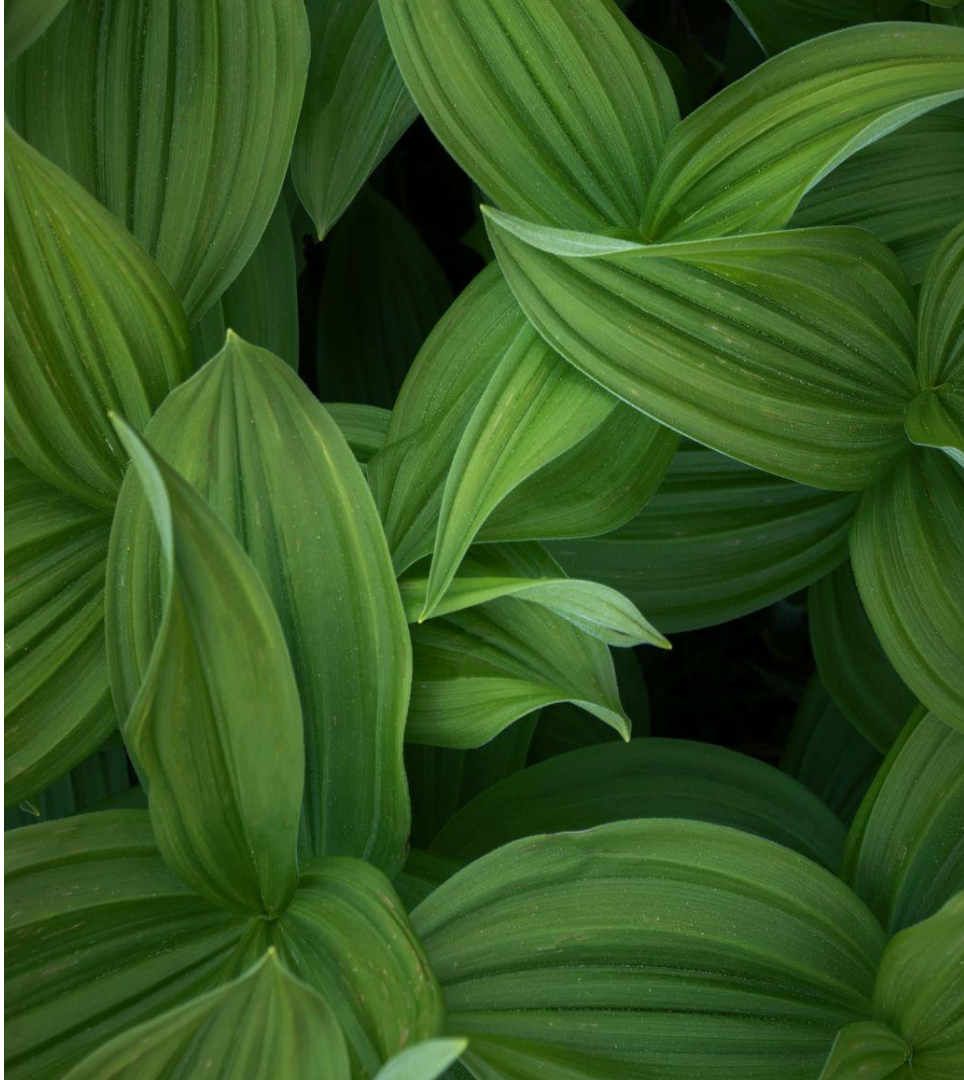


Carbone 4 and CDC Biodiversité's common positioning

Marc Abadie

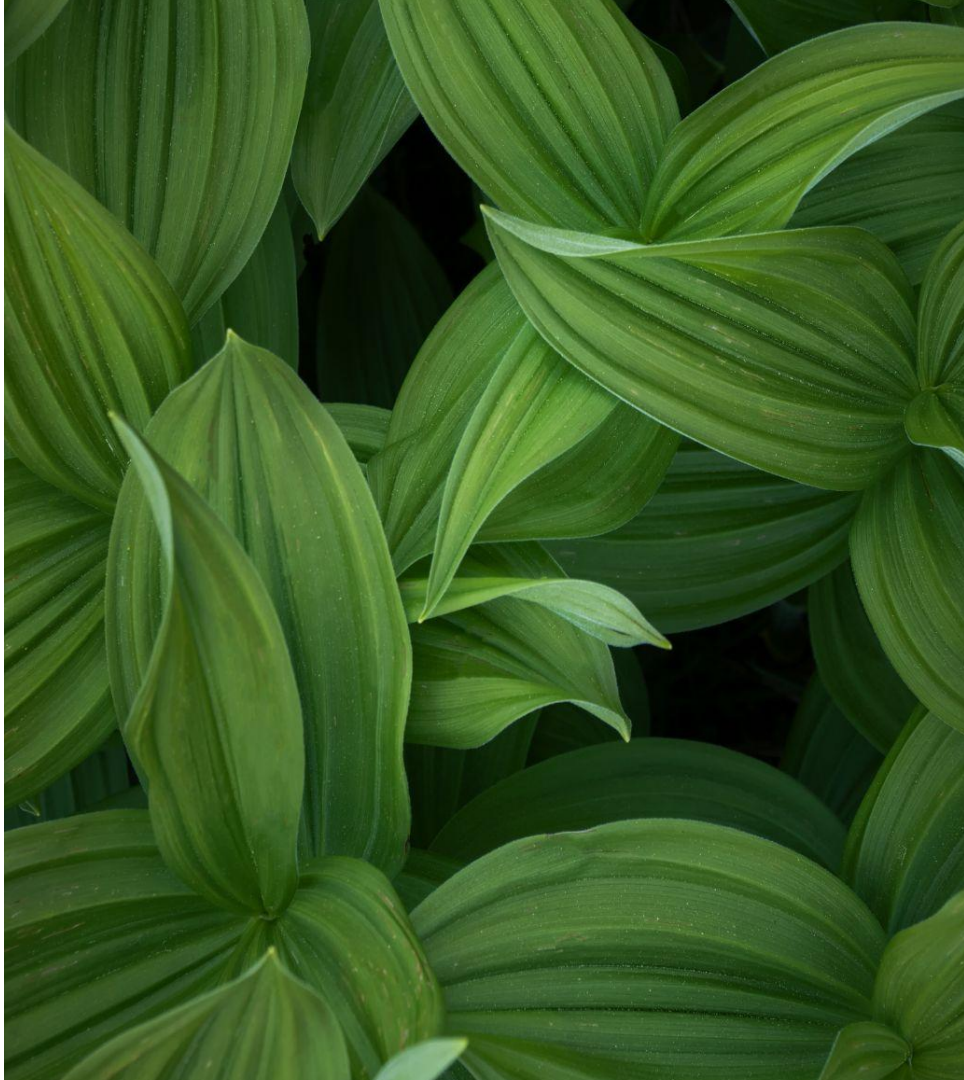
Chairman of CDC Biodiversité

CDC BIODIVERSITÉ | Caisse des Dépôts Groupe

Jean-Marc Jancovici

Founding Partner of Carbone 4

carbone4



Carbon4 Finance and CDC Biodiversité's partnership

Marie-Anne Vincent

CEO of Carbon4 Finance

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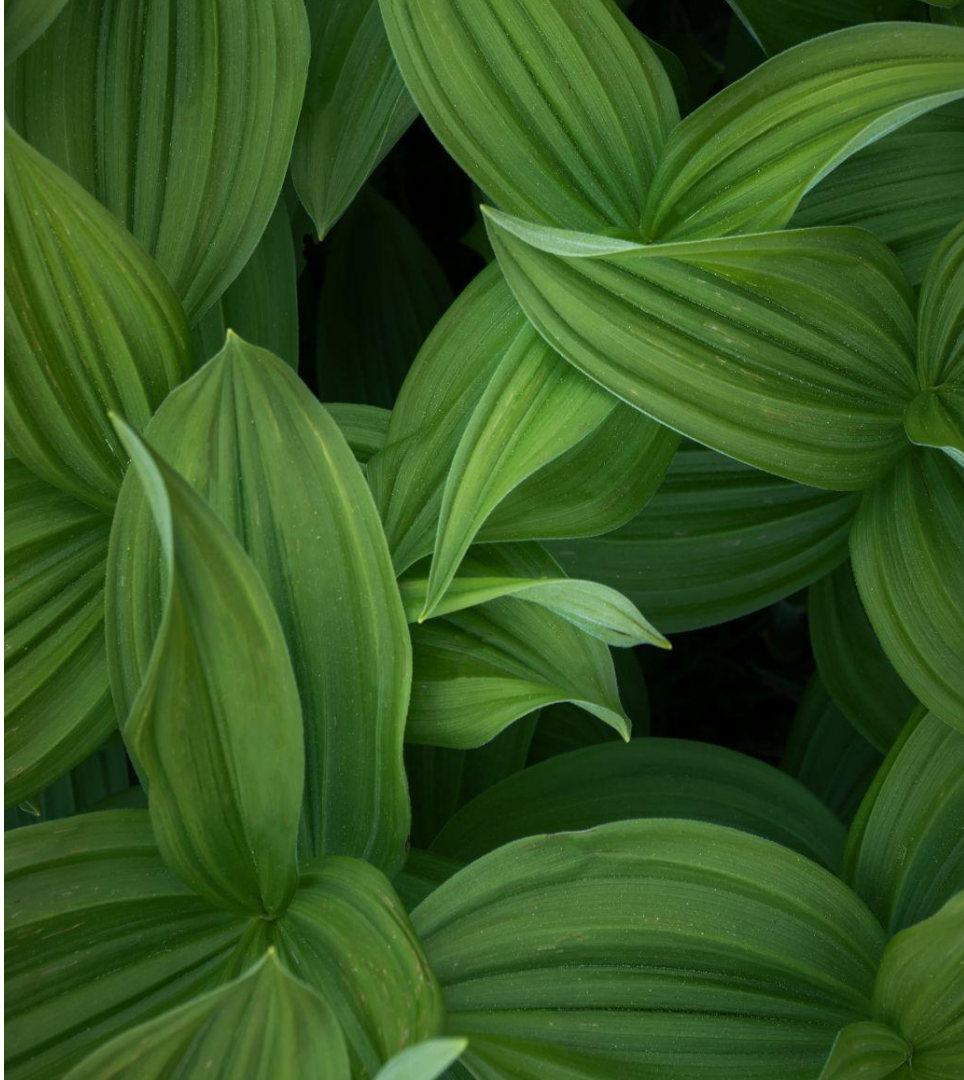

A strategic partnership

Alliance based on an in-depth environmental and sectoral expertise

CDC BIODIVERSITÉ | Caisse des Dépôts

- **Expertise in biodiversity** footprint tools
- Development of the **Global Biodiversity Score (GBS)** methodology

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- **Experienced data provider** on environmental issues
- **Global Coverage** of main equity and fixed income market indices (15 000 lines).

Objectives of the Biodiversity Impact Analytics database:

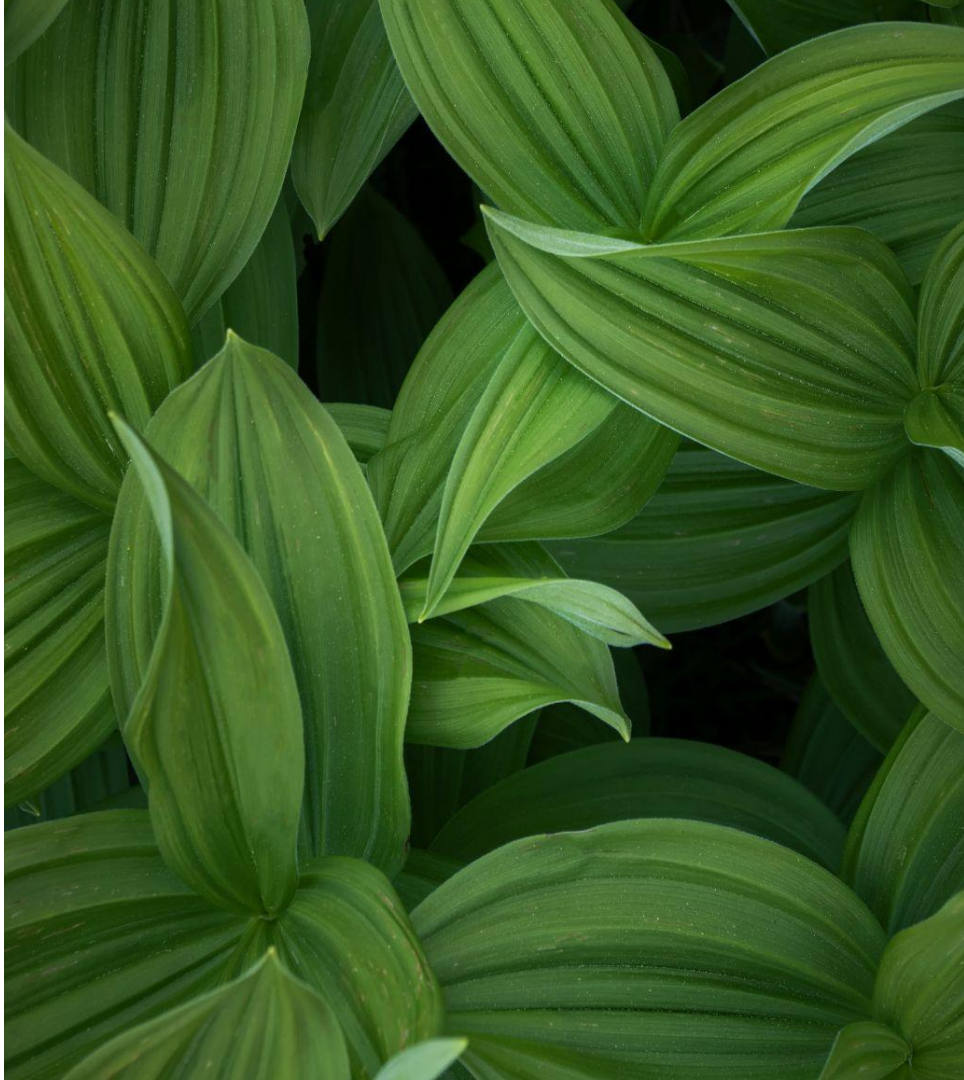
- help measure the risk of ecological transition,
- communicate impacts on biodiversity
- feed into broader reporting,
- facilitate engagement.

GBS® core concepts and metrics

Antoine Vallier

Biodiversity Footprint Expert at CDC Biodiversité

CDC BIODIVERSITÉ | Caisse des Dépôts GROUPE



CDC Biodiversité ecosystem

Experience and values

- **6 years experience on biodiversity footprint methodology**
- **Strong link with corporate:**
  - Club B4B+ founded in 2016
  - Multiple biodiversity footprint assessments conducted at the corporate level
- **Long-term support of Caisse des Dépôts**
- **Technical robustness and transparency:**
  - Yearly publications
  - Review committee conducted en of 2019

CLUB B4B+

VALUE CHAIN WORKSTREAM

Groupe ActionLogement · ACCOR HOTELS · AIRFRANCE · Barilla · cdc habitat · CIVB BORDEAUX · Compagnie des Alpes · EDF · egis · EIFFAGE · GRTgaz · HABITAT RÉUNION · ICADE · INGÉROP · KERING · L'ORÉAL · LVMH · Les Mousquetaires · MICHELIN · Life Is On Schneider Electric · storengy · SUEZ · SOLVAY · TOTAL · VEOLIA

FINANCE WORKSTREAM

AFD · BNP PARIBAS · bpifrance · Crédit Agricole · Caisse des Dépôts · CNP · Generali Global Infrastructure · GROUPE BPCE · LA BANQUE POSTALE · MEESCHAERT · mirova · SOCIETE GENERALE

CDC Biodiversité ecosystem

CDC Biodiversité is heavily involved in national and international convergence and reporting initiatives

- **We are involved in national and international business and biodiversity platforms:**
  - EU Business & Biodiversity (B@B)
  - Natural Capital Coalition
  - Orée
  - EpE
- **We contribute to the emergence of national and international reporting framework**
  - TNFD (technical expert group member)
  - EU Green taxonomy
  - France's Plateforme RSE
- **We also participate to methodological convergence collaborations**
  - SBTN (technical expert group member)
  - ALIGN

Business @ Biodiversity

NATURAL CAPITAL COALITION

orée

epe entreprises pour l'environnement

TNFD Taskforce on Nature-related Financial Disclosures

SCIENCE BASED TARGETS

Align Aligning accounting approaches for nature

GBS Key Features

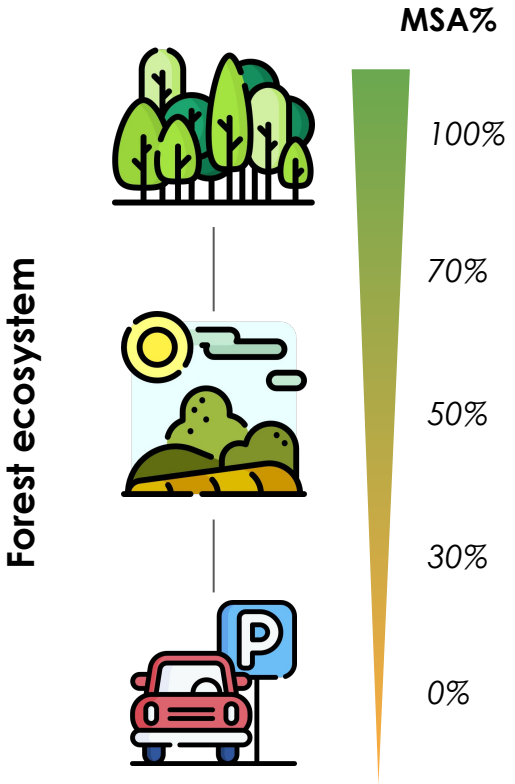
All dimensions of biodiversity impacts

- **Biodiversity dimension:** ecosystem integrity
- Relies on **GLOBIO model pressure-impact relationships**
  - **Realm covered and pressure coverage**
    - **Terrestrial:** 5 pressures
    - **Aquatic (freshwater):** 6 pressures
    - **Marine**: not covered yet
    - **IPBES pressures covered except invasive species**
  - **Metric:** Mean species abundance (MSA)
- **Value chain coverage:** Scope 1, 2 and 3 upstream (downstream on a case by case)
- **Time accounting** stock (static) and flow (dynamic) of impacts accounted separately
- **Dependency score** methodology available

MSA: the original metric

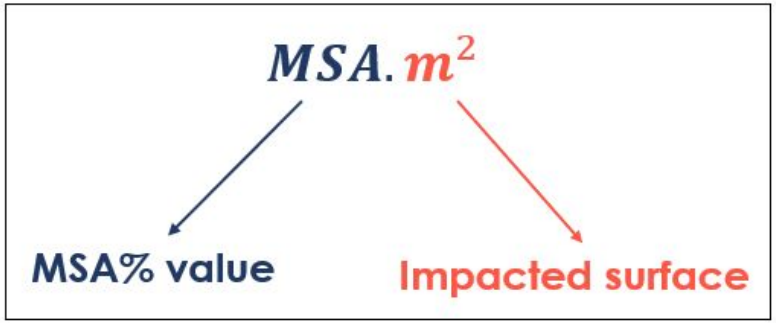
Mean Species Abundance(%) used in GLOBIO model

MSA varies **from 100% to (pristine ecosystem) to 0% (parking lot)**



GBS® fundamental metric: MSA.m²

Surfacic version of the MSA%



1 MSA.m² loss
is equivalent to
the artificialization of 1 m² of pristine natural ecosystem

Reporting framework

- **2 realms**: terrestrial and freshwater)
- **2 time dimensions:** static and dynamic)

Ideally footprint should be reported in **4 separated compartments** with different stakes and magnitudes

	Terrestrial	Aquatic
Static	TS	AS
Dynamic	TD	AD

Aggregated metrics: MSAppb

Aggregating terrestrial and aquatic impacts

MSAppb aggregates **terrestrial and aquatic** impacts by expressing both as a fraction of their respective surface area and multiplying by 10^9 (parts per billion)

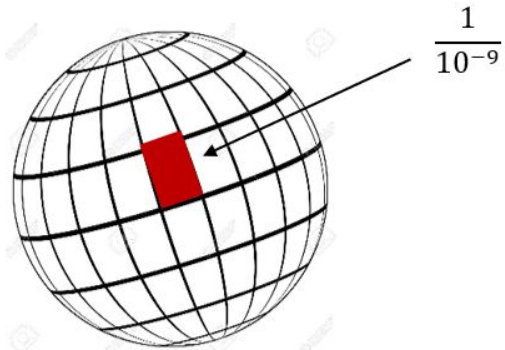
It can be used for intensities also, e.g. to express MSA.m²/kEUR in MSAppb/bEUR

Respective areas of terrestrial and aquatic (freshwater) ecosystems

130 million km²
92.2%

11 million km²
7.8%

Parts per billion (ppb) used for proportions, corresponds to a ratio of 10^{-9}



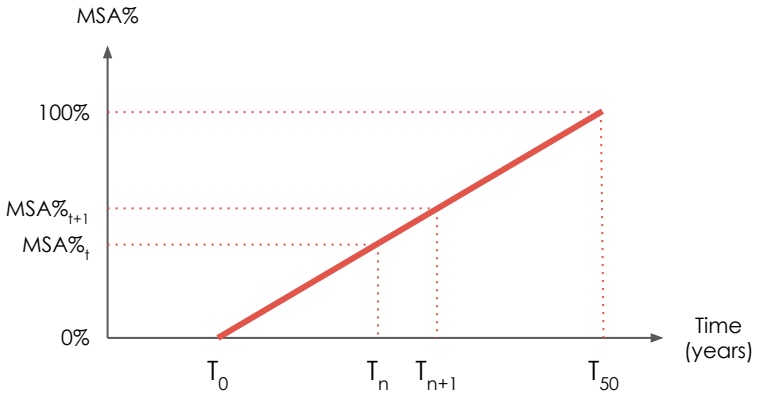
Aggregated metrics: MSAppb*

Aggregating dynamic and static impacts

- ❑ Recovery time assumption: **50 years + linear curve**
- ❑ Inline with time integrated metrics such as PDF.m2.yr (as found in LCIA models such as ReCiPe)

MSAppb*

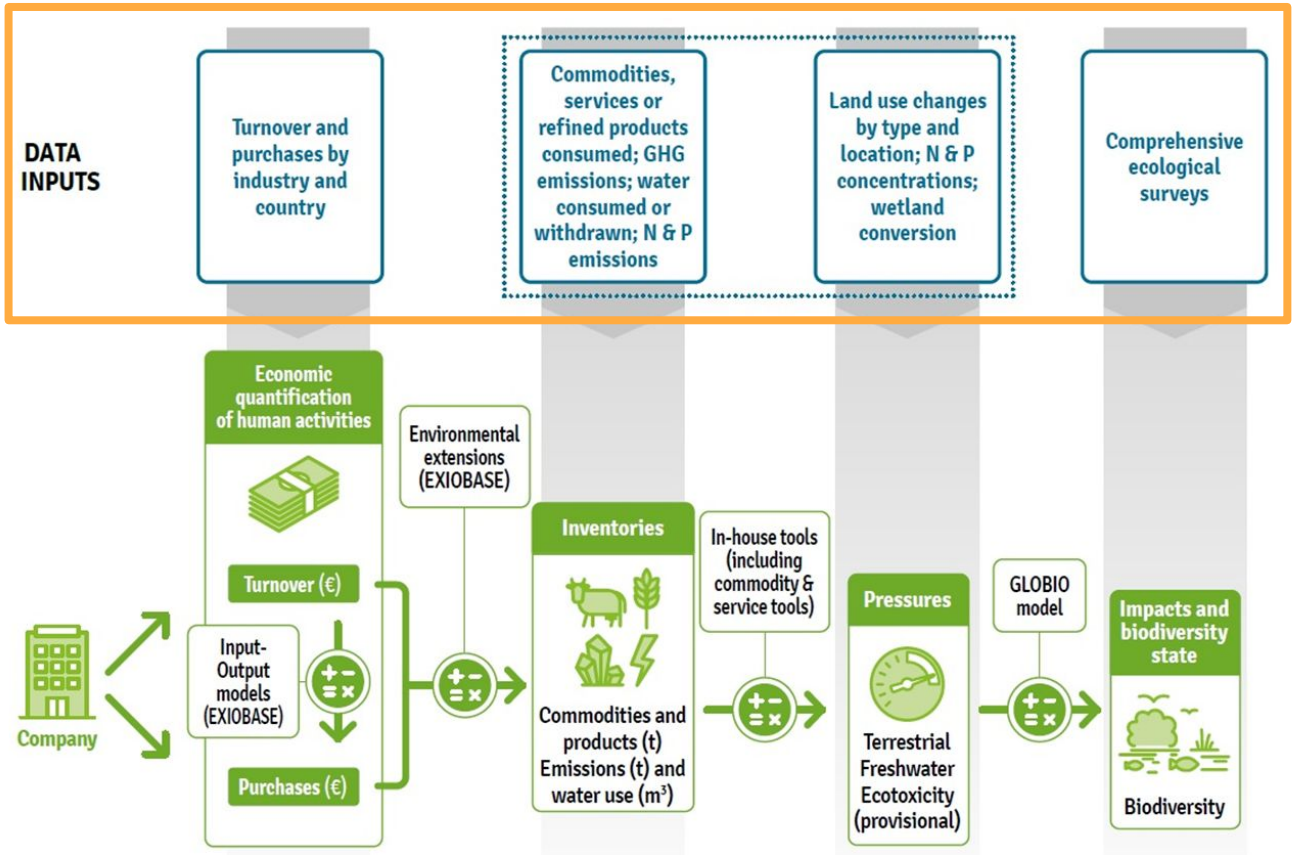
- Static impacts can be seen as a missed opportunity for biodiversity recovery
- This opportunity can be estimated to 1/50 over 1 year
- To compare static and dynamic impacts, **we divide static impacts by 50** (assuming dynamic impacts are computed over a 1-year period)



GBS principles

Model overview: focus on input data

- **4 main categories of data can be used:** financial data, physical flows, pressure data and ecological surveys
- **GBS always use the best available data** (closest to the impact)



BIA-GBS® construction and future developments

Jules Massin

Data Analyst at Carbon4 Finance

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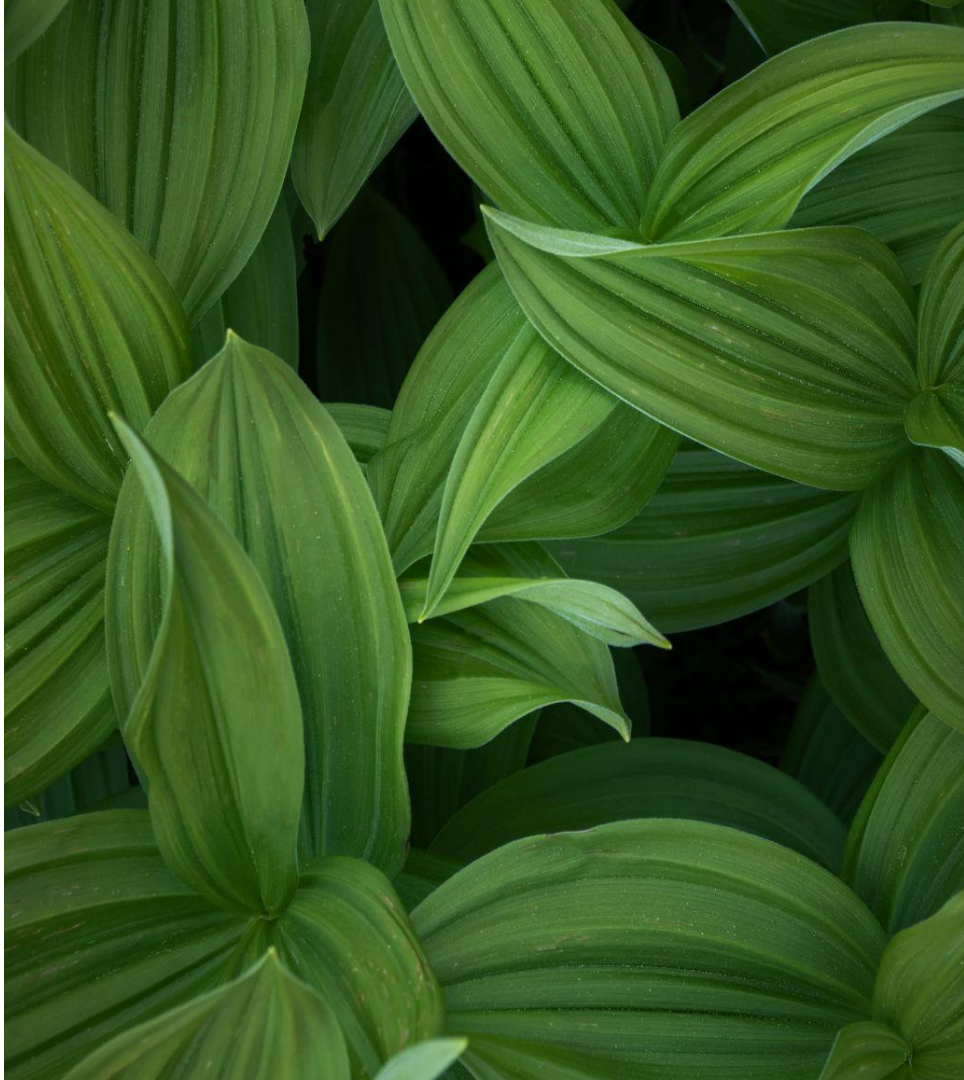
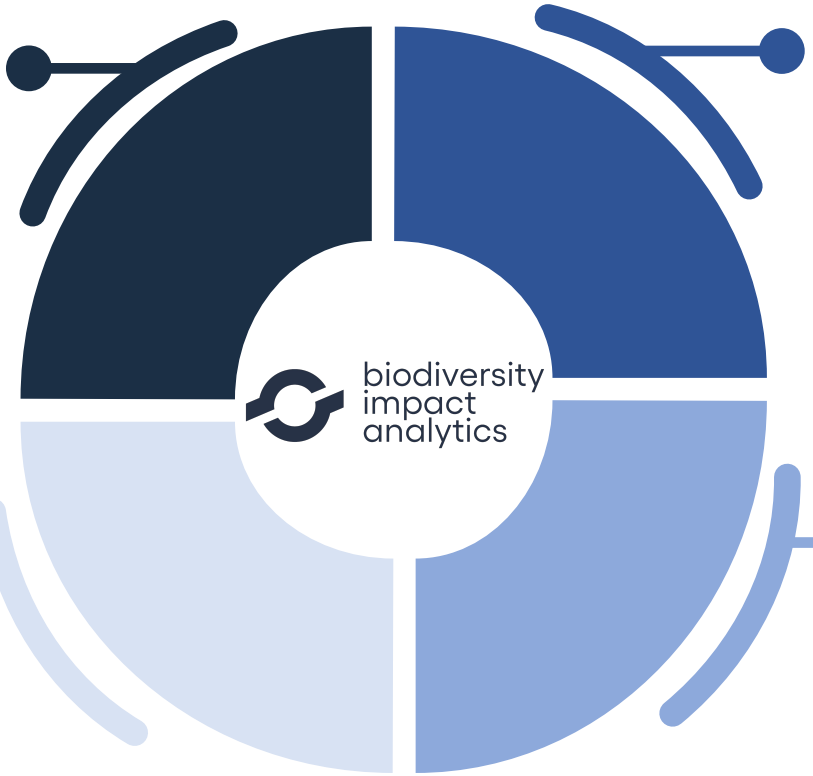


BIA-GBS®: A combination of models

Incorporating Carbon 4 Finance's data and expertise to refine the analysis and scale up

Global Biodiversity Score®

- A **corporate biodiversity footprint assessment tool.**
- Results expressed in **MSA.km2** measuring the **intactness of ecosystems.**
- Links data on **economic activity** to **pressures** on biodiversity, and translate them into **biodiversity impacts**



C4F's Portfolio analytics functionality

- **Large issuer** (>10,000 entities) **and instrument** (>100,000) **databases** covering **main market indexes across all sectors**
- **Portfolio analytics process** enabling a **global coverage of** equity and fixed income securities **at the credit parent entity level.** Detailed results available both at issuer and portfolio levels

carbon
impact
analytics

- **Analysis of the value chain** and calculation of scope 1, 2 & 3 **induced emissions** and **emissions savings**
- **Based on operational data** collected from annual and operational reports

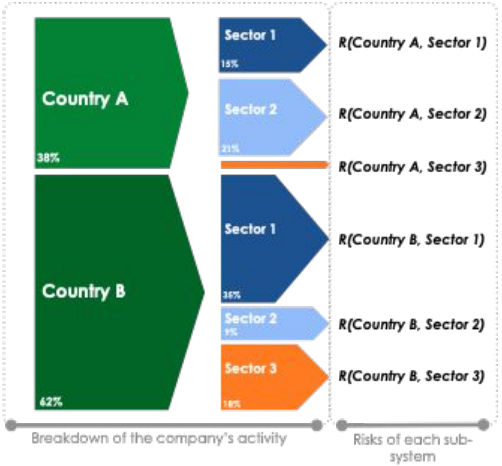
climate
risk
impact
screening

- Analysis of the **geographic and sectoral breakdown** of each activity of the company.
- At the company level, for each climate hazard, **combination of the risks of each country-sector coupling, composing its business.**

CIA and CRIS inputs used in BIA-GBS®

climate risk impact screening

Measuring issuer's **geographic and sectoral exposure to climate risks.**

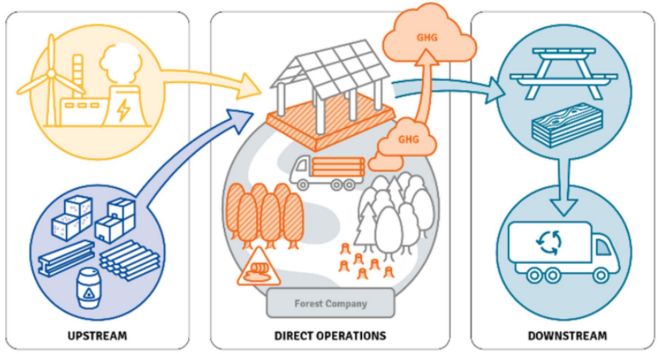


Inputs used in BIA-GBS®:

➔ **Company's revenue breakdown by country and segment of activity**

carbon impact analytics

A **Bottom-up** sectoral methodology (based on **operational data**) to recalculate issuer's direct and indirect GHG emissions.



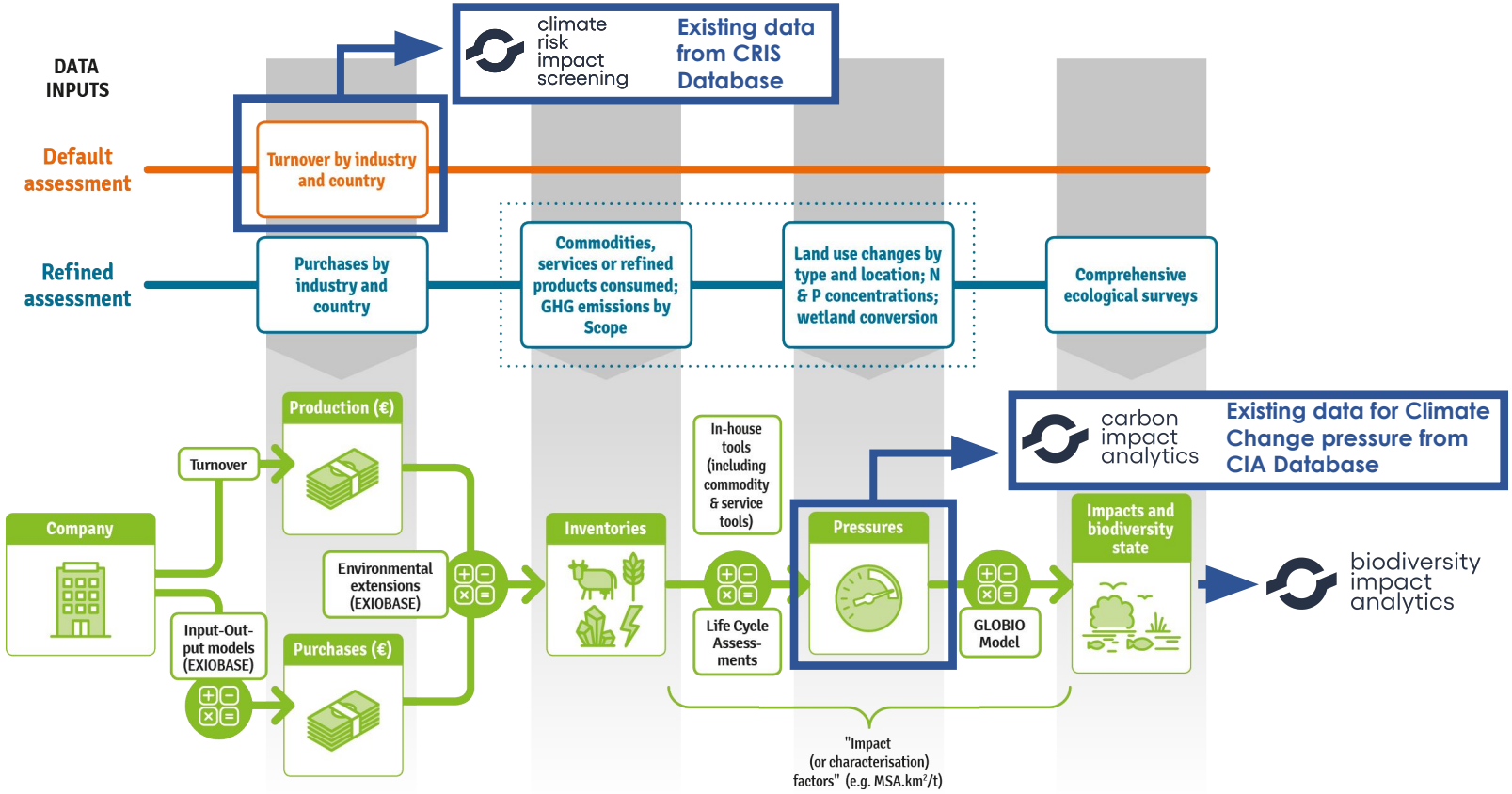
Inputs used in BIA-GBS®:

➔ **Induced scope 1&2 emissions**

➔ **Induced upstream and downstream scope 3 emissions**

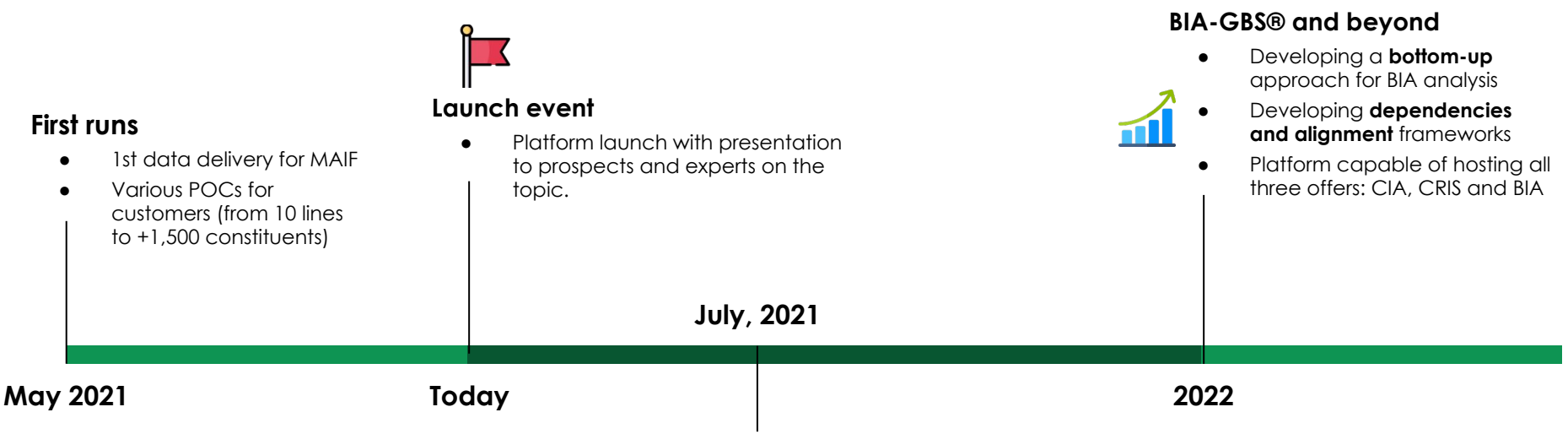
BIA-GBS® Model overview

Leveraging Carbon4 Finance's existing databases



Roadmap

From Proof of Concept to platform launch



BIA-GBS® in brief

Key messages

#1 | Turnover → Physical inventories → Pressures → Impacts

Up to 4 steps to measuring the biodiversity impact of companies

#2 | Reliance on two recognized models, and CDC B's internal tools

- EXIOBASE (from turnover to procurements and inventories)
- CommoTools and others (from inventories to pressures)
- GLOBIO (from pressures to impacts)

#3 | A set of 11 pressures on both aquatic (freshwater) and terrestrial biodiversity

From climate change to atmospheric nitrogen deposition

#4 | A set of indicators to measure biodiversity impacts, dependencies and soon alignment with international targets

Necessary to capture all stakes of biodiversity

#5 | Leveraging Carbon4 Finance's climate expertise and databases

A methodology assessing the entire value chain and covering main equity and fixed income market indexes

Analysis of the STOXX600 biodiversity footprint using BIA-GBS®

Théophile Anquetin

Data Analyst at Carbon4 Finance

Lou Welgryn

Data Analyst at Carbon4 Finance

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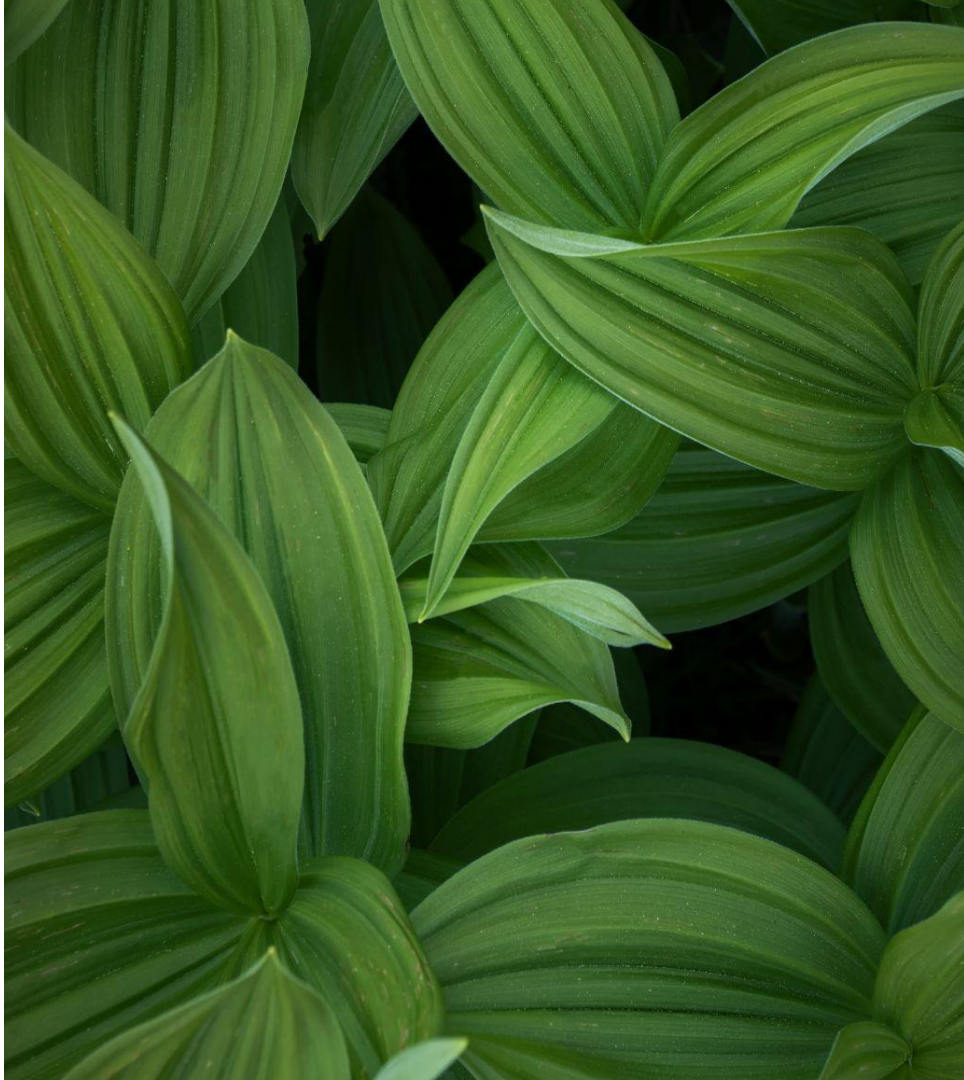


What is the absolute impact of the STOXX600?

Results in MSA.km² and MSAppb, breakdown by state and biodiversity*

Absolute impact (MSAppb*)	Portfolio Covered Size (Meuros)	Portfolio Investment intensity (Msappb* per b€ invested)
84	990.42M €	85

Footprint MSAppb*

	Dynamic	Static
Aquatic	8	18
Terrestrial	38	20

Footprint MSA.km²

	Dynamic	Static
Aquatic	0.1	9.9
Terrestrial	4.9	130.2

Surface Equivalents

Terrestrial Dynamic impacts: x football fields

917

Terrestrial Static impacts: x size of Paris

1.2

Terrestrial dynamic impacts are predominant

When considering the MSAkm2 static impacts are bigger because cumulated past impacts are by definition higher and terrestrial surfaces represent 92% of the total area considered.
Once normalised in MSAppb*, we can see the predominance of terrestrial dynamic impacts.

All compartments are significant with a predominance of Terrestrial dynamic impact.
The portfolio contributes to an annual loss of terrestrial biodiversity equivalent to the artificialization of 917 soccer fields.

Portfolio Investment intensity in MSAm2

(MSAm2 per k€ invested)

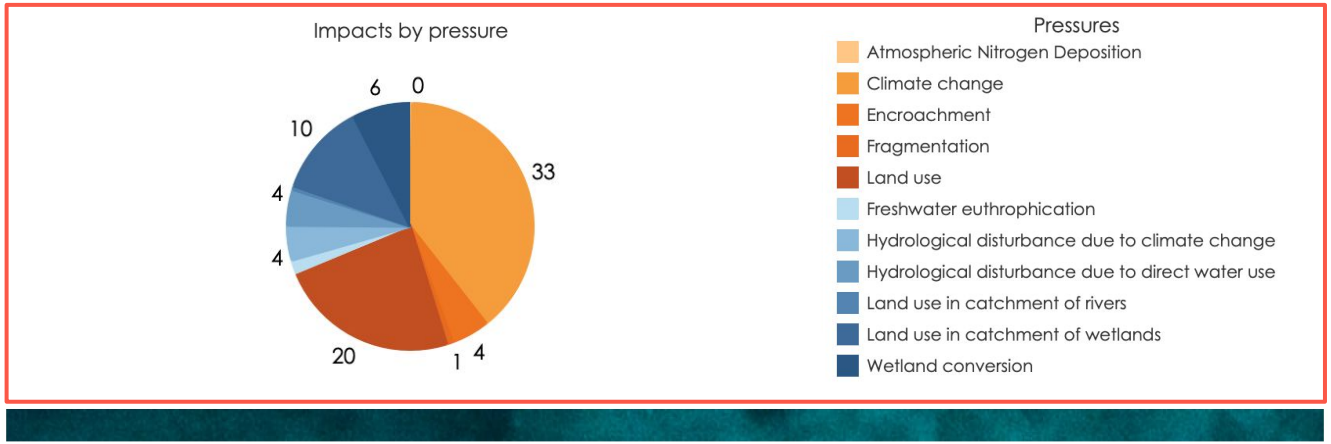
	Dynamic	Static
Aquatic	0.1	10.0
Terrestrial	5.0	131.5

Which pressures and scopes are the most important?

Repartition of absolute impact in MSAppb by Scope and by Pressure*

Most important pressures (in MSAppb*)

Land Use	Climate Change	Wetland conversion	Land Use in catchment of wetlands
20	33	6	10



For all biodiversity type, land use and climate change are predominent.

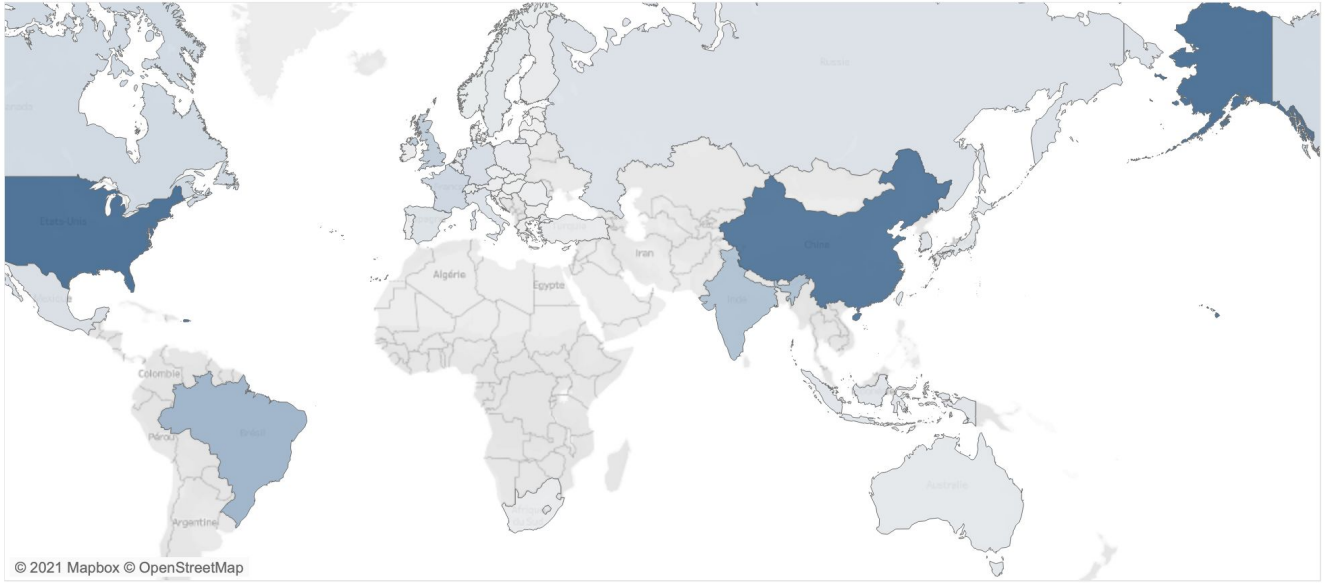
Land use and climate change are the predominant pressures for terrestrial biodiversity.
Wetlands conversion and land use in catchment of wetlands are predominant pressures for aquatic biodiversity

Scope 3 impacts (upstream) are largely predominant over Scope 1

Where are the main impacts stemming from?

Repartition of contributors to portfolio performance

Geographical Breakdown of impacts



Footprint MSAppbTI

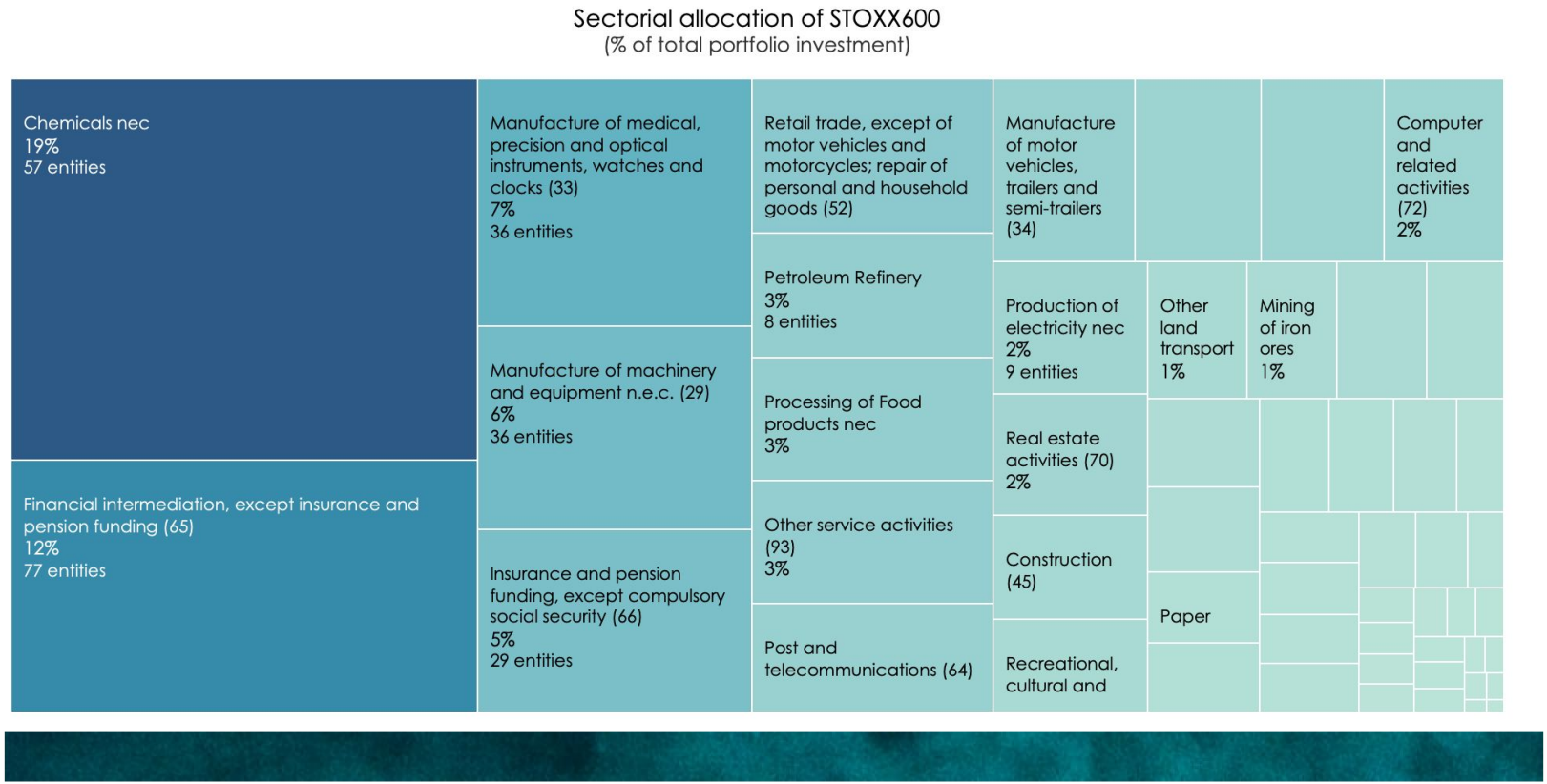
0 — 7

Key Take Aways

Activities generating the most impact are located on United-States and China, then Brazil and India.

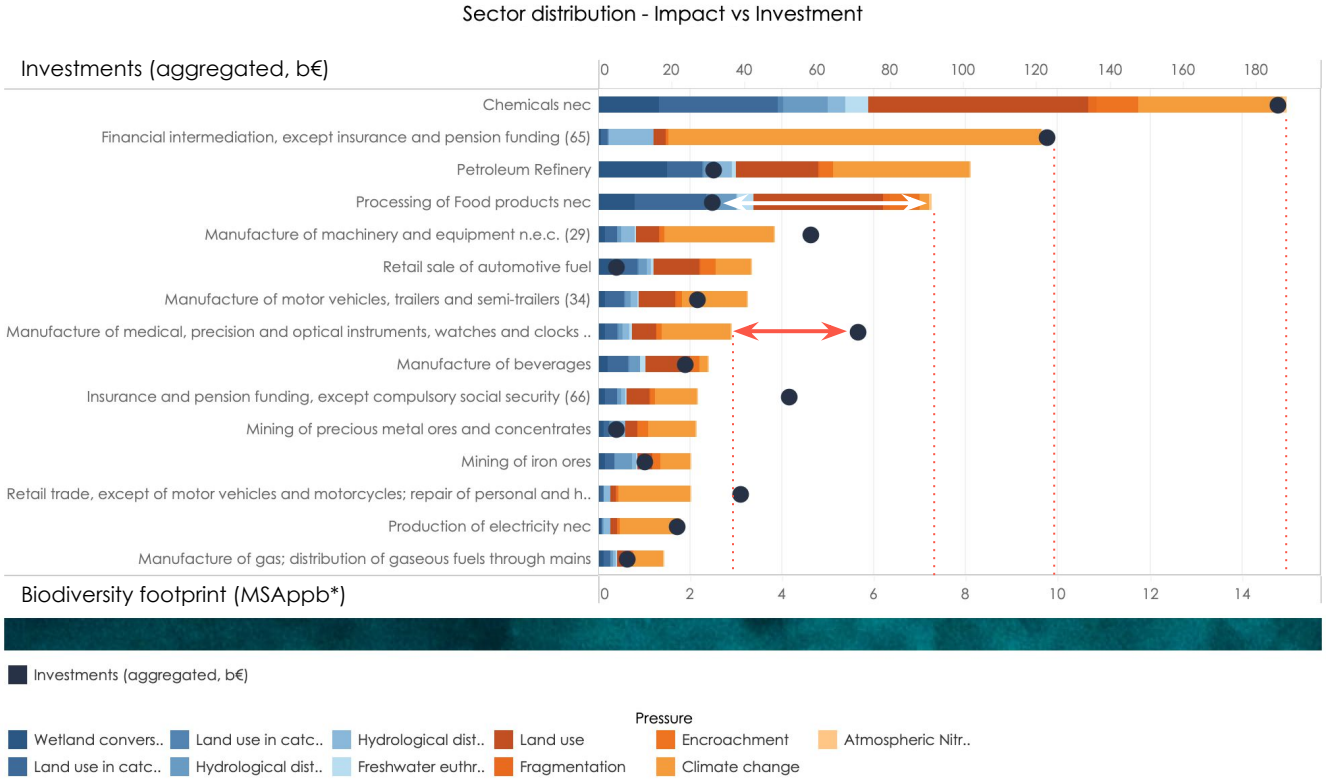
Sectoral allocation of the STOXX 600

The weight of each sector defines absolute impacts



What are the most impactful sectors?

15 most impactful sectors impact in MSAppb, broken down by pressure*

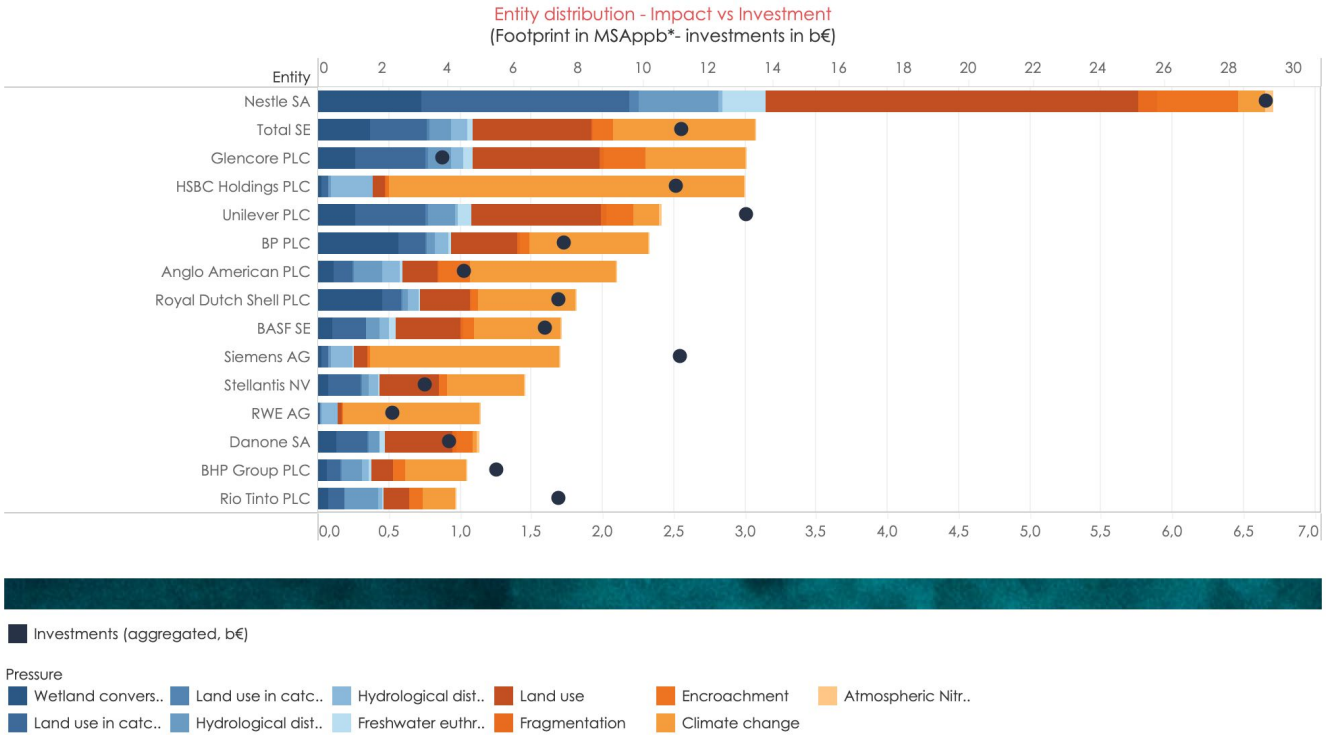


Key Take Aways

For chemicals high impact is a combination of high investment and medium intensity whereas for food processing it is a combination of medium investment and high intensity.
Pressure split can be very different depending on the sector

Which entities contribute to these impacts?

15 most impactful entities within the portfolio in MSAppb, breakdown by pressure*

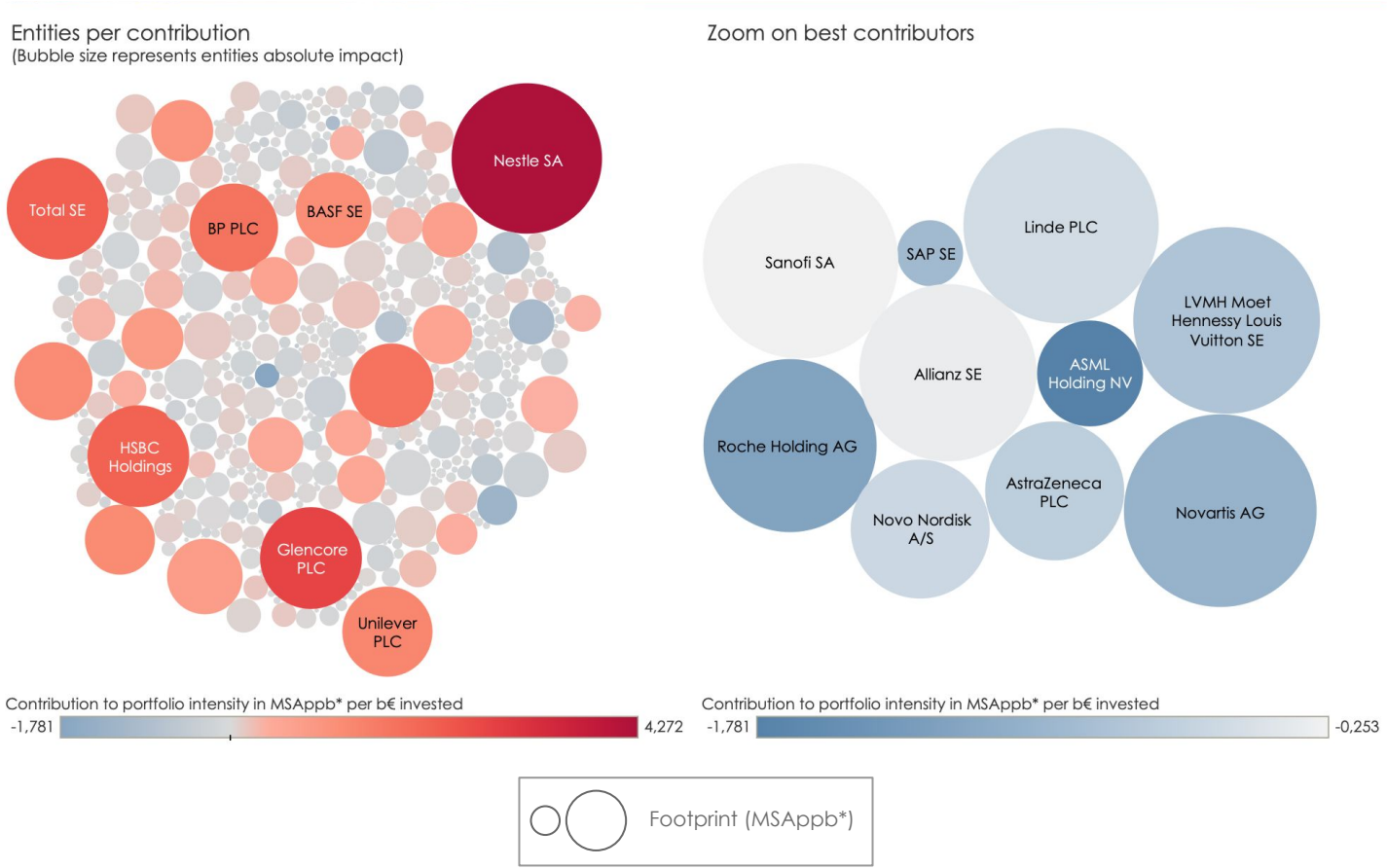


Key Take Aways

Nestle is the main contributor in absolute terms (around 7.6% of total impact.
For the food sector, we can notice the predominance of land use pressure (for terrestrial and aquatic biodiversity) whereas for the financial sector, climate change is much more important. According to C4F methodology, we attribute to financial institutions the emissions of the activities they finance (scope 3)

Which entities contribute to portfolio performance?

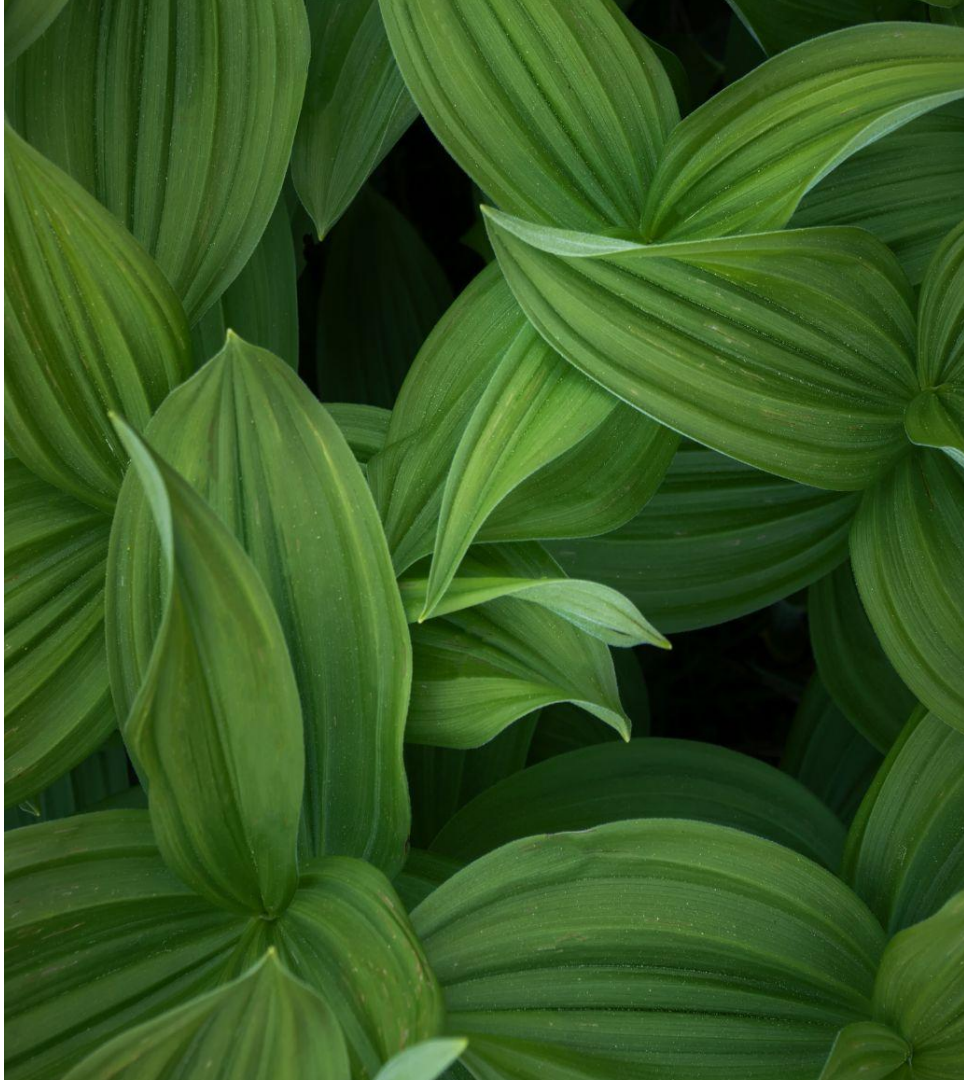
Repartition of contributors to portfolio performance

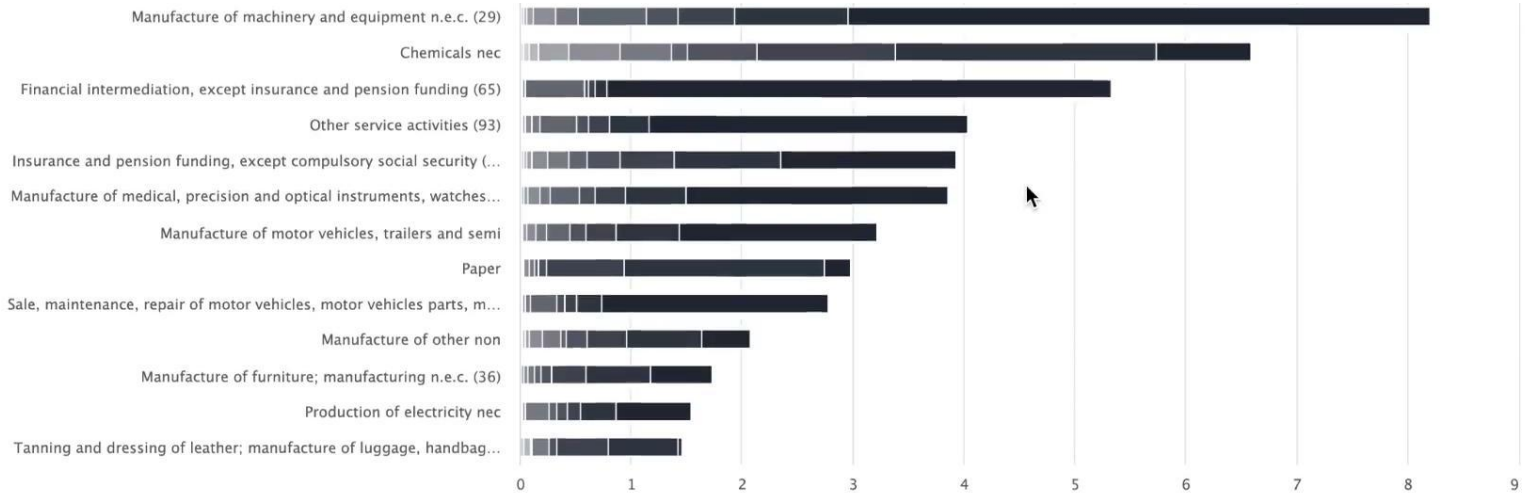


BIA-GBS® platform

biodiversity
impact
analytics

GBS GLOBAL BIODIVERSITY SCORE





15 most impactful constituents, impact by pressure (MSAppb*)

First users' testimonies

Valentin Vigier

SRI Analyst at La Financière de l'Échiquier

LA FINANCIÈRE DE L'ÉCHIQUIER

Léo Garnier

Managing Director at Rift

Rift

Laurent Deborde

Head of Equity Portfolio Management & Fund Selection at Groupe Caisse des Dépôts' Asset Management Division

Caisse des Dépôts GROUPE

Final words

Antoine CADI

Head of Research and Innovation department at CDC Biodiversité

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