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Biodiversity data for financial actors with BIA-GBS™

Biodiversity Impact Analytics powered by the Global Biodiversity Score™

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A Introduction

B Methodology of the GBS™ tool and the BIA-GBS™ database

C BIA-GBS™ and the French Article 29 of the Loi énergie-climat

D BIA-GBS™ and TNFD pilots

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A

Introduction

A strategic partnership

Alliance based on an in-depth environmental and sectoral expertise

carbon impact analytics

carbon4 | finance

climate risk impact screening

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+

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biodiversity impact analytics

powered by the

GBS GLOBAL BIODIVERSITY SCORE®

Our approach

- Robust, scientific and transparent methodologies
- Support by methodological experts and analysts
- Customized and adapted to Clients' needs

Carbon4 Finance

A climate and biodiversity data provider specialized in metrics for the financial sector

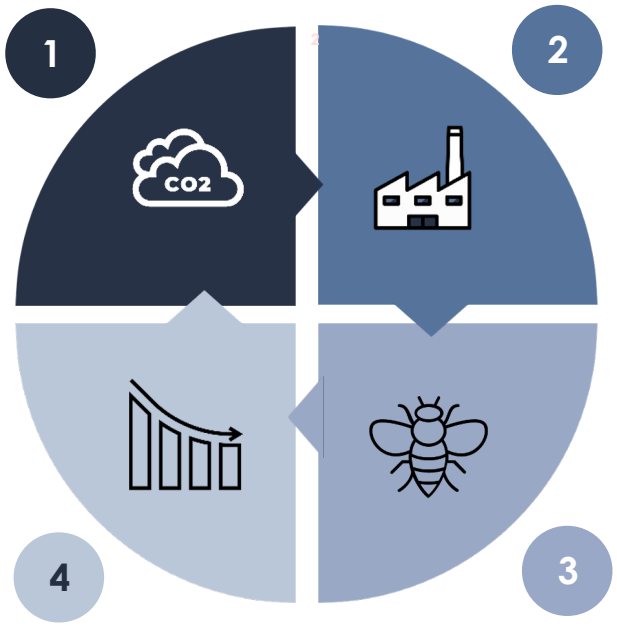
Our services

Assessment of transition risks (CIA)

Carbon footprint
Scope 1, 2 & 3
Saved emissions
Climate scenario alignment

Web platform & Datafeed

Issuer Analysis
Portfolio performance



Assessment of physical risks (CRIS)

7 climate Hazards
3 IPCC Scenarios
2 time-horizons

Assessment of Biodiversity risks and Impacts (BIA-GBS™)

MSA.Km2
Scope 1, 2 & 3
10 Terrestrial and Aquatic pressures

Our approach

An innovative bottom-up technology

An international coverage (c. 125,000 instruments, corporate and sovereign)

25 analysts, each specialized in specific sector

A multi-sector approach
Listed and unlisted Assets

Carbon4 Finance

Carbon4 Finance, a pioneer in measuring the carbon impact of financial institutions

Securities portfolio

- Reporting requirements (TCFD-compliant, Article 29, SFDR)
- Transition and Physical risks
- Bottom-up data on 60 sectors (Equity, Sovereign, Green bonds)
- Additional sectoral data (energy, green/fossil shares, reserves, etc.)

Assets & Loan Book

- Carbon footprint of Loan & Credit Portfolios
- Implementation of climate score into credit process
- Exposure's assessment of central banks assets
- Research papers on climate risk impacts on financial value

Other collaborations

- Indices – Recast of Low Carbon 100, Euronext's low carbon index
- Fintech – positive impact financing and savings platforms
- Data integration into platforms
- Schools –conferences on the role of finance in climate mitigation, research paper

Climate data provider of the Eurosystem

European Central Bank
+20 Central Banks in Europe

Carbon4 Finance

BIA-GBS™, trusted to assess the biodiversity impact of investment portfolio

Securities portfolio

ODDO BHF
ofi Asset Management
LA FINANCIÈRE DE L'ÉCHIQUIER
Allianz
Rothschild & Co
ING
Caisse des Dépôts GROUPE
Vontobel
LA BANQUE POSTALE ASSET MANAGEMENT
Crédit Mutuel
abeille ASSURANCES
Amundi ASSET MANAGEMENT
ISALT
GROUPE vyv
EDMOND DE ROTHSCHILD ASSET MANAGEMENT

Impact of an investment portfolio on biodiversity
Communicate impacts on biodiversity
Engagement with companies

Transparency & research

CCR
Harmonie mutuelle En harmonie avec votre santé
maf Mutuelle des Architectes Français assurances VOUS AVEZ L'AUDACE, NOUS AVONS L'ASSURANCE.
Rothschild & Co
BANQUE DE FRANCE EUROSYSTÈME
Rift
MAIF
malakoff humanis SANTÉ - PRÉVOYANCE - RETRAITE - ÉPARGNE
MACSF
BNP PARIBAS CARDIF

Regulatory requirements (Article 29 French Energy & Climate Act)
Research paper on biodiversity risk impacts on financial valuation
Reporting

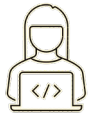
CDC Biodiversité

Who we are

CDC Biodiversité is a subsidiary of the Caisse des Dépôts et Consignations Group and has a wide range of services for different stakeholders with the aim of protecting biodiversity

Long-term restoration and ecological management

Training and research



Studies and engineering

History of the GBS

2015 — Beginning of the GBS project

2016 — Launch of the B4B+ Club

01/2020 — End of GBS first review committee

05/2020 — Launch of GBS 1.0

07/2021 — Launch of BIA-GBS 1.0

First biodiversity footprint assessments: Schneider Electric, Hermès, Nestlé Waters France…8

CDC Biodiversité

The GBS ecosystem - Members and partners of the B4B+ Club

VALUE CHAIN

almo nature fondazione CAPELLINO
CITEO
DECATHLON
EDF
egis
ENGIE
GRTgaz
HERMÈS PARIS
ICADE
INGÉROP
L'ORÉAL
LVMH
orano
Schneider Electric
Société du Grand Paris
SOLVAY
TOTAL
3F Groupe ActionLogement

FINANCE

Amundi ASSET MANAGEMENT
andera PARTNERS
AZULIS capital
bpifrance SERVIR L'AVENIR
Caisse des Dépôts
CA IDIA CAPITAL INVESTISSEMENT
CNP assurances
EURAZEO
HSBC
infranity Invest. Impact.
MEESCHAERT Asset Management
mirova Responsible Investing
ofi Asset Management
PLEIADE ASSET MANAGEMENT
SOCIETE GENERALE

CONSULTANTS

ARCADIS
AXA Climate
BiodivCorp WILD YOUR BUSINESS
THE BIODIVERSITY CONSULTANCY
biotope
B&L évolution
Blooming
carbone4
Deloitte.
ecoact
Goodwill management
ICare Because our impact matters
inetum. Positive digital flow
ICF
pwc
UTOPIES

PARTNERS

epe entreprises pour l'environnement
orée
NOÉ

CDC Biodiversité

The GBS fits into the Global Biodiversity Framework

Reporting

Taskforce on Nature-related Financial Disclosures (**TNFD**)

European **Taxonomy** & **CRSD**

Article 29 Loi énergie-climat

Methodology

European Commission ecosystem:

- Business @ Biodiversity (B@B) , including Finance @ Biodiversity (F@B) and Finance for Biodiversity Pledge
- ALIGN

SBTN

Coverage

A comprehensive service offering with common methodological principles for all asset classes

	Listed corporates (equities & bonds)	Sovereign bonds	Green bonds	Loans	Private equity	Real estate	Infrastructure	Corporate
Transition risks	carbon impact analytics				private equity	real estate	CIARA	
Physical risks	climate risk impact screening			climate risk impact screening customized				
Biodiversity transition and physical risks	biodiversity impact analytics + GBS Global Biodiversity Score®			biodiversity impact analytics + GBS Global Biodiversity Score® + CDC BIODIVERSITÉ customized		GBS Global Biodiversity Score® GBSFI (GBS for financial institutions)		GBS Global Biodiversity Score® BFA*

Common methodological principles for all asset classes: bottom-up logic, measurement of Scope 3 emissions and saved emissions, qualitative forward-looking assessment, etc.

**BFA = Biodiversity Footprint Assessment*

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B

Methodology of the GBS™ tool and the BIA-GBS™ database

How to assess the biodiversity impact and dependency of a portfolio?

1. ***Impacts***
2. ***Dependencies***

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B

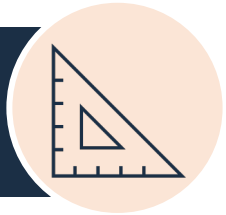
Methodology of the GBS™ tool and the BIA-GBS™ database

1. Impacts

A. The GBS key features
B. The GBS functioning
C. BIA-GBS functioning

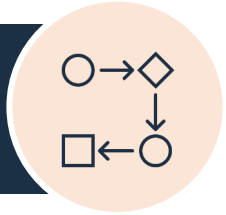
A. The GBS key features

01 Aggregated metric



The GBS evaluates impacts in **MSA.km²**, the fraction of biodiversity integrity lost on a given surface

02 Whole value chain



The GBS uses the **Scopes framework** to account for impacts along the value chain

03 Static & dynamic impacts

The GBS takes into account both **static** (stock of impact) and **dynamic impacts** (evolution of the stock)

04 Pressure-impact relationship

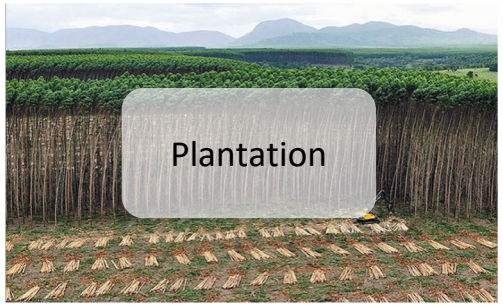
The GBS assess the impacts by modeling **pressures** on ecosystem, using the **GLOBIO** model

A. The GBS key features

Metric: the GBS uses the MSA metric which evaluates ecosystems ecological integrity on a scale from 0 % to 100 %

MSA : Mean Species Abundance

FOREST ECOSYSTEM



100 %
Remaining biodiversity

0 %
Remaining biodiversity

PASTURE ECOSYSTEM

Source: GLOBIO

A. The GBS key features

The GBS evaluates impacts in MSA.km², the fraction of biodiversity integrity lost on a given surface

The unit used by the GBS integrates the MSA on the impacted surface

MSA.km²

Biodiversity loss or gain in % MSA

Impacted surface in km²

An impact of 1 MSA.km² loss
is equivalent to
the **destruction of 1 km² of undisturbed natural ecosystem**

Example

Conversion of pristine forest into a plantation on **100 km²**

Pristine forest

MSA = 100 %

Plantation

MSA = 30 %

This conversion causes an impact of
70 MSA.km²

(100 % - 30 %) x 100 km²

A. The GBS key features

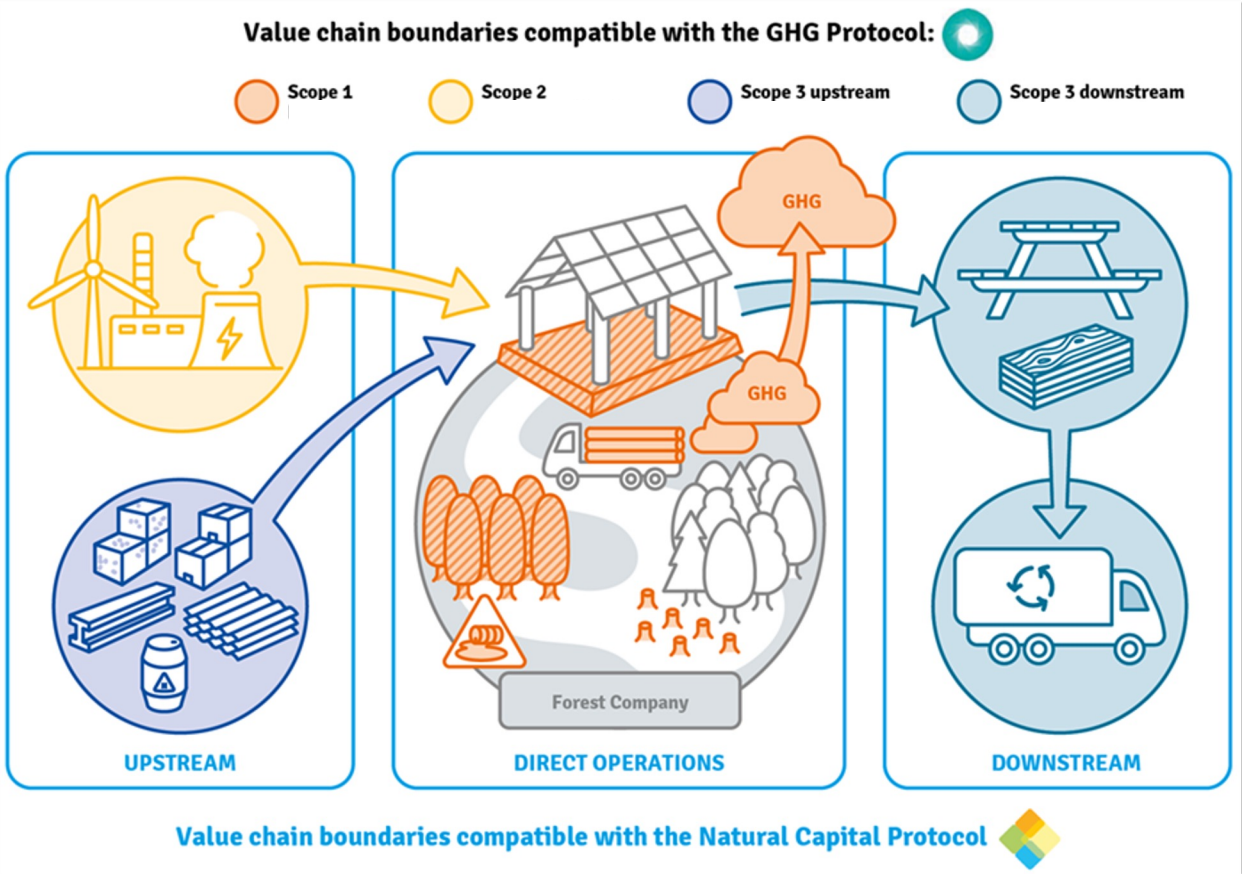
The GBS uses the Scopes framework to account for impacts along the value chain

Scope 1 — Direct operations

Scope 2 — Impacts due to energy purchases

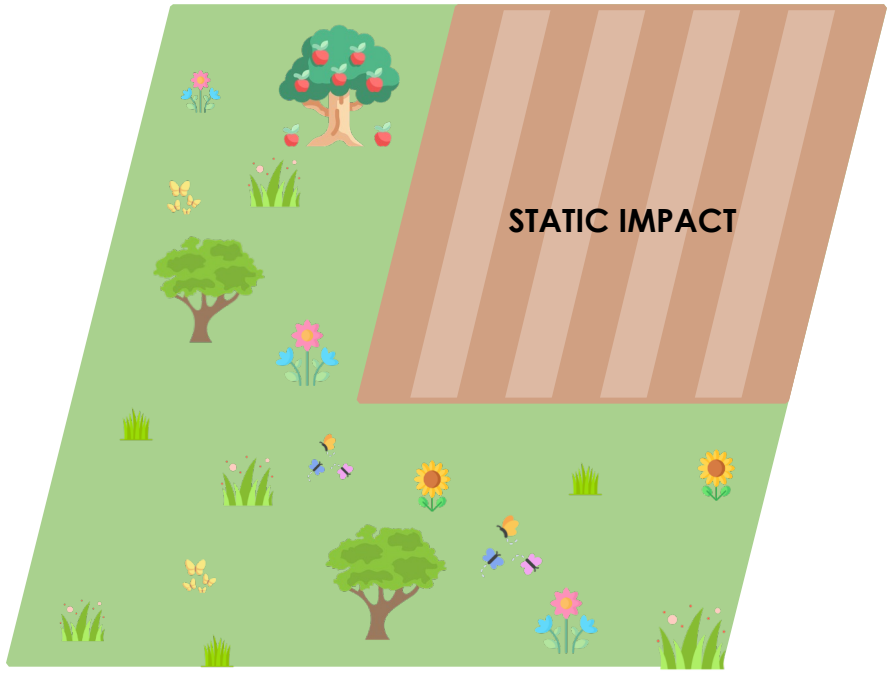
Scope 3 upstream — Supplier value chain

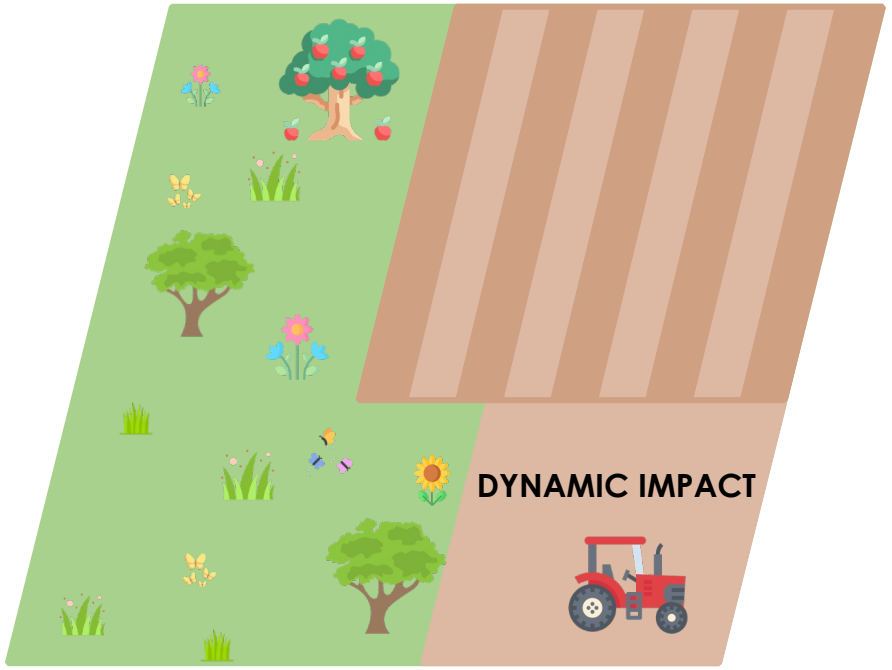
Scope 3 downstream — Downstream activities



A. The GBS key features

The GBS accounts separately for permanent and additional impacts



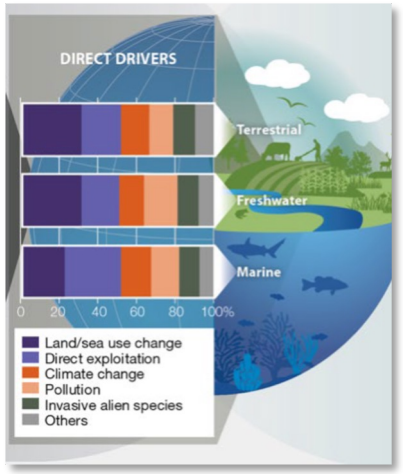


State of biodiversity at the beginning of the assessment
What is the area equivalent to the impact of the activities on biodiversity to date ?

Evolution of the impact during the evaluation period
What is the area equivalent to the new impact of the activities on biodiversity during the evaluation period ?

A. The GBS key features

The GBS covers most of the IPBES pressures for terrestrial and freshwater biodiversity



IPBES PRESSURES	GBS / GLOBIO PRESSURES		
	Terrestrial	Freshwater	Marine
Land/sea use change	Land use Fragmentation Encroachment	Wetland conversion	Not yet covered
Direct exploitation	Pressures due to resources extraction (crops, woodlogs, mining…)	Hydrological disturbance due to direct water use	
Climate change	Climate change	Hydrological disturbance due to climate change	
Pollution	Atmospheric nitrogen deposition Terrestrial ecotoxicity	Land use in catchment of rivers & wetlands Freshwater eutrophication Freshwater ecotoxicity	
Invasive alien species	Not yet covered		

B. The GBS functioning

The GBS assesses the pressures on biodiversity and evaluates their impact on the state of ecosystems using the GLOBIO model

ASSESSMENT OF THE COMPANY'S IMPACT ON BIODIVERSITY

Turnover
of the company in each country of operation

→ EXIOBASE

Inventories
Commodities
Emissions
Water use

→ IN-HOUSE TOOLS

Pressures
on biodiversity from the use of these raw materials

→ GLOBIO

Impacts
of these pressures on ecosystem integrity

At each step, data can be injected directly or modelled.

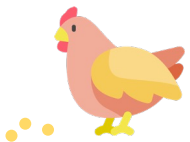
EXAMPLE

In the case of a poultry farming company, one of the impacts would be associated to poultry feed production

ChickenCorp does poultry farming

€

To that end, ChickenCorp needs corn



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Corn production causes land occupation

km²

Biodiversity is degraded on the land occupied

MSA.km²

C. Functioning of BIA-GBS

Biodiversity Impact Analytics powered by the Global Biodiversity Score™: measurement of the impact

How does BIA-GBS assess the impact on biodiversity ?

Turnover
of the company in each country of operation

→ EXIOBASE

Inventories
Commodities
Emissions
Water use

→ IN-HOUSE TOOLS

Pressures
on biodiversity from the use of these raw materials

→ GLOBIO

Impacts
of these pressures on ecosystem integrity

Existing data from CRIS Database (climate risk impact screening)

GHG emissions from CIA Database (carbon impact analytics)

Aggregated score (MSAppb*)
Terrestrial dynamic & static (MSA.km²)
Aquatic dynamic & static (MSA.km²)

GHG emissions are filled for scope 3 upstream and downstream. The other pressures are only covered on scope 3 upstream. The financial data from CRIS are progressively replaced by company-specific data at the inventories level.

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B

Methodology of the GBS™ tool and the BIA-GBS™ database

2. Dependencies

Dependencies

The GBS also assesses dependencies to biodiversity

The GBS assesses the dependency on ecosystem services for direct operations and the supply chain

- The score ranges from **0% (no known dependency) to 100% (very high dependency to ecosystem services).**

- Results will be given according to the levels of reporting (**portfolio level**, **company level**) for the **Scope 1** and the **upstream value chain**.

FOCUS ON ECOSYSTEM SERVICES

Ecosystem services are services provided by biodiversity that enable or facilitate human activities, particularly economic ones.

The ENCORE database lists 21 ecosystem services based on the CICES (Common International Classification of Ecosystem Services) classification. To obtain the definition of the 21 ecosystem services, click on this link.

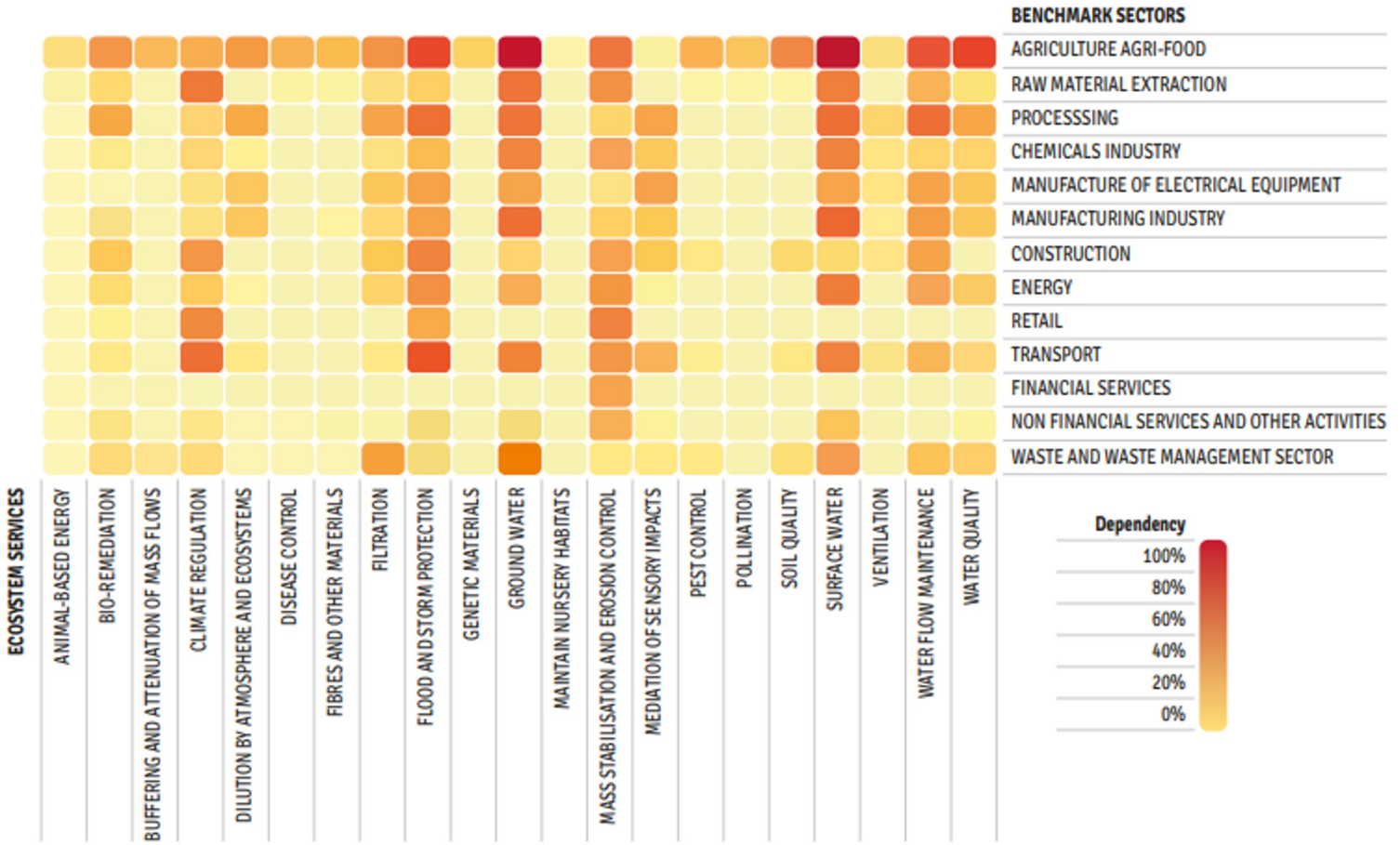


Figure 10: *Scope 1 dependencies for all 13 "benchmark industries" distinguished by CDC Biodiversité*

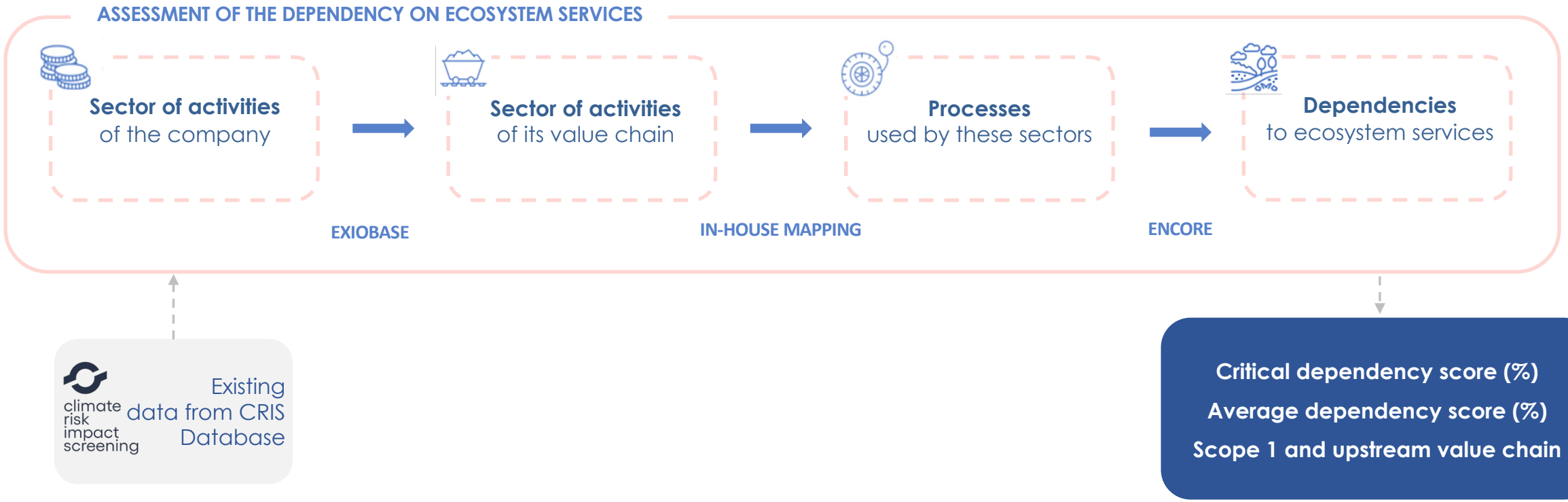
Dependencies

The GBS also assesses dependencies to biodiversity

The GBS assesses the dependency on ecosystem services for direct operations and the supply chain

The dependency score is calculated with two methodologies:

- **Average dependency score:** average dependency of a company or portfolio on all ecosystem services
- **Critical dependency score:** the share of a company or portfolio that is critically dependent, *i.e.* not substitutable, on at least one ecosystem service



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C

BIA-GBS™ and the French Article 29 of the Loi énergie-climat

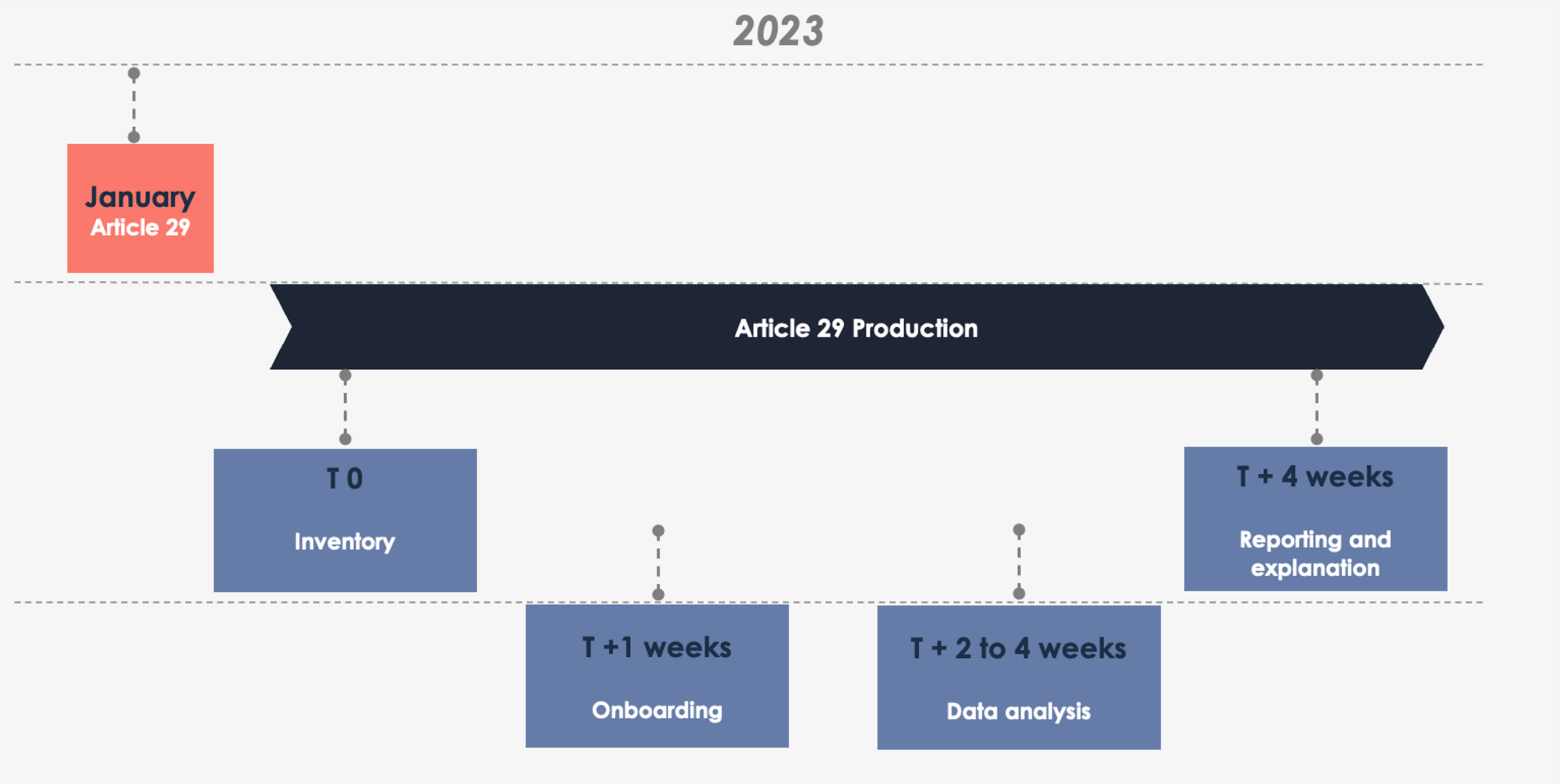
Answering to the Article 29 law using Carbon4 Finance data

Focus on Article 29

Paragraph	Subject	Carbon4 Finance coverage	Publication date
1°	General approach of the entity	Completed by the entity	2022
2°	Internal means to contribute to the transition	Completed by the entity	2022
3°	ESG governance within the entity	Completed by the entity	2022
4°	Engagement strategy, voting policy and reporting	Completed by the entity	2022
5°	Alignment with the European taxonomy and the share of fossil energy	Covered *Using **CIA***	2023
6°	Alignment with the Paris Agreement	Covered *Using **CIA***	2022
7°	Biodiversity alignment	Covered *Using **BIA-GBS™** : biodiversity footprint*	2022
8°	Risk management and specificities of climate risks and biodiversity	Covered - *8° a)* *Using **CIA**, **CRIS** and **BIA-GBS™***	*2022: 8° a); 2023*
9°	Improvement process and corrective measures	Completed by the entity	2023

Article 29 Offer

Max 4 weeks for the production of the report



Answering to the Article 29 law using Carbon4 Finance data

Focus on Article 29

Reporting

Training

Data

Q&A

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D

BIA-GBS™ and TNFD pilots

Introduction

CONTEXT

Applying the TNFD beta framework on companies and portfolios of the sector **“Agriculture and fisheries in Europe”**.

Different outcomes were expected:

- Apply the LEAP approach at **two different levels** : company level and portfolio level
- Study what is **currently feasible** considering the different tools available
- Report on **main challenges and limits** of the TNFD framework

PERIMETER

Two perimeters were considered:

- Focus on a **portfolio of 10 companies of the sector**.
- One **“focus company”** was selected for an in-depth study.

These two scales allow to test the **feasibility of the LEAP approach at different levels for financial institutions**.

The LEAP approach was conducted on the **entire value chain**, when possible, even if it is not explicitly demanded in most of the steps.

Find UNEP FI’s publication on the pilots:

https://www.unepfi.org/publications/unboxing-nature-related-risks-insights-from-the-unep-fi-led-tnfd-piloting-programme/

Overview of the methodology

LOCATE

Perimeter

- Company level
- The Locate phase does not apply at the portfolio level

Methodology and tools

- Literature review of annual reports and other supports
- Study of the different sites using IBAT (protected areas, IUCN Red List and KBAs)

EVALUATE

Perimeter

- Company level
- Portfolio level

Methodology and tools

- **Dependencies:** quantitative assessment of the average and critical dependencies, using the database BIA-GBS
- **Impacts:** quantitative assessment of the impacts, using the database BIA-GBS

ASSESS

Perimeter

- Company level

Methodology and tools

- Literature review of annual reports and other supports
- Based on the dependencies and impacts of the Evaluate phase
- Qualitative assessment risk by risk
- Quantitative assessment of the risks at company level

PREPARE

Perimeter

- Portfolio level

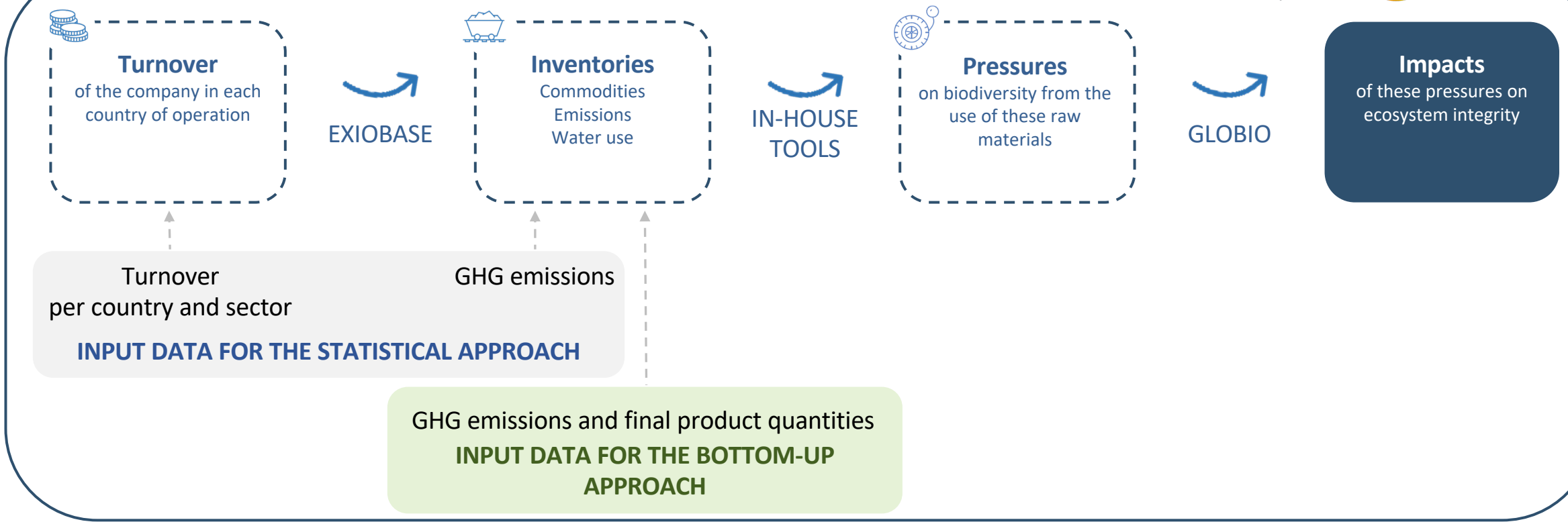
Methodology and tools

- Based on the conclusions of the first three phases

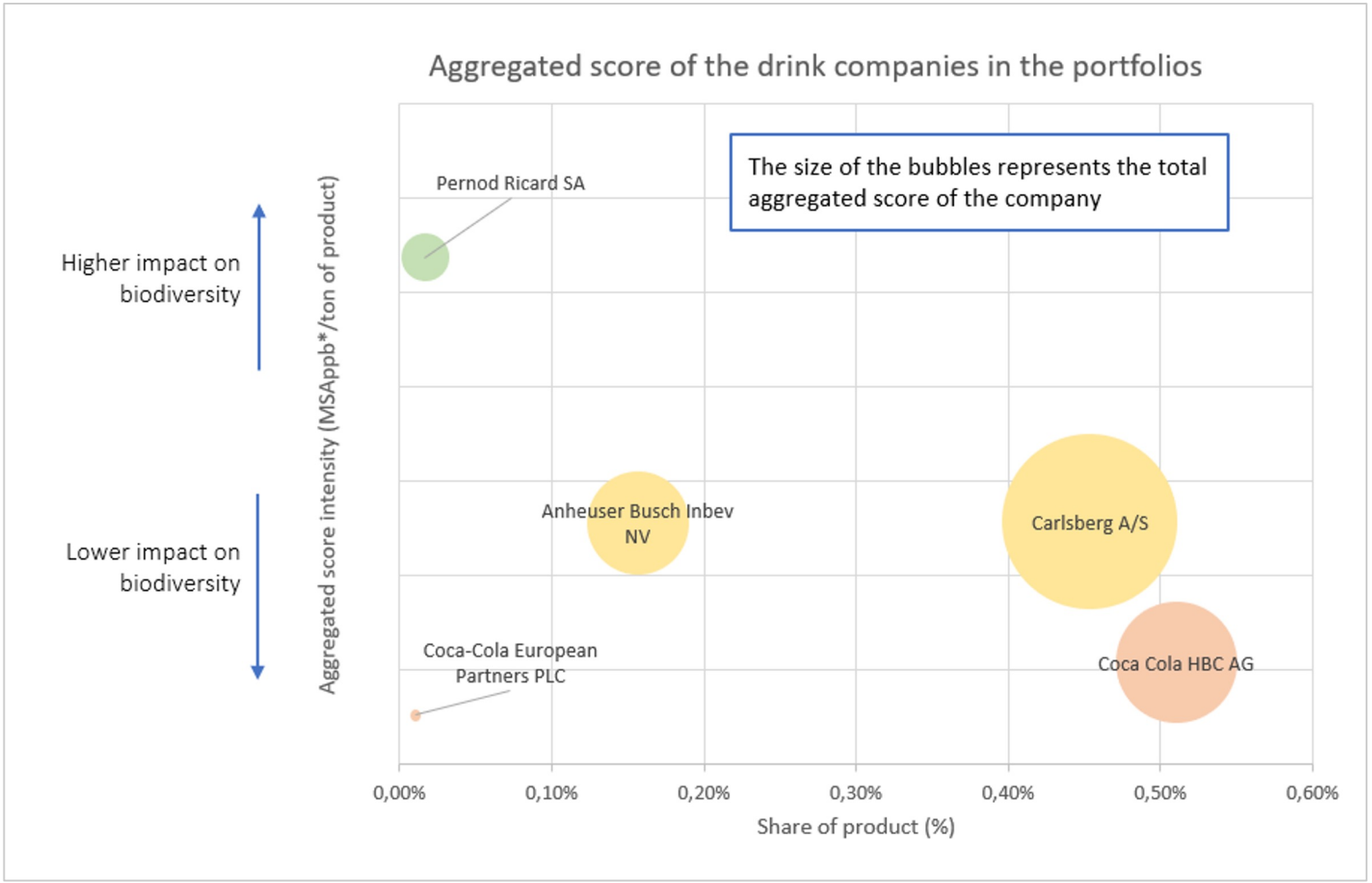
BIA-GBS bottom-up methodology and data used

In this pilot, we use a **bottom-up approach** for which the **financial data are replaced with inventory data.**

How does BIA-GBS assess the impact of a company on biodiversity ?



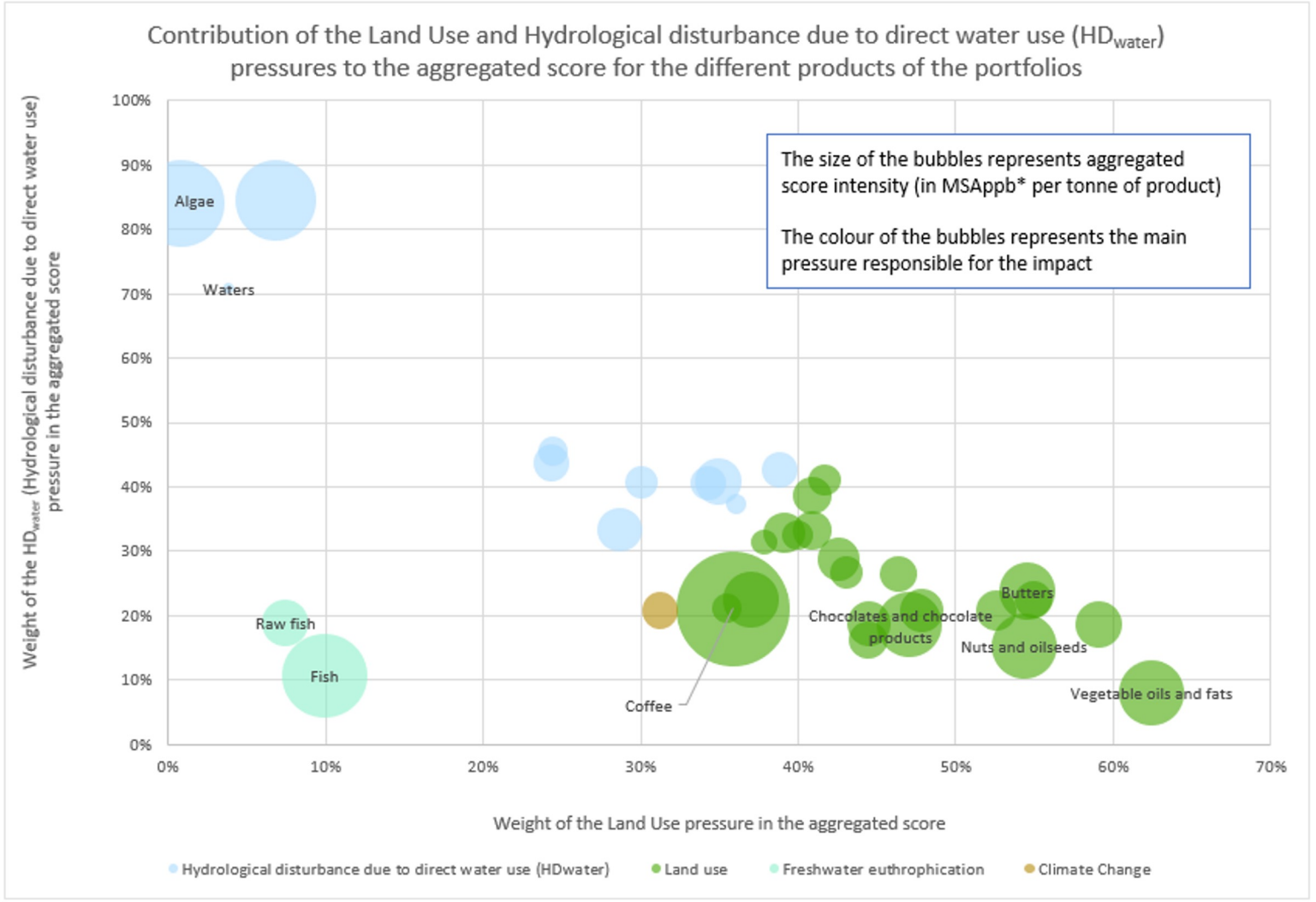
Example of results obtained with BIA-GBS™ for the Evaluate phase



- The bottom-up approach allows to differentiate different companies in the same sector.
- Distilled alcohols have the highest impact intensities, followed by beer, and finally non-alcoholic drinks which have a relatively lower impact intensity.

Source: GBS 1.1.0 computation, Feb. 2023, Julie BONNET

Example of results obtained with BIA-GBS™ for the Evaluate phase



- The Land use pressure is the main driver for 22 products associated with a high land occupation such as coffee and butter.
- On the other hand, HDwater is the main pressure for 11 products associated with intensive water use such as algae or bottled water.
- The most intensive products are associated with animal production or a high deforestation rate.

Source: GBS 1.1.0 computation, Feb. 2023, Julie BONNET

Perspectives and lesson learnt

LOCATE	EVALUATE	ASSESS
Applying the Locate phase to a listed equity portfolio is very time-consuming and unrealistic and faces challenges to access relevant location data, for the agrifood sector at least. This pilot however demonstrated a methodology to start addressing this challenge.	It was the opportunity to test the bottom-up approach of the BIA-GBS database for the Agrifood sector, which will keep being improved. It allows to evaluate the impacts on biodiversity of the industry more accurately and provides valuable insights on the most significant pressures.	The quantitative analysis led by BIA-GBS needs to be completed by a qualitative analysis at the company level of the exposure and probability of occurrence of risks.

Feedback from Amundi

N

Sandrine

Q&A?

Thank you for your interest

Contact *melissa.perez@carbon4finance.com* *julie.bonnet@cdc-biodiversite.fr*