Finance for Biodiversity

Guide on biodiversity measurement approaches

Finance *for* Biodiversity Pledge

European Commission

Business @ Biodiversity

Annex on *Assessing Impact* to Pledge Guidance

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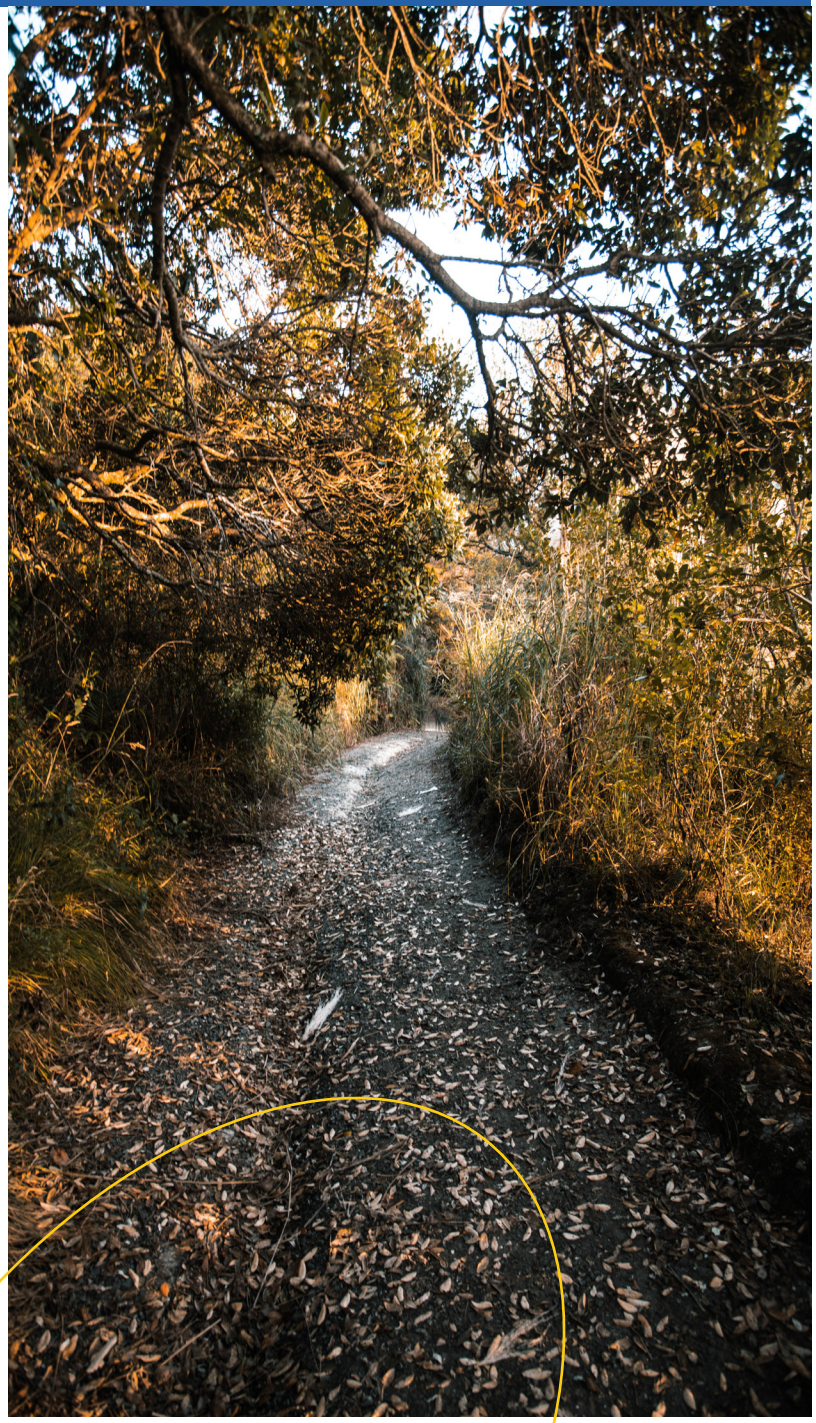


1. Financial institutions measuring biodiversity impact

Financial institutions are looking for ways to assess the impact they have on biodiversity via their finance and investment activities. The aim of this guide on biodiversity measurement approaches for financial institutions is to provide comprehensive information and to help understand the approaches that are currently in use and underway. The need for such an overview was expressed by signatories to the Finance for Biodiversity Pledge supporting the implementation of their commitment 3 *Assessing Impact*. This guide serves as an annex to the 'Assessing impact'-paragraph with approaches and examples of the Pledge's more generic Guidance Document.

EU Business and Biodiversity work

Banks, investors, insurers and impact funds defined the need and format for this guide, as part of the 'sharing practices' activities of the Finance@ Biodiversity Community under the EU Business @ Biodiversity Platform. By involving the Workstream Methods, also part of the EU B@B Platform, this guide aligns with and builds on its report series Assessment of biodiversity measurement approaches. This report series gathers and assesses the input delivered by tool developers and leading practitioners. The series provides more in-depth information on the specific characteristics of the methodological approaches and provides detailed guidance on how to select suitable measurement approaches and metrics for both companies and financial institutions.

Reading guide

This guide begins with the scoping of six measurement approaches and a description of the selection criteria used to support selecting a measurement apporach. The main section describes the overview of approaches mapped against criteria, followed by a description of each approach. The intention is to provide annual updates of this guide, capturing new developments and insights on biodiversity measurement approaches for financial institutions.

2. Measurement approaches selected and criteria defined

2.1 Selected approaches

Based on considerations within the Finance@Biodiversity Community, this guide includes only biodiversity impact measurement approaches that:

1 Are relevant to, and are currently explored or used by, the financial sector,
2 Include all main drivers of biodiversity loss, and
3 Are scientifically robust.

The following measurement approaches meet these criteria and are included in this guide:

- **CBF** – Corporate Biodiversity Footprint (Iceberg Datalab and I Care Consult as scientific partner)
- **BFFI** – Biodiversity Footprint Financial Institutions (CREM and PRé Sustainability, together with ASN Bank)
- **STAR** – Species Threat Abatement and Restoration (IUCN)
- **GBSFI** – Global Biodiversity Score for Financial Institutions (CDC Biodiversité)
- **BIA** – Biodiversity Impact Analytics (Carbon 4 Finance, CDC Biodiversité)
- **ENCORE** – Exploring Natural Capital Opportunities, Risks and Exposure (UNEP-WCMC, UNEP FI & NCFA)

We are open to including other upcoming tools in an update of this document in 2022.

2.2 Criteria for comparing and selecting

To compare and assess biodiversity measurement approaches in a uniform way, a number of criteria are applied. These criteria are described in the table below. Most of them are taken from the report series Assessment of biodiversity measurement approaches. The F@B Community and the tool developers selected and further refined the criteria for the finance sector. On the next pages, we include links to the sections in Update reports 2 and 3 of the Assessment of biodiversity measurement approaches in which a more detailed discussion of the criteria can be found. Update Report 3 includes a draft Biodiversity Measurement Navigation Wheel for the finance sector.

Criteria for selecting measurement approaches for financial institutions

Organizational focus area (OFA)

For financial institutions this is the scope or part of their investment and finance activities they are looking into for measuring the biodiversity impact of that specific part. *Source: Update Report 3, Box 6 and F@B Community*

Balance-sheet All the assets, liabilities and shareholders' equity together of a financial institution at a specific point in time.

Portfolio A collection of finance activities or investments.

Sector A selection of the economy made up of firms or institutions that share the same or a related product or service.

Index level A method to track or evaluate the price performance of a group of assets in a standardized way, usually stocks, often to use as benchmark.

Company A commercial or industrial enterprise.

Project & site level The funding of a long-term infrastructure, industrial project or public services.

Business/finance Application (BA)

The type of application the measurement approach will be used for. The described BAs are based on the overview of BAs for business by the workstream Methods and adapted for finance. This is why BA 6 (certification) is missing below. *Source: Update Report 3, Box 5*

BA 1 Assessment of current performance - Material risk assessment, like exposure to and management of biodiversity loss at balance sheet, portfolio, sector and/or asset/company level. Due diligence assessment and identifying 'hotspots'.

BA 2 Assessment of future performance - Scenario-analysis of the biodiversity development of certain portfolios, sector or asset categories, e.g. as a result of reducing pressures and restorative actions at asset or portfolio level. This may include scenarios on changing policies.

BA 3 Tracking progress - Depends on the type of targets set by the FI, companies and governments: 'Net positive effect by 2030'; targets on underlying drivers of biodiversity loss, 'No deforestation and water neutral by 2030'; 'Reverse nature loss in this decade'; keeping within a 'Safe operating space'.

BA 4 Comparing options - Comparing the impact of different investment options on biodiversity, like different forms of benchmarking. Examples: 'Best practice average of companies in a region/sector'; 'Best bio-value for money of conservation investment'; 'Commodity/sector risks & opportunities'; 'Best-in-class companies'; 'High opportunity asset categories'.

BA 5 Assessment/ rating by third parties - Third party assessment by rating agency or a data provider based on biodiversity criteria and populated with external data (in the absence of company data), e.g. for comparing (listed) company biodiversity performance across a sector.

BA 6 Certification by third parties - Third party certification based on auditing of a clearly established methodological approach. (this business application is not yet included in this finance guide)

BA 7 Screening and assessment of opportunities - Identifying biodiversity opportunities for investing in restorative biodiversity actions.

BA 8 Biodiversity accounting - Compiling consistent, comparable and regularly produced data for internal reporting and/or external disclosure using reporting standards (like GRI) and verification by an accountant.

BA 9 ESG screening and engagement - Input for ESG policymaking and defining ESG criteria, ESG screening and monitoring engagement progress to bring companies in line with the ESG-policy on biodiversity.

Asset categories

Category of assets owned or managed by financial institutions.
Source: F@B Community

Corporate loans Debt-based funding arrangement between a business and a financial institution such as a bank.

Listed equity Money invested in a company by purchasing its shares on a stock exchange.

Private equity Money invested in a company by purchasing its shares.

Corporate bonds Debt-based securities issued by publicly held corporations to raise money for expansion or other business needs.

Sovereign bonds Debt-based securities issued by a government of a specific country.

Mortgages and real estate Debt-based instrument, secured by the collateral of specified real estate property, that the borrower is obliged to pay back with a predetermined set of payments.

Impact funds Fund with a goal to implement investments that generate a measurable, beneficial environmental (and/or social) impact, in addition to a financial return.

Green bonds Debt-based instrument to support projects that aim to have a positive impact on climate and/or the environment.

Project finance Debt-based funding arrangement of long-term infrastructure, industrial projects, and public services using a non-recourse or limited recourse financial structure.

Commodity trade Trade or purchase of primary goods, such as raw or partly refined materials from the agriculture, energy or metals sector.

Maturity level

The maturity level of a tool is based on its application frequency for specific finance contexts. *Source: Update Report 3, p. 16-17.*

Mature The approach has been applied at least 3 times to the specific OFA, BA or asset class.

Emerging The approach has only been applied 1 or 2 times to the specific OFA, BA or asset class.

Potential The approach has not been applied yet to the specific OFA, BA or asset class, but tool developers claim that the approach can be applied.

Pressures

Direct human influence on the environment (direct drivers) that impacts biodiversity and ecosystem change, frequently involving synergies with other direct drivers. Direct drivers also feed back into indirect drivers (socio-economic and demographic trends, technological development, culture and government). *Source: IPBES.*

Land/sea use change Human influence on habitats, including the conversion of land cover (deforestation or mining), the changes in (agro-) ecosystem management (intensification or forest harvesting) or the changes in the spatial configuration of the landscape (fragmentation of habitats).

Direct exploitation Anthropogenic exploitation of wildlife, leading to biodiversity loss and extinctions. Also overfishing, soil degradation, water use, species harvested for medicinal and pet trade.

Climate change Changes in climate and weather patterns impacting in situ ecosystem functioning and causing the migration of species and entire ecosystems. This may threaten as many as one in six species at the global level.

Pollution	Driver of biodiversity and ecosystem change throughout all biomes, with particularly devastating direct effects on freshwater and marine habitats. Also, the deposition of nitrogen threatens the integrity of global biodiversity.
Invasive species	Exotic or 'alien' species in terrestrial and aquatic ecosystems, disrupting the ecological functioning of natural systems by out-competing local and indigenous species for natural resources, with negative implications for biodiversity at local and regional scales and causing significant economic damage.

Coverage

Biodiversity measurement tools can either focus on negative impacts on biodiversity or on the associated societal dependencies (the services provided by the ecosystems). *Source: Update Report 2, p. 26.*

Impacts (on species and habitats)	Direct impact from human activities on species and habitats services through the pressures described above. A measurement approach that focuses on impacts thus translates the environmental pressures associated with an activity (e.g., GHG emissions, pollution, etc.) into the effects that these pressures have on species and habitats.
Dependencies (ecosystem services)	Services provided by ecosystems that society benefits from and depends upon, like clean air, water, climate adaptation and pollination. A measurement tool that takes into account dependencies translates pressures into impacts on species and habitats (e.g., local extinctions of insects), and translates these impacts into societal consequences caused by declines in ecosystem services (e.g., loss of pollination services leading to declines of fruit harvesting).

Scope

The boundaries of what is included when measuring the impact or dependency. *Source: Update Report 2, p. 31-33.*

Scope 1	Impacts generated in the area controlled by the entity and other impacts directly caused by the entity during the assessed period.
Scope 2	Impacts resulting from non-fuel energy (electricity, steam, heat and cold) generation for site-level use, including impacts resulting from land use changes, fragmentation, etc.
Scope 3 (upstream and downstream)	Impacts which are a consequence of the activities of the company but occur from sources not owned or controlled by the company, both upstream (supply chain) and downstream (consumption and waste) of its activities.

Metric

Biodiversity is the diversity of life on Earth: diversity of ecosystems, diversity of species and genetic diversity. Biodiversity metrics measure different things (like species, ecosystem intactness, ecosystem benefits) and can be used to answer different questions. *Source: Update Report 2, p. 46-55.*

MSA (Mean Species Abundance)
Measures 'intactness'. MSA compares the actual abundance of native species in a given ecosystem to their (estimated) abundance if the ecosystem would be in an undisturbed state. All species are valued equally, threatened or not. An MSA value of 100% indicates that the biodiversity of this ecosystem is the same as at its original state and has not been affected by human activities.

PDF (Potentially Disappeared Fraction)
Measures 'intactness'. PDF shows the percentage of species lost on 1 m^2 (land) or in 1 m^3 (water) in one year time in a specific area due to environmental pressures. It does not measure decline in species populations. All species are weighted equally; based on regressions between the intensity of each pressure and their impacts on species persistence.

STAR (Risk of extinction)
Measures risk of extinction of species. STAR is the sum of the risks of extinction of species weighted by their threat status. Presence of threatened species is an indication that the ecosystem is under pressure. This can be useful to identify the conservation actions with the highest potential to prevent species extinction.

Aggregate index
A composite index based on several parameters.

Monetary value
Sum of the economic value of ecosystem services (such as timber production, fresh drinking water, carbon uptake, recreation, etc.). It helps focusing on the benefits that people may gain from nature.

Type of data

The type of data that is commonly used as input data for the tool.
Source: Update Report 3, p. 66-71.

State data
State of biodiversity based on real life ecological survey data (count of populations or number of species) linked to the underlying assets assessed. Biodiversity state data modelled with pressure-impact relationships (or equivalent) are to be seen as 'pressure' data.

Pressures, resources and emissions data
Data related to emissions and extraction of resources such as raw materials, water, land use and land conversion.

Economic quantification of activities data
The amount of material the organization assessed extracts, produces, purchases or finances, e.g., the amount of cotton used for producing a T-shirt, or the amount a financial institution invests in a company.

All these types of data can be:

U - User-derived data
U - Inputs based directly on measurements conducted by the assessed company. These measurements can relate to biodiversity state but also to pressures or inventory data. User-collected data on inventories can thus be associated with modelling of biodiversity state.

E - Externally collected data
E - Data derived from external (sometimes global) datasets and not from direct measurements by the assessed company (e.g., sector averages). Externally collected data can nonetheless include biodiversity state data, e.g., based on species distribution maps from the IUCN (or IBAT).

M – Modelled data
M - Estimated or interpreted and usually aggregated data, e.g., data related to potential economic growth. This can be both user-derived (e.g., own modelling of m^3 of water consumed) or externally collected (e.g., use of the average MSA of a given cell on GLOBIO's grid).
Source: UNEP-WCMC ABMB Discussion Paper, 2019.

Efforts

Required level of expertise, costs, and time investment needed for applying each approach. *Source: Update Report 3, p. 38-42.*

Accessibility — Accessibility refers to 'open source' or 'commercial' tools. Note: Although a tool and all its technical information is made publicly available, external support from the tool developer could be required. This is made clear in 'required expertise'.

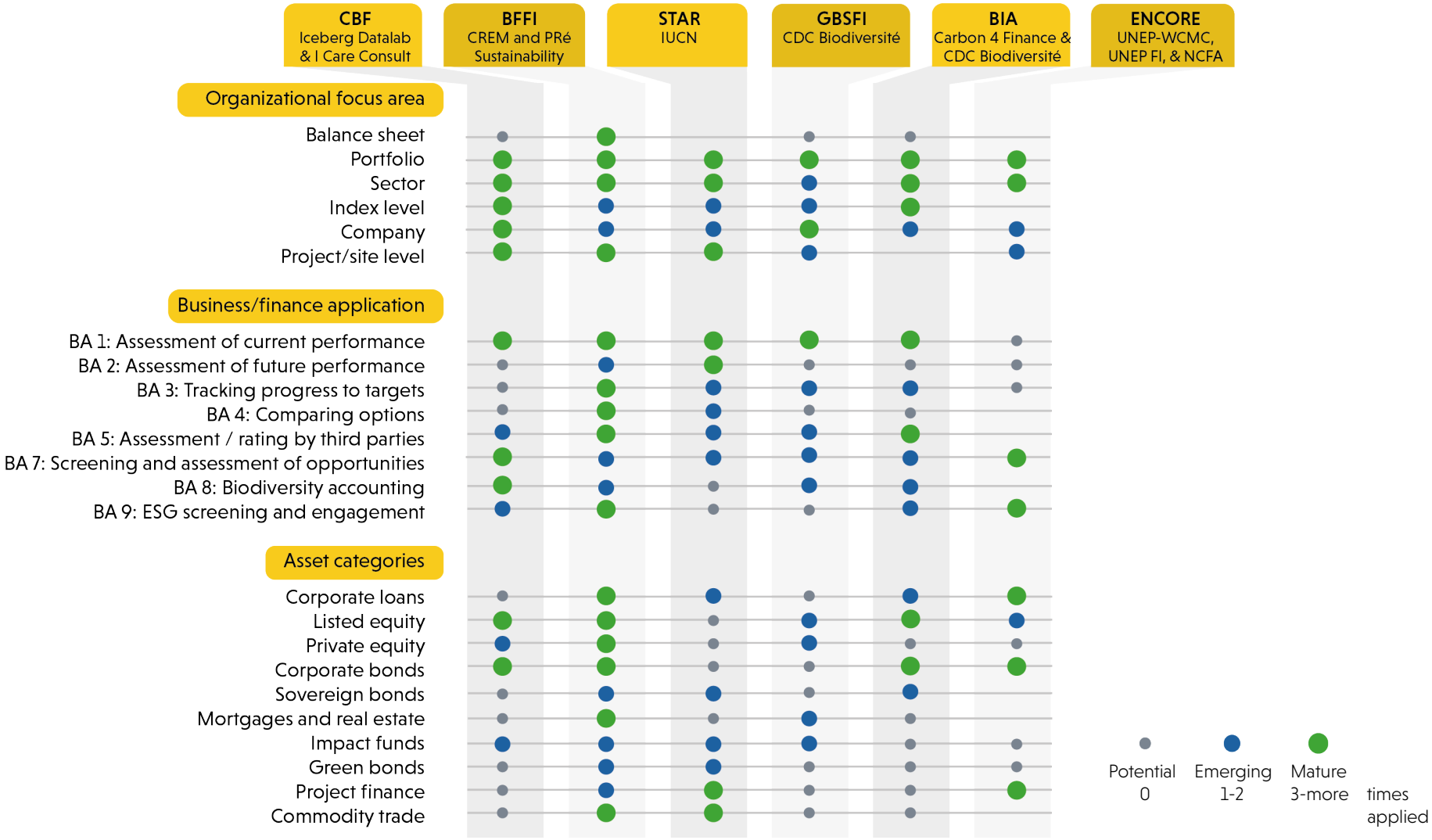
Required expertise — Required expertise refers to the type of technical and knowledge skills that are needed to apply the measurement approach – this is either available within the institution (INT), or needs to be hired (EXT). Some tool developers offer training allowing the company to apply the tool themselves in future iterations (indicated with EXT – T).

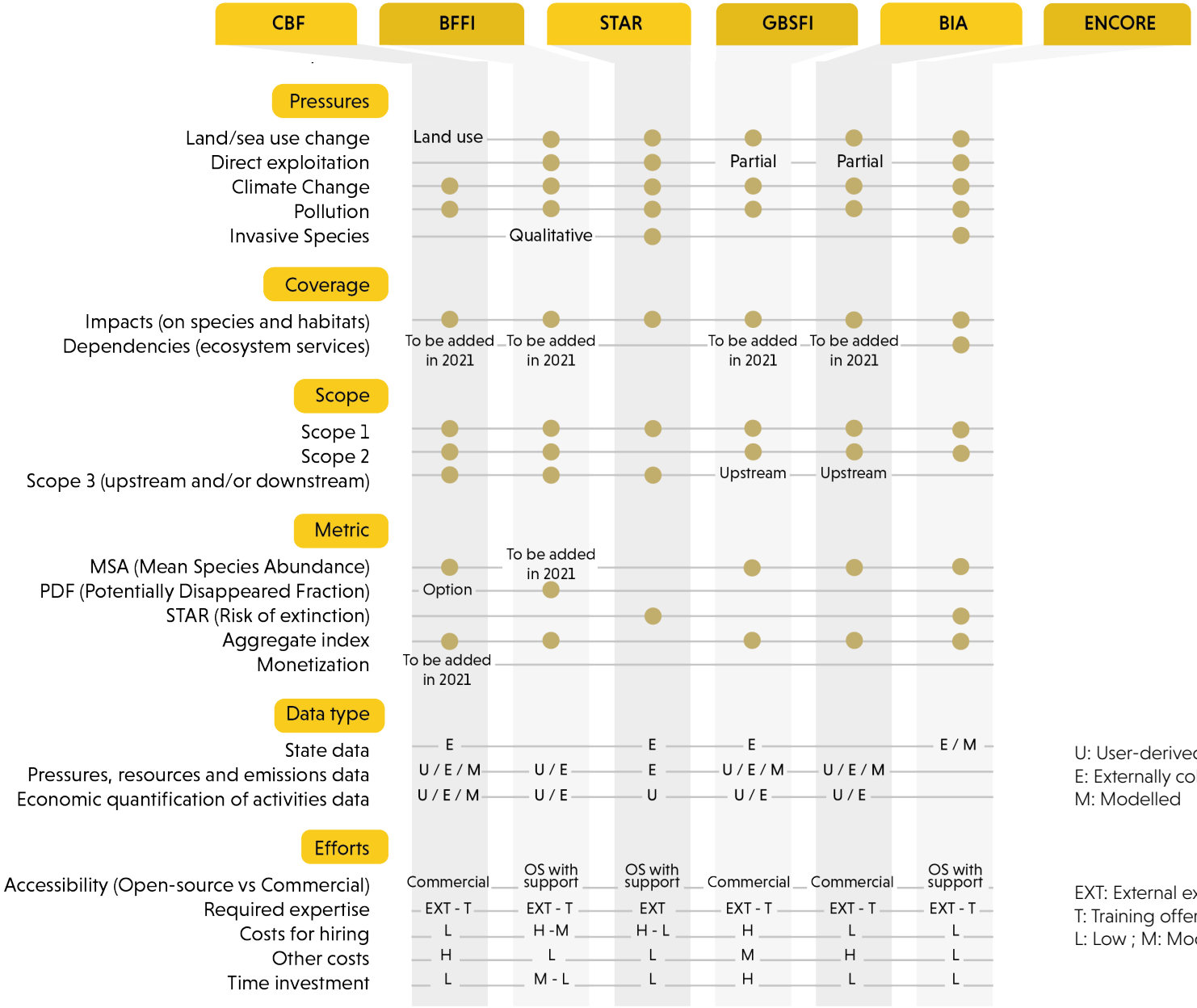
Cost for hiring — Costs for hiring external expertise, for the first measurement. H (high, i.e., exceeding 20 working days), M (moderate, i.e., between 5 and 20 working days) or L (low, i.e., less than 5 working days).

Other costs — Other costs, including necessary investments in license fees, necessary training and the purchasing of data from data providers. This excludes time investment by the FI itself. H (high, i.e., more than 10k), M (moderate, i.e., between 4 and 10k) or L (low, i.e., less than 4k).

Time investment — Time investment by the FI itself, for the first measurement (effort for follow-up monitoring can be lower). H (high, i.e., more than 30 working days), M (moderate, i.e., between 10 and 30 working days) and L (low, i.e., less than 10 working days).

3. Overview of measurement approaches





U: User-derived
E: Externally collected
M: Modelled

EXT: External expertise required;
T: Training offered
L: Low ; M: Moderate ; H: High

4. Information per measurement approach

4.1 CBF - Corporate Biodiversity Footprint

The Corporate Biodiversity Footprint (CBF) is designed to assess the annual impact of corporates, financial institutions and sovereign entities on global and local biodiversity. It is based on life-cycle analysis of the impact of their activities in order to correctly capture the full impact of a product.

To date, the CBF covers the impact of the four environmental pressures below on species and habitats along the whole value chain of the assessed corporate, its processes and its industrial and consumer products or purchases (scope 1, 2 and 3) - where products refer to industrial and consumer products.

- Land occupation and land transformation associated with the corporation's activity.
- Climate change with greenhouse gases emissions.
- Ecosystem disturbance due to eutrophication and acidification through air pollutions (Nitrogen and Sulphur)
- Freshwater biodiversity disturbance by the release emission of liquid or solid toxic compounds in the environment

Each environmental pressure is translated into a quantified impact on either terrestrial (GLOBIO model) or freshwater ecotoxicity, expressed in km^2 MSA. Finally, results are aggregated to calculate the annual biodiversity impact of the assessed corporate. The metric is expressed as an impact in absolute terms at company level (km^2 MSA) and in relative terms (ratio based on a financial indicator km^2.MSA/m€ or a physical metric km^2.MSA/tons).

Organisations behind it

Iceberg Data Lab (IDL) and I Care Consult as scientific partner. Members of the Consortium for Biodiversity metrics, AXA IM, BNP Paribas AM, Mirova and Sycomore participate in the CBF Steering Committee which reviews the extension of the approach. A Scientific Committee has been established with experts on the topic; the members will be announced by Q2 2021. The Scientific Committee reviews the key scientific choices made during the extension of the approach. Eventually, an independent Transparency Council will review the methodological guidelines published by IDL and ensure that they are aligned with best industry practices regarding transparency and disclosure.

Current stage of development

The CBF is already available for issuers operating in sectors with the highest impact on biodiversity. It will be extended to all high- and medium-stake sectors by Q3 2021. The remaining low-stake sectors will be mapped in Q1 2022.

Other developments considered for H2 2021: measuring for Positive impact and Biodiversity dependency. Eventually, the monetarization of the above impacts will be developed in 2022. Calculation at asset-level is implemented in parallel of the sectoral mapping.

What purpose can it be used for?

The CBF can be used to improve the investment-making process and to consider biodiversity impact in the capital allocation decision. The CBF metric, as it is expressed in both absolute and relative terms, is suitable for various applications:

- Extra-financial reporting
- Fund reporting / Label reporting
- Portfolio management
- Best-in-class / Best-in-Universe
- Exclusions
- Engagement/stewardship
- Investment strategies
- Index

The tool is suitable for assessing performance at corporate or asset level (equity, bonds, sovereign bonds, Green bonds, corporate loans, private equity, real assets, commodities, project finance) and financial portfolios, comparing issuers within sectors and for comparing individual incremental impact.

What does it measure?

The CBF uses the 'Mean Species Abundance' (MSA) metric to express the results of the biodiversity footprint. The MSA is defined as the average of native species abundance ratios in a given ecosystem. The MSA can therefore be used as an appreciation of the conservation state of an ecosystem as compared to its original state, undisturbed by human activities.
The MSA value is translated into km^2 MSA based on land occupation and land transformation impacts. This unit of measurement offers several benefits:

- It allows to switch from a relative biodiversity assessment (MSA expressed as percentage) to an absolute measure (km^2 MSA) which allows for aggregation of results.
- The km^2 MSA can be easily understood by non-experts. For instance, 1 km^2 MSA corresponds to the value of biodiversity contained on 1 km^2 of tropical forests, undisturbed by human activities.

Moreover, the CBF is expressed through a financial or physical ratio (at a company, project or asset level). The result is the CBF indicator, expressed in km^2 MSA/€Mn to reflect the impact of each million EUR invested or km^2. MSA/tons reflecting the impact of each ton produced (or purchased) by the company.

It replies to the following question: "What is the estimated impact of a constituent of my portfolio on biodiversity, in absolute or relative terms?"

What input data are needed?

- Reported data by companies is considered as best, subject to a check of the scope of reporting and consistency of the figures.
- The best level is attained when pressure levels (air emissions, land use, length of road, etc.) are reported and fed directly into the damage function to calculate km^2 MSA. If pressure levels are not reported, consumption and/or production data as reported by the company is used to model the environmental pressures. Publicly reported data from the companies is used.
- If only sales per segment and countries are reported, analysts use IDL's customized Environmentally Extended Input Output tables (EEI/O) to model the production/consumption volumes of the company.
- If only revenue and main sector are available, the CBF EEI/O model allows for an estimation of a company's production and consumption, which results in the highest level of uncertainty and lowest data quality indicator.

Main strengths and limitations

Strengths

- Mature: high-stake sectors such as Food, Energy, Oil & Gas, Forest & Paper, Metals & Mining, Construction & Real Estate are already documented and available;
- Robust: the metric is connected to rigorous data and methods both from a scientific and economic perspective;
- Endorsed: Recognized and supported by key stakeholders – Financial institutions, Multilaterals, NGO, Academic;
- Transparent: Can be used in investment strategies (exclusion, portfolio selection and optimization, reporting, stewardship, etc.);
- Scalable: Allowing incremental developments such as positive impact measure, reliance, asset level impact, top-down approach and the coverage of large and extensive universes;
- Granular and updated data: based on a comprehensive commodities and products database which is maintained and updated (price and CPI curves) and can use granular, reported information;
- Comparable: Allowing quantified comparison and aggregation of different corporates' biodiversity footprints across sectors and assets, allowing forecasts and sensitivity analysis and providing a unified assessment along financial instruments and real assets;
- Governance: Scientific and steering committees to supervise methodology developments and ensure transparency.

Limitations

- Marine biodiversity not yet factored in
- Ecosystem fragmentation not yet factored in
- Positive impact under development
- Monetization to be developed
- Impact of Invasive species and Resource consumption to be developed

What are the costs?

CBF is easy to use and implement. CBF metrics are provided at company/asset level to allow aggregation and comparison both in absolute terms (km^2/MSA) and in financial terms (km^2 MSA/€ Mn invested). The Data quality indicator provided (from 1 as Best to 5) allows to qualify the source used for the compilation (reported or modelled) and can help in the dialogue with companies. Licenses include formation to the metrics; access to the methodological guides; access to the customer website (dedicated page per company analysed); access to the ESG research team. CBF is a commercial tool to help financial institutions report their biodiversity impact, develop bespoke investment strategy or design their capital allocation. Fees vary depending on the size of the portfolio contemplated or universe. A training session is included in the subscription, and access to the team of analysts is included in the yearly license, along with training material.

Costs for license fees, data and training are high (more than €10k), but time investment needed by the FI itself is low (less than 10 days, turnkey results) and training and support is provided by the data provider.

4.2 BFFI - Biodiversity Footprint Financial Institutions

The Biodiversity Footprint Financial Institutions (BFFI) provides a biodiversity footprint of the economic activities in which a financial institution (FI) invests. The methodology allows calculation of the environmental pressures and the biodiversity impact of investments within an investment portfolio, at the level of a portfolio, an asset class, a company, or a project.

The BFFI consists of four steps:
The first step is creating an overview of the economic activities in which the FI invests. This step includes:

- A 'definition' of the activities of a company: what is the company producing (in what sectors is the company active? And where does production take place or is the turnover generated?)
- A selection of the investments included in the assessment (all major investments)

Recently this step was completely automated by linking data from the Refinitiv "Worldscope" investors database to the BFFI software tool, which allows the assessment of a full portfolio in a few days.

In the second step, the environmental impact of the economic activities of the company or projects in which it is invested is assessed. The environmental data in the 'Exiobase' input-output database is used to assess what land use, water use, emissions, etc. (pressures) are linked to the economic activities, unless more accurate data (like company data) is available. Exiobase takes into account world-wide trade flows between countries and between sectors. It is also possible to use other input data, such as other IO tables as EORA, and LCA databases as Ecoinvent, World food database, Agrifootprint database, or add specific on site data, which is currently done for assessing specific projects for impact investors

In the third step, the ReCiPe model is used to calculate the environmental pressures on a midpoint level (e.g., climate change resulting from CO_2 emissions) and to calculate the resulting impact on ecosystem quality or biodiversity (endpoint level). This latter step is based on science based 'pressure-response' relations (e.g., the effect of a 1 degree temperature rise on biodiversity). This results in an impact on terrestrial, fresh water and marine biodiversity. The unit used to express the impact on biodiversity is PDF.ha.yr, the Potentially Disappeared Fraction of species per hectare (per cubic meter for aquatic biodiversity) per year. The result is then used to calculate the biodiversity footprint in m^2 per Euro invested (for each investment category) and the total footprint in m^2 for all investments. In this process ReCiPe covers the following stressors (sometimes referred to as midpoints):

- For terrestrial ecosystem quality: Climate change, Photochemical ozone formation, Acidification, Eco-toxicity, Water scarcity, Land use occupation, Land use change
- For freshwater ecosystem quality: Climate change, Eutrophication, Eco-toxicity, Water scarcity
- For marine ecosystem quality: Eco-toxicity, Eutrophication

In the fourth step, a qualitative analysis is used to guide the interpretation and the use of the footprint results, looking at (among others) the limitations of the data and the footprinting methodology and their potential influence on the footprint results. The combined quantitative and qualitative analyses are used to decide on follow-up actions, like zooming in on impact hotspots, engagement and/or establishing/changing investment criteria.

Currently a fixed list of qualitative issues is publicly available per equity category, and a general description of the procedure to assess which issues are not covered in the quantitative assessment is to be found in the 2016 assessment report by ASN Bank (currently not on their website). However, some additional considerations will need to be added if a more specific assessment is needed.

Organisations behind it

ASN Bank, PRé Sustainability and CREM.

Current stage of development

ASN Bank launched the methodology in 2016. The first footprinting exercise and associated report was published in August 2016, followed by footprints for the years 2014, 215, 2016, 2017, 2018 and 2019. The methodology is continuously being updated, based on external and internal methodological and data updates. Moreover, the first step in the methodology (linking investments in companies to economic activities) has largely been automated.

What purpose can it be used for?

The methodology is suitable for the following applications:

- Calculating the footprint of a financial asset portfolio, an asset class, a company or a project.
- Development of an engagement policy and investment criteria based on insights in the main drivers behind the impact.
- Use as a scoping step: to identify biodiversity impact hotspots on a portfolio level, enabling financial institutions to zoom in on a selection of loans and investments.
- Use the footprint to develop a "no net loss of net gain" policy and track progress.

The methodology is currently also used to assess projects developed by impact investors which require site specific data. While BFFI was not developed for this purpose, and has some limitations, there is a benefit in assessing the portfolio in the same way as a specific investment in an area.

What does it measure?

The following endpoint impact units are used.

- PDF.m^2.yr (for land) and PDF.m^3.yr (for water). PDF stands for Potentially Disappeared Fraction of species, indicating the percentage of species lost on 1 m^2 land or in 1 m^3 water in one year time.
- The PDF.m^2.yr and PDF.m^3.yr can be added up to a PDF.yr or species/yr score (using the average species density on land and in freshwater and marine water).

What input data are needed?

- Data on economic activities in which companies invest.
- Data on the characteristics of projects invested in, including their site.
- Background data from LCA type databases like Exiobase or ecoinvent, or direct data from companies or projects, when available (replacing the background data).
- Information on biodiversity impact drivers in different sectors to allow for a qualitative analysis guiding interpretation and use of the footprint results.

Main strengths and limitations

Strengths

- Scientifically well underpinned.
- Use of open-source database and methodologies (no black box calculations).
- The Exiobase input/output model shows trade flows between countries and sectors and therefore allows for a geographical identification of impact hotspots on a country level.
- Location/region specific data can be used when they are/become available.
- Covers most drivers for biodiversity loss.
- The ReCiPe methodology also takes into account pollution
- Supported by range of stakeholders (including government, knowledge institutes and NGOs) after stakeholder consultations.
- Scalable to be used by other banks.
- The complementary qualitative analysis guides correct interpretation and use

Limitations

- Exiobase limitation (use of sector average data). This weakness can be addressed by using other LCA databases or with additional data collection.
- Land-use related impacts are biased to temperate regions which means that land-use related impacts will be less accurate for tropical regions.
- Inclusion of location-specific characteristics is limited, limiting the methodology's fitness for use on a project level. For projects, alternative approaches are being included in the methodology. On a portfolio level, with the aim of identifying biodiversity impact hotspots, this limitation is acceptable.
- Not all drivers of biodiversity loss are covered by the ReCiPe methodology. For example, the introduction of invasive species is not yet covered, and overexploitation is not yet fully covered (overexploitation of fish species has been integrated in 2020). This limitation is addressed by the complementary qualitative analysis, analyzing the significance of this limitation and what this means for the interpretation of results.

What are the costs?

The methodology is non-proprietary and relatively user friendly but requires the use of impact calculation software fit to deal with the (high number of) input data and the calculation of impacts based on the ReCiPe methodology. Depending on the level of knowledge within the FI using the methodology, expert input may be needed to stay informed of data and methodology updates and to enable correct interpretation of the footprint results.

BFFI is based on a combination of openly available data and methodologies and a non-proprietary procedure to combine these in 4 steps. Technical and knowledge skills – as well as commercially available software tools – will need to be hired. A publicly available software tool (www.bioscope.info) is available for free, allowing calculations sector by sector. This tool will be updated in 2021.

The costs for assessing a complete portfolio can be medium or low, depending on the tools available to collect data for step 1; the other steps are fully automated. The tool developer offers training allowing the company to apply the tool themselves in further iterations. The time investment for FIs is low when consultants are hired. Consultants with access to the tools can calculate a complete portfolio in a few to ten

days depending on the availability of data for step 1 in the procedure. Currently the BFFI tool developers are working on the complete assessment of all companies in the MSCI index, and these scores per company will be made available for all FIs with an appropriate Refinitiv license. This will reduce the work for all these companies to just consulting a look-up table.

Site specific impact investors projects currently costs around 5 days for an experienced consultant.

4.3 STAR - Species Threat Abatement and Restoration metric

The Species Threat Abatement and Restoration (STAR) metric measures the contribution that investments can make to reducing species extinction risk, through abating threats and by restoring habitat. It can help the finance industry and investors target their investments to achieve conservation outcomes and can measure the contributions these investments make to global targets such as the Sustainable Development Goals. Because biodiversity is distributed unequally around the world, STAR assesses the potential of specific actions at specific locations to contribute to conservation targets. STAR scores show the potential contribution of conservation or restoration actions in a specific location to reduce the extinction risk for all species globally. In other words, it shows what fraction of the global threat-abatement effort required for all species to become Least Concern is realized.

STAR consists of a global map of species extinction risk scores mapped by 5 x 5 km squares. For each square, the contribution of each threat to the score is given. Users can overlay polygons (corporate footprint, project sites, commodity production zones) over the STAR map to compare values, add up total potential contributions, or assess options for management based on addressing the threats in each polygon.

Organisations behind it

The work was led by the IUCN Species Survival Commission's Post-2020 Taskforce, which is hosted by Newcastle University (UK), in collaboration with 88 scientists from 54 institutions in 21 countries around the world.

Current stage of development

The paper describing the approach and methodology is "Measuring spatially-explicit contributions to science-based species targets" (Mair et al., in press, Nature Ecology and Evolution). The paper will be published in early April 2021, at which point a weblink will be provided. STAR data layers will become accessible through an early access programme via the Integrated Biodiversity Assessment Tool (IBAT) from Q2 2021., as well as user documentation and industry guidance. Pilot testing in Indonesia, New Zealand and with other private sector operators is finalized. STAR will be incorporated into ENCORE as part of the biodiversity risk measure after Q1 2021.

Currently STAR uses extinction risk and threat information on birds, amphibians, and mammals. Marine and freshwater species, as well as plants and reptiles, will be added shortly. In due course, the STAR methodology will be extended to apply to genetic diversity and ecosystems, the latter likely drawing from the IUCN Red List of Ecosystems.

What purpose can it be used for?

It can help national governments, corporates, civil society and the finance industry and investors identify the potential contribution they can make to global targets such as the Sustainable Development Goals. It can help these actors identify which management responses are most likely to reduce species extinction risk, through management designed to reduce threats to species.

What does it measure?

The STAR measures the contribution that investments can make to reducing species extinction risk, through abatement of pressures on threatened species, and restoration of habitat, for any given site or region. The STAR report will show how the potential at this site compares to other sites around the world or in that country or region, and what proportion of global and regional targets the site can offer.

What input data are needed?

The STAR global data map is already compiled. Users need to overlay a geospatial polygon on top of this map in order to produce a report showing the potential reduction in species extinction risk at the site. In order to assess portfolio level impacts, company data on land use is required.

Main strengths and limitations?

Strengths

- Provides a global heat map, at 5x5km resolution, of species extinction risk reduction potential, broken down by different threats.
- Values for different sites can be compared, added up across commodity sources or assembled into portfolio values.
- Provides a global heat map of potential for habitat restoration to contribute to species extinction risk reduction.

- The IBAT portal will provide a report describing opportunities to deliver species extinction risk reduction and a measure of extinction risk exposure for sites or other polygons that are overlain by the user on the heat map.
- Currently STAR incorporates threatened species data from mammals, birds and amphibians compiled by thousands of specialists in the IUCN Red List of Species, the most authoritative source of data on the status of global biodiversity.

Limitations

- STAR does not include information about threats to habitats. Such information is not yet available at a global scale in a comparable fashion to species.
- Additional taxa such as reptiles, trees, freshwater fish, coral reef fish and reef-building corals are not incorporated. This will be done in the near future (~2 years)

What are the costs?

Early Access program through IBAT is free (from early Q2 2021). STAR is an open-source tool with support. Business support documentation will be available in Q2 2021. Technical and knowledge skills needed to refine STAR for planning and implementation of conservation measures will need to be hired (costs can vary). The tool developer does not offer training allowing the company to apply the tool themselves in further iterations. Costs for license fees, data and training are low (less than 4k), as is time investment needed by the FI itself (less than ten days).

4.4 GBSFI - Global Biodiversity Score for Financial Institutions

The Global Biodiversity Score for Financial Institutions (GBSFI) is based on the GBS®, a tool which provides an overall and synthetic vision of the biodiversity footprint of economic activities. It is measured by the Mean Species Abundance (ratio between the observed biodiversity and the biodiversity in its pristine state). Calculation of the Mean Species Abundance is based on PBL Netherlands Environmental Assessment Agency's GLOBIO model of five terrestrial pressures (land use, nitrogen deposition, climate change, fragmentation, and infrastructure/ encroachment) and five aquatic pressures, and their impacts on biodiversity.

The GBS is deployed for two main uses: biodiversity assessment for companies (GBS) and for financial institutions (GBSFI). The methodological grounds are identical for both, but the operational frameworks differ considering the differences in terms of coverage (one company versus multiple financial assets) and data availability (comprehensive company data versus scarce publicly available data). Footprints are estimated in a two-step process. First, pressures caused by specific economic activities on biodiversity are quantitatively assessed. Then, the impacts of these pressures on ecosystems are estimated. This last step relies on the GLOBIO model which is based on pressure-impact relationships.

Organisations behind it

Lead: CDC Biodiversité (France)
Other: Club of Businesses for Positive Biodiversity (B4B+ Club) acts as a platform for the GBS development (a group of +30 businesses representing different sectors, including the finance sector)

Current stage of development

The first operational version of the GBS was launched in May 2020. The first biodiversity footprint assessments for companies were conducted in 2020. The first GBSFI analysis are being conducted in early 2021. An analysis of a non-listed assets portfolio for a French insurer is ongoing in Q1. A footprint database for listed assets will be launched in Q2 as the Biodiversity Impact Analytics (BIA) developed with Carbon4 Finance, see BIA in this overview.

What purpose can it be used for?

The GBSFI is suitable for calculating the footprint of a financial asset portfolio. Its ability to produce results for investment decisions is conditioned by the underlying data availability which varies depending on the asset type. For listed assets (equity and corporate bonds) an integrated solution, BIA, is under development. In that case, limited data from users will be necessary (only underlying company identification number). For other asset types, at first GBSFI will remain a tailor-made approach that can only be used if a minimum data is provided by the financial institution (it can either be its own data, data purchased from third-party data providers or a mix of both).

What does it measure?

GBSFI provides an overall and synthetic vision of the biodiversity footprint of financial assets (e.g., listed equity) considering the full value chain of underlying economic activities (associated companies businesses). As GBSFI relies on the GBS methodology, it comes with the same concepts and limitations. It is not intended to replace local indicators which are best suited to local or on-site biodiversity assessments. The impacts of pressures caused by specific economic activities on ecosystems are quantified, relying on the GLOBIO model which is based on pressure-impact relationships.

What input data are needed?

The GBSFI can work with different datasets listed below, by increasing order of usefulness in terms of the precision that can be expected from the assessments:

1 Economic activity data: turnover and purchases by country and industry (of the asset a financial institution invested in)
2 Pressures, resources and emissions data:
   - Commodities (t), services or refined products extracted or consumed
   - Carbon emissions on scope 1, 2 and 3 (see definition in paragraph 2.2)
   - Land use changes (ideally using a 13 habitat types nomenclature including different use intensity for forests, grasslands, agriculture, etc.)
   - Water withdrawal and consumption by Scope
   - Nitrogen and phosphorous emissions by Scope
3 Comprehensive biodiversity direct data: when very detailed ecological monitoring data are available, the Mean Species Abundance might be directly calculated.

Main strengths and limitations?

Advantages:

- Scientifically well underpinned (best available knowledge and tools e.g., GLOBIO, EXIOBASE)
- Quantitative (and scientifically robust) link between pressures and impacts
- Covers terrestrial and aquatic biodiversity
- Differentiates past and new impacts
- Spatially explicit
- Covers most drivers for biodiversity loss
- Covers all industry sectors and all countries
- Compatible with site-level data (micro) and international objectives (macro)
- Biodiversity input data (MSA, pressure – impact relationships) based on extensive meta-analysis which continuously allows for adding new studies
- Will allow for introducing weight factors differentiating ecosystem condition based on protection regime, protected species, etc.

Limitations:

- Pressure-impact relationships in the GLOBIO model are biased towards the most studied species and ecosystems.
- Marine biodiversity is not factored in.
- Invasive species and soil degradation are not factored in yet; overexploitation is factored in only partially.
- Remaining shortcomings in reallocation rules (i.e., linking pressures to economic activities)

What are the costs?

Using the results of the GBSFI does not require specialist knowledge and the metrics of km2 MSA is relatively easy to understand and visualize. For tailor-made approaches the required time effort depends on the desired level of detail and data availability. Quick approximations can be obtained with industry and country-level averages, and more refined assessments can be obtained if more precise data is collected. A quick assessment takes a couple of weeks and uses easily accessible (and existing) data. A typical detailed assessment should require a couple of months and might require the aggregation (or creation) of additional data, e.g., on habitat maps. GBSFI is a commercial tool (its underlying tool, the GBS, is however available freely for academics). The GBSFI provides tailor-made solutions so the technical and knowledge skills needed to apply the GBSFI will need to be hired (high costs, more than 20 working days). The tool developer offers training allowing the financial institution to apply the tool themselves in further iterations (if it already owns the required data). Costs for license fees, data and training are medium (between €4k and €10k). As the GBSFI is used to meet specific needs expressed by the financial institution (e.g., developing a biodiversity ETF, or a biodiversity-positive fund), the time investment needed by the FI itself is high (more than 30 days).

4.5 BIA - Biodiversity Impact Analytics

Biodiversity Impact Analytics (BIA) is an integrated biodiversity impact database developed by Carbon4 Finance and CDC Biodiversité using the GBSFI methodology. Biodiversity impacts for underlying assets are computed based on Carbon4 Finance's financial and carbon data (available at the company level), combined to the GBSFI's impact factors.

Organisations behind it

Lead: Carbon 4 Finance (France)
Other: CDC Biodiversité

Current stage of development

The database is still under development and will be launched in April 2021.

What purpose can it be used for?

At launch, BIA will be suitable for calculating the footprint of a financial asset portfolio and indices composed of listed equity and/or corporate and sovereign bonds. The list of assets covered will then be expanded (e.g., corporate loans, sovereign bonds, etc.).

What does it measure?

BIA provides an overall and synthetic vision of the biodiversity footprint of portfolios or indices considering the full value chain of underlying companies. As BIA relies on the GBSFI methodology, it comes with the same concepts and limitations. It is not intended to replace local indicators which are best suited to local or on-site biodiversity assessments. The impacts of pressures caused by specific economic activities on ecosystems are quantified, relying on the GLOBIO model which is based on pressure-impact relationships.

What input data are needed?

BIA is an integrated solution meaning that data needed from financial institutions is minimal; they just need to characterize their portfolio or index with identification numbers for underlying companies (e.g., ISIN number) and financial exposure for each asset. For the pressure data on climate change, the GHG reported by the company is used (if available). This also applies for the turnover directly reported as part of economic data. Geographical or sectoral breakdown of turnover is assessed through other externally collected sources.

Main strengths and limitations?

Strengths

- Easy to use
- Scientifically well underpinned (best available knowledge and tools e.g., GLOBIO, EXIOBASE)
- Quantitative (and scientifically robust) link between pressures and impacts
- Covers terrestrial and aquatic biodiversity
- Differentiates past and new impacts
- Spatially explicit
- Covers most drivers for biodiversity loss
- Covers all industry sectors and all countries
- Compatible with international objectives (macro)
- Biodiversity input data (MSA, pressure – impact relationships) based on extensive meta-analysis which allows for adding new studies continuously
- Will allow for introducing weight factors differentiating ecosystem condition based on protection regime, protected species, etc.

Limitations:

- Based on financial data, except for climate change, granularity within a sector is limited
- Pressure-impact relationships in the GLOBIO model are biased towards the most studied species and ecosystems.
- Marine biodiversity is not factored in.
- Invasive species and soil degradation are not factored in yet; overexploitation is factored in only partially.
- Remaining shortcomings in reallocation rules (i.e., linking pressures to economic activities)

What are the costs?

The time effort required to calculate the impact is minimal, but the dataset is commercial. This means that FIs have to pay an annual fee to access it. Official pricing options are still being calibrated and will be communicated in Q1 2021. The dataset will be available directly, without the need for technical or knowledge skills. The cost of licenses and data are expected to be around €20k depending on the universe of asset classes subscribed. The time investment needed by the FI itself is low (less than ten days), as the outputs will be provided fully computed and usable.

4.6 ENCORE - Exploring Natural Capital Opportunities, Risks and Exposure

Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE) enables users to visualise how the economy potentially depends and impacts nature and how environmental change creates risks for businesses.

Starting from a business sector, ecosystem service, impact driver, or natural capital asset, ENCORE can be used to start exploring natural capital risks. These risks can be explored further to understand location-specific risks with maps of natural capital assets, drivers of environmental change, and impact drivers. Current developments of ENCORE will result in an additional module that will allow finance sector users to assess their portfolios' alignment with global biodiversity goals.

Organisations behind it

ENCORE was developed by the Natural Capital Finance Alliance (Global Canopy and UNEP FI) in partnership with UNEP-WCMC and was initially funded by the Swiss State Secretariat for Economic Affairs (SECO) and the MAVA Foundation. It was tested through finance sector pilots in Peru, Colombia and South Africa by PwC and Little Blue Research. The current phase of work is funded by the Swiss Federal Office for the Environment (FOEN).

Current stage of development

The first phase of ENCORE concluded in 2019 and resulted in the creation of the website, which allows finance sector users to explore potential dependencies and impacts on natural capital for all economic activities. The website launch was accompanied by a step-by-step guide for banks. New functionalities to be launched in 2021 include a free accounts system, ability to visualize dependency/impact links between economic activities and natural capital, and a map of natural capital risk hotspots.

ENCORE biodiversity module - The current phase of work, aims to further develop ENCORE to help financial institutions understand the alignment of their portfolios with global biodiversity goals. An initial version of this new module will be launched in 2021. This will be updated and finalized following agreement of the post-2020 Global Biodiversity Framework by the Parties to the Convention on Biological Diversity.

What purpose can it be used for?

1 **Risk management:**
- Identify potentially material ecosystem services, natural capital assets, and impact drivers for different sectors;
- Identify important drivers of environmental change potentially affecting the portfolio;
- Assess the potential risk of disruption to specific natural capital considerations in specific locations. Sectoral exposure in specific areas can also be investigated.

2 **Communication and stakeholder engagement:**
- ENCORE provides the material needed to effectively communicate the implication of natural capital risks to the portfolio of financial institutions. This material can inform the next steps financial institutions wish to take to address these risks.
- By clarifying the links between economic activities and natural capital (be it through dependencies or impacts), ENCORE also helps integrate natural capital into existing risk management frameworks to institutionalise management of natural capital risks.

3 **Biodiversity target setting and portfolio alignment:**
- The new ENCORE biodiversity module will help financial institutions understand how much their agriculture and mining portfolios might currently be aligned with global biodiversity goals, how the sectors might evolve in the future and the associate biodiversity risks/ opportunities, and what actions financial institutions can take to drive greatest alignment with global biodiversity goals.

What does it measure?

ENCORE provides users with a view of how economic activities (referred to as 'production processes') might depend or impact natural capital. The tool also provides qualitative materiality ratings for dependencies and impacts, which help users understand which dependencies and impacts might warrant the most immediate attention. The knowledge base in ENCORE includes:

- 21 ecosystem services
- 8 natural capital assets
- 27 drivers of environmental change
- 11 impact drivers (inputs to or outputs from production processes)
- 86 production processes
- 138 sub-industries (from the Global Industry Classification Standard, GICS)
- 11 GICS sectors

In addition, the tool allows users to explore spatial data on natural capital assets (e.g., variability in water supply), drivers of environmental change (e.g., flood events), and impact drivers (e.g., prominence of light

pollution as an indicator of disturbance to species). The information in ENCORE is based on a large body of scientific and grey literature supplemented with input from experts within the scientific and conservation community and industry.

The ENCORE biodiversity module (to be released in 2021) will focus on agriculture and mining initially - two key sectors driving biodiversity loss globally. It will combine finance sector user inputs (e.g., area of agricultural land, mining companies) with underlying modelled biodiversity data to provide portfolio level current exposure results for two key goal-relevant metrics: species extinction risk and ecological integrity risk. These two metrics relate to two key components that are expected to be included in the Convention on Biological Diversity's Post-2020 Global Biodiversity Framework, to be agreed in 2021. This will be accompanied by sector-level future scenarios to indicate potential future risks, as well as guidance on how financial institutions can work with clients/customers to increase their alignment with global biodiversity goals.

What input data are needed?

ENCORE - All the user needs to know is in which sub-industries or production processes they are interested. This will return information on the potential dependencies and impacts of the production processes in the selected sub-industries, as well as relevant materiality ratings. If users know approximate locations for economic activities of interest, they can explore spatial data relating to potential dependencies and impacts on the ENCORE map page. This can help with initial screening of potential natural capital related risks and provide a starting point for more in-depth analysis.

The ENCORE biodiversity module (to be released in 2021) will initially be available for two key sectors: agriculture and mining, focusing on direct production, rather than supply chain activities (i.e., farms and mines, rather than retail outlets or refineries). There is no global database of farm locations, as such users will input area of agricultural land per country for the agriculture component. For the mining component, users will be able to select company and country combinations.

Main strengths and limitations?

Strengths

- Accessible to all audiences as it requires very little prior knowledge of natural capital, ecosystem services, and dependencies and impacts.
- The ENCORE knowledge base draws on a vast body of scientific and grey literature and has been through extensive review processes.
- It comprehensively covers all impacts and dependencies, aligned with authoritative approaches (e.g., the Natural Capital Protocol and the IUCN's Threats Classification).
- Natural capital information in ENCORE can easily be linked to users' own financial data to support economic analyses at varying levels.
- Includes spatial data from existing third-party sources, which allows users to get a quick sense of potential natural capital-related risks in specific locations.

Limitations

- ENCORE's materiality ratings for dependencies and impacts only indicate potential dependencies and impacts, based on generic global screening. This is appropriate to inform initial screening but it should be followed by spatially explicit and company-specific assessments to inform on location specific dependencies and impacts.
- While the knowledge base is built on the best available scientific and grey literature, some dependency and/or impact links may be missing due to lack of sufficient robust literature.
- The information in ENCORE considers present-day technologies and industry norms, it does not account for future developments by industries to reduce dependencies and impacts.
- Only direct impacts and dependencies are covered. Users cannot explore impacts and dependencies across the full value chain of a production process (e.g., the dependencies listed for the 'Production of paper products' process exclude the dependencies related to growing and harvesting wood products, which are covered under forestry-related processes.)
- No coverage of cultural ecosystem services as these are deemed to be important for all industries (e.g., to maintain health and mental wellbeing of workforces). Also, no coverage of nutrition under provisioning ecosystem services as it is assumed that all industries depend on their customers and staff being able to access food.

What are the costs?

User fee - ENCORE is an open access tool. Information from the tool can be used under a CC-BY-SA 4.0. license.

Effort involved in using ENCORE - Time required to use and interpret the ENCORE knowledge base will vary according to the depth of engagement. It is possible to get a snapshot of potential dependencies and impacts for selected economic activities in less than 30 minutes. More detailed analyses that combine the ENCORE knowledge base with user-sourced data (e.g., data on financial flows for given industries) can take a few weeks or months.

5. Case studies

The Update report 3 from the EU B@B Platform Workstream Methods includes some detailed and assessed case studies that are interesting for the finance community. This includes both practical application of measurement tools and tools that are underway:

- For its clients (responsible investors), Iceberg Data Lab used the Corporate Biodiversity Footprint to measure the biodiversity impact of a large mining company. The analysis was used to identify the sites and activities most material to biodiversity impact, position the company against its peers and engage with it.

- Furthermore, Iceberg Data Lab applied the Corporate Biodiversity Footprint to a portfolio of 30 agri-food companies. Insight into these companies' biodiversity performance enabled the investor to divest from the worst-performing companies and to engage with others, thus shrinking the biodiversity footprint of its portfolio by 66%.

- During the period 2014-2018, ASN Bank (the Netherlands) used the BFFI to understand the biodiversity footprint of its investment portfolio. This included an analysis of both the bank's total balance sheet and its investment funds.

- STAR has been used to analyse the biodiversity risk and opportunity of a private finance investment in a sustainable rubber plantation in Sumatra. The analysis showed for this particular component of the commodity value chain how the producer had evaluated opportunities to reduce specific threats to biodiversity that could generate measurable reductions in species extinction risk, that would be comparable to other investments in other parts of the world.

- Carbon4Finance and CDC Biodiversité are developing the Biodiversity Impact Analytics (BIA) database, which can be used on company and portfolio levels. It is based on company-specific data on GHG emissions and modelled data (based on the Global Biodiversity Score model) for all other biodiversity pressures.

- Natural capital information in ENCORE can easily be linked to users' own financial data to support economic analyses at varying levels. E.g., macro-economic such as the 'Indebted to Nature'-study conducted by De Nederlandsche Bank and PBL Netherlands Environmental Assessment Agency; and the 'Nature risk rising' report by the World Economic Forum and PwC.

6. Next steps

This guide is one of the many steps in our journey towards measuring biodiversity as financial institutions. We encourage all financial institutions to test and apply the tools currently available. Through the F@B Community under the EU B@B Platform we will continue to share practices and challenges and consolidate lessons learned. Also, the EU B@B Platform's Workstream Methods welcomes new case studies.

We expect to publish a complete update of this guide in 2022.
The *Overview of measurement approaches table* (chapter 3) will be updated on a quarterly basis, as the measurement approaches and their applications are developing rapidly.

As part of their collective action, the signatories to the Finance for Biodiversity Pledge will be investigating collaboration on engagement with data providers. Furthermore, they are exploring opportunities to collaborate with other initiatives, such as the ALIGN project, Partnership Biodiversity Accounting Financials (PBAF) and the open-source data initiative by the Green Digital Finance Aliance (GDFA).

7. Sources and more readings

Guidance to the Finance for Biodiversity Pledge. December 2020, Finance for Biodiversity Pledge

Critical assessment of biodiversity accounting approaches for businesses and financial institutions. Discussion paper for EU business & biodiversity platform. Update report 1. November 2018, Arcadis, Business@Biodiversity Platform

Critical assessment of biodiversity accounting approaches for businesses and financial institutions. Discussion paper for EU business & biodiversity platform. Update report 2. December 2019, Arcadis, Business@Biodiversity Platform

Assessment of Biodiversity Measurement Approaches for Businesses and Financial Institutions: Update Report 3. March 2021, Arcadis, Business@ Biodiversity Platform

B@B webinar series on Measuring biodiversity for business and finance. September-October 2020. Business@Biodiversity Platform.

Biodiversity risks and opportunities in high impact sectors. Meeting report. 21 March 2019, EU Finance@Biodiversity Community

Paving the way towards a harmonised biodiversity accounting approach for the financial sector. September 2020, Partnership for Biodiversity Accounting Financials (PBAF)

Common ground in biodiversity footprint methodologies for the financial sector. October 2018, CREM, PRé Consult, CDC Biodiversité, ASN Bank and ACTIAM

Global Biodiversity Score: a tool to establish and measure corporate and financial commitments for biodiversity. March 2019, CDC Biodiversité (Club B4B)

Measuring the contributions of business and finance towards the post-2020 global biodiversity framework - 2019 technical update. July 2020, CDC Biodiversité (Club B4B).

ENCORE tool. Natural Capital Finance Alliance (Global Canopy, UNEP FI, and UNEP-WCMC)

Exploring Natural Capital Opportunities, Risks and Exposure: A practical guide for financial institutions. 2018, Natural Capital Finance Alliance and UN Environment World Conservation Monitoring Centre

Integrating Natural Capital in Risk Assessments: A step-by-step guide for banks. 2018, Natural Capital Finance Alliance and PricewaterhouseCoopers

The Economics of Biodiversity: The Dasgupta Review. February 2021, HM Treasury

Colophon

Business and Biodiversity Platform

This Guide is made by the Finance and Biodiversity Community (F@B Community) and workstream Methods, both part of the EU Business@ Biodiversity Platform. In September 2020 members of the F@B Community have launched the Finance for Biodiversity Pledge, encouraging other financial institutions in their network to join. A first summary on measurement was included in the accompanying Guidance document. This Guide on measurement approaches provides further information as an annex to this Guidance document as well.

Invitation to join

Financial institutions from all continents are encouraged to measure the biodiversity impact from their portfolios, investments and loans. They are invited to share practices under the EU Business@Biodiversity Platform and collaborate under the Finance for Biodiversity Foundation to help shape the next steps towards reversing nature loss in this decade.

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Tool developers: CDC Biodiversité (GBSFI and BIA), PRé Sustainability and CREM (BFFI), Iceberg Data Lab (CBF), UNEP-WCMC (ENCORE) and IUCN (STAR).

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