Sustainability

Biodiversity Impact Assessment Tool (BIAT)

Methodology & Research Process

July 2026

Version 1.0
PUBLIC DISCLOSURE ON THE METHODOLOGY, MODELS, AND KEY RATING ASSUMPTIONS USED IN ESG RATING ACTIVITIES

ISS STOXX

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Regulation (EU) 2024/3005: Public Disclosure on the Methodology, Models, and Key Rating Assumptions Used in ESG Rating Activities

This disclosure is published to meet the relevant requirements of the EU ESG Ratings Regulation (EU2024/3005) and related regulatory technical standards. The following index cross-references to the relevant information are made available within the Biodiversity Impact Assessment Tool (BIAT) Methodology Document and on our website.

Within this disclosure, the Regulation (EU) 2024/3005 of the European Parliament and of the Council of 27 November 2024 on the transparency and integrity of Environmental, Social and Governance (ESG) rating activities is referred to as "**Regulation (EU) 2024/3005**".

Within this disclosure, the Commission Delegated Regulation (EU) of 21 04 2026 supplementing Regulation (EU) 2024/3005 of the European Parliament and of the Council with regard to regulatory technical standards specifying the elements of ESG rating products to be disclosed to the public and to users of ESG ratings, rated items and issuers of rated items is referred to as "**Delegated Regulation**".

REGULATION (EU) 2024/3005	DELEGATED REGULATION	REQUIRED INFORMATION	ISS GERMANY AG DISCLOSURE
Rating Product Disclosures			
ANNEX III.1.f	Article 3(1)	ESG rating providers shall disclose information on the ESG rating's clearly defined objective and marking whether the rating is assessing risks, impacts, or both, according to the double materiality principle, or any other dimensions, and in the case of double materiality the proportion of the risk and impact materiality. ESG rating providers shall disclose at the level of each ESG rating product: a) a description of the risks covered, where the ESG rating is assessing risks; b) a description of the impacts covered, where the ESG rating is assessing impacts; c) information on how the risk and impact materiality are taken into account according to the double materiality principle, where applicable; d) where the ESG rating is based on other materiality dimensions, a description of those dimensions.	Please refer to: • Biodiversity Impact Assessment Tool Objective
ANNEX III.1.g	Article 3(2)	ESG rating providers shall disclose the ESG rating's scope, namely, whether it covers an individual E, S, or G factor or whether it is an aggregated rating aggregating E, S and G factors, or whether it covers specific issues such as transition risks. ESG rating providers shall disclose at the level of each ESG rating product: a) a description of what is covered under the E, S or G factors and which factors are aggregated, where applicable; b) a description of the specific issues that the ESG rating covers.	Please refer to: • Biodiversity Impact Assessment Tool Objective • Methodology • Aggregate Factors
ANNEX III.1.h	N/A	ESG rating providers shall disclose in the case of an aggregated ESG rating, the weighting of the three overarching E, S and G categories of factors (for example 33 % for the E factor, 33 % for the S factor, 33 % for the G factor), and the explanation of the weighting method, including weight per individual E, S and G category.	• This requirement is not applicable to the Biodiversity Impact Assessment Tool as it is not an aggregated rating.

REGULATION (EU) 2024/3005	DELEGATED REGULATION	REQUIRED INFORMATION	ISS GERMANY AG DISCLOSURE
ANNEX III.1.i	N/A	ESG rating providers shall disclose within the E, S or G factors, specification of the topics covered by the ESG rating, and whether they correspond to the topics from the sustainability reporting standards developed pursuant to Article 29b of Directive 2013/34/EU.	Please refer to: • Biodiversity Impact Assessment Tool Objective
ANNEX III.1.j	N/A	ESG rating providers shall disclose information on whether the rating is expressed in absolute or relative value.	Please refer to: • Output Factors
ANNEX III.1.o	Article 3(3)	ESG rating providers shall disclose if an ESG rating of a rated item covers the E factor, information on whether that rating takes into account the targets and objectives of the Paris Agreement or any other relevant international agreements. ESG rating providers shall disclose if an ESG rating of a rated item covers the S and G factors, information on whether that rating takes into account any relevant international agreements. ESG rating providers shall at the level of each ESG rating product: a) include an indication of whether the ESG rating takes into account the targets and objectives of the Paris Agreement and which other international agreements are considered, with reference to basic identifying information on these agreements together with an explanation of their relevance to the ESG rating; b) specify whether the ESG rating is assessing alignment of commitments against the objectives of the agreements referred to in point (a).	Please refer to: • Biodiversity Impact Assessment Tool Objective
ANNEX III.1.p	Article 3(4)		

REGULATION (EU) 2024/3005	DELEGATED REGULATION	REQUIRED INFORMATION	ISS GERMANY AG DISCLOSURE
Basic Methodological Disclosures			
ANNEX III.1.a	Article 4(1)	ESG rating providers shall disclose an overview of the rating methodologies used and changes thereto, including whether analysis is backward-looking or forward-looking and the time horizon covered. ESG rating providers shall disclose: a) the title of the rating methodology used; b) a description of the types of rated items in relation to which the methodology referred to in point (a) applies; c) the time horizon over which the ESG rating is considered valid, where applicable d) a list and overview of the relevant supporting models and key rating assumptions, where applicable; information on measures and procedures to ensure the quality and reliability of data used; e) a description of the defined ranking system of rating categories used, with reference to: i. the meaning of each rating category for absolute and relative values and how the ranking system should be interpreted; ii. in the case of relative values, an explanation as to whether they are relative to a specific industry, geographical area, peer groups or other comparative references and their respective description. f) the dates of the most recent update of the methodology and a description of the changes introduced to the previous version.	Please refer to: Points a) and f) • Appendix B: Version Control Points b) to e) • b): Biodiversity Impact Assessment Tool Objective • c): Biodiversity Impact Assessment Tool Objective, Update Cycles • d) Model Steps, Appendix A: Relevant Supporting Models and Key Rating Assumptions, Quality Assurance • e) Output Factors

REGULATION (EU) 2024/3005	DELEGATED REGULATION	REQUIRED INFORMATION	ISS GERMANY AG DISCLOSURE
ANNEX III.1.b	Article 4(2)	ESG rating providers shall disclose the industry classification used. ESG rating providers shall provide: a) the name of the issuing body of the industry classification used; b) the name and version of the industry classification used; c) any publicly available link to the official documentation of the industry classification system.	Please refer to: • Output Factors • Decile Rank
ANNEX III.1.c	Article 4(3)	ESG rating providers shall disclose an overview of data sources, including whether data is sourced from sustainability statements required under Directive 2013/34/EU or from information disclosed under Regulation (EU) 2019/2088 and whether sources are public or non-public, and an overview of data processes, estimation of input data in case of unavailability and frequency of data updates. ESG rating providers shall include a description of the engagement process with rated items or issuers of rated items, including how the input from such engagement is taken into account.	Please refer to: • Data Sources: Data Sources • Overview of Data Processes: Model Steps • Use of Estimated Data: Use of Estimated Data • Frequency of Updates: Update Cycles • Engagement with rated items or issuers of rated items is not part of the Biodiversity Impact Assessment Tool process.
ANNEX III.1.e	Article 4(4)	ESG rating providers shall disclose information on whether and how the rating methodologies are based on scientific evidence. ESG rating providers shall where applicable, describe the process for identifying relevant scientific evidence.	Please refer to: • Biodiversity Impact Assessment Tool Objective

REGULATION (EU) 2024/3005	DELEGATED REGULATION	REQUIRED INFORMATION	ISS GERMANY AG DISCLOSURE
ANNEX III.1.k	N/A	ESG rating providers shall disclose where applicable, reference to the use of artificial intelligence in the data collection or rating process including information about current limitations and risks of using artificial intelligence.	Please refer to: • Revenue-Adjusted Biodiversity Impact Classification
Limitations in data sources, methodologies and information			
ANNEX III.1.m	Article 5	ESG rating providers shall disclose any limitation in data sources and methodologies used for the construction of ESG ratings. ESG rating providers shall disclose any limitation on the information available to ESG rating providers.	Please refer to: • Limitations • Limitations to Methodologies & Data
ANNEX III.1.q	Article 5	ESG rating providers shall explain any limitations in respect of the following: a) the availability or consistency of data used in the rating process; b) the completeness, timeliness and accuracy of information; c) the use of assumptions, proxy reference points and data estimation.	
Organisational Disclosures			
ANNEX III.1.d	Article 6(2)	ESG rating providers shall disclose the ownership structure of the ESG rating provider. ESG rating providers shall disclose: a) a chart illustrating their ownership links with any parent undertaking and subsidiaries. The chart shall indicate, where applicable, whether any of those entities perform any of the activities listed in Article 16 (1) or services referred to in Article 16(6) of Regulation (EU) 2024/3005.	Please refer to: • Ownership Structure

REGULATION (EU) 2024/3005	DELEGATED REGULATION	REQUIRED INFORMATION	ISS GERMANY AG DISCLOSURE
ANNEX III.1.l	Article 6(3)	ESG rating providers shall disclose general information on criteria used for establishing fees charged to clients, specifying the various elements taken into consideration, and general information on the business/payment model. ESG rating providers shall disclose the following: a) how the criteria they apply for establishing fees ensure that fees are fair, reasonable, transparent and non-discriminatory in accordance with Article 27 of Regulation (EU) 2024/3005; b) whether the ESG rating provider operates a subscription-paid model, an issuer-paid model, a combination of those models, or another model; c) a description of the relevant business model, and the proportion of total annual revenue derived from each model; d) where applicable, the impact of fees charged for services other than ESG rating activities on the determination of fees for ESG ratings, together with a description of those other services.	Please refer to: • Pricing Policy
ANNEX III.1.n	Article 6(1)	ESG rating providers shall disclose the main risks of conflicts of interest and the steps take to mitigate them. ESG rating providers shall indicate the areas of the ESG rating provider's activities, services or organisational structure from which the main risks of conflicts of interest may arise.	Please refer to: • Conflict of Interest Policy

Introduction

Investor Requirements

The recognition of biodiversity-related risks is reflected in rapidly evolving voluntary and statutory global disclosure frameworks across the globe. In Europe, for example, a mandatory decree under Article 29 of the French Law on Energy & Climate, requires financial investors to disclose biodiversity-related risks and impacts of their portfolios in quantitative terms.

The current lack of guidance around disclosure of biodiversity-related risks and relevant data has proven challenging. In June 2020, with support from major financial institutions and various government bodies, the Taskforce on Nature-related Financial Disclosures (TNFD) was created to develop an integrated framework for risk management and disclosure of nature-related risks. The Taskforce on Nature-related Financial Disclosures (TNFD) released its final recommendations in Sept 2023.

The increasing importance of biodiversity action is also reflected in regulatory developments and global agreements. For example, the Principal Adverse Impact (PAI) indicators under SFDR refer to land artificialization and activities negatively affecting biodiversity-sensitive areas, while the Kunming-Montreal Framework, agreed as part of COP15 in December 2022, sets out 23 targets to be achieved by 2030, amongst them Target 15 which calls on financial institutions to monitor, assess and disclose their risks, dependencies, and impacts on biodiversity.

Biodiversity Impact Assessment Tool Objective

To assist investors in meeting their reporting requirements and aligning with biodiversity targets, ISS STOXX has developed the Biodiversity Impact Assessment Tool (BIAT) which provides an opinion on the biodiversity impacts and ecosystem dependencies through the assessment and quantification of the nature-related impacts and dependencies linked to companies' economic activities.

BIAT assesses environmental (E) factor impacts only and does not cover Social (S) or Governance (G) factors. Among the environmental drivers covered are land transformation and land occupation, climate change, freshwater and marine eutrophication, marine and terrestrial acidification, ecotoxicity, and water availability. The content of these topics is aligned with the biodiversity-related ESRS E4 Biodiversity and Ecosystems topic referenced in Article 29b of Directive 2013/34/EU. While climate-related pressures are captured as drivers of biodiversity loss, the BIAT does not assess alignment with the targets and objectives of the Paris Agreement or other international agreements, nor does it assess issuer commitments against such agreements.

Ultimately, impact is quantitatively expressed with the biodiversity metrics Potentially Disappeared Fraction (PDF) of Species and Mean Species Abundances (MSA), both explained in further detail in this document. By combining historical company revenue and activity data as inputs, with forward-looking life-cycle impact assessment models that estimate the potential future biodiversity impacts associated with those activities, company-level PDF and MSA factors can be computed, enabling investors to disclose and better understand biodiversity exposure across their investment portfolios. An additional 650+ underlying factors per company

(including impact per activity and region as well for 10 impact indicators) allow investors to gain further understanding and granular analysis on companies' biodiversity impact.

The primary objective of the BIAT is to provide quantitative metrics that assess the impact of business activities on biodiversity. The impact assessed by the BIAT can be interpreted by two such metrics:

Potentially Disappeared Fraction (PDF): The Potentially Disappeared Fraction (PDF) of species originates from Life Cycle Impact Assessment (LCIA) methodologies such as ReCiPe (Recipe for Life Cycle Impact Assessment) and LC-Impact (Life Cycle Impact Assessment Method), developed by a consortium of European research institutions including the National Institute for Public Health and the Environment (RIVM), PRé Sustainability and Leiden University (CML), alongside broader international collaborations. PDF measures the relative loss of species richness compared to a reference state defined as a natural or undisturbed ecosystem (often represented by potential natural vegetation). As such, PDF expresses the proportion of species expected to disappear due to anthropogenic activities. It is widely used in LCA-based footprinting frameworks, including the EU Environmental Footprint (see EU JRC LCIA dataset reference).

Mean Species Abundance (MSA): Mean Species Abundance (MSA) was developed within the GLOBIO modelling framework by the Netherlands Environmental Assessment Agency (PBL) in collaboration with UNEP to assess large-scale biodiversity intactness. MSA compares current species abundance levels to those in a pristine, undisturbed ecosystem, using this natural state as the baseline. MSA is calculated based on the abundance of individual species under influence of a given pressure, compared to their abundance in an undisturbed situation (natural situation/reference). MSA is widely applied in global biodiversity assessments, including IPBES and CBD-related analyses.

The BIAT also assesses risk by assessing the Ecosystem Services Dependencies Assessment which additionally enables users to assess companies' exposure to nature-related risks by identifying revenue exposure to specific ecosystem services and assessing the intensity of those dependencies.

Materiality

Together, the Biodiversity Impact Assessment and the Ecosystem Services Dependency Assessment provide a structured view of double materiality by linking corporate impacts on biodiversity with business dependencies on ecosystem services. While impacts reflect how companies affect natural ecosystems, dependencies indicate where companies may face financial risk if the ecosystem services they rely on deteriorate or become constrained.

Methodology

Methodological Foundations

Generally, the impacts of human activities on ecosystem integrity, i.e., the system's capacity to maintain structure and ecosystem functions, can be analysed by investigating drivers of biodiversity loss. The BIAT models the impact of corporates through environmental pressures on species and habitats, considering inputs and outputs in the entire value chain based on company's activities and geographic location. The BIAT is built

on robust and scientifically proven Life Cycle Impact Assessment (LCIA) methodology (IMPACT World+), incorporating recognized databases such as EXIOBASE, ecoinvent, and company-specific revenue data, as well as drawing on ISS STOXX's proprietary biodiversity performance data. The model was therefore the result of an in-depth review of life-cycle assessment literature, carried out as a collaborative effort between ISS STOXX and Quantis, a renowned environmental consultancy company with major expertise in biodiversity and LCA.

Biodiversity Definition

While there is no universal definition for biodiversity footprint, ISS STOXX's solution for investors is built on the definition from the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) which defines biodiversity as "*the variability among living organisms from all sources including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are apart. This includes variation in genetic, phenotypic, phylogenetic, and functional attributes and changes in abundance and distribution over time and space within and among species, biological communities, and ecosystems*." Put into simple words by the Science Based Targets Network (SBTN) for Nature: *"Biodiversity is the total variety of all Earth's species, their genetic information and the ecosystems they form"*.

Modelling Impact: Life Cycle Impact Assessment (LCIA) Method by IMPACT World+

Quantifying a product's impact on natural ecosystems is typically conducted through a foot-printing exercise, historically carried out using a framework known as the LCA (Life Cycle Assessment).

The life cycle of a product entails appraising the environmental impact of a product over its lifetime (from the numerous substance emissions to the resources used), through a process called Life Cycle Inventory (LCI). The BIAT sources such inputs via EXIOBASE and ecoinvent. Life cycle impact assessment (LCIA) methods are then employed to translate in- and outputs into a limited number of environmental impact scores. This is carried out by means of conversion factors, effectively indicating the environmental impact per unit of emission or resource use.

The IMPACT World+ model is a globally regionalized LCIA method, built on a midpoint-damage framework with four distinct complementary viewpoints. It integrates multiple state-of-the-art developments as well as damage to ecosystems (e.g., via eutrophication, acidification, climate change, etc.) within a consistent LCIA framework.

For each impact indicator, the magnitude of global potential damage is analysed based on an estimation of the total annual anthropogenic emissions and extractions at the global scale. The analysis provides for a regionalized approach covering the entire world at different levels of spatial resolution and distinguishes between short- and long-term impact using dynamic modelling. Shorter-term impacts are defined as occurring within the first 100 years after the environmental intervention, longer-term impacts occurring beyond 100 years after the emission up to the infinite (or 500 years for climate change and marine acidification for which a full recovery will never be reached).

For further details on IMPACT World+ Methodology please consult their website. The following impact indicators from IMPACT World+ are used in the BIAT:

Table 1: Definitions of Impact Indicators

IMPACT INDICATOR	DESCRIPTION
Climate Change Ecosystem Quality, short-term	This indicator considers the Global Warming Potential over a time period of 100 years (GWP 100). It corresponds to the cumulative radiative forcings induced by the greenhouse gases emitted.
Marine Acidification, long-term	Marine acidification is the reduction in the pH of the ocean caused primarily by the uptake of carbon dioxide from the atmosphere. This phenomenon makes it difficult for organisms such as corals and some plankton to form calcium carbonate.
Freshwater Acidification	Freshwater acidification is caused by the deposition of acidifying compounds such as SOx and nitrogen to ground and surface water which overtime can cause ecosystem impairment.
Terrestrial Acidification	Terrestrial acidification is caused by the changes in the pH of the soil mainly caused by acid precipitations that result from the release and reactions of sulfur and nitrogen in the air. Emissions disperse over long distances before being redeposited on soils and water.
Freshwater Eutrophication	Eutrophication is the result of an increase in the nutrient load of a body of water in an unbalanced manner, changing the abundance and diversity of species, leading to a decrease in the oxygen level in the water, and affecting marine and freshwater ecosystems. Freshwater eutrophication is influenced by phosphorus emissions.
Marine Eutrophication	Eutrophication is the result of an increase in the nutrient load of a body of water in an unbalanced manner, changing the abundance and diversity of species, leading to a decrease in the oxygen level in the water, and affecting marine and freshwater ecosystems. Marine eutrophication is influenced by nitrogen emissions.
Freshwater Ecotoxicity, short-term	Molecules and chemicals emitted into the air, water and soil can have direct or indirect toxic effects on marine, terrestrial and freshwater ecosystems. Short-term aquatic ecotoxicity considers cumulative toxicity over the period of 0 to 100 years.
Water Availability Freshwater Ecosystem	This midpoint refers to the impact on the amount of water available for aquatic ecosystems. It takes into account the water consumed, and the scarcity associated with the availability of freshwater.
Land Transformation Biodiversity	Land transformation corresponds to the impact associated with land-use change (LUC) and the associated loss of biodiversity from the transition from natural to human-managed state, creating both a direct loss of terrestrial biodiversity and a loss of ecosystem services such as water and climate regulation. It therefore refers to the difference in biodiversity abundance before and after transformation over the area considered.
Land Occupation Biodiversity	Land occupation represents the land occupied related to human activity. Land use has a direct effect on terrestrial biodiversity but also on the ecosystem services rendered by the surface considered (water availability, carbon storage in soils, etc.).

Key Metrics and Outputs

Potentially Disappeared Fraction of Species (PDF)

The Potentially Disappeared Fraction of species (PDF) quantifies the potential loss of species richness due to adverse environmental pressures, relative to species richness in undisturbed ecosystems, often referred to as the pristine state. Species richness refers to the number of unique species in an area.

PDF is defined over both area (m2, or km2) and time (year). PDF output values will vary depending on the methodology and LCIA model applied, and the types of economic activity and regions affected. In BIAT the area is displayed in km2, and the time-period is set to one year. For example, 100 PDF.km2.yr can be interpreted as: an area of 100 km2 has lost 100% species richness over a year. Overall, a larger PDF indicates a higher level of impact.

Mean Species Abundance (MSA)

In addition to PDF, the biodiversity impact of a company can also be expressed by the Mean Species Abundance (MSA). MSA shows the mean abundance of original species relative to their abundance in undisturbed ecosystems. In the BIAT, MSA outputs are provided in the unit MSA.km2 and generated by a conversion model from PDF to MSA (see Species Richness Assessment).

lower PDF/MSA value *higher PDF/MSA value*

Primer on Inputs Sourcing: EXIOBASE

One of the key external databases used in the model is EXIOBASE, a global Multi-Regional Environmentally Extended Supply-Use (MR-SUT) and Input-Output database (MR-IOT) that was developed by a consortium of several research institutes in projects financed by the European research framework programs. It is one of the most extensive systems available for the analysis of environmental impacts associated with the final consumption of product groups.

EXIOBASE was developed by harmonizing and detailing supply-use tables for many countries, estimating emissions and resource extractions by different economic activities. It converts these economic flows directly into physical units.

In the BIAT, EXIOBASE version 3 is applied which provides, amongst others, hybrid tables in 164 activities, and 43 countries and 5 Rest of World regions (e.g., RoW Asia and Pacific).

Model Steps

The Biodiversity Impact Assessment Tool is comprised of a multiple-step process which will be outlined in further detail below. The diagram below provides an illustration of the assessment process.

Figure 1: Biodiversity Impact Assessment Tool Assessment Process

Step #1: Economic Activity Identification & Supply Chain Modelling

Economic Activity Identification: In the first step, key business activities a company is involved in, and countries of operations are identified by using available company information on revenues and geography by FactSet Hierarchy with Revenue, as well as proprietary data through ISS STOXX's Energy & Extractives data set. To study impacts on biodiversity, these activities have been mapped to relevant activities from the EXIOBASE Activity List (e.g., pigs farming, manufacture of textiles etc.). The identification of revenue generating activities of a company and the geographic spread of the revenues earned serve as a baseline for the supply chain modelling and life cycle assessments (e.g., Company A, cultivation of paddy rice, India, 15% of total revenue X).

Supply Chain Modelling: The aim of the supply chain modelling is to identify the flow of environmental resources employed for the economic activities that the company undertakes across the various operating geographies. The data is linked to country-and sector-specific environmental input and output data from EXIOBASE, determining which resources and emissions are used and emitted to generate revenue for each individual economic activity. With this step, company specific resource and emission values (based on revenue and regional data) are produced as intermediary internal data for further processing and analysis.

Step #2: Upstream and Downstream Impact Assessment

In the subsequent step, covering the upstream and downstream biodiversity impact assessment, EXIOBASE resource flows (inputs) and emissions (outputs) are linked to recognized life cycle inventory (LCI) datasets in order to quantify impacts across the ten biodiversity midpoint indicators of the IMPACT World+ methodology.

The inputs considered include key resource flows such as bauxite and aluminium ores, crude oil, and water consumption, while outputs comprise emissions such as carbon dioxide, nitrogen oxides, sulfur compounds, and other substances reported in EXIOBASE.

The assessment comprises two complementary components:

- First, physical resource flows from EXIOBASE (i.e. inputs) are linked to region-specific characterization factors for the selected IMPACT World+ biodiversity indicators and translated into impacts expressed in PDF·m^2·yr. As direct linkages are not systematically available, this step was developed in

collaboration with Quantis through a manual matching process. This process leveraged Quantis' proprietary databases, life cycle assessment (LCA) expertise, and targeted reviews of scientific literature.

- Second, emission flows from EXIOBASE (i.e. outputs) are linked directly to the existing IMPACT World+ methodology. These emissions are characterized using the standard IMPACT World+ factors and converted into biodiversity impacts expressed in PDF·m^2·yr.

To address methodological gaps within EXIOBASE and IMPACT World+, additional refinements were applied. These include the allocation of complementary environmental impacts to selected activities and the use of a Quantis in-house tool to address land-use transformation impacts. For example, to better capture downstream environmental pressures, a materiality assessment was carried out based on the SBTN Sectoral Materiality Tool. This assessment identified nine EXIOBASE activities with comparatively higher downstream impacts, associated with four key environmental issues, as detailed below.

Table 2: EXIOBASE Activities with higher, refined downstream impacts

EXIOBASE ACTIVITY	ENERGY CONSUMED – USE PHASE	FUEL, GAS, OR WATER LEAKAGE – USE PHASE	LAND USE & LAND USE CHANGE	SOLID WASTE TREATMENT
Air transport				✓
Computer and related activities	✓			
Hotels and restaurants				✓
Other land transport			✓	
Retail sale of automotive fuel		✓		
Retail trade, repair of personal and household goods			✓	
Transport via pipelines		✓	✓	
Transport via railways			✓	
Wholesale trade and commission trade			✓	

The outputs of the upstream and downstream impact assessment constitute intermediary internal datasets used within the biodiversity footprint methodology.

Table 3: Example of intermediary inputs

CATEGORY	INVENTORY NAME	CTY NAME, CODE	QUANTIS LIFECYCLE LIBRARY REFERENCE	DATABASE	IMPACT INDICATOR	IMPACT UNIT	IMPACT QUANTITY (PER KG)
Input	Anthracite	Australia AU	EXIOBASE Anthracite	modelled by Quantis with ecoinvent v3.8	Climate change, ecosystem quality, short	PDF·m^2·yr	5.78E-02
Input	Anthracite	Australia AU	EXIOBASE Anthracite	modelled by Quantis with ecoinvent v3.8	Freshwater acidification	PDF·m^2·yr	8.03E-04

It is important to note that all calculations are performed independently for each company and its respective supply chain, given that overlaps between specific suppliers across company supply chains cannot be identified. Thus, when aggregating total scores (e.g., PDF and MSA at a portfolio level) users should be aware of these overlaps.

Step #3: Species Richness Assessment

Biodiversity richness and ecosystem diversity differ per region. The same drivers of biodiversity loss (i.e., land transformation, freshwater acidification etc.) will not affect the same number of species equally across different geographies, even if activities and emissions are identical. In this step of the model, LCIA methodology is applied to account for this spatial variability while identifying elementary flows that are region-specific.

Finally, the model computes the potentially disappeared fraction of species (PDF) per km2 per year values for each of the 10 biodiversity impact midpoint indicators, at each node of activity and region. The datapoints are included in the dataset (see Output Factors).

Step #4: Species Abundance Assessment

As an alternative metric to PDF, biodiversity impact can also be expressed by the Mean Species Abundance (MSA), which indicates the biodiversity intactness (see Mean Species Abundance (MSA)).

The relationship between impacts on species abundance (MSA) and species richness (PDF) varies across ecosystems, pressure types, and intensities. Based on dedicated research and scientific studies, ISS STOXX and Quantis have identified and developed an approach that allows for the conversion of the BIAT PDF.km2.yr to MSA.km2.

It is important to note that MSA results vary by tool due to different scopes and estimates applied. Key differences, which may also explain higher results, are the following:

- The BIAT covers a more comprehensive set of biodiversity pressures than other MSA-based models (10 impact categories, including marine acidification and marine eutrophication)
- The regionalization of datasets may also increase the impacts in sensitive areas.

Step #5: Refinement & Normalization

During the last step of the model, the biodiversity scores are refined based on proprietary qualitative data at company level, as well as industry and/or country level, particularly for drivers of biodiversity loss which are not fully addressed by the IMPACT World+ methodology.

Industry- and/or Country-Level Refinement

ISS STOXX and Quantis have developed a methodology comprising a relative bonus/penalty system (percentage of total biodiversity impact) based on the relative share of each sector and/or country in the pressure placed on any of the drivers of biodiversity loss according to IPBES. These drivers are invasive alien species, deforestation, protected biodiversity areas, water habitat fragmentation for freshwater ecosystems, non-GHG air pollutants, solid waste pollution, overfishing, and water depletion/stress. Different databases, such as the SBNT Materiality Tool or the Water Risk Filter (see Table 2) were used to address the respective environmental pressure points on an industry and/or country basis.

Company-Level refinement

In addition, to account for and reflect a company's individual sustainability practices and performance, proprietary qualitative impact data from ISS STOXX's SDG Impact Rating is leveraged. In the BIAT, the company-specific Goal Ratings for SDG 14 Life Below Water and SDG 15 Life on Land are used for a final refinement of the overall PDF values. In the SDG Impact Rating, the extent to which a company is managing negative externalities in their operations across the value chain whilst at the same time making use of respective opportunities in their products and services is measured. Depending on materiality and impact potential for a business model, biodiversity-related operational performance is measured by a range of indicators such as policy on responsible site selection, soil and biodiversity management in agricultural production, strategy on the prevention of marine microplastics pollution, measures to prevent deforestation, offshore oil spill prevention etc. Besides the operational dimension, a company's involvement in relevant controversies and the offering of products with clear positive or negative impacts on biodiversity (e.g., terrestrial ecosystem services vs. single-use plastic products) are embedded in the SDG Goal Ratings.

Data Sources

The Biodiversity Impact Assessment Tool draws on several databases, third party data sets as well as proprietary data. More specifically, the BIAT uses a combination of publicly available data sources, including company disclosures, regulatory filings, international databases, NGO publications, and licensed third-party datasets. As part of the company-level refinement step, inputs may include sustainability disclosures

prepared under Directive 2013/34/EU, where available. The main data sets as well as their use cases within the model are summarized in the table below.

Table 4: Overview of Main Databases

DATA SET	DESCRIPTION	MODEL STEPS
ISS STOXX Energy & Extractives Data	Energy & Extractives Data provides detailed analysis on companies' involvement in the extraction of fossil fuels, and the generation of power from fossil fuel, nuclear and renewable sources.	Economic Activity Identification
ISS STOXX Sustainable Development Goals (SDG) Impact Ratings	The SDG impact Rating provides a holistic assessment of a company on the 17 SDGs, incorporating impacts from products and services, operations, and controversies. Relevant SDGs for the BIAT are SDG 14 Life Below Water and SDG 15 Life on Land.	Company-level Refinement
FactSet Hierarchy with Revenue	FactSet Hierarchy with Revenue includes company business segments mapped against the Revere Hierarchy Activity classification. The normalized data links business segment revenue and product categories to the FactSet Revere Hierarchy.	Economic Activity Identification
FactSet Geographic Revenue Exposure	FactSet Revere Geographic Revenue ("GeoRev") Exposure data provides a highly structured and normalized display of companies' revenues by geography.	Economic Activity Identification
EXIOBASE	The EXIOBASE database is employed to gather inputs (resources) and outputs (emissions) resulting from economic activities, also providing information on the trade flows between sectors and countries.	Economic Activity Identification & Supply Chain Modelling | Upstream & Downstream Impact Assessment
ecoinvent	ecoinvent is the most comprehensive, transparent and widely used life cycle inventory database, and includes data on resource and environmental emission flows for processes in areas like agriculture, transport, biofuels, energy supply etc.	Upstream & Downstream Impact Assessment
SBTN Materiality Tool	The SBTN Materiality Tool (based on ENCORE and EXIOBASE) provides insights into the materiality of topics such as invasive alien species, protected biodiversity areas or pollution per sector. Data from this tool is used to refine the BIAT.	Industry and/or country-level Refinement
WWF Water Risk Filter	The WWF Water Risk Filter is a tool providing insights into water risks and water stewardship, comprising various global and local datasets. For the BIAT, data on the water habitat fragmentation score is included for the final refinement step.	Industry and/or country-level Refinement
AWARE	AWARE is a regionalized LCA method quantifying the relative Available Water Remaining per area in a watershed, after the demand of humans and aquatic ecosystems has been met.	Upstream & Downstream Impact Assessment
Resource Watch – Ocean Heath Index	The Ocean Health Index is a tool providing insights into the global state of the world's oceans. Regional scores are used for refinement of the data.	Industry and/or country-level Refinement

Ecosystem Services Dependencies Assessment

Ecosystem Services

Ecosystem Services are services provided by natural ecosystems that benefit people and humanity. As part of the tool, ISS STOXX provides an ecosystem dependencies assessment that links corporates' activities to 22 ecosystem services within 3 overarching ecosystem service groups: provisioning, regulating & maintaining, and cultural (Table 3). Ecosystem services and materiality grades are derived from ENCORE1 and CICES (Common International Classification of Ecosystem Services) and are linked to company activities according to GICS sub-industry classifications. The dependency assessment allows users to assess the material dependencies (or risk exposure) of portfolio companies to such services.

Table 5: Dependencies, Grouping and Descriptions.

PROVISIONING ECOSYSTEM SERVICES		EXAMPLE SERVICES & BENEFITS
Animal-based energy	Physical labor provided by domesticated or commercial species, including oxen, horses, donkeys, goats and elephants.	Fuel, haulage, or transport by animals
Fibres & other materials	Fibres and other materials from plants, algae and animals are directly used or processed for a variety of purposes including wood, timber, and fibres, and material for production, such as cellulose, cotton, and dyes, and plant, animal and algal material for fodder and fertiliser use.	Cotton, wool, timber
Genetic materials	Genetic material is understood to be deoxyribonucleic acid (DNA) and all biota including plants, animals and algae.	Seeds, compounds for pharmaceuticals
Ground water	Groundwater is water stored underground in aquifers made of permeable rocks, soil, and sand, Originating from rainfall, snow melts and water flow from natural freshwater resources.	Potable water in the public water supply
Surface water	Surface water is provided through freshwater resources from collected precipitation and water flow from natural sources.	
REGULATING & MAINTAINING ECOSYSTEM SERVICES		**EXAMPLE SERVICES & BENEFITS**
Buffering & Attenuation of mass flows	Buffering and attenuation of mass flows allows the transport and storage of sediment by rivers, lakes and seas	Forest cover mitigating landslides to protect life and infrastructure
Climate regulation	Global climate regulation is provided through the long-term storage of carbon dioxide in soils, vegetable biomass, and the oceans. At a regional level, the climate is regulated by ocean currents and winds while, at local	Sequestration of carbon by tropical forests and peatland

[1] Natural Capital Finance Alliance (Global Canopy, UNEP FI, and UNEP-WCMC) (2023). ENCORE: Exploring Natural Capital Opportunities, Risks and Exposure. [On-line], [04/2023], Cambridge, UK: the Natural Capital Finance Alliance. Available at: https://encore.naturalcapital.finance. DOI: https://doi.org/10.34892/dz3x-y059.

	and micro-levels, vegetation can modify temperatures, humidity, and wind speeds.	
Dilution by atmospheres & ecosystems	Water, both fresh and saline, and the atmosphere can dilute the gases, fluids and solid waste produced by human activity	Pollution diluted by the atmosphere, reducing disposal costs.
Disease control	Ecosystems play important roles in regulation of diseases for human populations as well as for wild and domesticated flora and fauna.	Reduction in livestock disease and loss
Filtration	Filtering, sequestering, storing, and accumulating pollutants is carried out by a range of organisms including algae, animals, microorganisms and vascular and non-vascular plants	Improved air quality
Flood and storm protection	Flood and storm protection is provided by the sheltering, buffering and attenuating effects of natural and planted vegetation.	Protection of crop fields from broken riverbanks
Maintain nursery habits	Nurseries are habitats that make a significantly high contribution to the reproduction of individuals from a particular species, where juveniles occur at higher densities, avoid predation more successfully, or grow faster than in other habitats.	Maintaining species richness and abundance to support ecosystem services
Mass stabilization & erosion control	Mass stabilisation and erosion control is delivered through vegetation cover protected and stabilising terrestrial, coastal and marine ecosystems, coastal wetlands and dunes. Vegetation on slopes also prevents avalanches and landslides, and mangroves, sea grass and macroalgae provide erosion protection of coasts and sediments.	Vegetation providing stability to soil, preventing erosion, e.g., coastline loss.
Mediation of sensory impacts	Vegetation is the main (natural) barrier used to reduce noise and light pollution, limiting the impact it can have on human health and the environment.	Trees providing a sound barrier between homes and motorways
Pest control	Pest control and invasive alien species management is provided through direct introduction and maintenance of populations of the predators of the pest or the invasive species.	Reduction in pest damage to cultivated crops
Pollination	Pollination services are provided by three main mechanisms: animals, water and wind. Most plants depend to some extent on animals to perform the transfer of pollen.	Successful yields of fruit and vegetable crops
Remediation	Remediation (or bioremediation) is a natural process whereby living organisms such as micro-organisms, plants, algae, and some animals degrade, reduce, and/or detoxify contaminants.	Removal of toxins from polluted industrial land
Soil quality	Soil quality is provided through weathering processes, which maintain bio-geochemical conditions of soils including fertility and soil structure, and decomposition and fixing processes, which enable nitrogen fixing, nitrification and mineralisation of dead organic material.	Maintaining sol for human use, e.g., compositing and maintaining nitrogen
Ventilation	Ventilation provided by natural or planted vegetation is vital for good indoor air quality and without it there are long term health implications for building occupants due	Trees reducing ambient temperature

	to the build-up of volatile organic compounds (VOCs), airborne bacteria and moulds.	in urban environments
Water flow maintenance	The hydrological cycle, also called water cycle or hydrologic cycle, is the system that enables circulation of water through the Earth's atmosphere, land, and oceans. The hydrological cycle is responsible for recharge of groundwater sources (i.e. aquifers) and maintenance of surface water flows.	Reduction in the magnitude and frequency of floods and storms
Water quality	Water quality is provided by maintaining the chemical condition of freshwaters, including rivers, streams, lakes, and ground water sources, and salt waters to ensure favourable living conditions for biota.	Healthy coral reefs, or reduced damage from agroecosystem runoff
CULTURAL ECOSYSTEM SERVICES		**EXAMPLE SERVICES & BENEFTS**
Cultural	Cultural Ecosystem Services group includes all the non-material benefits people obtain from ecosystems.	Ecotourism, recreation and fitness

Revenue-Based Dependencies Assessment

To determine ecosystem dependencies at a company level, ISS STOXX assesses the proportion of revenue generated through specific economic activities by each company and maps the relevant dependencies to that proportion of revenue. Weights for each dependency-activity combination are determined based on the materiality grade for the activity, and revenue is allocated according to the weight of that dependency (e.g., Very low = 1, Medium = 3, Very high = 5.). The final output presents the proportion of company revenues attributed to each ecosystem service, and the overall weight of reliance on that ecosystem service.

Output Factors

The Biodiversity Impact Assessment is expressed in both absolute and relative values. The tool's top-level outputs include:

- Aggregated impacts in terms of PDF and MSA,
- Relative impacts based on normalization (revenues, EVIC)
- Ranking factors (decile rank, biodiversity impact classification).
- 650+ underlying factors per company, providing insights on the PDF impact per environmental impact indicator, per activity and per country
- Ecosystem services dependencies assessment comprises 50 factors showing the proportion (%) of revenues dependent on each ecosystems service and respective materiality grades.

All factors are also aggregated at industry-level, by assigning entities to their relevant Global Industry Classification Standard (GICS) Sector. The 2023 GICS classification system, developed and maintained by MSCI and S&P Dow Jones Indices, has been applied.

Further details of these outputs can be found below.

Aggregate Factors

The solution provides top level outputs on the aggregated biodiversity impacts of a company in terms of species richness (PDF) and species abundance (MSA), in a refined and unrefined format. Both factors are expressed as absolute values. The aggregated factors are based on the total amount of revenue generated by a company, thus determining the impact in absolute terms. The PDFs for companies for which no revenue data is available will be outputted as –No information-.

The unrefined factors represent the outputs based on the 10 impact indicators from IMPACT World+, whereas the refined factors include the environmental pressures additionally relevant for a complete and comprehensive biodiversity assessment, thereby better aligning with IPBES biodiversity pressures (see refinement & normalization step).

- *BIAT – PDF Refined*
- *BIAT – PDF Unrefined*
- *BIAT – MSA Refined*
- *BIAT – MSA Unrefined*

Normalized Factors

As the total amount of revenue generated by a company influences the aggregate outputs, the overall refined PDF and MSA are also provided at a normalized financial ratio per million EUR and per million USD of revenue to allow for relative comparison, e.g.:

- *BIAT – PDF Refined Per Million USD Revenue*
- *BIAT – MSA Refined per Million EURO Revenue*

Decile Rank

The Decile Rank complements the BIAT outputs by providing insight into how companies perform compared to their peers. This is therefore a relative scale. It indicates in which decile (tenth part of total) the company ranks within its industry from 1 (low relative impact – company is in the first decile within its industry) to 10 (high relative impact – company is in the tenth decile within its industry).

The Decile Rank is determined based on the BIAT – PDF Refined per million Euro of revenues. To capture and properly reflect peer comparisons based on a company's sustainability risk profile, ISS STOXX's proprietary Rating Industry classification is applied, which currently comprises 73 industries. If the total number of companies within an industry cannot be evenly divided by 10, the surplus companies are distributed from the top (1 decile) to the bottom.

Figure 2: BIAT Decile Rank

higher relative biodiversity impact *lower relative biodiversity impact*

Revenue-Adjusted Biodiversity Impact Classification

The Revenue-Adjusted Biodiversity Impact Classification can be considered a holistic classification as it considers both intensity of biodiversity impact (PDF Refined Per Million EUR Revenue) and scale of biodiversity impact (PDF Refined) objectively, regardless of sector. This factor can be used to help to address the challenge of interpreting the range of PDF values in relation to one another, and in absolute terms across all companies and sectors.

The factor groups companies into distinct classifications which categorize a company's biodiversity impact along a five-point scale from least to most. The five classifications are unambiguous and akin to nomenclature used when assessing nature or climate-related values at scale: very low, low, medium, high, and very high. Each classification is determined by a set of thresholds linked to the PDF Per Million EUR Revenue and PDF Refined.

Thresholds: To avoid bias when determining what is classified as very low, low, medium high, or very high biodiversity impact and setting the thresholds for these categories, a statistical identification of outliers and k-means clustering is used. K-means clustering, an unsupervised machine learning algorithmic approach, without using labelled data (i.e., company names or sectors) to direct the clustering, allows the determination of the desired number of clusters based on statistical similarities of anonymous PDF data points. Through this approach companies are objectively grouped based on both PDF Refined and PDF Per Million EUR Revenue values, thereby considering both the intensity and scale of company biodiversity footprints.

Ecosystem Services Dependencies Factors

The BIAT includes a total of 50 factors for ecosystem service dependencies which show the proportion (%) of revenues dependent on each ecosystem service, expressed in absolute values, and the materiality grade (very low through to very high) per company.

Six factors relate to the broad groups of Provisioning, Regulation & Maintenance, and Cultural ecosystem services, e.g.:

- *BIAT - ESS Group Provisioning* ➔ % of revenue per ESS Group
- *BIAT - ESS Group Provisioning Materiality* ➔ materiality per ESS Group

A further 44 factors provide granular data for each of the specific ecosystem services, e.g.:

- *BIAT - ESS Genetic Materials* ➔ % of revenue per ESS
- *BIAT - ESS Pollination* ➔ % of revenue per ESS
- *BIAT - ESS Genetic Materials Materiality* ➔ materiality per ESS
- *BIAT - ESS Pollination Materiality* ➔ materiality per ESS

Granular Factors

On a more granular level, an unrefined PDF is provided for each of the 10 impact indicators per company e.g.:

- *BIAT – PDF Unrefined Freshwater Acidification* ➔ per impact indicator
- *BIAT – PDF Unrefined Land Occupation Biodiversity* ➔ per impact indicator
- *etc.*

As an example, the factor *BIAT- PDF Unrefined Freshwater Acidification* reflects the impact in terms of the (unrefined) potentially disappeared fraction of species lost due to the environmental pressure Freshwater Acidification over a one-year period, considering the potential ecosystem degradation and/or restoration.

In addition, the data set includes 650+ underlying informational factors providing insights per activity, as well as per impact indicator per region:

- *BIAT – PDF Unrefined Cultivation of Grains* ➔ per activity
- *BIAT – PDF Unrefined Manufacturing of Machinery* ➔ per activity
- *BIAT – PDF Unrefined Ireland* ➔ per country/region
- *BIAT – PDF Unrefined Land Occupation Biodiversity US* ➔ per impact indicator per region
- *BIAT – PDF Unrefined Terrestrial Acidification GB* ➔ per impact indicator per region
- etc.

For example, the factor *BIAT - PDF Unrefined Cultivation of Grains* reflects the impact in terms of the potential biodiversity loss linked to the cultivation of grains over a one-year period, taking into account the potential ecosystem degradation and/or restoration.

Usage of data: While the overall aggregated factors and the revenue-adjusted biodiversity impact can help investors in meeting their reporting requirements and quantifying and understanding the potential biodiversity risks and impacts of companies, the normalized factors as well as the decile rank can be useful for peer comparisons or gaining a better understanding on relative impacts. The granular factors providing details e.g., per impact indicator, per activity, or per impact indicator per region, will allow for a deeper understanding of the driving forces of impact on a company level.

Update Cycles

The BIAT model is derived leveraging input datasets as outlined in Underlying Main Data Sets. The model is updated on a bi-weekly basis, incorporating most recent data from FactSet, the Energy & Extractives data and the SDG Impact Rating. The assessment output of the model is therefore valid until the next update cycles of these data sets, which typically run on an annual or event-driven basis.

Use of Estimated Data

The BIAT is built on various proxies and estimations. To ensure reasonable assumptions, outputs of each step have undergone extensive review processes. Some of these proxies and estimations include:

- Geographical and Sectoral Revenues applied as proxies for identifying the impacted area
- EXIOBASE, applying top-down economic totals derived from national production and trade, in conjunction with global environmental stressors, to estimate the average resource intensity of broad industry sectors
- LCIA Model Impact World + which is itself modelled by definition, and functions as a proxy for real-world environmental damage

Additionally, the tool utilizes data from the Energy & Extractives solution as well as the SDG Impact Rating. For more details regarding the use of estimated data within these solutions, please refer to the respective methodology overviews.

At the time of publication, all biodiversity data (PDF, MSA, dependencies etc.) are modelled estimates.

Limitations

The BIAT model covers the most material biodiversity impact indicators and LCA databases currently available. Nevertheless, the BIAT's methodology and data may be subject to certain limitations. The below outlines such limitations as well as the action taken to address these

Limitations in Availability or Consistency of Data Sources

- Data which captures environmental pressures is subject to limitations pertaining to coverage and completeness. In addition, the LCIA-derived calculated impact is likely to vary by a measurable degree, according to the type of ecosystem being damaged.

Limitations in the Completeness, Timeliness, and Accuracy of Information

- Biodiversity impact assessment frameworks remain at an early stage of development and thus no single method fully captures all biodiversity dimensions, environmental pressures, and ecosystems which can limit completeness.
- When identifying a company's economic activities, the data and model rely on the revenue data published by companies in annual reports as well as the availability of matches and level of alignment of activities in the different classification systems. Accordingly, the accuracy and granularity of the data and activity matches may vary.

- The environmental data sources are not updated on a yearly basis hence some lag in identifying realised impacts is likely to occur. In addition, some of the environmental degradation affecting some areas may play out over multiple years, making it difficult to attribute to a particular temporal period.

Limitations in the use of Assumptions, Proxy Reference Points, Data Estimation, and AI

- As is the case with other biodiversity assessment models, BIAT relies on proxies and assumptions. Accordingly, ISS STOXX continuously seeks to enhance and improve the model, incorporating the latest available data and processes.

- Geographic revenue data is used as a proxy for determining the spatial extent of the analysis, which may not fully reflect the location of impact.

- Input/Output model constraints apply, including EXIOBASE limitations related to covered activities, regions, and relevant resources and emissions data. In addition, the analysis relies on using modelled, industry-derived data as companies' disclosures are not yet at the level of standardisation required for a meaningful, comparable analysis.

- The use of K-means is subject to well-documented limitations and associated risks. The algorithm requires the number of clusters (k) to be specified in advance, with a sub-optimal choice potentially leading to under- or over-segmentation of the rated universe. Its outputs are also sensitive to centroid initialization, to the scaling and distribution of input variables, and to the presence of outliers, while its reliance on Euclidean distance assumes broadly spherical, comparably sized clusters. As an unsupervised technique, K-means produces groupings that carry no intrinsic interpretation and may, without expert oversight, embed biases present in the input data. Cluster stability over time can likewise be affected by changes in disclosure practices and coverage.

Methodology Review

The BIAT methodology is subject to annual review and periodic updates that are overseen by ISS STOXX 's Methodology Review Board, which is comprised of experienced methodology and research leaders across jurisdictions.

The overall model will be reviewed on an annual basis, incorporating updates to underlying assumptions and databases. In addition, ad-hoc changes (e.g., on FactSet-EXIOBASE activity mapping basis) may be implemented on an as-needed basis.

Quality Assurance

The Biodiversity Impact Assessment Tool was developed by an internal team of biodiversity, modelling, and methodology experts in partnership with the environmental consultancy Quantis. To ensure the quality and the applicability of the data, the output for each step of the model has undergone additional and robust research and comprehensive review processes.

ISS STOXX's proprietary data used in the model (e.g., from the SDG Impact Rating or the Energy & Extractives screening solution) is verified according to general ISS STOXX sustainability research processes and guidelines. Please find more information on our Methodology and Quality Programs on our website.

Appendix

Appendix A: Relevant Supporting Models and Key Rating Assumptions

Models

- **Biodiversity Impact Assessment Tool aggregation and scoring model**: Assesses biodiversity impacts and ecosystem dependencies by quantifying nature-related impacts linked to company economic activities across value chains.
- **Life Cycle Impact Assessment (LCIA) model (IMPACT World+)**: Core modelling framework translating emissions and resource use into biodiversity impact indicators using midpoint-damage conversion factors.
- **Supply chain model**: Models companies' supply chains by mapping EXIOBASE environmental resources and emissions data across geographies and economic activities.

Assumptions

- **Revenue and activity data as proxy for impact allocation**: Uses revenue and activity data to allocate impacts geographically and sectorally.
- **Spatial variation assumption**: Recognises that biodiversity impacts vary by geography even with identical activities and emissions.
- **Use of proxies and modelled data (EXIOBASE, LCIA)**: Assumes modelled datasets represent real-world impacts; relies on proxies such as EXIOBASE and LCIA.

Appendix B: Version Control

Name of Methodology: Biodiversity Impact Assessment Tool (BIAT)

VERSION	DATE	DETAILS
1.0	July 2026	Publication of the Biodiversity Impact Assessment Tool (BIAT) Methodology and Research Process document Inclusion of the Public Disclosure on the Methodology, Models, and Key Rating Assumptions Used in ESG Rating Activities (as defined by the Regulation (EU) 2024/3005)

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ISS STOXX delivers world-class research, data, and technology solutions that empower capital market participants to pursue their visions with confidence. Our expertise spans indices, corporate governance, sustainability, cyber risk, and fund intelligence, giving clients the tools they need to uncover opportunities, manage risks, and navigate evolving regulations. We are made up of 4,000 professionals operating across 20 countries and serving approximately 5,000 clients, including many of the world's leading institutional investors. Our scale and reach give us deep market knowledge, while our innovative methodologies allow us to offer our clients tailored insights that drive impact and success.

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