# Sustainable Finance & Biodiversity:
## State of Play, Challenges and Solutions

**31.01.-01.02.2024**

**A Conference hosted by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection**

Stresemannstr. 128-130, 10117 Berlin

**Registration:** https://www.bmuv.de/veranstaltung/sustainable-finance-and-biodiversity

**Livestream:** www.bmuv.de/livestream

# Agenda Conference Day 1 - January 31st

| Timing | Topic | Speakers |
|---|---|---|
| 13:15-13:25 | **Welcome** | **Silke Stremlau**, Chairwoman of SFB |
| 13:25-13:40 | **Keynote Speech** | **Thomas Graner**, German Federal Agency for Nature Conservation |
| 13:40-14:10 | **Keynote Speech** | **Simon Zadek**, NatureFinance |
| 14:10-14:40 | The Real Economy & Biodiversity: State of play, good practice and remaining key challenges<br>// **Introductions** | **Prof. Dr. Alexander Bassen**, University of Hamburg, WPSF, EFRAG, Permanent Observer to SFB<br>**Katarin Wagner**, econsense – Forum for Sustainable Development of German Business e.V.<br>**Michael Ofosuhene-Wise**, Business For Nature (digital) |
| 14:40-15:45 | The Real Economy & Biodiversity: State of play, good practice and remaining key challenges<br>// **Panel Discussion** | **Prof. Dr. Katrin Böhning-Gaese**, Senckenberg Gesellschaft für Naturforschung, RNE<br>**Prof. Dr. Alexander Bassen**, University of Hamburg, WPSF, EFRAG, Permanent Observer to SFB<br>**Miriam Van Gol**, Science Based Targets Network<br>**Philipp Wagnitz**, Lidl Stiftung<br>Moderator: **Katarin Wagner**, econsense - Forum for Sustainable Development of German Business e.V. |
| 15:45-16:30 | Break | |
| 16:30-17:00 | Financial Institutions & Biodiversity: Challenges & Solutions<br>// **Introductions** | **Verena Menne**, Forum Nachhaltige Geldanlagen (FNG), Permanent Observer to SFB<br>**Nathalie Borgeaud,** Taskforce on Nature related Financial Disclosures (TNFD) |
| 17:00-18:00 | Financial Institutions & Biodiversity: Challenges & Solutions<br>// **Panel Discussion** | **Mathilde Dufour**, Mirova<br>**Jürgen Kern**, KFW, Permanent Observer to SFB<br>**Dr. Paolo Krischak**, Deutsche Bundesbank, NGFS, Permanent Observer to SFB<br>**Nathalie Borgeaud**, Taskforce on Nature related Financial Disclosures (TNFD)<br>Moderator: **Verena Menne**, FNG, Permanent Observer to SFB |
| 18:00-18:15 | Conclusion of Day 1 | **Dr. Julia Haake**, EthiFinance, Member of SFB |
| 18:15-20:00 | Evening Reception | |

# Agenda Conference Day 2- Feb 1st

| Timing | Topic | Speaker |
|---|---|---|
| 08:30-08:40 | **Welcome** | **Silke Stremlau,** Chairwoman SFB |
| 08:40-09:25 | **Fireside Chat** (digital) | **Pavan Sukhdev**, GIST Impact<br>**Christian Heller**, Value Balancing Alliance (VBA), Co-Chair of SFB |
| 09:25-09:40 | **Keynote Speech** | **Steffi Lemke**, German Federal Minster for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection |
| 09:40-10:10 | Biodiversity Data: Use Cases, Challenges & Solutions<br>**// Introduction** | **Susanne Schmitt**, Nature+Futures |
| 10:10-11:10 | Biodiversity Data: Use Cases, Challenges & Solutions<br>**// Panel Discussion** | **Chiara Colesanti Senni**, University of Zurich<br>**Sven Kaumanns**, Federal Statistical Office<br>**Matthieu Maurin**, Iceberg Data Lab<br>**Asa Mossberg**, (Andra AP-fonden (AP2)<br>**Susanne Schmitt**, Nature+Futures<br>Moderator: **Dr. Julia Haake**, EthiFinance & Member of SFB |
| 11:10-11:40 | Break | |
| 11:40-12:00 | Regulation: How can regulators help guide us towards a nature-positive economy?<br>**// Introduction** | **Ingmar Jürgens**, Climate & Company, Permanent Observer to SFB |
| 12:00-13:00 | Regulation: How can regulators help guide us towards a nature-positive economy?<br>**// Panel Discussion** | **Elisa Famery**, DG Trésor, France<br>**Sven Gentner**, DG FISMA, European Commission<br>**Dr. Esther Wandel**, German Ministry of Finance |
| 13:00-13:15 | Conclusion of the Conference & Outlook | **Ingmar Jürgens**, Climate & Company, Permanent Observer to SFB |

Sustainable Finance

# Welcome
# **Silke Stremlau**

## Chair Sustainable Finance Advisory Committee

# Keynote Speech
# **Thomas Graner**

## German Federal Agency for Nature Conservation

Sustainable Finance

# Keynote Speech
# **Dr. Simon Zadek**
## NatureFinance

# Nature, Finance & Development

**Dr. Simon Zadek**

Co-Chief Executive Officer, NatureFinance

**January, 2024**

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# Simple Truths

- 100% of today's global economy is 100% dependent on nature.
- Global biodiversity has declined by 70% since 1970.
- Unpriced nature is estimated at 13% of global GDP.
- Wealthy countries depend on the use of nature from nature-rich countries valued at US$10.8 trillion annually.

***"Nature's destruction presents profound risks to human societies and as with any serious risk we face, the rational response is to hedge - in the case of biodiversity loss this means a comprehensive, worldwide effort to appropriately value, protect, and restore nature."***

**Hank Paulson**

Chair of the Paulson Institute

Conserving and restoring biodiversity is essential for limiting greenhouse-gas emissions, while uncontrolled global warming will destroy the planet's natural wealth.

Taskforce on Nature Markets | Initiative of NATURE FINANCE

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# Its All About Soft Commodities

Today's US$8 trillion global food system is estimated to generate US$12 trillion in negative externalities paid by others – negative nature, climate and health impacts.

*... if the global food system was a single business in a true cost world, it would be bankrupt.*


**Managed poorly, integrating nature and climate into financial risk assessment could significantly increase food prices and cut tens of millions of livelihoods, increasingly both supply and demand side food insecurity**

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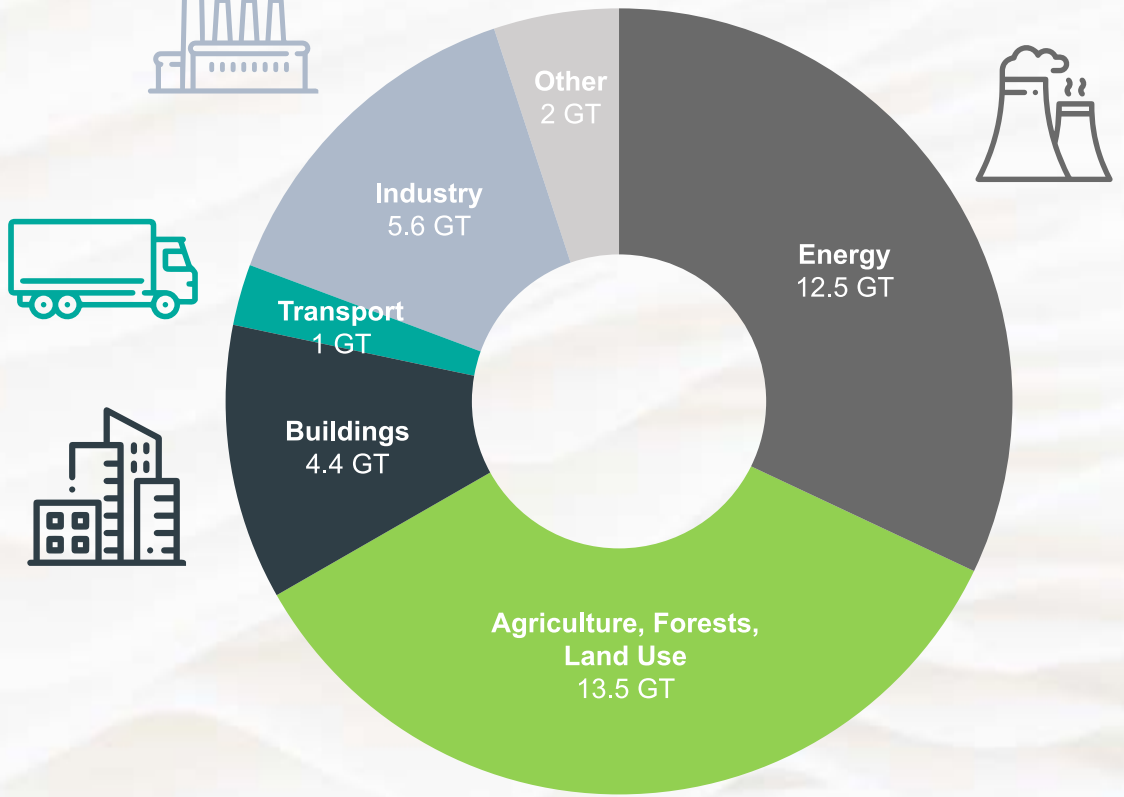
# Nature is Key to Fight Climate Change

**Estimated GHG $CO_2$ equivalent reduction potential by sector**
**(Giga Tonne $CO_2$ equivalent by 2030)**




"We are moving very rapidly toward the 1.5 degree Celsius limit. The only way to avoid it is with an enormous effort by nature."

Johan Rockström, scientist and director at Potsdam Institute for Climate Change

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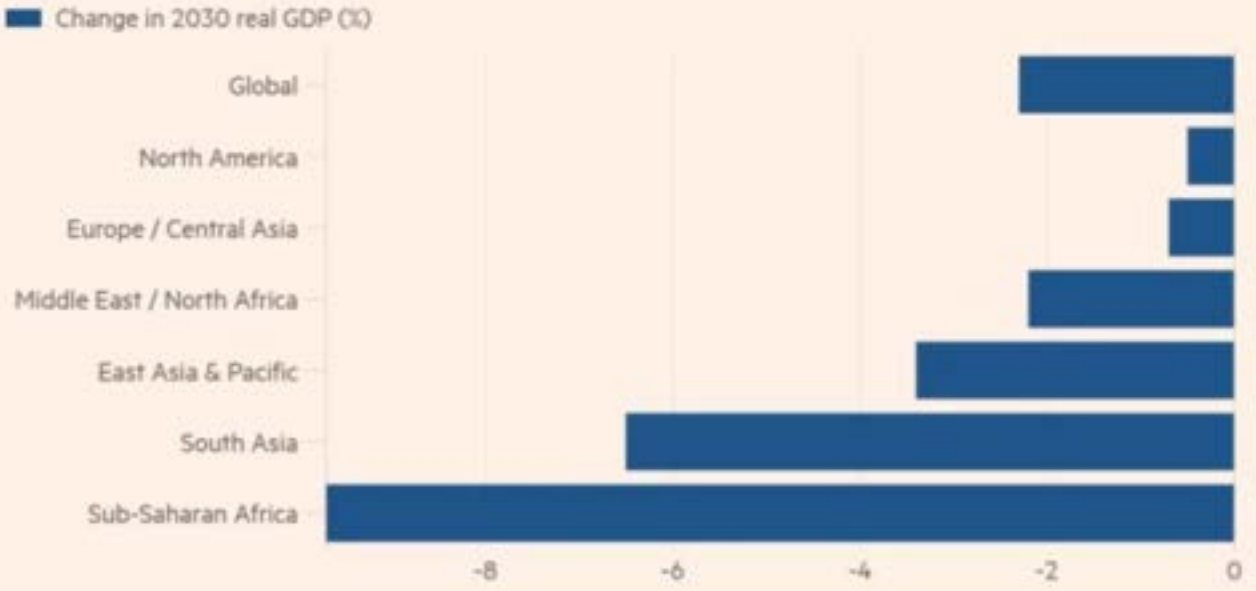
# … the coming waves …


## A massive loss of biodiversity would hit Africa and Asia hardest

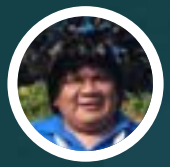
Economic impact of environmental degradation passing a tipping point to cause complete ecosystem collapse




Compares the scenario of complete ecosystem collapse to the baseline of partial ecosystem losses
Source: World Bank
© FT



***"Without nature there is no life on our planet nor a sustainable economy – it is fundamental that Indigenous Peoples are in the driving seat of designing and governing nature markets."***



**Chief Almir Narayamoga Surui**
Leader of The Paiter Surui People

historically unprecedented pivot to nature becoming valued and traded, generating nature-specific revenue streams

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# The Rise of Nature Markets

## NATURE MARKET TAXONOMY

### Intrinsic

Markets in which provisioning, regulating or cultural ecosystem services are traded

### Credit

Markets in which credits that reflect efforts to enhance or conserve ecosystem assets or services are traded

### Asset

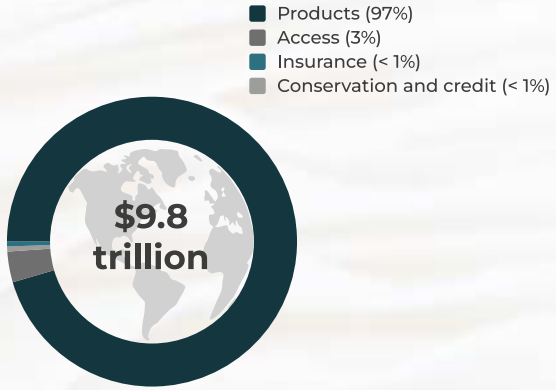
Markets in which the right to use ecosystem assets with long-lived value are traded

### Derivative

Markets for financial products which directly reflect ecosystem service values

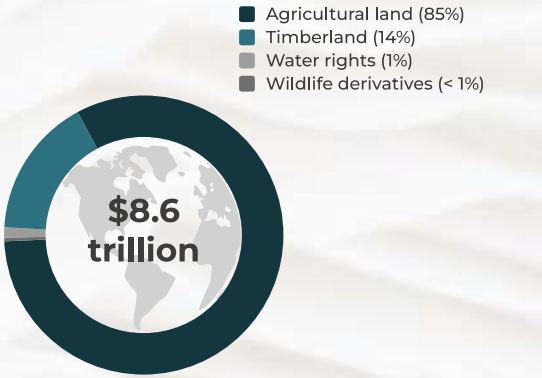

**Annual value of traded goods and services**

2021 USD trillion / year




**Privately owned asset value**

2021 USD trillion



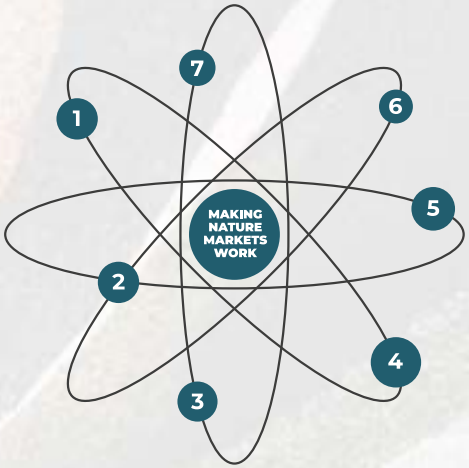


The rise of nature markets can play a central role in reshaping our unsustainable economy if, and only if, their design and governance is rooted in a radical and robust commitment to impact and equity.

*Taskforce on Nature Markets, 2023*

# Recommendations to Make Nature Markets Work

1. Aligning economic and financial architecture with an equitable, global nature economy
2. Policy alignment of central banks and supervisors
3. Aligning public finance with the needs of an equitable, global nature economy
4. Making food commodity markets accountable to people and the planet
5. Securing improved economic benefits for nature's stewards
6. Addressing the harmful impacts of nature crimes
7. Converging measures of the state of nature

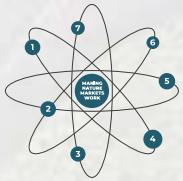



Taskforce on Nature Markets final report released on 10th August 2023 in Belem, Brazil on the occasion of the Amazon Summit (www.naturemarkets.net)

Taskforce on Nature Markets | Initiative of NATURE FINANCE

# 7 Aligning economic and financial architecture

- Engaging with Brazil to explore whether and how to advance the nature economy agenda during its G20 Presidency in 2024
- Encouraging an ambitious approach to the Alliance of Nature Positive Economies by the Italian G7 Presidency in 2024.
- Supporting the integration of nature and the nature-climate nexus into central bank scenarios and stress tests.



***"We are entering into an era of political and legal battles of jurisdictions, with nature and climate as the centre of gravity, resulting in new forms of trade and protectionisms becoming viable again."***

**Carlos Lopes**

Professor, Mandela School of Public Governance & African Climate Foundation Advisory Council Chair

STOP PRESS: The Government of Brazil has established the G20 Initiative on the Bioeconomy, supported by NatureFinance and a coalition of Brazil's leading organisations.

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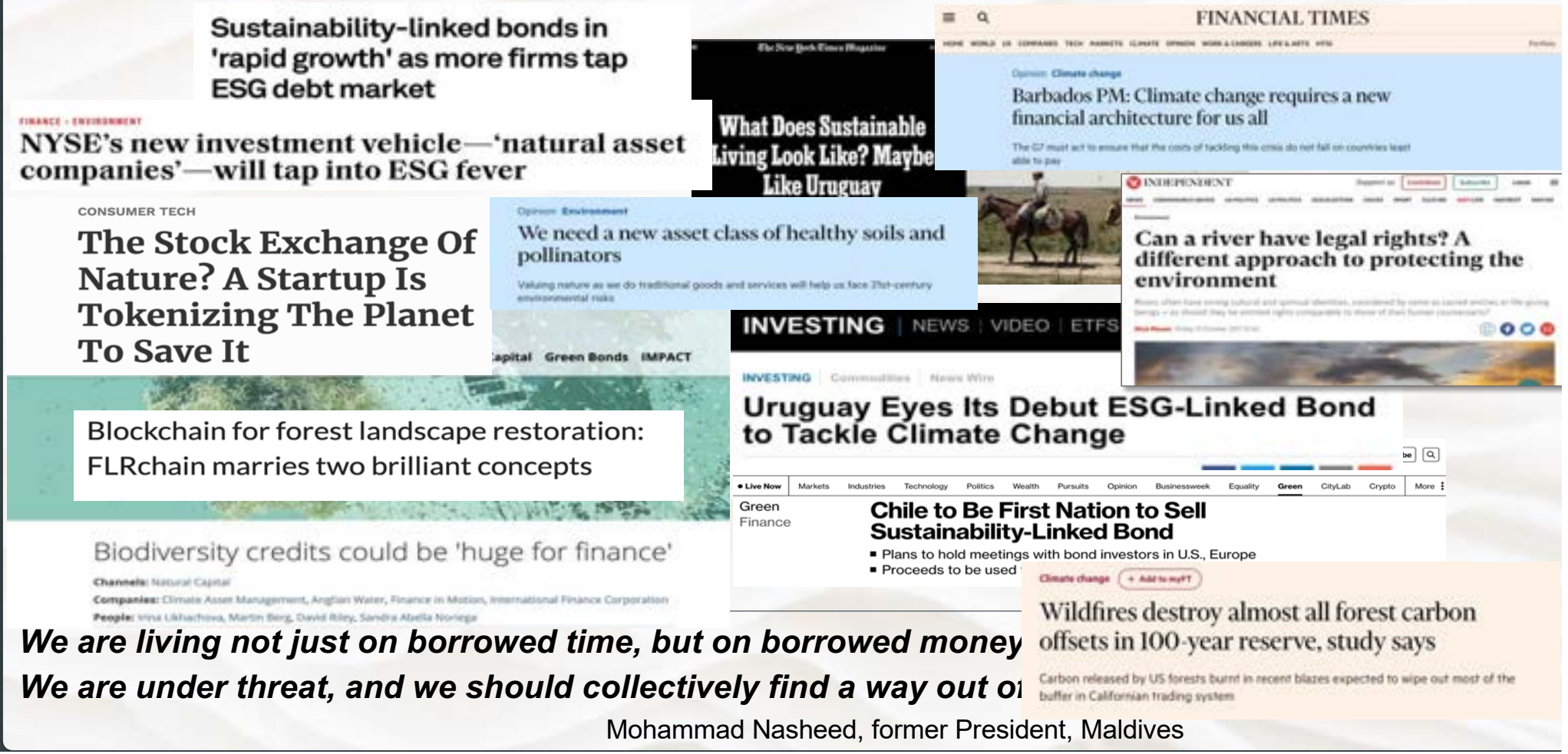
# Nature Finance – It's All Over the Place




***We are living not just on borrowed time, but on borrowed money***

***We are under threat, and we should collectively find a way out of***

Mohammad Nasheed, former President, Maldives

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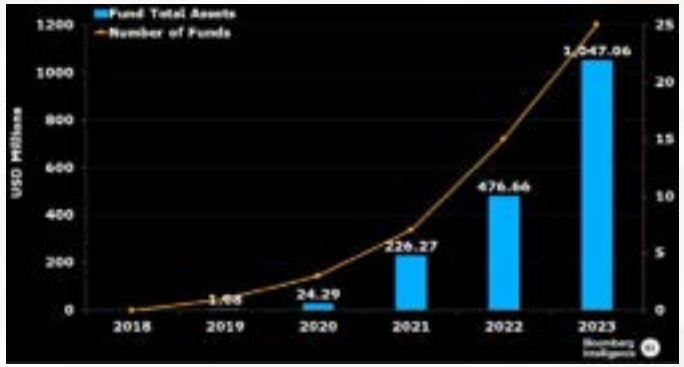
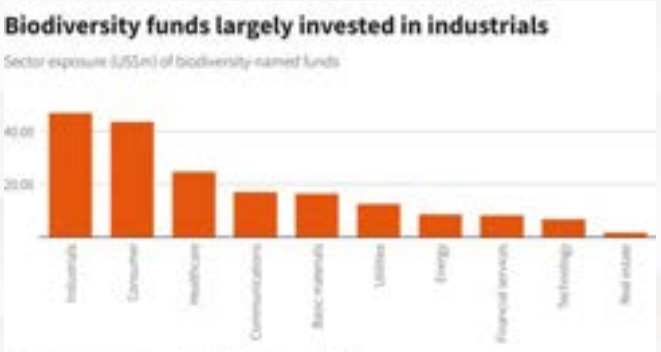
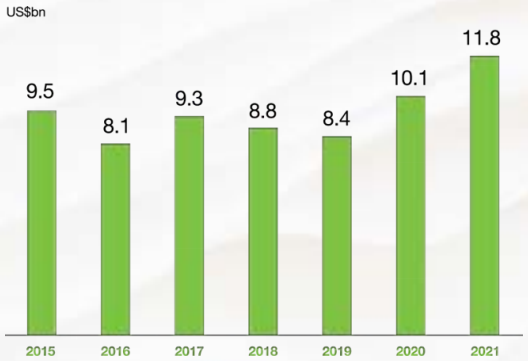
# Bio-Investment – Small Numbers

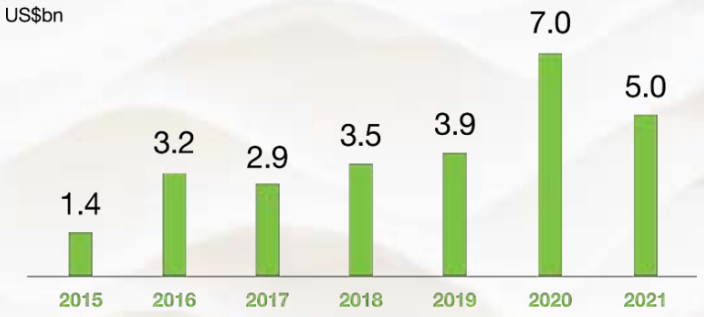
## Specialised Bio Funds




**Biodiversity-related Official Development Finance (full-range)**




**Multilateral outflows (full-range)**

mentions of "biodiversity" or "natural capital" in S&P 500 filings rose 44% in 4Q 2023 vs. the prior year. Meanwhile, assets assigned to biodiversity funds have increased to US$1.05 billion from US$226 million in 2021.

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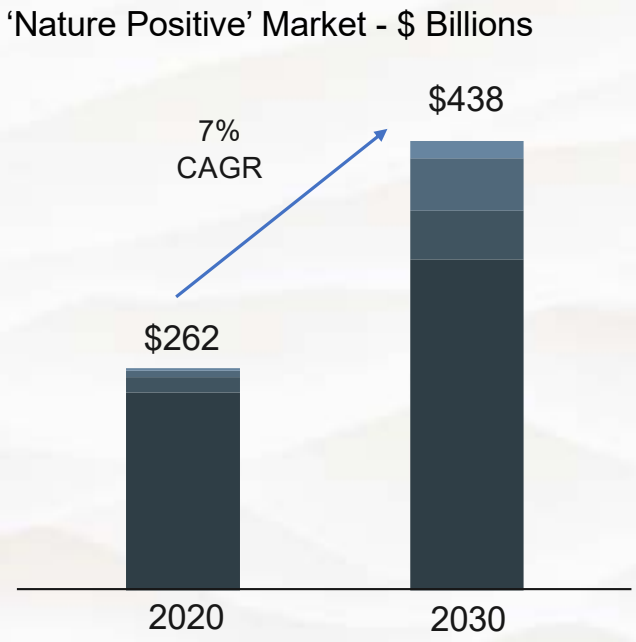
# Growing Bio-Investment Opportunities




*Source: McKinsey, Fortune Business Insights and other estimates*

## Natural Capital Areas Growing to US$438B by 2030

- ‘Vertical’ farming operations and technologies – 22% growth
- Alternative meat, dairy and plant-based proteins – 22%
- Plant based and sustainable textiles – 13%
- Sustainable (plant based) packaging – 5%

## Other areas

- Biofuels (SAF and Bio-Diesel)
- Regenerative Farming technologies and methods
- Nature Based Offsets including Forests, Grasslands and Soil
- Nature / Asset spatial data, analytics and information

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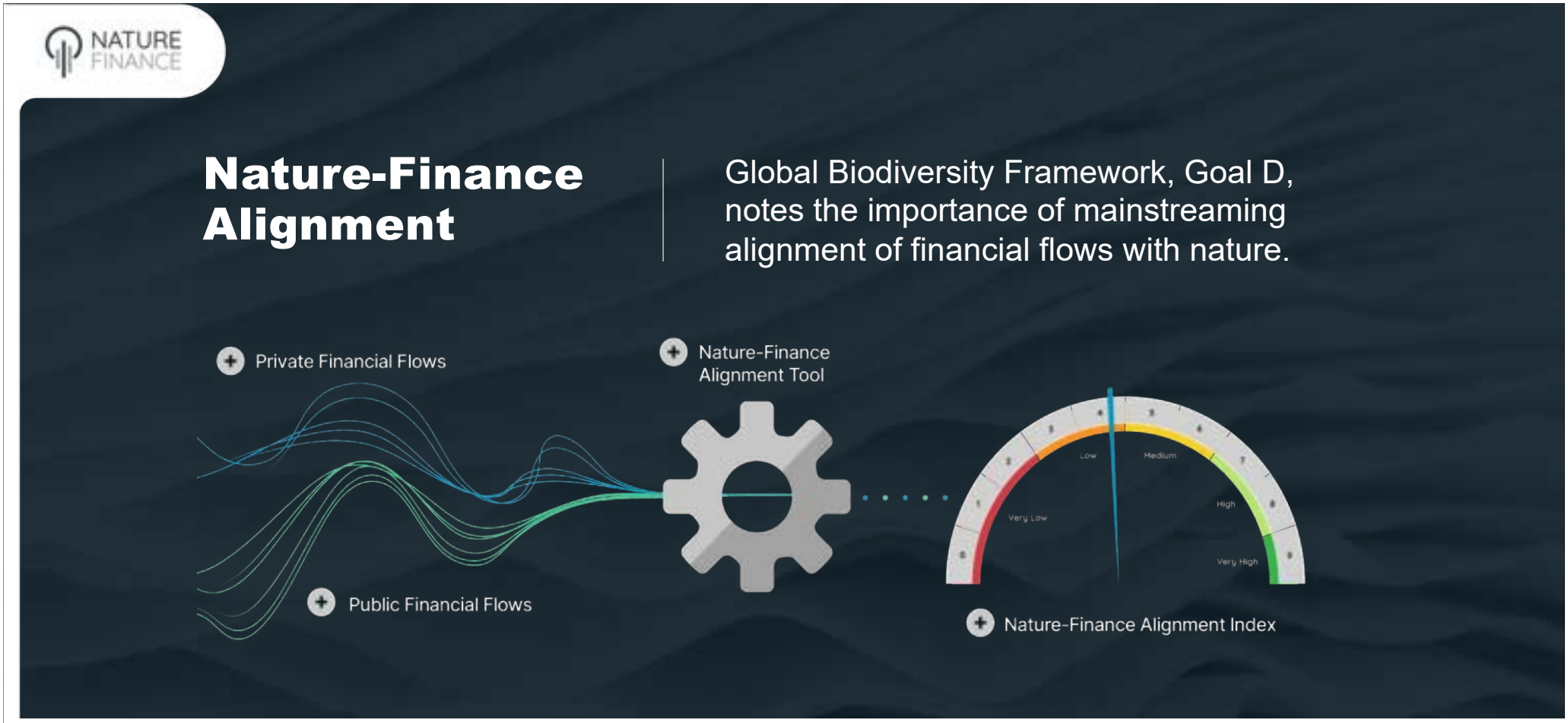
# Nature Finance Standards and Regulations Gathering Pace


- **Risk:** corporate disclosure, ratings, financial stability (IFRS)
- **Impact:** corporate disclosure, zero-deforestation (EU/UK)
- **Valuation**: accounting rules, listing guidelines (SEC)
- **Credits:** private certification, national regulations (Australia)
- **Trade:** disputes over nature as barrier to trade (Brazil)
- **Money laundering:** nature crimes linked to AML rules (FATF)

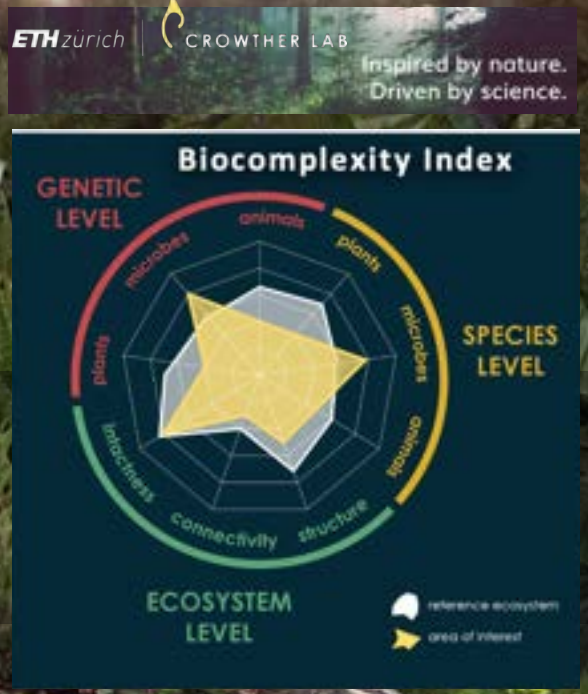
ustainability Standards Board will consider the work of the Taskforce for Nature-related e (TNFD) and other existing nature-related standards and disclosures where they relate eeds of investors."

ent, December 2022




GFANZ is to integrate nature into its net zero transition framework

# Measuring Nature


SEED is a joint venture between ETH Zurich and NatureFinance to embed in global markets a standardised measure of the true complexity of biodiversity, at a global scale

**The true value of nature lies in its complexity**, resulting from billions of years of evolution. However, most approaches that quantify biodiversity do not represent the multiple scales of nature's complexity.

SUSTAINABILITY-LINKED SOVEREIGN DEBT HUB

# Key is How Sovereign Debt Markets Count Nature

## size of bond markets

(USD Trillion, 1Q2023)

Sovereign **$69.0**

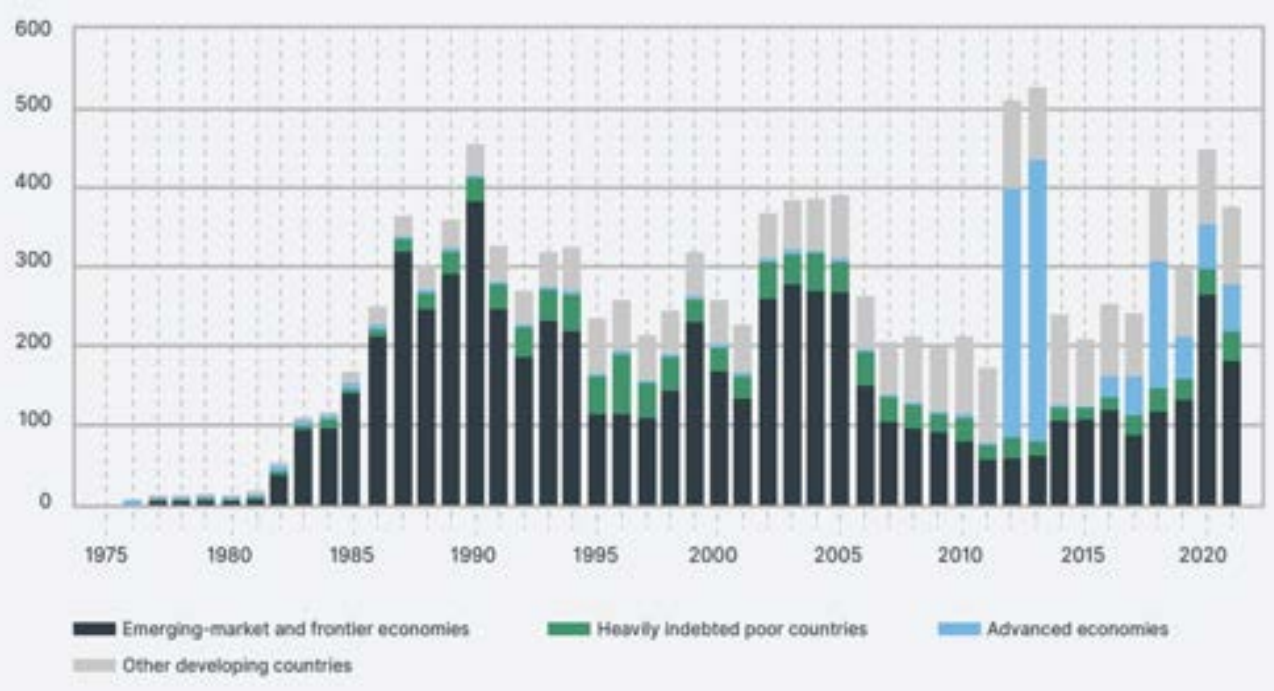
Financial Sector **$46.5**

Non-Financial Sector **$18.3**

Source: BIS

## Sovereigns debt in default

Billions of USD

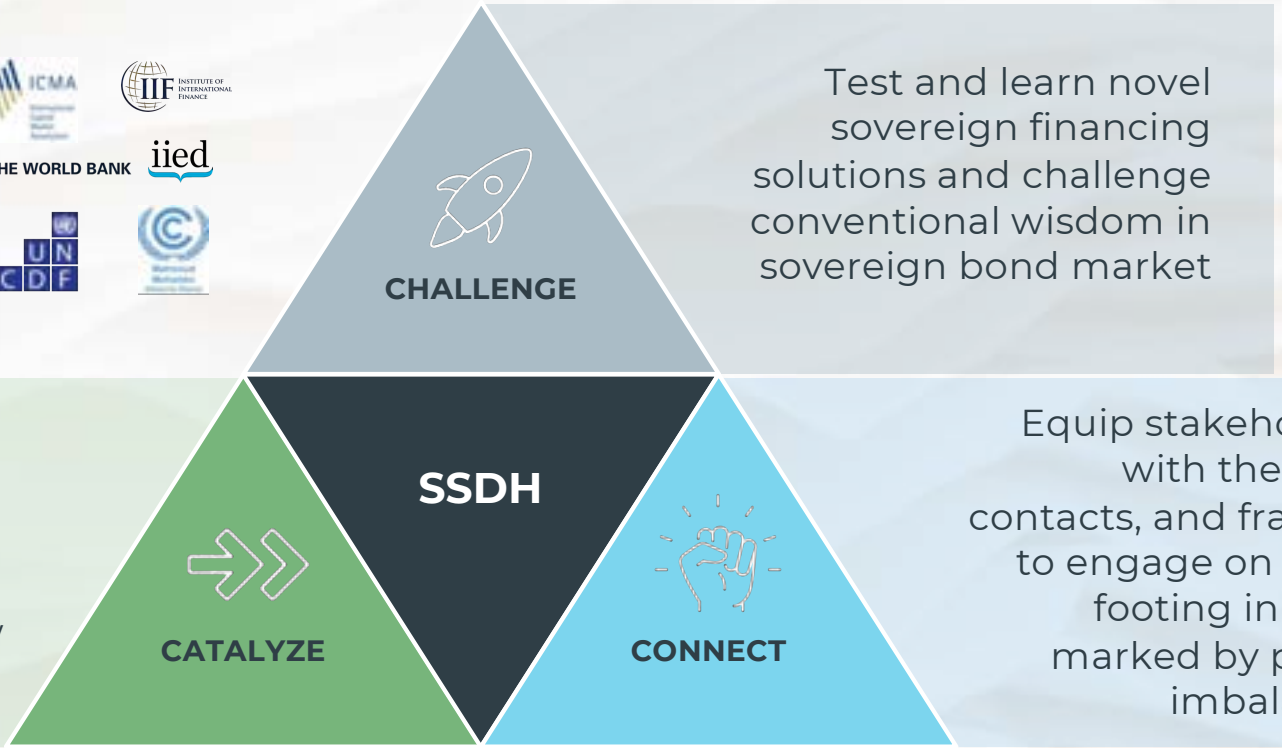


# Sustainability-linked Sovereign Debt Hub (SSDH)

The Hub brings together actors from the entire spectrum of the sovereign sustainability-linked debt universe to support initiatives that **build nature and climate performance into models of sovereign financing.**

**Advisory Board:**

ADB, AIIB, Climate Bonds, European Bank for Reconstruction and Development, ICMA, IIF Institute of International Finance, The Nature Conservancy, ECA, THE WORLD BANK, iied, UNITED NATIONS ESCWA, IDB, UNCDF



SUSTAINABILITY-LINKED SOVEREIGN DEBT HUB

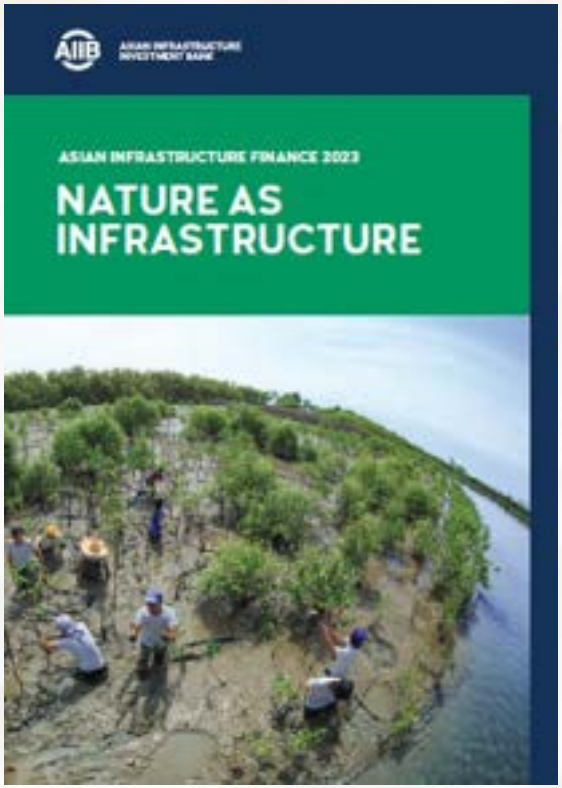
# Example of Uruguay SLB

In 2022, Uruguay issued a US$1.5 billion SLB maturing in 2034 with symmetrical step-ups and step-downs of 15 basis points per KPI

| SPTs | KPIs | Rationale |
|---|---|---|
| **SPT 1.1:** 50% reduction in GHG emissions intensity by 2025 vs. 1990<br><br>**SPT 1.2:** 52% reduction in GHG emissions intensity by 2025 vs. 1990 | **KPI 1:** aggregate gross GHG emissions (CO2 equivalent) per real GDP unit vs. 1990 | NDC-aligned, linked to material economy-wide performance on GHG emissions |
| **SPT 2.1:** Maintain 100% of nature forest area vs. 2012<br><br>**SPT 2.2:** 3% increase in nature forest area vs. 2012 | **KPI 2:** Maintenance of forest area vs. 2012 (%) | NDC-aligned, material, direct measure of performance on native forest area preservation |

SUSTAINABILITY-LINKED SOVEREIGN DEBT HUB

# Nature as Infrastructure




”Nature is a form of infrastructure, and a very special form so far as humanity is concerned. While infrastructure is commonly understood as being a human construction, nature is the most essential form of infrastructure that can be imagined. Nature has the power to feed us, heal us and help us grow. We depend on nature, and the biodiversity it facilitates, for our food, energy, water, resources, medicine, employment and leisure. Humankind cannot exist without nature.”

*Jin Liqun*
*President and Chair of the Board of Directors*
*Asian Infrastructure Investment Bank*

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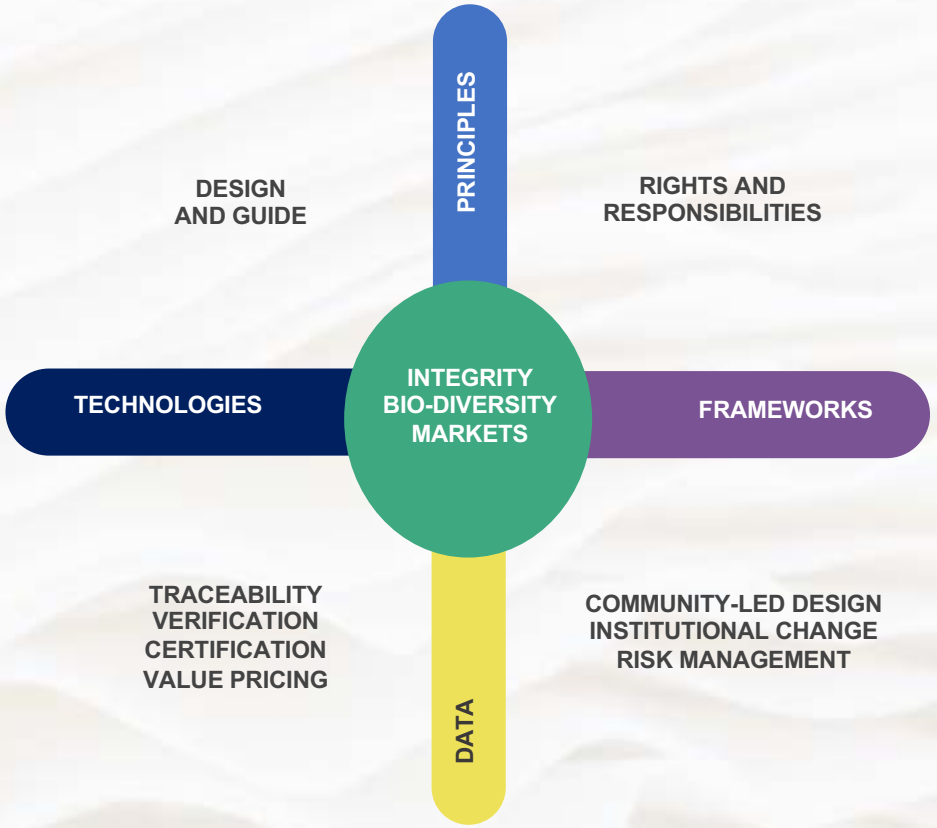
# The Rise of Biodiversity Credit Markets


**An International Advisory Panel on Biodiversity Credits has been established to promote the development of high integrity biocredits to support nature restoration and protection**

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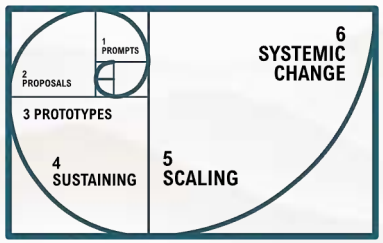
**“Aligning global finance with equitable, nature positive outcomes”**




**Historic pivot to nature being being valued and traded – good, bad or ugly?**

**Nature related risks are material, linked to climate, and will shape finance.**

**Opportunities include food and infrastructure, financial markets include sovereign, credit markets, and private equity.**

**Transitions risks and opportunities informed by policy, regulation and standards, as well as technology, markets and political developments.**

# Nature Finance @ NatureFinance

www.naturefinance.net

www.naturemarkets.net (Taskforce on Nature Markets)

www.ssdh.net (Sustainability linked Sovereign Debt Hub)

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# The Real Economy & Biodiversity: State of play, good practice and remaining key challenges

## // Introductory Remarks

**Prof. Dr. Alexander Bassen**
University of Hamburg, EFRAG
Wissenschaftsplattform Sustainable Finance

**Katarin Wagner**
econsense – Forum for Sustainable Development of German Business e.V.

## SLIDO – Survey #1772919

How do you perceive the interplay between biodiversity conservation and economic development in today's industries?

- ❑ **Strongly Negative** - Biodiversity conservation is hindering economic development.
- ❑ **Somewhat Negative** - There are challenges in balancing biodiversity conservation with economic development.
- ❑ **Neutral** - There is a moderate interplay between biodiversity conservation and economic development.
- ❑ **Somewhat Positive** - Biodiversity conservation can complement economic development.
- ❑ **Strongly Positive** - Biodiversity conservation is essential for sustainable economic development.

https://app.sli.do/event/nJfYkSNcaDhGQdzrJhnspN

Prof. Dr. Alexander Bassen

# Biodiversity Management and Stock Price Crash Risk

Alexander Bassen, Daniel Buchholz, Kerstin Lopatta, Anna R. Rudolf

# Agenda

1. Motivation
2. Prior Literature and Hypothesis
3. Methodology
4. Results
5. Conclusion

# 2. Prior Literature and Hypothesis

| Firm level biodiversity risk and management | Biodiversity loss and firm level risk | Stock price crash risk and biodiversity management |
|---|---|---|
| • Significant risk on companies (Dasgupta, 2021; Carvalho et al., 2022).<br>• Potentially negatively affecting a company's financial position (Dasgupta, 2021).<br>• High impact companies issue biodiversity policies (Carvalho et al., 2022). | • No defined/comparable measure/ thresholds to manage and measure related risks, (Kennedy et al, 2022; Addison et al., 2020).<br>• Heterogeneity in attitude and reporting (Adler et al., 2017; Adler et al., 2018).<br>• Relation between high corporate biodiversity footprint and returns at political events (Garel et al., 2023). | • Sustainability engagement implies a more ethical behavior resulting in less bad news hoarding (Kim et al., 2014).<br>• Sustainability engagement not fully encompass all subtopics (Edmans, 2023). |

| Hypothesis 1 | Strong biodiversity management is negatively associated with a firm's stock price crash risk. |
|---|---|

# 3. Methodology

**Vigero Eiris biodiversity score (now Moody's ESG Solutions):**

- Biodiversity leadership
- Biodiversity implementation
- Biodiversity results

**Controls**:

- LAGNCSKEW
- DTURNOVER
- RET
- SIGMA
- SIZE
- MB
- LEV
- ROA
- OPAQUE
- ESG

$$CRASH_{i,t} = \alpha + \beta_1 BIODIV_{i,t} + \sum \beta CONTROLS_{i,t} + COUNTRY\ FE + YEAR\ FE + INDUSTRY\ FE + \epsilon_{i,t}$$

**Stock price crash risk:**

- NCSKEW is the negative conditional return skewness
- DUVOL captures down-to-up volatility

**Sample**:

- All other variables Refinitiv
- 7,161 observations
- 1,402 companies
- 45 countries
- Period 2009-2021

# 4. Results

| VARIABLES | (1) DUVOL | (2) DUVOL | (3) DUVOL | (4) DUVOL | (5) NCSKEW | (6) NCSKEW | (7) NCSKEW | (8) NCSKEW |
|---|---|---|---|---|---|---|---|---|
| Biodiversity | -0.0017*** | | | | -0.0027*** | | | |
| | (0.0006) | | | | (0.0008) | | | |
| Biodiv. Leadership | | -0.0010** | | | | -0.0015*** | | |
| | | (0.0004) | | | | (0.0005) | | |
| Biodiv. Implementation | | | -0.0011*** | | | | -0.0016*** | |
| | | | (0.0004) | | | | (0.0005) | |
| Biodiv. Results | | | | -0.0001 | | | | -0.0005 |
| | | | | (0.0006) | | | | (0.0008) |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 7,161 | 7,161 | 7,161 | 7,161 | 7,161 | 7,161 | 7,161 | 7,161 |
| Adjusted R-squared | 0.0361 | 0.036 | 0.036 | 0.0352 | 0.0286 | 0.0285 | 0.0283 | 0.0273 |

Hypothesis 1: Strong biodiversity management is negatively associated with a firm's stock price crash risk.

# 4. Results

| VARIABLES | (1) DUVOL | (2) DUVOL | (3) DUVOL | (4) DUVOL | (5) NCSKEW | (6) NCSKEW | (7) NCSKEW | (8) NCSKEW |
|---|---|---|---|---|---|---|---|---|
| Biodiversity | -0.0017*** | | | | -0.0027*** | | | |
| | (0.0006) | | | | (0.0008) | | | |
| Biodiv. Leadership | | -0.0010** | | | | -0.0015*** | | |
| | | (0.0004) | | | | (0.0005) | | |
| Biodiv. Implementation | | | -0.0011*** | | | | -0.0016*** | |
| | | | (0.0004) | | | | (0.0005) | |
| Biodiv. Results | | | | -0.0001 | | | | -0.0005 |
| | | | | (0.0006) | | | | (0.0008) |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 7,161 | 7,161 | 7,161 | 7,161 | 7,161 | 7,161 | 7,161 | 7,161 |
| Adjusted R-squared | 0.0361 | 0.036 | 0.036 | 0.0352 | 0.0286 | 0.0285 | 0.0283 | 0.0273 |

Hypothesis 1: Strong biodiversity management is negatively associated with a firm's stock price crash risk.

# 4. Results – Additional analysis EPA environmental inspections

- ESG issues are an area of high information asymmetry (Schiemann & Sakhel, 2019).
- Companies provide only limited information on biodiversity risks ( e.g., Adler et al., 2018; Boiral, 2016).

- Internal and external controls have an effect on the information environments and stock price crash risks (Chen et al., 2017).
- Inspections by the EPA as mechanism to reveal that information.

| | Treatment Group | | Control Group | | |
|---|---|---|---|---|---|
| VARIABLES | No. | Mean | No. | Mean | Diff |
| DUVOL | 57 | 0.3671 | 57 | 0.4103 | -0.0432 |
| NCSKEW | 57 | 0.4355 | 57 | 0.4448 | -0.0092 |
| LAGNCSKEW | 57 | 0.4773 | 57 | 0.2604 | 0.2169 |
| SIGMA | 57 | 0.0310 | 57 | 0.0388 | -0.0077*** |
| RET | 57 | 0.0782 | 57 | 0.0985 | -0.0203 |
| DTURNOVER | 57 | -0.0056 | 57 | 0.0006 | -0.0062 |
| SIZE | 57 | 10.0193 | 57 | 9.3377 | 0.6816*** |
| MB | 57 | 3.7768 | 57 | 3.3574 | 0.4195 |
| LEV | 57 | 0.3037 | 57 | 0.3035 | 0.0002 |
| ROA | 57 | 0.0791 | 57 | 0.0661 | 0.0130 |
| OPAQUE | 57 | 0.5852 | 57 | 0.7467 | -0.1615** |
| ESG | 57 | 61.9253 | 57 | 47.013 | 14.9123*** |

| | (1) | (2) |
|---|---|---|
| VARIABLES | NCSKEW | DUVOL |
| Post | -0.4779** | -0.3681** |
| | (0.2241) | (0.1506) |
| Treat*Post | 0.4481* | 0.3352* |
| | (0.2682) | (0.1810) |
| Treat | -0.0629 | -0.0717 |
| | (0.2011) | (0.1413) |
| Constant | Yes | Yes |
| Controls | Yes | Yes |
| Industry FE | Yes | Yes |
| Year FE | Yes | Yes |
| Observations | 301 | 301 |
| Adjusted R-squared | 0.0742 | 0.1199 |

# 5. Conclusion

**Main Finding**

Strong biodiversity management reduces a company's risk of a sudden decline in share prices in the future (stock price crash risk).

**Contribution**

**Prior literature**

- Climate related risks currently receive great attention (Giglio et al., 2021; H. Hong et al., 2020).
- Companies exposed to biodiversity-related risks implement biodiversity policies (Carvalho et al., 2022).

**Our contribution**

- Specific environmental risks should not be limited to climate related risks.
- Our results show the importance of good biodiversity management.

**Practical Implications**

- Impacts and dependencies on (intact) ecosystems are a risk factor to be considered.
- Higher investors awareness increases company incentives to analyze and mitigate their impact.
- To avoid future share price declines, companies may allocate sufficient resources to biodiversity risk management.

Prof. Dr. Alexander Bassen

# Biodiversity Management and Stock Price Crash Risk

Alexander Bassen, Daniel Buchholz, Kerstin Lopatta, Anna R. Rudolf

# The Real Economy & Biodiversity: State of play, good practice and remaining key challenges

## // Introductory Remarks

**Michael Ofosuhene-Wise**
Business For Nature

# The Real Economy & Biodiversity

## // Panel Discussion

**Prof. Dr. Katrin Böhning-Gaese** Senckenberg Gesellschaft für Naturforschung, Rat für nachhaltige Entwicklung

**Prof. Dr. Alexander Bassen** University of Hamburg, WPSF, Permanent Observer to SFB, EFRAG

**Miriam Van Gol** Science Based Targets Network

**Philipp Wagnitz** Lidl Stiftung

**Katarin Wagner** econsense – Forum for Sustainable Development of German Business e.V.

- Moderator -

# // Coffee-Break 15:45 – 16:30

# Financial Institutions & Biodiversity: Challenges & Solutions

## // Introductory Remarks

**Nathalie Borgeaud**
Taskforce on Nature Related Financial Disclosures (TNFD)

**Verena Menne**
Forum Nachhaltige Geldanlagen

# TNFD update

*January 31, 2024*

TNFD – BMUV Berlin conference

Nathalie Borgeaud
TNFD, Lead Financial Markets

Taskforce on Nature-related Financial Disclosures

# The Taskforce on Nature related Financial Disclosures

TNFD in brief

- Market-led initiative
- 40 individual Taskforce members
- Launched June 2021
- Government-funded, incl. Germany, UNDP, UNEPFI
- Endorsed by G7 and G20
- Published Recommendations Sept 2023

# TNFD Early Adopters announced in Davos

Companies have committed they will report for either

FY2023
FY2024
FY2025

**320**

Companies, financial institutions and market service providers signal their intent to start to adopt the TNFD Recommendations

33% **Financial institutions**
56% **Companies**
5.5% **Market service providers**
5.5% **Other**

**25%**

Of the world's **Global Systemically Important Banks** signed up

**31%**

Of all early adopters are **MSCI 1500 companies**

**Emerging economies represented**

**14%**

of all institutions registered

**58 of 77**

**SASB Sectors** (SICS) represented by TNFD Early Adopters

**46**
Countries with TNFD Early Adopters

**5**
Continents covered

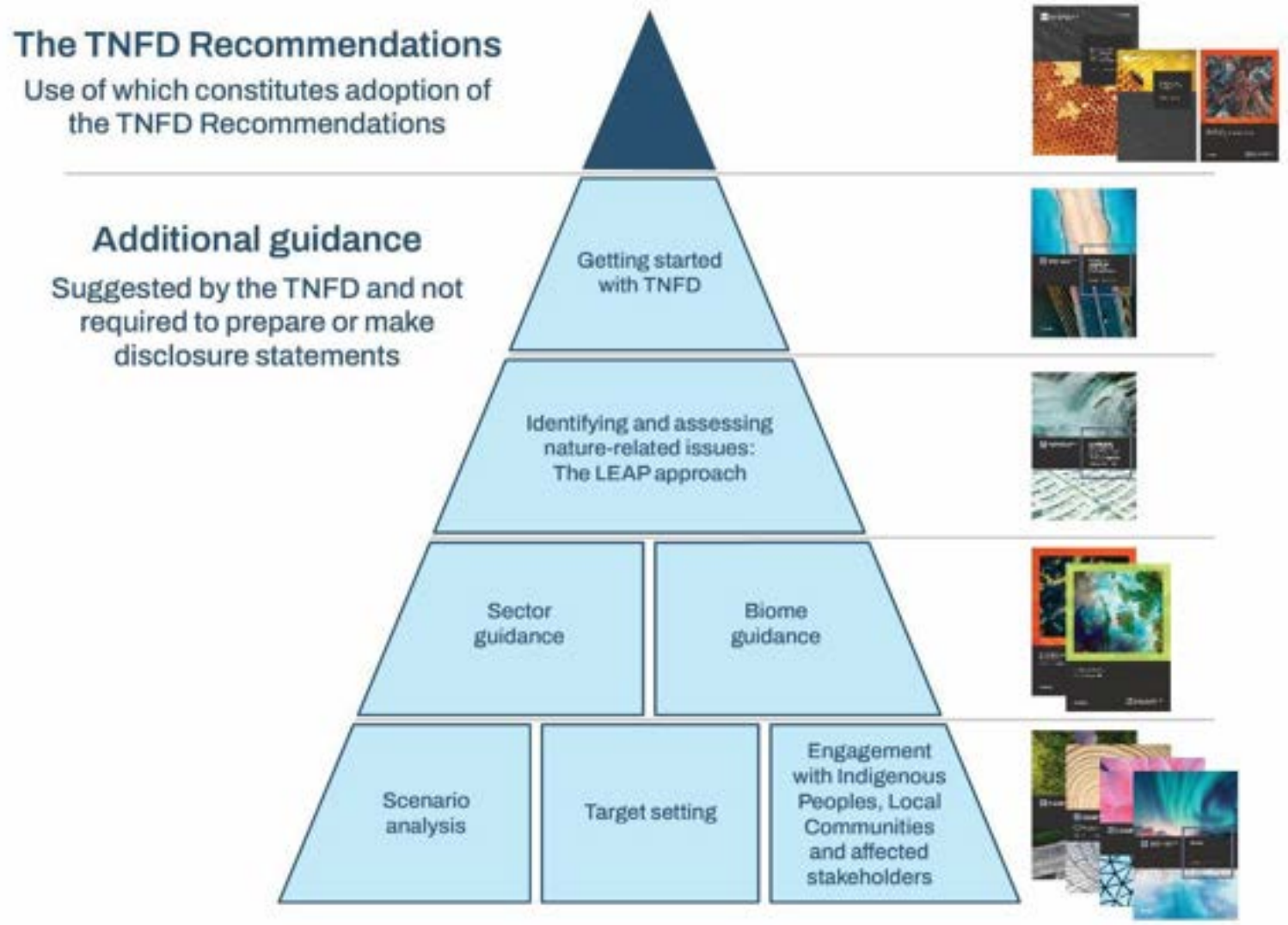
43% - Europe
42% - Asia and the Pacific
6% - Latin America and the Caribbean
6% - North America
3% - Africa and the Middle East

Over
**$4tn**
Estimated **Market Capitalisation** of companies

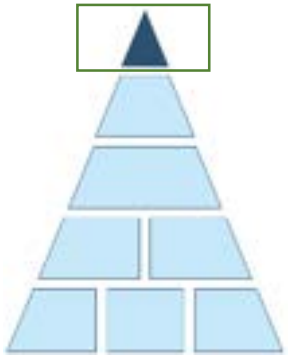
Over
**$14tn**
Estimated **AuM** of financial institutions

# Building on existing frameworks, tools and metrics

# The TNFD Framework and Recommendations



# The 14 recommended disclosures



## TNFD recommended disclosures

### Governance

Disclose the organisation's governance of nature-related dependencies, impacts, risks and opportunities.

**Recommended disclosures**

- **A.** Describe the board's oversight of nature-related dependencies, impacts, risks and opportunities.
- **B.** Describe management's role in assessing and managing nature-related dependencies, impacts, risks and opportunities.
- **C.** Describe the organisation's human rights policies and engagement activities, and oversight by the board and management, with respect to Indigenous Peoples, Local Communities, affected and other stakeholders, in the organisation's assessment of, and response to, nature-related dependencies, impacts, risks and opportunities.

### Strategy

Disclose the effects of nature-related dependencies, impacts, risks and opportunities on the organisation's business model, strategy and financial planning where such information is material.

**Recommended disclosures**

- **A.** Describe the nature-related dependencies, impacts, risks and opportunities the organisation has identified over the short, medium and long term.
- **B.** Describe the effect nature-related dependencies, impacts, risks and opportunities have had on the organisation's business model, value chain, strategy and financial planning, as well as any transition plans or analysis in place.
- **C.** Describe the resilience of the organisation's strategy to nature-related risks and opportunities, taking into consideration different scenarios.
- **D.** Disclose the locations of assets and/or activities in the organisation's direct operations and, where possible, upstream and downstream value chain(s) that meet the criteria for priority locations.

### Risk & impact management

Describe the processes used by the organisation to identify, assess, prioritise and monitor nature-related dependencies, impacts, risks and opportunities.

**Recommended disclosures**

- **A(i)** Describe the organisation's processes for identifying, assessing and prioritising nature-related dependencies, impacts, risks and opportunities in its direct operations.
- **A(ii)** Describe the organisation's processes for identifying, assessing and prioritising nature-related dependencies, impacts, risks and opportunities in its upstream and downstream value chain(s).
- **B.** Describe the organisation's processes for managing nature-related dependencies, impacts, risks and opportunities.
- **C.** Describe how processes for identifying, assessing, prioritising and monitoring nature-related risks are integrated into and inform the organisation's overall risk management processes.

### Metrics & targets

Disclose the metrics and targets used to assess and manage material nature-related dependencies, impacts, risks and opportunities.

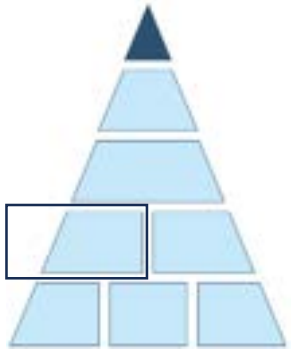
**Recommended disclosures**

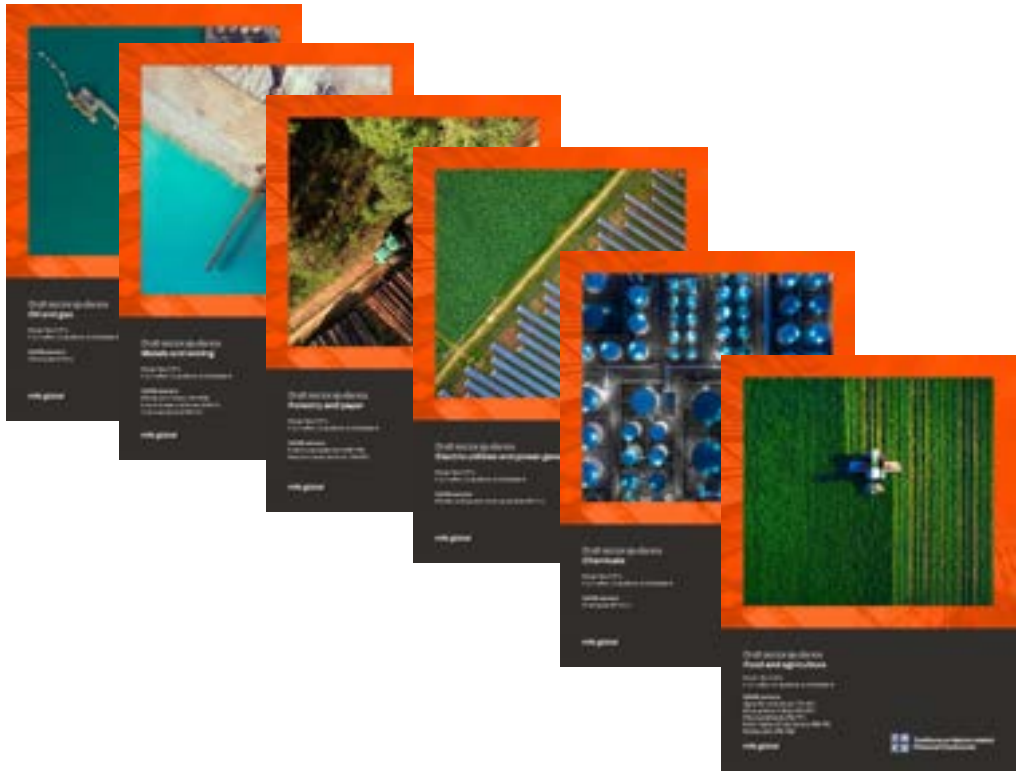
- **A.** Disclose the metrics used by the organisation to assess and manage material nature-related risks and opportunities in line with its strategy and risk management process.
- **B.** Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.
- **C.** Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.

## Highlights

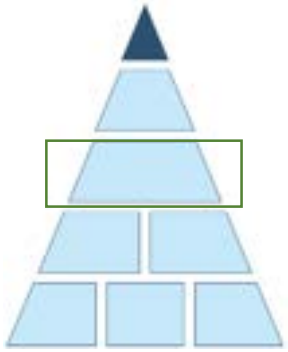
- Same structure, language and approach as TCFD
- All 11 TCFD recommended disclosures carried over
- Three further disclosures added, covering three important areas for nature:
  - Engagement
  - Sensitive locations
  - Value chains

# Guidance for 9 sectors includes Financial Institutions



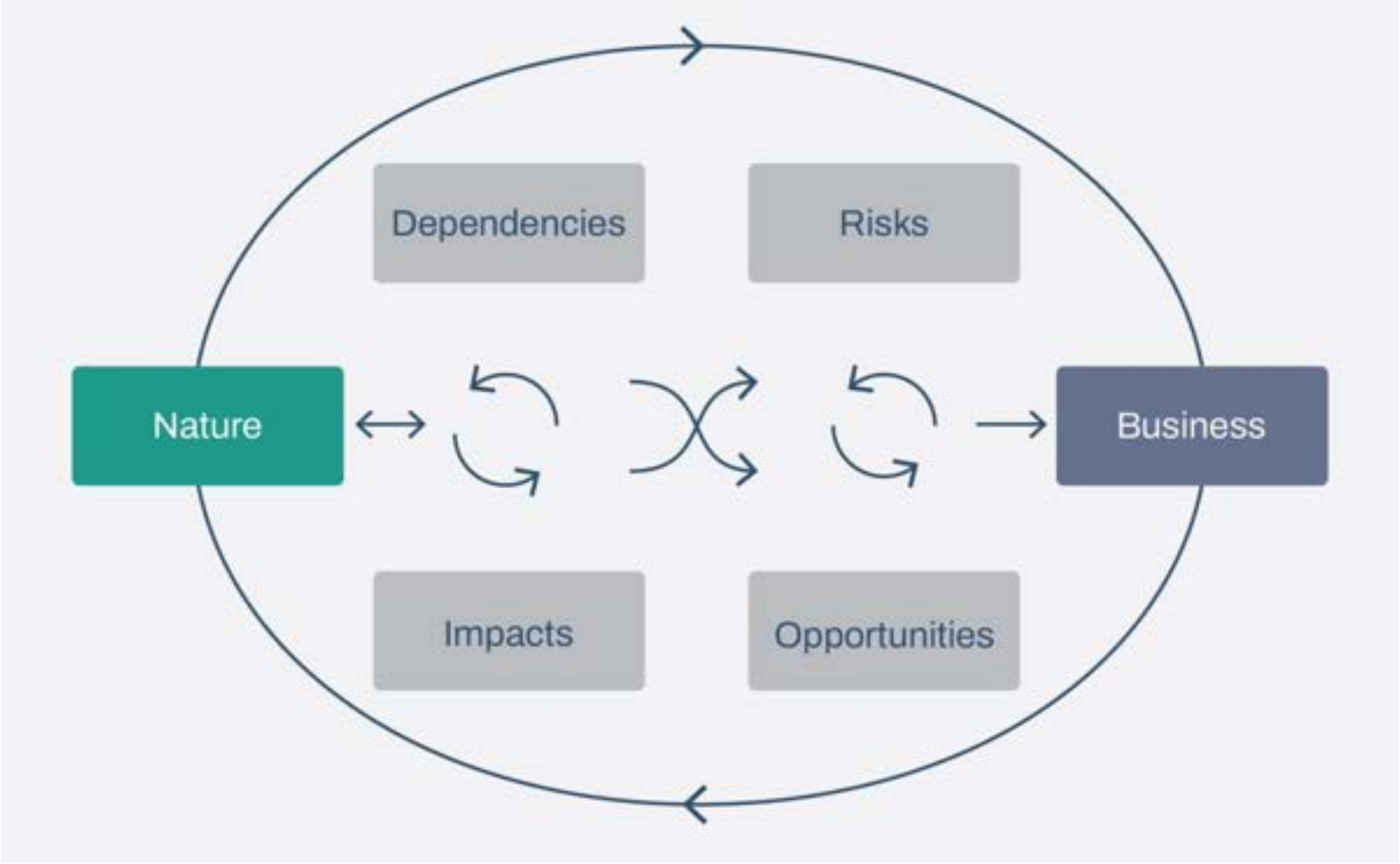
# Additional guidance – the LEAP approach




## Highlights

- Suggested guidance – not required to make TNFD disclosures
- Extensive market feedback and pilot tested by over 240 institutions across sectors, geographies and biomes
- Designed as a reference manual for an internal assessment team
- A flexible approach with components

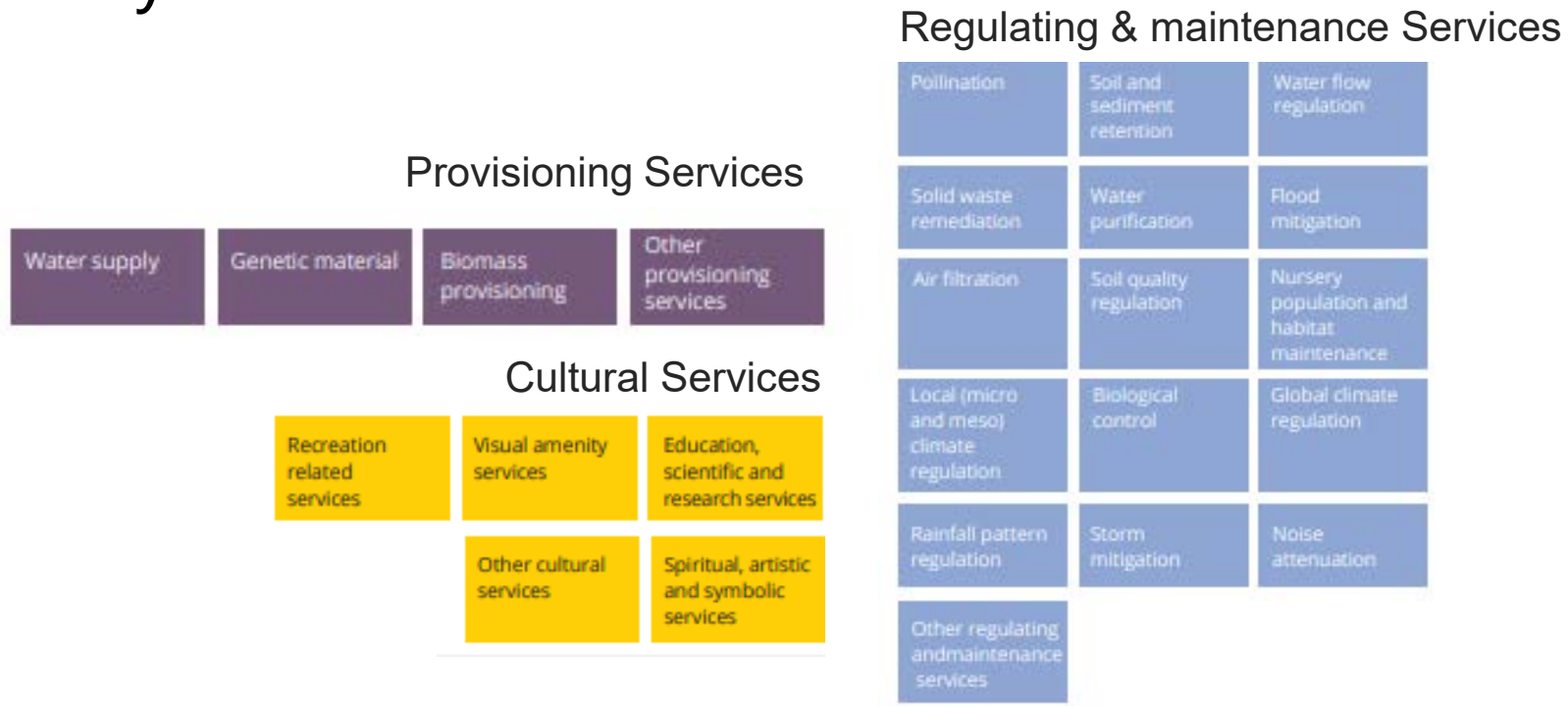
# The challenges of measuring nature-related issues




## Highlights

- Identified over 3,000 nature-related metrics from the standards, developed and collected over many decades
- Relatively few measures of dependency
- No widely accepted measures for nature-related risks and opportunities to an organisation

# Dependencies on Ecosystem Services



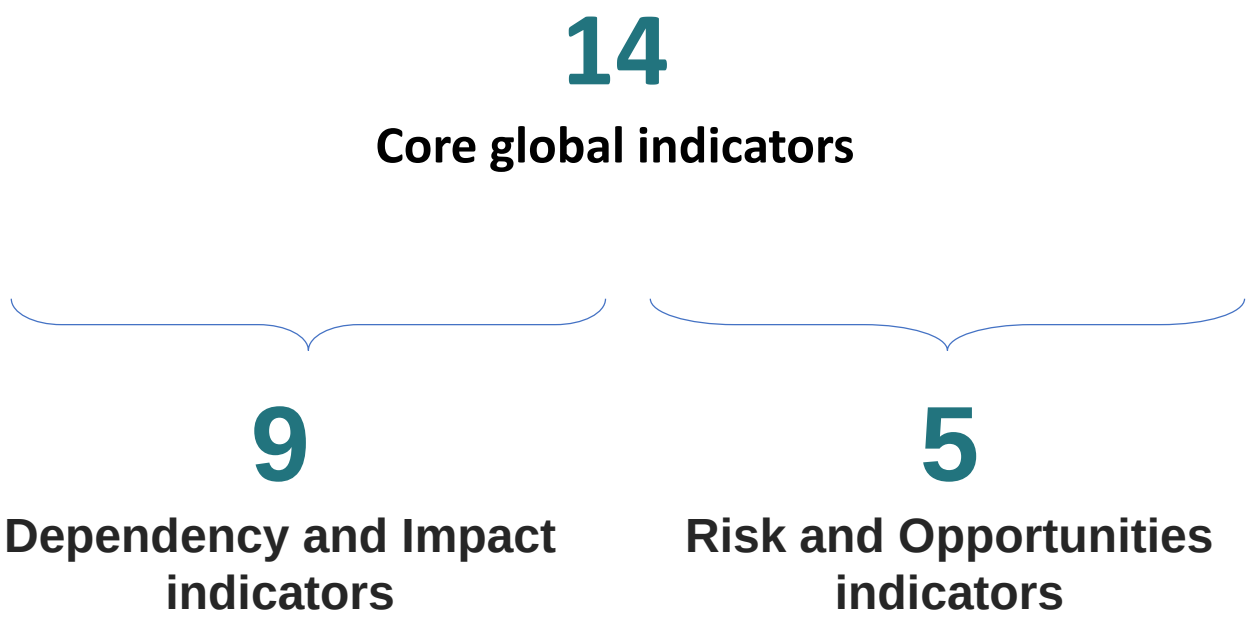

# Impact drivers

| Land use change Water/Ocean | Resource Use | Climate Change | Pollution | Invasive Species |
|---|---|---|---|---|

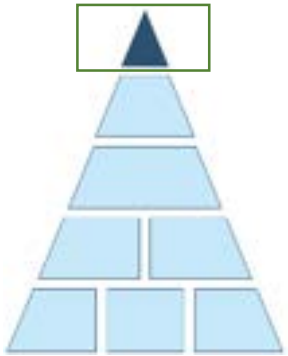
# Recommended disclosures – Core global metrics – for all

**Highlights**

- 14 Core Global Indicators applying to all sectors
- Chosen because they apply to most business models across most sectors (like GHG emissions for climate reporting)
- Reported on a comply or explain basis
- **Included as Annex 1**



# A simplified disclosure expected from FIs at this stage

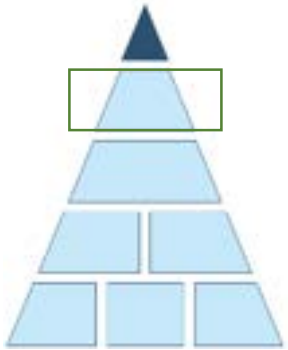


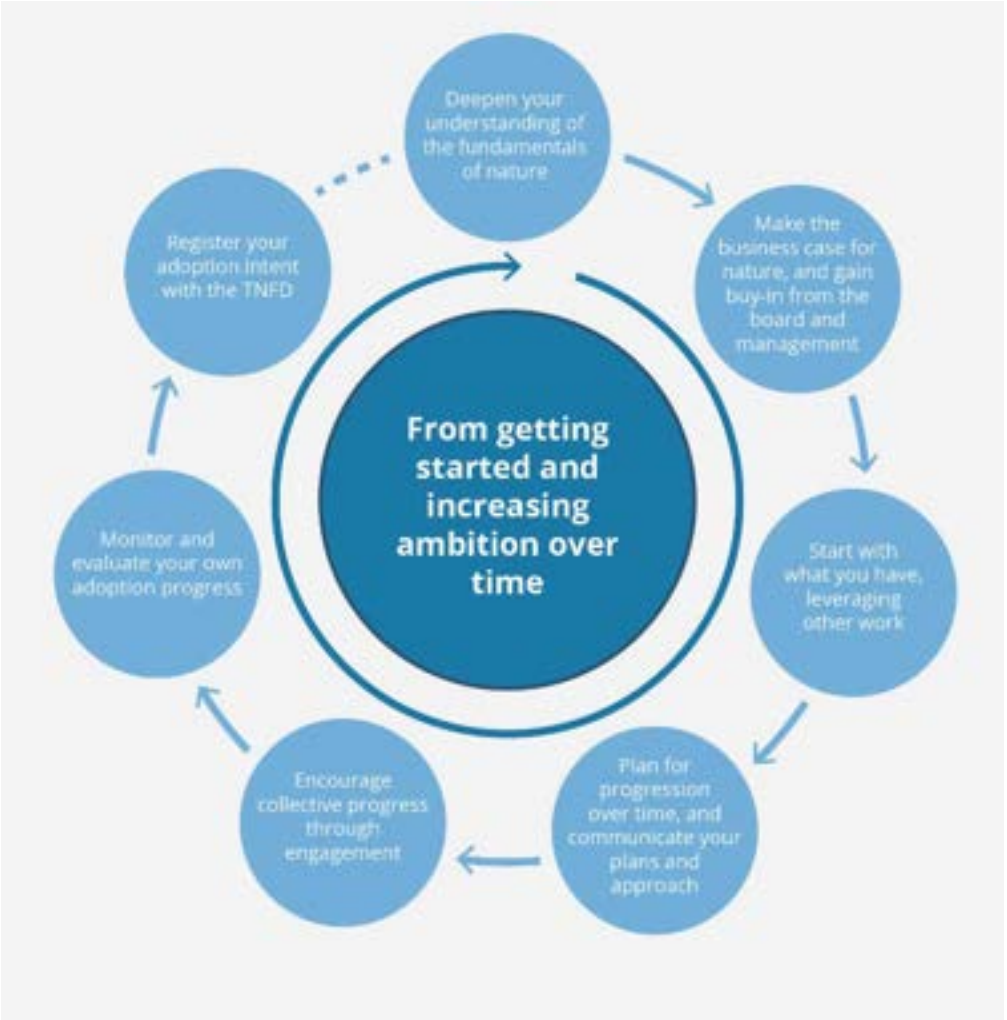
| The two metrics for FIs |
| --- |
| Financial exposure to **a defined set of sectors** considered to have material nature-related dependencies and impacts |
| Financial exposure to companies with **activities in sensitive locations** |

## Highlights

- 2 core global metrics for financial institutions, instead of the 9 D&I indicators
- Expectation FIs will also report on the 5 core global risk and opportunity metrics
- Recognising data dependency issues and to provide a place to start
- Expectation FIs will report on the other D&I metrics over time as data is

# How to get started with TNFD






## Highlights

Developed with input from a range of leading business and finance organisations

- Business for Nature
- Capitals Coalition
- CDP
- Finance for Biodiversity
- PRI
- UNEP-FI
- UN Global Compact
- WBCSD
- World Economic Forum

# Q&A

Taskforce on Nature-related Financial Disclosures

# Financial Institutions & Biodiversity: Challenges & Solutions

## // Panel Discussion

**Nathalie Borgeaud**
Taskforce on Nature related Financial Disclosures (TNFD)

**Mathilde Dufour**
Mirova

**Jürgen Kern**
KFW

**Dr. Paolo Krischak**
Deutsche Bundesbank
NGFS

**Verena Menne**
FNG

- Moderator -

# Cocnlusion Conference Day 1
# **Dr. Julia Haake**

**Member Sustainable Finance**

**Advisory Committee, EthiFinance**

# Sustainable Finance & Biodiversity:
## State of Play, Challenges and Solutions

**31.01.-01.02.2024**

**A Conference hosted by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection**

**Registration:** https://www.bmuv.de/veranstaltung/sustainable-finance-and-biodiversity

**Livestream:** www.bmuv.de/livestream

# Welcome Conference Day 2
# **Silke Stremlau**

**Chair Sustainable Finance Advisory Committee**

# Agenda Conference Day 2- Feb 1st

| Timing | Topic | Speaker |
|---|---|---|
| 08:30-08:40 | **Welcome** | **Silke Stremlau**, Chairwoman SFB |
| 08:40-09:25 | **Fireside Chat** (digital) | **Pavan Sukhdev**, GIST Impact<br>**Christian Heller**, Value Balancing Alliance (VBA), Co-Chair of SFB |
| 09:25-09:40 | **Keynote Speech** | **Steffi Lemke**, German Federal Minster for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection |
| 09:40-10:10 | Biodiversity Data: Use Cases, Challenges & Solutions<br>**// Introduction** | **Susanne Schmitt**, Nature+Futures |
| 10:10-11:10 | Biodiversity Data: Use Cases, Challenges & Solutions<br>**// Panel Discussion** | **Chiara Colesanti Senni**, University of Zurich<br>**Sven Kaumanns**, Federal Statistical Office<br>**Matthieu Maurin**, Iceberg Data Lab<br>**Asa Mossberg**, (Andra AP-fonden (AP2)<br>**Susanne Schmitt**, Nature+Futures<br>Moderator: **Dr. Julia Haake**, EthiFinance & Member of SFB |
| 11:10-11:40 | Break | |
| 11:40-12:00 | Regulation: How can regulators help guide us towards a nature-positive economy?<br>**// Introduction** | **Ingmar Jürgens**, Climate & Company, Permanent Observer to SFB |
| 12:00-13:00 | Regulation: How can regulators help guide us towards a nature-positive economy?<br>**// Panel Discussion** | **Elisa Famery**, DG Trésor, France<br>**Sven Gentner**, DG FISMA, European Commission<br>**Dr. Esther Wandel**, German Ministry of Finance |
| 13:00-13:15 | Conclusion of the Conference & Outlook | **Ingmar Jürgens**, Climate & Company, Permanent Observer to SFB |

# Fireside Chat

## // From the Economics of Environment and Ecosystems to Impact Statement: What's next?

**Pavan Sukhdev**
GIST

**Christian Heller**
Co-Chair Sustainable Finance Advisory Committee
Value Balancing Alliance

Sustainable Finance

# Keynote Speech
# **Steffi Lemke**

## German Federal Minister for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection

# Biodiversity Data: Use Cases, Challenges & Solutions

## // Introduction

**Dr. Julia Haake**
EthiFinance
Member of Sustainable Finance Advisory Committee

# SLIDO – Survey #1772919

« How do you feel when it comes to biodiversity data & metrics? » (multiple answers possible)

- ❑ Confused
- ❑ Overwhelmed
- ❑ Enthusiastic
- ❑ Clear minded
- ❑ Perfectly informed

https://app.sli.do/event/nJfYkSNcaDhGQdzrJhnspN

# Biodiversity Data: Use Cases, Challenges & Solutions

## // Introductory Remarks

**Susanne Schmitt**
Nature+Futures

# Solving the biodiversity data puzzle for Sustainable Finance

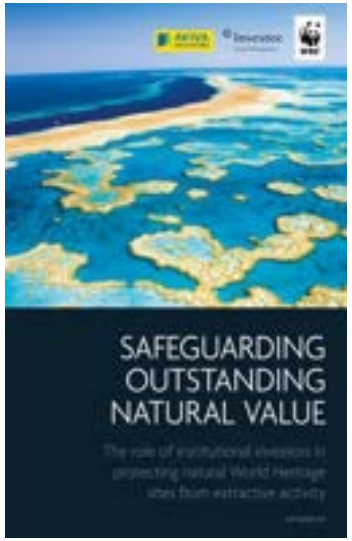
Dr Susanne F. Schmitt

1 February 2024

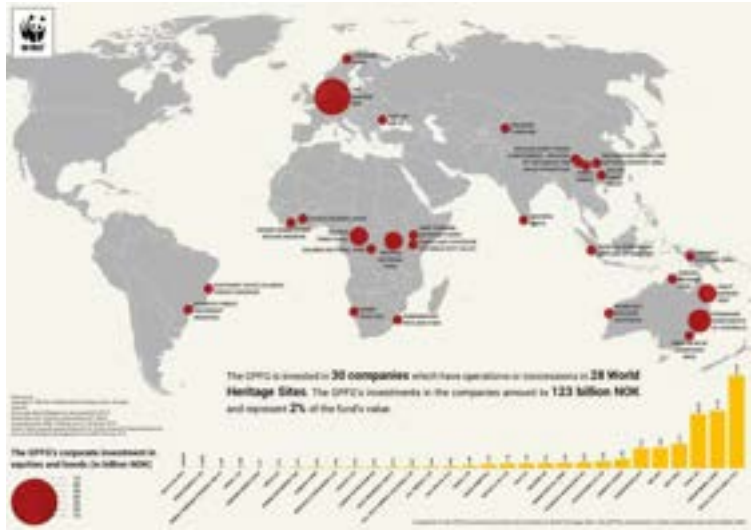
# From conservation intelligence to spatial finance

WWF-SIGHT.ORG

Example: Rio Tinto's assets globally

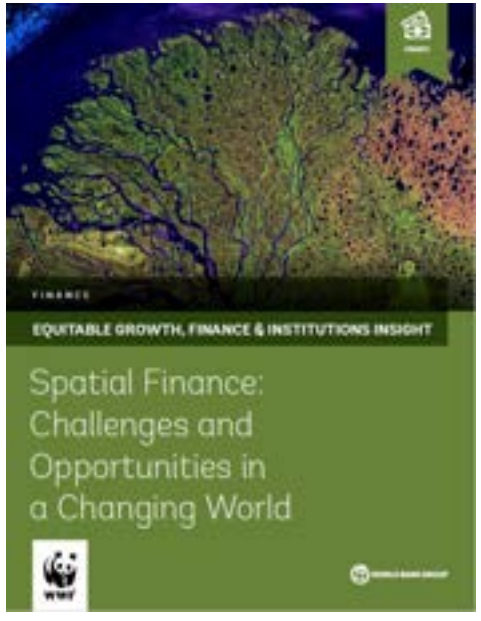


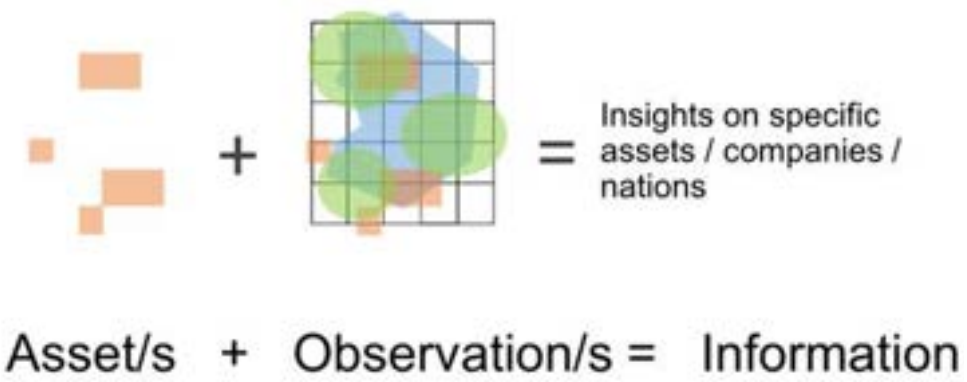

2015 study: 1/3 of all Natural World Heritage site potential threatened by oil, gas and mining.




Portfolio analysis: WH and Norwegian Government Pension Fund

# What is spatial finance, what data is needed and what is the potential for nature-related insights?



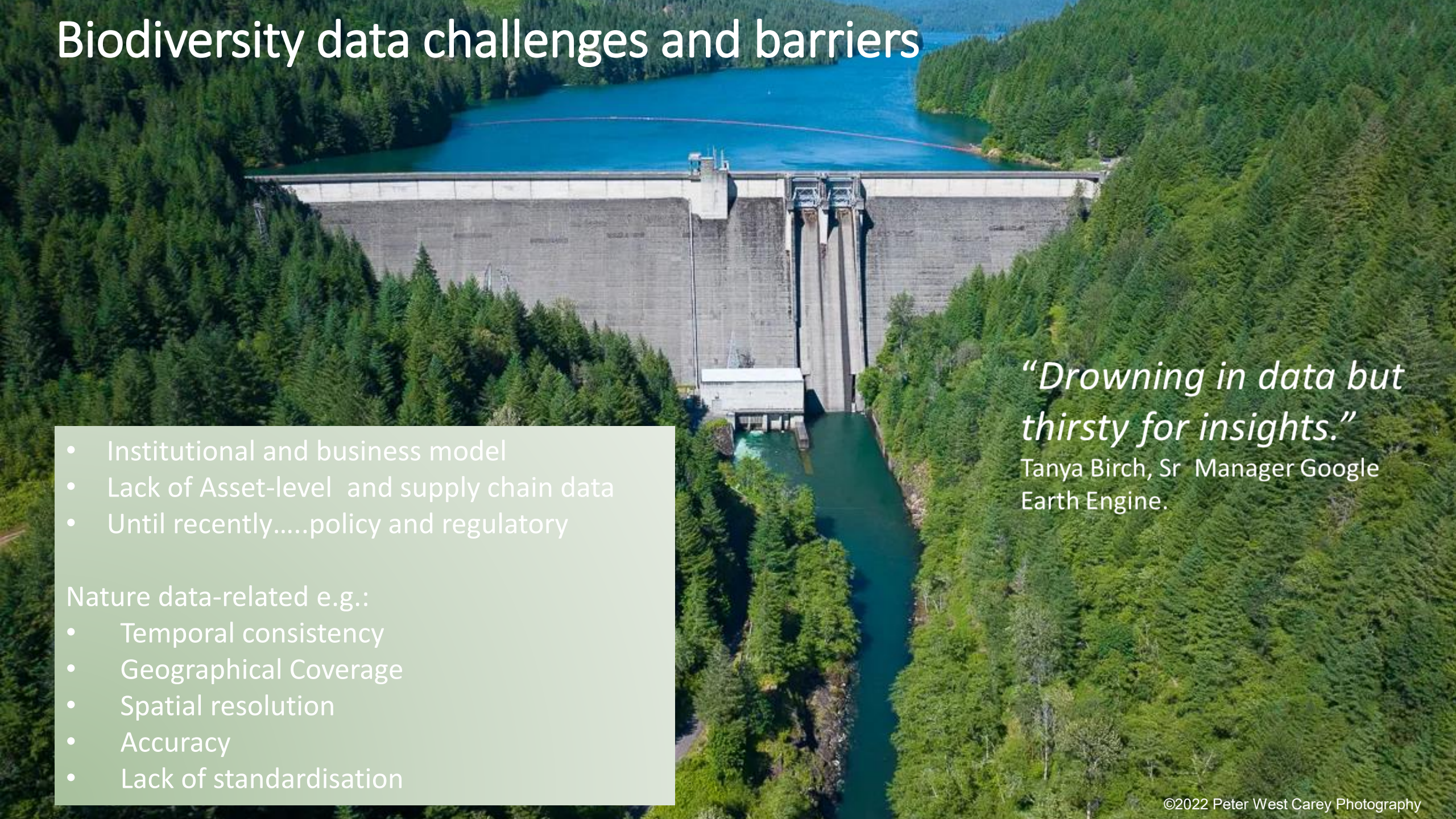





Taxonomy of spatial finance



# Biodiversity data challenges and barriers



- Institutional and business model
- Lack of Asset-level and supply chain data
- Until recently…..policy and regulatory

Nature data-related e.g.:

- Temporal consistency
- Geographical Coverage
- Spatial resolution
- Accuracy
- Lack of standardisation

*"Drowning in data but thirsty for insights."*

Tanya Birch, Sr Manager Google Earth Engine.

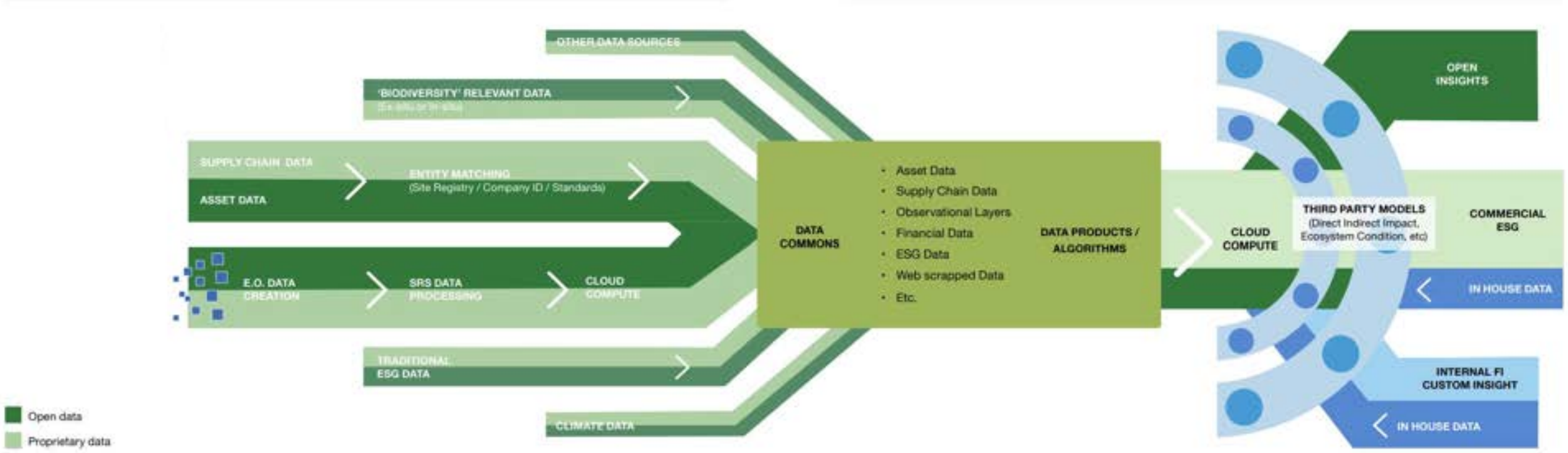
# Emerging solutions…..

…..and what is possible with existing data


COMPLEXITY

| ASSET DATA | OBSERVATION DATA | DATA PROCESSING |
|---|---|---|
| **Asset location** | **Single layer**<br>One vector layer or raster layer included in analysis. | **Direct comparison**<br>Asset overlaid by one or multiple observational data layers. |
| **+ Sector specific attributes**<br>E.G. power plant, real estate, farm - cotton. | **+ Multiple layers**<br>Two or more vector layers or raster layers included in analysis. | **+ Sector and site specific weightings**<br>Impact adjusted to sector and site variables |
| **+ Site specific attributes**<br>E.G. hydro power plant reservoir size, power production Mw. | **+ Dynamic data**<br>Near real-time feed of data, weather data. | **+ Observational inferences**<br>Refining, backfilling observational data from other variables. |
| **+ Additional external data**<br>E.G. web scraped data. | **+ Sector specific monitoring data**<br>i.e. methane detection, marine oil spill detection, night time flaring, for oil and gas assets. | **+ Interdependence**<br>The site specific impacts considering the interdependencies of natural assets, e.g. forest loss impacts on wider local water security. |
| **+ Supply chain asset data**<br>The asset data of all major or significant suppliers and their suppliers. | **+ Historic and future data**<br>E.G. past temperature averages, extreme weather events. | **+ Near real time adjustment**<br>Results updated frequently and capable of adjusting to near real time data feeds, e.g. oil spill. |
| **+ Other data**<br>Traditional ESG data points, economic, social data points, ground data etc. | **+ Other data**<br>E.G. social, economic, governance data points, ground data, etc. | **AI**<br>**+ Machine rationalization**<br>Analysis is adjusted to the best regional data and regional models based on dynamic machine rationalisation of the options present.<br>**+ Machine learning**<br>Throughout any of the various data sourcing, data processing or results, machine learning is applied to iteratively improve outputs. |

# CONCLUSION




SOURCE: WWF/Maxar 2023

**But key to solving the biodiversity data puzzle:**

1. Access to Asset-level data via open asset register
2. Supply chain data sharing standards
3. Create a data commons and a public good data infrastructure (OS-Climate as model)
4. Housed in international research centre (e.g., akin to UK Met Office Hadley centre)

# SLIDO – Survey #1772919

« What kind of biodiversity data is most important for sustainable finance decision making? » (multipl. possible)

- ❑ Real-life state of ecosystems / species data
- ❑ Exact company locations data
- ❑ Reported impact data from companies
- ❑ Estimated impact data for companies and supply chain
- ❑ All of the above

https://app.sli.do/event/nJfYkSNcaDhGQdzrJhnspN

# Biodiversity Data: Use Cases, Challenges & Solutions

## // Panel Discussion

**Chiara Colesanti Senni**
University of Zurich

**Sven Kaumanns**
Federal Statistical Office

**Asa Mossberg**
Andra AP-fonden (AP2)

**Susanne Schmitt**
Nature+Futures

**Matthieu Maurin**
Iceberg Data Lab

**Dr. Julia Haake**
EthiFinance, SFB

- Moderator -

# SLIDO – Survey #1772919

« How do you feel NOW about biodiversity data & metrics? » (multiple answers possible)

- ❑ Confused
- ❑ Overwhelmed
- ❑ Enthusiastic
- ❑ Clear minded
- ❑ Perfectly informed

https://app.sli.do/event/nJfYkSNcaDhGQdzrJhnspN

# // Coffee-Break 11:10 – 11:40

# Regulation: How can regulators help guide us towards a nature-positive economy?

## // Introductory Remarks

**Ingmar Jürgens**
Climate&Company, Science Plattform Sustainable Finance

# Regulation: How can regulators help guide us towards a nature-positive economy?

## // Panel Discussion

**Elisa Famery**
DG Trésor France



**Sven Gentner**
DG FISMA, European Commission

**Dr. Esther Wandel**
German Federal Ministry of Finance

**Ingmar Jürgens**
Climate&Company

- Moderator -

MINISTÈRE
DE L'ÉCONOMIE
DES FINANCES
ET DE LA RELANCE

*Liberté*
*Égalité*
*Fraternité*

# IMPLEMENTING DECREE OF ARTICLE 29 OF THE ENERGY-CLIMATE LAW : FOCUS ON BIODIVERSITY

THURSDAY 1ST FEBRUARY

ELISA FAMERY, DEPUTY HEAD OF OFFICE – SUSTAINABLE FINANCE, FRENCH TREASURY

MINISTÈRE
DE L'ÉCONOMIE
DES FINANCES
ET DE LA RELANCE

# Decree 29 LEC is a true pioneer on biodiversity

Objectives of the decree implementing Article 29 of the Energy-Climate Law

| Taking into account the history of the French mechanism | Going beyond the European framework under Art. 29 LEC | Learning from five years of French experience |
|---|---|---|
| **Take over** and **clarify** the provisions of the French system under Article 173-VI:<br><br>**Policy** and **resources** devoted to contributing to the ecological and energy transition: internal resources, Paris Agreement alignment, **biodiversity alignment**, etc.<br><br>Publication of **indicative pre-defined targets** on alignment with the Paris Agreement's T° objectives | **Strengthen the French system** to meet the requirements of the energy-climate law:<br><br>Additional explicit **focus on climate change and biodiversity risks**<br><br>Clarification on the integration of ESG factors in risk management systems (to compensate for the lack of a RTS mandate under Article 3 of SFDR) | **Integrate the dual materiality logic from the SFDR** (PAI/sustainability risks) and the **lessons from the 2019 review**<br><br>Articulate the system around a clear distinction of information, for each type of policy, relating to governance, strategy, risk management and metrics/targets adopted (**TCFD recommendations**) |

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# The detailed content of the information on Biodiversity to be published is specified in Section III of Article 1 of the Decree

| Article 1, paragraph III | Content of the section | Details | Scope |
|---|---|---|---|
| 7° | Biodiversity alignment | **Publication of the strategy for alignment** with international biodiversity conservation targets, with quantified targets, and associated methodological details | Application of €500m threshold (and where applicable, €500m fund) |
| 8° | Risk management and specificities of climate risks and biodiversity | **General process of identification, assessment, prioritization and management and associated methodological details**, with a focus on physical and transition (climate) risks and risks related to biodiversity loss | Application of €500m threshold (and where applicable, €500m fund) |

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# Focus on biodiversity publication requirements

## 1- Publication of the strategy for alignment with international long-term biodiversity targets

Details on the **scope of the value chain used** (targets set for 2030 and then every five years)

**Measure of alignment** with the objectives of the existing international treaty of the Convention on Biological Diversity

Analysis of the contribution to the reduction of the main **pressures and impacts on biodiversity**

Reference to the use of a **biodiversity footprint indicator** and, where relevant, how this indicator measures alignment with international biodiversity targets

## 2- Specific publication on risks management

Disclosure of information on the **integration of environmental, social and governance criteria into risk management**, including physical, transition and liability risks related to biodiversity

In particular, **identifying, assessing, prioritising and managing risks** related to the consideration of environmental, social and governance criteria, and how the risks are integrated into the entity's conventional risk management framework

**Double materiality**

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# 1- Information on the strategy for alignment with long-term biodiversity objectives

The IPBES identified the five direct drivers of biodiversity loss as **changing use of sea and land, direct exploitation of organisms, climate change, pollution and invasive non-native species**

On each of the sources of pressure, the impact of the financial institution's investment policy **will be measured quantitatively**

The alignment with international targets **should be based on the global biodiversity framework (GBF)**

Importance of **accuracy on the scope of the value chain**

Over the long run, financial institution will have **to publish an alignment score**

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# 2- Biodiversity risk management

Risk typology

A segmentation risks identical to climate according to the following typology:
- **physical risks**
- **transitional risks**

Specific publication on biodiversity risks

Clear distinction between the risks arising from the **impacts** caused by the investment strategy and the main risks arising from the biodiversity **dependencies** of the assets and activities in which the entity has invested



Specific publication on biodiversity risks

For each risk identified, **indication of the value chain perimeter used**

Indication of whether the risk is **specific to the industry or geographic area** of the underlying asset

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# The 2023 reporting exercice

**Reports published by more than 700 financial actors (banks, insurers, asset managers)**

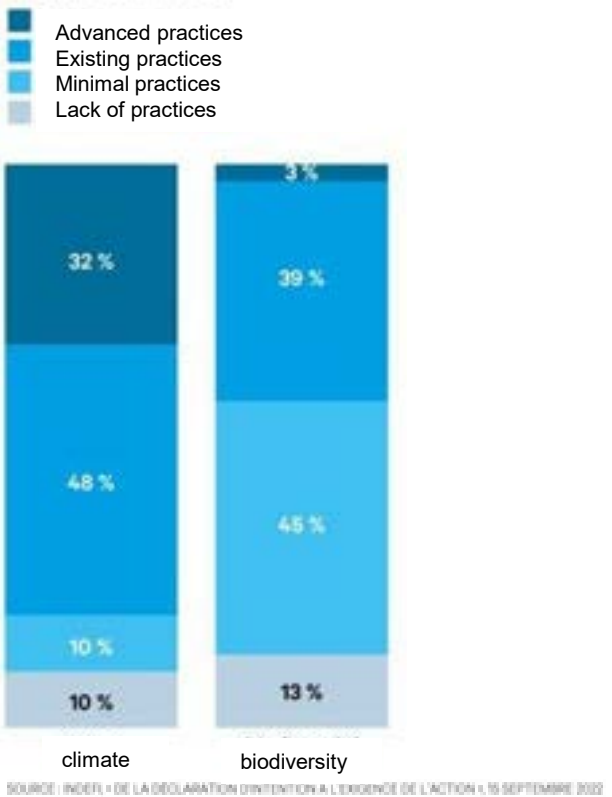
**Annual evaluation of reportings** by supervisors and environnemental agency (ADEME)
A **guide on biodiversity reporting** is planned for february

**Heterogeneous results which make comparisons difficult**

Fragmented results **not comparable yet**

Difficulties on **biodiversity**

Progress made on **climate alignement targets**, but a lack of declination of the alignement plan



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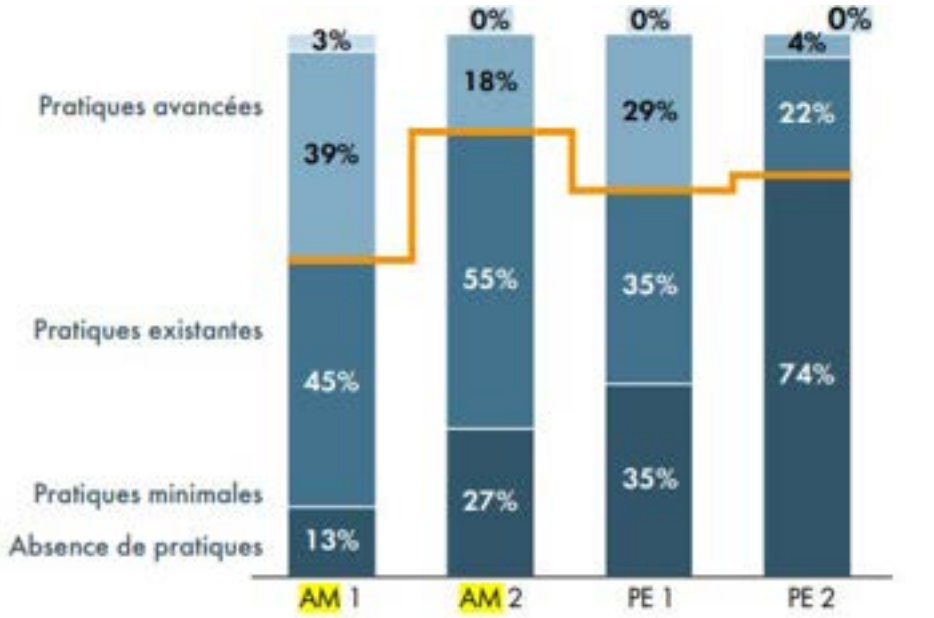
# Overview of practices (1/3)



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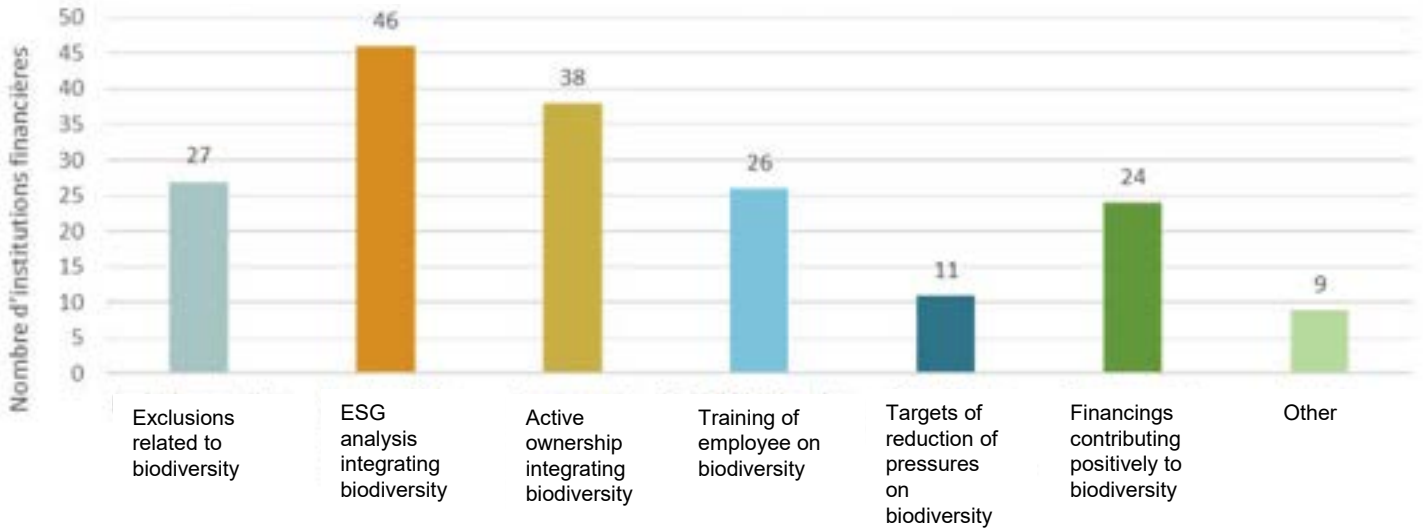
# Overview of practices (2/3)

Area of action mentioned in biodiversity reporting of financial actors



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# Overview of practices (2/3)

Global maturity assessment in 2022


Global maturity assessment in 2023

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# Thank you for your attention

Q&A

# Conclusion Conference Day 2
# **Ingmar Jürgens**

**Climate&Company,
Wissenschatsplattform Sustainable
Finance, Permanent Observer to SFB**