Taskforce on Nature-related
Financial Disclosures

Landscape Assessment of Nature-related Data

6 March 2023

Input for the G20 Sustainable Finance Working Group

Priority 2: Enabling Finance for the SDGs

Context

A key part of the work of the Taskforce on Nature-related Financial Disclosures (TNFD) has been identifying the challenges in the nature-related data landscape and opportunities to 'close the gaps' to accelerate better risk management and disclosure by market participants

Gap Analysis Report
Published March 2022
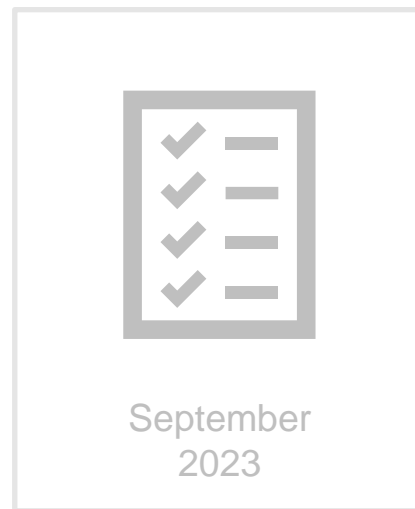
Nature Data Catalyst
Launched June 2022

Nature Public Utility Scoping Study

TNFD Market Enabling Recommendations

134 Participating Data Providers

Commencing in March 2023

September 2023

Scope of Landscape Assessment

This update to the G20 SFWG is a synthesis of the TNFD's March 2022 Discussion Paper on the Landscape for Nature-related Data and Analytics and subsequent surveys and workshops with 130+ expert data organizations.

Dimensions considered
- Types of nature-related risk and opportunity data available and needed in the future
- The interconnection and interdependence of various data tools, platforms and methodologies
- Data covered in these data tools and platforms, and its relevance, accuracy and temporal consistency
- Key gaps in the nature-related data landscape today
- Guidance and recommendations on how end-users can interact with and use data and analytics tools in order to get started.

Source: https://framework.tnfd.global/wp-content/uploads/2022/08/TNFD-Data-Discussion-Mar22-Up-June22-V2.pdf

Scope of Landscape Assessment

The insights generated by the TNFD to date have been the result of several work streams

Review of previous landscape reviews

- Drawing on the work of previous nature-related data landscape studies by organisations including UNEP World Conservation Monitoring Centre (UNEP WCMC), World Wildlife Fund (WWF), the World Bank and Global Canopy

Taskforce discussions & industry consultations

- Since the Taskforce began its work in October 2021, it has had a Working Group on data issues and conducted extensive consultations with market participants and created a TNFD Nature-related Data Catalyst now involving over 130 market data providers and other interested organisations.

A survey of the TNFD Data Catalyst Community

- In September 2022 the TNFD conducted a survey of Data Catalyst companies to further test and refine the findings of its Discussion Paper published in March 2022.

Key Findings

The TNFD Data discussion paper identified a number of data-related challenges which were subsequently confirmed by the survey of TNFD Data Catalyst participants

1

Data coverage differs across nature categories

2

Variance in measurement approach

3

Spatial and/or temporal biases in data

4

Access and relevance are limited

A Summary of Market Data Requirements

Market participants need a range of input and output data to inform effective decision making, with a premium placed on consistent, comparable data capable of third party verification and assurance

Types of Data	Criteria for Selection of Data Platforms & Tools

Asset location data
- Site specific, including physical and natural assets – by biome or ecosystem, supply chain,
- Sector specific

Observational
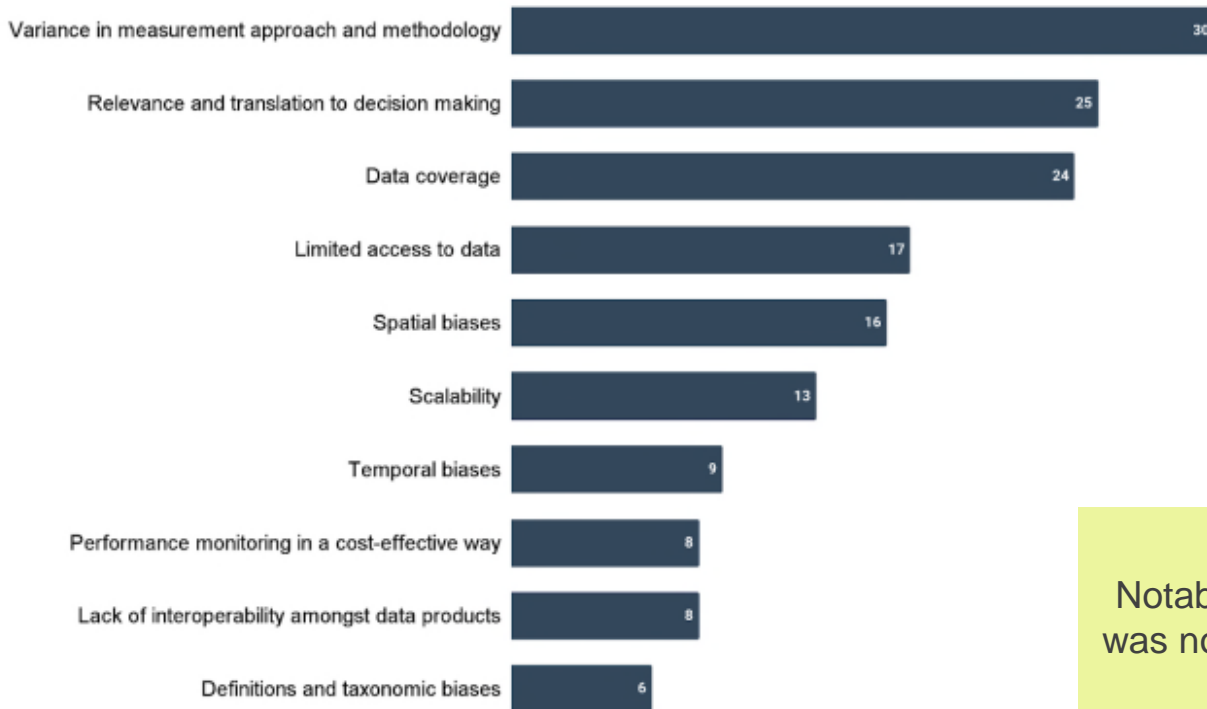- Spatial, dynamic/real time, aspatial

Modelled
- Analytics, simulation, forecasting

- Relevance
- Resolution and scalability
- Temporality
- Frequency of update
- Geographic coverage
- Accessibility
- Comparability
- Thematic coverage
- Authoritativeness
- including traceability

Key Nature-related Data Landscape Challenges

Variance in measurement approaches and relevance to market decision making were the two most significant challenges observed, followed by the comprehensiveness of data coverage

Challenge	Value
Variance in measurement approach and methodology	30
Relevance and translation to decision making	25
Data coverage	24
Limited access to data	17
Spatial biases	16
Scalability	13
Temporal biases	9
Performance monitoring in a cost-effective way	8
Lack of interoperability amongst data products	8
Definitions and taxonomic biases	6

Notably, a lack of data was not the top concern

Key Market Priorities

1. Data and analytics coverage differs across nature realms, biomes and ecosystem types – complicated by the lack of a global standard methodology for assessing the state of nature

2. Variances in measurement approaches underscore the need for standardization

3. Differing perspectives and priorities conflate different metrics, and there is not a clear distinction among many market participants between 'data', 'metrics' and 'indicators'

4. The lack of understanding of how the information derived from data can be used by decision-makers is more of a challenge than shortage of data

5. Spatial and/or temporal biases in data pose a range of challenges – but the technology is evolving quickly

6. The accessibility and relevance of data remains limited

These culminate in report preparers facing challenges in collecting high-quality, comparable data across the spectrum on nature-related issues of relevance to them; and then disclosing information in a consistent format that can be used effectively by report users

How Data Providers Are Responding to the Challenges

81% of DC participants are using specialized technologies

77% of DC participants indicated their data tool can assist entities in translating impact and dependency data into quantitative or qualitative risk and opportunity data

76% of DC participants indicated their data services can assist entities in choosing and measuring the performance of their responses to risks and opportunities identified, including actions taken to transition towards being nature-positive

38% of DC participants indicated that user restrictions are associated with their tools, including commercial use restrictions, re-distribution restrictions, subscriptions and licenses

82% of DC participants indicated that they engage in nature-related partnerships or collaborations, including commercial, non-commercial, academic, governmental and funding partnerships

Note: DC participant refers to members of the TNFD Data Catalyst

Priorities Identified by the TNFD Data Catalyst

Key Issues	Priorities
1 Data coverage Advancing comprehensive nature-data solutions is in some ways limited by the availability of data for: • particular realms (eg: oceans) • remote locations (e.g. locations away from where organizations have their operations) • data across temporal scales	**Development of data validation tools** Further collaboration and investment to ensure data are capable of meaningfully capturing the relevant variable/s, both static and dynamic. Standards will therefore need to be clearly defined to enable the collection of data that are relevant and useful, and at required frequencies for businesses and financial institutions.
2 Data standardization Data are often not attributed, collated or presented in a standardized way which makes it challenging to ensure consistency in measurement between spatial locations or across a time series. Often, data are collected for very specific research questions that are not always relevant for the purposes it is being used for.	**Development of a data standard** will increase trust in datasets being collected, collated and compared. A standardized set of principles may also channel additional funding into the collection of additional data where gaps are identified. It would also improve the auditability of data.
3 Moving beyond ESG data Today's mainstream ESG data practices are in the main defined by company questionnaires and web-scraping of large amounts of unstructured and self-disclosed data. Understanding nature-related risks and opportunities will require inclusion of data harvested from the real economy via observations of company behaviours and/or self-reported data at the asset level.	**Development of improved analytical models** The data foundation needs to be available for adoption of such multi-data layer approaches by financial institutions. There will also need to be greater integration of historic data and forward-looking modelled data.

Priorities Identified by the TNFD Data Catalyst

Key Issues	Priorities
4 Transparency In order for data or models to be used by TNFD users or other data providers, the underlying data must be trusted, and its limitations understood. There is a need for more transparency on models used and limitations of assessment and data.	**Increase transparency over what is in the datasets and its limitations**, eg. self-assessing datasets and highlighting where there is spatial/temporal uncertainty. Encourage data providers to explain their output and use cases. Assessment of data quality either by the owners or a third-party to give the end-users confidence. To do so, a platform and creating criteria to assess the data would be useful.
5 Data accessibility Data accessibility is a major limiting factor for the advancement of nature-related data, as there are often strict licensing restrictions in place, particularly for commercial use. For example, some emerging tools are not readily available to non-technical users, thereby limiting access, like the mean species abundance (MSA) indicator. There is also an added complication for non-technical users trying to combine data in derivative products for measuring and reporting.	**Increase collaboration** between private companies, governments and NGOs to make data publicly available. Standardised format of storage & curation of similar type data. Other success factors include: Educating and upskilling end-users; dashboard of various metrics; indigenous and community involvement.

Priorities Identified by the TNFD Data Catalyst

Key Issues	Priorities
6 Relevance to decision making It is important for the data providers and users to understand definitions of nature-related impact, dependency, risk and opportunity to be able to assess what is required and relevant, and to be able to do analyse and make decisions. There is also a need for more context, understanding and definition of what is nature positive, like for Net Zero. This enables corporations and financial institutions to make a commitment, establish a benchmark, baseline and measure progress.	**Clarify what types of data are relevant.** Distinguish between data required for different risks and opportunities. Guidance on how to conduct nature-related risk and opportunity assessment. Some pre-prioritization and guidance developed by Scientifics and technical experts by sector, country, region, ecosystem, etc. of top impacts for example would be helpful to do the analysis. Transparency around how metrics and risks/opportunities were developed and identified will facilitate decision making.
7 Technical expertise, resource and capacity on nature-related data The pattern of ESG engagement in general has seen a mismatch between demand to engage with the number of professionals with appropriate experience capable of engaging effectively. An HSBC survey in 2021 found that 37% of investors cite a shortage of expertise or qualified staff as the principal obstacle when it comes to pursuing ESG engagement – up 30% from last year.	Greater technical expertise, resource and capacity is needed in companies and financial institutions to enable effective engagement with nature-related data. Refer to the TNFD input on nature-related skills gap.

Priorities Identified by the TNFD Data Catalyst

Key Issues	Priorities
8 Primary data collection and analysis Systems for third-party biodiversity footprinting based on public data about companies are still basic and hard to interpret correctly. This is mainly because they largely do not take account for the place-specificity of biodiversity which may well be misleading if not carefully interpreted. The diffusion of microplastics, pesticides and fertilizers are cases in point.	**Develop data collection protocols to promote consistency and improve accuracy** Stakeholders should be collecting primary data to monitor dependencies and impacts. Ideally this data could then feed (in an anonymised format) into a standardised aggregated data set. At this stage, reporting on impact drivers or pressures (e.g. land use, water use etc) and responses (e.g. SMART targets, mainstreamed governance) is likely to be more reliable.
9 Integration across data platforms and tools Many of the platforms or tools currently available have a particular specificity and lack the flexibility to be integrated into other solutions. Variances in temporal consistency across data also hinders integration and the ability to cross-reference effectively. Also, data requirements will differ depending on the entry points of engagement.	**Incentivise data owners to share and collaborate** Greater understanding and onward discussion on data interaction. Important to understand the capabilities and limitations of currently available data and being explicit about the use of proxies.

Next Steps – TNFD Activities

1 Nature-related Tools & Analytics Catalogue

- In response the market demand through the pilot testing of the TNFD 'beta' framework by over 150 organisations, the TNFD has already developed and provided a catalogue of available tools and analytics platforms to support market participants.* This catalogue will continue to be updated.

2 Scoping Study for a Nature-related Public Data Utility

- Inspired by the recently announced Net Zero Public Data Utility (NZDPU) for climate data, and together with the Capitals Coalition, GRI, MRV Collective, SBTN and others, the TNFD is undertaking a scoping study on the merits of a global public data utility for nature-related data. This scoping study will be completed by June 2023 to share those findings with the G20 SFWG.

3 Market Enabling Recommendations for the G20

- As part of its final recommendations, the TNFD will include a set of recommendations on the nature-related data landscape for the attention of G20 policy makers.

* Nature-related Data Tools and Analytics Catalogue: https://framework.tnfd.global/the-leap-nature-risk-assessment-process/tools-catalogue/

Annex: TNFD Nature Data Catalyst Participants

The Nature-related Data Catalyst (DC) brings together representatives from 134 organisations working in the field of nature-related data, including commercial data providers, data aggregators, companies advancing new technology and analytical approaches, governmental entities, NGOs, Academia and Scientific Initiatives.

- 2050TErra
- Accounting for Nature Ltd
- ADM Capital Foundation
- Aon
- Applied Genomics Ltd
- Aquascope Solutions Ltd
- Article 13
- Auquan
- Axa Climate
- Ball Corporation & Ball Aerospace
- Beeodiversity
- Biome inc.
- Bloomberg LP
- Brightest
- Carbon4 Finance
- Carbonbit
- CDC Biodiversité

- Center for Large Landscape Conservation
- Cervest
- CGG S.A.
- Chloris Geospatial
- Citi (Global Data Insights)
- Clarity AI
- Cobalt Beach Ltd
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Conservation Measures Partnership
- Corteva Agriscience
- Crowther Lab, ETH Zurich
- Dendra Systems Ltd
- Department for Environment, Food and Rural Affairs

- Department of Geography
- Downforce technologies
- Earth Analytics Group
- Earth Economics
- Earth Genome
- Earth Knowledge, Inc.
- Eccometrica
- Ecocene
- Environmental Policy Innovation Center
- Eratos
- Etcho
- EY
- FairSupply
- FigBytes
- Foundation for Sustainable Development
- Frontierra

- GIST
- Global Biodiversity Information Facility
- Global Canopy
- Global Garden Ltd
- Google
- Gro Intelligence
- Hashstacs Pte Ltd
- HUB Ocean
- Humboldt Environmental Systems
- IBM
- ICEBERG DATA LAB
- IDEEA Group
- Impact Institute
- Impak Finance
- Integrated Biodiversity Assessment Tool

- James Cook University
- Kairos Nature
- Kent Wildlife Trust & Wilder Carbon
- Lobelia Earth
- London Stock Exchange Group (LSEG)
- MARVIN
- Monarch
- Moody's
- Morningstar-Sustainalytic
- MRV Studio
- MSCI
- Natcap Research
- National Biodiversity Network Trust
- National Institute for Environmental Studies

See a full list of organizations of the TNFD Data Catalyst here: https://tnfd.global/consultation-and-engagement/data-catalyst/data-catalyst-members/

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- Natural Capital Project
- Natural England
- NatureAlpha
- NatureBound
- NatureMetrics
- Nature Positive
- NEC Corporation
- NEC Initiative
- Net Purpose
- Neural Alpha
- Norwegian Institute for Nature Research (NICA)
- Ordnance Survey
- PBAF
- Pelt8
- Pivotal
- Planet Labs PBC
- Planetive

- Point advisory
- Principles for Responsible Investment (PRI)
- Quantifying Nature
- Remote Sensing Metrics, LLC (RS Metrics)
- Research Institute of Smart Integrated Logistics
- ResponsibleRisk Ltd
- Risilience
- S&P Global
- Scientific Technologies Ltd.
- Sfeeri
- Shan Shui Conservation Center
- SimplexDNA
- Space Intelligence Ltd
- Stanford University
- Stockholm Environment Institute

- Stockholm Environment Institute
- Sugi
- Sustainacraft, Inc.
- Sustenance Asia
- Svarmi
- Systemiq
- Textile Exchange
- The Biodiversity Consultancy Ltd
- The Future of Sustainable Data Alliance
- The Land App
- The Natural History Museum
- The Nature Impact
- Think Nature Inc.
- Thinking Machines Data Science, Inc.

- Tohoku University
- UK Centre for Ecology & hydrology
- UNEP-WCMC
- University of Oxford
- Verisk Maplecroft
- Veritree
- Vizzuality
- Wadappt.io
- Western Australian Biodiversity Science institute (WABSI)
- Wilder Sensing
- WWF
- WWF Germany
- Xylo Systems
- Zoological Society of London

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