BOOK OF ABSTRACTS

This Book of Abstracts provides a comprehensive overview of the session content and is structured into three main sections:

I. Session Description – an introduction to each session, including its objectives and expected outputs
II. Session Program – a detailed schedule for each session, including speakers and timing
III. List of Abstracts – a complete compilation of all accepted abstracts

I. SESSION DESCRIPTION

ID: S6

SMART - In Search of Methods, dAta & metRics in support of the financial sector

Hosts:

	Name	Organisation	E-mail
Host (s):	Vince van 't Hoff	Foundation for Sustainable Development	vince.vanthoff@fsd.nl
Co-host(s):	Wijnand Broer	CREM & PBAF	w.broer@crem.nl
	Mieke Siebers	Foundation for Sustainable Development	mieke.siebers@fsd.nl
	James d'Ath	Taskforce on Nature-related Financial Disclosures	James.dath@tnfd.global
	Edwin Pos	University of Utrecht	e.t.pos@uu.nl

Abstract:

Call for scientists and practitioners to engage in a workshop on the data & metrics-needs from a financial sector perspective.

To improve our economic and social systems, it is key to mainstream nature into financial decision-making. Ecosystem services in general, and monetary valuation of these services in particular, are playing an increasingly important role in the alignment of nature into (public and) private finance decision-making. A fast growing number of financial institutions have assessed the dependencies of their loan and investment portfolios on ecosystem services, often using market tools like ENCORE and guidance offered by the Partnership for Biodiversity Accounting Financials (PBAF). The role of dependencies on ecosystem services in nature-related financial risks is being addressed in global initiatives such as the Taskforce on Nature-related Financial Disclosures (TNFD) and monetization of ecosystem services is an important focus of the Capitals Coalition (CC).

This session will dive into the need for tools and data from a financial sector perspective. What data do financial institutions need in order to effectively identify and manage nature-related financial risks related to changes in ecosystem services, both from an impact and dependency perspective? What data is already available, what are the data gaps and what role can science play? When this data becomes available, how should this data be made available to financial institutions to be fit for purpose for everyday decision-making? Although the assessment of impacts and dependencies on ecosystem services and monetary valuation is already applied in practice in the financial sector, broad uptake is still scarce.

This session will take the form of a workshop to touch upon the current market practices in the financial sector. Then, the workshop will deep-dive in the data needs and gaps, minimum viability, data quality and uncertainty, interoperability and practical application, all in connection to ecosystem services and monetary valuation. Importantly in the discussion is also the role of the scientific community. Finally, the frameworks available for mainstreaming ecosystem services into risks and opportunity assessment (TNFD, CC), EU Policy (like CSRD/ESRS), on best practices in the market and on data related initiatives, like the Nature Data Public Facility (NDPF) by TNFD are considered and discussed.

Goals and objectives of the session:

1. Provide insights in the current market practice of financial institutions regarding nature-related risks and opportunities.
2. Demonstrate the relevance of ecosystem services and monetary valuation in the financial sector: use-cases, needs, gaps, frameworks, policies and data initiatives.
3. To discuss the data & metrics needs of financial institutions and the role of the scientific community.
4. To identify areas of further improvement and concrete action by the financial sector, science and key initiatives in the field of Finance & Nature.

Planned output / Deliverables:

White paper outlining challenges, next steps and potential collaboration opportunities.

Session format:

It will be a workshop/discussion session including several introduction presentations, 1.5-2 hours in total

Related to ESP Working Group:

SWG 6 – ES in Business

II. SESSION PROGRAM

Room: C1
Date of session: Tuesday, 19 May 2026
Time of session: 17:45 – 19:15

Timetable speakers:

Time	First name	Surname	Organization	Title of presentation
17.45-17.50	Mieke	Siebers	Foundation for Sustainable Development (FSD)	Introduction to the session
17.50-18.00	Wijnand	Broer	Partnership for biodiversity Accounting Financials (PBAF)	Current data practices, challenges and opportunities in the financial sector
18:00-18:05	Alessandra	La Notte	Independent	Pitch: The materiality of ecological processes
18:05-18:10	Patricia	Correia-Pinto	BIOPOLIS CIBIO-InBIO, FCUP, NBI, UAI	Pitch: Ecosystem services indicators for decision-making: gaps and opportunities
18:10-18:15	Johannes	Förster	Helmholtz Centre for Environmental Research UFZ & Value Balancing Alliance VBA	Pitch: Impact Accounting, Valuation and biodiversity indicators in nature positive transition panning

18:15-18:20	Pietro	Calgani	True Price Foundation	Pitch: The true price of land use
18:20-18:45	James Edwin	D'Ath Pos	Taskforce on Nature-related Financial Disclosures (TNFD) University of Utrecht	Reflection on pitches & panel discussion Moderation Mieke Siebers
18:45-19:10	James Edwin Wijnand	D'Ath Pos Broer		Conversation and discussion with participants Moderation Mieke Siebers
19:10-19:15	Vince	Van 't Hoff	Foundation for Sustainable Development (FSD)	Lessons learned and closing

III. ABSTRACTS

The first author is the presenting author unless indicated otherwise

1. The materiality of ecological processes: a list of transactions from ecosystems to socio-economic systems for economic and financial analysis

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From an economic and financial perspective, clear and well-defined relationships between ecosystems and socio-economic systems must be established. They are crucial to demonstrate and quantify the support that ecosystems provide to economy and finance in terms of impacts and dependencies. Classifying ecosystem services (ES) can be relatively straightforward when it involves a short list of aggregated services, or quite complex when it encompasses many ecological processes. High levels of aggregation can hide important relationships, which, if not considered, can generate misleading information and cause misinterpretation of the socio-economic and financial benefits provided by ecosystems. On the other hand, too many ecological details may deter economists and financial analysts from a classification that does not seem to serve their purposes, neglecting their actual use on a daily basis.
Our aim is to present a list of ES transactions that extract socio-economically relevant ecological processes and services from CICES (Common International Classification of Ecosystem Services) and connect them to economic sectors, as reported by TNFD (Taskforce on Nature-related Financial Disclosures), specifying the kind of relationship. These relationships include dependencies due to business production processes, geographical location of economic assets, cleaning up negative externalities, benefits from positive externalities and addressing impact drivers.
The purpose of this ES transaction list is to provide practitioners and other interested users with a functional tool that systematically links nature, economy, and finance.

Keywords: Ecosystem Services classification, Natural Capital Accounting, impacts and dependencies, CICES, TNFD

2. Building the future of environmental decision making; Scoping the potential connection between the ESVD and ENCORE

First author: Victoria Guisado Goni
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This scoping study explores how ecosystem services valuation data and ecosystem services dependency accounts can be meaningfully combined to improve the usability of natural capital information in economic and financial decision-making. Focusing on the potential integration of the Ecosystem Services Valuation Database (ESVD) and the ENCORE tool, the study examines how natural capital data can move beyond conceptual relevance toward practical application in finance, policy, and corporate disclosure.

The analysis demonstrates both the rationale and technical feasibility of linking ENCORE's qualitative sector-level mappings of ecosystem service dependencies and impacts with ESVD's geographically explicit, monetary valuation data. Stakeholder consultations with financial institutions, regulators, and research organisations indicate strong interest in such an approach, particularly to address current limitations in nature-related risk assessment and disclosure. Existing frameworks often identify which ecosystem services matter to economic activities, but lack information on their relative socio-economic importance across locations and stakeholders.

The core finding is that combining ecosystem accounts of dependency with valuation-based ecosystem service accounts enables location-specific prioritisation that neither approach can deliver independently. While ENCORE identifies which services are critical for specific sectors, ESVD quantifies the total economic value of those services to societies, governments, communities, and businesses within a given ecosystem. This allows sector-level dependencies to be translated into site-specific monetary indicators, supporting more nuanced double materiality assessments and revealing distributional and socio-economic effects beyond the firm boundary.

Three illustrative use cases are presented. First, a compliance and disclosure use case shows how integrated accounts could support CSRD and TNFD reporting by enabling automated, comparable assessments of nature-related risks and opportunities. Second, a portfolio screening use case demonstrates how investors can distinguish between assets with similar dependency profiles but differing ecosystem values. Third, a project due diligence use case highlights how development finance institutions can estimate baseline ecosystem service values in data-poor regions.

From a methodological perspective, the study identifies key requirements for harmonising ecosystem classifications, valuation units, uncertainty treatment, governance, and funding models. It concludes that phased, collaborative pilot applications and end-user testing are essential next steps. More broadly, the study contributes to the session's objective by illustrating how user-oriented integration of ecosystem service accounts can enhance the relevance and uptake of natural capital accounting in economy and finance.

Keywords: Ecosystem services valuation-Nature-related financial risk - Double materiality-CSRD and TNFD

3. Ecosystem services indicators for decision-making: gaps and opportunities

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Recent global risk assessments highlight a world that is becoming increasingly fragmented by scaling environmental pressures. Extreme weather events, biodiversity loss and ecosystem collapse, critical changes to Earth systems, resource shortages, and pollution rank among major long-term global risks. This underscores the need to integrate environmental sustainability into business decision-making, balancing socio-economic development with the conservation of biodiversity and ecosystems essential to human well-being. In response, business frameworks such as the Taskforce on Nature-related Financial Disclosures and the Global Reporting Initiative, alongside non-business initiatives including the Sustainable Development Goals and the Convention on Biological Diversity, provide guidelines for the systematic assessment and monitoring of nature-related impacts, dependencies, and risks to support informed decision-making.

Indicators within these initiatives guide business and provide a common language for decision-makers. The landscape of nature-related indicators is expanding in increasingly interconnected ways, yet it remains poorly structured across biodiversity, ecosystem condition, climate, and ecosystem services (ES), limiting comparability and fitness for purpose.

Based on more than 1,700 nature-related indicators compiled through a systematic search of nature-related initiatives, this presentation provides a comparative global overview of ES indicators across 22 business and non-business initiatives. Indicators were classified by ES type (SEEA ES classification), Essential Ecosystem Services Variables (EESVs), interconnections with nature domains, indicator type (state, pressure, impact, dependency, and response), and relevant economic activities.

The comparative analysis highlights dominant ES and EESVs, key interconnections across nature domains, and persistent gaps in current reporting practices. Building on these insights, we will also present a decision-support tool that enables businesses to select ES indicators that are fit for purpose, supporting sustainability reporting and alignment with emerging nature-related disclosure frameworks.

By clarifying how ES indicators are structured, connected, and applied, this work supports more integrated, comparable, and operational approaches for business decision-making and nature monitoring.

Keywords: Ecosystem services indicators, Decision-making, Essential Ecosystem Services Variables, Business sustainability, Nature-related reporting

4. Using Impact Accounting and Valuation together with biodiversity indicators for informing nature positive transition panning

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The presentation will give an overview of the findings of the most recent UNEP State of Finance for Nature Report (in which J. Förster was involved as author), highlighting key leverage points for integrating nature into existing financial flows. Thereby, Impact Accounting and Valuation can play a critical role for guiding corporates, financial institutions and public financial flows in assessing the monetary dimension of impacts on nature. Monetary valuation of nature is based on the changes impacts cause in the provision of ecosystem services (e.g. by extracting water or land use changes). Understanding such impacts is central for developing strategies that contribute to nature positive initiatives across regions and landscapes. Typically, ecosystem services are being discussed as part of assessing dependencies of business operations and hence the financial materiality of nature for businesses (e.g. the direct use of resources and related ecosystem services). While addressing such physical risks is critical, assessing impacts on nature is essential for informing decision making on nature transition planning as reducing impacts is a critical for managing transition risks, enhancing the resilience of own operations (e.g. asset and market value) and engaging with the wider stakeholder landscape for generating nature positive outcomes. Hence double materiality assessments are critical for informing nature transition planning, which are increasingly asked for by the majority of investors as demonstrated by a recent survey by the IFRS ISSB. This trend is underpinned by regulators such as the EU and China, who are implementing corporate sustainability reporting standards requesting a double materiality perspective. The presentation closes by highlighting the use of bird biodiversity data as a specific exampled for an ecosystem condition indicator that can scientifically underpin nature positive strategies (e.g. including the use of Nature Credits).

Keywords: Impact Accounting and Valuation; UNEP State of Finance for Nature; Nature Transition Planning; Bird Biodiversity Data, Nature Positive

5. The true price of land use: a novel approach to embed ecological thresholds of land use in external cost accounting

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Production and consumption patterns need to shift in order to sustain the ecosystem services on which our society and economy depend. Monetary valuation can help to integrate consideration of the impact of human activities on ecosystems' capacity to provide these services into economic decision making of governments, businesses and consumers. The True Price method is a method to estimate hidden environmental and social costs of products in a way that makes them comparable to product prices, with the goal to guide consumers and organisations, toward more sustainable choices.

These approaches often build on Life Cycle Assessment (LCA) to quantitatively assess environmental impacts at a product level. Typically, LCA methods include two indicators — land occupation and land transformation - in their land use impact category.

The UN CBD Global Biodiversity Framework, The UN Convention to Combat Desertification and the Planetary Boundaries Framework provide ecological goals and thresholds for sustainable human activity at a global spatial scale. More granular assessments exist at the ecoregion, country or sometimes landscape level. However, how to integrate these goals for sustainable land use in an assessment at the product level remained an open question.

Current LCA impact assessment are not suitable to guide consumer or organizational decisions towards sustainable land use. They are mainly aimed at minimizing land footprint of products, and maximising land use efficiency to produce one or two main products, . ignoring the fact that land also provides other ecosystem services.They take a perspective where any type of land use except from natural vegetation is a negative environmental impact, and therefore should be minimized. This is also hard to reconcile with the more common perspective (of i.e. policy makers, businesses, land managers), which sees land use as a necessary activity to provide food, fuel and fibers to society.

We developed a novel approach to assess the true price of land use of products, aiming to embed ecological thresholds into the assessment of sustainable land use: a negative land use impact is measured as the distance to targets representing land use in line with ecological goals, rather than an absolute land use footprint. We propose three targets for economic activity: no conversion of natural land, sufficient habitat quality, and land degradation neutrality. Furthermore, the approach includes monetary valuation factors that can be used to translate these indicators into cost estimates. A combination of ecosystem services valuation and abatement costs is proposed.

The suggested approach moves away from a LCA-based approach to embed ecosystem services impact assessment at product level into an absolute sustainability assessment for accounting of unsustainable land use impacts.

Keywords: true cost accounting, land use, ecological thresholds, planetary boundaries, life cycle assessment