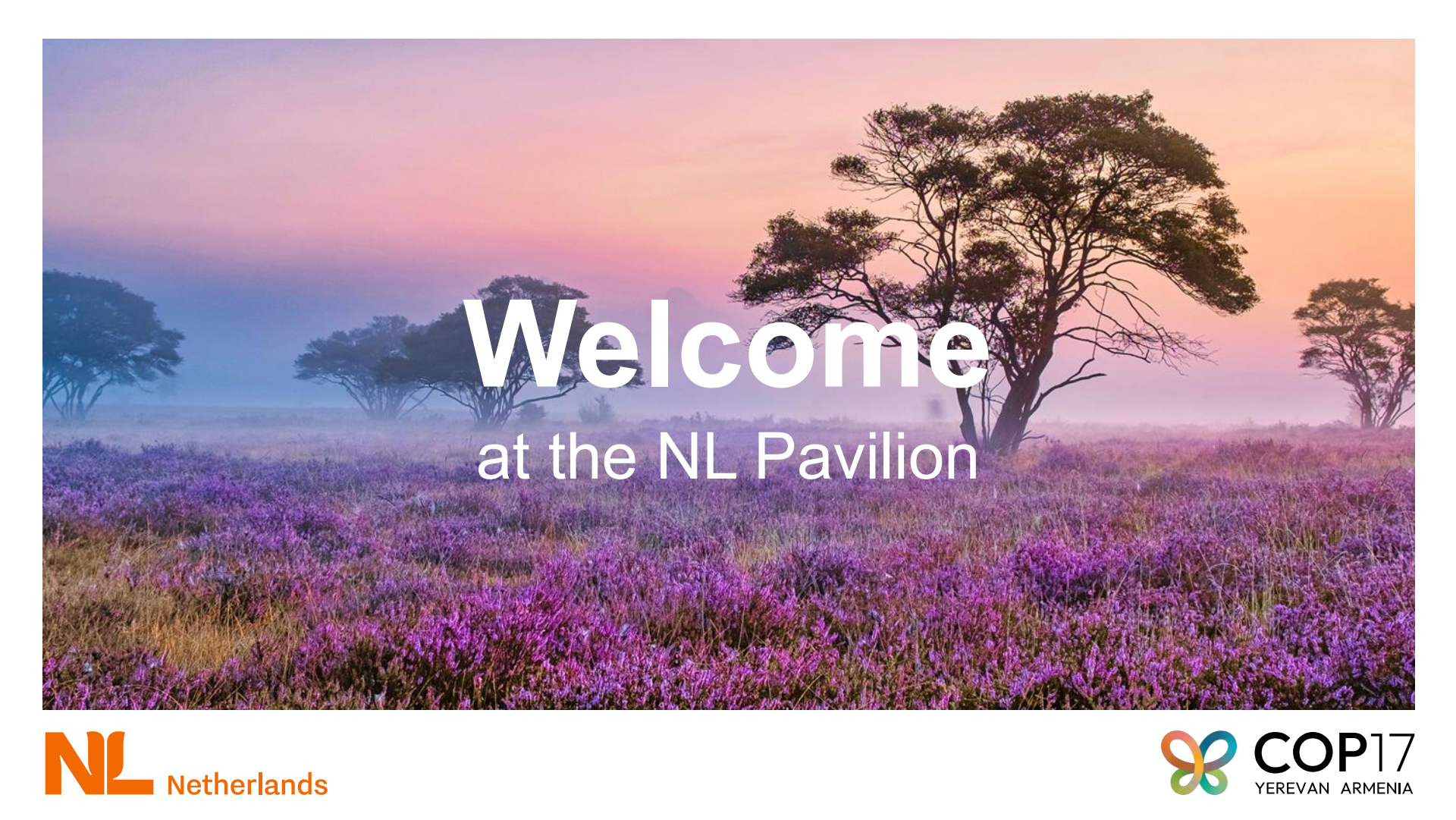




Welcome

at the NL Pavilion

Today's programme

Thursday 22 October

- | | |
|---------------|--|
| 10:00 – 11:00 | From Nature-based Solutions to Investable Water Landscapes: Using Ecosystem Service Valuation to Build Better Business Cases, Public–Private Partnerships and Water Resilience |
| 11:15 – 12:15 | From screening to financial risk assessments: science-based approaches for biodiversity physical risk assessment in the banking sector |
| 13:00 – 14:00 | From Water Risk to Financial Resilience: Developing the Next Generation of Nature Stress Tests |
| 14:15 – 15:15 | From global ambition to national targets: learning from and responding to collective ambition under the GBF |
| 15:30 – 16:30 | Unlocking Private Finance for Nature-based Solutions through the Value of Ecosystem Services |
| 16:45 – 17:45 | From commitments to action: circular economy as a nature-positive finance opportunity |
| 18:00 – 19:00 | Launching Recommendations to Scaling Nature in Transition Planning |

Take a look
at our programme:



Next up

10:00 – 11:00

From Nature-based Solutions to Investable Water Landscapes: Using Ecosystem Service Valuation to Build Better Business Cases, Public–Private Partnerships and Water Resilience

Take a look
at our programme:



FROM NATURE-BASED SOLUTIONS TO **INVESTABLE** WATER LANDSCAPES

Using Ecosystem Service Valuation to Build Better Business
Cases, Public-Private Partnerships and Water Resilience



Kitty Tam
Civic Exchange • Moderator



Susanne Pedersen
IUCN



Marcia Arredondo Rivera
Wageningen Social &
Economic Research / NL2120



Alessandro Leonardi
Etifor | Valuing Nature



Simon Chan
Agriculture, Fisheries and
Conservation Department,
HKSAR Government

Welcoming



Ms Kitty Tam

Programme Lead, Civic Exchange

From Nature-based Solutions to Investable Water Landscapes

Ms Susanne Pedersen

Director, Centre for Science and Knowledge

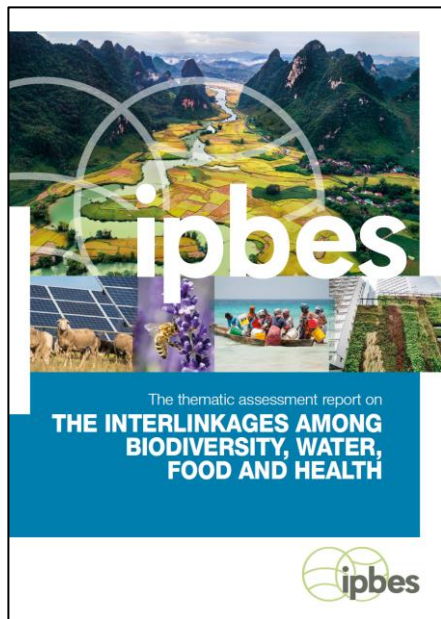
Acting Head of Nature-based Solutions

IUCN

22 Oct. 2026 | CBD COP17 | NETHERLANDS PAVILION

Nature-based Solutions for water resilience

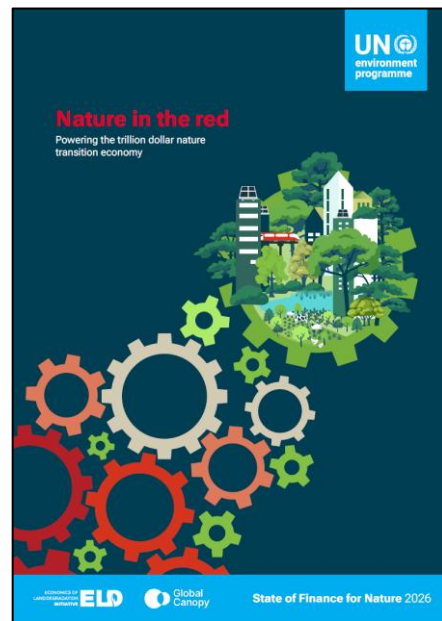
Scaling up with integrity



Harrison, P., McElwee, P., & van Huysen, T. (2024). *IPBES Nexus Assessment*

“Biodiversity and functioning ecosystems play a vital role in providing nature’s contributions to people, including regulating the climate and nutrient and hydrological cycles that are essential for providing sufficient and clean water (...)”

“Annual finance flows to NbS of US\$220 billion need to increase more than two and half times from current levels to US\$571 billion by 2030 and to more than triple to US\$771 billion by 2050 to reach Rio targets”

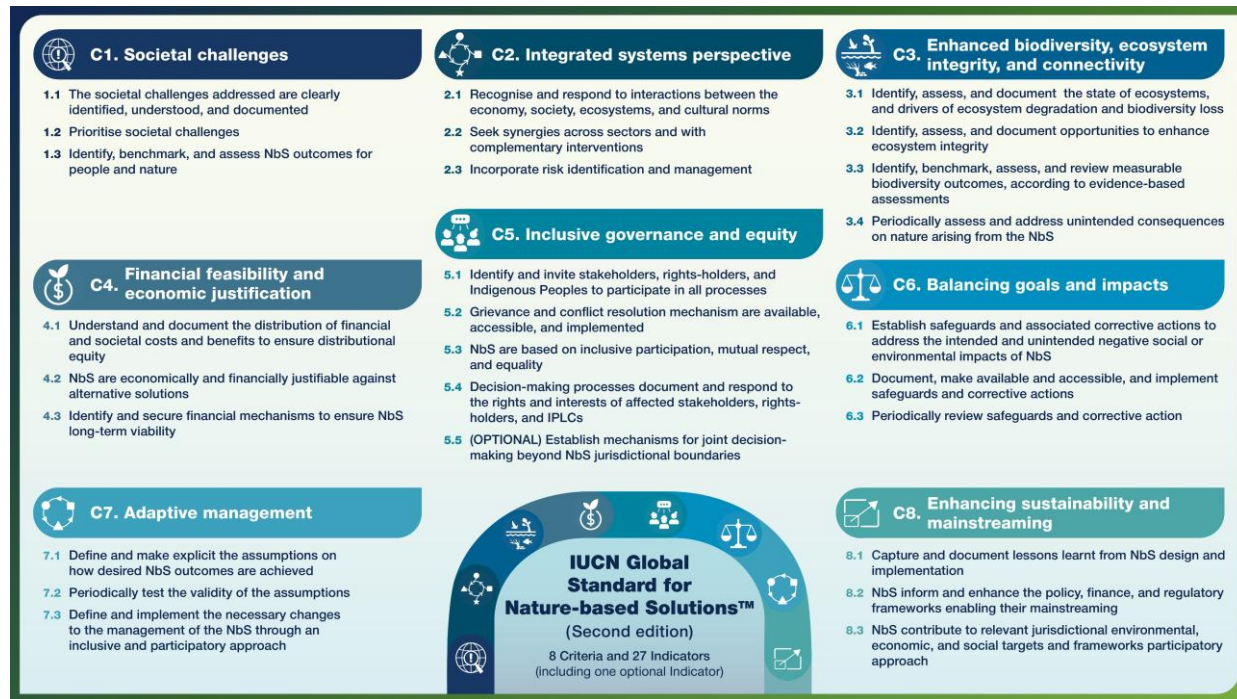


UNEP (2026). *State of Finance for Nature*

Scaling up NbS across the Rio Conventions – without compromising integrity

The IUCN Global Standard for NbS

8 interconnected criteria · 27 indicators



Globally developed
800+ experts and practitioners
from 100+ countries

Designed for action
Guiding the design,
assessment and continuous
improvement

Applicable across contexts
Governments, practitioners,
funders and communities

**A practical framework for
high-integrity NbS**

From integrity to investment readiness

What makes NbS credible – and why it matters for investment

What does high integrity mean in practice?



Measurable benefits for people and biodiversity

Real outcomes, not just activities



Inclusive governance and safeguards

Meaningful participation and fair management of trade-offs



A systems perspective

Across the basin and beyond the project site



Long-term performance

Monitoring, adaptive management and lasting benefits

How the Global Standard supports investment readiness

- **Better project design:** identifying strengths, gaps and risks early
- **Economic and financial viability (Criterion 4):** assessing costs, benefits, alternatives and long-term financing
- **Greater accountability and confidence:** a shared basis for governments, donors and investors

High-integrity NbS provide a stronger foundation for investment

THANK YOU!

Ms Susanne Pedersen

Director, Centre for Science and Knowledge

Acting Head of Nature-based Solutions

IUCN

22 Oct. 2026 | CBD COP17 | NETHERLANDS PAVILION



Riverbed erosion in the Waal and the Integrated Multi-Channel System

The challenge

Ongoing riverbed erosion leads to:

Lower groundwater levels and drought

Reduced navigability at low water

Loss of biodiversity

Increased flood risk from higher discharge peaks

The vision: Integrated Multi-Channel System

Measures

Natural longitudinal dams

Year-round side channels

Lower summer dikes

Natural landscaping



Contributes to three national programmes

PAGW
Nature and water quality

HWBP
Flood protection

Room for the River 2.0
Riverbed and navigation



Benefits for the surrounding area

Water security

Water availability

Living environment and recreation

Health and wellbeing

Local economy and nature education

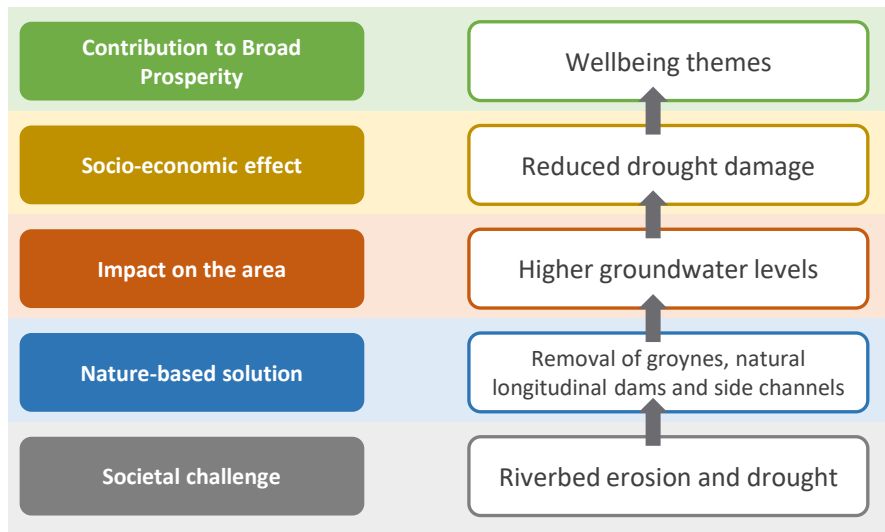
Biggest barriers towards NbS realisation

1. Broad socio-economic effects are not entirely visible
2. Timing of costs and benefits
3. Capturing dispersed benefits



Identifying and valuing the benefits of nature-based solutions

The SEIS chain, with an example



Benefits and valuation methods

Nature targets

Avoided costs of meeting targets elsewhere

Agriculture and property

Avoided drought damage

Ecosystem services

Environmental prices and CO₂ price

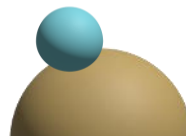
Living environment

Property values: approx. +1%

Flood protection

Avoided costs of dike reinforcement

The SEIS identifies what to value and how; quantification is the next step.



Integrated Multi-Channel System

Contribution to societal challenges (Broad Prosperity themes)

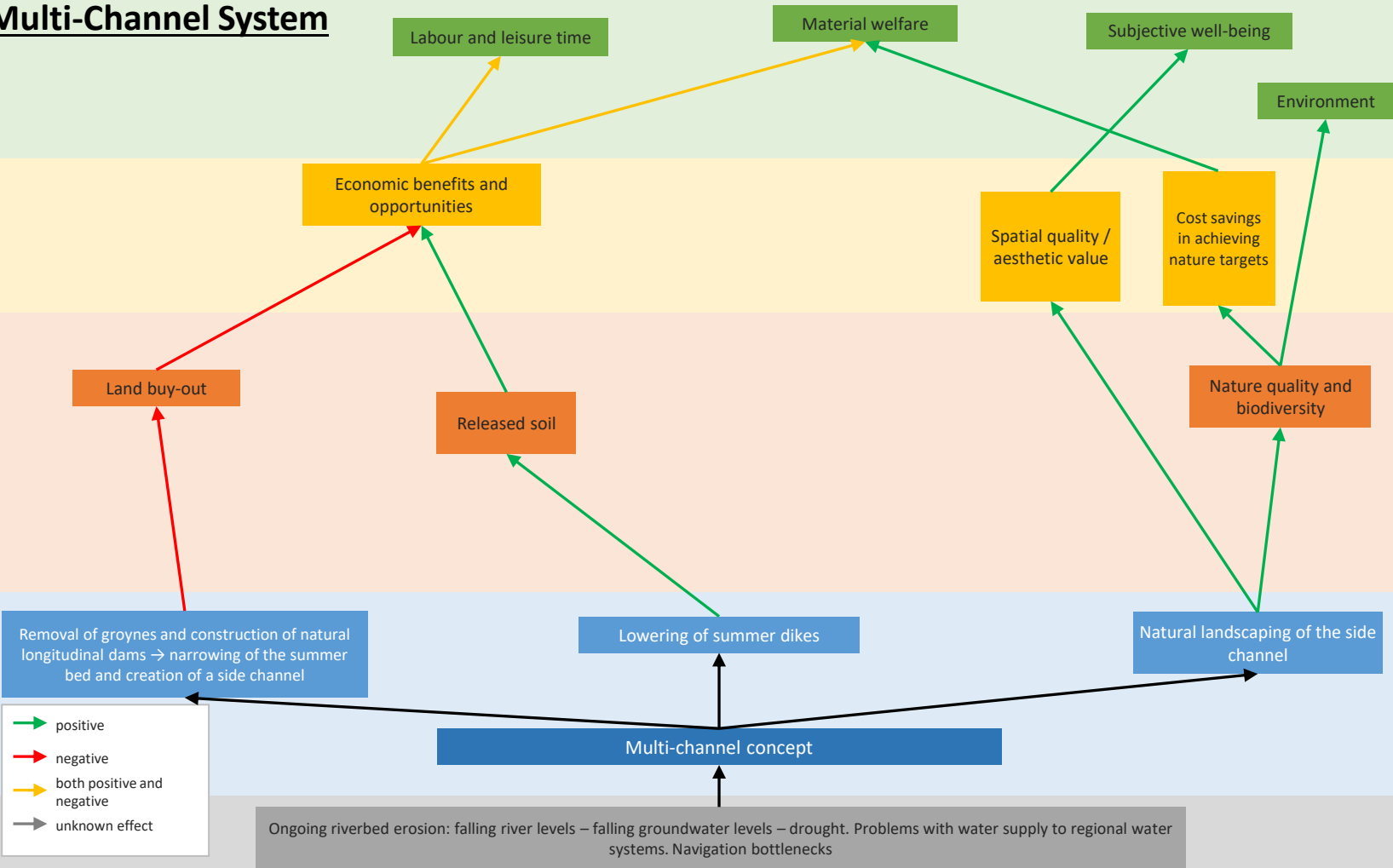
Socio-economic effects

(In)direct impact on the area

Nature-based solution

NbS system solution

Societal challenge (current situation)





NL2120 and PAGW: a science–policy partnership

Partners

PAGW

Policy

Knowledge of the measures, network,
organisation of expert sessions

×

NL2120

Science

SEIS method, expertise on socio-
economic effects

In-kind contributions

Equal input

Joint ownership of results

Actors involved in the Waal case

Case selection

PAGW, HWBP and Room for the River 2.0

Expert session on the measures

Bureau Strooming and NL2120; water boards, landowners

Expert session on socio-economic effects

Specialists in Wellbeing, e.g. provincial experts

Knowledge base

WUR, Deltares, Arcadis, HKV, Ecorys/Sweco

Actors in the landscape

Inland shipping · farmers · residents ·
drinking water companies · industry ·
recreation businesses · municipalities

Joint report

NL2120 & PAGW, February 2026

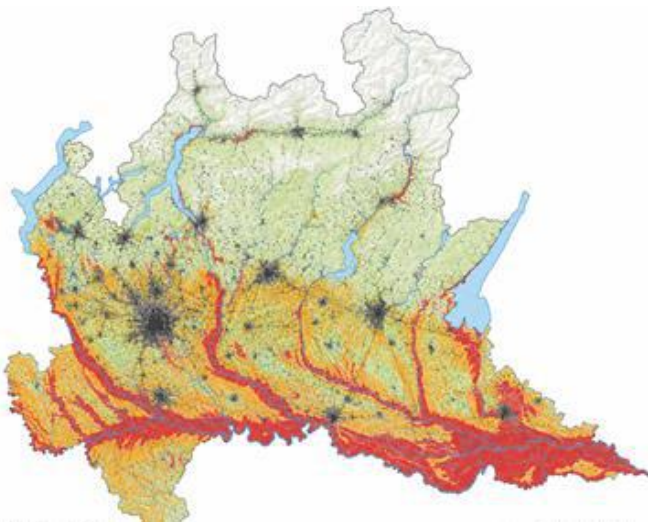


Questions?

Finn.speijer@wur.nl
marcia.arredondorivera@wur.nl

Place and problem: flood risk in Lombardy

Italy · Lombardy Water Resilience Initiative



HYDRAULIC HAZARD (PGRA)

- | | | |
|---|---|--|
| ■ P1 – Low hazard
Rare floods
(return periods up to 500
years) | ■ P2 – Medium hazard
Infrequent floods
(return periods 100–200
years) | ■ P3 – High hazard
Frequent floods
(return periods 20–50
years) |
|---|---|--|

POPULATION DENSITY

- | |
|--|
| ■ Low density |
| ■ Medium density |
| ■ High density |

Exposure to medium and high flood hazard

20%

of the territory (1 km² in 5)

1 in 5

people living in medium- and high-hazard areas

75,000 (8%)

local production units exposed

80 billion

of productive economic capital exposed

The gap

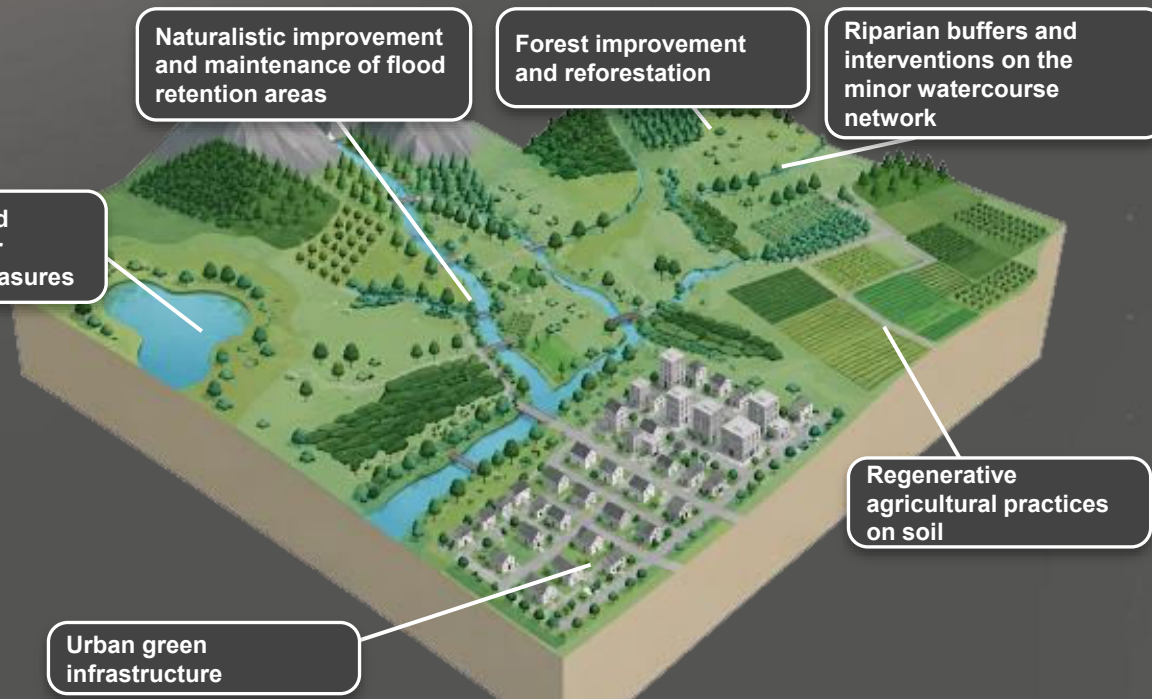
- A plan for **75 flood retention basins**, of which **45 already completed**
- **Borrowing capacity** available for construction (CAPEX), but difficulty in securing funds for **high operating costs** (OPEX)
- Design and construction with **little attention to biodiversity and multifunctionality**; **limited communication** to citizens and businesses

Desired outcome: a public-private collective action with shared challenges and objectives to improve water resilience and generate positive impacts on nature in Lombardy.

Solution and evidence: a multifunctional NbS pipeline

Italy · Lombardy Water Resilience Initiative

Nature-based Solutions and the Nexus approach

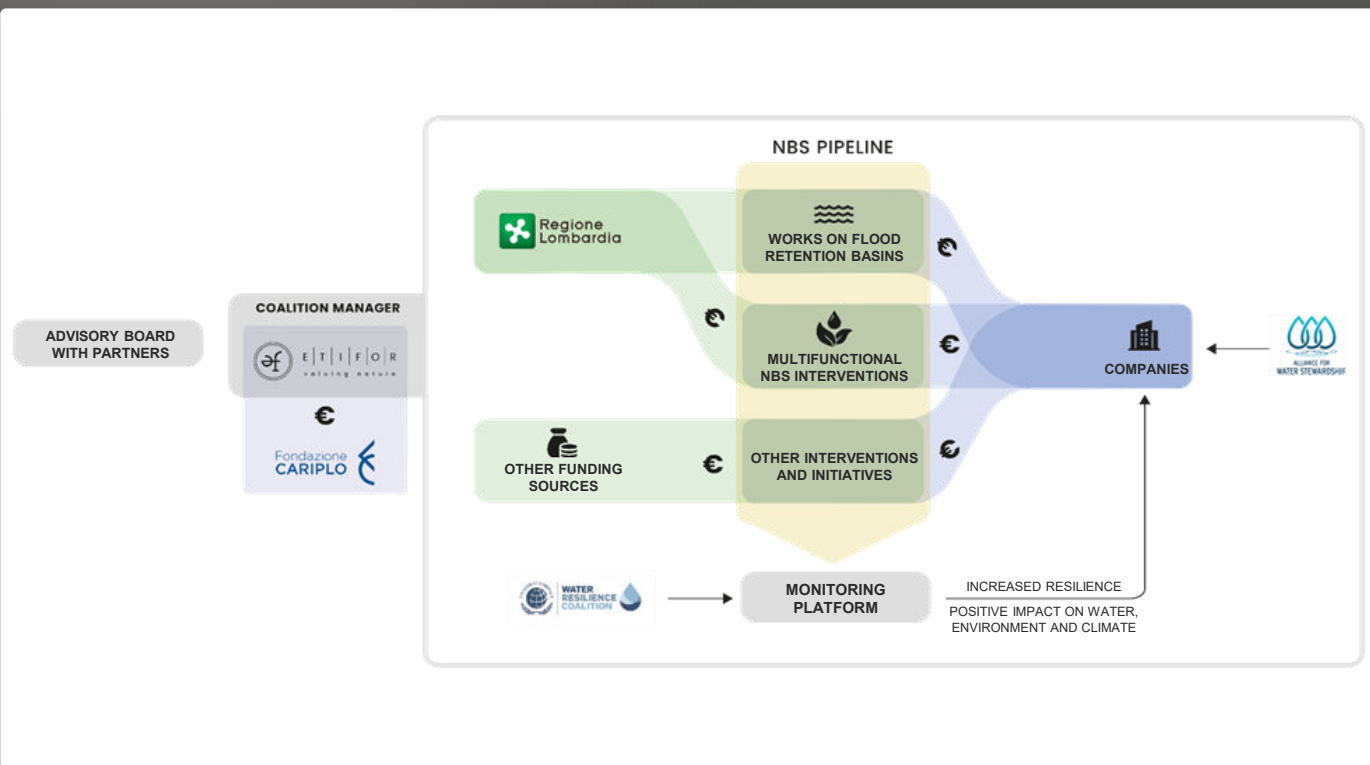


Integrity safeguards

- **Alliance for Water Stewardship (AWS)** standard
- **CEO Water Mandate** governance
- **Water Volumetric Benefit Accounting** (SDG 6) metrics
- **SBTN** science-based targets and **TNFD (LEAP)** nature-risk management
- Aligned with the **Water Framework Directive**, **Po PGRA**, **Nature Restoration Law** and **Natura 2000**

Value and scale: a public-private finance model

Italy · Lombardy Water Resilience Initiative



Beneficiaries and potential payers

Companies (lower flood and water risk, freshwater targets, CSRD/TNFD reporting), the Region and citizens living in exposed areas

Lifecycle cost and stewardship

Construction is fundable through borrowing; **operation and maintenance (OPEX)** needs new co-funding. Blended finance uses **public capital to de-risk** and unlock private finance

Key barrier

Securing long-term funding for **operating costs** and for the biodiversity value of the basins

Next step for replication

Launch with **Founders** in the Advisory Board, regional basin diagnosis and NbS pipeline; same collective-action model as the **Arno Basin Water Resilience Lab** (Tuscany)

Reference standards and methodologies

Governance

CEO Water Mandate

Initiative of the UN Secretary-General and the UN Global Compact for the sustainable management of water resources on a global scale.

Mitigation

SBTN & LEAP Framework

SBTN: Science-based targets for biodiversity and water.

TNFD (LEAP): Proactive management of nature-related risk.

Metrics

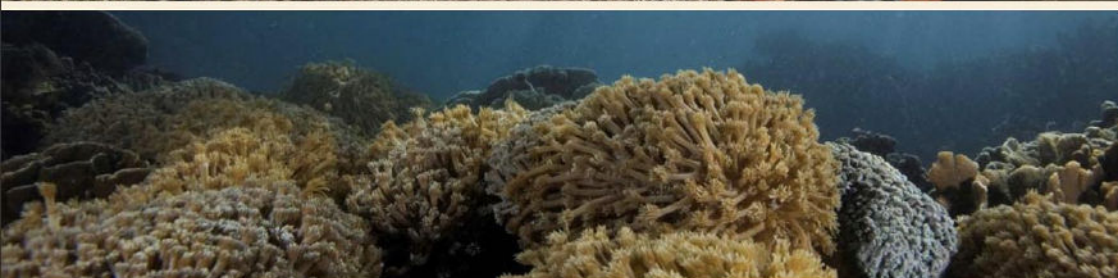
Water Volumetric Benefit Accounting

Methodology for measuring the value of water management activities, aligned with the Sustainable Development Goals (SDG 6).

Stewardship

Alliance for Water Stewardship (AWS)

International standard for the responsible and collective use of water through a single reference framework.



Convention on Biological Diversity COP17
Netherlands Pavilion | 22 October 2026

The Mainstreaming of NbS: Hong Kong's Path from Policy Guidance to Urban Implementation

CHAN Kin-fung, Simon
Assistant Director (Conservation)
Agriculture, Fisheries and Conservation
Department, Hong Kong SAR Government



Inside Hong Kong's blues and greens

Restricted Areas

specifically for wild animals protection

Mai Po Ramsar Site
supports **~60,000** waterbirds every year

Marine Parks & Marine Reserve

protecting **>8,500** ha of waters

Land use zonings for conservation

- 67 Sites of Special Scientific Interest
- Conservation Area
- Coastal Protection Area

25 Country Parks & 22 Special Areas

protecting **40%** of total land area

Pressing societal challenges

Super typhoons &
coastal vulnerabilities

Increased flood risk

Urban heat island &
heat waves

Biodiversity loss



Hong Kong Nature-based Solutions Design Guidelines

A Framework for Practitioners



- Co-published by works and conservation departments
- Provides practical planning and design guidelines for **infrastructure** and **development** projects to address societal challenges, all while delivering biodiversity, resilience and community benefits
- Applicable to different local environments



Core Principle III: Improving Resilience Through NbS

- G7: Addressing Climate Challenges
- G8: Building Ecological Resilience
- G9: Promoting Socio-economic Sustainability



Core Principle I: Promoting Ecosystem Diversity at Multiple Scales

- G1: Enhancing Habitat and Spatial Diversity at Macro Scale
- G2: Diversifying Habitat Components at Intermediate Scale
- G3: Creating Complex Micro-habitats

Core Principle II: Embracing Human-Nature Coexistence for Mutual Benefit

- G4: Addressing Societal Challenges through NbS
- G5: Designing Human-Nature Composition in Context
- G6: Harmonising Urban-Nature Transitions



Hong Kong Nature-based Solutions Design Guidelines

A Framework for Practitioners



Long Valley Nature Park

Restores various types of wetland habitats and manage agricultural fields to support conservation, flood control, water purification, eco-education, recreation



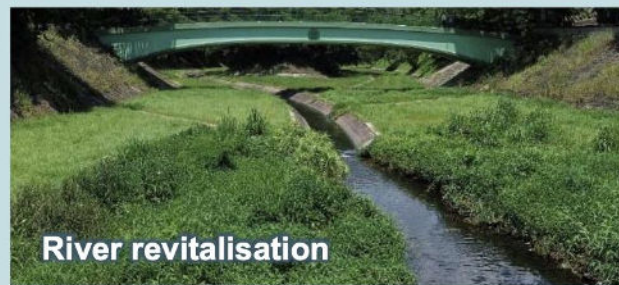
Wetland Conservation Parks System
(under planning and development)

Restore and sustainably manage wetland habitats to promote biodiversity conservation and modern aquaculture



Eco-shorelines

Incorporate mangrove - planting, oyster basket and bio-blocks to strengthen coastal defense and improve coastal habitat diversity



River revitalisation

Re-naturalise concretised channels with natural riverbed and vegetations to restore habitats, beautify the neighbourhoods, and promote water-friendliness



Discussion

**What must be true —ecologically, institutionally and financially—
for a water-related Nature-based Solution to move from a strong concept
to a durable, investable landscape?**



Kitty Tam
Civic Exchange • Moderator



Susanne Pedersen
IUCN



Marcia Arredondo Rivera
Wageningen Social &
Economic Research / NL2120



Alessandro Leonardi
Etifor | Valuing Nature



Simon Chan
Agriculture, Fisheries and
Conservation Department,
HKSAR Government

Next up

11:15 – 12:15

From screening to financial risk assessments: science-based approaches for biodiversity physical risk assessment in the banking sector

Take a look
at our programme:



From screening to financial risk assessments: science-based approaches for biodiversity physical risk assessment in the banking sector

Wijnand Broer, PBAF Programme Director





Partnership for Biodiversity Accounting Financials (PBAF), part of Finance for Biodiversity Foundation

PBAF Standards - Biodiversity Footprinting & Dependencies assessment & Practical guidance

→ Ensure that data which is science based, robust, consistent, fit for purpose & decision relevant

Assessment results for:

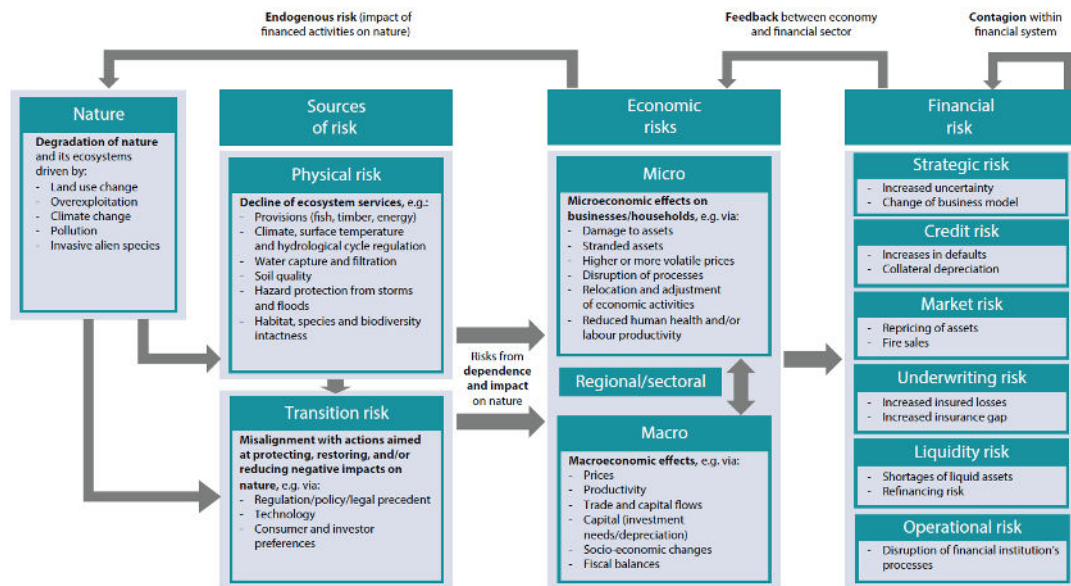
- Risk & Opportunities
- Reporting - TNFD - LEAP
- Compliance
- Strategy
- Policies
- Target setting
- Active Ownership
- GBF Targets
- Finance for Nature Positive



<https://www.pbafglobal.com/>



Nature-related financial risks



NGFS, September 2023

Source: Adapted from Svartzman, R. et al. (2021) A "Silent Spring" for the Financial System? Exploring Biodiversity-Related Financial Risks in France.



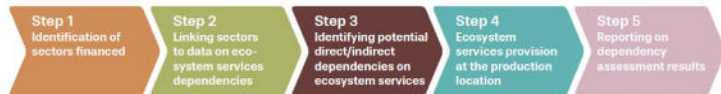
PBAF - Ecosystem services → Physical/financial risks

2023 - PBAF Standard Assessing Dependencies on ES

Main uses of a dependency assessment include:



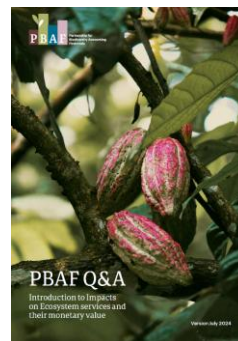
A dependency assessment consists of five main steps:



- Explanation of each step
- Overview of challenges
- PBAF Requirements & Recommendations

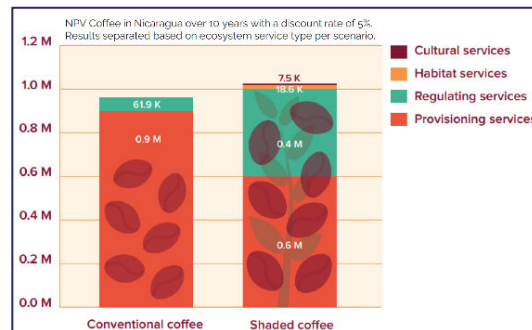


[Link](#)



2024 - Q&A Impacts on ES and monetisation

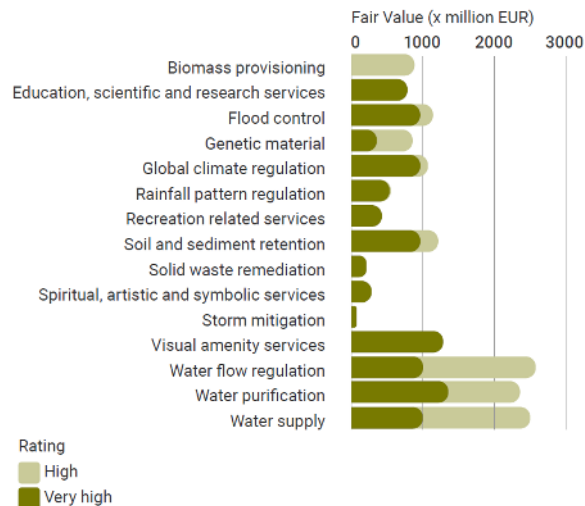
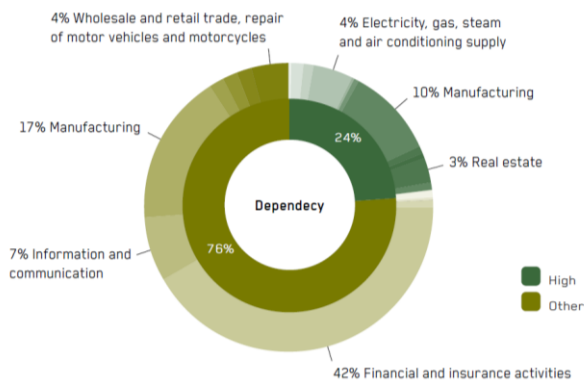
- Steps
- Use cases





PBAF - Ecosystem services → Physical/financial risks

2026 - From ENCORE to Financial risks



AQUEDUCT

EII

BII



?

Source: Biodiversity
Whitepaper, Achmea, 2024



Ecosystem services → Physical/financial risks

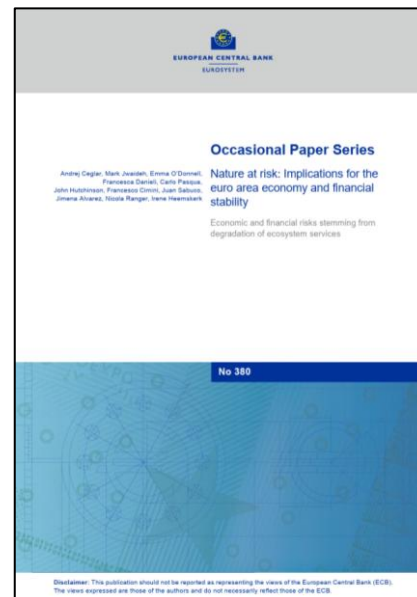
A dependency ≠ financial risk

Nature at risk, ECB (2026)

Nature Value at Risk = Hazard x Exposure x Vulnerability

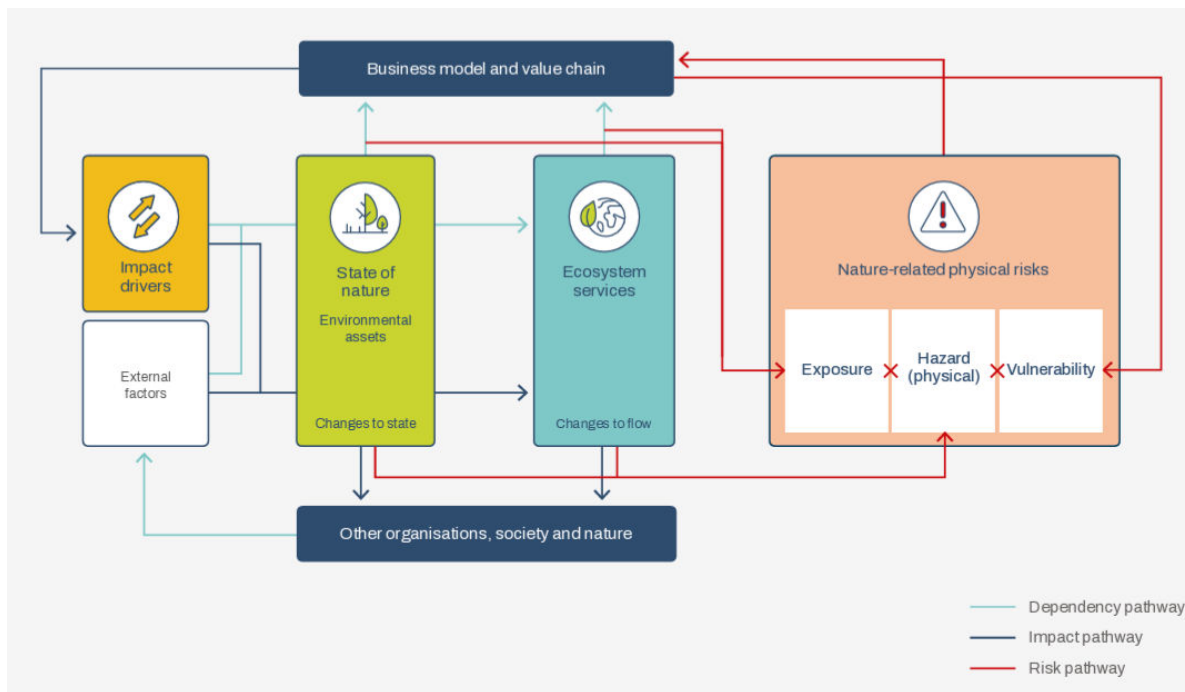
- **Hazard**: likelihood of an ecosystem service being degraded (e.g. by droughts, includes ecosystem condition)
- **Exposure**: monetary quantity of sectors/production systems exposed (dependencies, volume of loans to sectors)
- **Vulnerability**: production systems output and services vulnerability to ecosystem degradation (adaptive capacity of sectors and countries)

Result: a single value representing the **monetary VaR** at a given sectoral level in a given country





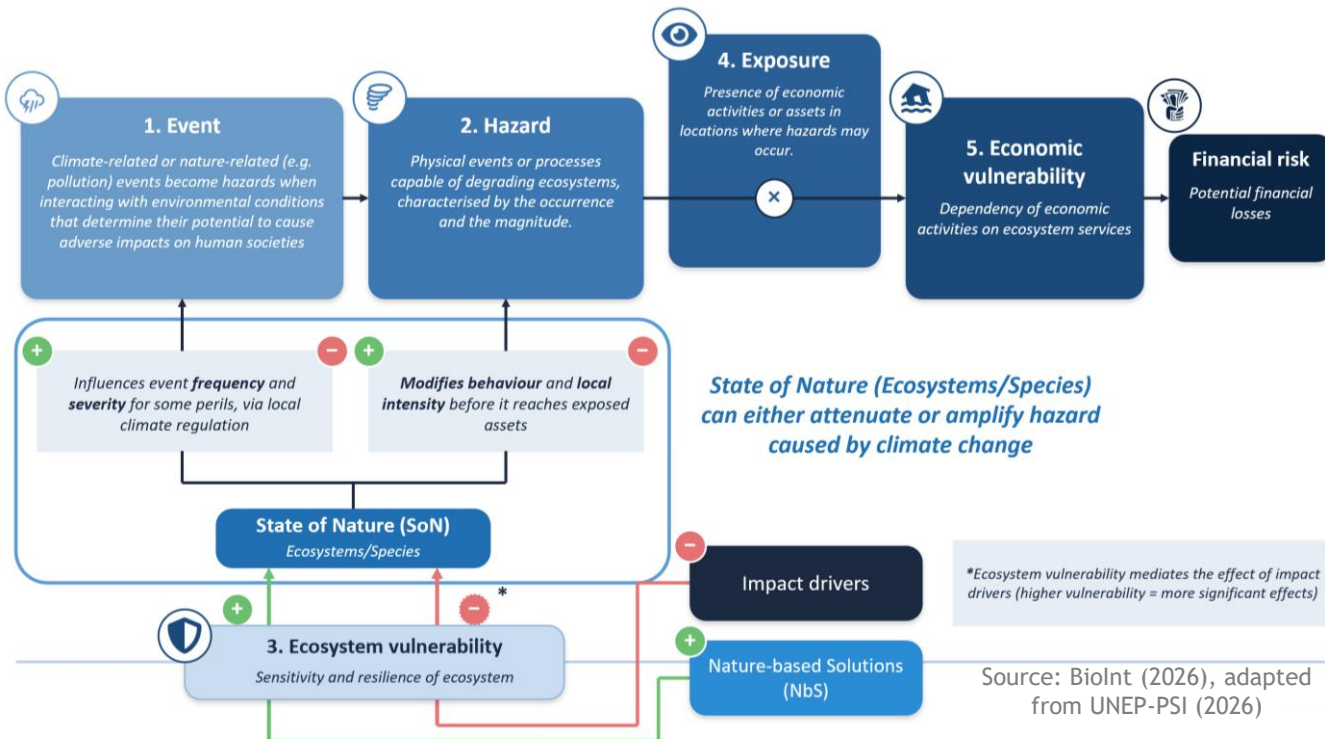
Ecosystem services → Physical/financial risks



Source: The LEAP approach Version 2.0
October 2026



Physical risks - Nature and Climate risks are linked



Source: BioInt (2026), adapted from UNEP-PSI (2026)



Thank you!

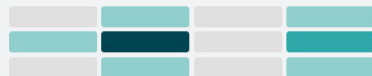
What changes when we add activity and location data?

ILLUSTRATIVE WATER-RISK ASSESSMENT

Simplified example — not actual client or portfolio results

SECTOR SCREENING

Potential dependency on water



Highlighted sector: high dependency

Identifies priority sectors

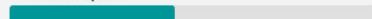
COMPANY ACTIVITY

Water withdrawal and consumption

Water withdrawal



Water consumption



Adds measurable physical indicators

OPERATING LOCATIONS

Local water availability and stress

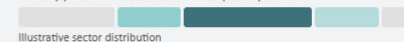
- Location A
Lower water stress
- Location B
Higher water stress

Adds location-specific context on water-related ecosystem conditions

TWO LEVELS OF ANALYSIS

PORTFOLIO VIEW

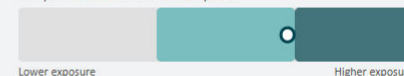
Identify portfolio concentrations and priority areas



Illustrative sector distribution

COUNTERPARTY VIEW

Compare indicators with relevant peers



Lower exposure

Higher exposure

POTENTIAL USES

Risk prioritisation • Client dialogue

CURRENT USE: Relative identification and prioritisation NOT YET: Estimation of potential financial losses

Sector screening indicates where to look. Activity data and local ecosystem conditions support **portfolio prioritisation and deeper counterparty analysis**.

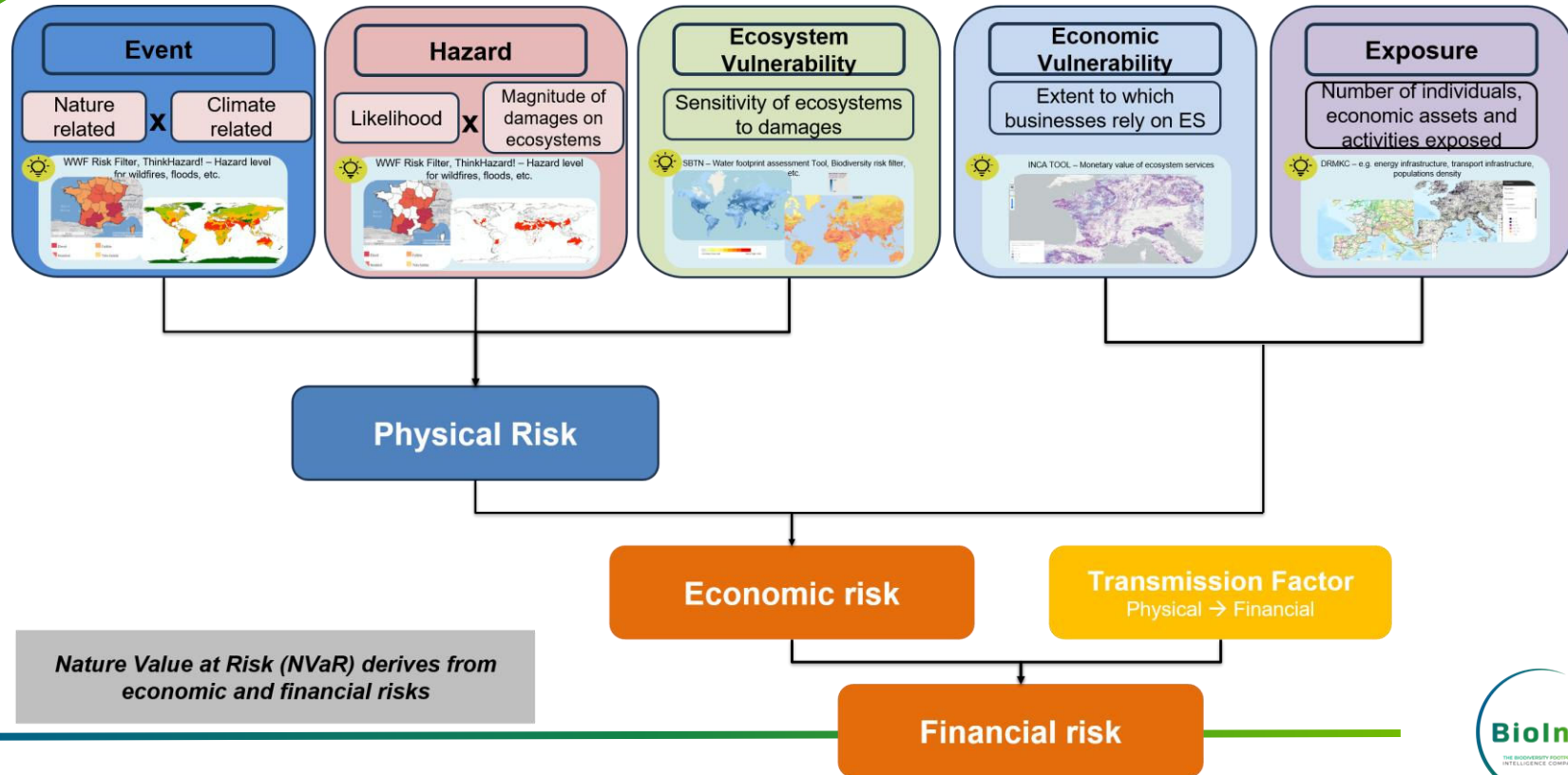
From screening to financial risk assessments: science-based approaches for biodiversity physical risk assessment in the banking sector

Concrete example of physical risk assessment

Joshua Berger, CEO - BioInt

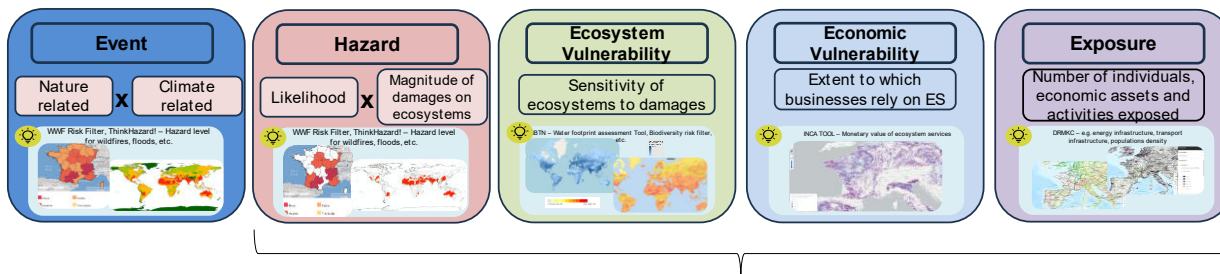


The assessment of biodiversity-related financial risks require a range of spatially-explicit data



To assess those risks in practice, it is necessary to use spatially explicit layers

Main features of the risk layer database compiled by BioInt



- 🌿 **92 layers** dedicated to physical risk, spanning the full **Hazard (24) × Ecosystem vulnerability (45) × Economic vulnerability (8) × Exposure (13)** framework
- 🌿 Covers both **global** and **European** geographies, with standardised metadata (resolution, format, licence, citation)
- 🌿 **Expected licence:** CC-BY-NC ¹
- 🌿 **Actively under construction** — target completion: **end of 2026**

¹ <https://creativecommons.org/licenses/by-nc/4.0/deed.en>

What information was gathered about each layer? Examples of information included: resolution, geographic coverage, licence, source and download link

Layer	Description	Risk component	Year	Maximum geographic coverage
 Pluvial Flood (Safer Places)	Physics-based, rainfall-induced (pluvial) flood risk intelligence REST API for the EU	Hazard	Regularly updated	Europe
 Energy Critical Infrastructure (DRMKC)	Mapping of power lines, power plants, river dams, crude oil pipelines, gas pipeline	Exposure	2025	Europe
 Health Critical Infrastructure (DRMKC)	Mapping of hospitals and clinics	Exposure	not provided	Europe
 Public Administration Critical Infrastructure (DRMKC)	Mapping of fire stations, police stations, education buildings	Exposure	not provided	Europe
 Transport Critical Infrastructure (DRMKC)	Mapping of airports and ports	Exposure	not provided	Europe
 Waste Water Critical Infrastructure (DRMKC)	Mapping of urban waste water treatment plants	Exposure	2024	Europe
 GHS Population grid (DRMKC)	Number of people in a cell	Exposure	2023	Europe
 Heritage sites (DRMKC)	Pointers to cultural, mixed and natural sites	Exposure	not provided	Europe
 GHS Built-up residential surface (DRMKC)	Amount of surface built in a cell	Exposure	2023	Europe
 GHS Built-up non-residential surface (DRMKC) 	Amount of surface built in a cell	Exposure	2023	Europe
 Crop Type Map (DRMKC)	Describes which crop is being cultivated in a cell	Exposure	2022	Europe
 Corine Land Cover (DRMKC)	Provides consistent information on land cover and land cover changes across Europe	Exposure	2018	Europe
 River flood probabilistic layer (DRMKC)	Gives probabilistic layers for river flood depending on flood depth (m)	Hazard	not provided	Europe

To operationalise risk assessment, it is necessary to define materiality thresholds for indicators for each risk component

Example of the agricultural sector

1. Identification of relevant indicator



2. Associated data layer gathering



3. Definition of relevant ecological thresholds

Indicators	Land use		Water use	Pollution		
Risk components	Agri-Environmental Infrastructures (AEI)	Land cover		Nitrate	Phosphorus	Pesticides
Hazard						
Ecosystem vulnerability						
Economic exposure						

Zoom on Ecosystem vulnerability x Land use

Example of the agricultural sector

1. Identification of relevant indicator

Surface of agri-environmental infrastructures (AEI)



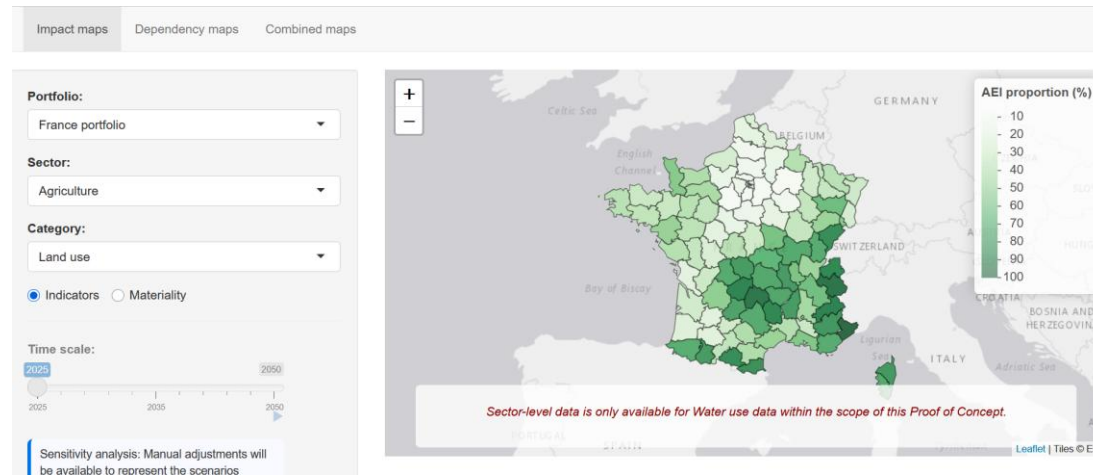
2. Associated data layer gathering

Land register in France (Registre Parcellaire
Graphique - RPG)



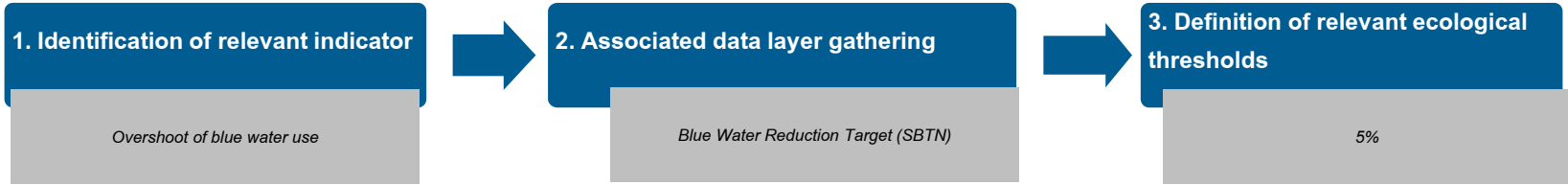
3. Definition of relevant ecological thresholds

20% of semi-natural habitats [Garcia-Vega et al., 2024](#)



Zoom on Ecosystem vulnerability x Water use

Example of the agricultural sector



Indicators	Water use
Risk components	
Ecosystem vulnerability	Thresholds of 5% (high materiality) and 0.1% (medium materiality) of the Blue Water Reduction Target from the Water Footprint Assessment tool

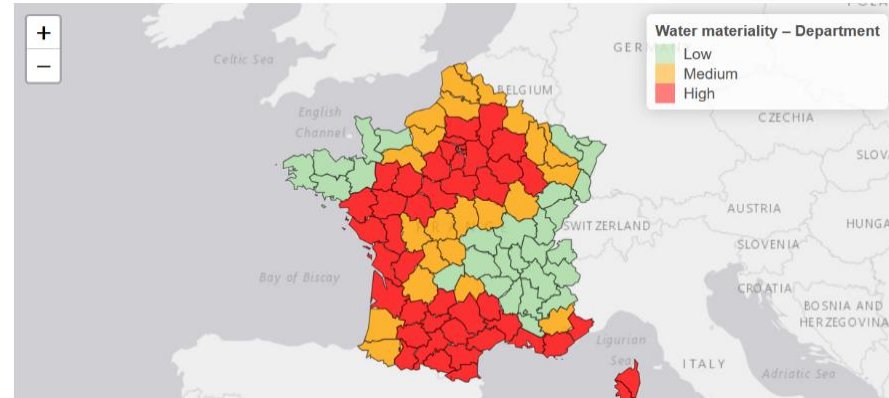
Portfolio:
France portfolio

Sector:
Agriculture

Category:
Water use

☐ Indicators ☒ Materiality

Non-combined data



Example of the agricultural sector

1. Identification of relevant indicator

Water withdrawals



2. Associated data layer gathering

Multiple data sources and assumptions

Indicators

Risk components

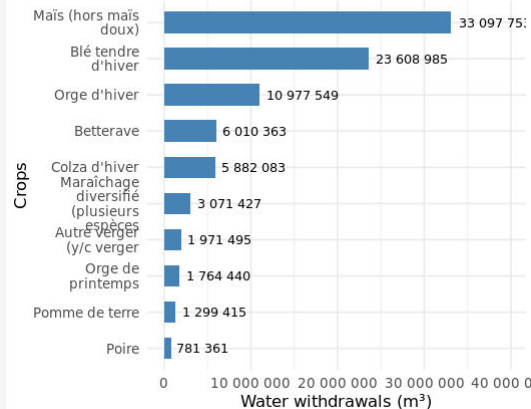
Exposure

Water use

Water withdrawal per culture (m³)

Most water-consuming crops

Val-d'Oise



To operationalise risk assessment, it is necessary to define materiality thresholds for indicators for each risk component

Example of the agricultural sector

1. Identification of relevant indicator



2. Associated data layer gathering



3. Definition of relevant ecological thresholds

Indicators	Land use		Water use	Pollution		
Risk components	Agri-Environmental Infrastructures (AEI)	Land cover		Nitrate	Phosphorus	Pesticides
Hazard						
Ecosystem vulnerability	Threshold of less than 20% AEI above risk is considered low, between 10% and 20% medium and below 10% high.	Land use per culture (land cover & rotation) & threshold (yes/no) based on the maintenance of soil cover with a mean rotation of cultures	Thresholds of 5% (high materiality) and 0.1% (medium materiality) of the Blue Water Reduction Target from the Water Footprint Assessment tool	Nitrate concentration, phosphorus concentration in water (mg/L) & thresholds of critical load for the ecosystem: - Nitrates et phosphorus : ▪ 2.5 mg / L for N ▪ 0.32 mg/L for P for rivers; ▪ 0.5mg/L for N ▪ 0,024 mg/L for P for stagnant waters (Garcia-Vega et al., 2024)		Pesticides concentration (µg/L) & thresholds: ▪ Regulatory thresholds in water
Economic exposure	Surface of agricultural lands	Surface of agricultural lands	Water withdrawal per culture (m ³)			

Finally the materiality of physical risk can be aggregated across indicators and geographies

Example of the agricultural sector

Portfolio:
France portfolio ▼

Sector:
Agriculture ▼

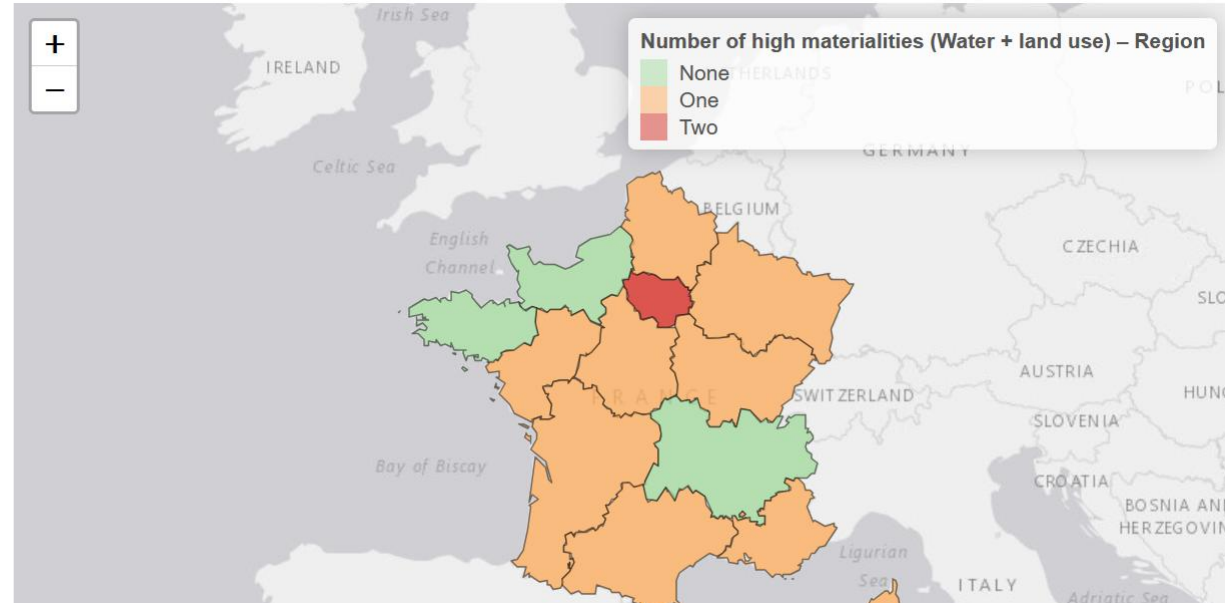
Category:
Water use ▼

☐ Indicators ☒ Materiality

↔ Switch department/region

≡ Disaggregate materialities

Combined data





Business @COP17

Groupe WhatsApp



Join the **Business @COP17 WhatsApp group** to get info on business-related side events and promote yours!



If you're working on topics related to Ecosystem condition, join the **Ecosystem condition gathering - Catalysing collaborations around ecosystem condition (drinks)** on 23/10 starting at 19:30 at Bar Phonix near the TNFD Hive (drinks are at each attendee's own expense). More details on the public data, nature credits, physical risks, etc. calendar:





Next up

13:00 – 14:00

From Water Risk to Financial Resilience: Developing the Next Generation of Nature Stress Tests

Take a look
at our programme:





BiROFin

From water risk to financial resilience

CBD COP17 – Netherlands Pavilion – Blue Zone - Thursday 22 October 2026 | 13:00 - 14:00 |



From understanding nature-related risks to protecting and recovering the value of nature



Goal: Protect and recover the value of ecosystem services



Starting point: Biodiversity loss and climate change are eroding the ecosystem services that economies and financial stability depend on

- **Public-private partnership (2024–2027)** bringing together WUR, the Foundation for Sustainable Development and financial-sector partners.
- **Objective:** Quantify the macroeconomic consequences of biodiversity and ecosystem-service loss and identify opportunities to mitigate them.
- **Applications:** Support financial-risk assessment, portfolio stress testing and investable solutions

Connecting biodiversity science, economic modelling and finance to understand risks and identify opportunities for action

From water risk to financial resilience

CBD COP17 – Netherlands Pavilion – Blue Zone - Thursday 22 October 2026 | 13:00 - 14:00 |



Haki Pamuk,
Senior Impact Evaluation and
Investment Researcher, WUR



Nico Polman,
Senior Economics
Researcher, WUR



María Naranjo-Barrantes
Senior Researcher in
Sustainable Finance and Trade,
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Caroline van Leenders,
Senior Process Manager,
Sustainable Transitions,
Netherlands Enterprise
Agency



Marcia Arredondo Rivera,
Moderator - Researcher on
Valuation of Nature, WUR

Water-related insights for portfolio stress testing

Haki Pamuk

Project Coordinator and Senior Impact
Evaluation and Investment Researcher.
Wageningen Social & Economic Research



Climate-biodiversity integrated, future, global, nature scenarios

1

Biodiversity pressure

Human modification, the Pesticide Application Rate Index, GLOBIO model MSA projections

2

Climate+biodiversity scenarios

Ecosystem services level

3

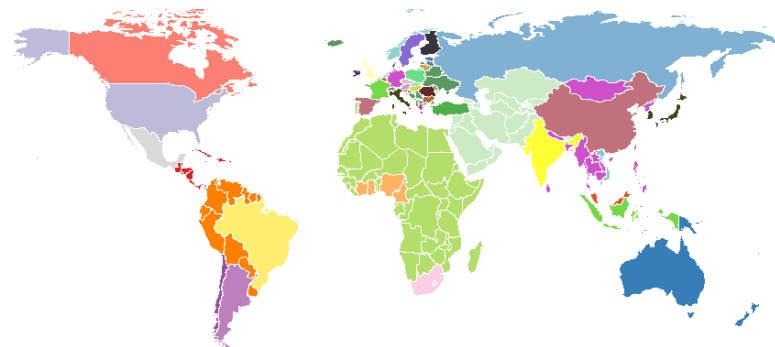
Global economic model: MAGNET

Damage functions

4

Economic impact per country-sector

Lost production and value added, price changes compared to reference scenario



59

countries
and regions

39

economic
sectors

2050

time
horizon

19

scenarios



Next....



- Global scenarios: Where water stress hits hardest
- Material risks: What water services loss may cost
- Integrated scenarios: The added economic effect of biodiversity loss
- Global economic model: Importance of supply chains and market adjustment matter

By 2050, water quality and quantity stress is highest in China, India, the Middle East and North Africa

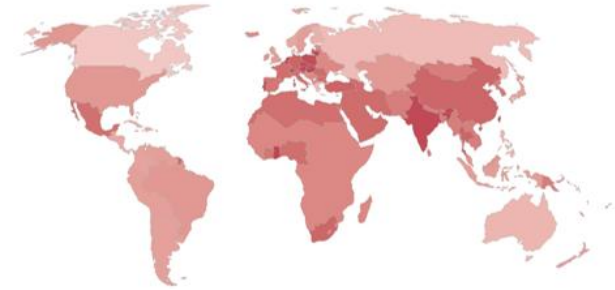
Highest stress

China, India, Middle East and North Africa; in Europe: NL, CZ, SK, HU

Lowest stress

Russia, Canada and Norway

Quality 2050 SSP5



Quantity 2050 SSP5



Darker red = more stress

Scenarios Water_RCP2.6 (SSP2) and Water_RCP8.5 (SSP5). Water-basin results aggregated to countries and regions using population weights, [wang et al. \(2024\)](#)

Water services loss: Material risk for global economy through both **price increases and economic activity loss**

2050, and vs. a the reference (SSP2) scenario

Global prices for agricultural prod. & manufac. food products.

5%-15%

relative to other sectors

Global economic activity (GDP)

-5% to -8%

compared to reference scenario

Accounting for **biodiversity loss adds** 1–3 points to the GDP hit from water stress



What we tested

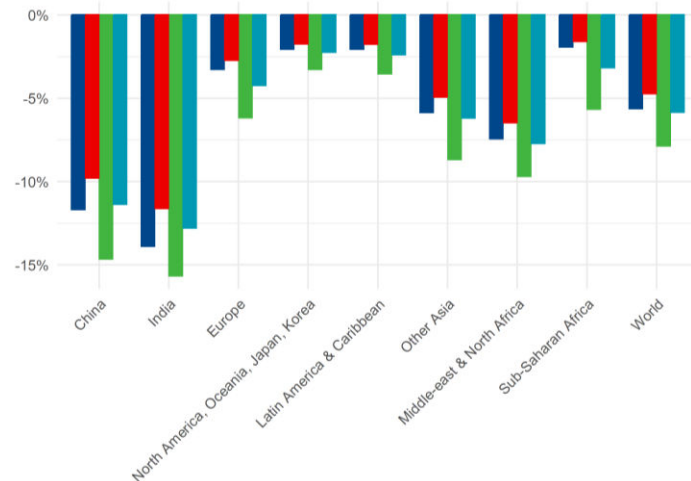
Biodiversity loss makes water systems less resilient. Here we switch on and off that effect.

High-emission path

SSP5-RCP8.5: biodiversity plays a bigger resilience role

+3 pts
extra GDP loss
out of 8 pts

GDP change (%) by region vs. reference, 2050



■ RCP2.6, with effect

■ RCP2.6, without

■ RCP8.5, with effect

■ RCP8.5, without

Supply-chain and market adjustment effects are critical to include in sectoral financial risk analysis



Global production loss by 2050 vs. reference

	Direct productivity loss	Total loss
Agriculture Resources shift to food	~3.7% →	~1.8%
Food services Rely on farm inputs	~0.8% →	>6%
Manufacturing & mining Fewer resources left	1.7% →	>5%
Services Indirect economic effects	0.5% →	~4.5%

Investable solutions for water related stress

Nico Polman

Senior Economics Researcher
Wageningen Social & Economic Research



WAGENINGEN
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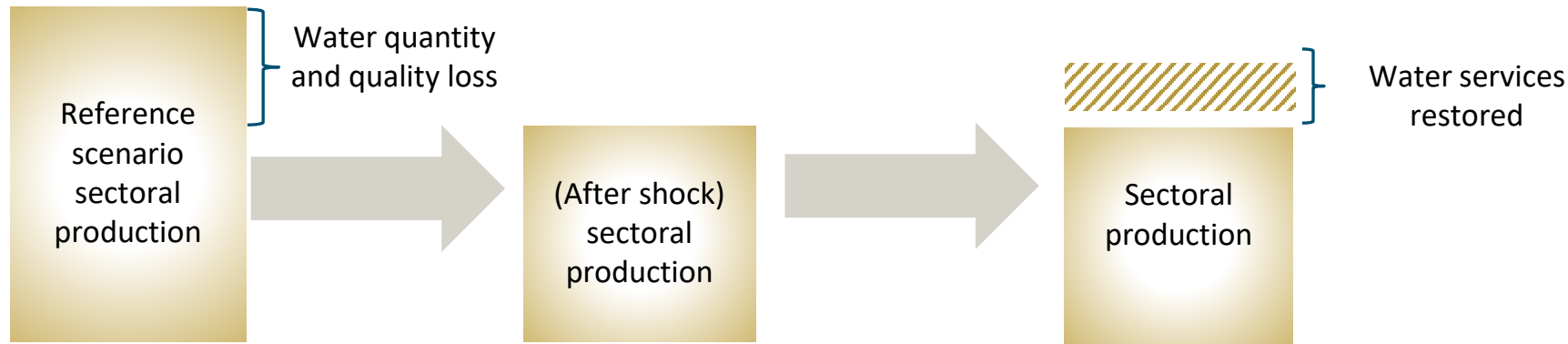
BiROFin



What is this work? And why this is important



The need to restore water services resulting in investable\abatement solutions



Nature Scenarios 2050 for Water quantity and quality services shock:
Lower production agriculture, industry, services production levels

Investable\abatement solutions:
Any measure or set of measures designed to improve water quality and reduce quantity loss per spatial unit

BiROFin investable solutions database



From extrapolating to promising options for the financial sector

Bottom-up approach to abatement solutions database:

- We **extrapolate to sector-country** level
- Outcome: the **most promising solutions the financial sector** can invest in
 - **Social benefit over cost** (A potentially viable business case:
 - High **investment and market potential**

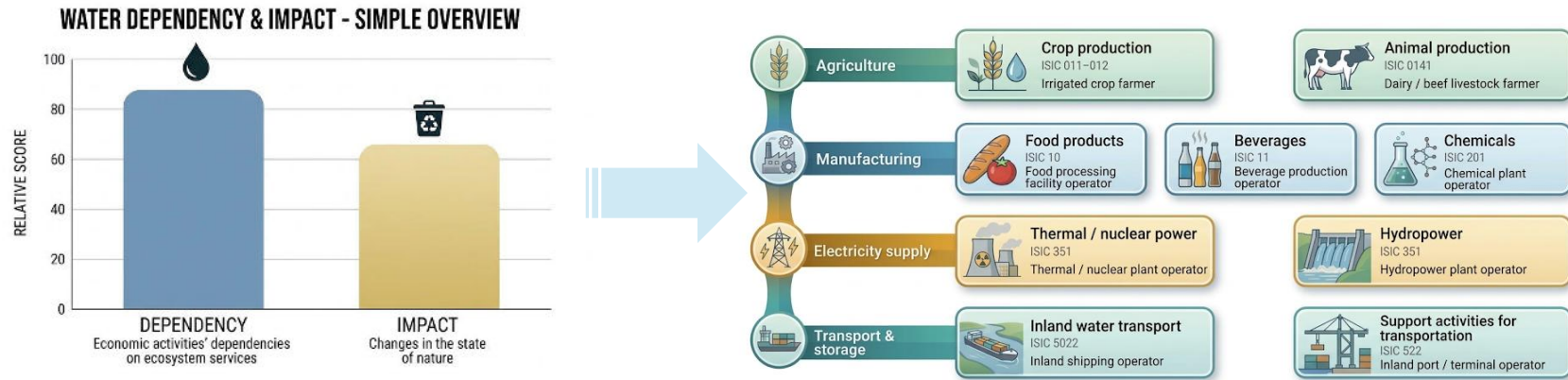


From micro to macro impact:

We focus on sectors with highest water dependency and negative effect on water

Sectors were selected based on two criteria:

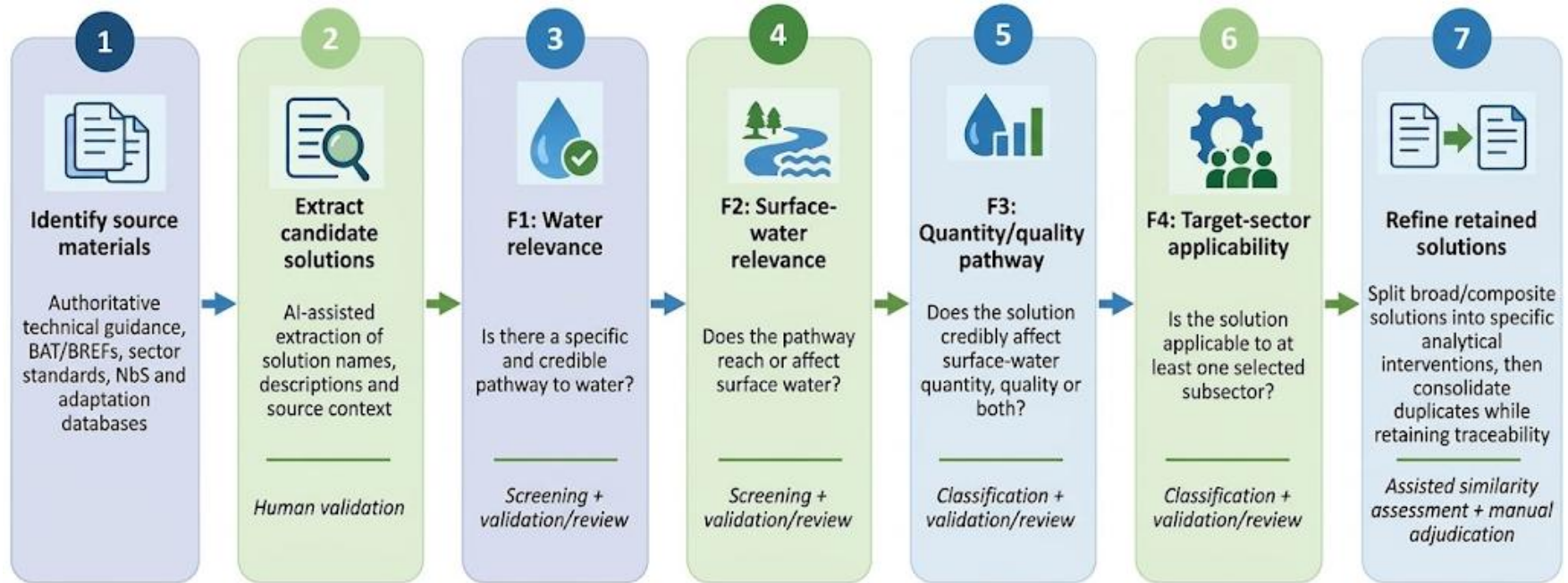
- 1. Significant surface water dependency or impact**, assessed using the ENCORE framework:



- 2. Validated through consultation** with BiROFin financial sector partners.

A seven-step screen identifies the investable and scalable water solutions with the greatest impact

AI-assisted extraction, expert validation and stakeholder consultation



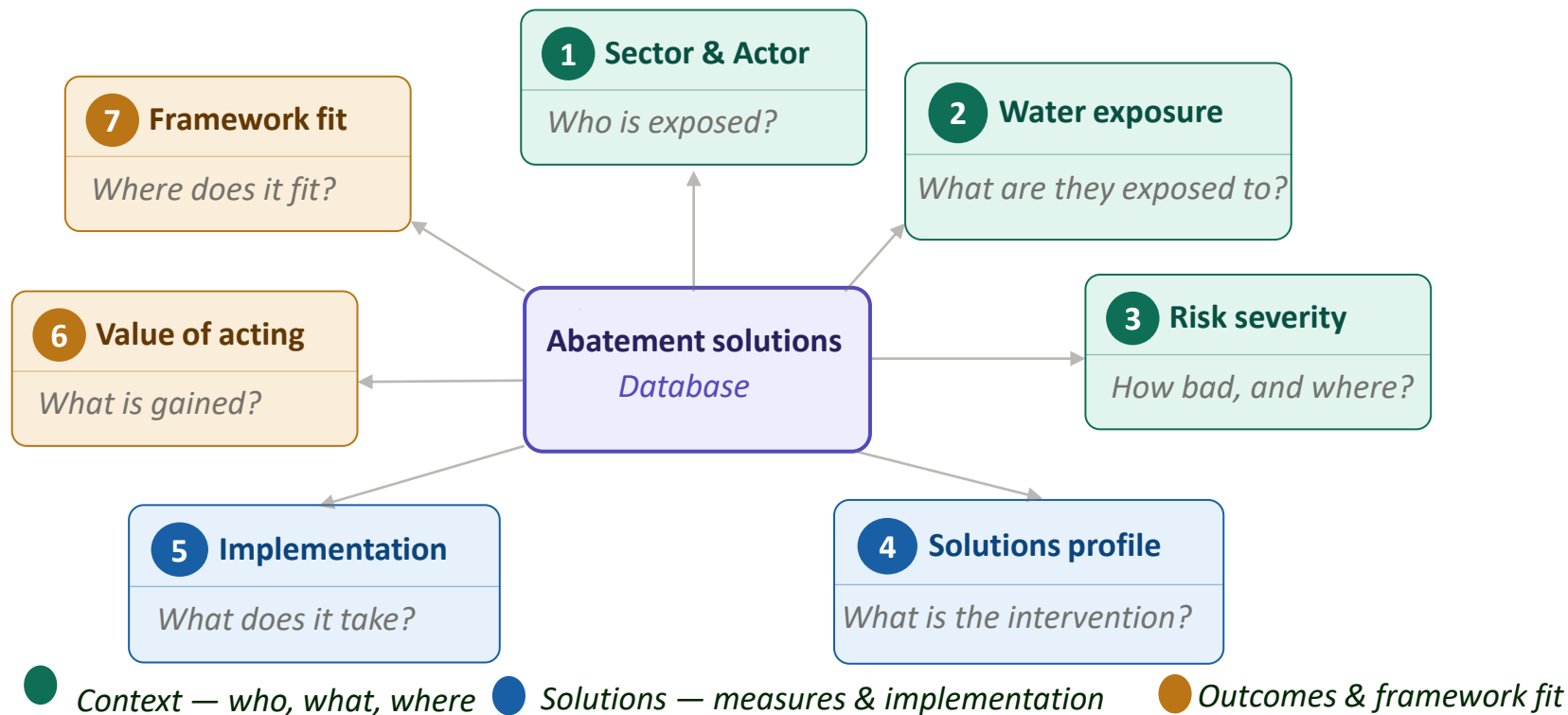
Investable solutions: context, intervention, outcomes

Developing user relevant metrics together with private partners

Solutions	Description of the solution	Type	Surface water risk dimension (quality, quantity, both)	How it reduces water risk	Implementation level	Who implement it	CAPEX level
Precision irrigation	Applies water efficiently and directly to crops (drip/sprinklers) to reduce excess application and water abstraction.	Engineered / technical	Quantity	Reduces water abstraction and avoids excess runoff/leaching.	Farm level	Farmers / land owners	High
Conservation tillage	Minimizes soil disturbance and maintains crop residues to reduce sediment runoff and improve infiltration.	Operational / management	Both	Lowers erosion + runoff; improves infiltration and soil water storage.	Farm level	Farmers / land owners	Medium
Collective water user agreements / irrigation quotas	Farmer collectives or water boards formalise abstraction-sharing rules and drought rotation protocols	Behavioural / incentive	Quantity	Prevents tragedy-of-the-commons abstraction; reduces scarcity risk at basin scale	Catchment level	Water boards / farmer cooperatives	Low
Manure storage and slurry management infrastructure	Covered, sealed slurry stores with sufficient capacity to avoid overflow events and enable controlled spreading during low-risk periods	Engineered / technical	Quality	Eliminates uncontrolled nutrient and pathogen discharge to surface water from overflow	Farm level	Farmers / land owners	High
Constructed wetlands for farm effluent treatment	Shallow vegetated wetland systems that treat dairy yard runoff and parlour washings before discharge or reuse	Nature-based (NbS)	Quality	Removes pathogens, N, P and BOD from effluent; reduces acute pollution risk to surface water	Catchment level	Water boards / regional authorities (coordinating), with landowners as hosts	Medium
Rainwater harvesting for livestock drinking	Collection and storage of rooftop rainwater to substitute surface water abstraction for animal drinking and yard	Engineered /		Reduces surface water abstraction during low-		Farmers / land owners	Low

Investable solutions: context, intervention, outcomes

Developing user relevant metrics together with private partners



From scenarios to action: making nature-risk data usable for finance

María Naranjo Barrantes

Project Coordinator and Senior Researcher
in Sustainable Finance and Trade.
Wageningen Social & Economic Research



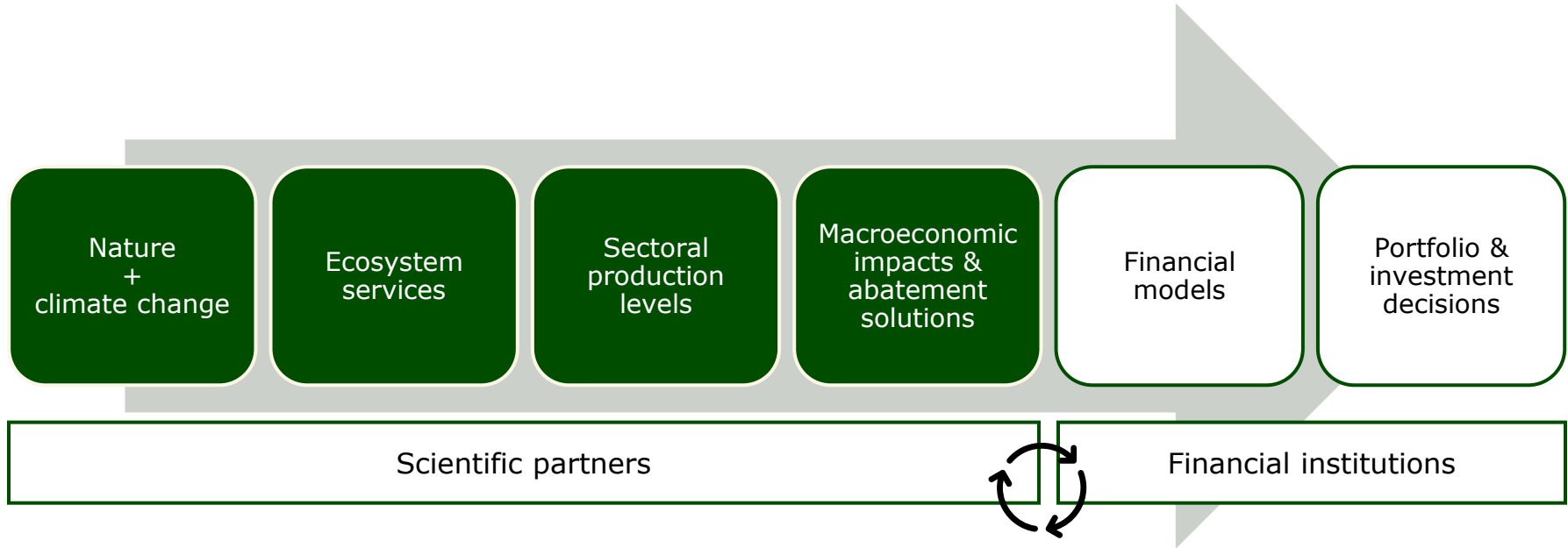
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From better scenarios to better decisions

The next challenge is not only generating better data — it is getting them used



From data to action: Who can use these insights?

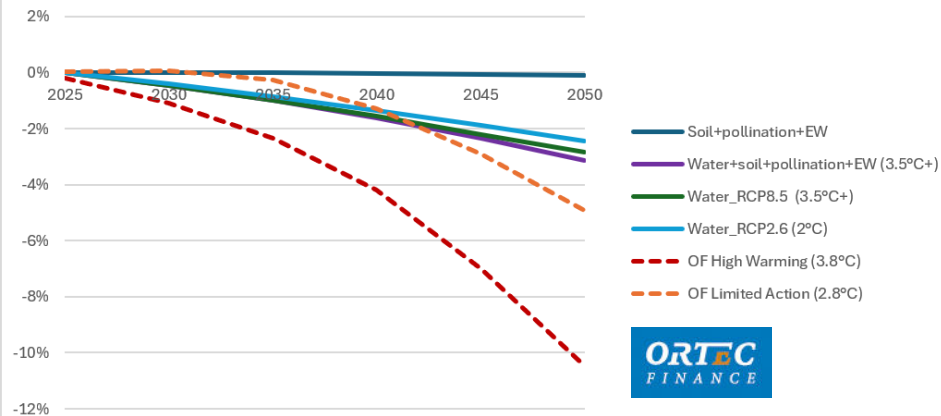
Focusing on the users best positioned to integrate BiROFin insights into financial decisions

Target users

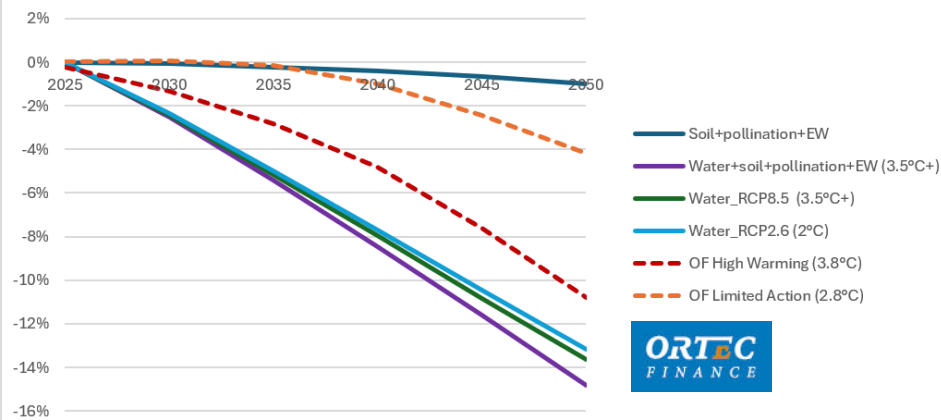
Potential applications

- | Target users | Potential applications |
|---|--|
| 1 Banks | ➤ Assess water-related economic risks and identify relevant response measures for clients. |
| 2 Investors and asset managers | ➤ Screen country–sector exposures and assess companies' water-related actions. |
| 3 Risk modelling and analytics providers | ➤ Integrate macroeconomic scenarios into stress tests and explore potential risk-reduction measures. |

US GDP Level delta to baseline



China GDP Level delta to baseline



28 February 2023

04 Biodiversity and the financial sector: the framework

07 The challenges in measuring biodiversity loss: There is no price tag (so far)

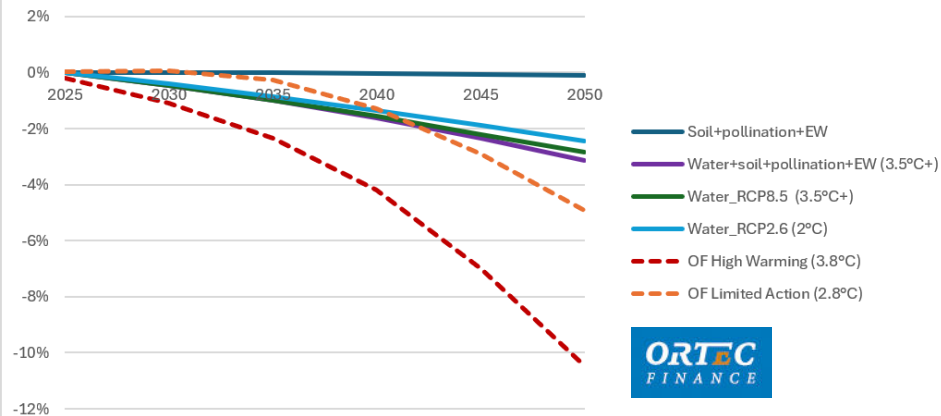
09 The pilot study on pollination-service loss: First quantitative results

Allianz Research

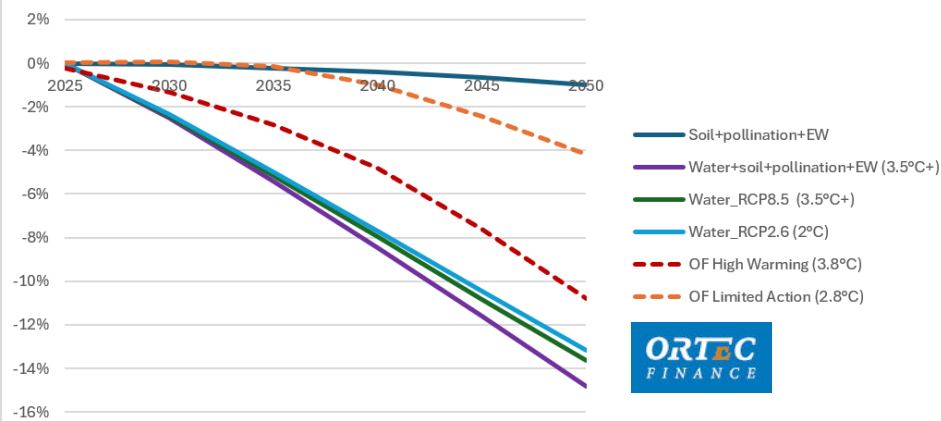
The new risk frontier in finance: biodiversity loss

Concepts, challenges and a first quantitative case study on pollination

US GDP Level delta to baseline



China GDP Level delta to baseline



28 February

14 June 2023

05
How biodiversity loss impacts
the financial sector

09
How biodiversity loss can be
prevented

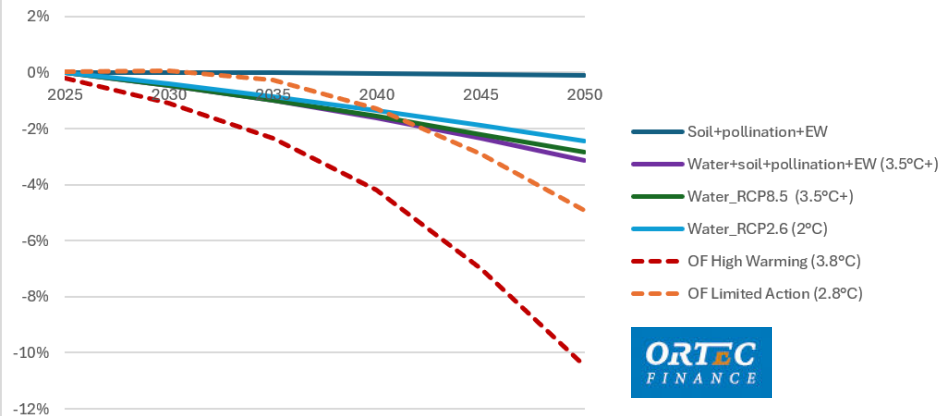
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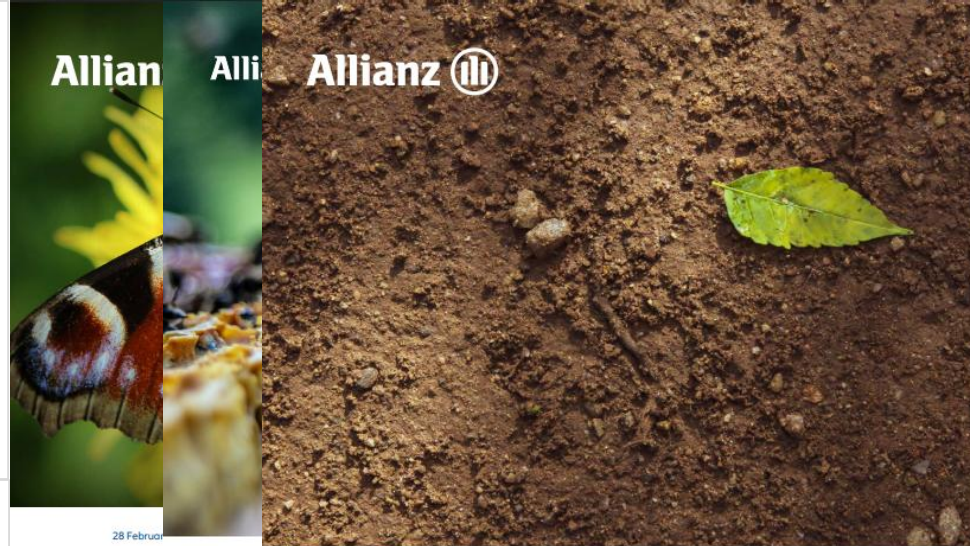
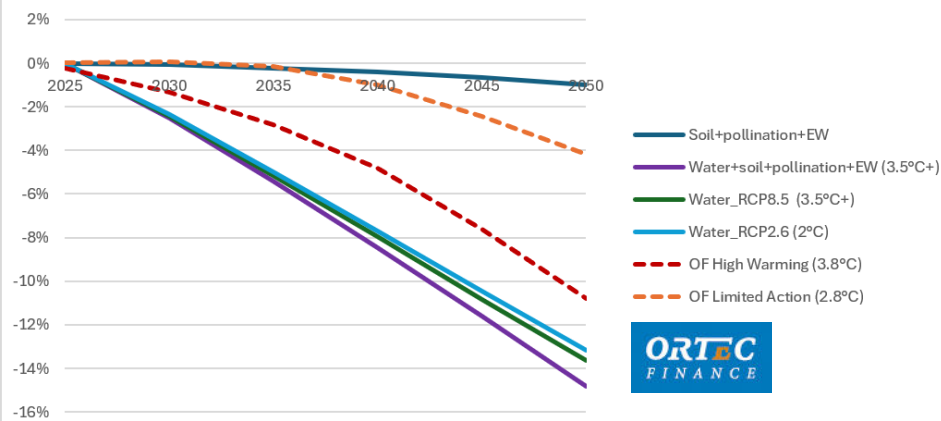
Biodiversity loss part II: portfolio impacts and abatement measures

A quantitative case study on pollination

US GDP Level delta to baseline



China GDP Level delta to baseline



28 February

14 June 20

30 April 2024

03 The knowledge gap

04 Ecosystem services of soil

05 The social costs of soil organic carbon (SOC) loss

07 Abatement measures to preserve soil quality

The ir B ak

Allianz Research

Ashes to ashes, carbon to soil

A cost-benefit analysis of abatement measures to increase soil carbon-sequestration capacity

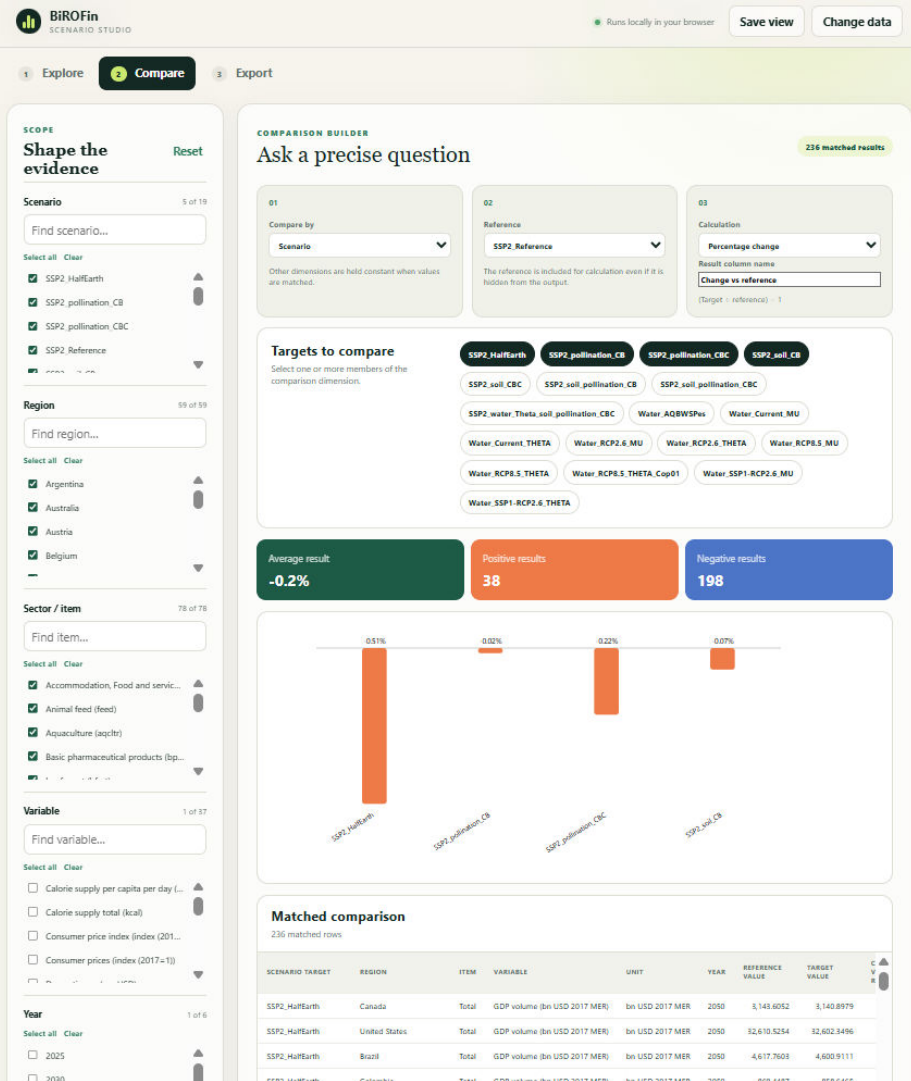
Making BiROFin accessible,

Two complementary pathways: Better data finance collaboration

BiROFin scenario explorer

- Provide structured access to macroeconomic scenarios
- WUR data infrastructure
- Maintain and update datasets over time

Data that users can access and integrate



Making BiROFin accessible, usable and actionable

Two complementary pathways: Better data access and stronger science-finance collaboration

BiROFin scenario explorer

- Provide structured access to macroeconomic scenarios
- WUR data infrastructure
- Maintain and update datasets over time

Data that users can access and integrate

Science-based Alliance

- Connect scientists and financial-sector users
- Interpret scenarios and uncertainties
- Identify user needs and future research priorities

Knowledge that users understand and apply



Foundation for
Sustainable
Development

ING



Allianz



apg



COMMERZBANK



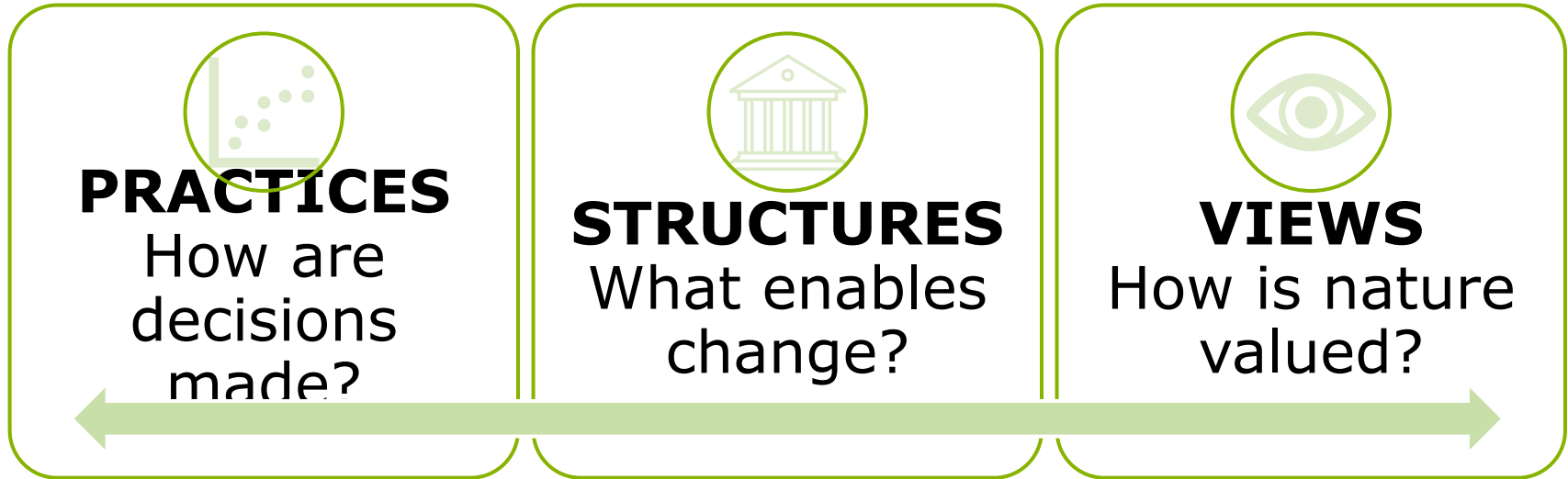
KFW



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Transforming finance requires more than better data

Creating change requires shifts in practices, structures and views



From water risk to financial resilience

CBD COP17 – Netherlands Pavilion – Blue Zone - Thursday 22 October 2026 | 13:00 - 14:00 |



Haki Pamuk,
Senior Impact Evaluation and
Investment Researcher, WUR



Nico Polman,
Senior Economics
Researcher, WUR



María Naranjo-Barrantes
Senior Researcher in
Sustainable Finance and Trade,
WUR



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PBAF Programme Director
Partnership for Biodiversity
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Sustainable Transitions,
Netherlands Enterprise
Agency



Marcia Arredondo Rivera,
Moderator - Researcher on
Valuation of Nature, WUR



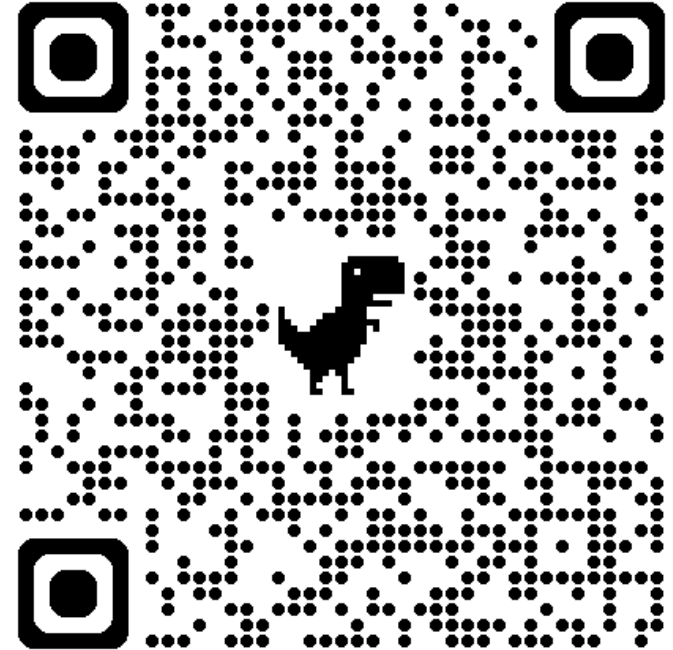
BiROFin

Thank you for your participation!

We share updates on research progress, upcoming publications, and stakeholder engagement opportunities through external workshops and public channels. Interested parties can stay connected through our project website or by contacting the research team directly.

Haki Pamuk
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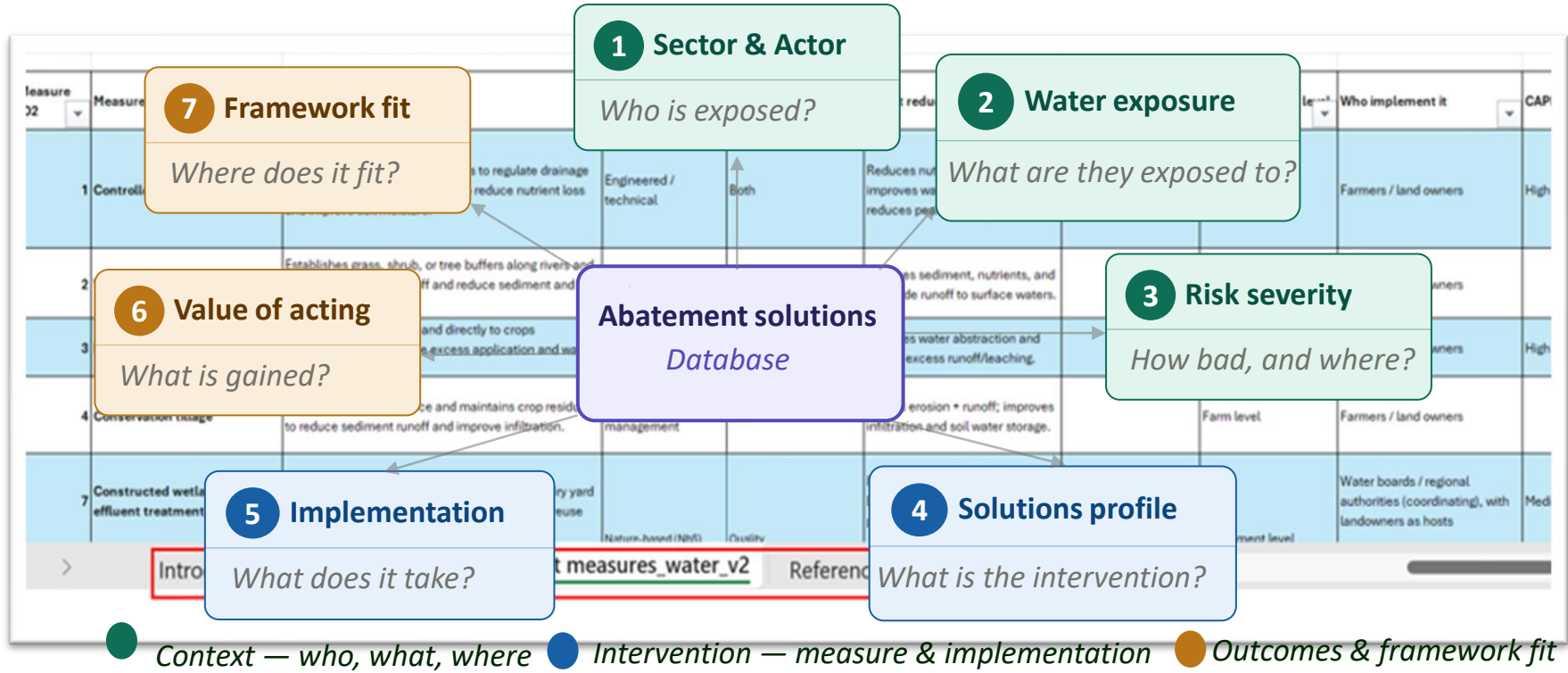


This project receives financial support from the Knowledge and Innovation Agenda of Agriculture, Water, Food (KIA) in co-creation with industry leaders:



Abatement solutions: context, intervention, outcomes

Developing user relevant metrics together with private partners



Next up

14:15 – 15:15

From global ambition to national targets: learning from and responding to collective ambition under the GBF

Take a look
at our programme:





PBL Netherlands Environmental
Assessment Agency

From global ambition to national targets: learning from and responding to collective ambition under the GBF

CBD COP17 side event Dutch Pavillion

Roos Immerzeel & Marcel Kok (PBL)

Natasha Ali (UNEP-WCMC), Gemedo Dalle
Tussie (NBSAP AP) & Hani El Bizri (Landscape
Alliance)



From global ambition to national targets: learning from and responding to collective ambition under the GBF



PBL Netherlands Environmental
Assessment Agency



PBL Netherlands Environmental
Assessment Agency

PLAY THE LONG GAME

Aligning national and international policies for nature and people with the long-term goals of the Global Biodiversity Framework



FROM GLOBAL AMBITION TO NATIONAL COMMITMENTS: NATIONAL TARGET SETTING UNDER THE GLOBAL BIODIVERSITY FRAMEWORK

A contribution to the Convention on Biological Diversity's Global Review

Roos Immerzeel, Marcel Kok, Stefan Troost, Christoph Krüger
22 July 2026

PBL



PBL Netherlands Environmental
Assessment Agency

How can we learn from translating the GBF to the national level to enhance future implementation efforts?

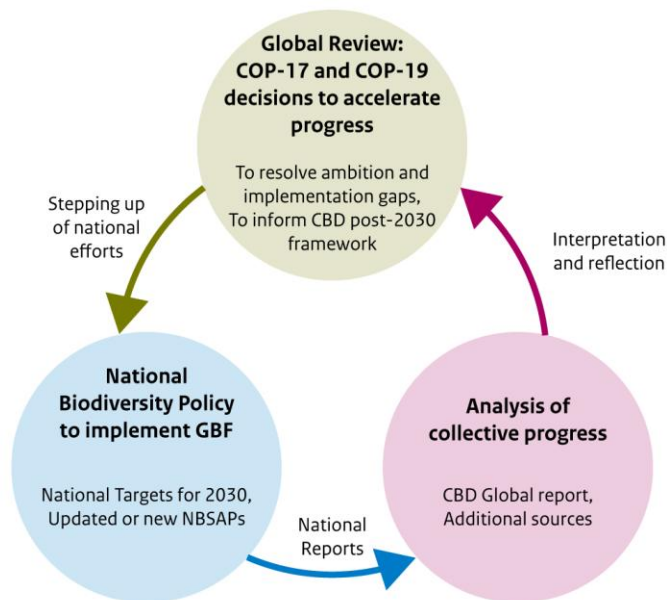
Roos Immerzeel

Researcher international biodiversity policy
@PBL the Netherlands Environmental
Assessment Agency

Global Review of progress towards implementation of the GBF

- Parties determine their national contributions in NBSAPs and/or national targets
- All Parties must work on all GBF targets, but how, and how much, they contribute is to be determined at the national level
- The Global Review looks at global collective progress
- To inform the 'stepping up of efforts' at the national level

Ambition and Implementation Cycle for the Convention on Biological Diversity (CBD)

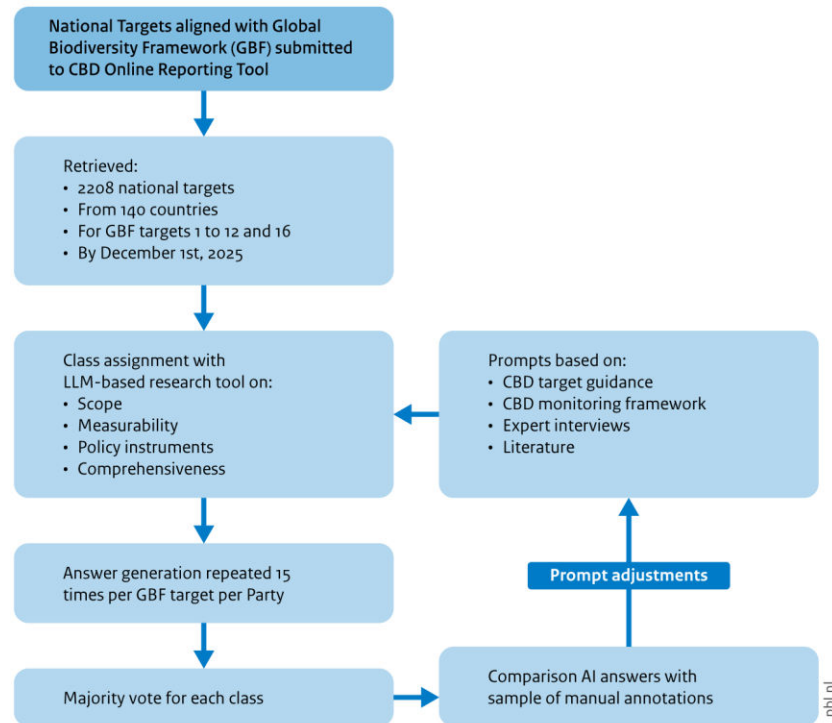


Source: PBL

Comprehensive analysis of national ambition

- › How is the GBF translated to the national level and what are focus, gaps, challenges and best practices in the collective effort towards its targets?
 - *Scope and quantified commitments*: are national targets following GBF targets?
 - *Instruments and comprehensiveness*: what commitments to implementation are specified?
- › Analysis of national targets aligned with GBF targets 1 to 12 and 16
- › 2,208 national targets provided by 140 Parties in CBD Online Reporting Tool

Overview of the analysis of national targets



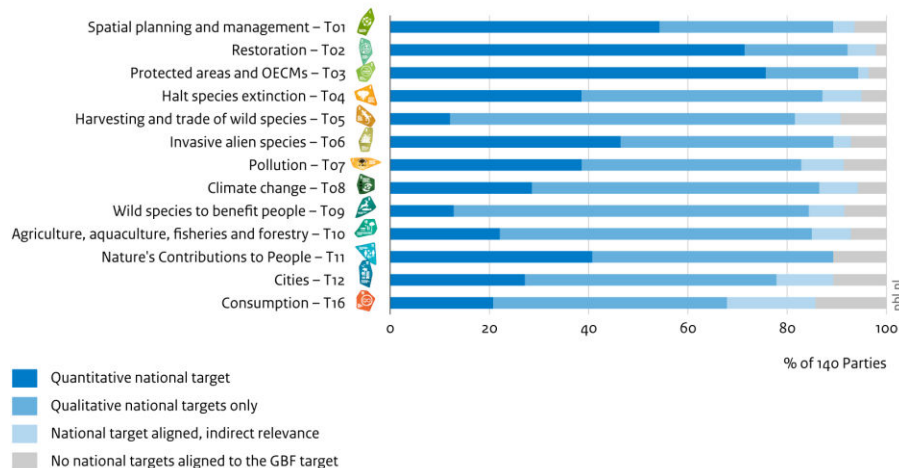
Aim of this study

- › Supporting accountability
 - What is the level of ambition reflected in national targets?
 - Do the collective commitments of Parties add up to the ambition of the 2030 action-targets and provide a credible pathway towards realizing the 2050 Goals?
- › Providing a basis for next steps in accelerating global progress
 - How do Parties intend to implement their national targets?
 - Will they realize their national targets with this?
- › Learning from national targets as a basis for future improvements
 - How is the GBF translated to the national level?
 - What are gaps, challenges and best practices in domestication of global targets?
 - How can we learn from translating the GBF to the national level to enhance future implementation efforts?

Patterns throughout the GBF targets:

- Most (specific) attention goes to conservation and land-use targets, followed by species targets and NCPs.
- Targets for (in)direct drivers receive least attention
- More attention given to ecological than to human target elements
- Collective ambition is not matching GBF ambition
- Most attention to legal and regulatory instruments, least to rights-based and customary norms

National target response under GBF targets directly relevant to GBF Goals A and B



Source: CBD ORT, 1 december 2025

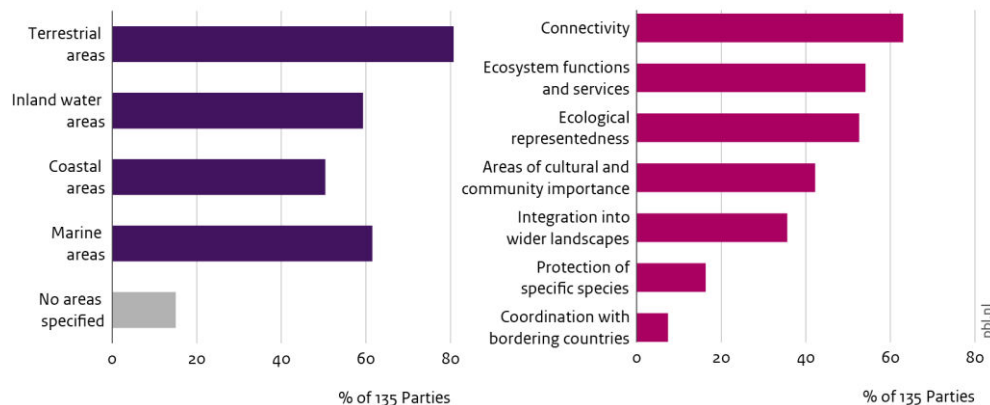


Conserve 30% Of Land, Waters and Seas

- Most often translated to the national level
- Relatively high number of quantified target, made specific to the national level
- Qualitative target elements, such as effective management and recognizing and respecting the rights of IPLCs, receive less attention

Coverage and quantification of GBF To3 in national targets

a) Areas specified to be under conservation through PAs or OECMs b) Conservation effectiveness considerations described



Historic, current and proposed percentages of terrestrial Protected Areas and OECMs

Region	2010 (%)	2020 (%)	Commitments 2030 (%; based on 1 April 2026 data)	Growth realised 2010-2020 (%pt)	Growth committed 2020-2030 (%pt; based on 1 April 2026 data)	Growth required from 2020 to reach 30% (%pt)
Global	13.4	15.7	27.5	2.3	11.8	14.3
Africa	16.9	19.2	26.4	2.3	7.2	10.8
Americas	18.9	21.6	39.0	2.7	17.4	8.4
Asia and the Pacific	9.7	13.2	26.8	3.5	13.6	16.8
Europe and Central Asia	13.4	15.3	16.2	1.9	0.9	14.7

(Immerzeel et al., 2026)

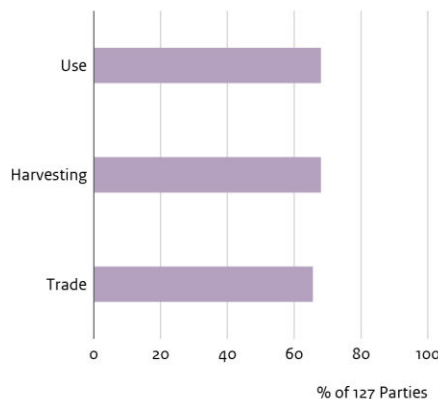


Ensure Sustainable, Safe and Legal Harvesting and Trade of Wild Species

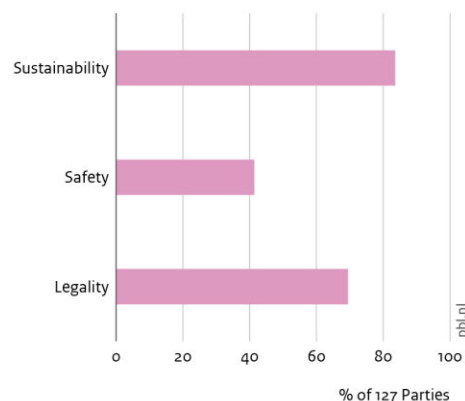
- > The many elements of the GBF target are generally mentioned in national targets
- > Safety and customary sustainable use by IPLCs receiving relatively little attention
- > Precise and country-specific target setting seems to be lacking
- > 34% specifies which (groups of) species are targeted, 18% describes how ecosystem approaches will be applied, 12% submitted quantified targets

Coverage and quantification of GBF To5 in national targets

a) Focus in national targets on use, harvesting and trade of wild species



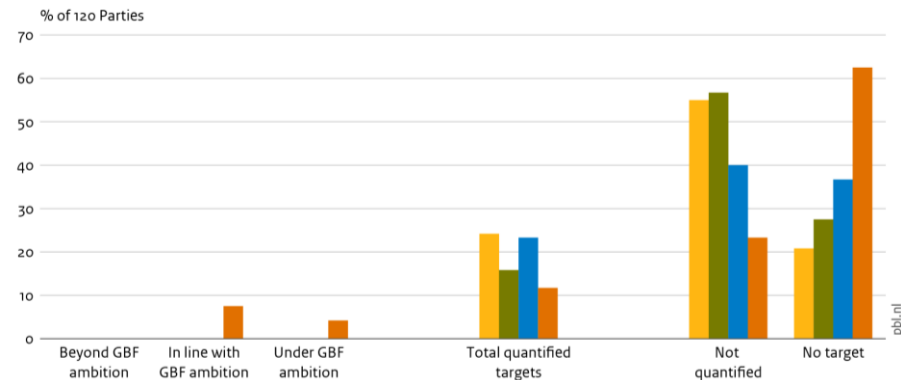
b) Focus in national targets on sustainability, safety and legality in relation to wild species



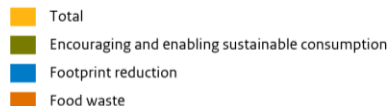
Enable Sustainable Consumption Choices To Reduce Waste and Overconsumption

- Receives the least attention out of targets analyzed
- Despite quantified GBF target element (reduce food waste by 50%), little quantified national targets
- Parties report that it is difficult to determine impact of efforts on consumption patterns (no headline indicator)
- Little explicit reference to country's external footprint and fair shares in footprint reduction

c) Measurability



Commitments on encouraging sustainable consumption and footprint reduction



Source: CBD ORT, 1 december 2025

GBF targets signposting transition pathways?

- › The GBF intends to guide the necessary transitions for biodiversity to meet its long-term goals
- › GBF targets do not stand on their own, they are interconnected
- › In national target setting, some target clusters already appear, often thematically but not around transition pathways

Nature-friendly and sustainable agriculture and food systems

88% of Parties have submitted national targets in alignment with T10.

Reduction of harmful incentives (T18), is referred to by 20% of Parties under GBF target 10.

60% refer to pesticides and hazardous chemicals, and 51% to nutrients and fertilizers under T7.

Under T11, 32% refers to soil health, 30% to water regulation, and 22% to pollination as an NCP

14% addresses agriculture as a cause of land-use change under T1



Hani R. El Bizri

Conservation biologist,
Sustainable Use of Wild Species
Transformative Partnership Platform
(SU-TPP) & Landscape Alliance

Natasha Ali

Head of Policy,
UNEP-WCMC

Gemedo Dalle Tussie

Knowledge and Learning Lead,
NBSAP Accelerator Partnership



Monitoring the sustainability of wild species use - who is measuring what under the Global Biodiversity Framework?

Henry Lethbridge and Dilys Roe

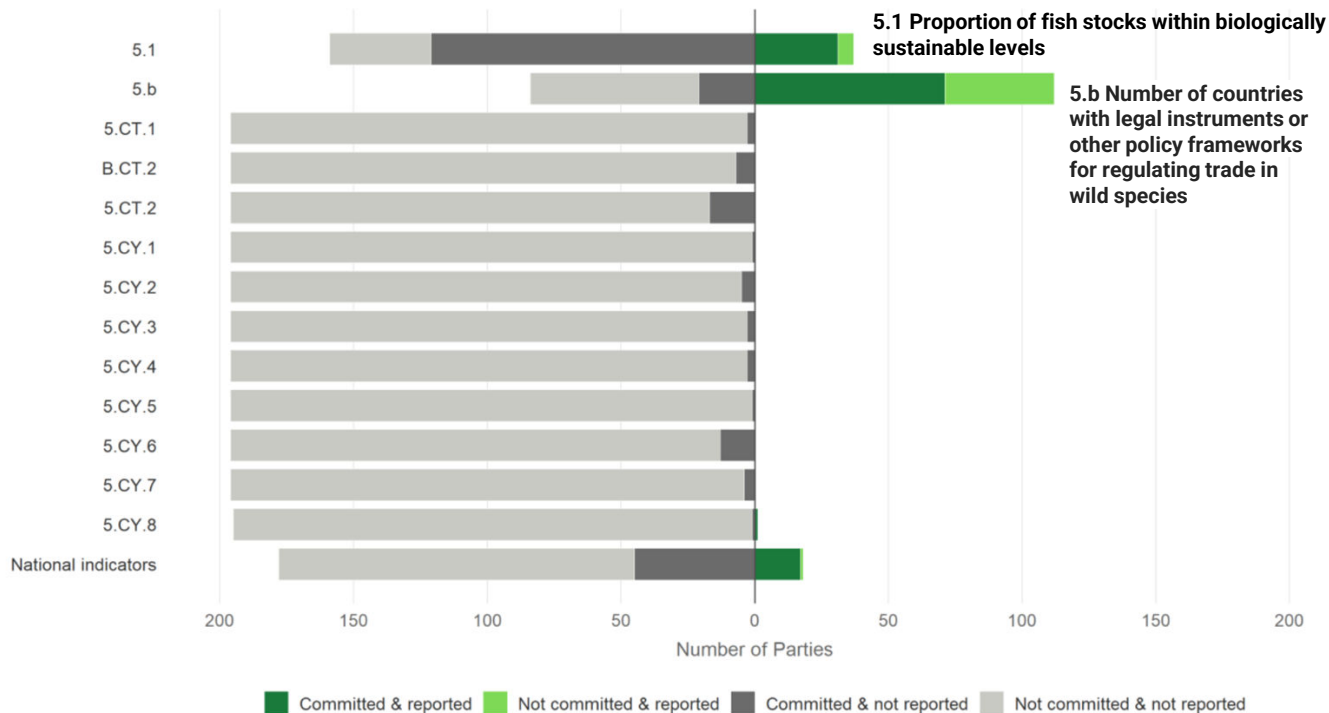
July 2026

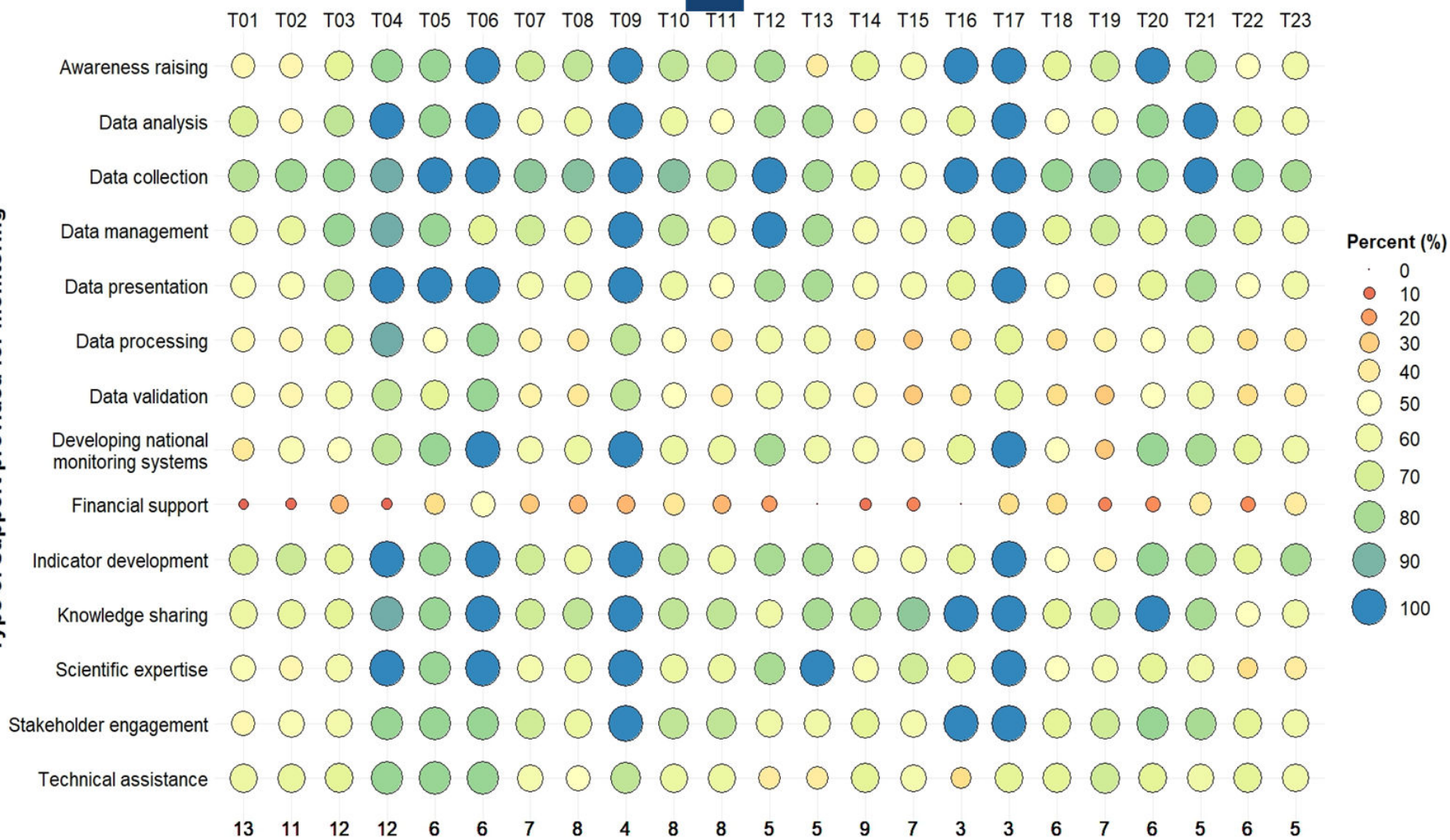


PBL Netherlands Environmental Assessment Agency

Target 5: Sustainable, safe and legal use of wild species

7th National Reports — number of CBD Parties (of 196) by reporting status







TARGET 3: Conserve 30% of Land, Waters and Seas

Type of support	Data collection	Data analysis	Data processing	Data validation	Data management	Data visualization	Indicator development	Develop national monitoring systems	Scientific expertise	Awareness raising	Knowledge sharing	Stakeholder engagement	Capacity development	Financial Support
Organization														
Carbone Guinée														
CDP														
CSIRO														
GEO BON														
Global Ecosystems Atlas														
IUCN														
KBA Secretariat														
NIES														
SANBI														
UNEP-WCMC														



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Natasha Ali

Head of Policy,
UNEP-WCMC

Gemedo Dalle Tussie

Knowledge and Learning Lead,
NBSAP Accelerator Partnership



Question for discussion

- › What can we learn from translating the GBF targets to the national level?
- › What requires attention towards 2030?
- › How to play the long game? What requires attention now to meet long-term biodiversity goals?
 - Synergies
 - Social dimensions
 - Transition pathways

Thank you for your attention

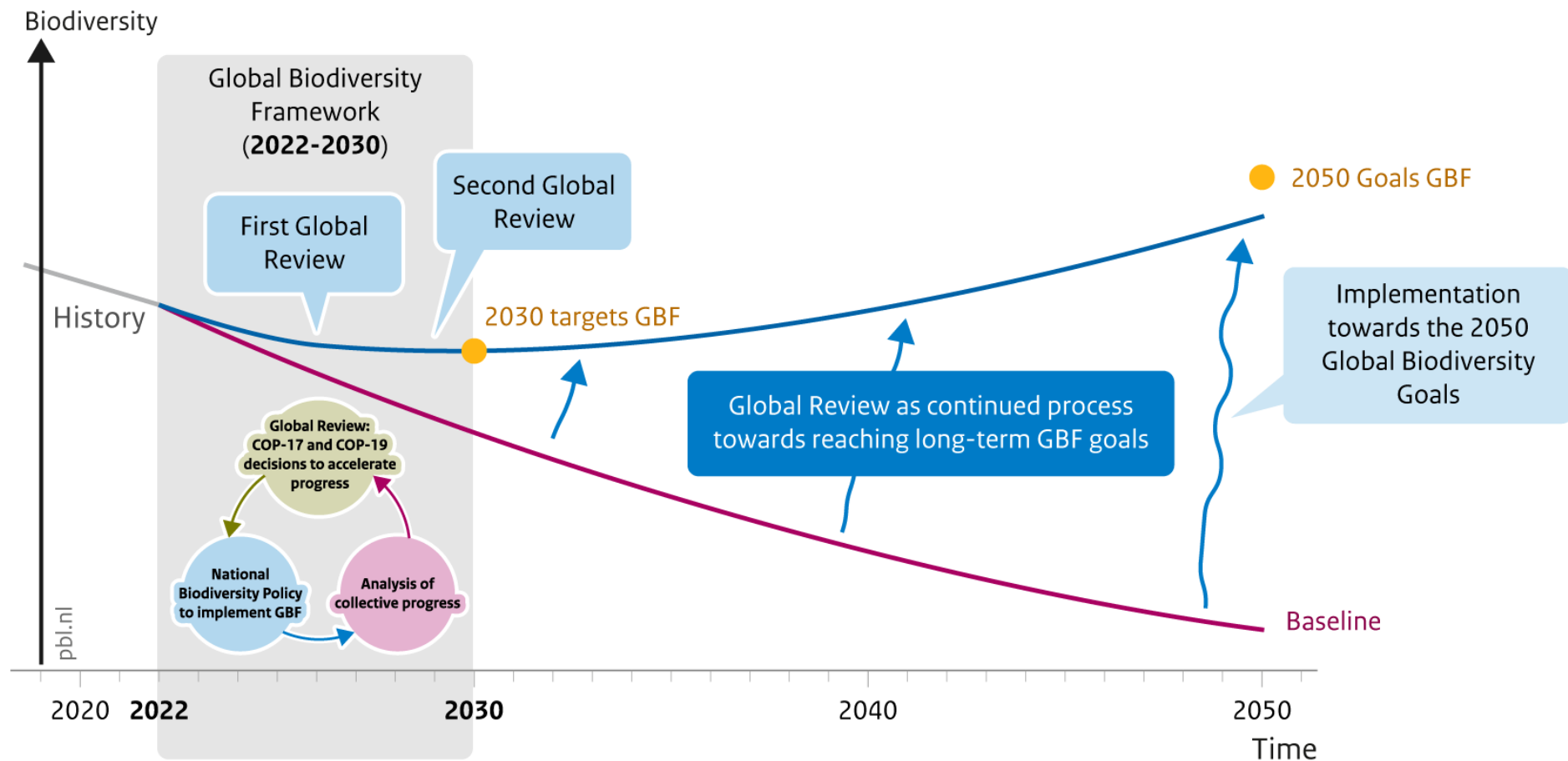
› Tomorrow (18:00 – 19:00):

'Are we on a credible pathway towards meeting the 2050 goals of the GBF? Towards just and effective implementation'

Roos.Immerzeel@pbl.nl

Marcel.Kok@pbl.nl

Convention on Biological Diversity (CBD) review process working towards the 2050 goals



Next up

15:30 – 16:30

Unlocking Private Finance for Nature-based Solutions through the Value of Ecosystem Services

Take a look
at our programme:





Netherlands Enterprise Agency

Unlocking Private Finance for NbS through the Lens of Ecosystem Services

Netherlands Pavillion
CBD COP17
22nd October 2026



Today's Agenda

1. Welcome by moderator **Deborah Heijblom** (Advisor Biodiversity & Finance - NL Enterprise Agency)
2. Mobilising private finance for NbS from a government perspective, **Deborah Heijblom** (Advisor Biodiversity & Finance - NL Enterprise Agency)
3. Advancing NbS in the Dutch water sector, **Daan Groot** (Domain Lead Financial Sector – NL Collective Nature Inclusive & Director Nature Squared)
4. NL2120 perspective on mobilizing private finance for NbS, **Marcia Arredondo Rivera** (Business Developer & Researcher - WSER, NL2120)
5. Building the case for NbS through the lens of ecosystem services, **Caroline van Leenders** (Program Manager Nature Finance - NL Enterprise Agency)
6. Panel Discussion
7. Q&A
8. Wrap up



Netherlands Enterprise Agency

Mobilising private finance for NbS from a government perspective

Deborah Heijblom

CBD COP17

22nd October 2026

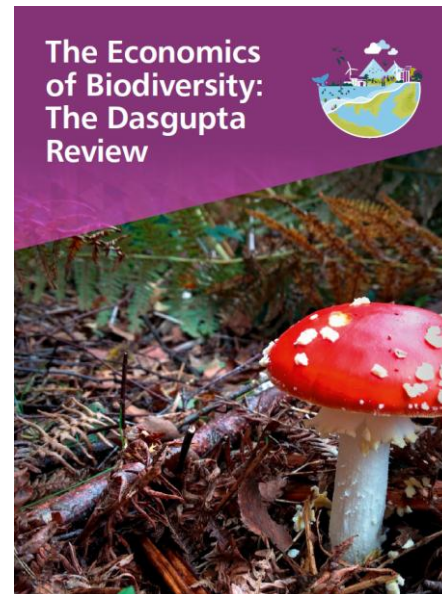


Why the private financial sector?

- Dasgupta Review; need the financial sector to drive change
- UNEP: financing gap of about \$598 to 824 billion per year
- WEF: About \$44 trillion in economic value depends on nature worldwide
- DNB Indebted to Nature: NL financial institutions depend on ecosystem services for 1/3 of their portfolio and the ECB followed

Aim of RVO program Nature Positive Financial Sector

- › Accelerating the transition to a nature positive financial sector
- › Three characteristics: multi-actor; multi-level; multi-phase



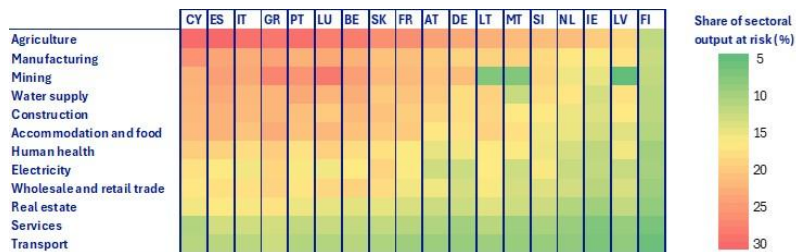


Five transition pathways towards a nature positive financial sector

1. Identifying and reforming biodiversity harmful subsidies
2. **Accelerating private investments in Nature-based Solutions for climate adaptation**
3. Accelerating landscape and place-based finance for nature
4. Stimulating financial innovation for nature
5. Developing methods and tools for measuring impact and dependencies



Climate adaptation as a societal and financial challenge



Share of national sectoral euro area economic output at risk from surface water scarcity

Source: Oxford Systemic Risk Score, EXIOBASE, ENCORE.

- **Climate change can be slowed down but not completely stopped.** Disruption of water cycles causes increased flooding and prolonged droughts.
- **Climate adaptation has financial implications.** The European Central Bank (ECB) states that Europe is not 'drought-proof' and that "*the degradation of nature could damage companies' production processes and weaken their creditworthiness*".
- **Frontrunners in the financial sector are looking for synergy between climate and biodiversity (IPBES-Nexus)** -> interest in investing in Nature-based Solutions.



Challenges in mobilizing private finance for NbS

- Nature does not have a price - benefits are not monetized, nor integrated into cost-benefit analysis or attributed to clearly identifiable stakeholders;
- NbS can appear more costly, more uncertain, and more complex than grey alternatives when broader benefits are excluded;
- Benefits are spatial, cross-sectoral and long-term.

The concept 'ecosystem services' provides a language and data to strengthen the investment case for NbS by monetarization.

It identifies **which value is created, who benefits from NbS** and therefore who may have an interest in investing.



Make nature count 2.0

Incorporating the value of nature in impact assessments of financial investments

Authors: Sjoerd de Groot, Wilco van Vliet, Wilco van Vliet, Wilco van Vliet, Wilco van Vliet



asn bank

tion of the role of (data on) ecosystem
s valuation in landscape development
PARISON BETWEEN PROJECTS IN THE NETHERLANDS, THE UNITED
D IRELAND





Our focus at RVO

1. Developing and sharing knowledge

- Commissioning studies (narrative, ESVD studies)
- Presenting our work in NL and abroad (webinars, Hong Kong, Prague)

2. Supporting coalitions and partnerships

- Close collaboration with NL2120, Collective Nature-Inclusive, DNB
- Connecting to challenges of the United Kingdom with our Embassy; EU Life-IP

3. System change

- Importance of place-based approaches for NbS in policy and finance
- Long term perspective – benefits manifest over longer time period





Signs of transition



- › **New language and concepts:** NbS, ecosystem services, water. This calls for new innovative public and private financial cooperation.
- › **From a sectoral to a landscape approach:** new tools like the Nature Inclusive Landscape Account.
- › **Variety of actors is growing:** a whole of society approach but also landscape actors for place-based finance.
- › **Financial sector is increasingly focusing on nature:** moving from awareness of risks and measuring to investing with a positive impact. This calls for new data, metrics and frameworks



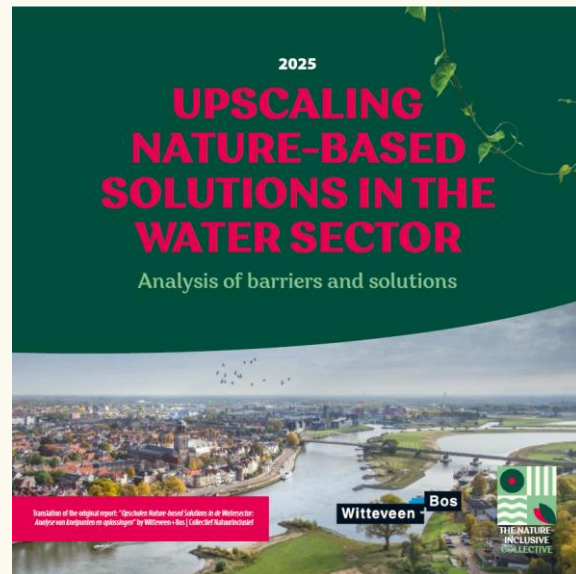
Thank you for your attention!

deborah.heijblom@rvo.nl



ADVANCING NBS IN THE DUTCH WATER SECTOR: INSIGHTS FROM THE NATURE INCLUSIVE COLLECTIVE

- NbS alternatives exist for every task of every water manager
 - Rijkswaterstaat, water boards, municipalities, provinces, drinking water companies, port authorities
 - 50 tasks analyses, NbS available for every task
 - The Netherlands already has a broad NbS portfolio
 - Examples range from dune reinforcement to constructed wetlands
- NbS can address both water quantity and quality challenges
 - Flood protection, drought resilience, water quality,
- NbS often generate additional societal value



SCALING UP NATURE-BASED SOLUTIONS IN THE WATER SECTOR

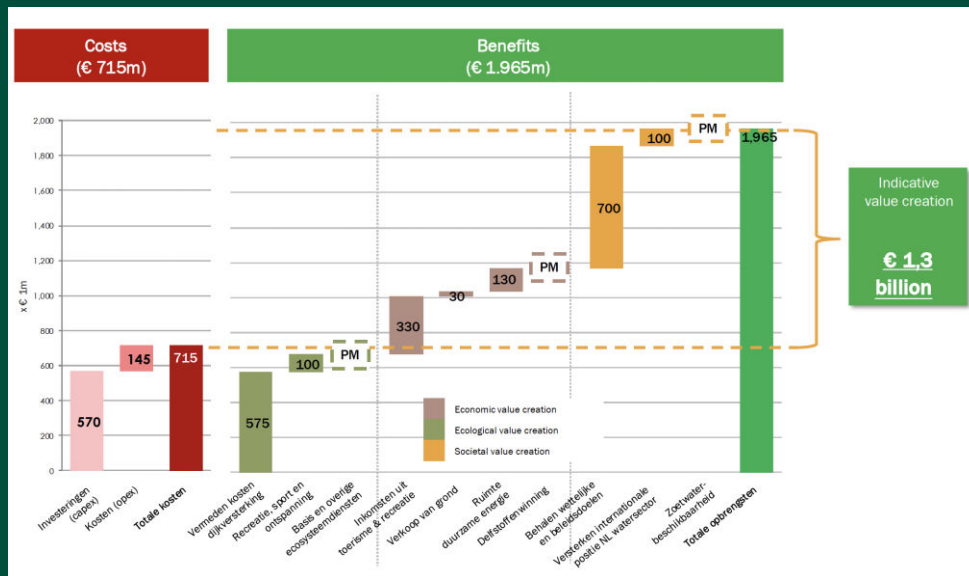
- If they are cheaper? Choose them!
 - NbS are frequently competitive on total lifecycle costs
 - Higher maintenance can offset lower replacement costs
 - Long-term perspective matters
- If they deliver more value? Choose them!
 - Even when NbS are more expensive, they often deliver more value
 - Ecosystem benefits increase total societal return
 - Social Cost-Benefit Analysis (SCBA) reveals this added value
- If an NbS still performs poorly? Redesign it!
 - Use a benefits-led design approach
 - Improve societal benefits and reduce negative impacts
- Decisions should therefore be based on total societal value, not only on short-term CAPEX comparisons



MAIN BARRIERS AND SOLUTIONS TO EACH BARRIER

Barrier category	Main barrier examples	Main solution direction
Knowledge & trust (4 barriers)	Uncertainty about effectiveness and safety	Large-scale pilots, monitoring and standardisation
Institutional (9 barriers)	Nature not part of organisational mission or mandate; siloed departments and budgets	Embed NbS in missions, manuals and procurement
Socio-economic (8 barriers)	Costs and benefits fall on different parties	Use SCBAs and organise co-funding mechanisms
Financial & accounting (5 barriers)	Limited upfront capital; balance sheet impacts and land value write-downs	Reduce funding gaps, improve financing conditions and recognise NbS value on balance sheets

Case study: Keteldelta





Case study: Flow-through marsh

- Benefit-cost ratio: 2,18 (€0.8m versus €1.74m)
- Underestimate: not all ecosystem services were modelled
- Expected to further increase with scaling

Way forward

Short-term tactical

- Institutionalise and standardise NbS
 - Embed NbS in manuals, procurement and maintenance processes
 - **Use SCBAs to structurally include ecosystem benefits**
- Improve implementation capacity and collaboration
 - Organise co-funding and tailored compensation mechanisms
 - Allocate coordination capacity for land consolidation and stakeholder alignment

Long term strategic

- Shift organisational missions and governance systems
 - Make nature part of every organisation's mandate and core business
 - Break through siloed structures and incentive systems
- Move towards societal-value-based financing systems
 - Use societal instead of purely financial benchmarks
 - **Develop biodiversity-credit and PES mechanisms**

Valuing ecosystem services of nature-based solutions

Approach and lessons from two Dutch cases

1 Measure the impact on ecosystem services

2 Express it in monetary value

3 Identify who benefits and who could pay

The method follows the data

Dutch bottom-up data where available; international ESVD values with a local improvement factor where not

Trade-offs and zeros are included

A negative value for farm income and a zero value for nutrients in the Rhine make the results credible

Only some values have a payer today

Carbon credits and biomass do; biodiversity has a high value but no market yet



Barsbekerbinnenpolder

Peatland rewetting, 160 ha, Overijssel

Photo: Herman Agricola



Source: Kok et al., 2025

Room for the River 2.0

River-floodplain reconnection, Rhine branches

Source: Arredondo Rivera, Szijarto et al., 2026. [Kansen voor financiering van NbS.](#)

Barsbekerbinnenpolder: peatland rewetting

Valuta voor Veen – 160 ha, Overijssel



Photo: Herman Agricola

Ecosystem services measured or estimated	Monetisation (€/ha/yr)
Climate regulation 745 t CO ₂ -eq avoided per year	503 – 1,457 Social cost of carbon (bottom-up)
Water regulation Groundwater level +17 cm (spring), +47 cm (winter)	881 ESVD value × 0.55
Biodiversity and habitat Meadow-bird habitat	1,247 ESVD value × 0.30
Soil Subsidence from about 4 to 1 mm per year	36 ESVD value × 0.88
Farm income About 30% lower yield	–223 Net farm income (bottom-up)
Recreation and culture Visitor numbers (93 visits/ha/yr)	522 ESVD value × 0.43

Value capture: carbon credits sold to a private buyer at about €100 per credit

Source: Arredondo Rivera, Szijarto et al., 2026. [Kansen voor financiering van NbS](#).

Room for the River 2.0: river–floodplain reconnection

Rhine branches – comparison of four river strategies



Source: Kok et al., 2025

Ecosystem services measured or estimated	Monetisation
Habitat provision Policy Achievement Index for national habitat targets: 0.70 under business as usual, up to 1.13	€100 – 300 per ha per year ESVD value, scaled by the index improvement
Water purification (N, P) Nutrient retention, estimated with three methods	€0 The Rhine already meets Water Framework Directive standards
Biomass About 41,900 t dry matter harvested per year; up to +36,000 t	About €2.1 million per year in potential sales, or about 50% lower management costs with grazing Market prices or avoided costs

Value capture: biomass sales and grazing contracts

Source: Arredondo Rivera, Szijarto et al., 2026. [Kansen voor financiering van NbS.](#)

FROM INTEGRITY TO INVESTMENT

Valuing the societal business case for NbS

What value is created, who benefits, and how can that inform finance?

Foundation for Sustainable Development · ESVD

ECOLOGICAL INTEGRITY

EVIDENCE & VALUE

FINANCE

COP17 · October 2026

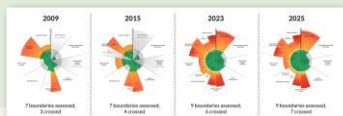


NbS are gaining momentum. The investment case still misses value.

01

RISING PRESSURE

Climate and water instability make resilient landscapes more important.



02

GROWING MOMENTUM

NbS are moving into policy, standards and implementation.



03

HIDDEN VALUE

Appraisals often prioritise short-term revenues over diffuse, long-term benefits.



≈3%

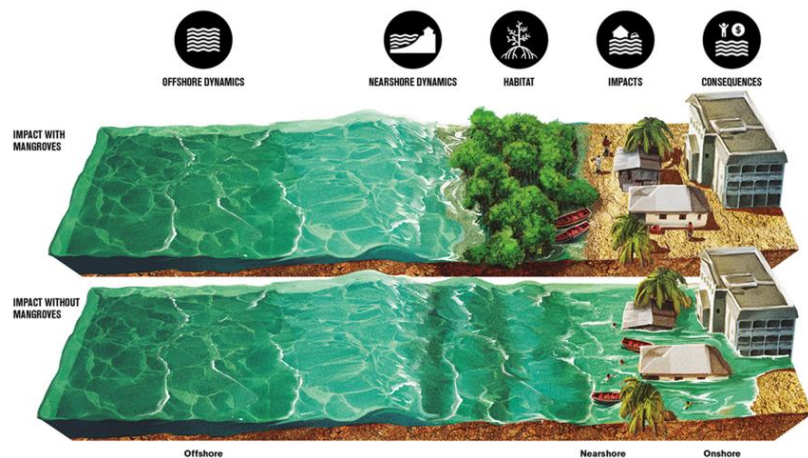
of 1,300+ European NbS projects received substantial private-sector financing

EIB, 2023

Low private uptake does not mean low societal value. It often means value is not visible—or not captured—in conventional appraisal.

One landscape, multiple services, different beneficiaries.

Ecosystem services are the benefits people receive from nature.



GBF TARGET 11 · NATURE'S CONTRIBUTIONS TO PEOPLE

FLOOD REGULATION

1

Avoided flood damage

Households · businesses · infrastructure

FISH NURSERY HABITAT

2

More resilient fisheries

Fishers · local food supply chains

RECREATION & LANDSCAPE

3

Well-being and visitor spending

Residents · tourism businesses

One intervention creates multiple benefits—but not one automatic revenue stream.

Valuation reveals wider benefits—without putting a price on everything.

A landscape approach follows the full bundle of services, not just the benefits that already have a market price.

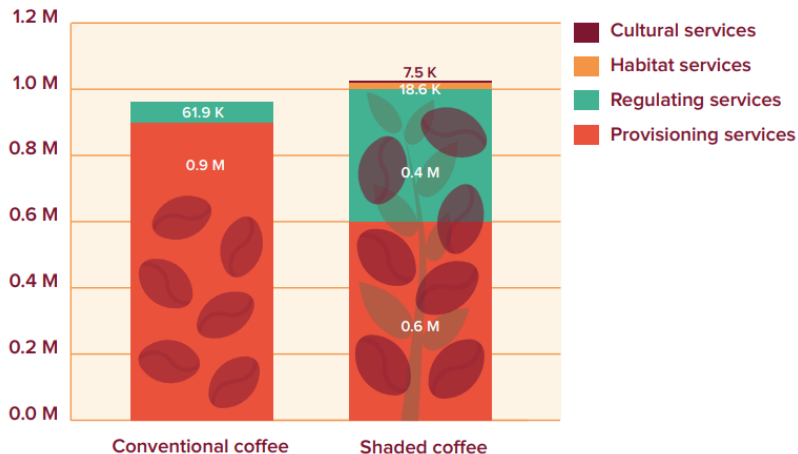
3



Van Leenders & Heijblom, 2024

The investment question: who captures what value in which landscape?

Total economic value per year



CONVENTIONAL COFFEE

More value concentrated in the marketable crop.

SHADED COFFEE

Lower provisioning value, more regulating and habitat services.

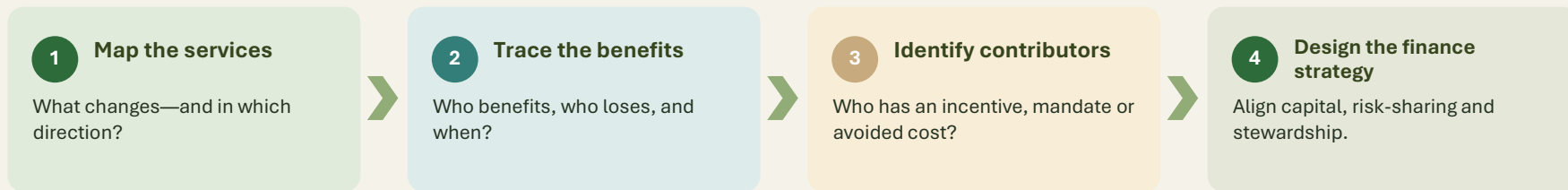
THE MISMATCH

The estimated total value increases, but much of the additional benefit is public or diffuse, it is NOT cash captured by the farmer.

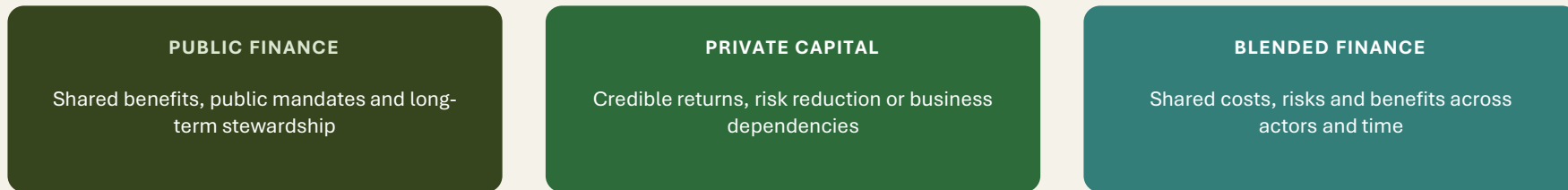
Financing implication

Example: Impact investment can recognise social and environmental gains alongside farm returns - as in the ASN Biodiversity Fund case.

Use valuation to design finance around the value created.



Potential pathways



Valuation is not the financing instrument. It helps us see where to look—and who needs to be sitting at the table.



Panel Discussion

- › How can ecosystem service valuation be integrated into the early stages of NbS design and planning to improve implementation and investment decisions?
- › How can public and private actors align to develop a shared vision for NbS and unlock opportunities for collaboration and investment?
- › Looking ahead to the next two to three years, what concrete joint initiatives are needed to accelerate investment in NbS?



Q&A



Monday Oct 19	Tuesday Oct 20	Wednesday Oct 21	Thursday Oct 22	Friday Oct 23	Saturday Oct 24	Sunday Oct 25
Official side event: Biodiversity financing for the implementation of the GBF: Results and lessons learned from the development of National Biodiversity Finance Plans IUCN 13:15 - 14:45 Pariz - Contact Group 4	Information flows to scale finance for biodiversity A-Track 11:15 - 12:15 The Netherlands Pavilion Nature Finance Programme From fragmentation to action: Mobilizing finance for locally-led conservation IUCN NL 14:15 - 15:15 The Netherlands Pavilion Nature Finance Programme Sizing the Cali Fund: revenue potential and the case for corporate participation LSE & GRI 16:45 - 17:45 The Netherlands Pavilion Nature Finance Programme Five ways to finance our oceans - from global to local UNDP BIOFIN 18:00 - 19:00 The Netherlands Pavilion Nature Finance Programme	From Fragmented Instruments to Connected Infrastructure: Building EU's Nature Finance and Governance Landscape IUCN IMEC 13:00 - 14:00 The Netherlands Pavilion Nature Finance Programme Tracking Indicator D3 - How much does private finance contribute to biodiversity positive outcomes? FTB 15:30 - 16:30 The Netherlands Pavilion Nature Finance Programme Linking better biodiversity performance to economic feasibility: Measuring and Rewarding Biodiversity in Dairy International Dairy Federation 16:45 - 17:45 The Netherlands Pavilion Nature Finance Programme	From Nature-based Solutions to Investable Water Landscapes: Using Ecosystem Service Valuation to Build Better Business Cases, Public-Private Partnerships and Water Resilience FSD 10:00 - 11:00 The Netherlands Pavilion Nature Finance Programme From screening to financial risk assessments: science-based approaches for biodiversity physical risk assessment in the banking sector Biolint 11:15 - 12:15 The Netherlands Pavilion Nature Finance Programme From Water Risk to Financial Resilience: Developing the Next Generation of Nature Stress Tests FSD 13:00 - 14:00 The Netherlands Pavilion Nature Finance Programme Unlocking Private Finance for Nature-based Solutions through the Value of Ecosystem Services Netherlands Enterprise Agency 15:30 - 16:30 The Netherlands Pavilion Nature Finance Programme From commitments to action: circular economy as a nature-positive finance opportunity Ellen MacArthur Foundation 16:45 - 17:45 The Netherlands Pavilion Nature Finance Programme Launching Recommendations to Scaling Nature in Transition Planning WWF International 18:00 - 19:00 The Netherlands Pavilion Nature Finance Programme	Financing Urban Nature: New Tools for Cities Utrecht University 10:00 - 11:00 The Netherlands Pavilion Nature Finance Programme Mobilising Private Capital with Nature Biodiversity Credit Alliance 11:15 - 12:15 The Netherlands Pavilion Nature Finance Programme Official side event: Scaling Up Business Action for Biodiversity ISO 13:15 - 14:45 Ljavan, GRULAC meeting room Finance for Nature Positive Workshop FTB 14:15 - 15:15 The Netherlands Pavilion Nature Finance Programme NBFPs in Practice: Early Lessons from NBFP Development NatureSquared 15:30 - 16:30 The Netherlands Pavilion Nature Finance Programme Nature in Sovereign Debt - A collective intelligence workshop to define priorities in public-private dialogue FTB 16:45 - 17:45 The Netherlands Pavilion Nature Finance Programme	Government and FI experiences of implementing Target 14 of the Kunming-Montreal Global Biodiversity Framework DEFRA 15:30 - 17:30 TNFD venue (green zone)	COP17 Nature Finance Reception Hosted by Triodos Bank & NatureSquared 17:00 - 21:00 Norq Garden Gallery Registration through this link: https://www.naturesquared.org/en/cop17-reception or via the QR 



All sessions in orange take place in the The Netherlands Pavilion.

Take a look at the full programme →



NatureSquared
CONNECTING ECOLOGY
AND ECONOMICS

IDFB
dialogue

Monday Oct 26	Tuesday Oct 27	Wednesday Oct 28	Thursday Oct 29	Friday Oct 30
10:00 – 11:00 Drenthe's Natural Capital: From Value to Decisions Province of Drenthe The Netherlands Pavilion Nature Finance Programme	09:00 – 09:45 Financing Nature Through Business Operations: Turning everyday corporate investment into biodiversity, water and community outcomes Tandem Global The Netherlands Pavilion Nature Finance Programme	10:00 – 11:00 Understanding the user: matching biodiversity impact tools with private sector demands Naturalis Biodiversity Center The Netherlands Pavilion Nature Finance Programme	10:00 – 11:00 From Biodiversity Data to Decision-Useful Nature Intelligence Naturalis Biodiversity Center The Netherlands Pavilion Nature Finance Programme	11:15 – 12:15 Bridging global ambition and local action through place-based financing mechanisms Commonland The Netherlands Pavilion Nature Finance Programme
11:15 – 12:15 Building markets for nature finance: From Early-Stage Solutions to Scaled Investment FMO The Netherlands Pavilion Nature Finance Programme	10:00 – 11:00 Insurance Taking Action for Nature: Advancing risk evidence, finance and mainstreaming for nature UNDP The Netherlands Pavilion Nature Finance Programme	11:15 – 12:15 1% of GDP for Biodiversity Society for Conservation Biology European Region The Netherlands Pavilion Nature Finance Programme	11:15 – 12:15 IDFB (in person) - Nature Finance policy insights from COP17 IDFB The Netherlands Pavilion Nature Finance Programme	13:00 – 14:00 Reforming Biodiversity-Harmful Financial Flows: Accelerating Action Towards Target 18 – Open House Netherlands Enterprise Agency The Netherlands Pavilion Nature Finance Programme
13:00 – 14:00 Aligning the Economy with GBF Targets: Nature-Positive Transition Pathways, Economic Planning, and Enabling Policies WWF The Netherlands Pavilion Nature Finance Programme	11:15 – 12:15 From Santa Marta to Yerevan: What countries can learn from emerging fossil fuel phase-out roadmaps for climate and nature Triodos Bank The Netherlands Pavilion Nature Finance Programme	14:15 – 15:15 Restoring land, redirecting finance: Re-aligning financial flows to deliver nature positive outcomes Triodos Bank The Netherlands Pavilion Nature Finance Programme	13:00 – 14:00 Banks as enablers/ disablers for mainstreaming biodiversity Naturalis Biodiversity Center The Netherlands Pavilion Nature Finance Programme	
16:45 – 17:45 From Biodiversity Ambition to Investment Reality: Lessons from DFCD FMO The Netherlands Pavilion Nature Finance Programme	15:30 – 16:30 The role of the finance sector in achieving the KMGBF goals and targets UNEP-WCMC The Netherlands Pavilion Nature Finance Programme	16:45 – 17:45 Reception at The Netherlands Pavilion Kingdom of the Netherlands The Netherlands Pavilion Nature Finance Programme	16:45 – 17:45 From Commitment to Capital: Unlocking Investment for Nature-positive Delivery Institutional Investors Group on Climate Change The Netherlands Pavilion Nature Finance Programme	
18:00 – 19:00 Reconnect Borneo: Financing Nature at Scale - From ambition to implementation WWF Netherlands The Netherlands Pavilion Nature Finance Programme	16:45 – 17:45 Financing the agricultural transition: overcoming barriers and unlocking solutions to achieve Target 10 of the Kunming-Montreal Global Biodiversity Framework Institut de la Finance Durable The Netherlands Pavilion Nature Finance Programme	18:15 Official side events: Reforming Biodiversity-Harmful Financial Flows: Accelerating Action Towards Target 18 Kingdom of the Netherlands Jermuk, African States meeting room	18:00 – 19:00 Financing Healthy Watersheds: Urban Nature-Based Solutions for Water, Biodiversity and Climate Resilience International Institute for Sustainable Development The Netherlands Pavilion Nature Finance Programme	
18:00 – 19:00 Calling for the successful establishment of the Tropical Forest Forever Facility - A demonstration of support from the signatories of the TFFF Rotterdam Statement of Support from Investors FIB The Netherlands Pavilion Nature Finance Programme				
18:15 – 19:15 Official side event: From a to c: delivering on Target 19 through private finance "Moving to business unusual for biodiversity finance" Kingdom of the Netherlands Talin, Side-event Room 1				



Thank you for your attention!

deborah.heijblom@rvo.nl



Next up

16:45 – 17:45

From commitments to action: circular economy as a nature-positive finance opportunity

Take a look
at our programme:





COP17
YEREVAN | ARMENIA
TAKING ACTION
FOR NATURE

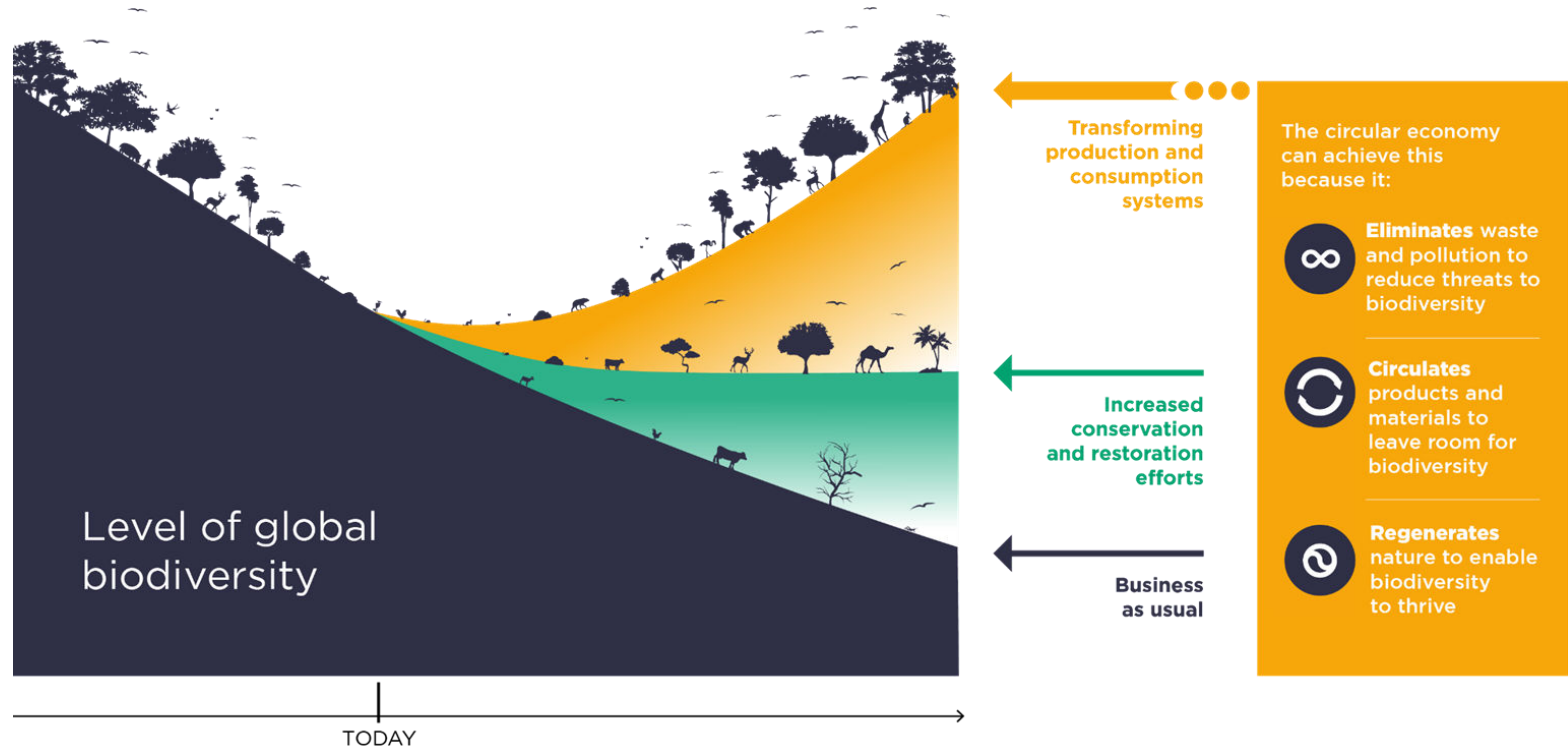


**CLEAN
RIVERS**

From commitments to action

Circular economy as a nature-positive finance opportunity

The circular economy plays a crucial role in bending the curve on biodiversity loss



* This image is an adaptation of that presented by the Secretariat of the Convention on Biological Diversity's report [Global Biodiversity Outlook 5 \(2020\)](#), and the Nature article [Bending the curve of terrestrial biodiversity needs an integrated approach](#) (2020). It does not intend to accurately represent the impact of potential scenarios.

Closing the Loop: Transforming Urban Waste Systems & Protecting Brazil's Rivers

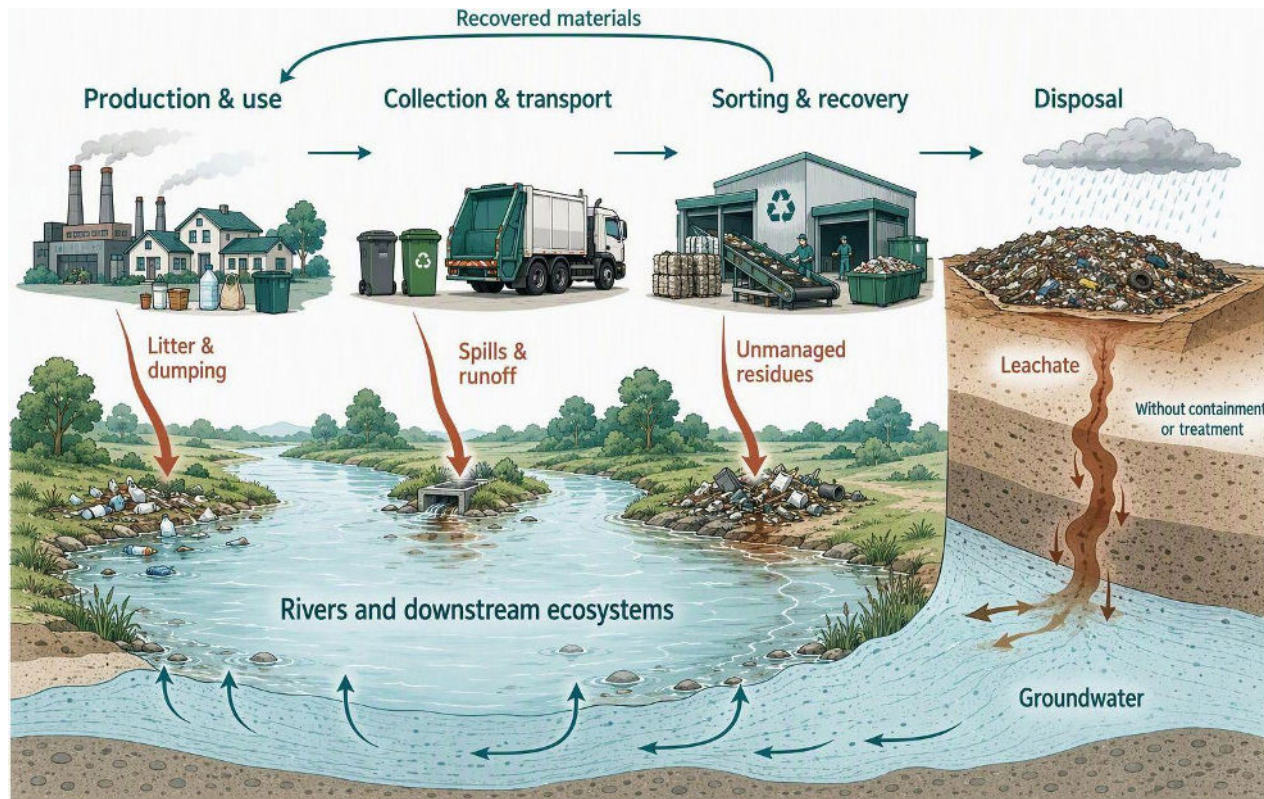
CLEAN
RIVERS



*Scan the QR code to
view the whitepaper*



Circular economy approach: Preventing waste pollution for nature-positive outcomes



A systems approach

Upstream prevention on land and reliable collection must connect to recovery and safe disposal.

Coordinated action

Preventing leakage requires connected services across the value chain, with institutions working towards a shared vision and implementation plan.

Landfill safeguards: liners, leachate collection and treatment protect surface water and groundwater.

Next up

18:00 – 19:00

Launching Recommendations to Scaling Nature in Transition Planning

Take a look
at our programme:





Supported by



Netherlands Enterprise Agency

Nature in Transition Planning: Building the Network for Action

October 2026, COP17

Our session team



Caroline Leenders
Senior process manager
sustainable transitions
Dutch Enterprise Agency



Nicolas Poolen
Global Lead, Nature
Finance Frameworks
WWF International



Sue Armstrong Brown
Chief Science Officer
CDP



Emily Mckenzie
Technical Director
TNFD



Angela Pinhati
Chief Sustainability Officer
Natura



Michal Kulak
Deputy Head Sustainable
Investment Research
Robeco



Melis Ford
Nature Specialist
World Benchmarking Alliance

Introduction



Caroline Leenders
Senior process manager
sustainable transitions
Dutch Enterprise Agency



TRANSITION PLANNING NETWORK DESIGN



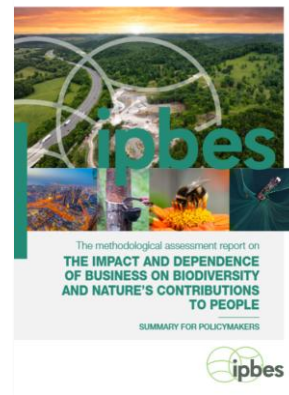
IPBES Business and Biodiversity Assessment

Businesses can either lead transformative change or risk extinction

Key findings:

- Every business **depends directly or indirectly on biodiversity** and ecosystem services, from material inputs to climate and water regulation.
- Rapid biodiversity loss now represents a pervasive **systemic risk to economies, financial stability** and human wellbeing.
- Current incentives, business models and **institutional conditions often undermine sustainable** action, contributing to continued global nature degradation
- Business, including financial institutions, **can act now** to benefit businesses and biodiversity, avoiding risks associated with biodiversity loss.

**DELIVERING THE GBF WILL REQUIRE
SIGNIFICANT CHANGE ACROSS ALL SECTORS**



Nature in Transition Planning

- Delivering a net-zero, resilient, nature positive future requires a **fundamental change in how business operates**.
- Transition planning helps corporates and financial institutions to help **unlock such transformative action**, while avoiding financial risk.

NET ZERO TRANSITION PLANNING



NATURE IN TRANSITION PLANNING



Why organisations embed nature in transition plans

Organisational drivers

Response

Respond to identified nature-related risks and opportunities

Effectiveness

Provide consolidated pathways for organisations to take action and report their progress

Investors

To respond to increasing investor demands

Regulators

To respond to emerging regulatory requirements

Contributions to GBF targets

Target 14: Mainstreaming

Anchor biodiversity in long-term business and finance plans.

Target 15: Reporting

Report plans to address dependencies, impacts, risks and opportunities.

Target 19: Finance

Help financial institutions finance the transition through clients' and investees' plans.

Target 18: Incentives

Use market information to inform incentive reform, NBSAPs and Biodiversity Finance Plans.

The Nature in Transition Planning Landscape

The adoption landscape

80
%

Of respondents to TNFD's survey (intend to) embed nature in transition plans

47%

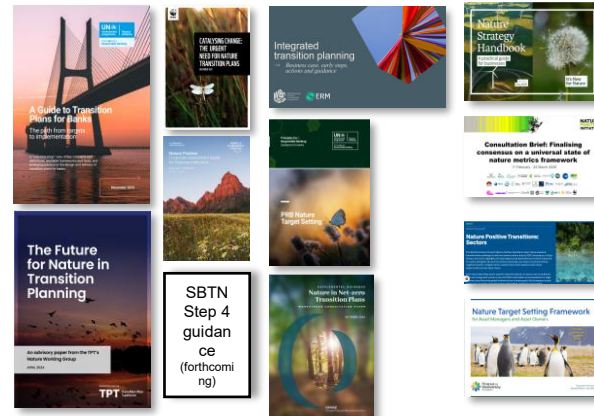
of climate plans disclosed through CDP environmental issues

2%

of 2000 most influential companies published initial versions of plans that embed nature



The guidance landscape



ESRS E4-1



IFRS®

S1 & Practice Statement



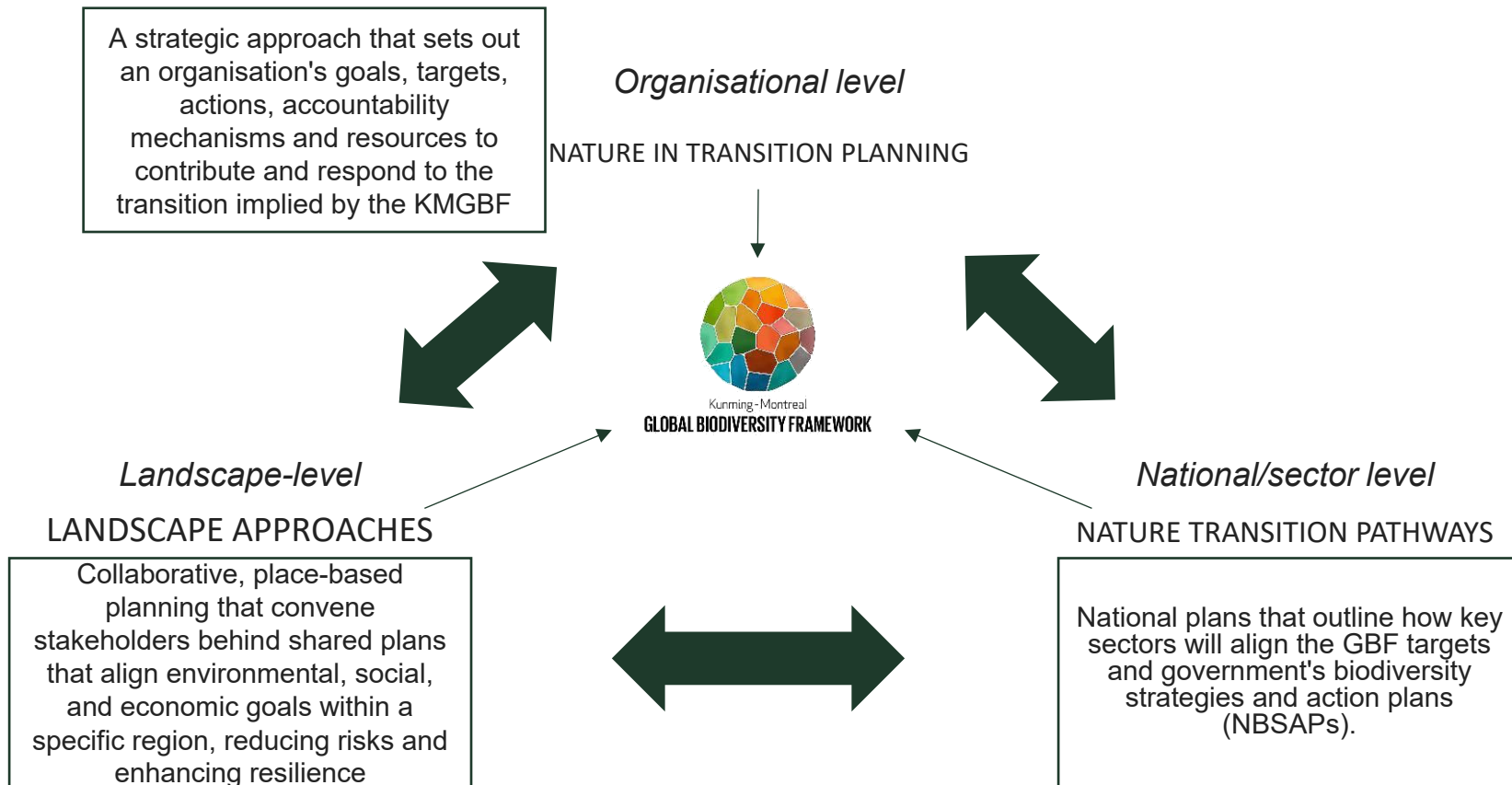
Target 14 & 15



2026 Nature Package

The regulatory and frameworks landscape

Nature in Transition Planning in the “Planning System”





HOW TO ENABLE AND SCALE-UP MARKET ADOPTION OF NATURE IN TRANSITION PLANNING



A Network on Nature in Transition Planning

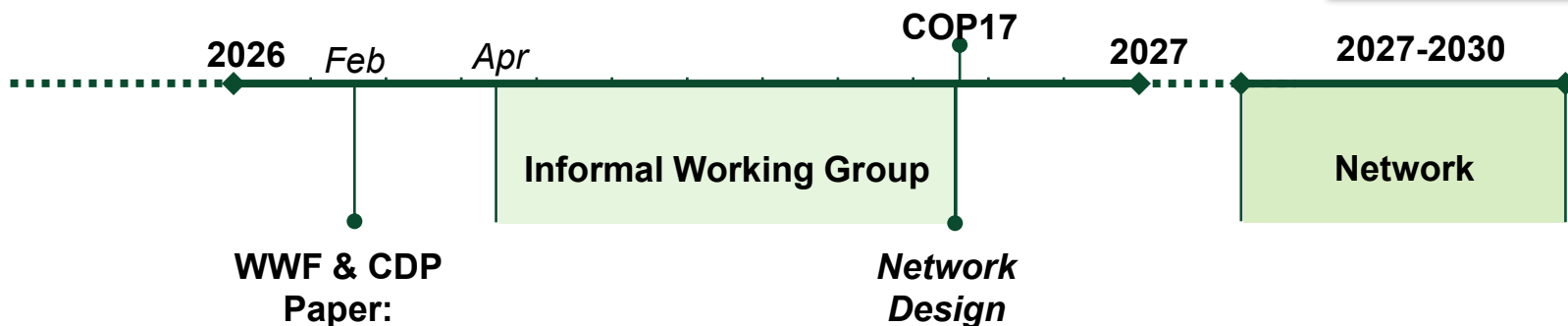
Conveners



Members



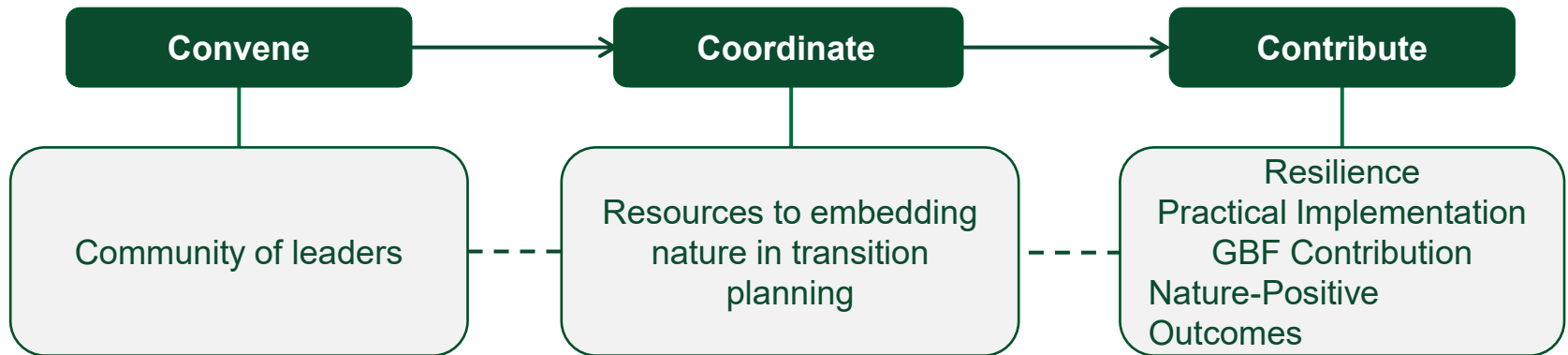
Observing Members



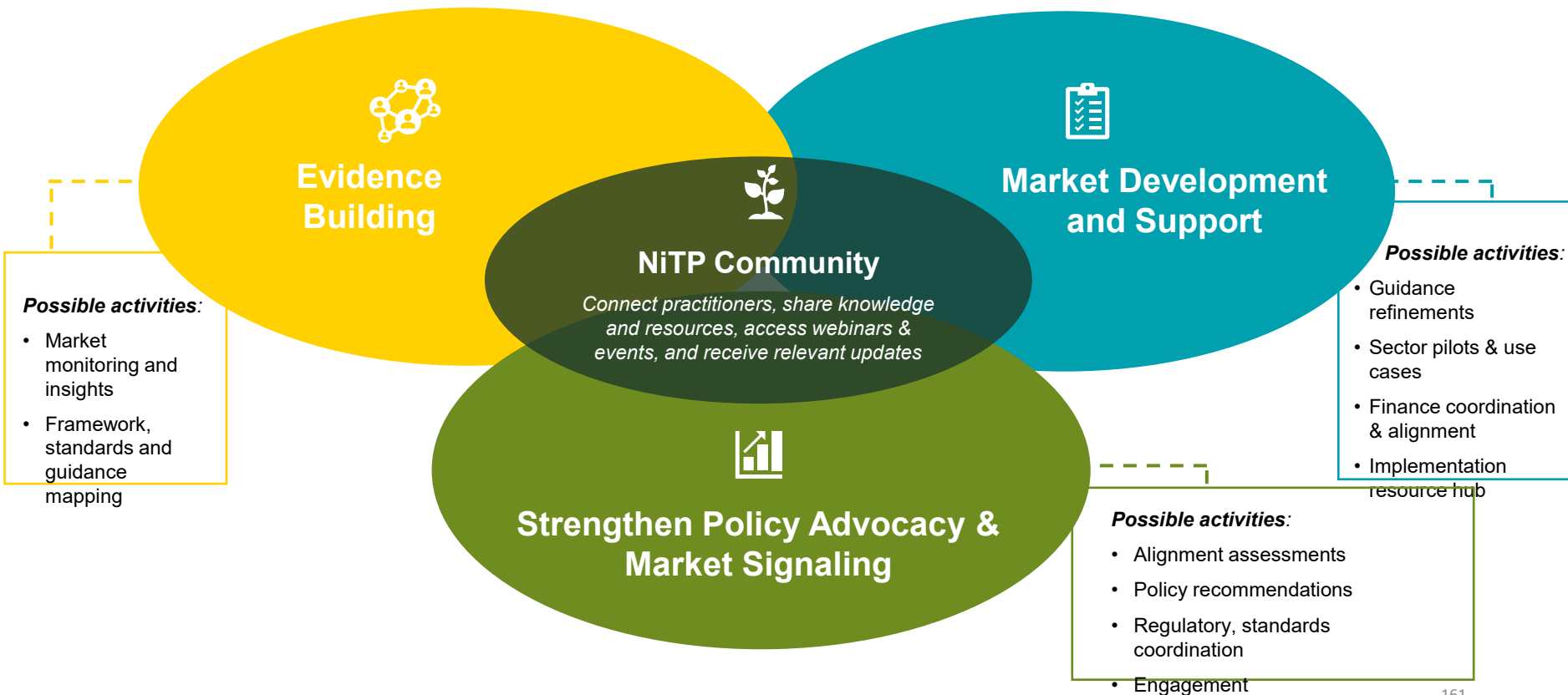
*The government of the Netherlands is the primary funder of the working group

Vision Statement | A Collaborative Solution

*Our vision is to **accelerate credible, economy-wide transition planning that integrates nature**. By convening leaders and fostering a **coherent, accessible system of enabling resources**, we aim to support **companies, financial institutions, and regulators** in advancing implementation and **contributing** to global environmental goals such as the **Global Biodiversity Framework**.*



Strategic focus areas



Out now!

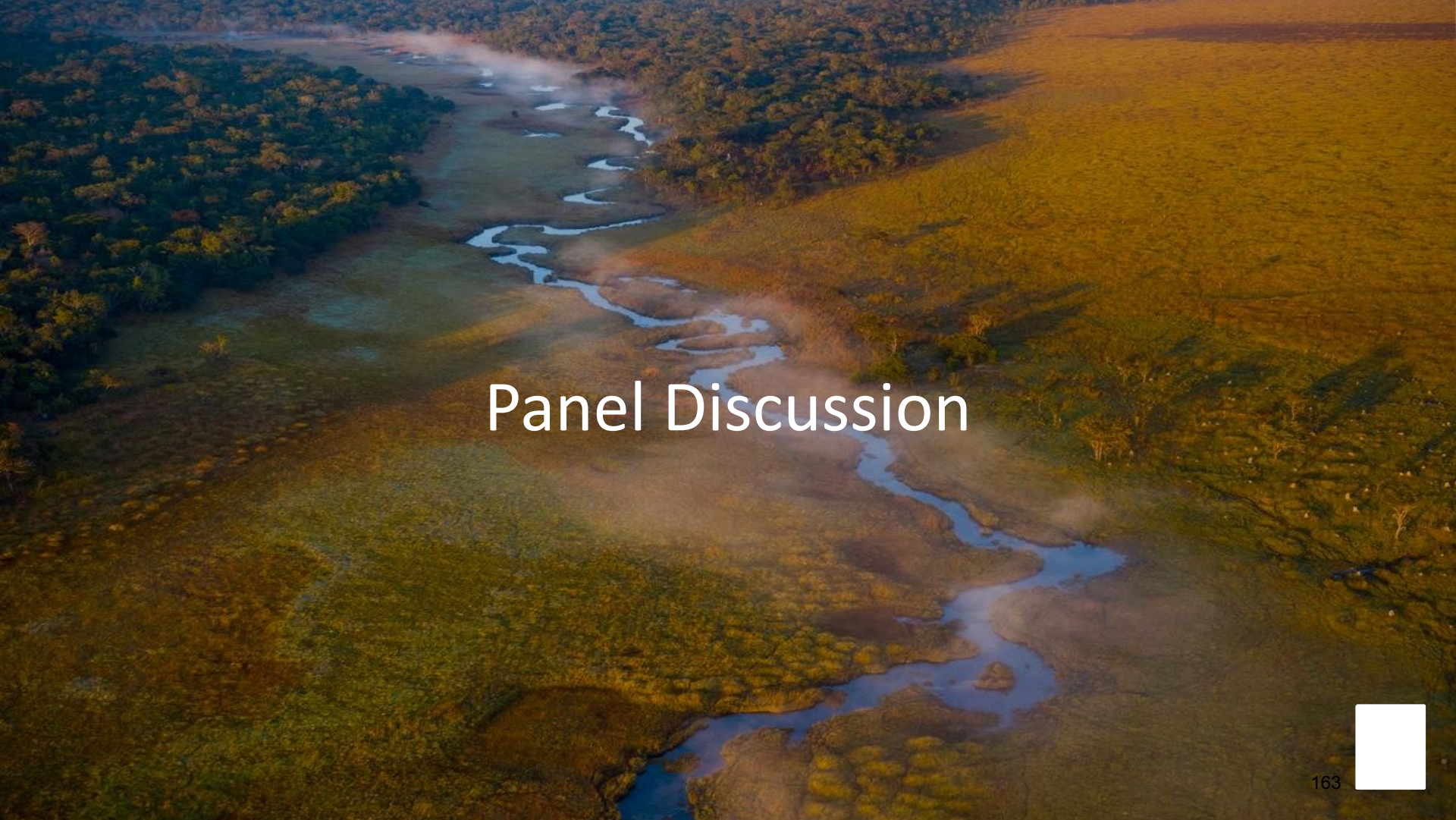


A Network on Nature in Transition Planning

A concept brief to enable and scale
implementation



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An aerial photograph of a savanna landscape. A winding river flows from the top center towards the bottom right. The left bank is covered in a dense, dark green forest. The right bank and the surrounding area are open savanna with yellowish-green grass and scattered trees. The text "Panel Discussion" is centered over the river.

Panel Discussion



Panel discussion



Sue Armstrong Brown
Chief Science Officer
CDP



Emily Mckenzie
Technical Director
Taskforce on Nature-Related
Disclosures
TNFD



Angela Pinhati
Chief Sustainability Officer
Natura



Michal Kulak
Deputy Head Sustainable
Investment Research
Robeco



Melis Ford
Nature Specialist
World Benchmarking Alliance

Thank you!



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