The Forestry Natural Capital Project

Measuring the Contribution of Forestry

Part 1 Progress Report: Context and Scoping (COP30 supplement report)

ISFC
International Sustainable Forestry Coalition

Building a nature positive bioeconomy

CAPITALS COALITION

Supported by:

TNFD
Taskforce on Nature-related Financial Disclosures

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Executive Summary

The forestry sector leads positive change

This is why:

18x 18 leading forestry organizations

23m stewarding over 23 million hectares (57 million acres) of forestry assets

38x in 38 countries

Have come together to take action with a simple, yet transformative goal: to make nature's value visible in decision-making.

To achieve this, the International Sustainable Forestry Coalition (ISFC) and the Capitals Coalition, with support from the Taskforce on Nature-related Financial Disclosures (TNFD), launched the **Forestry Natural Capital Project** to turn this ambition into reality.

The project connects industry practitioners, thought leaders, scientists, investors, and policy experts to create the **first harmonized approach for measuring and valuing forestry's natural capital.**

By aligning science, stewardship, and capital, we're beginning to translate forests' benefits such as carbon storage, habitat and biodiversity, clean water, community resilience – into terms that markets understand and investors trust.

This unprecedented scale of collective ambition positions the forestry sector to deliver shared outcomes no single company could achieve alone.

International Sustainable Forestry Coalition

CAPITALS COALITION

Supported by:

TNFD Taskforce on Nature-related Financial Disclosures

Pioneering natural capital reporting

Project overview

The Forestry Natural Capital Project is a pioneering global initiative that brings together 18 leading forestry companies to establish a unified framework for Natural Capital Accounting and Reporting across the sustainable forestry sector.

The project is a partnership between the International Sustainable Forestry Coalition (ISFC) and the Capitals Coalition, with support from the Taskforce on Nature-related Financial Disclosures (TNFD).

Project aims

This industry-wide approach, supported by global best practice and an influential network of TNFD and Capitals Coalition partners, seeks to build market trust in natural capital accounting for the forestry sector, demonstrate the value of nature-based solutions, and build the case for investment in sustainable forestry.

Project approach

The project has been designed in two consecutive parts, punctuated by COP30 in Brazil and COP31 in Turkiye.

- **Part 1** – Context and Scoping, including conducting a materiality assessment to prioritize the most material and achievable ecosystem services to be the focus of Part 2.
- **Part 2** – Measure, Value and Present as a co-developed and harmonized Natural Capital Report, which applies a consistent Natural Capital Accounting format to provide valuations of material ecosystem services that forestry investments provide to both business and society.

Abbreviations and a glossary of terms are explained in Appendix 1

A profile of the Project Participants

Project Participants collectively manage over 23 million hectares across 38 countries, with more than 97% of land under their stewardship holding FSC/PEFC/SFI certification. Participants include a diverse mix of corporate entities, TIMOs, REITs, and government entities, with primary reporting jurisdictions spanning the USA, Europe, UK, Japan, Chile, and Australia.

Strategic context

Financial markets face mounting risks from climate change, biodiversity loss, and social inequity, while simultaneously seeking resilient investment opportunities in the growing bioeconomy.

The sustainable forestry sector is responding by transparently demonstrating how their strategic decisions and operations protect and create natural capital value, that attracts large-scale investment through credible Natural Capital Reporting.

Key Outcomes from Part 1: The Seven Prioritized Ecosystem Services

Through workshops and stakeholder engagement, seven ecosystem services were prioritized by all participants for measurement, valuation and disclosure over the next 12 months. They include:

- Sustainable timber and fiber supply
- Water quantity
- Carbon
- Habitat and biodiversity
- Water quality
- Air quality
- Recreational and cultural services

This progress report summarizes the work completed to date in Part 1.

Why now: the case for action

The now – timing is everything

Financial equity markets find themselves at a critical crossroads. Global risks and uncertainties are growing, driven by climate change, biodiversity loss and persistent social inequity.

The global backdrop

Resource shocks, including climate-driven physical and transition risks, are increasingly impacting organisations and society. In response, interest is growing in assessment, and voluntary disclosures to support resilient business strategy, and global pressure is mounting for mandatory nature-related disclosures from policy, national commitments, and regulations. These frameworks aim to provide businesses, financial markets and regulators with the crucial information they need to assess risks and opportunities and reallocate capital.

These nature-related reporting frameworks include:

- The Global Biodiversity Framework (GBF)
- The Taskforce on Nature-related Financial Disclosures (TNFD)
- The International Sustainability Standards Board (ISSB)
- Natural Capital Protocol (NCP)
- United Nations System of Environmental-Economic Accounting - Ecosystem Accounting (UN SEEA)
- The Global Reporting Initiative (GRI).

While the International Sustainability Standards Board (ISSB) is moving into a standard-setting process for nature-related risks and opportunities, drawing on the TNFD's disclosure recommendations, metrics, and guidance, including relevant aspects of the LEAP approach, voluntary TNFD adoption is already well underway, with over 730 TNFD adopters. Investors are already recognizing strategic opportunities to secure value growth from Natural Capital real assets.

Nature-related risks and opportunities are material issues that forestry managers and land custodians must address to meet investor concerns and aspirations.

The forestry sector has been at the forefront of this evolution, having developed the first sector-specific guide for the Natural Capital Protocol—the Forest Products Sector Guide (2018)—led by the World Business Council for Sustainable Development; and also TNFD forestry, pulp and paper sector guidance, which was one of the earliest sector guidance

The Need

Despite this early leadership and growing regulatory momentum, decision-making and investment models have not yet shifted at scale, creating both an urgent need and a significant opportunity for coordinated action to meet rapidly advancing expectations for disclosures of nature-related issues and sustainable value creation.

The Value Proposition

A collaborative response, such as this project, ensures Project Participants can:

- Understand the value that nature under their stewardship provides to their business and society, and learn how to safeguard and build this value for future generations
- Adopt new and emerging disclosure requirements, such as the TNFD, in an efficient, consistent and timely manner
- Recognize and understand the risks and opportunities associated with the ongoing loss of nature and establish transition plans to reinforce their ongoing resilience
- Demonstrate a proactive and significant contribution to a nature-positive economy and aid stakeholder relations
- Avoid waste, confusion and inefficient duplication of effort by achieving consistency in metrics and measurement methodologies
- Attract financial capital by providing a consistent and compelling narrative of value preservation to their investors and other stakeholders
- Become 'market-ready' for emerging ecosystem markets such as biodiversity credits.

The Solution - The Forestry Natural Capital Project

In response, the Forestry Natural Capital Project was established as a pioneering global project bringing together 18 leading forestry companies from 38 countries. This foundational cross-cutting initiative aims to align Participants and provide the consistency and credibility that financial markets and stakeholders require.

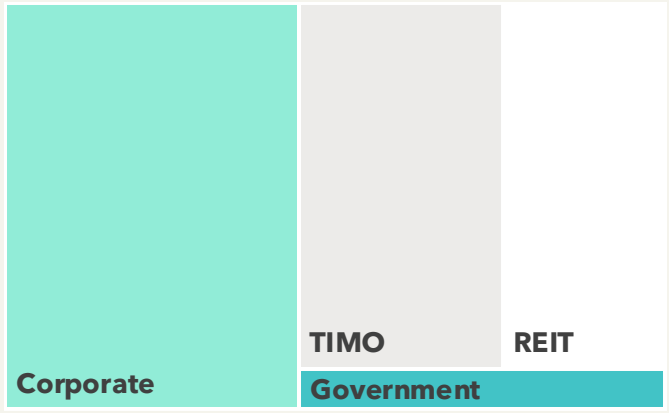
The project will aim to develop harmonized Natural Capital Reporting to create a measurable Natural Capital real asset class grounded in established accounting principles and trusted metrics. Natural Capital Accounting and Reporting provides a transparent approach to quantify the ecosystem services that forestry operations seek to provide, conserve and enhance, delivering credible price signals to financial markets and enabling evidence-based investment decisions.

By demonstrating the value of nature through rigorous measurement, the project seeks to provide certainty to financial markets and encourage increased investment in natural capital asset classes.

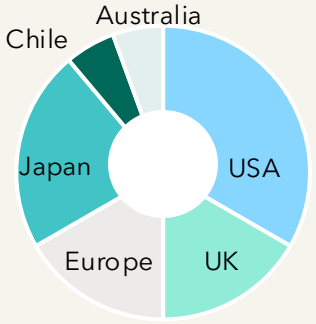
A global alliance of industry leaders

A community of practice has been formed from within ISFC members and invited forestry organisations with strong natural capital reporting leadership. The sustainable forestry sector has a long history of leadership on nature and sustainability topics, especially those who have committed to this collaborative project. They have significant expertise and in-house motivation and the ambition to be a center of a future bio-based circular economy. A summary of their natural capital reporting is set out below:

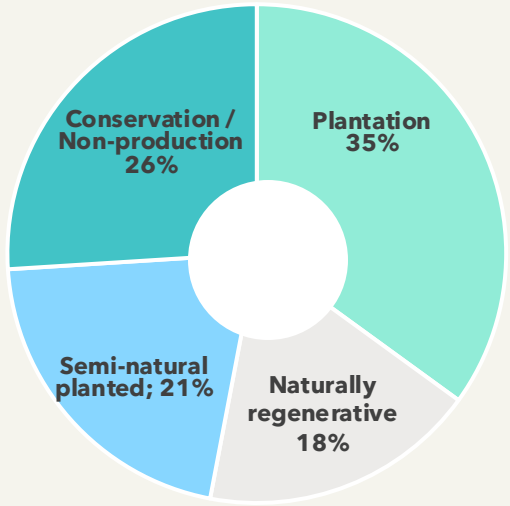
Project Participant entity type



Project Participants primary reporting jurisdiction



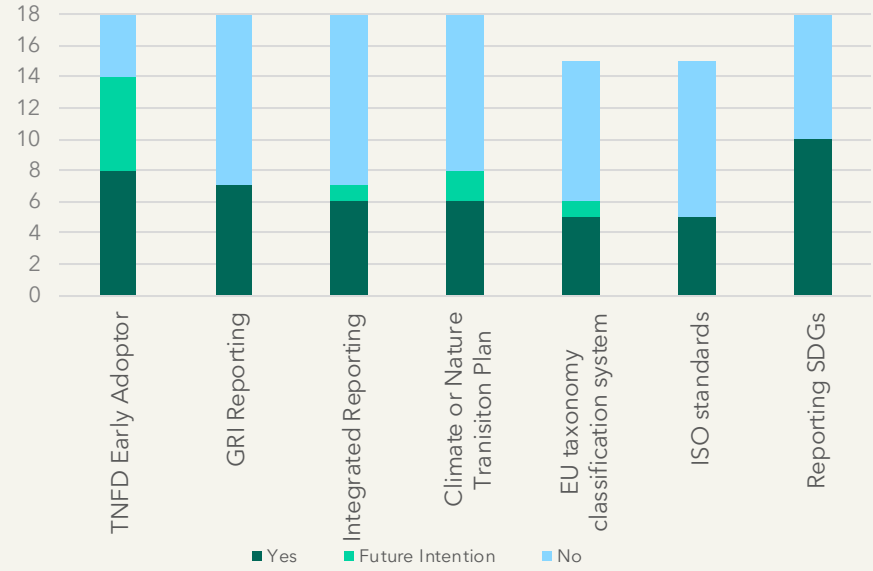
Hectares under management



More than 23 million hectares (53 million acres) under the Participants' custodianship

The hectares under management extends across 38 countries.

The frameworks Project Participants report against



To date, 4 Participants have received assurance over their nature disclosures

97% of Project Participants' land under stewardship is certified by PEFC/FSC/SFI*.

*ISFC seeks 100% certification for members however at times some small areas of land are in the process of onboarding into certification after the land has been purchased from other parties

Bringing Nature onto the Balance Sheet

To make nature visible to financial markets, we need to translate nature's value into financial language by using Natural Capital Accounting. The Forestry Natural Capital Project aims to connect forest data, valuation methodologies, and accounting principles to express forests' contributions to society and business in monetary terms.

This project utilizes Natural Capital Accounting as a bridge between Natural Capital Assessments, such as those recommended by the TNFD and the Natural Capital Protocol, and Financial Reporting, thereby providing confidence and trust to investors and financial capital markets. This flow is represented by Figure 1 below.

The project aims to provide investors with the information necessary to make informed decisions on resource and capital allocations towards a more climate- and nature-positive bioeconomy. By presenting the value that ecosystem services provide to business and society in a structured, familiar format for financial markets, it is anticipated that the information will resonate and become embedded in their decision-making processes.

This project is expected to become a significant contributor and exemplar to the global Nature on the Balance Sheet Initiative (NBI), driving action to incorporate nature into financial statements. This initiative aims to demonstrate that investments in natural capital can be recognised financially for the value they deliver to businesses and society through ecosystem services, rather than being viewed as cost burdens.

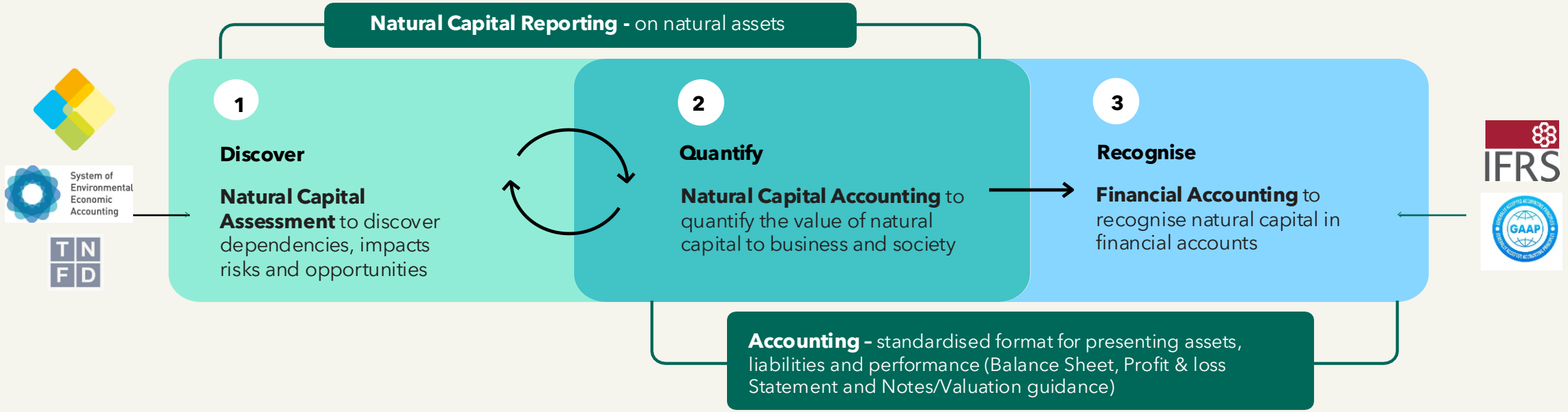


Figure 1: Natural Capital Reporting: From Assessment to Financial Recognition, Adapted from: Capitals Coalition (2025) *The Roadmap for Putting Nature on the Balance Sheet*, Nature on the Balance Sheet Initiative, available at: https://capitalscoalition.org/project/nature-on-the-balance-sheet/

Our approach

The Forestry Natural Capital Project is deliberately ambitious and structured as an intensive, two-part process spanning 18 months, with strategic milestones aligned with COP30 and COP31.

The project utilizes the Capitals Coalition's Natural Capital Protocol as a framework for structuring the project. It aligns with the guidance and recommendations from the TNFD, emerging ISSB standards, and other initiatives, such as the Nature Positive Initiative, which were developed from the protocol's foundation.

Strong interoperability and consistent themes and concepts are evident in all leading initiatives. This project aims to demonstrate how these elements are complementary and can be used and presented together in harmony.

Sector transformations, such as this project, will build on proven examples from leading organisations. Participants will share lessons learned and examples of best practices in a pre-competitive and trusted cohort of peers, supported by thought leaders and practitioners from the broader sustainability network.

Part 1

Context & Scoping (July-November 2025):
Build capacity, form the community of practice, and assess ecosystem service priorities.

Part 2

Measure, Value, and Present (December 2025-November 2026):
Implement common methodologies, prepare Natural Capital Accounts, and release a final illustrative consolidated Forestry Natural Capital Report by COP31.

- Boundary setting – value chain, control, location
- Shortlist ecosystem services via impact materiality assessment of impacts + dependencies
- Prioritise ecosystem services using criteria linked to financial risks + opportunities
- Identify the metrics and indicators to describe the ecosystem services
- Multiply by value factors
- Disclose using financial reporting format
- Strategize to convert to realisable value

COP30

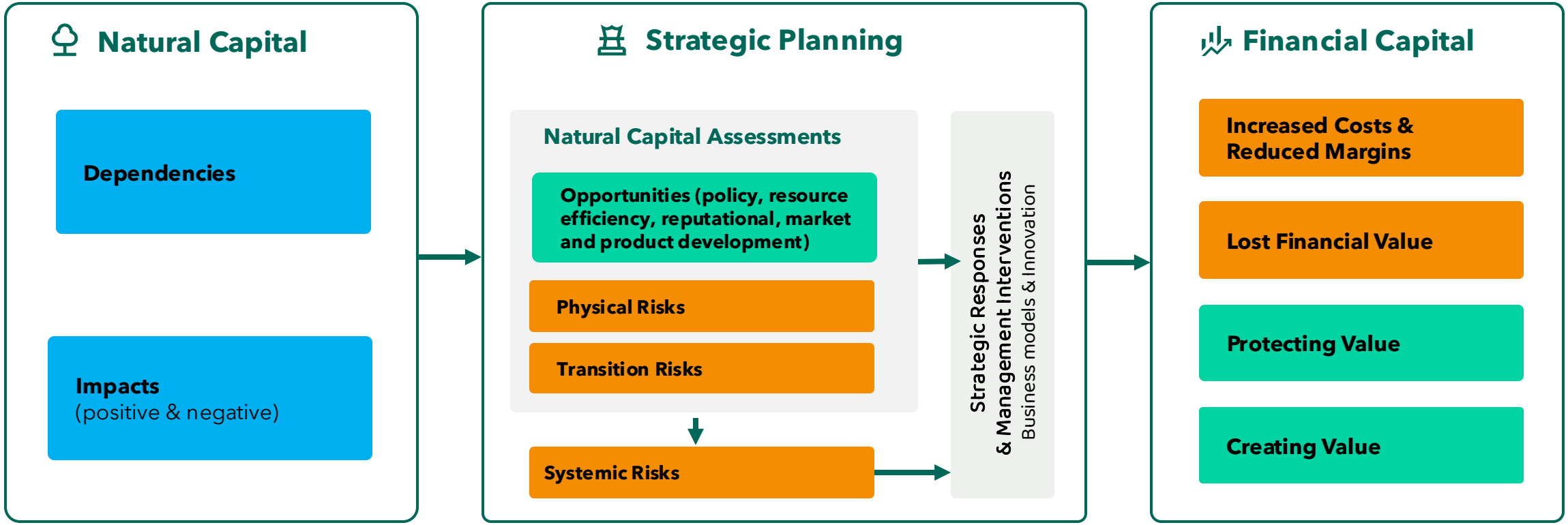
COP31

Linking natural capital to financial capital (D&I to R&O)

Natural capital connects to financial capital through systematic natural capital assessments (NCA), such as the TNFD LEAP approach and the Capitals Protocol. These frameworks identify nature-related dependencies (how businesses rely on nature) and impacts (how businesses affect nature), which create potential risks and opportunities for businesses.

These nature-related risks and opportunities can translate into tangible financial outcomes—either as increased costs and lost value or protected and created value, depending on strategic responses and management interventions. This relationship is dynamic, strategic planning and management practices in turn affect dependencies and generate both positive and negative impacts, as shown in the diagram below.

This connection is explicit: the **benefits nature provides through ecosystem services directly influence business value creation and protection.** This is the rationale for why the project prioritizes identifying the most material ecosystem services, so that the value of these benefits can be quantified in Natural Capital Reporting.



Defining nature

TNFD anchors its definition of nature on the IPBES global assessment and then uses the International Union for the Conservation of Nature Global Ecosystem Typology (IUCN GET) for the typology of biomes and ecosystems. This typology defines nature as encompassing both the living components (biodiversity or biotic) and non-living components (geodiversity or abiotic) of the natural world.

Based on the IUCN GET, the TNFD adopts a streamlined classification of 25 ecosystem services, to align with established frameworks such as the Capitals Protocol and UN System of Environmental-Economic Accounting (SEEA).

The TNFD's catalogue (shown in Figure 2) covers realms, biomes, environmental assets and ecosystem services, and categorizes the 25 ecosystem services across three categories:

- Provisioning services (e.g. water supply, biomass)
- Regulating and maintenance services (e.g. pollination, climate regulation)
- Cultural services (e.g. recreation, education, spiritual values).

These ecosystem services represent the **critical link between nature and economic activity.**

Environmental assets are the stocks of natural capital—forests, soils, water bodies, and ecosystems—that form nature's physical and biological foundation. As defined in the UN System of Environmental-Economic Accounting (SEEA), these are the stocks from which ecosystem services flow. **Ecosystem assets** are a subset of environmental assets that relate to diverse ecosystems.

Ecosystem services are the benefits that flow from environmental assets to support economic activity and human wellbeing. These include provisioning services like timber and water supply, regulating services like carbon sequestration and flood control, and cultural services like recreation.

Why focus on ecosystem services? because they represent the measurable flows from environmental assets that businesses directly depend on and impact. Environmental assets form nature's foundation; the services they generate—timber provision, water purification, climate regulation—relate to business dependencies, impacts, risks, and opportunities, making them a critical unit for assessment in natural capital reporting. Other metrics, such as impact drivers, state of nature, and responses, are also important.

Figure 2: Fundamental concepts for understanding nature: Realms, biomes, environmental assets and ecosystem services *Source: TNFD,* [Guidance_on_the_identification_and_assessment_of_nature-related_Issues_The_TNFD_LEAP_approach_V1.1_October2023.pdf]

Why are we focusing on ecosystem services?

Ecosystem services are the critical link between natural capital and financial outcomes. They represent how nature flows into business operations and value creation.

When businesses depend on ecosystem services—such as water purification, climate regulation, or biomass provisioning—disruptions to these services create physical risks (e.g., water scarcity affecting operations) or opportunities (e.g., ecosystem restoration enhancing water security).

Similarly, business impacts on ecosystems alter service provision, generating transition risks (e.g., regulatory responses to biodiversity loss) or opportunities (e.g., market differentiation through nature-positive practices).

By quantifying ecosystem services organizations can:

- Identify material dependencies that underpin business resilience
- Measure impacts on service provision that drive stakeholder and regulatory responses
- Value the financial implications of service degradation or enhancement
- Prioritize management interventions that protect or create financial value.

By measuring ecosystem services according to their capacity to provide future benefits to business or society, we can assign them monetary values. These valuations create Natural Capital Assets and Liabilities, which together form the Natural Capital Accounts..

This is why the project focuses on identifying and quantifying the most material ecosystem services—enabling these to be measured in Natural Capital Accounts and disclosed in Natural Capital Reports, making the nature-finance connection more explicit and actionable.

Our interpretation of Biodiversity

Biodiversity is not an ecosystem service per se, but rather a foundational component that enables the delivery of the ecosystem services essential to human wellbeing and business prosperity.

Biodiversity underpins ecosystem function, is a quality measure of ecosystem health and similarly, the loss and degradation of ecosystems are a major driver of biodiversity loss. The other drivers of biodiversity loss include invasive species, pollution, climate change, and overexploitation of resources.

Figure 3: The five drivers of nature change,

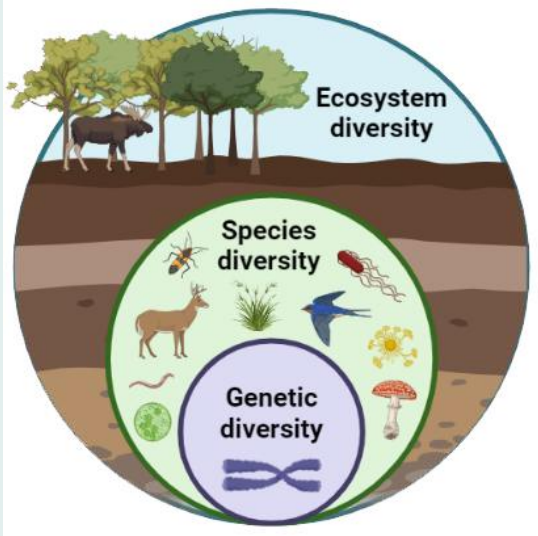


Figure 4: The Three Levels of Biodiversity: genetic, species and ecosystem diversity,

This project takes an ecosystem services approach to assessing biodiversity stewardship. It intends to measure biodiversity health through ecosystem service performance—focusing on material services that indicate ecosystem function and resilience. By measuring and valuing a suite of material ecosystem services provided from forestry estates, the Project Participants can better assess whether they can further improve their stewardship of nature and biodiversity.

Prioritizing ecosystem services for reporting

Striking the balance between ambition and achievability

Not all 25 ecosystem services are equally relevant to all sectors or organizations. The Project Participants agreed that selecting the number of ecosystem services to report against needed to be achievable within the ambitious timeframe of the project and based on the extent and quality of existing data held and the maturity of methodology development.

To prioritize those most material ecosystem services to forestry operations, Project Participants applied a three-lens approach (Figure 3):

- Impact materiality – assessed the significance of ecosystem services based on the scale and severity of their environmental and societal impacts, consistent with the Global Reporting Initiative (GRI), Capitals Protocol and the TNFD LEAP Approach.
- Financial materiality – evaluated the extent to which nature-related dependencies, impacts, risks and opportunities could influence enterprise value and financial performance.
- Practicality (measurability and reporting feasibility) – considered data availability, methodological maturity, and the practicality of consistent measurement across 38 countries and diverse forest types.

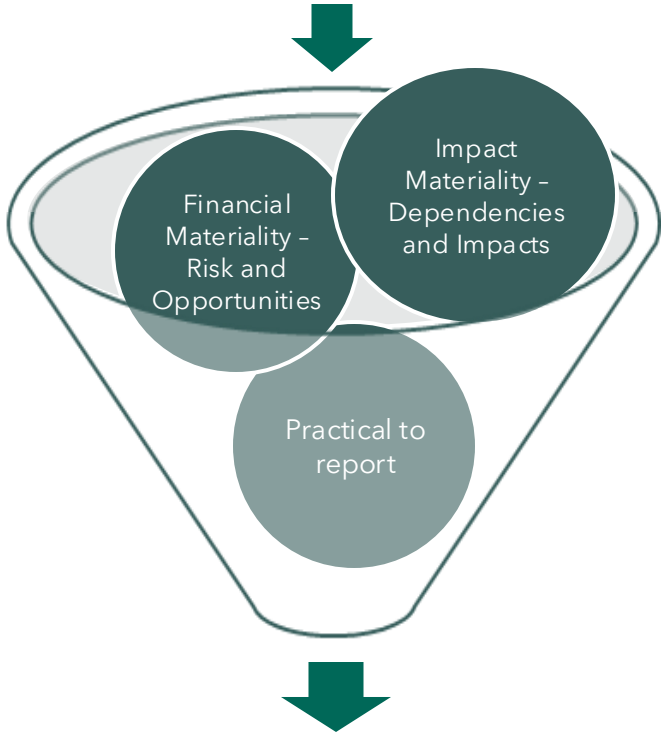
Alignment with leading global reporting frameworks

While global frameworks do not prescribe quantitative materiality thresholds, they provide a process that:

- Prevents companies reporting on everything, to instead focus on what's truly important given their specific operations, context, and stakeholders.
- Enables the identification of topics that are significant enough to influence decisions by investors, regulators, the community, or the company itself.

Detailed measurement methodologies will be developed in Part 2 of the project.

The TNFD's 25 distinct ecosystem services



Priority Ecosystem Services for Natural Capital Reporting

Figure 5: Three-Lens Approach to Prioritizing Ecosystem Services

Methodology to prioritize the ecosystem services

Identifying the priority ecosystem services for Natural Capital Accounting and Reporting followed a structured five-step process, as outlined below. The approach combined desktop research, stakeholder engagement, and a prioritization criteria to deliver a transparent, credible, and decision-useful outcome.

The process drew on multiple inputs, including:

- Project Participant perspectives through one-on-one discussions, surveys and a workshop (held in Helsinki, from 23 to 26 September 2025)
- Key global reporting frameworks (i.e. TNFD, Capitals Protocol, ISSB and GRI)
- Forestry-specific business and operational considerations
- Geographic relevance across diverse forestry environments
- Expert judgment and collaborative decision-making

Inspired by the TNFD LEAP process and other inputs mentioned above, we prioritized ecosystem services using the following five steps:

Step 1: Scope → **Step 2: Evaluate & shortlist** → **Step 3: Develop prioritization criteria** → **Step 4: Prioritize** → **Step 5: Report**

Key tasks:

The "Locate" phase was applied to:
- Establish clear project boundaries
- Support the identification of the interface with nature

The "Evaluate" phase was applied to determine the extent to which forestry production depends on and impacts ecosystem services

A prioritization criteria was developed to "Assess" the:
- Impact materiality (dependencies and impacts)
- Financial materiality (risks & opportunities)
- Practical considerations (credible and achievable)

The 25 ecosystem services were discussed and prioritized by Project Participants by applying:
- The prioritization criteria
- A consensus process
- Expert judgment

As the final step, this report documents the consensus-building process and technical agreements achieved in Part 1, establishing the foundation for measurement in Part 2.

Current status

Step 1: Scoping the project

Aspects of the Natural Capital Protocol's "Frame" stage, the TNFD's "Locate" Phase under the LEAP Approach and TNFD sector guidance for forestry, pulp and paper , were applied to set the project scope. This provides the boundary for assessing and prioritizing the ecosystem services that form the basis of the Natural Capital Accounts and Report. The project scoping parameters, and the rationale for the outcome under each, are summarized in the table below and on the following page.

Parameters	Application	Outcome	Rationale
Forestry value chain	Setting the boundary of the assessment across the forestry value chain that can be applied by all Project Participants.	Reporting will focus on forestry operations only (as defined by WBCSD). Note: This may include areas of conservation management, managed natural, semi-natural or plantation forest.	Forestry operations are where there is a considerable physical footprint within nature; the Project Participants have direct operational control and influence, and can be empowered to make a substantial positive impact at the beginning of the value chain. By providing transparent reporting at this direct interface with nature, forestry operations also enable downstream value chain partners (manufacturers, retailers, consumers) to better understand their indirect nature-related dependencies, impacts, risks, and opportunities.

The Foresty value chain

The World Business Council for Sustainable Development (WBCSD) provides an overview of the three successive stages of the forest products value chain, which include:

1. Forest production/operations
2. Processing
3. Manufacturing and downstream.

This is shown in Figure 4. This visual representation illustrates where the project boundary sits within this broader system, specifically within the forest production stage, providing essential context for understanding both the scope's limitations and its strategic focus on areas where forestry organizations have the greatest leverage for nature-positive impact.

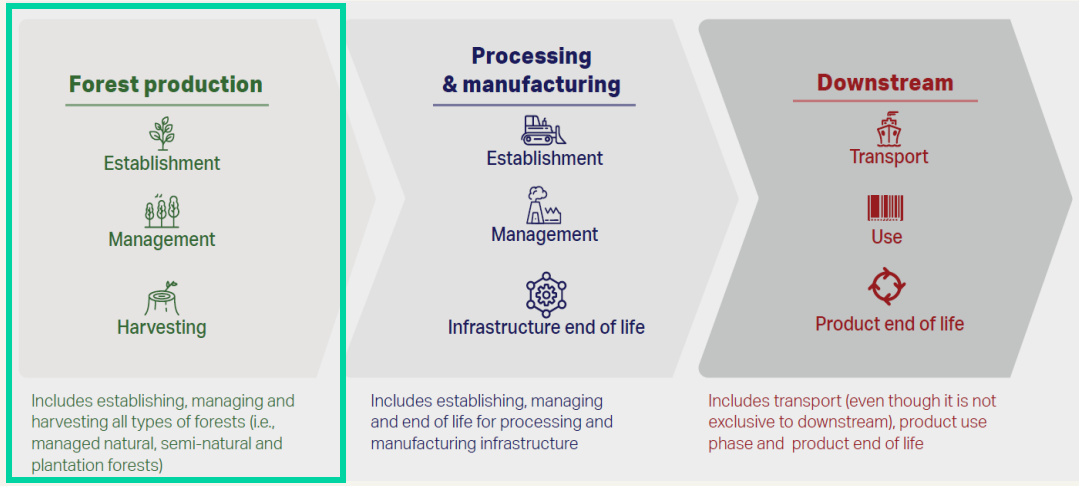


Figure 6: Forest products value chain – (focusing on forest production - establishing, managing and harvesting of primary, semi-natural and plantation forests), *source: Forest Sector Nature-Positive Roadmap, WBCSD, Forest Sector Nature-Positive Roadmap | WBCSD*

Step 1: Scoping the project (cont.)

Parameters	Application	Outcome	Rationale
Nature Interface	Defines the nature boundary by establishing which components of nature fall within the assessment scope by drawing on the relevant framework (i.e. TNFD's LEAP approach "Locate" phase defines nature through realms, biomes, environmental assets, and ecosystem services).	Forestry operations are focused on: • Realm: Land and Freshwater • Biomes: T1 to T3, T7, F1 & F2 (see below) • Environmental assets • Ecosystem services: to be prioritized	This project has focused on shortlisting ecosystem services, as these provide the basis for determining future economic and natural system benefits and will help determine the value of Natural Capital assets
Geographic locations	Identifies the geographic location of the forests under stewardship by Project Participants.	Project Participants have forestry operations located in 38 countries across the globe, covering more than 23 million hectares.	Each Participant has their own extensive internal geospatial data detailing their operations and usually has access to in-house skills and tools to apply and assess the extent of their footprint.
Forestry Stewardship	Assess land tenure arrangements across Project Participants to determine the degree of control, influence, and exposure to nature-related dependencies, impacts, risks, and opportunities.	All land tenure types represented across Project Participants are included in the assessment scope (owned, leased, managed under concession, and certified lands).	Different land stewardship arrangements affect the extent to which Project Participants can influence nature-related dependencies, impacts, risks and opportunities. Including all tenure types ensures comprehensive assessment while recognizing varying degrees of control and influence.
Framework Alignment	Harmonize project scope and methodology with leading global natural capital and accounting frameworks to ensure consistency with established frameworks.	Alignment with globally representative reporting, measurement and valuation frameworks including TNFD, Natural Capital Protocol, ISSB/GAAP, GRI, UN SEEA, IFVI & WBCSD	Framework alignment ensures methodological rigor, enables comparability with existing disclosures, and positions the project to inform emerging regulatory requirements and guidance frameworks (e.g., TNFD, ISSB).

Biomes

The TNFD uses the IUCN GET classification system to standardize how we describe and locate different ecosystems.

T = Terrestrial (Land)
T1 = Tropical and subtropical forests
T2 = Temperate-boreal forests and woodlands
T3 = Shrublands and bushy woodlands
T7 = Intensive land-use systems (farms, plantations)

F = Freshwater
F1 = Rivers and streams (flowing freshwater)
F2 = Lakes (still freshwater)
Source: IUCN Global Ecosystem Typology v2.0 (Keith et al., 2020), adopted by TNFD for the "Locate" phase of the LEAP approach, https://global-ecosystems.org/

Step 2: Evaluate the ecosystem services

Step 2 involved a desktop study to evaluate the nature-related dependencies and impacts from forestry production across all 25 ecosystem services. This assessment applied aspects of the Natural Capital Protocol's "Scope" stage and the TNFD's "Evaluate" phase under the LEAP Approach.

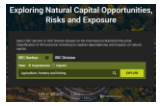
To do this, key documents were reviewed - drawing on previous research and sector guidance (see below) - to identify the extent to which forest production activities:

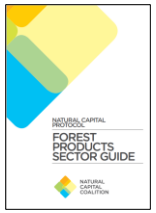
- Rely on nature's ecosystem services, functions, or processes to operate (**dependencies**)
- Affect the condition and delivery of those ecosystem services through beneficial or adverse impacts on nature (**impacts**).

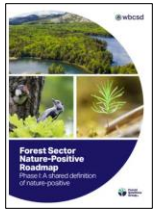
A summary of the desktop review assessing how forest production activities depend on ecosystem functions and services and affect their condition and delivery through impacts on nature, is presented in Figure 5.

Key documents reviewed

- TNFD Additional Sector Guidance – Forestry, pulp and paper (2024)
- Natural Capital Protocol Forest Products Sector Guide (WBCSD, 2018)
- ENCORE Forestry and logging database (2025)
- WBCSD Forest Sector Nature-Positive Roadmap (2022)







Category	Ecosystem service	Dependency rating	Impact rating
Provisioning services	Biomass provisioning		
	Genetic material		
	Water supply		
	Other provisioning services		
Regulating & maintenance services	Soil and sediment retention		
	Water purification		
	Soil quality regulation		
	Global Climate regulation		
	Local (micro and macro) climate regulation		
	Rainfall pattern regulation		**DNA**
	Biological control		
	Flood control		**DNA**
	Nursery population & habitat maintenance		**DNA**
	Pollination		
	Storm mitigation		
	Water flow regulation		
	Solid waste remediation		**DNA**
	Air filtration		
	Noise attenuation		**DNA**
	Other regulating and maintenance service		**DNA**
Cultural services	Recreation related services Education, scientific and research services Spiritual, artistic and symbolic services Visual amenity services Other cultural services	**DNA**	

Table 1: The extent to which forest production depends on and impacts an ecosystem service, *adapted from:* TNFD, Capitals Coalition, WBCSD & ENCORE

Key: Scale of significance: **Likely** | **Potential** | **Unlikely** | **Data not available (DNA)**

Step 3: Develop criteria for prioritizing

Nine criteria were developed to guide the assessment and prioritization of the ecosystem services for measurement and reporting in the next stage of the project (i.e. Part 2). The criteria focused on impact materiality, financial materiality, and practical implementation considerations. The nine criteriaapplied are listed in the table below.

Criteria	Objective for Participants	Guidance
Impact materiality	Consider the impacts on the state of nature and its capacity to provide ecosystem services.	Reflects GRI and ESRS/CSRD guidance on the scale of forestry's positive or negative effects.
Financial materiality	To ensure a link with the economic and commercial objectives of the Participants. Also to consider dependencies and business value at risk within operations.	Considering current and potential financial risks and opportunities tied to Natural Capital. Reflects ISSB view – impacts on costs, revenues, asset values, or financing.
Stakeholder expectations	To manage reputation risks & enhance brand value.	Societal expectations around nature protection are increasing; if poorly managed, this can disrupt business operations. Consider 'social licence' to operate.
Decision-making usefulness - external	To manage transition risks and opportunities.	Relevance for external stakeholders, determining resource allocations & policies.
Decision-making usefulness - internal	To optimize and capitalize on future value realization opportunities.	Informs internal business strategic planning, as well as tactical and operational decisions, risk assessments, and investment decisions.
Practicality & achievability	To manage execution risks of preparing Natural Capital Reports within 12 months.	Measurement feasibility, and practicality, considering time and cost limitations. Depends on available tools, data, organizational capacity and methods; feasibility determines adoption.
International alignment	Establish credibility and harmonization with existing frameworks and guidance.	Preference for those ecosystem services aligned with leading global frameworks such as TNFD, UN SEEA, and others, allowing comparability
Balance & completeness	Reduce potential reputational risks of green-washing.	Prevent skew (e.g. report good and bad), ensure completeness and credibility.
Supporting ambition	To manage reputational risks, and support brand value protection and creation.	Consider Project Participants' existing and aspirational nature-related ambitions, strategies and commitments (e.g. , contributions to the Paris Agreement, Global Biodiversity Framework, and Sustainable Development Goals).

Table 2: Prioritization criteria used in the Forestry Natural Capital Project in Part 1.

Step 4: Achieving consensus on priority ecosystems services

An in-person workshop was held in Helsinki, hosted by Stora Enso, over three days, from 24-26 September 2025, to agree on the priority ecosystem services for Part 2. The approach centered on building consensus through dialogue and collaboration.

In preparation for the workshop, a materiality assessment paper was issued to Project Participants. The paper set out a proposed process for selecting the priority ecosystem services most material to the Project Participants per Step 3.

The face-to-face workshop was highly productive, with the following agreements reached each day:

Day	Key activities and agreements reached
1	• The use of the prioritisation criteria to evaluate the ecosystem services • To group the ecosystem services into themes per Table 2 (i.e. water, climate, biodiversity and cultural) for discussion and evaluation purposes • The shortlisted ecosystem services for the detailed assessment on day 2.

2	• The shortlisted ecosystem services were discussed and assessed in detail. Using the prioritisation criteria
	• The results from Day 2 showed (see Table 2 for the heatmap results):
	  • Wood provisioning, carbon and biodiversity emerged as clear standouts, with consistently high scores across the prioritization criteria
	  • Water quantity, quality and cultural services (particularly recreation) initially scored lower in relative priority to the top three themes but stronger than any residual ecosystem services considered during Day 3.
	  • Air quality was not assessed explicitly on Day 2 but was considered as material enough for selection for prioritization during Day 3.

3	• The results from day 2 were summarised and presented to the workshop participants for sense checking • The remaining ecosystem services not specifically assessed on day 2 were discussed for relevance. • Consensus was then achieved through discussion, resulting in an agreement on the seven priority ecosystem services

Thematic grouping	Ecosystem service	Average Rating
Wood provisioning	Biomass provisioning	
Carbon	Global Climate regulation	
	Local (micro and macro) climate regulation	
Biodiversity	Genetic material	
	Biological control	
	Nursery population & habitat maintenance	
Water quantity	Water supply	
	Water flow regulation	
	Flood control	
	Storm mitigation	
	Rainfall pattern regulation	
Water quality	Soil and sediment retention	
	Water purification	
	Soil quality regulation	
Emissions, waste & pollution	Air filtration	
Cultural services	Recreation-related services	
	Spiritual, artistic & symbolic services	

Table 2: A heatmap of ecosystem services, grouped into themes, rated on Day 2

Key: Scale of significance: Not assessed

High materiality ←→ Lower materiality

The seven prioritized ecosystem services

Forestry operations influence a wide range of ecosystem services, yet consistent measurement and reporting require focus on those most material to business operations and stakeholder expectations. Through a collaborative prioritization process in Helsinki (described on the previous page), Project Participants identified seven ecosystem services to measure, value, and report across 18 forestry enterprises operating in 38 countries.

The seven ecosystem services span three TNFD-aligned categories – provisioning; regulating and maintenance; and cultural – and reflect those with common and material relevance to support consistent, comparable reporting within and between enterprises. While other services remain important in specific regional or operational contexts, these seven represent those most widely shared across diverse geographies, forest types, and management approaches.

The table below and on the following page, sets out the seven prioritized ecosystem services for the Forestry Natural Capital Project, the type of TNFD ecosystem service category, the UN System of Environmental-Economic Accounting (UN SEEA EA) ecosystem service name, the term used for the project, and lastly the definition of the term.

Category	Ecosystem Service (based on SEEA)	Forestry Natural Capital Project Name	Definition of Term*
Provisioning services	Wood provisioning	Sustainable timber & fiber supply	Ecosystem contributions to tree growth and woody biomass production in plantations and natural forests. These biological processes generate timber and fibers for products including paper, construction, packaging, textiles, and bioenergy.
	Water supply	Water quantity	Forest ecosystems provide a water-supply provisioning service by regulating, storing and releasing freshwater in appropriate quantity, timing, location and quality, while simultaneously consuming water through interception, transpiration and evaporation. The net service reflects the flow of water made available to downstream users, which varies with forest structure, species composition, age, soil and climate conditions, and management intensity.
Regulating & maintenance services	Global climate regulation	Carbon	Forest ecosystems regulate global climate by absorbing, storing, and releasing carbon dioxide through photosynthesis, respiration, and decomposition within biomass, soils, and harvested wood products. The net climate-regulation service reflects the balance between sequestration and emissions from natural and management-related disturbances such as harvesting, fire, and decay, with forests functioning as carbon sinks or sources depending on their age, management intensity, and disturbance regime. Carbon is also embedded in wood products.

Table 3: Prioritized ecosystem services for the Forestry Natural Capital Project

**Note: The TNFD framework aligns with the UN System of Environmental-Economic Accounting (SEEA EA) for its definitions and list of ecosystem services. Source: TNFD, v1.0, September 2023, Glossary_of_key_terms_v1.pdf and the ENCORE framework: https://encorenature.org/en/data-and-methodology/services . ENCORE builds on CICES: https://cices.eu/*

The seven prioritized ecosystem services (cont.)

Category	Ecosystem Service (based on UN SEEA*)	Forestry Natural Capital Project Name	Definition of Term*
Regulating & maintenance services (cont.)	Habitat maintenance	Habitat (as a proxy for biodiversity)	Forest ecosystems maintain habitats and genetic diversity that support species populations essential to forestry production. By sustaining vegetation structure, landscape connectivity, and ecological processes, forests provide the conditions for pollination, natural pest regulation, soil nutrient cycling, and the maintenance of commercial timber gene pools. The magnitude of this service depends on landscape-scale habitat connectivity, forest age and structure, and management practices that sustain diverse ecological communities.
	Soil and sediment retention	Water quality	Forest vegetation and root systems stabilize soils and ground surfaces, reducing erosion and preventing sediment and nutrient runoff into waterways. By maintaining soil structure, organic matter, and ground cover, forests protect water quality and aquatic ecosystems while preserving site fertility for sustained timber production. The magnitude of this service depends on slope, soil type, rainfall intensity, forest-cover density, and management practices that minimize soil disturbance during harvest operations.
	Air filtration	Air quality	Forest vegetation filters airborne pollutants by intercepting and absorbing particulate matter ($PM_{2.5}$, PM_{10}), ozone, nitrogen oxides, and sulphur dioxide through leaf surfaces and canopy structure. By removing these contaminants, forests enhance air quality in and around forestry operations, thereby protecting worker health, maintaining forest productivity, and mitigating pollution impacts on nearby communities. The magnitude of this service depends on factors such as leaf area index, canopy density, species composition, proximity to emission sources, and weather conditions, including wind patterns and precipitation.
Cultural services	Recreation-related and other cultural services	Recreational and cultural activities	Forest ecosystems provide settings for nature-based recreation, cultural practices, and health benefits through varying access arrangements, including open access, permitted uses, or designated zones. Managed forestry landscapes support hiking, hunting, fishing, wildlife viewing, and traditional Indigenous practices, generating economic and social value for companies and communities. The magnitude of this service depends on access policies, landscape quality, cultural significance, and management practices that balance timber production with recreational and cultural use.

Table 3 (continued) : Prioritized ecosystem services for the Forestry Natural Capital Project

**Note: The TNFD framework aligns with the UN System of Environmental-Economic Accounting (SEEA EA) for its definitions and list of ecosystem services. Source: TNFD, v1.0, September 2023, Glossary_of_key_terms_v1.pdf and the ENCORE framework: https://encorenature.org/en/data-and-methodology/services ENCORE builds on CICES: https://cices.eu/*

Rationale for deferring some ecosystem services

Of the 25 TNFD ecosystem services, the project has prioritized seven ecosystem services for measurement, valuation and reporting in Part 2. The rationale for deferring the remaining 18 ecosystem services was based on:

- Balance and completeness: Ensuring representation across provisioning; regulation and maintenance; and cultural services; while maintaining a manageable scope for reporting.
- Practicality: Services that are difficult to measure consistently within the limited timeframe of this project or are not currently financially viable to measure.
- Avoid double-counting: Services that overlap with other prioritized ecosystem services
- Lower order of priority relative to other ecosystem services: Deferred ecosystem services may be locally or regionally material to specific operations but were not deemed universally significant across the diverse international forestry landscape represented in this project.

Ecosystem Services	Rationale for Deferring
• Biological control (pest & disease regulation) • Flood mitigation • Genetic material • Local climate regulation (micro-climate) • Noise regulation • Pollination • Other provisioning services • Rainfall pattern regulation • Solid waste remediation • Visual amenity services	**Rationale:** Limited measurability, data gaps or lower order priority relative to other ecosystem services **Explanation:** • Microclimate effects are too site-specific to aggregate meaningfully at enterprise scale. • Noise regulation and micro-climate effects are highly localized and not material to core forestry operations • Noise regulation is mostly relevant for peri-urban buffers, not remote operations • Pollination is niche rather than core to forestry production and pest control affect forests, but these are secondary and difficult to isolate • Solid waste remediation is limited to internal nutrient cycling within the forest ecosystem rather than external waste processing • Forest waste decomposition reflects internal nutrient cycling rather than an external remediation service • Visual amenity is addressed within the prioritized recreational and cultural services category • Visual amenity requires landscape-level social assessment rather than stand-level measurement Rainfall regulation arises from regional moisture recycling in large forest systems (e.g. Amazon, Congo Basin), while flood mitigation depends on catchment-scale factors such as land use, topography, and hydrology. While forestry operations can influence flood events and rainfall patterns, the extent was considered to be a lower order priority at this point in time relative to other ecosystem services (e.g. climate mitigation, biomass provisioning and water supply). Both are therefore deferred for landscape or jurisdictional assessment rather than enterprise-level accounting.
• Other regulating & maintenance services • Soil quality regulation • Storm mitigation • Water purification • Water flow regulation	**Rationale:** Intermediate services **Explanation:** While relevant, these services can be revisited in future iterations once primary service accounting is established. These are intermediate ecosystem processes that underpin final services. Counting them separately could risk double-counting, e.g.: • Soil quality regulation contributes to multiple prioritized services including biomass provisioning, climate regulation, and water supply • Storm mitigation overlaps with soil and sediment retention • Water purification and water flow regulation support the delivery of water supply.
• Education, scientific & research services • Spiritual, artistic, & symbolic services • Other cultural services	**Rationale:** Socioeconomic services without ecological measurement frameworks **Explanation:** These services provide important social and cultural value but are qualitative, culturally specific, and lack standardized metrics for biophysical measurement or consistent global reporting. Traditional knowledge systems, oral histories, and cultural practices associated with forests are community-specific and resist standardization across global reporting frameworks. There is an opportunity for integrating later under social or human capital accounting frameworks, rather than enterprise-level natural capital accounting.

Table 4: Summary of rationale for deferring ecosystem services for the Forestry Natural Capital Project

Looking ahead

From insights

Throughout 2026, the global forestry organizations participating in the Forestry Natural Capital Project will deepen this work. Their efforts will include developing shared methodologies and engaging external stakeholders to prepare a Natural Capital Account, with the goal of releasing a final consolidated Forestry Natural Capital Report by COP31.

To action

Our ambition is to demonstrate that when forests and the ecosystem services they support are valued fully, they aren't just essential to planetary health, they are investable, resilient assets for the future.

Part 2: Next steps towards COP31

The starting point for Part 2 will be the prioritized ecosystem services and will involve three main aspects:

- Developing consistent Natural Capital Accounts for each Project Participant and a consolidated Natural Capital Report,
- Sharing the learnings, and
- External stakeholder consultation.

Producing Consistently Prepared Natural Capital Accounts and Reports

Participants will work together over the next 12 months to:

1. Agree on the approaches and methods to measure, value and present the prioritized ecosystem services at a global scale.
2. Prepare their own Natural Capital Accounts covering the prioritized ecosystem services with guidance and support provided from the project team and other subject matter experts.
3. Produce a consolidated Natural Capital Report, including the presentation of the ecosystem services in a unified format of:
   - Natural Capital Balance Sheet (i.e. the stocks – environmental assets (extent, condition, value);
   - Statement of Impact Performance [or Impact Profit & Loss] (i.e. the flows of ecosystem services and impacts (positive & negative) and dependencies; and
   - Accompanying notes to explain the methodologies and underlying assumptions.

External Stakeholder Consultation

The project will also consult widely with key stakeholders with the formation of Advisory Councils. The Advisory Councils will serve as independent expert bodies providing strategic guidance, technical expertise, and stakeholder validation to ensure the project's outcomes consider contemporary best practice, achieve broad acceptance and practical implementation across the forestry value chain.

The Advisory Councils comprise five specialized councils, representing critical stakeholder perspectives:

Technical Advisory Council

Investor Advisory Council

Community Advisory Council

Value Chain Advisory Council

Policy makers

Contributing Insights for Global Progress in Natural Capital Reporting

As sector leaders, there is an opportunity to ensure that insights from this project are shared for the common good, thereby advancing the uptake of Natural Capital Reporting across other sectors. In support of this, this project will provide:

- The learnings from undertaking assessments and developing natural capital accounts and reports, to support the TNFD (i.e. the LEAP Approach and aligned disclosures) and other framework refinement and development.
- Resources on natural capital assessments, accounts and reports relevant to the forestry, pulp and paper sector, including TNFD Knowledge Hub: https://tnfd.global/knowledge-hub/

Appendix A1: Glossary of terms

Definitions for the terms are adapted from: Biodiversity Indicators Partnership, Guidance for National Biodiversity Indicator Development and Use (2011 BIP); Capitals Coalition (2025 Caps Co); ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) (2025 ENCORE); Global Biodiversity Framework (GBF): The Kunming-Montreal Global Biodiversity Framework, United Nations Environment Programme (UNEP 2022); GRI 1: Foundation 2021, Section 2.2, (GRI 2021); IFRS Foundation Accounting Standards (2025 IFRS Foundation); Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), Global assessment report on biodiversity and ecosystem services (IPBES 2019); Natural Capital Protocol (2016 Capital Protocol); Taskforce on Nature Related Financial Disclosures (TNFD) - Glossary Version 3.0 January 2025 (2025 TNFD); TNFD LEAP Approach (October 2023); UN System of Environmental-Economic Accounting (2024 SEEA); SEEA, NCAVES – STATE OF PLAY OF BUSINESS ACCOUNTING AND REPORTING ON ECOSYSTEMS (2019 Lammerant); World Economic Forum (WEF), What is the bioeconomy and how can it drive sustainable development? (2024 WEF).

Biodiversity - The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. (2016 Natural Capital Protocol – which references Convention on Biological Diversity (1992) Article 2)

Ecosystem assets - A form of environmental assets that relate to diverse ecosystems. These are contiguous spaces of a specific ecosystem type characterized by a distinct set of biotic and abiotic components and their interactions. (2024 SEEA)

Ecosystem services - The most widely used definition of ecosystem services is from the Millennium Ecosystem Assessment (MA 2005a): "the benefits people obtain from ecosystems".

Ecosystem type - TNFD refers to the IUCN Global Ecosystem Typology 2.0 that defines 25 biomes and 108 Ecosystem Functional Groups and reflects a distinct set of abiotic and biotic components and their interactions. (2023 TNFD)

Environmental assets - The naturally occurring living and non-living components of the Earth, together constituting the biophysical environment, which may provide benefits to humanity. (2024 SEEA)

Final ecosystem services - Those ecosystem services in which the user of the service is an economic unit (e.g. business, government or household). (2024 SEEA) When an ecological end-product transitions to being either an economic benefit or something that can be directly used or appreciated by people. (2025 TNFD)

Intermediate services - those ecosystem services in which the user of the ecosystem services is an ecosystem asset and where there is a connection to the supply of final ecosystem services. (2024 SEEA)

Global Biodiversity Framework (GBF) - The Kunming-Montreal Global Biodiversity Framework (GBF), adopted in 2022, is a UN agreement with four goals for 2050 and 23 targets for 2030 to halt and reverse biodiversity loss. Key aims include protecting 30% of land and sea by 2030 (30 by 30), restoring degraded ecosystems, and securing the rights of indigenous peoples and local communities in conservation efforts. (2022 UNEP)

Materiality (financial) - Information is financially material if omitting, misstating, or obscuring it could reasonably be expected to influence decisions that primary users make on the basis of general purpose financial reports, which provide financial information about a specific reporting entity. (2025 IFRS Foundation)

Materiality (impact) - Materiality (impact) - In the context of sustainability, this refers to an organization's most significant actual or potential effects (or impacts) from its activities and business relationships on the economy, environment, and people, including impacts on their human rights, in the short, medium, or long term, both directly and throughout the value chain. The organization prioritizes reporting on those topics which represent its most significant impacts. (2021 GRI)

Natural capital - The stock of renewable and non-renewable natural resources (such as plants, animals, air, water, soils, minerals) that combine to provide a flow of benefits to people. (2016 Natural Capital Protocol)

Natural capital accounting – The process of compiling consistent, comparable and regularly produced data using an accounting approach on natural capital and the flow of services generated in physical and monetary terms. Natural capital accounts are a possible output from a natural capital assessment. (2019 Lammerant)

Natural capital assessment - The process of identifying, measuring, and valuing an organization's dependencies and impacts on natural capital to understand nature-related risks and opportunities (such as TNFD LEAP approach and Capitals Protocol approaches). (2016 Capital Protocol)

Natural Capital Protocol - A standardized framework to identify, measure, and value direct and indirect impacts (positive and negative) and/or dependencies on natural capital. (2016 Capital Protocol)

Systemic risks (nature) - Risks to an organization that arise from the breakdown of the entire system, rather than the failure of individual parts. These risks are characterized by modest tipping points combining indirectly to produce large failures, where one loss triggers a chain of others, and prevents the system from reverting to its prior equilibrium. There are two categories of nature-related systemic risk: ecosystem stability risk and financial stability risk. (2023 TNFD)

Transition risks (nature) - Risks to an organization that result from a misalignment of economic actors with actions aimed at protecting, restoring and/or reducing negative impacts on nature. These risks can be prompted, for example, by changes in regulation and policy, legal precedent, technology or investor sentiment and consumer preferences. Categories of nature-related transition risks include: policy risk, market risk, technology risk, reputational risk and liability risk. (2023 TNFD)

Appendix A2: Abbreviations and acronyms

AUM	Assets Under Management
COP30	Conference of the Parties (30th sessions of the UN Climate Change Conference)
COP31	Conference of the Parties (31st sessions of the UN Climate Change Conference)
CSRD	Corporate Sustainability Reporting Directive
DIROs	Dependencies, Impacts, Risk and Opportunities
ENCORE	Exploring Natural Capital Opportunities, Risks and Exposure
F1	Rivers and streams (flowing freshwater)
F2	Lakes (still freshwater)
FSC	Forest Stewardship Council
GAAP	Generally Accepted Accounting Principles
GBF	Global Biodiversity Framework
GET	Global Ecosystem Typology
GRI	Global Reporting Initiative
IFRS	International Financial Reporting Standards
IFVI	International Foundation for Valuing Impacts
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
ISFC	International Sustainable Forestry Coalition
ISSA	International Standard on Sustainability Assurance
ISSB	International Sustainability Standards Board\
IUCN GET	International Union for the Conservation of Nature Global Ecosystem Typology
LEAP	Locate, Evaluate, Assess, Prepare
NBI	Nature on the Balance Sheet Initiative
NCA	Natural Capital Assessments
PEFC	Programme for the Endorsement of Forest Certification
REIT	Real Estate Investment Trust
SDGs	Sustainable Development Goals
SEEA-EA	System of Environmental-Economic Accounting - Ecosystem Accounting
SFI	Sustainable Forestry Initiative
T1	Tropical and subtropical forests
T2	Temperate-boreal forests and woodlands
T3	Shrublands and bushy woodlands
T7	Intensive land-use systems
TIMO	Timber Investment Management Organization
TNFD	Taskforce on Nature-related Financial Disclosures
WBCSD	World Business Council for Sustainable Development

The Forestry Natural Capital Project

ISFC International Sustainable Forestry Coalition | CAPITALS COALITION

Supported by: TNFD Taskforce on Nature-related Financial Disclosures

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New Forests
PotlatchDeltic
NIPPON PAPER GROUP
StoraEnso
OJI Dedicated to Sustainability
Gresham House Specialist investment
SUMITOMO FORESTRY
MERCER
Rayonier

ISFC: The ISFC is the global association for the private forestry sector. The ISFC strongly advocates for a climate- and nature-positive, forest-based circular bioeconomy. ISFC member companies steward more than 31 million hectares (76 million acres) of forests in 38 countries across all six forest-growing continents. Read more at https://is-fc.com/

Capitals Coalition: The Capitals Coalition is a global collaboration with a shared vision for a resilient economy that values what matters. Through a network of over 500 partners, we are building confidence and empowering action to embed the value of all capitals (Natural, Social, Human, and Produced) in decision-making by 2035. Value Australia is the regional hub of the Capitals Coalition, working to drive momentum towards COP31. Read more at https://capitalscoalition.org/

TNFD: The Taskforce on Nature-related Financial Disclosures (TNFD) is comprised of 40 business and finance leaders from around the world and was launched in 2021 with the support of the G20. TNFD provides recommendations and guidance for market participants and other stakeholders about how nature, beyond climate, should be assessed, managed, and reported. It has built a global movement of support and action, including over 500 organizations and over USD $17 trillion in assets under management (AUM) now committed to reporting their nature-related issues aligned with the TNFD recommendations published in September 2023. The TNFD recommendations build on the previous approach and recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and are aligned with the impact standards of the Global Reporting Initiative (GRI), the European Union's Corporate Sustainability Reporting Directive (CSRD), and the sustainability reporting standards of the International Sustainability Standards Board (ISSB). Read more at https://tnfd.global/