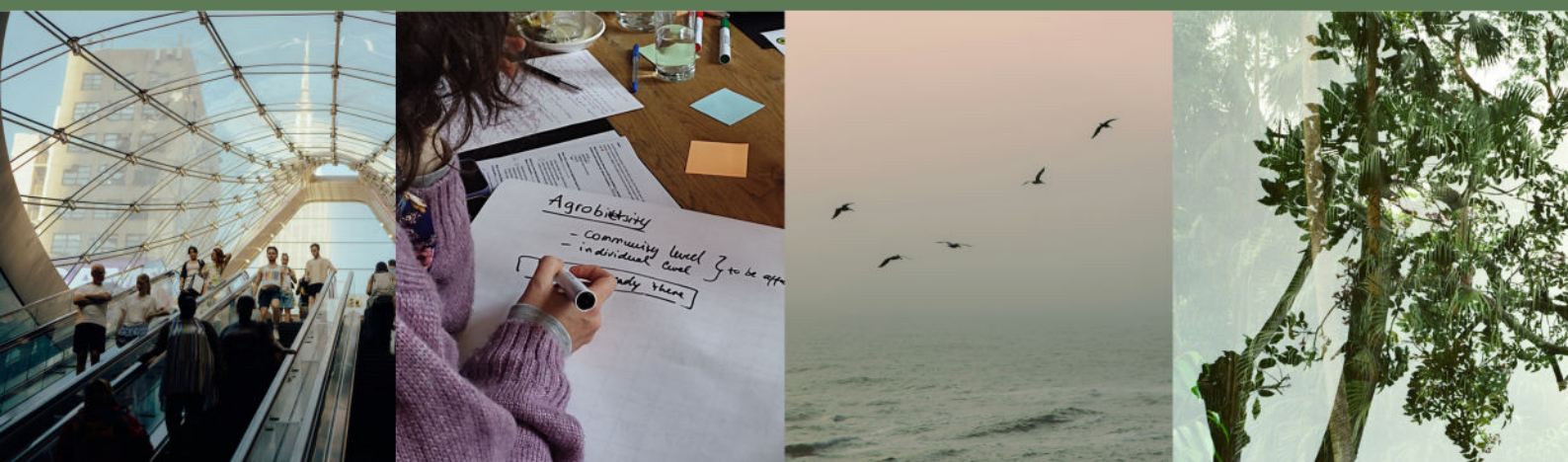
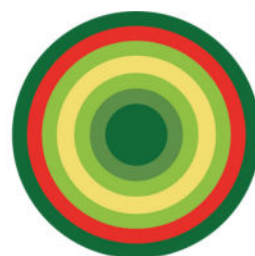


Horizon Europe Project PLANET4B

KNOWLEDGE PRODUCTS, INCLUDING SYNTHESIS OF THE APPLICABILITY OF BEHAVIOUR SCIENCE AND INTERSECTIONALITY FOR PRIORITISING BIODIVERSITY INTO RELEVANT EU AND GLOBAL PROCESSES



BETTER DECISIONS FOR BIODIVERSITY AND PEOPLE



PLANET4B



**Funded by
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PLANET4B receives funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101082212.



**UK Research
and Innovation**

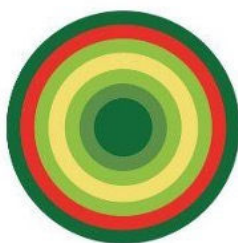
This project is funded by UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee.



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This work has received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI).

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PLANET4B

BETTER DECISIONS FOR BIODIVERSITY AND PEOPLE

Key deliverable information

Project acronym **PLANET4B**

Project title	understanding Plural values, intersectionality, Leverage points, Attitudes, Norms, behaviour and social Learning in Transformation for Biodiversity decision making
Starting date	01 st November 2022
Duration	36 months
Website	https://planet4b.eu/
Project coordination and scientific lead team	Ilkham Soliev; Alex Franklin; Agnes Zolyomi; Torsten Wähler

Deliverable number **D4.4**

Deliverable title	Knowledge products, including synthesis of the applicability of behaviour science and intersectionality for prioritising biodiversity into relevant EU and global processes.
Task leader	UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)
Dissemination level	Public
Status	Final

Deliverable description

The findings of the applicability of behaviour science and intersectionality along with the identified transformative pathways aim to feed into relevant intergovernmental processes by exploring and outlining entry points for prioritising biodiversity and enhancing policy coherence (e.g., aligning the European Green Deal, the post-2020 global biodiversity framework, and SDG commitments) along with other EU and global projects.

Version	Status	Date	Authors/Reviewers
0.1	Draft	16/10/2025	Authors: Ana Lambert, Ceire Booth, Thiago Uehara, Noor Noor, Ruth Fletcher (UNEP-WCMC)
0.2	Draft	24/10/2025	Reviewers: Agnes Zolyomi (MLU), Alex Franklin (CU), Eszter Kelemen (ESSRG), Sandra Karner (IFZ)
1.0	Final	05/11/2025	Authors: Ana Lambert, Ceire Booth, Thiago Uehara, Noor Noor, Ruth Fletcher (UNEP-WCMC)
1.1	Final	10/11/2025	Reviewer: Edit Hunyadi (MLU)

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Recommended citation

Lambert A., Booth, C., Uehara, T., Noor, N. & Fletcher, R. (2025). Knowledge products, including synthesis of the applicability of behaviour science and intersectionality for prioritising biodiversity into relevant EU and global processes. Report No D4.4 of the Horizon Europe Project 101082212 – PLANET4B. Brussels: European Research Executive Agency. DOI: 10.5281/zenodo.17251096

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Acknowledgements

The authors would like to thank the PLANET4B case study partners whose extensive research throughout the course of the project and direct expert input has been instrumental for the developing the policy briefs (knowledge products) contained in this deliverable. Given that this deliverable is the culmination of the research that has taken place across all PLANET4B work packages, the authors would also like to thank all task leads and task contributors whose research has paved the way for this final output. The authors would also like to thank the expert participants who attended the validation workshops for Task 4.3 whose willingness to share their knowledge, ideas and feedback helped to improve and refine the knowledge products included in this deliverable. Finally, the authors would like to thank the reviewers for their time and thoughtful feedback throughout the drafting process.

List of abbreviations and acronyms

Acronym	Definition
CBD	Convention on Biological Diversity
CGE	Culture Goes Europe
CU	Coventry University
DC	DADIMA CIC
DG AGRI	Directorate-General for Agriculture and Rural Development
DG CLIMA	Directorate-General for Climate Action
DG FISMA	Directorate-General for Financial Stability, Financial Services and Capital Markets Union
DG JUST	Directorate-General for Justice and Consumers
DG GROW	Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs
DG TRADE	Directorate-General for Trade
DG SANTE	Directorate-General for Health and Food Safety
EEA	European Environment Agency
ESG	Environmental, Social, and Governance
ESSRG	Environmental Social Science Research Group
EU	European Union
FiBL	Research Institute of Organic Agriculture
FUG	Forum Urban Gardening
HM	His Majesty's
IFZ	Interdisciplinary Research Centre for Technology, Work and Culture
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KM GBF	Kunming Montreal Global Biodiversity Framework
MLU	Martin Luther University Halle-Wittenberg
NINA	Norwegian Institute for Nature Research
OECD	Organisation for Economic Co-operation and Development
PLANET4B	Understanding Plural values, Intersectionality, Leverage points, Attitudes, Norms, Behaviour and social Learning in Transformation for Biodiversity decision-making
RU	Radboud University

SDGs	Sustainable Development Goals
UK	United Kingdom
UNEP-WCMC	United Nations Environment Programme World Conservation Monitoring Centre
UNIPi	University of Pisa
WWF	World Wildlife Fund

Table of Contents

<i>Key deliverable information</i>	<i>iii</i>
<i>Acknowledgements</i>	<i>iv</i>
<i>List of abbreviations and acronyms</i>	<i>v</i>
<i>Table of Contents</i>	<i>1</i>
<i>Executive summary</i>	<i>3</i>
<i>1 Introduction</i>	<i>3</i>
1.1 PLANET4B's focus on plural values, behaviours, intersectionality and leverage points for transformational change in biodiversity-related decision-making	4
1.2 How this report is structured	4
<i>2 How Task 4.4 builds on previous Tasks and Deliverables from Work Packages 1 – 4</i>	<i>5</i>
<i>3 Methodological approach for developing the five knowledge products</i>	<i>8</i>
3.1 Synthesising the results of the project and developing “policy options”	9
3.2 Selecting suitable formats for each of the knowledge products	10
3.3 Validation with external experts	12
3.4 Iterative refinement	12
<i>4 Five knowledge products for prioritising biodiversity in relevant EU and global processes</i>	<i>13</i>
<i>5 Discussion</i>	<i>15</i>
5.1 Overview of knowledge products	15
5.2 Cross-cutting discussion: Leverage points for transformative change	17
5.3 Implications for policy and practice	18
<i>6 Conclusion and outlook</i>	<i>18</i>
<i>References</i>	<i>21</i>
<i>Statement on data availability</i>	<i>24</i>
<i>Statement on ethics</i>	<i>24</i>
<i>Annex 1</i>	<i>25</i>
<i>Annex 2 - Resilient Trade Beyond Traceability: Strengthening the EU–Brazil Partnership for Nature and People</i>	<i>27</i>
Introduction	27
Background: Policy context and political dynamics	27
Evidence and analysis	28
Challenges and policy options	28
Conclusion	30
References	31

<i>Annex 3 - Supporting seed diversity for resilient EU agriculture: A policy perspective</i>	<i>32</i>
Introduction	32
Current policy measures	32
Evidence and analysis	33
Challenges and policy options	33
Conclusion	36
References	37
<i>Annex 4 - Fashion forward: Policy pathways for a biodiversity-positive transformation of the EU fashion sector</i>	<i>38</i>
Introduction	38
Current policy measures	38
Evidence and analysis	39
Challenges and policy options	39
Cross-cutting principle: Justice, inclusion and plural pathways of change	42
Conclusion	42
References	43
<i>Annex 5 - Private finance and cognitive biases: A Theory of Change for aligning financial actor behaviour with global biodiversity goals.....</i>	<i>44</i>
Introduction	44
Evidence and analysis	44
Background	45
Key findings and policy options	46
References	49
<i>Annex 6 - Enabling transformative change for biodiversity in Europe: From values to action – A synthesis for policy and implementation under the EU Biodiversity Strategy for 2030</i>	<i>50</i>
Executive summary.....	50
Introduction	51
Evidence and analysis	53
Enabling transformative change.....	54
Implementation options	61
Conclusion	66
References	68

Executive summary

- Biodiversity loss is intricately connected to social identities and values, attitudes and behaviours, institutional structures, and the complex interplay between individuals, institutions and systems of environmental governance.
- Environmental governance and policy play a critical role in setting the parameters in which values, behaviours, attitudes and decisions about biodiversity are shaped at all levels. Policies at the EU and global level are therefore critical levers for unlocking transformative changes in the ways that decisions about biodiversity are made, to improve outcomes for biodiversity and social wellbeing.
- Task 4.4 involved synthesising the results of the PLANET4B project in the form of five knowledge products for policy audiences. The knowledge products contained in this deliverable provide both sector-specific policy options for improving biodiversity prioritisation in decision-making, and options for strengthening the use of behavioural science and intersectionality in EU and global policy processes.
- The knowledge products highlight that transformative change for biodiversity requires coordinated action by multiple actors across system levels. Actions include adjusting incentives, redesigning institutions, and shifting societal intent. Crucially, biodiversity-related actions should be grounded in behavioural insights, inclusive governance, and cross-sectoral coherence to achieve equitable and lasting positive change for biodiversity.
- Policy can play a critical role in scaling transformative change for biodiversity by creating the right “enabling conditions” for this to be possible. Success also depends on continued collaboration between researchers, policymakers, and practitioners to test enabling conditions, monitor outcomes, and scale interventions that embed equity, participation, and systemic thinking across sectors and regions.

1 Introduction

The scientific evidence is clear: Biodiversity is declining faster than ever before (WWF, 2024; IPCC, 2023; IPBES, 2019). In the European Union (EU), biodiversity has suffered major losses over recent decades. For example, farmland bird populations have dropped by around 40% since 1990, and more than four out of five natural habitats assessed under the Habitats Directive are now in poor or bad condition (EEA, 2025; 2023; EEA, 2020).

The biodiversity crisis is not only about nature; it is also about people. The current state of biodiversity reflects how societies produce, consume, and govern natural resources. Human actions are both the cause of biodiversity loss and the key to reversing it. Tackling this crisis requires profound shifts in how institutions are organised, how behaviours are shaped and how people understand their relationship with nature (Díaz et al., 2018; Rockström et al., 2009; Steffen et al., 2015). As the IPBES Transformative Change Assessment (2024) makes clear, fundamental and systemic change is essential to reverse current trends. It calls for a rethinking of how societies value and relate to the natural world, recognising that well-being, justice and care for the planet are interconnected dimensions of sustainable prosperity (Uehara, 2024).

The need for such transformation is now widely acknowledged across global and EU policy agendas, including the EU Biodiversity Strategy for 2030, the Sustainable Development Goals (SDGs), and the Kunming-Montreal Global Biodiversity Framework (KM GBF). Yet, while these frameworks and targets are in place, the main challenge lies in their implementation. Progress towards biodiversity ambitions across Europe have fallen short in some areas. The OECD (2019) notes that although EU and OECD countries have made progress in developing biodiversity-related policies, the scale of these efforts is still insufficient. Further, biodiversity-related actions are often poorly integrated into economic and social policies (EEA, 2020). As the 'Economics of Biodiversity: The Dasgupta Review' (2021) points out, the cost of doing nothing far exceeds the cost of restoring ecosystems, making biodiversity protection not only an environmental issue but an economic and social necessity. The IPBES Nexus Assessment (2024) further highlights that numerous synergistic response options are already available across multiple sectors, and when implemented at appropriate scales and contexts, these can both recognise and manage trade-offs and deliver benefits across biodiversity, water, food, health and climate simultaneously.

1.1 PLANET4B's focus on plural values, behaviours, intersectionality and leverage points for transformational change in biodiversity-related decision-making

PLANET4B addresses these implementation challenges through an integrated focus on plural values, behavioural change, intersectionality, leverage points and transformational change. PLANET4B aligns itself with the definition of transformative change as fundamental, system-wide shifts that alter the underlying values, power structures, and institutional arrangements that drive biodiversity loss (IPBES, 2024; Abson et al., 2017; O'Brien & Sygna, 2013). This definition implies going beyond incremental adjustments to existing practices, towards rethinking society's relationship with nature at its core.

Behavioural science provides tools to understand how psychological, social, and contextual factors shape decision-making around biodiversity, revealing why people and institutions act as they do and how change can be catalysed (Karner et al., 2025). Understanding and working with diverse values, from instrumental to relational and intrinsic, is critical because these values fundamentally shape how people perceive, prioritise, and protect nature (Pascual et al., 2023; IPBES, 2022).

Finally, an intersectional approach recognises that social identities such as gender, class, race, age, and ability intersect to create distinct experiences of power, vulnerability, and agency in relation to biodiversity and environmental change (Thaler & Karner, 2023). By centring these dimensions, PLANET4B explored interventions and policy options that are not only effective for reducing biodiversity loss but also equitable, contextually relevant, and capable of triggering deep-rooted change through the transformative power of plural knowledges and intersectional diversity (Barton et al., 2024).

1.2 How this report is structured

This deliverable is structured as follows. Section 2 presents how Task 4.4 builds on previous tasks in Work Package (WP) 1–4. Section 3 “methodological approach for

developing the five knowledge products” describes the methodological approach used to develop the policy briefs and policy note. Section 4 “Five knowledge products for prioritising biodiversity in relevant EU and global processes” provides an overview of the five knowledge products, the case studies findings they draw on, and their intended audiences. Section 5 “Discussion” reflects on the findings and messages across the five knowledge products and their implications for policy. Section 6 “Conclusion and outlook” provides forward-looking concluding remarks, including opportunities for upscaling PLANET4B’s results in future.

2 How Task 4.4 builds on previous Tasks and Deliverables from Work Packages 1 – 4

Following the workflow of PLANET4B, this section describes how each WP built on the previous WPs, to ultimately feed into Task 4.4. In relation, it describes how Task 4.4 synthesises the results of WPs 1 – 4 to develop five knowledge products which translates those results into clear and targeted options for the prioritising biodiversity in EU and global policies.

WP1: “Understanding theories of decision making and intersectionality for a transdisciplinary framework of analysis”

WP1 established the theoretical groundwork for the project by investigating: (1) the ways in which varying perceptions of biodiversity shape its communication and prioritisation across different decision-making settings, (2) the influence of intersecting aspects of individuals’ identities on their values, attitudes, and behaviours regarding biodiversity, and how these identities affect their role in biodiversity-related decisions, and (3) existing theories on how to guide behavioural change, inform decision-making, and foster systemic change. Building on these insights, Task 1.7 focused on creating a transdisciplinary diagnostic framework aimed at shifting attitudes and behaviours, drawing on an understanding of plural knowledge and intersectionality within decision-making processes (Barton et al., 2023).

WP2: “Mapping and advancing transformative and creative methodologies to trigger behavioural and institutional change”

WP2 involved reviewing, adapting and pre-validating transformative methods to support their application in a range of real-world contexts. Training on a range of methods spanning experiential games, framing and nudging approaches, and deliberative, creative and arts-based methods was conducted with the case study leads in preparation for piloting the methods in the Learning Communities. then trained partners and compiled a methods catalogue for deployment in WP3. The catalogue of methods in Deliverable 2.4 was designed to be applicable and adaptable for a range of diverse social contexts and sectors (Franklin et al., 2025).

WP3: “Learning communities for transformative change”

Building on WP1– 2, WP3 operationalised the transdisciplinary diagnostic framework and transformative methods in 11 empirical case studies: five intensive place-based case studies and six extensive sector-specific case studies. The role of the case studies in the PLANET4B project was to advance knowledge and evidence on the role of plural values, behaviours, intersectionality, leverage points and transformational

change for influencing how decisions about biodiversity are made in a range of contexts and at a range of scales. Intersectionality was a core focus in all 11 case studies, as reflected by both the composition of the case study members and the research topics that each case study focussed on. See an overview of the five place-based case studies and six sector specific case studies Annex 1.

The **place-based intensive cases** were comprised of a lead organisation and a wider “Learning Community” consisting of local civil society actors. Each of the place-based case studies experimented with a range of transformative methods, designed to support inclusive, reflexive, and transformative biodiversity engagement. The methods were tailored to the case study contexts, to help connect biodiversity-related concepts to the everyday realities of the case study Learning communities. For example, methods were piloted as part of school lesson plans, during community gardening activities, as part of coordinated youth group activities, and more.

In parallel, six sector-specific extensive case studies examined systems change in trade, agriculture, finance, education and textiles, identifying sector-specific leverage points. The results of the sector-specific case studies fed into the development of six sector-specific transformative pathways in Deliverable 4.2 (Loučková et al., 2025) and the Compendium of 11 Transformative Change Stories (one for each case study) in Deliverable 3.3 (Karner et al., 2025).

The **sector-specific extensive case studies** researched how specific sectors (trade, agriculture, education, finance and fashion) impact biodiversity. Each sector-specific extensive case study was coordinated by a lead case study partners with the participation of a “Stakeholder Board”, consisting of experts, practitioners, and other institutional actors from those sectors. Through desk-based research and expert workshops with their Advisory Board members, the case studies explored what leverage points and systems changes are needed (at all levels of society) to transform how biodiversity is prioritised in these sectors.

As part of their activities, each of the case studies conducted systems mapping, leverage point analysis and impact mapping to visualise what transformations are needed to improve biodiversity and social equity in the context of their case study topic. The results of this analysis were captured in Deliverable 3.2 (Loučková et al., 2024). Building on the results in Deliverable 3.2, CzechGlobe and the sector-specific case study partners collaboratively developed transformative pathways in Deliverable 4.2. The transformative pathways describe a sequence of necessary “action steps” and leverage points, which if implemented, could improve the prioritisation of biodiversity in each of the five sectors. The results of Deliverable 3.2 also fed into the development of 11 Transformative Change Stories in Task 3.3. Analysis of the Transformative Change Stories in Deliverable 3.3 revealed important insights about the “enabling conditions” that are important for change to transformative change to occur. It also revealed important insights on the role of plural values, behavioural change, intersectionality and transformational change in shaping how decisions about biodiversity are made in a range of contexts and at a range of scales.

WP4: “Synthesising transformative pathways and ensuring policy relevance”

The objectives of WP4 are to ensure the policy relevance of the project (Task 4.1), synthesise the results of WPs 1 – 3 into transformative pathways for improving the

prioritisation of biodiversity in decision-making (Task 4.2), validate the applicability of methods and transformative pathways with key enabling players (Task 4.3), and to develop recommendations for prioritising biodiversity and improving policy coherence across EU and global policy frameworks (Task 4.4).

Task 4.2, led by CzechGlobe, focused on using the results of the case studies' systems mapping and leverage point workshops (captured in Deliverable 3.2), to develop six sector-specific transformative pathways for the EU and global levels. As part of Task 4.1 "Ensuring policy relevance through consultations with key enabling players", UNEP-WCMC conducted a policy mapping exercise to identify all biodiversity-policy instruments (at the EU and global level) of most relevance to the 11 case studies. CzechGlobe used the results of the policy mapping to identify suitable recommendations for policy that would enable the transformative pathways in each sector. The transformative pathways in Deliverable 4.2 were carried forwards into the subsequent Tasks in WP4. In the early stages of planning Task 4.4, it was decided that four of the transformative pathways (for trade, agriculture, fashion and finance) would be developed into sector-specific policy briefs as part of Deliverable 4.4 "Knowledge products, including synthesis of the applicability of behaviour science and intersectionality for prioritising biodiversity into relevant EU and global processes". To ensure the policy relevance, accuracy and credibility of the sector-specific policy briefs, the "policy options" identified in the sector-specific policy briefs were validated with experts from policy, research and business in Task 4.3 "Validating transformative methods and pathways with policy makers and businesses". In parallel, the findings of the intensive place-based case studies regarding values, behavioural change, intersectionality and transformational change (captured in both Deliverable 3.2 and Deliverable 3.3) were also validated with relevant experts from policy, research and civil society to help inform the final knowledge product, a policy note titled "Enabling transformative change for biodiversity in Europe". More detailed information about the expert validation workshops in Task 4.3 can be found in Deliverable 4.3 (Lambert et al., 2025). See Figure 1 for an overview of how earlier Tasks in WPs 1 – 4 feed into Task 4.4.

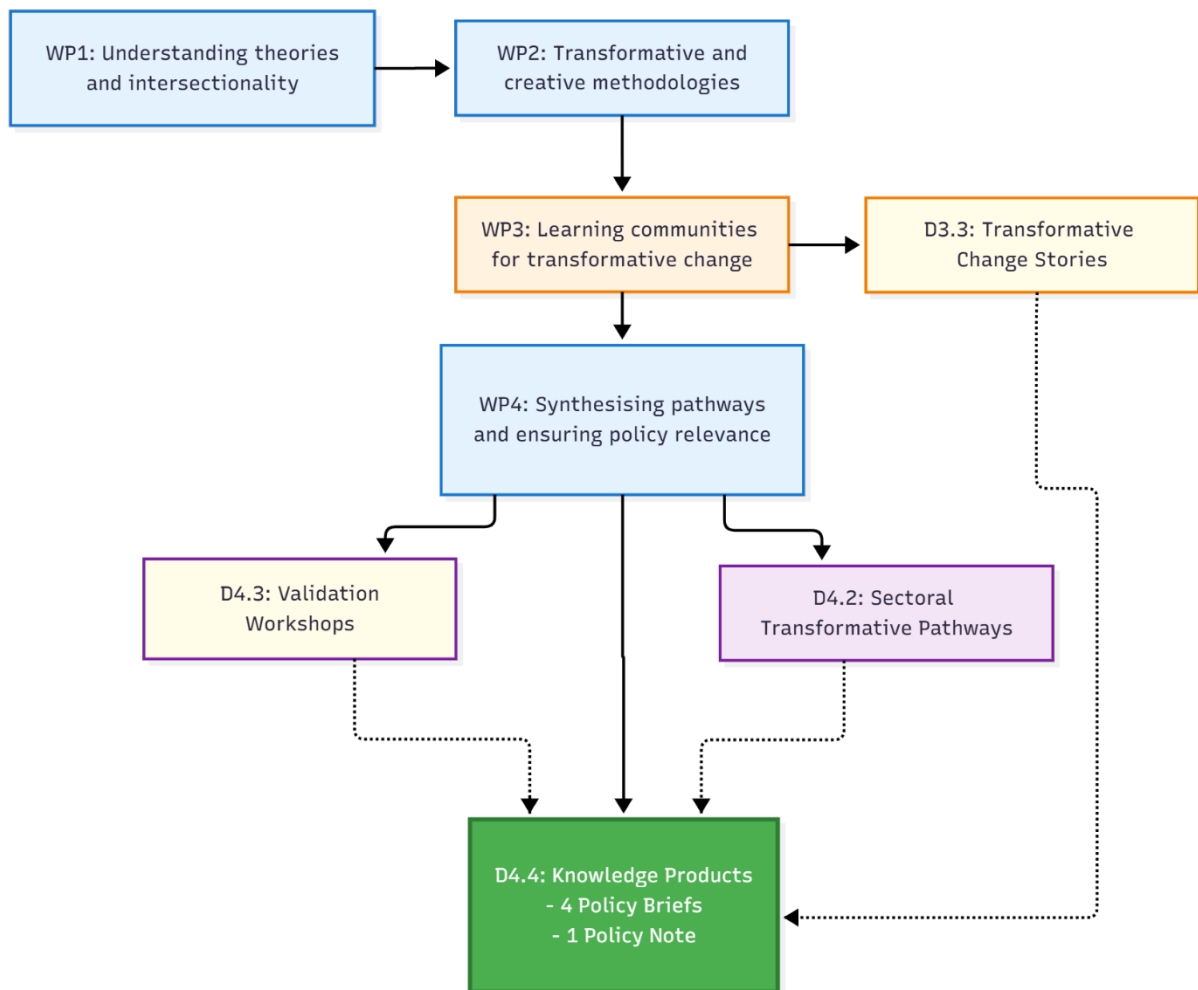


Figure 1. Visual illustration showing how previous Tasks in the PLANET4B project feed into Task 4.4 (*created using Mermaid, an open-source AI-assisted diagramming tool*).

By combining the results of WP1 - 4, this final WP4 Deliverable (Deliverable 4.4) aims to synthesise and communicate the results of PLANET4B's research in the form of clear, relevant and actionable policy options that could unlock transformative change for biodiversity and people.

3 Methodological approach for developing the five knowledge products

A four-stage transdisciplinary process was used to develop the five knowledge products in Deliverable 4.4: synthesising the results of the project, collaborative development, stakeholder validation, and ongoing iterative refinement of the draft knowledge products (Figure 2). While this structure was consistent across all five knowledge products, the stages varied slightly between knowledge products, depending on the intended audience, scope, focus and material used to develop each knowledge product.

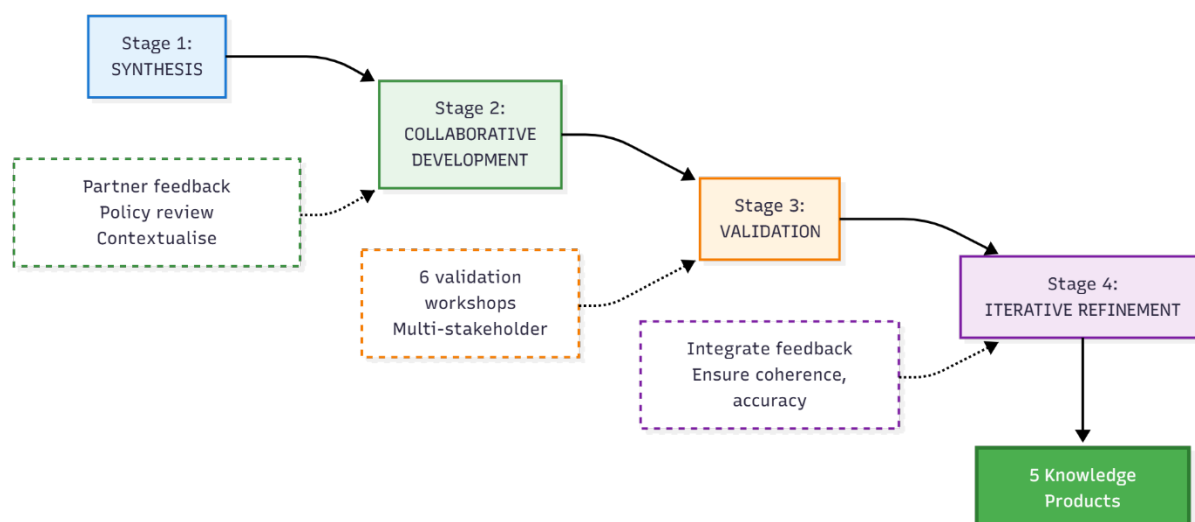


Figure 2. Methodological approach to develop the Deliverable 4.4 knowledge products (created using Mermaid, an open-source AI-assisted diagramming tool).

3.1 Synthesising the results of the project and developing “policy options”

This stage involved synthesising the results of the project, predominantly focussing on the outcomes of the PLANET4B case studies, to help plan and develop the content of each of the knowledge products. Different project sources of information were used for the sector-specific policy briefs and the policy note on “Enabling transformative change for biodiversity in Europe”, as detailed below.

For the sector-specific policy briefs, the process of synthesising the project results involved three main steps:

- **Reviewing project documents and extracting key findings.** The research team began by reviewing the results of the four sector-specific extensive case studies captured in Deliverable 3.2 “Report on systems mapping and leverage points for each case” and Deliverable 4.2 “Mapping of leverage points and transformative pathways for upscaling at the EU, global and sector level”. From these sources, UNEP-WCMC extracted the case studies main findings on the system dynamics that are currently driving biodiversity loss in each of the sectors. These findings were summarised in the form of “policy challenges” in the sector-specific policy briefs.
- **Identifying policy options for unlocking transformative change for biodiversity in each of the sectors.** Using the initial list of policy recommendations identified in Deliverable 4.2, and the policy mapping work undertaken in Task 4.1, UNEP-WCMC conducted a policy analysis to identify current policy gaps for addressing each of the “policy challenges” identified in the previous step. From here, for each “policy challenge”, UNEP-WCMC developed corresponding “policy options” aimed at addressing the challenge through a range of actions across the full spectrum of leverage points (shallow to deep) (Meadows, 1999).
- **Refinement with case study partners.** Once the case study results had been synthesised and an initial list of “policy challenges” and “policy options” had been drafted, UNEP-WCMC invited input from each of the sector-specific case study partners to improve and refine the list of “policy challenges” and “policy

options”. This step was important for verifying that the outcomes of UNEP-WCMC’s synthesis exercise was accurate and reflective of the extensive case study results.

For the policy note on “Enabling transformative change for biodiversity in Europe”, the process of synthesising the project results involved the following activities:

- **Reviewing project documents and extracting key findings.** In the early stages of developing the policy note, UNEP-WCMC gathered information from multiple project sources to begin mapping the project results relating to values, behavioural change, intersectionality and transformational change for biodiversity. Whilst this review focussed on synthesising results from both the intensive place-based and extensive sector-specific case studies, particular attention was given to synthesising the results of the intensive place-based case studies to better understand what their empirical case study research had revealed about the role of values, behaviours and intersectionality for shaping how decisions about biodiversity are made. The sources of information reviewed included the systems mapping, leverage point analysis and impact mapping in Deliverable 3.2 and the case study fact sheets which included additional detail on the interventions that each intensive case study piloted in their Learning Communities. In particular, Deliverable 3.2 and Deliverable 3.3 (which was produced in month 36) included important insights about the “key enabling conditions” that were critical to the stories of change in each of the Learning Communities.
- **Identifying policy options for enabling transformative change for biodiversity in Europe.** Using the list of “key enabling conditions for change” that UNEP-WCMC synthesised from the various project sources, UNEP-WCMC drafted a series of “policy options” for enabling transformative change in Europe. These “policy options” were also informed by the policy mapping conducted as part of Task 4.1, to ensure they were policy relevant and widely applicable to different policies. The “policy options” focus on communicating actions that would help to reduce the barriers and strengthen the “enabling conditions” for scaling transformative change for biodiversity in Europe.
- **Validating the draft policy note with PLANET4B partners.** Once UNEP-WCMC had developed a first draft of the policy note using the “policy options” identified in the previous step, the authors of Deliverable 3.2 and Deliverable 3.3 were invited to provide their input and feedback on the draft policy note. Given the authors of Deliverable 3.2 and Deliverable 3.3 worked very closely with the case study partners and had a good “birds-eye view” of the case studies’ overall results, their feedback on the draft policy note was important to ensure that the messages and “policy options” in the policy note were consistent with their understanding and analysis of the case study results.

3.2 Selecting suitable formats for each of the knowledge products

Each of the five PLANET4B knowledge products was designed in a format suited to its purpose, content and intended audience. The guiding principle was to ensure that findings were communicated in a way that was both scientifically robust and accessible to policy audiences, while recognising that different policy domains require different levels of detail, framing and narrative.

Sector-specific policy briefs

The four sector-specific policy briefs were designed for specialist policy audiences responsible for designing, implementing and monitoring biodiversity-related and sectoral measures within the EU. Following established guidance on writing for policy audiences (e.g. Durham et al., 2014), the briefs were developed to be concise, precise and tailored:

- Concise: each brief is limited to around 5-8 pages.
- Precise: messages and “policy options” are presented clearly, in a non-prescriptive but actionable way.
- Tailored: language and framing are adapted to the relevant sectoral and institutional context.

The trade, fashion and agriculture briefs follow a classical policy-brief format. Each opens with an introduction that sets out the sector-specific problem from an EU policy perspective, provides an overview of existing measures, and summarises the analysis underpinning the policy options. This is followed by a section outlining the main challenges and related policy options, and a short concluding reflection on the implications for EU and international policy.

The finance brief adopts a slightly different structure to reflect the evolving EU policy landscape for the finance sector, particularly the European Commission’s recent proposals to simplify sustainability reporting and due-diligence requirements. In this case, the team used a theory-of-change format to convey policy options. This approach was considered more effective for illustrating how behavioural and cognitive factors shape financial decision-making and for showing the pathway of change needed to align financial systems with global biodiversity goals. Beneath the theory of change, the brief presents specific policy options for EU actors to enable this transition.

Policy note

The policy note synthesises findings from across the PLANET4B project, translating three years of research on plural values, intersectionality, leverage points and behavioural change into policy-relevant insights for scaling transformative change. Its target audiences are national and EU policy actors responsible for implementing biodiversity strategies, such as the EU Biodiversity Strategy for 2030, the Nature Restoration Regulation and national biodiversity strategies and action plans, as well as those shaping research and innovation programmes under Horizon Europe.

Because this product integrates multiple strands of research rather than addressing a single sector, a hybrid format was chosen – combining features of a policy brief with elements of a research note. This allowed the authors to maintain the concise and accessible style of a policy brief while providing sufficient space for conceptual synthesis, cross-sectoral analysis and actionable policy insights. The format was designed to capture the depth of PLANET4B’s findings on transformative change while remaining readable for practitioners and policymakers.

In this way, the policy note complements the four sector-specific briefs: where the briefs offer focused options for action in individual domains, the note provides an overarching narrative that connects these findings and highlights enabling conditions for transformation across governance levels. Together, they form a coherent suite of

knowledge products – short, applied and sector-specific briefs supported by a cross-cutting synthesis that links biodiversity, well-being, accountability and care for people and nature.

3.3 Validation with external experts

Task 4.3 “Validating transformative methods and pathways with policy makers and businesses” fed into the development of the five knowledge products in Deliverable 4.4. The precise aim of the workshops was to validate the relevance, clarity, and policy feasibility of the draft knowledge products with representatives from policy, business, research, and civil society.

UNEP-WCMC organised six validation workshops under Task 4.3. Four of them focussed on validating each of the sector-specific policy briefs and two of the workshops focussed on validating PLANET4B’s cross-cutting results on the role of values, behavioural change and intersectionality for influencing how decisions about biodiversity are made. These workshops brought together diverse actors with complementary expertise, including policymakers from EU institutions and member states, industry representatives, NGO practitioners, and academic researchers.

The workshops involved structured group discussions using variations on the following questions:

- Relevance: Do the challenges described accurately reflect the systemic factors driving biodiversity loss?
- Feasibility: Are the proposed policy options realistic given current political and institutional realities?
- Clarity: Is the language accessible and is the framing compelling for non-specialist policy audiences?
- Utility: Do these messages target the right policy instruments? Could they inform additional policies, how and when?

The validation workshops helped to uncover new insights that were critical to improving the quality and robustness of the knowledge products. For example, outcomes of the discussion included suggestions for improving framing and terminology to better tailor the messages to the target audiences, suggestions for refining the list of “policy options” to capture additional critical points, and suggestions for better aligning the “policy options” with current and ongoing policy processes.

Detailed reports of each of the validation workshops, including a summary of the outcomes and how it fed into Deliverable 4.4 can be found in Deliverable 4.3 (Lambert et al., 2025).

3.4 Iterative refinement

UNEP-WCMC worked with each of the extensive sector-specific case studies to refine and improve the sector-specific policy briefs throughout the drafting process. The policy note also underwent iterative refinements following inputs from the authors of Deliverable 3.3, given that the policy note built on their analysis. Final edits and improvements were made to each of the knowledge products based on the inputs received during expert validation workshops in Task 4.3. Given the strong collaboration

throughout the development process, the case study leads and the authors of Deliverable 3.3 are recognised as co-authors of their respective policy briefs.

4 Five knowledge products for prioritising biodiversity in relevant EU and global processes

Deliverable 4.4 consists of five knowledge products designed to facilitate the integration of biodiversity into EU and global policy processes. Four sector-specific policy briefs for the trade, agriculture, finance, and fashion sector identify policy options for unlocking transformative change for biodiversity in each of those sectors. The fifth knowledge product, a cross-cutting policy note synthesises the results of the 11 case studies and provides policy options for how values, intersectionality, behavioural change, and transformational change can be better applied in policy contexts to unlock transformative change for biodiversity. Table 1 provides an overview of the five knowledge products.

Table 1. Overview of the five knowledge products in Deliverable 4.4.

Knowledge Product	Sector/ Theme	Product based on what case study	Case study type focus	Intended target audience(s)
Beyond Traceability: Strengthening the EU–Brazil Partnership for Nature and People (Annex 2)	Trade	Trade and Global Value Chains between Brazil and the Netherlands	Extensive	1) EU policy actors involved in developing and implementing policies that have biodiversity-related implications for the trade sector e.g. (DG TRADE, DG SANTE, DG AGRI, DG ENV) 2) Policy actors at the EU Member State level responsible for managing national trade-related policies, in particular in the Netherlands
Supporting Seed Diversity for Resilient EU Agriculture: A Policy Perspective (Annex 3)	Agriculture	Enhancing agrobiodiversity through local seed networks	Extensive	1) EU policy actors involved in developing and implementing policies for the agriculture sector and policies that affect the agriculture sector e.g. (DG AGRI, DG SANTE, DG ENV) 2) Policy at the EU Member State level responsible for managing

				national agricultural policies
Addressing the Textile Industry's Impact on Biodiversity in Europe and Beyond: Policy Pathways for the EU (Annex 4)	Fashion & textiles	"From Ego-System to Eco-System" in the Fashion Industry in Italy	Extensive	1) EU policy actors involved in developing and implementing policies for the fashion and textile sector e.g. (DG ENV, DG GROW) 2) Policy at the EU Member State level responsible for managing national policies relating to the production, consumption and management of fashion, textiles and apparel
Private Finance for Biodiversity and Cognitive Biases: Theory of Change for Aligning Financial Actor Behaviour with Global Biodiversity Goals (Annex 5)	Finance	Sustainable investment behaviour in the financial sector (Global-EU-Norway)	Extensive	1) EU policy actors involved in developing and implementing policies that have biodiversity-related implications for the finance sector e.g. (DG FISMA, DG JUST, DG GROW, DG ENV) 2) Policy actors at the EU Member State level responsible for managing national financial regulation
Enabling Transformative Change for Biodiversity in Europe: From Values to Action (Annex 6)	Cross-cutting PLANET4B topics	All case studies	All case studies	1) Policy actors responsible for implementing biodiversity strategies 2) Policy actors responsible for managing research and innovation programmes

Each of the five knowledge products are included Annex 2 – Annex 6 of this report. Each of the sector-specific policy briefs are also being professionally designed and disseminated as stand-alone outputs to their relevant policy audiences in November 2025. The text in the designed knowledge products is the same as the knowledge products in this report (Annex 2 – Annex 6). The choice to professional design the knowledge products for communication and dissemination aligns with the European Commission's guidance on dissemination, which defines it as "the public disclosure of results not only by scientific publications but via any pertinent medium." Dissemination

means “making results available to the people that can best make use of them, e.g. the scientific community, industry, policymakers, and more” (European Commission, n.d.). Targeted communication and dissemination of the knowledge products to their target policy audiences will be conducted throughout November – December 2025. UNEP-WCMC will also remain alert to other opportunities to communicate and disseminate the knowledge products, such as at relevant policy events, through online and in-person policy consultations, and through other science-policy fora.

5 Discussion

5.1 Overview of knowledge products

This deliverable brings together five policy knowledge products developed under the PLANET4B project. Each addresses sector-specific challenges and opportunities for policy intervention to advance transformative change for biodiversity. Together, they highlight how shifts in governance, incentives and social norms can help align economic activity with biodiversity, well-being and care for people and nature.

Trade and global value chains

The policy brief *Resilient Trade Beyond Traceability* (Annex 2) identifies four interlinked challenges. These include fragmented policy coherence between trade, development and environment; limited participation and poor recognition of the rights of indigenous peoples and local communities; insufficient alignment of market incentives with well-being; and weak accountability mechanisms. Its policy options include embedding binding provisions on biodiversity and human rights in trade agreements, expanding cooperation under the Common Agricultural Policy to support sustainable livelihoods and using trade dialogues to reinforce equitable transitions. These measures would enable trade-related policies to promote fairness, resilience and ecosystem integrity rather than perpetuate deforestation and inequality, demonstrating the value of shared accountability and responsibility beyond borders.

Seed diversity and agrobiodiversity

The policy brief *Supporting Seed Diversity for Resilient EU Agriculture* (Annex 3) highlights barriers that restrict diverse, locally adapted seeds from circulating within formal markets. Current rules favour uniform commercial varieties and overlook the contributions of small-scale farmers and community seed custodians. Policy options include proportionate rules under the forthcoming Plant Reproductive Material Regulation, exemptions for conservation and farmer-bred varieties, and collaboration between formal and informal seed systems. Implementing these measures would safeguard genetic diversity, strengthen resilience and uphold farmers’ rights as recognised under international frameworks — linking biodiversity stewardship with social equity and collective care.

Fashion and textiles

The policy brief *Fashion Forward* (Annex 4) examines the structural pressures that keep fashion consumption and production on unsustainable trajectories. Key challenges include overproduction, resource-intensive supply chains, lack of biodiversity metrics and weak enforcement of circularity measures. The brief proposes five policy options: setting durability and repairability standards, introducing sufficiency targets for textile volumes, aligning circular-economy and biodiversity goals, curbing ultra-fast-fashion marketing and embedding repair and reuse infrastructure in cohesion funding. Together, these options would shift the sector from growth-driven models toward sufficiency, care and well-being within planetary boundaries.

Finance and investment

The brief *Private Finance for Biodiversity and Cognitive Biases* (Annex 5) identifies the challenge that biodiversity is rarely valued or integrated into investment decisions. Limited data, short-term incentives and cognitive biases, such as status-quo and loss aversion, hinder alignment of private financial flows with nature-positive outcomes. Policy options include strengthening biodiversity disclosure standards, integrating nature risk into prudential regulation, and building investor literacy through public-private partnerships. The brief argues that reframing biodiversity as financially material can foster accountability and long-term responsibility in the financial system.

Transformative implementation of biodiversity policy

The synthesis research note *Enabling Transformative Change for Biodiversity in Europe: From Values to Action* (Annex 6) provides a cross-cutting analytical lens that connects the sectoral briefs. It explains why some interventions progress while others face resistance, revealing how sector-specific challenges reflect wider governance conditions. Short-term incentives in finance or limited compliance in trade point to weak reflexivity and coherence, while greater participation in seed governance or accountability in textiles show how inclusion and behavioural insight enable progress.

The note identifies five enabling conditions for durable change: justice and inclusion, learning and reflection, collaboration and coherence, adaptive governance and agency and leadership, and demonstrates that change endures when individual agency is supported by institutional learning and coordination mechanisms. Inclusion and behavioural insights emerge as core enablers, helping create policy environments where people feel empowered, recognised and able to deliver change. When supported by networks and institutional backing, these factors amplify collective action and strengthen the social foundations of well-being for all.

These insights are particularly relevant as the EU and global biodiversity agendas move from commitment to implementation. The Kunming–Montreal Global Biodiversity Framework is being rolled out, the EU Biodiversity Strategy for 2030 is entering its mid-term review, and major EU regulations (such as the Plant Reproductive Material

Regulation, the Ecodesign for Sustainable Products Regulation and the EU Deforestation Regulation) are under negotiation or early implementation. PLANET4B's findings contribute to these policy windows by showing how behavioural, institutional and social dimensions can strengthen the design and uptake of biodiversity-related measures.

Overall, the knowledge products indicate that biodiversity governance in Europe is gradually becoming more integrated and inclusive. PLANET4B's contribution lies in linking behavioural and intersectional approaches to practical policy processes, providing grounded examples of how systemic change can be supported across sectors and levels of governance. These options connect with the growing body of work that sees biodiversity loss as a structural outcome of how societies organise production, consumption and governance (Díaz et al., 2018; Rockström et al., 2009; Steffen et al., 2015). From this perspective, transformation involves not only technological innovation but also shifts in values, norms and institutions (Abson et al., 2017; O'Brien and Sygna, 2013; Meadows, 1999).

5.2 Cross-cutting discussion: Leverage points for transformative change

While each knowledge product focuses on a specific sector, they collectively show where policy can intervene most effectively to enable systemic change. Donella Meadows' framework on leverage points provides a useful lens to interpret these insights. It distinguishes between interventions that adjust system parameters, those that redesign system structures and those that shift system intent—the deeper goals and values that drive behaviour.

Acting on system parameters and feedbacks

The briefs propose measures that adjust incentives and information flows, such as integrating biodiversity indicators in finance, improving supply-chain transparency in trade and defining durability standards for textiles. These actions strengthen accountability and help redirect existing systems toward more sustainable outcomes. They are essential entry points but have limited impact if pursued in isolation.

Redesigning system structures

Several briefs focus on transforming institutional design to embed inclusion and learning. Examples include linking trade and development frameworks, aligning circular-economy and biodiversity policies, and enabling cooperation between formal and community-based seed systems. Redesigning governance structures alters who participates, how decisions are made and how knowledge circulates, creating the institutional conditions for continuous adaptation and innovation.

Shifting system intent and paradigms

The policy note and briefs converge on the need to redefine the goals of economic activity. This involves moving from volume-based growth to sufficiency, fairness and care for nature. Policy can influence this shift by valuing well-being, resilience and justice as core measures of progress, embedding them across EU and global frameworks. Such deep leverage points take time but yield the most enduring transformation.

Interactions among leverage levels

Effective transformation depends on reinforcing links between these levels. Adjusting parameters (rules, incentives) can enable institutional redesign, while inclusive governance supports evolving norms and shared intent. Without attention to these deeper levers, technical reforms risk being short-lived. Combining regulatory innovation, social learning and new narratives allows biodiversity policy to move from compliance to coherence, and from obligation to care.

5.3 Implications for policy and practice

Across all sectors, the evidence points to a clear message: The EU and its partners already have the foundations for systemic change. The task ahead is to connect them coherently across the different levels of leverage.

- **At the operational level**, align sectoral measures in trade, finance, agriculture and circular economy so that biodiversity outcomes are explicit and consistent.
- **At the institutional level**, embed participation, learning and justice in programme design, funding and monitoring, making them integral to delivery.
- **At the societal level**, promote narratives that link biodiversity with fairness, well-being, care and everyday life, fostering public support for sufficiency and shared responsibility.

By working across these levels simultaneously, the EU can translate its biodiversity commitments into action that is effective, inclusive and lasting. This integrated approach supports implementation of the Kunming–Montreal Global Biodiversity Framework and strengthens Europe’s contribution to a just, caring and nature-positive future.

6 Conclusion and outlook

This deliverable set out to translate PLANET4B’s research on transformative change, behavioural science, values and intersectionality into actionable guidance for EU and global biodiversity policy. It aimed to identify concrete policy options for prioritising biodiversity across sectors and to improve coherence between environmental, economic, and social objectives. To achieve this, Deliverable 4.4 produced five knowledge products: four sectoral policy briefs (on trade, fashion, finance, and seed systems) and one cross-cutting policy note on transformative change.

Together, these products provide complementary insights into how biodiversity-positive transformation can be accelerated across systems of production, consumption and governance. The sectoral briefs focus on targeted interventions that adjust incentives and information flows, while the policy note integrates them into a broader framework of enabling conditions – justice and inclusion, learning and reflection, collaboration and coherence, adaptive governance and agency and leadership. Read together, they show that effective and durable transformation requires policy to operate across multiple levels of leverage: adjusting parameters, redesigning institutions and, ultimately, re-shaping the intent of the system toward sufficiency, fairness and care for nature.

Across all five products, three overarching messages emerge:

First, biodiversity policy is most effective when it links behavioural and institutional change. Inclusion, creativity and behavioural insight are not peripheral; they are central to enabling transformation. They ensure that people are recognised, trusted and equipped to act, that learning is embedded into decision-making and that policies resonate with lived experience.

Second, transformation depends on reflexivity and coherence. Policy systems that learn, coordinate and adapt are better able to sustain progress than those that rely solely on compliance. Strengthening connections across policy domains – trade, finance, agriculture, industry and education – turns isolated initiatives into reinforcing pathways for change.

Third, aligning intent matters as much as adjusting rules. Real progress requires redefining what success looks like: from short-term output to long-term well-being, from economic throughput to regenerative prosperity and from growth measured in volume to value measured in resilience, care and equity.

These lessons arrive at a pivotal time. The Kunming–Montreal Global Biodiversity Framework is being implemented, the EU Biodiversity Strategy for 2030 is approaching its mid-term review, and several key regulations are under negotiation or early rollout. PLANET4B’s findings provide timely evidence for these policy windows, showing how social and behavioural dimensions can improve uptake, legitimacy and impact.

Looking ahead, upscaling this work will require continued collaboration between researchers, policymakers and practitioners to link evidence with governance practice. Future research should test how the enabling conditions identified here perform across different policy and regional contexts, track outcomes over time and co-develop monitoring frameworks that support adaptive learning. Maintaining attention to participation, equity and contextual diversity will be essential to ensure that interventions are effective and fair across scales.

Ultimately, transformative change does not arise from isolated breakthroughs but from the alignment of actions across systems – from community seed networks and fashion value chains to financial regulations and trade agreements. The task ahead is to connect these systems so that commitments to biodiversity translate into outcomes that are effective, accountable and fair for people and nature alike. Emerging frameworks that integrate well-being, care, accountability and responsibility beyond borders into governance approaches further reinforce this direction, helping align economic and social systems with planetary boundaries and the shared values of reciprocity and stewardship.

If leveraged well, the approaches advanced through PLANET4B – combining behavioural insight, intersectional inclusion and systemic thinking – can help the EU and its partners realise the intent of the Global Biodiversity Framework: living in harmony with nature through coherent, equitable and transformative governance.

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Statement on data availability

No new datasets were generated or analysed for this deliverable. Deliverable 4.4 and its five knowledge products draw on secondary information and data from other Tasks conducted in the PLANET4B project.

Statement on ethics

No specific ethical issues were identified for this work. Task 4.4 complied with the ethical standards and data protection requirements of the PLANET4B project, including adherence to the EU General Data Protection Regulation (GDPR). No personal data was collected for the purpose of Task 4.4. There are no conflicts of interest relating to this Deliverable.

Annex 1

Table 2. Overview of place-based intensive case studies.

Name	Location & case study lead	Topic addressed	Intersectionality focus
Enabling intersectional nature recreation and biodiversity stewardship for urban resilience	Greater Oslo, Norway (NINA)	Promoting inclusive access to nature and biodiversity stewardship amid urbanisation and demographic change.	(Dis)abilities and age
Opening Nature and the outdoors to Black, Asian and ethnic minority communities	Central England, UK (CU, DC, CIC)	Overcoming racial and cultural barriers to nature engagement and representation in rural spaces.	Race, ethnicity, religion, age
Urban Youth	Germany (CGE, MLU)	Reconnecting urban youth with nature through experiential learning to foster biodiversity awareness and behavioural change.	Age and gender
City food for biodiversity and inclusion, Graz	Graz, Austria (IFZ, FUG)	Making urban food initiatives more socially inclusive and gender-balanced while promoting biodiversity.	Gender and class
Swiss attitudes towards agriculture–biodiversity	Switzerland (FiBL)	Addressing cultural and religious differences shaping farmers' biodiversity practices and engagement.	Religion and culture

Table 3. Overview of sector-specific extensive case studies.

Name	Location & case study lead	Topic addressed	Sectoral focus
From "egosystem to ecosystem"	Italy (UNIFI)	Transforming the highly specialised and unsustainable fashion system to integrate biodiversity and social well-being	Fashion industry
Agrobiodiversity management	Hungary (ESSRG)	Reconciling tensions and fostering collaboration between formal and informal seed systems.	Agriculture (seed system)
Environmental awareness in education	Hungary (ESSRG)	Strengthening the role of schools in fostering environmental awareness and youth engagement.	Secondary education

Agriculture and migration	EU (FiBL)	Addressing how labour mobility and rural exodus affect farm practices and biodiversity.	Agriculture
Trade and global value chains	Brazil – EU (RU)	Shifting trade systems towards deforestation-free and biodiversity-friendly value chains	Trade
Sustainable investment behaviour	Global – EU – Norway (NINA)	Improving ESG frameworks and addressing investor biases to promote sustainable finance.	Finance

Annex 2 - Resilient Trade Beyond Traceability: Strengthening the EU–Brazil Partnership for Nature and People

Introduction

Working effectively with key trading partners will be a critical dimension of a resilient and competitive Europe. This includes Brazil, one of the European Union's (EU) largest agricultural trading partners, supplying nearly 40% of its agricultural imports in 2024 (European Commission, 2025).

Trade in soy, beef and other agricultural and forest commodities has long been linked to deforestation and wider biodiversity loss, as well as violations of human rights. Between 2010 and 2014, EU consumption of these commodities was linked to 26-29% of global deforestation-related carbon emissions embedded in international trade. A substantial share of this deforestation occurred in Brazil, driven largely by commodities such as cattle and oilseed production for EU markets (Pendrill et al., 2019).

Ensuring that competitiveness and sustainability reinforce rather than undermine each other will be critical for long-term resilience in EU's trading partnerships. Reducing dependencies on environmentally harmful and socially inequitable supply chains is essential to achieving such resilience, and for the global transition to sustainable trade.

Background: Policy context and political dynamics

Recent regulatory efforts, notably the EU Regulation on Deforestation-free Products (EUDR), mark significant progress in efforts to address sustainability from the demand side. Governments and businesses have invested heavily in preparing for its implementation. Yet these efforts face mounting political headwinds: the EUDR has faced various criticisms both in the EU and elsewhere, while ongoing delays and uncertainty risk undermining confidence and momentum.

At the same time, structural risks persist. These include concentrated corporate power along supply chains, limited participation of affected peoples in trade decision-making, inconsistencies within and between EU and Brazilian policies, and insufficient attention to trade's direct impacts on biodiversity at the level of both ecosystems and species. Together, these challenges could blunt the effectiveness of regulatory measures and limit their ability to deliver lasting outcomes for people and nature.

EU trade-related policies reflect this complexity. They combine a strong commitment to open, rules-based markets with a growing prominence of unilateral regulations (Muradian et al., 2025). This evolving policy mix is reshaping trade dynamics. While legal obligations under measures such as the EUDR fall primarily on EU operators and traders, compliance pressures and costs often cascade through supply chains, shifting responsibilities onto producers and suppliers in countries such as Brazil.

The political context in Brazil further compounds these dynamics. A new environmental licensing law could fast-track infrastructure for commodity exports, regardless of social or environmental impacts. If domestic safeguards are weakened, this could fuel unsustainable production, increase supply chain risks and widen the gap between EU sustainable trade objectives and realities on the ground.

Addressing these risks requires stronger and achievable alignment across trade, development and environmental policy. Because trade-related measures directly influence land use and food systems, unclear or inconsistent policies can create legal uncertainty for due diligence and send mixed signals to producers. This can undermine the credibility of the policies. Greater alignment and clear communication would help ensure that measures reinforce rather than contradict one another. In doing so, the EU can reduce strategic dependencies, promote fair and sustainable competition, and deliver more coherently on its global commitments, the EU Biodiversity Strategy for 2030 and broader human rights and sustainable development frameworks.

This brief outlines four challenges and associated policy options to guide more effective and integrated action.

Evidence and analysis

This brief draws on the Horizon Europe PLANET4B project and wider literature. Together, they examined how EU policies shape land-use decisions and human rights risks across beef and soy supply chains (Uehara, 2024; IISD, 2022; Narlikar, 2022; O’Brien et al., 2024; Clapp, 2012; Birbeck, 2021; UNEP, 2021). The analytical methodology included systems mapping, fieldwork, interviews, and validation workshops in Brazil and Europe (Loučková et al., 2025; Mendes et al., 2025). The findings confirmed the urgency of addressing structural risks in trade and the opportunity for the EU to make trade a force for the promotion of equity and the well-being of people and nature.

Challenges and policy options

EU–Brazil trade can deliver tangible benefits for people and nature. Based on the evidence and analysis summarised above, four challenges emerge. Each challenge sets out why it matters within international frameworks and outlines related policy options for consideration by EU institutions and Member States.

Table 4: Challenges and policy options for EU-Brazil trade.

Challenge	Policy option
1. Prioritising well-being in trade for people and nature. Global markets continue to drive unsustainable growth, biodiversity loss and inequalities. They also risk undermining long-term food security and competitiveness in both the EU and Brazil. Trade-related policies have the potential to evolve beyond volume-driven growth and focus on conditions for resilience such as healthy ecosystems, equitable rural economies and sustainable livelihoods. Aligning trade policies and practices with international frameworks such as the Kunming-Montreal Global Biodiversity	• Embedding binding provisions on well-being, biodiversity and human rights in EU trade agreements could strengthen the link between market access and sustainability outcomes. For example, this could include restrictions on harmful pesticides or requirements to apply standards consistently across different biomes. Such measures would also help protect EU producers from being undercut by unsustainable competitors and reinforce Europe’s position in green markets. • Further leveraging existing mechanisms under the EU Common Agricultural Policy to

Framework (GBF), the 2030 Agenda for Sustainable Development, the Paris Agreement and related commitments is key to delivering positive outcomes for people and nature.	enable sustainable transitions in farming and rural livelihoods, supporting long-term food security and competitiveness. This could include expanding advisory services and eco-schemes for agrobiodiversity, strengthening agri-environment-climate measures to support diversification and agroecology, and promoting community-led local development approaches.
2. Placing equity and rights at the centre of trade. Indigenous Peoples, local communities, peasants and other people working in rural areas should be able to decide if and how they participate in trade. When existing rights to land, resources, adequate living standards, participation and self-determination are undermined, biodiversity and social stability can suffer. Trade that respects international human rights and other rights supports both equity and effectiveness. Such rights include those under the UN Declaration on the Rights of Indigenous Peoples, the UN Declaration on the Rights of Peasants and other people working in rural areas, International Labour Organization Convention 169, and other human rights instruments.	• Strengthening rights protections in EUDR implementation, for example through delegated acts, clarifying relevant risk criteria and due-diligence requirements, to help reduce rights-related risks in supply chains. • Requiring companies to establish effective grievance and remedy mechanisms that are accessible to affected peoples and communities to improve accountability for rights abuses. • Rebalancing the role of traceability systems to help prevent the exclusion or penalization of smallholders, peasants and other people working in rural areas. • Linking EU market access to Free, Prior and Informed Consent and fair benefit-sharing in high-risk supply chains to help ensure that Indigenous Peoples and traditional communities can decide if and how they engage in trade.
3. Supporting agroecology and territorial economies. Alternatives to monocultures and extractive value chains already exist but remain poorly supported and rarely scaled, lacking the incentives and investment needed for wider implementation. Promoting socio-bioeconomies, understood as inclusive and biodiversity-based economies that enhance the social, environmental and cultural value of nature-derived products while expanding market access and income for Indigenous Peoples, traditional communities and smallholders, can help shift trade toward sustainability.	• Channelling EU investment into agroecology and socio-bioeconomy value chains to accelerate their uptake, for example through instruments such as the Neighbourhood, Development and International Cooperation Instrument of the Global Europe, Global Gateway and the European Fund for Sustainable Development Plus. • Applying rights-based and social justice approaches consistently across EU funding and cooperation programmes to strengthen results beyond environmental safeguards. • Leveraging public procurement and sustainable sourcing policies to help scale biodiversity-positive and community-led products. • Linking EU-Brazil cooperation to long-term, place-based socio-bioeconomy support to build resilience, strengthen equity and

	conserve biodiversity, aligning with the G20 Global Bioeconomy Initiative. • Strengthening territorial value chains, built on short, diverse and locally rooted market systems that connect producers, consumers and local institutions while supporting smallholder-led agroecology.
4. Increasing transparency and accountability. Trade-related policies can shape land use and livelihoods across borders. Embedding participation and transparency throughout trade processes can strengthen democratic legitimacy, build trust and support alignment with international commitments for nature and human rights.	• Strengthening participation channels, such as the Civil Society Dialogue on Trade and national advisory committees, involve civil society and affected communities early in policy processes would help ensure trade reflects public values and support more inclusive goal-setting and accountability. • Transparency in trade requires clear communication of objectives and rules. Strong regulation should define the baseline for accountability, while voluntary certification can complement it by making supply chains more traceable and accessible to stakeholders. • Improving coordination across EU institutions, notably the European Commission Directorates-General for Trade, Agriculture and Rural Development, Environment and International Partnerships, would promote better alignment between trade, biodiversity and development objectives.

Conclusion

Aligning EU–Brazil trade with the EU Competitiveness Compass and global commitments for nature and human rights requires an integrated approach centred on people and nature. Embedding provisions that protect both can strengthen rights, build resilient territorial economies and increase accountability across supply chains. This, in turn, helps safeguard public trust, boost Europe’s competitiveness and reinforce the EU’s position as a global sustainability leader.

Existing policy options provide the opportunity for the future of trade to be one in which it drives equality and biodiversity conservation, as a catalyst for shared prosperity and ecological integrity. Seizing this opportunity will require decisive action from EU policymakers to align trade measures with sustainability and human rights – the foundation of a more competitive, fair and sustainable Europe.

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Annex 3 - Supporting seed diversity for resilient EU agriculture: A policy perspective

Introduction

Europe's food systems are under growing pressure from the triple planetary crisis of climate change, biodiversity loss and pollution. Between 23 and 44 per cent of the European Union (EU) and United Kingdom (UK) agricultural land is already at high risk of topsoil carbon loss, with implications for food security and resilience (Breure et al., 2025; Van Etten et al., 2019).

Seed diversity is central to adaptation. Locally adapted conservation varieties help crops withstand heat, drought, and pests, while reducing vulnerability to shocks.¹ Where diversity is lost, systems become more fragile and recovery is slower.

Across Europe, community seed banks and grassroots seed networks are safeguarding and developing this diversity. Small-scale farmers, breeders and amateur gardeners exchange varieties of open-pollinated vegetable seeds,² experiment on farm and engage in participatory breeding. Their initiatives deliver practical solutions for conserving biodiversity, supporting climate adaptation and strengthening the resilience of food systems. While these initiatives are tailored to local conditions, they also preserve knowledge and cultural heritage.

EU policy has the potential to strengthen these efforts. Recognising informal exchange of open-pollinated vegetable seeds would contribute to climate adaptation and biodiversity conservation (European Commission, 2020). Yet current rules are optimised for standardised markets. Registration requirements, strict uniformity criteria and compliance costs exclude many conservation and farmer-bred varieties. This has contributed to genetic erosion and weakened resilience (Batten et al, 2021).

Current policy measures

Some measures have already created space for diversity. EU directives on conservation and amateur varieties, provisions under the Organic Regulation for heterogeneous material and support through the Common Agricultural Policy 2023-2027 have begun to lower barriers. Simplification steps for very small farms have also reduced administrative burdens. Taken together, these measures mark important progress, but their impact remains limited and uneven across Member States (European Court of Auditors, 2024).

¹ In this brief, "conservation varieties" refer to registered seed varieties that are traditionally grown, or newly developed for conservation purposes, are freely reproducible and are characterised by their level of genetic and phenotypic diversity.

² Note the important distinction between the exchange of seeds for commercial purposes versus the exchange of seeds for conservation purposes. This brief is focused on the exchange of seeds for the purpose of conservation and sustainable use of plant genetic resources. Exchanging seeds for conservation purposes is often done in small quantities and may or may not involve financial compensation. This contrasts with the commercial exchange of seeds for generating profit.

Reform is now under discussion. The proposed Plant Reproductive Material Regulation (PRM) (COM(2023) 414) aims to consolidate seed rules and align them more closely with biodiversity and climate objectives. It would introduce sustainability requirements for registering new varieties, while exempting material for amateur gardeners and conservation organisations, including seed banks, from many obligations. Proportionate procedures will be essential to ensure that small operators and community seed systems can benefit (Šajn, 2024).

International frameworks reinforce this direction. The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), the Convention on Biological Diversity (CBD), the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP) all highlight the importance of crop diversity and farmers' rights. Assessments by the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) confirm that agrobiodiversity is central to climate adaptation, the conservation of biodiversity and resilient food systems.

Evidence and analysis

This brief draws on research led by the Environmental Social Science Research Group (ESSRG) working with partners in the Horizon Europe PLANET4B project. The analysis combined literature review, expert interviews, workshops and policy analysis. Although much of the empirical work focused on Hungary, the findings are consistent with evidence across Europe and beyond: where enabling conditions exist, informal seed systems flourish, supporting resilience, knowledge exchange and cultural heritage.

Challenges and policy options

This section highlights core challenges that hinder the potential of seed banks and grassroots seed networks from thriving. It also outlines policy options in the form of actions that can be taken at the EU policy level to overcome these challenges. The following policy options should not be seen as stand-alone or linear, but as interconnected and complementary to one another.

Table 5: Challenges and policy options for supporting seed diversity within the EU.

Challenge	Policy option
1. Enable proportionate seed rules to protect seed diversity. Global commitments under the CBD and the Kunming–Montreal Global Biodiversity Framework (KM GBF) call for maintaining crop genetic diversity to enhance resilience and food security (GBF Target 10). Yet, current legal frameworks often favour uniform, commercial varieties, restricting the exchange and marketing of traditional and farmer-bred seeds. Proportionate regulatory approaches are essential to sustain agrobiodiversity as a foundation for climate adaptation.	• Exempt conservation, non-commercial and farmer-bred varieties from the scope of the proposed PRM. • Allow small-quantity, local sales and exchanges without catalogue listing, following examples such as Hungary’s exemption for small-scale, non-industrial seed sales. • Establish a nano-enterprise threshold (for example, < EUR 100 000 annual revenue) to reduce administrative obligations for micro-producers. • Issue Commission guidance to ensure Member States apply PRM flexibility consistently and enable proportionate cross-border sharing of conservation material.
2. Recognise and protect grassroots custodians of agrobiodiversity. The ITPGRFA and the UNDROP recognise farmers and local communities as custodians of seed diversity. Upholding their rights to save, use, exchange and sell seeds is critical to conserve agrobiodiversity and safeguard traditional knowledge systems.	• Include explicit recognition of the importance of community seed custodians and their traditional knowledge in the PRM, ensuring effective measures to enable their participation. • Safeguard farmers’ rights to save, use and exchange seed in non-commercial channels through clear exemptions in EU seed legislation. • Develop flexible quality standards for diverse material, drawing on the Organic Regulation (EU 2018/848) and Delegated Regulation (EU) 2021/1189 on organic heterogeneous material. • Integrate protection of traditional knowledge into PRM denomination rules by requiring checks against national and community seed bank records to prevent misappropriation of local variety names.

3. Strengthen collaboration between formal and informal seed systems. IPBES and the IPCC highlight that inclusive innovation and local knowledge are central to climate adaptation. Bridging formal and informal seed systems allows the integration of scientific research with experiential learning, strengthening adaptive capacity and long-term sustainability (GBF Target 21).	• Dedicate Horizon Europe calls to participatory breeding and community-led agrobiodiversity research. • Provide fair compensation for farmers and gardeners engaged as co-researchers in EU- and Member State-funded projects. • Support multi-actor projects and Operational Groups under the EU CAP Network to strengthen collaboration among farmers, breeders, gene banks and civil society. • Strengthen Agricultural Knowledge and Innovation Systems (AKIS) in Member State CAP Strategic Plans to ensure participatory research results are shared through advisory services.
4. Redirect agricultural support to the dynamic management of genetic resources. The KM GBF and the Food and Agriculture Organization of the United Nations (FAO) Commission on Genetic Resources for Food and Agriculture (CGRFA) call for conserving and sustainably using genetic diversity on farms. Incentives for the dynamic management of local varieties enhance adaptation, food security and the resilience of rural livelihoods.	• Expand CAP eco-schemes to reward participatory breeding, on-farm dynamic management and seed conservation and community seed banks. • Pilot result-based payments for genetic diversity, using indicators such as the number of local varieties cultivated or hectares under conservation crops. • Integrate agrobiodiversity objectives into national AKIS strategies to guide advisory services on seed diversity and exchange. • Use CAP rural development funds (Pillar II) to support regional seed networks, local seed banks and conservation contracts. In Hungary, agreements between the national gene bank and small-scale farmers have proved mutually beneficial and expanded scientific knowledge on diverse crop varieties under changing climate conditions.

5. Foster systems of care and farmer autonomy for resilient seed systems. Assessments by the IPBES highlight that transformative change in food systems requires approaches grounded in equity, cooperation and respect for ecological limits. Local autonomy and self-organising dynamics enable farmers to respond rapidly to environmental change. Upholding farmers' rights to seeds, as recognised under UNDROP, is essential to maintain this adaptive capacity and strengthen the resilience of agricultural landscapes.	• Introduce measurable outcome targets for on-farm genetic diversity in CAP Strategic Plans, linking payments to practices that sustain reciprocal relationships between farmers and ecosystems. • Establish a proportionate PRM route for small operators, enabling farmer-to-farmer exchange and community seed initiatives as part of self-organising local systems. • Expand CAP eco-schemes and rural development measures to support community-based conservation, cooperative breeding and other care-oriented approaches. • Strengthen coordination across Directorate-General for Agriculture and Rural Development (DG AGRI), Directorate-General for Health and Food Safety (SANTE), Directorate-General for Environment (DG ENV) and Directorate-General for Research and Innovation (DG RTD) to align PRM, CAP and research measures with locally driven innovation.
6. Support knowledge platforms and regional seed networks. The CBD, Nagoya Protocol and GBF Target 21 underline the importance of protecting traditional knowledge and ensuring equitable benefit-sharing. Strengthening community seed networks and knowledge platforms helps maintain and transmit this knowledge base, reinforcing social learning and innovation.	• Fund interoperable, multilingual platforms under Horizon Europe or Digital Europe to document varieties, cultivation practices and community protocols. • Accept platform records as proportionate evidence in PRM processes, for example for denomination and prior-use checks. • Support collaboration among seed initiatives, researchers, non-governmental organisations and national authorities to expand and link seed knowledge systems across Member States.

Conclusion

Responding to the triple planetary crisis requires agricultural systems that safeguard biodiversity, strengthen resilience and value those who work most closely with the land. Across Europe, grassroots actors such as small-scale farmers, gardeners and

community seed networks are already key agents of change by conserving and developing climate-resilient seed diversity. Their efforts demonstrate that innovation and care can coexist, but they remain constrained by rules designed for uniform production.

The revision of the PRM offers a pivotal opportunity to align seed policy with biodiversity and climate goals. It can do so by creating flexible legal pathways for traditional and farmer-bred varieties, recognising the role of on-farm conservation actors and directing CAP and Horizon Europe funding towards participatory research, dynamic management and community-based conservation. Together, these measures would help the EU advance its commitments under the KM GBF and UNDROP. Supporting these self-organising systems and linking formal with informal seed networks will be essential to preserve Europe's agricultural heritage and build a resilient, inclusive food system that reflects the EU's long-term climate and sustainability vision.

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Annex 4 - Fashion forward: Policy pathways for a biodiversity-positive transformation of the EU fashion sector

Introduction

The fashion sector plays a significant role in the European economy and cultural identity. As a global trendsetter and one of the world's top exporters, Europe's fashion system, comprising the fashion, textile and apparel industries, shapes consumption patterns far beyond its borders. This global reach, however, carries significant environmental costs. The fashion sector contributes to biodiversity loss through land use change, pollution and greenhouse gas emissions (Navarro-Gambín, 2025) linked to material extraction, fibre processing, production (UNEP, 2020) and transport (Manshoven, 2019). These pressures stem from an economic model built on continual growth and profit maximisation, driven by overproduction, fast-fashion business models and resource-intensive consumption patterns (Navarro-Gambín, 2025). Recent evidence shows that direct drivers of biodiversity loss are compounded by indirect ones, such as economic structures, consumer culture and governance gaps, that lock the system into unsustainable trajectories (Cornell et al., 2021).

The fashion sector also mirrors the inequities embedded in globalised production systems. Concentrated in low- and middle-income countries, supply chains reproduce patterns of social and gender inequality, with women forming most of the low-paid and unprotected workforce (ILO, 2025). Fragmented and opaque supply chains further obscure where environmental and social costs occur, weakening accountability and traceability. As such, the fashion sector has become emblematic of the wider sustainability and justice challenges of global value chains, linking environmental degradation, labour exploitation and unequal value distribution (UNEP, 2024).

The IPBES Transformative Change Assessment identifies that “fundamental, system-wide shifts in views, structures and practices” are needed to address biodiversity loss, including by transforming the industries and sectors that contribute most to it (IPBES, 2024). As a leader in sustainability and a key player in shaping global fashion, the European Union (EU) is well positioned to create the enabling conditions for such transformation through coherent policy levers.

Current policy measures

The EU has adopted an ambitious agenda to reduce the environmental footprint of the fashion sector. The EU Strategy for Sustainable and Circular Textiles (2022), the EU Industry Strategy (2021) and the EU Bioeconomy Strategy (2018) together aim to strengthen supply-chain transparency, improve product information for consumers and increase producer responsibility for textile waste, while mobilising finance for innovation and circular business models. Legally binding instruments (including the Ecodesign for Sustainable Products Regulation, the Corporate Sustainability Reporting Directive and the Waste Framework Directive) translate these ambitions into enforceable obligations for companies placing products on the EU market.

Despite these advances, biodiversity remains under-represented in existing measures. Current frameworks focus primarily on carbon, waste and toxicity indicators, with limited attention to the sector's specific impacts on ecosystems and nature overall.

Implementation and enforcement also remain uneven, with risks of greenwashing undermining consumer trust and genuine progress. Achieving a biodiversity-positive transformation will require complementing current measures with additional policy interventions that align circularity,³ sustainability and biodiversity objectives.

Evidence and analysis

The analysis in this brief draws on evidence generated through the Horizon Europe project PLANET4B and recent academic research on biodiversity-positive transformation in the fashion sector. An in-depth review by Navarro-Gambín and others maps both direct and indirect drivers of biodiversity loss in fashion value chains, from land-use change and pollution to overproduction and fast-fashion dynamics, and highlights barriers to transformative change such as the prevailing ideology of economic growth, weak enforcement, fragmented governance and the general absence of biodiversity metrics guiding businesses and public institutions. Complementary PLANET4B system-mapping and expert workshops identified leverage points for change across the sector's rules, incentives, and information flows (Loučková et al., 2024; Lambert et al., 2025a). These findings point to the need for deep structural shifts that address not only technologies and materials but also governance, incentives and social norms.

Cross-sector insights from other PLANET4B policy briefs, particularly on the policy brief on the seeds and agrobiodiversity (Lambert et al., 2025b) show that combining binding regulation with voluntary measures, improving coherence across Directorates-General, and grounding EU action in justice and inclusion can make sustainability transitions more effective. Together, these analyses inform the five challenges and corresponding policy options below – as strategic entry points for reducing the fashion sector's pressures on biodiversity in ways that are fair, inclusive and globally coherent.

Challenges and policy options

Addressing the fashion sector's impact on biodiversity requires tackling the structural barriers that keep production and consumption locked into unsustainable patterns. The five policy challenges and corresponding options below identify where EU policy can most effectively catalyse a biodiversity-positive transformation of the fashion system. Each challenge highlights an area where reinforcing or better aligning existing instruments, from design and trade to agriculture and finance, could drive deep, fair and lasting change.

³ Following a UNEP definition of circularity: "The circular economy is one in which the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimized. This is in contrast to a 'linear economy', which is based on the "extract, make and dispose" model of production and consumption." UNEP, International Resource Panel. *Glossary*. <https://www.resourcepanel.org/glossary>. Accessed 6 Nov. 2025.

Table 6: Challenges and policy options for biodiversity-positive transformation in the fashion sector.

Challenge	Policy option
1. Reorienting the fashion sector towards sufficiency and well-being within planetary boundaries. (Kunming–Montreal Global Biodiversity Framework (GBF) Target 16, Sustainable Development Goal 12, IPBES Transformative Change Assessment)	• Exploring EU-wide targets or benchmarks for reducing the absolute volume of new textile production and consumption, in line with the Waste Framework Directive review, would signal a shift towards sufficiency while maintaining cooperation with supplier countries to support fair transitions. (DG ENV, DG GROW, DG TRADE, DG INTPA, Member States) • Setting sustainability, minimum durability and repairability requirements under the Ecodesign for Sustainable Products Regulation (ESPR) would extend product lifetimes and reduce throughput. (DG GROW, ENVI/IMCO Committees, CEN/CENELEC) • Encouraging Member States to use the flexibility under the VAT Directive to apply reduced rates for repair, leasing and second-hand goods would incentivise sufficiency-oriented consumption. (DG TAXUD, ECOFIN Council) • Restricting or regulating marketing practices that promote fast fashion consumption — for instance, limiting public-space advertising and discount-driven campaigns — would help curb demand stimulation inconsistent with SDG 12. (DG JUST, national consumer-protection authorities) • Embedding repair and reuse infrastructure in Cohesion Policy and LIFE funding would improve access and affordability. (DG REGIO, CINEA, Member States)
2. Aligning circular economy and biodiversity objectives across EU fashion policies. (GBF Targets 14 and 15, IPBES Transformative Change Assessment)	• Introducing differentiated sustainability criteria under the Ecodesign for Sustainable Products Regulation (ESPR) and exploring tariff adjustments or import restrictions for high-impact fibres under the EU Common Customs Tariff would discourage unsustainable material use and reward biodiversity-positive alternatives. (DG GROW, DG TAXUD, DG TRADE) • Integrating biodiversity criteria and indicators into ESPR product requirements and the Digital Product Passport (DPP) would make nature impacts visible at product level. (DG GROW/ENV, CEN/CENELEC, EEA) • Revising the European Sustainability Reporting Standards (ESRS) under CSRD to include mandatory biodiversity risk and dependency disclosures would align corporate reporting with nature outcomes. (DG FISMA, EFRAG) • Developing EU-wide biodiversity metrics for the fashion sector through the EEA would harmonise measurement and facilitate alignment with the GBF monitoring framework. (EEA, DG ENV)
3. Ensuring enforcement, transparency and accountability. (Aarhus Convention on Access to	• Harmonising and enforcing Digital Product Passport (DPP) requirements under ESPR would improve traceability and

Information, UN Guiding Principles on Business and Human Rights)	oversight. (DG GROW/ENV, Market Surveillance Authorities, Member States) • Re-tabling and adopting a robust Green Claims Directive would deter misleading environmental and biodiversity claims. (DG ENV/JUST, European Parliament ENVI Committee) • Allocating Single Market Programme funds to strengthen national inspectorates and accredited auditors for ESPR/CSRD compliance would improve enforcement capacity. (DG GROW/JUST, Member States)
4. Enabling an agroecological and fair transition in fibre-production systems. (GBF Targets 10 and 18, FAO Framework on Biodiversity for Food and Agriculture, ILO Decent Work Agenda)	• Scaling eco-schemes and agri-environment-climate measures under the Common Agricultural Policy (2023–2027) for low-impact fibre crops would reward on-farm transitions. (DG AGRI, Member State CAP Strategic Plans) • Encouraging Member States to reward verified agroecological and biodiversity-positive fibre production through CAP eco-schemes or State-aid measures consistent with Regulation (EU) 2022/2472 would incentivise sustainable practices while ensuring WTO compliance. (DG AGRI, DG COMP, national agriculture ministries, certification bodies) • Mobilising NDICI–Global Europe and Global Gateway finance to support biodiversity-positive fibre production and just transitions in supplier countries would prevent burden-shifting. (DG INTPA, DG TRADE, EU Delegations, EIB) • Updating Green Public Procurement criteria to favour verified biodiversity-positive textiles would create EU demand-pull. (DG GROW/ENV, national procurement agencies)
5. Building coherence and capacity for transformative change across value chains. (GBF Target 19, IPBES Transformative Change Assessment)	• Establishing an inter-Directorate-General Fashion and Biodiversity Task Force would align ESPR, CSRD, CAP, trade and development levers. (Secretariat-General, DG ENV, GROW, AGRI, TRADE, INTPA). • Establishing an EU SME compliance and design support facility for ESPR/CSRD/DPP (via Enterprise Europe Network and national helpdesks) would reduce compliance burdens and speed adoption of biodiversity criteria. (DG GROW, REA, Member States) • Creating a dedicated LIFE and Horizon Europe funding window for SMEs to integrate biodiversity in design and reporting would accelerate innovation uptake. (CINEA, REA, Member States) • Embedding biodiversity literacy and behavioural modules in Digital Product Passport interfaces and EU sustainable consumption campaigns would translate information into action. (DG JUST/ENV, EEA, consumer organisations)

Cross-cutting principle: Justice, inclusion and plural pathways of change

Transforming the fashion sector for biodiversity and well-being requires recognising diversity in people, knowledge and power. Justice and inclusion are not separate aims but the conditions for transformation, as underscored by recent research emphasising the importance of plural, context-specific pathways for systemic change. This calls for participation that genuinely shapes design and decision-making, while addressing intersecting inequalities of gender, ethnicity, class, ability and geography across global value chains.

Plural ways of knowing, including artistic, scientific, local, Indigenous and traditional knowledge systems, should inform how sustainability and well-being are defined, practised and measured, both within the EU and in its partner countries. Learning, collaboration and agency must connect actors across the value chain, from designers and producers to workers, consumers and policymakers, through transparent and adaptive governance. Implementing this principle aligns with GBF Target 22 on inclusive and participatory decision-making, the EU Gender Action Plan III, the UN Declaration on the Rights of Indigenous Peoples and the ILO Decent Work Agenda.

When justice, plural knowledge and collective learning move together, the transition towards a biodiversity-positive fashion sector becomes not only effective, but also fair, legitimate and durable.

Conclusion

The evidence is clear: The fashion sector cannot contribute to a biodiversity-positive future without confronting its structural dependence on overproduction and overconsumption. The policy options under Challenge 1, reorienting the sector towards sufficiency and well-being within planetary boundaries, are therefore pivotal. They redefine success away from volume and speed towards durability, care and shared value.

Implementing these measures would also make the rest possible: Circular-economy tools could serve real reduction goals, biodiversity metrics could capture genuine improvement, and agroecological production and fair-work transitions would have space to thrive. In short, sufficiency is the precondition for coherence.

By adopting this systemic approach of reducing absolute throughput while embedding justice, inclusion and learning across all levels of governance, the EU can turn its role as a global fashion leader into proof that competitiveness and responsibility can reinforce, rather than contradict, one another. Acting on these challenges together would mark a decisive step towards aligning Europe's cultural influence, economic ambition and ecological sustainability.

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Annex 5 - Private finance and cognitive biases: A Theory of Change for aligning financial actor behaviour with global biodiversity goals

Introduction

Global biodiversity loss poses substantial risks to human well-being and economic stability. Yet, human activity has accelerated the decline in biodiversity to rates unprecedented in human history. Reducing the underlying drivers of biodiversity loss requires transforming the global economy (IPBES, 2019; IPBES, 2024). Financial institutions have a fundamental role to play in this transformation.

Achieving global commitments to halt and reverse biodiversity loss, including the goals and targets outlined in the Kunming-Montreal Global Biodiversity Framework (GBF), will require substantial investment. Through GBF Target 19, Parties to the Convention on Biological Diversity (CBD) committed to mobilising by 2030 at least USD 200 billion per year for biodiversity from all sources, including private finance (CBD, 2022). At the EU level, this is reflected in the EU Biodiversity Strategy for 2030, which calls for unlocking at least EUR 20 billion a year (European Commission, 2020). Private finance for nature is gaining momentum, but major gaps remain (UNEP, 2021; UNEP, 2023; UNEP, 2024).

Mobilising private finance for biodiversity faces the challenge that the value of biodiversity is often underestimated in economic decision-making. For financial institutions, understanding the full scope of biodiversity risks and opportunities in their portfolios requires use of science-based methodologies and metrics (TNFD, 2023). However, inappropriate application of these can amplify of decision-makers in financial institutions and hinder alignment between private finance flows and global biodiversity goals (Chudy and Barton, 2025).

To shift private financial flows in support of biodiversity, it will be important to strengthen how financial institutions assess and manage biodiversity risks and opportunities. This also involves fostering nature-positive markets and improving the enabling environment, including fiscal policy. These factors will help address incentives and cognitive biases that investors and other finance sector actors face in support of transformative change.

Evidence and analysis

Under PLANET4B, a Horizon Europe-funded project, expert researchers from the Norwegian Institute for Nature Research (NINA), in consultation with representatives of the financial industry, conducted systems mapping to understand how cognitive bias and other systemic factors affect whether and how investors consider biodiversity in their decision-making. Using this analysis, researchers at CzechGlobe, together with researchers at NINA, mapped “pathways of change” for better integrating biodiversity into financial investment decisions. These pathways highlight how policymakers can enable transformative change towards more sustainable financial actor behaviour through policy measures (Loučková et al., 2025).

Building on NINA's research, this policy note developed by a group of experts at UNEP-WCMC, presents a Theory of Change describing activities and outputs that policymakers can support to help align private financial flows with global biodiversity goals. It is intended for policymakers at national and EU level who work in areas related to finance, the economy and the environment.

Background

The Theory of Change outlines activities and outputs through which policymakers at national and EU level can support alignment of private financial flows with global biodiversity goals, contributing to an improved state of nature. While the transformation of private finance will occur alongside other sustainable finance processes, this Theory of Change focuses on outputs and outcomes related specifically to biodiversity. Box 1 summarises the problem that the Theory of Change seeks to address, together with its intended long-term outcomes and overall impact.

Box 1: Problem statement, long-term outcomes and impact addressed by the Theory of Change

Problem statement:

Private financial institutions have limited capacity and incentives to assess and manage biodiversity risks and opportunities. Insufficient or inappropriate application of biodiversity metrics amplifies cognitive biases among decision-makers in financial institutions. This combination of factors hinders the alignment of private financial flows with global biodiversity goals, which is needed to halt and reverse biodiversity loss.

Intended long-term outcomes:

Financial actor behaviour and private financial flows are aligned with global biodiversity goals. This is driven by stronger and better understood business case for biodiversity-positive investments, as well as increased buy-in from C-suite and board-level decision makers within financial institutions.

Intended impact:

Improved state of nature.

Private financial institutions comprise a wide range of service providers, including commercial banks, investment banks, insurance companies, pension funds, impact investors and others. Each type of financial actor has its own decision-making processes and behaviours that should align with global biodiversity goals. For brevity, in this brief and the Theory of Change, the term “financial actor” or “finance sector actor” refers to all types of financial institutions. Likewise, “financial actor behaviour” encompasses the decision-making processes and behaviours of these institutions.

The development of the Theory of Change has been informed by studies of cognitive biases influencing decision-making on biodiversity, both in general and in the context of sustainable finance, carried out under the PLANET4B project. Cognitive biases are “systematic patterns of deviation from rational judgment that affect how investors perceive, evaluate and act on financial information” (Chudy and Barton, 2025). Linkages to cognitive bias were considered in framing the Theory of Change and are highlighted in assumptions and hypotheses. Examples of cognitive biases relevant to private financial actors' decision-making on biodiversity are highlighted in Box 2 below.

Box 2: Examples of cognitive biases influencing decision-making on biodiversity risks and opportunities by investors and other finance sector actors, taken from Chudy and Barton (2025).

Affect heuristic	Using emotions (positive or negative) to guide decisions rather than objective analysis.
Availability heuristic	A mental shortcut where people estimate the likelihood of an event based on how easily examples come to mind.
Confirmation bias	The tendency to search for, interpret, and remember information that confirms existing beliefs.
Framing effects	The way information is presented (framed).
Loss aversion	The tendency to prefer avoiding losses more than acquiring equivalent gain.
Overconfidence bias	An inflated sense of one's knowledge, accuracy of predictions or ability to control outcomes in investment decisions.
Short-term bias	The tendency to focus on immediate outcomes.
Status quo bias	A preference for the current state of affairs, leading to resistance to change or new decisions.
Warm glow	A positive emotional response to doing something perceived as morally good, such as sustainable or ethical investing.

Theory of change [[Click here](#) to access the interactive Theory of Change]

The Theory of Change describes how policymakers can help support transformative change in private financial flows to benefit biodiversity. It is structured across five levels:

- **Activities:** Five categories of actions or interventions that policymakers at national and EU level can take to generate the proposed outputs.
- **Outputs:** Tangible products derived from the activities.
- **Intermediate outcomes:** Short- to medium-term changes that result from the uptake of the outputs by financial institutions and other actors.
- **Long-term outcomes:** Changes in institutions, markets or governance that result from achieving intermediate outcomes.
- **Impact:** The long-lasting change in nature that occurs as a result of these outcomes.

Key findings and policy options

Based on the development of the Theory of Change, this section presents key findings and policy options that policymakers at national and EU levels can consider to enable sustainable investment behaviours, mobilise private finance for biodiversity and contribute to an improved state of nature. These build on the Theory of Change's five categories of priority actions and interventions: (i) supporting innovation in biodiversity data and tools, (ii) developing corporate and finance guidance and standards, (iii) strengthening the enabling policy and fiscal environment, (iv) advancing scientific research on business–biodiversity links, and (v) raising awareness through campaigns, training, and partnerships.

1. Strengthening biodiversity data and tools

Data on biodiversity impacts, dependencies, risks and opportunities is critical for addressing financial actors' status quo bias and short-termism. When investors and other finance sector actors make decisions, they are influenced by cognitive biases that can reduce their willingness to change existing processes or explore new, more sustainable investment opportunities. Data and evidence provide a stronger foundation for decision-making, reducing reliance on mental shortcuts.

As illustrated in the Theory of Change, strengthening tools to assess biodiversity impacts, risks and opportunities in financial institutions' portfolios is critical to demonstrating the business case and securing executive-suite commitment. Policymakers can consider measures to enable and encourage financial institutions to assess and disclose biodiversity issues, in line with the Kunming-Montreal Global Biodiversity Framework (GBF) Target 15.

2. Promoting corporate biodiversity reporting

Financial institutions rely on sustainability data reported by non-financial companies. Investors and other finance sector actors need information on biodiversity impacts, dependencies, risks and opportunities of companies in their portfolios. While some can be estimated, information reported directly by companies is often more accurate and reliable.

The Theory of Change highlights that sustainability data reporting by corporate entities (i.e. non-financial companies) is key for mainstreaming biodiversity risk and opportunity management in the financial industry and promoting development of nature positive finance markets. In line with GBF Target 15, policymakers can promote corporate reporting on biodiversity through a mix of regulatory measures, voluntary initiatives and enabling administrative actions.

3. Aligning financial regulations and fiscal policies with biodiversity goals

Ensuring that financial regulations and fiscal policies are aligned with global biodiversity goals promotes coherence, avoids conflicting signals and creates consistent incentives for biodiversity-positive financial decisions. Investors and other finance sector actors are more likely to overcome cognitive biases and adopt sustainable investment behaviour when the business case is clear and incentives are aligned.

Policymakers can pursue two complementary actions: (1) creating an enabling regulatory environment that reforms incentives harmful to nature and aligns financial flows with biodiversity objectives (GBF Targets 14 and 18), and (2) strengthening mechanisms that enhance biodiversity-positive investment, such as sustainable finance taxonomies, nature markets and mechanisms for mobilising finance (GBF Target 19).

4. Advancing research on biodiversity-finance linkages

Further scientific research is needed to address key gaps in the tools and knowledge available to financial institutions. Many financial institutions already apply biodiversity datasets, metrics and tools to understand nature-related risks and opportunities, and

uptake is expected to expand as new instruments are developed. However, gaps persist and scientific consensus is still evolving.

Priority areas for further research include: business biodiversity impact attribution, use of proxies in measuring and reporting of biodiversity impacts, development of nature-climate scenarios and improvement of ecosystem service valuation methodologies. Policymakers can support research on links between biodiversity and economic activities, with priority given to these areas.

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Annex 6 - Enabling transformative change for biodiversity in Europe: From values to action – A synthesis for policy and implementation under the EU Biodiversity Strategy for 2030

Executive summary

The extent to which Europe's biodiversity goals are achieved will depend on what happens after the policies are written. Laws and targets set direction and ambition, but people, institutions, and their relationships make change real.

This policy note distils insights from the Horizon Europe PLANET4B project into practical guidance for those implementing the EU Biodiversity Strategy for 2030, national and sub-national biodiversity strategies and action plans, and related frameworks.

It draws on evidence from eleven case studies, expert workshops, a world café with project partners, and an expert panel involving European Commission representatives, PLANET4B partners, and a lead author of the IPBES Transformative Change Assessment. Together, these inputs show how social, behavioural, and institutional change can be put into practice across diverse European contexts.

How transformation takes shape

Across communities, sectors, and policy arenas, transformation unfolded through interaction — between values, learning, collaboration, and governance.

It began in inclusive, value-based settings that built trust, belonging, and connection with nature. It developed through shared learning, experimentation, and reflection. It expanded as collaboration and alignment deepened between communities, practitioners, and institutions. In some contexts, it began to influence how organisations listened and adapted.

While the project's timeframe could not capture long-term outcomes, evidence from the case studies, workshops, and expert dialogues identified five conditions that created space for meaningful and durable change:

1. **Justice and inclusion:** Participation that shapes design and decisions, building legitimacy, and ownership.
2. **Learning and reflection:** Knowledge that grows from experience, and links personal insight with collective action.
3. **Collaboration and coherence:** Relationships that align actions and values across communities, institutions, and sectors.
4. **Adaptive governance:** Rules and finance that evolve with evidence and context.
5. **Agency and leadership:** Confidence, recognition, co-creation, and connection that turn participation into influence.

These conditions are not a checklist. No single policy or project needs to address them all at once. What matters is alignment — ensuring that, across a portfolio, policies reinforce one another so that inclusion, learning, coherence, adaptability, and agency move in the same direction.

What this means for implementation

For governments and delivery agencies, transformation depends on *how* biodiversity strategies are implemented, not only *what* they contain. Practical measures include:

- Designing participation, co-creation, and justice into programmes from the start — as operating principles, not outreach after decisions are made.
- Funding facilitation, reflection, and learning as core delivery activities.
- Aligning environmental, social, and educational efforts to avoid fragmentation.
- Building flexibility into financial and regulatory frameworks so learning leads to adaptation.
- Supporting relatable role models and intergenerational exchange to sustain leadership and trust.

For research and innovation funders, aligning investment with implementation means:

- Making inclusion and equitable access part of funding criteria, ensuring that diverse actors can meaningfully participate, regardless of language, resources, or physical ability.
- Requiring structured reflection and valuing learning outcomes alongside publications.
- Supporting transdisciplinary and long-term partnerships that link research with practice.
- Building the capacity of researchers and practitioners to bridge science, policy, and society through co-creation.

Why it matters

Transformative change is non-linear and context specific. It can advance unevenly, pause, or take unexpected forms. Without attention to equity, participation, and ethics, it can even reinforce inequality or exclusion.

Yet, when guided by justice, learning, and collaboration, place-based initiatives — whether in classrooms, gardens, city offices, or boardrooms — can align into broader patterns of systemic change. Sectoral work in trade, finance, and fashion shows how such alignment can begin to shift market incentives and governance cultures.

Europe already has many of the ingredients for this transformation. The task now is to connect them — linking community-level action, institutional learning, and policy reform — so that commitments to biodiversity translate into outcomes that are effective, equitable, and lasting for people and nature alike.

Introduction

Transformative change for biodiversity does not result from a single project or policy. It unfolds through the interaction of values, mindsets, actions, and the systems that support them. This research note synthesises and translates findings from the Horizon Europe PLANET4B project into practical guidance for those implementing biodiversity strategies and action plans across Europe (PLANET4B, n.d.).

This policy note is designed to guide actors who are responsible for implementing the Convention on Biological Diversity (CBD) at the European Union (EU), and

Member State level. At the EU level, this policy note is relevant for actors involved in implementing and reviewing the EU Biodiversity Strategy for 2030 and for those involved in designing future iterations of the EU Biodiversity Strategy. At the EU Member State level, this policy note is relevant for actors responsible for updating and implementing National Biodiversity Strategies and Action Plans (NBSAPs). The note will also be relevant to research and innovation funders, as well as the broader research and practitioner communities, who can create the conditions for transformative implementation through programme design, evaluation, knowledge exchange, and sustained collaboration.

Building on the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) Transformative Change Assessment (IPBES, 2024), which calls for systemic reorganisation of values, institutions, and power relations, this note focuses on how such change can be enabled in practice. It responds to IPBES's emphasis on justice, equity, pluralism, and inclusion, and for more respectful, reciprocal relationships between people and nature. It also highlights adaptive and reflexive learning as a foundation for effective action, showing how these principles can take shape in European governance and everyday practice.

Figure 1 visualises this dynamic. Transformation progresses through four connected dimensions: shift values, open mindsets, amplify actions, and redistribute power, with agency as both a connecting outcome, and a driving force (Karner et al., 2025). Change is iterative, relational, and systemic – not a one-off leap. It depends on inclusion that recognises intersecting inequalities, learning, collaboration, and equitable governance to sustain outcomes for nature and people.

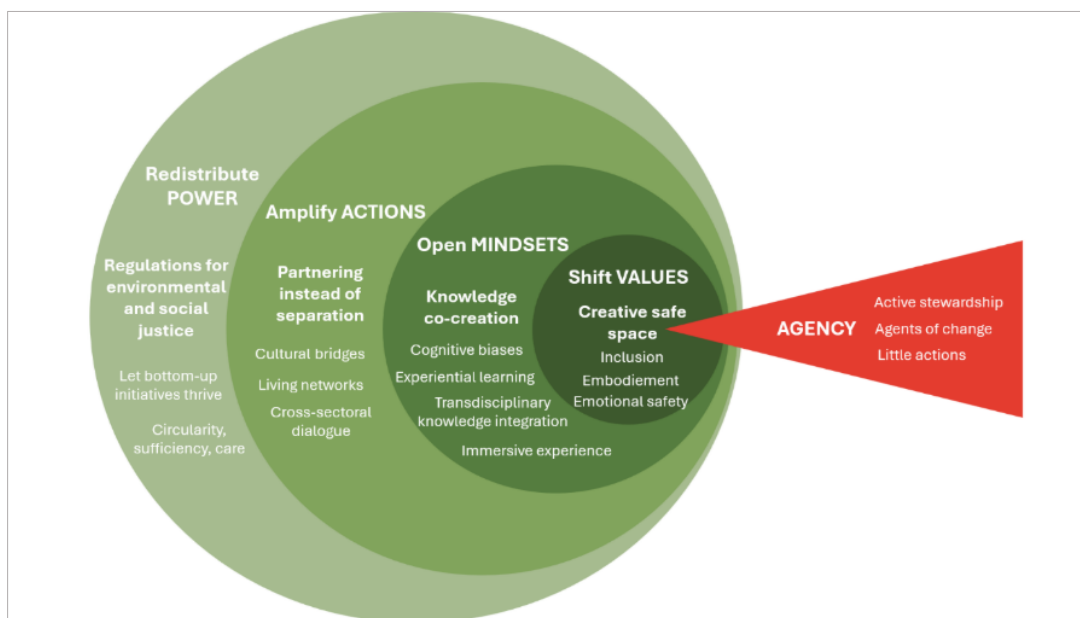


Figure 1: From safe spaces to systemic change (adapted from Karner et al., 2025).

Transformation begins when values shift in creative, safer spaces that nurture trust and belonging. It expands into new mindsets through knowledge co-creation, translates into collective action and partnerships, and ultimately reshapes governance and regulation to redistribute power. Across all levels, the red arrow represents agency

– people recognising themselves as stewards and actors of change, with everyday actions accumulating into systemic shifts.

This pathway reflects how transformation crosses boundaries and links the personal, practical, and political dimensions of change (O'Brien and Syngna, 2013). When grounded in shared values such as care, dignity, and equity, local initiatives generate patterns that repeat and scale across systems (O'Brien et al., 2023). In this sense, transformative change for biodiversity is not only about reforming institutions or policies – it is about reconfiguring relationships, meanings, and power structures so that new practices and forms of governance can emerge together (Vogel and O'Brien, 2022).

Evidence and analysis

Learning from eleven case studies

This research note draws a Compendium of 11 Transformative Change Stories developed under the PLANET4B project (2022–2025) (Karner et al., 2025). Together, they capture a wide range of European experiences, from place-based initiatives such as urban gardens in Graz, Austria; youth engagement among young people with migrant backgrounds in Germany; inclusive outdoor recreation in Norway; intercultural community initiatives in the UK; faith and farming in Switzerland; and biodiversity education in Hungary, to sectoral and thematic cases addressing trade, finance, fashion, migration, food systems, and seed sovereignty. Examining these diverse contexts provides a broad view of how transformative change can take shape, or be inhibited, across societies, sectors, and governance levels.

These case studies feature not only real case events but also interventions that were implemented and observed over time, offering insights into how change occurs under real policy and institutional conditions, in Europe and beyond. Together, they provide evidence of the social, behavioural, and structural dynamics shaping biodiversity-related action and decision-making.

Analytical lens

The PLANET4B project developed a transdisciplinary framework, combining discourse analysis, intersectionality analysis, a reflexivity-situatedness matrix, and a leverage points framework through spheres of transformation. This transdisciplinary approach brought together researchers, practitioners, and policy actors to integrate multiple forms of knowing – academic, experiential, and local – aiming to co-create knowledge that is both scientifically robust and socially grounded. For this synthesis, three of these interlinked lenses, and the broader questions they raise, proved most useful in guiding the analysis:

- Intersectionality — *Who participates and benefits?* It explores how overlapping social factors such as gender, ethnicity, ability, and class shape access to nature, participation in decision-making, and the benefits people derive from it (Thaler and Karner, 2023).
- Values and behavioural change — *How does change happen and persist?* It examines how values, habits, and knowledge influence action, and what sustains it beyond one-off activities (Aspøy et al., 2023).

- Transformative change — *What kind of change is achieved?* It identifies what differentiates systemic transformation from incremental improvement, focusing on justice, power, and depth of impact (Meadows, 1999).

These lenses address critical gaps in current policy tools, which often overlook inclusion that recognises intersecting inequalities, the social dimensions of behavioural change, and the structural conditions needed for lasting transformation (IPBES, 2024).

Validation and synthesis methods

Building on the analytical framework developed in the *Compendium of 11 Transformative Change Stories* (Karner et al., 2025) the synthesis drew on complementary sources of evidence: (1) interactive internal workshops held in 2024–2025, where PLANET4B partners collectively mapped observed changes, enabling conditions, and barriers across case studies; (2) a world café validation workshop with 35 project partners from the eleven case studies, which explored how intersectionality, values, behavioural change, and transformative change unfold in practice; and (3) an expert panel that brought together representatives from the European Commission, the PLANET4B partnership, and an author of the IPBES Transformative Change Assessment to discuss how project findings align with EU and global policy frameworks (Lambert et al., 2025).

Together, these processes enabled collective reflection and thematic analysis, identifying recurring factors that enabled transformation, and constraints that persisted despite well-designed interventions. They tested the robustness of the findings and clarified how the evidence can inform biodiversity implementation. This synthesis complements other PLANET4B deliverables by adding a validation layer focused on practical application, policy entry points, and learning across governance levels.

Enabling transformative change

Transformative change rarely moves in straight lines. It develops through relationships, reflection, and the steady realignment of what people value and how institutions respond. Institutions, as expressions of power, can either enable or impede this process. The IPBES Transformative Change Assessment recognises the need for reorganisation across values, governance, and power. As outlined in Figure 1, this process moves through four connected dimensions – shifting values, opening mindsets, amplifying actions, and redistributing power – held together by the growth of agency.

The findings presented in this chapter draw directly from what was observed, documented, and discussed across the eleven PLANET4B case studies. Together, these case studies provide empirical evidence of how transformation unfolds in practice, linking the personal with the practical and the political. When rooted in care, dignity, and equity, sectoral and local efforts can trigger patterns of change that extend across institutions and systems – even as some structures resist or adapt unevenly.

Shifting values: Foundations of belonging and care

Change begins when biodiversity becomes part of daily life rather than an abstract concern. Across Europe, PLANET4B partners found that transformation often started

in creative, safer spaces – gardens, schools, churches, and community settings – where people could meet as equals, experiment, and build trust. In the sectoral case studies, similar dynamics emerged within professional and policy spaces: when collaboration moved beyond technical problem-solving to include reflection, dialogue, and shared purpose, it created room for new values and practices to take root.

In Graz, Austria, a women-led garden turned a vacant plot of land into a “shared landscape of confidence” – a collective space that builds trust, cooperation, and a sense of belonging among participants. Participants organised collectively, managed planting and maintenance, and negotiated access with municipal staff. Over time, the space became a meeting point that brought together social inclusion with ecological care.

Yet inclusion can easily narrow or drift into tokenism. Several learning communities noted that when participation focuses on a single dimension, such as gender or youth, without addressing intersecting factors such as class, migration status, disability, or economic precarity, it risks reinforcing the same inequalities it seeks to change. Creating and maintaining safe spaces for dialogue, therefore, requires ongoing reflection and attention to these intersecting factors, rather than assuming that inclusion, once achieved, is permanent.

In the UK, intercultural countryside walks led by the Dadima’s Community Interest Company helped Black, Asian, and ethnic-minority communities reclaim a sense of belonging in landscapes that had long felt exclusionary. Participants spoke about safety, visibility, and recognition as preconditions for environmental stewardship.

Elsewhere, value change was tied to culture and faith. Swiss farmers contributed to the creation of travelling photo exhibitions that linked their spirituality with biodiversity protection. These exhibitions moved between churches and local halls, showing that moral and ecological commitments reinforce one another. In Hungary, seed-exchange networks revived traditions of reciprocity and sharing – caring for plants became a form of mutual care among people.

Across the case studies, inclusion proved essential but uneven. Practical barriers – language, transport, childcare, digital access – often determined who could participate. Structural barriers, such as funding rules, land tenure, or institutional hierarchies, also shaped who had the time, resources, or authority to engage in biodiversity governance. The most effective initiatives anticipated and addressed these constraints early on, often through collaboration with intermediaries, who understood community needs.

Facilitation style mattered too: “insider” facilitators built trust through shared experience, while “outsiders” sometimes helped reveal underlying power dynamics that local actors preferred to avoid.

Values shifted through practice rather than persuasion. Embodied experiences – planting, cooking, and storytelling – made biodiversity tangible and meaningful in everyday life. In many cases, this did not lead to a single shared value system, but created space for plural values and worldviews to coexist, grounded in mutual respect and care. The opportunities created through PLANET4B’s activities enabled both individual and collective reflection, helping participants make sense of their

experiences and connect personal change with wider social learning. Trust and belonging accumulated through continuity and reciprocity, not campaigns.

The implication for policy design and implementation is clear: inclusion and justice must be built in as operational principles from the outset. Processes that invite participation from the start create ownership and legitimacy, establishing the social foundations for lasting biodiversity outcomes. Funding, evaluation, and governance frameworks should, therefore, explicitly support facilitation, reflection, and long-term relationship-building as essential components of biodiversity implementation (see Chapter 4).

Opening mindsets: Learning, experimentation, and reflection

Behaviour change often starts to take shape when learning connects knowledge to lived experience. Across the eleven case studies, participants in the learning communities learned not only *about* biodiversity but *with* it, through situated practice, experimentation, play, and reflection.

In Hungarian schools, teachers and pupils transformed neglected grounds into gardens where science, teamwork, and care for nature were taught side by side. Students learned ecological concepts by planting and observing, and teachers described a parallel transformation in themselves – from instructors to co-learners and facilitators of curiosity.

In Norway, families raising children with disabilities co-designed outdoor recreation activities. Their input changed how municipalities planned for accessibility, demonstrating that inclusion can generate innovation when it becomes part of institutional learning.

In Germany, urban youth with migrant backgrounds engaged through games and creative exercises to connect everyday consumption and lifestyle choices, such as food, transport, and shopping habits, with biodiversity governance. The *Pathbreak* board game (PATHBREAK, 2025) for example, allowed players to negotiate trade-offs between food, biodiversity, and social goals. This helped them understand the politics of environmental decisions and the interdependence between individual and systemic change.

These experiences echo research on transformative learning: new mindsets emerge when people have safe spaces to experiment, reflect together, and make sense of what they feel (UNESCO and Mecce, 2024; Lotz-Sisitka, 2024; Lotz-Sisitka, 2025). Such learning environments depend not only on participants' openness but also on how facilitators and institutions create conditions for trust and authenticity. Across the validation workshops, partners emphasised that participants quickly recognise when engagement is tokenistic or performative. Credibility grows through transparency, shared responsibility, and an atmosphere where both participants and organisers can experiment, create, and learn from each other.

Reflection turned out to be the hinge between activity and change, and the mechanism that cements it. Short, regular debriefs – in classrooms, community gardens, or structured workshops – helped participants articulate what they had learned and why it mattered. In some cases, such as the finance case study, reflection also surfaced implicit *cognitive* and *institutional biases* – for instance, assumptions that biodiversity

loss lies only with producers or consumers, or that financial markets can self-correct without policy reform. Recognising these patterns created room for alternative framings and collective problem-solving. More broadly, such reflective moments encouraged participants to question dominant narratives, linking personal insight with systemic awareness.

Creative and sensory methods such as art, storytelling, music, and food helped surface and connect different values, making them tangible in everyday experience. Structured reflection processes were particularly effective in consolidating these insights. They enabled participants to turn individual experiences into collective understanding and, ultimately, into lessons for policy and practice. People often described “seeing differently” after tasting, hearing, or touching nature. Learning became not only intellectual but emotional, embodied, and relational.

The implication for policy design and implementation is to treat learning, facilitation, creative participation, and reflection as core components of biodiversity programmes, not optional add-ons. Behavioural shifts endure when governance frameworks and institutions support the processes that help people connect experience, meaning, place, and action in continuous learning cycles (see Chapter 4, 4.1).

Amplifying actions: Scaling through relationships and networks

When people begin to recognise shared concerns and make space for diverse values, collaboration across sectors and communities becomes possible. In the place-based case studies, collective action often emerged from relationships that already existed between residents, local authorities, educators, and civil society groups, or from new alliances built through shared work. Scaling, in this sense, was less about repeating projects elsewhere and more about deepening the ties between communities, institutions, and decision-makers so that learning could travel, embrace complexity, adapt to context, remain grounded in daily life, and continue to evolve over time.

These connections also reveal where institutional and economic structures must evolve. In the EU context, aligning biodiversity policy with competitiveness, agriculture, trade, and finance frameworks is crucial for change at scale. Local innovations demonstrate what is possible, but scaling them requires coherence between funding mechanisms, regulatory flexibility, and participatory governance.

In Norway, cross-sectoral collaboration between the Greater Oslo Recreation Council, families with disabled children, researchers, and health agencies catalysed change not only by embedding inclusive recreation but also by driving institutional cultural change. The initiative started as a pilot for children with disabilities and evolved into a model for community participation in urban planning and governance. In Hungary, teachers built peer networks around school gardens, exchanging seeds, lesson plans, and stories that spread learning across the national curriculum. In Graz, links between gardeners and city officials fed local experience directly into urban agriculture, greening, and open space planning.

Across these contexts, relationships formed the critical foundation for scaling efforts. Where networks were already in place, ideas and practices travelled more easily.

The sector-based case studies mirrored this pattern. In the fashion and finance case studies, cross-disciplinary discussions exposed structural biases: dominant business models and financial incentives still reward short-term profit over ecological responsibility. Bringing designers, investors, non-governmental organisations (NGOs), and researchers into the same room can help to reimagine incentives around circularity and sufficiency. Case study research on trade patterns between the EU and Brazil revealed how global markets offload biodiversity loss onto distant ecosystems, highlighting a need for equitable rules, greater transparency, and stronger accountability.

The place-based case studies consistently underlined the importance of *trust*, *joy*, and *recognition*. Social bonding and small celebrations kept people engaged. Peer pressure also played a role: once a few schools, parishes, or companies took part, others followed, not only for visibility or reputation but also to feel part of a shared effort and to uphold emerging social norms around care for nature.

The case studies used system-mapping tools to identify leverage points – policies, actors, and feedback loops that could magnify results. Visualising these interconnections clarified where cooperation was most needed and where blind spots remained (Loučková et al., 2025).

The evidence suggests that scaling depends on coherence – social, ecological, and institutional – rather than simple replication. Effective initiatives aligned efforts across landscapes, communities, and governance levels, ensuring that actions reinforced one another instead of operating in isolation. While some replication of effective tools or practices can be useful, success depended on adapting them to local contexts and maintaining continuity with existing systems. The practical implication for policy is to fund cooperation and alignment across sectors, places, and ecosystems, rather than a proliferation of short projects that lose momentum and institutional learning once they end (see Chapter 4, 4.1 and 4.2).

Redistributing power: Equity in governance

Transformative change tests how power is held, shared, and used. As emphasised in the IPBES Transformative Change Assessment, justice in its procedural, distributive, and recognitional dimensions is fundamental to lasting change. Equitable processes ensure inclusive participation; equitable outcomes determine how benefits and burdens are shared; and recognition of diverse worldviews and knowledge systems sustains legitimacy and trust over time.

In Hungary, participatory teaching not only improved learning but also shifted school governance: teachers and pupils gained influence over how green spaces were managed. In Austria, community gardeners negotiated directly with the municipality about land use and maintenance, showing that citizen-led stewardship can shape urban policy and redistribute authority through practice.

The sectoral case studies revealed similar dynamics on a larger scale. For example, case study research on the finance and trade sectors revealed how EU rules externalise ecological and social costs, reinforcing structural inequalities along global value chains and challenging entrenched market logics. Learning outcomes suggest

that real transformation requires engaging with these tensions rather than smoothing them over. “Win-win” framings hide the redistributive choices that justice demands.

Participants also observed that the language of transformation can itself be co-opted into managerial or “tick-box” approaches, where participation becomes procedural rather than empowering. Equitable governance demands transparency about such risks and an active commitment to fostering *safer* spaces where disagreement and difference can be addressed openly.

Institutional flexibility proved decisive. In Hungary’s seed networks, farmers were able to experiment with open-pollinated varieties despite restrictive legislation, as sympathetic officials allowed room for interpretation and adaptation. In Norway, recreation officers improved procurement rules so that accessibility became a mandatory criterion in public tenders. These examples illustrate how *positional power* – even within bureaucracies – can be used constructively to unlock innovation and enable structural change.

Conflict, when managed transparently, often strengthened legitimacy by building trust in accountable governance systems. Public hearings or feedback sessions that exposed disagreements helped refine projects and build shared understanding. Transformative processes benefited when negotiating differences was framed as part of co-creation rather than as an obstacle.

Financial and regulatory frameworks remain pivotal. Research from the finance case study confirmed that biodiversity is still treated as an externality in investment decisions. Redirecting subsidies away from harmful activities, and linking credit or taxation to biodiversity performance, are key steps toward transformation.

This theme leads to the fourth policy implication: build adaptive, transparent, and equitable governance that learns and redistributes resources and responsibilities based on existing evidence while remaining responsive to new insights. Regulations that welcome experimentation and integrate accountability mechanisms are better suited to the long timescales of ecological recovery (see Chapter 4, 4.1).

Agency: From participation to transformative capacity

Agency is both the outcome and the driver of transformative change. It grows as people see the effects of their actions and recognise themselves as part of a wider effort. Across the PLANET4B case studies, agency was built through co-creation, trust, recognition, and continuity. This was particularly the case when participants in the learning communities were given roles and decision-making power in shaping activities and saw their efforts acknowledged. Over time, their confidence, competence, and commitment deepened.

Across the PLANET4B case studies, participants who began as learners became organisers, mentors, or advocates. Young people in Germany evolved from game participants into project leaders, securing external funding for biodiversity initiatives of their own. Gardeners in Graz now collaborate with city planners on community-green design. Agency thus scaled in “fractal” form (O’Brien et al., 2023; Karner et al., 2025), replicating patterns of confidence across levels.

Emotions and relationships played a central role in strengthening agency. Participants often expressed frustration or anxiety about environmental loss, but also curiosity, joy, and pride in learning and collective achievements. In the UK case, for example, Dadima's participants spoke of the delight of recognising bird species or simply feeling welcome in nature. Facilitators who made space for both positive and difficult emotions found that shared experience built trust and motivation. Hope was not abstract optimism but a practice of mutual support, collective effort, joy, and small, cumulative successes.

Agency also extended across generations. School gardens linked teachers and pupils, while youth projects connected to elder mentors. These relationships carried knowledge and motivation forward.

Institutions can amplify this intergenerational exchange by recognising informal and relational forms of leadership and by providing regular acknowledgment and guidance. Visible acknowledgment through certificates, feature stories, or public thanks helped participants see their contribution as meaningful. Equally, stable mentoring relationships turned individual enthusiasm into lasting capability and confidence.

However, agency does not only enable change – it can also take the form of resistance to change, helping to sustain the status quo, particularly among those with existing power or secure positions in society. Recognising the dual nature of agency is crucial: it can foster inclusion and creativity, yet it can equally reinforce dominant systems and marginalise alternative visions of biodiversity governance. Addressing structural barriers and power asymmetries is therefore essential for agency to be transformative rather than conservative.

The policy implication here is to invest in long-term human and institutional capacity for transformative agency, from facilitation and leadership training to peer learning and intergenerational exchange. However, such agency can only thrive when structural barriers are addressed and when rights to participation, expression, and environmental protection are safeguarded. In many contexts, those advocating change face resistance from entrenched interests or even personal risk. Legal and institutional safeguards that protect and promote civic space and environmental defenders are therefore essential complements to capacity-building efforts. Sustained investments of this kind ensure continuity across funding cycles, maintaining momentum, and linking personal motivation with systemic influence (see Chapter 4, 4.1 and 4.2).

Synthesis: Connecting conditions for change

Drawing on the eleven Transformative Change Stories, the validation workshops, and the wider thematic analysis, five interconnected conditions emerge as essential for enabling transformative change in biodiversity policy and practice:

1. **Justice and inclusion:** meaningful participation that shapes design and decisions and recognises intersecting social differences, with equitable distribution of resources.
2. **Learning and reflection:** behavioural and cultural shifts rooted in lived experience and continuous feedback loops.
3. **Collaboration and coherence:** networks and partnerships that link efforts across scales.

4. **Adaptive governance:** regulatory and financial systems that evolve with evidence.
5. **Agency and leadership:** confidence and connection that turn individual action into collective power and transformative capacity.

Together, these conditions provide a practical roadmap for implementation. They show that transformation is not a linear process but one that develops through relationships, experimentation, reflection, and co-creation among people, institutions, and places.

Justice and inclusion ensure that participation genuinely shapes priorities and decisions, building legitimacy, equity, and ownership. Learning and reflection allow individuals and institutions to adapt as they make sense of experience and change. Collaboration and coherence connect these processes across sectors and scales, turning isolated efforts into complementary ones that reinforce each other socially, ecologically, and institutionally. Adaptive governance creates the flexibility to evolve with evidence, redirecting incentives and resources toward restorative or regenerative practices. Finally, agency and leadership turn participation into influence: when people are recognised and supported as leaders, their actions accumulate into collective capability and power.

Co-creation underpins all five conditions, providing the means through which diverse actors translate shared values into practice, align learning with context, and negotiate power and accountability more equitably. When grounded in trust, facilitation, sufficient time, and reflexivity, co-creation turns experimentation into institutional learning and connects personal motivation with systemic change.

These five conditions also correspond closely to the strategies outlined in the IPBES Transformative Change Assessment — offering a European perspective on how its global recommendations can be realised through practice. Together, they describe the enabling environment for just, effective, and durable biodiversity policy.

The next chapter translates these conditions into practical policy and funding options for governments, institutions, and research programs seeking to implement the Convention on Biological Diversity at EU and Member State levels, showing how transformation can move from insight to implementation.

Implementation options

The delivery of biodiversity strategies and action plans is context dependent. The five enabling conditions identified in Chapter 3 — justice and inclusion, learning and reflection, collaboration and coherence, adaptive governance, and agency and leadership — interact and reinforce one another. Not every measure needs to address all five directly, but their interdependence means each should be considered in relation to the others. What matters is aligning actions so that, across portfolios and scales, the full set of conditions is progressively strengthened over time.

The measures below are grouped by actor, but in practice their success depends on how they interconnect — reinforcing learning, fairness, coherence, adaptability, and agency across governance systems.

Delivery measures for implementers of biodiversity action plans

These measures target those delivering the EU Biodiversity Strategy for 2030, the Nature Restoration Regulation, and related national or sub-national action plans, including NBSAPs. They are most effective when implemented as part of an integrated approach that links learning, inclusion, and adaptive governance.

Make justice and inclusion standard practice

Participation should be designed into action plans from the outset rather than added as outreach once decisions are made. Doing so strengthens legitimacy, trust, and lasting uptake of measures.

- Build participation into program design and delivery — as an operating principle, not as late-stage outreach.
- Partner with locally trusted groups (including migrant-led, youth, disability, and faith-based organisations), not only large NGOs.
- Budget for access: translation, childcare, transport, assistive needs, and other participation enablers.
- Track who benefits using disaggregated data (gender, age, ethnicity, disability, income), and adjust where gaps persist.

Intended outcome: Greater legitimacy, take-up, and continuity of measures, especially among groups most affected by environmental change.

Embed learning and reflection in delivery

- Schedule regular review cycles that bring practitioners, communities, and policymakers together to discuss what worked — and why.
- Fund facilitation, mentoring, and structured reflection as core delivery activities.
- Use experiential and creative engagement (gardens, living labs, storytelling, exhibitions) to connect action with meaning.
- Monitor process as well as ecological results (e.g. participation quality, inclusion, reflection cycles).

Intended outcome: Adaptive programs that stay relevant and improve over time, rather than restart with each funding round. Embedding learning also supports other enabling conditions — building trust for inclusion, coherence across partners, and the adaptive capacity needed to sustain change.

Foster collaboration and social-ecological coherence

- Create formal coordination across environment, agriculture, education, finance, and social portfolios.
- Align delivery across ecologies – landscapes, watersheds, urban green networks – not just administrative boundaries.
- Support municipal–community “safer spaces” that allow testing approaches under flexible rules before scaling.
- Reward joint outcomes across departments and partners instead of isolated outputs.

Intended outcome: Actions reinforce one another across places and ecosystems, creating a network of initiatives that sustain promising practices beyond pilots and strengthen other enabling conditions.

Build adaptive and equitable governance

- Include review clauses so targets and methods can be adjusted without resetting programmes.
- Use procurement and grant rules that allow co-creation and iteration, while safeguarding equity.
- Reallocate harmful subsidies and align fiscal tools (tax, credit, guarantees) with nature-positive and socially just practices.
- Protect civic space: ensure access to information, participation, and justice; safeguard environmental defenders and local stewards.

Intended outcome: Governance that maintains trust, manages risk, and stays responsive to evidence and context.

Strengthen agency and leadership to influence decisions

- Build facilitation, mediation and co-creation skills within local authorities, schools, and community groups so they can meaningfully shape plans and decisions.
- Support relatable role models — people whose lived experiences reflect those of their communities — to inspire others and demonstrate that diverse voices can influence outcomes.
- Recognise informal leadership publicly (awards, feature stories, advisory or mentoring roles).
- Promote plural, intergenerational and peer-learning networks that connect local insights to formal decision processes.

Intended outcome: Agency becomes influence — diverse leaders help shape decisions and sustain transformation, grounding biodiversity action in shared ownership and everyday life.

Delivery measures for research and innovation funders

These measures align research investment with the needs of implementation and the enabling conditions above, recognising that funding approaches can strengthen multiple conditions at once — for example, linking inclusion with learning, or adaptability with collaboration.

Centre inclusion and procedural justice in funding

- Make equity, inclusion, and accessibility mandatory evaluation criteria.
- Have budget lines for inclusive participation and specialist facilitation.
- Fund community-based research that empowers local actors and grassroots initiatives as partners and agents.

Intended outcome: Research agendas reflect diverse perspectives and gain legitimacy where results are applied.

Fund learning as a deliverable

- Require and resource structured reflection (workshops, debriefs, and learning briefs), and value them in reporting.
- Evaluate the quality and continuity of learning processes, alongside their outcomes, social relevance, and practical use – not publications alone.

Intended outcome: Results move into policy and practice faster, with clearer lessons across projects. Learning processes that include diverse voices also build agency and legitimacy, creating conditions for longer-term policy influence.

Back collaboration and coherence at scale

- Prioritise transdisciplinary proposals that connect arts-based, (co-)creative social and natural sciences with other societal actors.
- Support long-term consortia and “learning infrastructures” (gardens, living labs, observatories, community learning spaces, multi-actor platforms) that anchor practice and knowledge in place and context.

Intended outcome: Knowledge becomes comparable where context allows, and transferable across sectors and geographies through dedicated meta-learning and translation structures.

Enable adaptive and responsible pathways in funding

- Provide phased, flexible grants that integrate the core principles of Responsible Research and Innovation (RRI) — anticipation, reflexivity, inclusion, and responsiveness — to allow course correction as evidence emerges.ⁱ Clear guardrails should ensure accountability as projects adjust.
- Track harms and unintended effects early, and support adjustments through participatory review in line with findings.

Intended outcome: Innovation without waste, agility with accountability, and flexibility that reinforces inclusion, learning, and equitable governance.

Strengthen agency and leadership to bridge science, policy, and practice

- Support selected training opportunities in facilitation, mediation, and co-creation for those researchers and practitioners whose roles involve engaging with policy or implementation. Others can contribute through collaboration within these interdisciplinary teams.
- Value participatory, arts-based, serious-gaming, and other creative methods as legitimate research outputs, approaches, or designs that make biodiversity action tangible and inclusive.
- Encourage legitimate and relatable role models and intermediaries — trusted figures who embody collaboration, respect, and equity — to engage in reciprocal learning exchanges that build shared understanding across disciplines, sectors, and generations.
- Create exchange and secondment schemes that connect researchers, policymakers, artists, and practitioners to design and test solutions together.

Intended outcome: Research and innovation communities strengthen their collective agency — combining credibility, inclusiveness, and influence — to connect diverse forms of knowledge with real-world change for biodiversity and people.

Cross-cutting delivery measures

Transformation depends on shared responsibility and systemic coherence. Implementers, funders, and knowledge institutions can accelerate change when their actions align and reinforce one another, ensuring that all five enabling conditions remain connected and mutually supportive.

Communicate through shared values

- Link biodiversity with equity, dignity, care, and well-being — values that resonate across cultures and sectors. Frame messages in ways that connect ecological restoration with social justice and life experience. This strengthens motivation and helps bridge environmental, social, and economic agendas.

Intended outcome: biodiversity goals feel relevant to people's daily lives, building broad public and political support.

Reframe delay and deviation as learning

- View pauses, setbacks, or policy shifts as opportunities to reflect and adjust rather than as signs of failure. Make reflection routine — between project phases, across institutions, and among partners.

Intended outcome: implementation becomes adaptive, maintaining momentum even under uncertainty.

Encourage ethical and legitimate leadership

- Support decision-makers and community leaders who model transparency, reciprocity, and humility. Recognise that credible leadership is relational — built through accountability, inclusion, and responsiveness, not status. Reward openness about challenges and the willingness to share power.

Intended outcome: governance gains legitimacy and trust, enabling difficult choices to be made openly and equitably.

Foster coalitions for collective influence

- Connect governments, funders, civil society, academia, and business networks around long-term, shared outcomes. Co-creation platforms can align resources, reduce duplication, and turn small successes into broader system-level change.

Intended outcome: cooperation across sectors multiplies impact, shifting biodiversity governance from compliance to collaboration.

Keep equity and participation as constant checks

- Ensure that as actions scale, they continue to benefit those most affected by environmental change. Use participatory monitoring and evaluation to detect exclusion early and to correct course collectively.

Intended outcome: transformation remains equitable and legitimate, not only effective.

Conclusion

From local practice to systemic change

Transformative change is not a single breakthrough, but a continuous, often uneven process of realignment — between what societies value, how institutions act, and how power and resources are shared. The IPBES Transformative Change Assessment calls for this deep reorganisation, and PLANET4B's evidence shows how it takes shape in practice across both local initiatives and sectoral systems that connect European societies to the wider world.

While many of these initiatives began as small, place-based experiments, their significance lies in how they connect and influence wider systems. Transformation does not spread through replication alone, but through alignment — when policy, finance, and social learning reinforce one another across scales. In this sense, local experiments become testing grounds from which systemic change can grow.

At the European level, this means reforming incentive systems — from agricultural and trade subsidies to public procurement, competitiveness, and investment criteria — so that they reward restoration, equity, and learning rather than short-term gains. Without such shifts in the rules of the game, transformative initiatives risk remaining exceptional rather than becoming the norm.

Lessons from practice and policy

Across Europe, place-based, well-supported initiatives have built trust, reconnected people with place, and created room for reflection and experimentation. At the same time, sectoral case studies in trade, finance, and fashion revealed how entrenched market incentives and regulatory frameworks externalise social and ecological costs, and how collaboration among governments, investors, businesses, and communities can start to change that logic. Together, these experiences demonstrate that transformation can emerge when behavioural, institutional, and structural change reinforce one another.

Delivering the EU Biodiversity Strategy for 2030 and the Kunming–Montreal Global Biodiversity Framework requires this systemic orientation: Recognising transformation as a non-linear process that evolves differently across contexts. Each starting point reflects distinct histories, capacities, and power relations. Progress may advance unevenly or take unexpected forms, but when guided by equity, inclusion, and care, it moves systems towards more just and durable outcomes.

The dynamics of transformative change

The elements illustrated in Figure 1 — shifting values, opening mindsets, amplifying actions, and redistributing power, held together by the growth of agency — remain central to this process. Transformation begins when values of care, dignity, and equity become visible in everyday choices, institutional routines, and business models. It deepens as mindsets open through learning, co-creation, and reflection across sectors and institutions. It gains force when collective actions align — from classrooms and communities to markets, supply chains, and public policies. And it endures when

governance redistributes not only power, but also resources, recognition, and accountability.

Agency connects these dimensions. However, it is not automatically positive. It can resist as well as enable change, and it can entrench existing privileges or create new forms of exclusion if detached from justice and transparency. The task is to foster transformative agency — grounded in place, supported by law, and conscious of planetary interdependence — a form of planetary citizenship that turns local responsibility into global care.

Caution and conditions for success

The PLANET4B validation workshops also underscored that transformation is not automatically positive. When narrowly framed or poorly designed, so-called transformative initiatives can reproduce inequality or depoliticise change. Participants cautioned that focusing on a single dimension, such as gender or youth, without addressing intersecting aspects such as class, migration status, disability, or economic precarity risks reinforcing exclusion. They also noted that the language of transformation can be co-opted into managerial “tick-box” exercises. In this context, safe spaces rarely exist; only safer spaces, intentionally created, maintained, and reflexively governed, can enable genuine dialogue, accountability, and empowerment.

Structural and economic conditions can likewise neutralise good intentions. Expecting transformation under unchanged trade, subsidy, and finance systems is unrealistic. Funders and policymakers therefore need mechanisms that anticipate uneven impacts, connect project-level innovation with reforms in markets and governance, and uphold justice alongside ecological ambition. Protecting civic space and environmental defenders is integral to this, ensuring that the freedom to participate and advocate for change is preserved.

Responsibility for implementation

Beyond governments and funders, research and practitioner communities have a vital role in sustaining this momentum. Embedding intersectionality, behavioural insights, and co-creative transformative change approaches in research and programme design can strengthen the bridge between knowledge, policy, and practice, ensuring that implementation is informed, reflexive, and equitable.

Ultimately, transformative change is collective and relational work. It grows through many connected steps — beginning in gardens, schools, laboratories, and boardrooms, and extending through institutions, supply chains, and economies. When policy enables these connections, and when learning, equity, and care guide decisions, biodiversity action becomes not only more effective, but also more just, resilient, and deeply rooted in the societies and systems it seeks to transform.

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