D2.2 Enabling factors and barriers for biodiversity and ecosystem services uptake in decision making (Methodology and first results)

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Lead Author/s: Maria Caballero Pons, Inge Liekens, Joeri Naus, Dieter Cuypers
Contributing Author/s: Berit Balfors, Katarzyna Bogdziewicz, Benjamin Burkhard, David N. Barton, Simone Caridi, Magdalena Iskreva, Agnes Kaloczkai, Mark Mansoldo, Ulla Mörtberg, Silvija Krajter Ostoić, Chiara Parretta, Lidia Poniży, Mateja Šmid Hribar, Paula Rendón, Anda Ruskule, Joana Seguin, Davina Vačkářová, Elizabeta Vršnik, Christos Zoumides,

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1 Preface

The importance of biodiversity, natural capital and healthy ecosystems and the services they supply has increasingly been acknowledged in diverse policy initiatives (e.g., the EU nature restoration and amending Regulation from 2024, EU Biodiversity Strategies 2020 and 2030, Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), UN's Natural Capital and Ecosystem Services Accounting (SEEA EA), Intergovernmental Panel on Climate Change (IPCC) and Convention on Biological Diversity (CBD)).

The EU Horizon Research and Innovation Action "Science for Evidence-based and sustainabLe decIsions about NAtural capital" (SELINA) aims to provide robust information and guidance that can be harnessed by different stakeholder groups to support transformative change in the EU, to halt biodiversity decline, to support ecosystem restoration and to secure the sustainable supply and use of essential Ecosystem Services (ES) in the EU by 2030.

SELINA builds upon the Mapping and Assessment of Ecosystems and their Services (MAES) initiative that has provided the conceptual, methodological, data and knowledge base for comprehensive assessments on different spatial scales, including the EU-wide assessment (Maes et al. 2020) and assessments in EU member states. Knowledge and data for different ecosystem types are increasingly available.

The overall objective of Work Package (WP) 02 "Stakeholder networking and decision-making processes" is to

- Provide better insight on the factors decisive for the successful integration of knowledge on biodiversity (BD), ecosystem condition (EC) and ecosystem services (ES) into public and private decision-making by gathering and analysing evidence based decision-making processes within the different EU Member States (MS);
- To initiate and support better uptake of knowledge on biodiversity (BD), ecosystem condition (EC) and ecosystem services (ES)by means of a European wide network of Communities of Practice;
- To develop hands-on materials, based on concrete examples, to inform a range of key actors about opportunities for scaling up the integration of BD), EC) and ES research into decision-making processes.

The Deliverable D2.2 "Enabling factors and barriers for BD and ES uptake in decision making" presents the following approach to analyse the different factors in biodiversity and ecosystem assessment projects that enhance transformative change. An in-depth analysis of 28 projects will take place in the 3rd reporting period. The methodology and the preliminary results of this analysis are discussed in this report.

2 Summary

The overall conclusion of the IPBES global assessment (IPBES 2019) was that goals for conserving and sustainably using nature and achieving sustainability cannot be met by the current trajectories, and that goals for 2030 and beyond, may only be achieved through transformative changes across economic, social, political and technological factors.

Transformative or transformational change refers to "a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values" (IPBES, 2024). Simply said doing things differently, rather than doing less or optimising the system.

Transformative Change can happen by bringing a broad societal transformative alliance together (IN SELINA called Communities of Practice) and strengthen the narrative of change with success stories (In SELINA called Seeds of Transformative Change). In SELINA, 19 Communities of Practice were established or revived in the EU in May 2024, in 2025 another 7 followed. These CoPs brought together different stakeholder groups working around ecosystems assessment and biodiversity. Some expanded the group with "unusual suspects" such as farmers, journalists, artists, spatial planners. Depending on the national context and participants the topics were different but all of them discussed possible Seeds of Transformative Change. These seeds are tangible initiatives—such as projects, programmes, or networks—that embody novel ways of organising, valuing, and acting in the world, and that have the potential to contribute to more just and sustainable socio-ecological systems.

Studying Seeds is crucial for three main reasons. First, they help identify early signs of transformative potential. Second, Seeds provide a window into enabling conditions. Finally, Seeds align with a systems thinking approach: they often activate leverage points (Meadows, 1999) that, while small, can influence broader systemic dynamics by changing feedback, reconfiguring relationships, or altering goals and paradigms (IPBES 2024).

Within SELINA, the Seeds approach is applied through a two-phase process. In Phase 1, national Communities of Practice were invited to survey a wide range of initiatives and assess them using a framework of **transformative qualities** being traits or characteristics of an initiative that contribute to changes in ways of thinking (views), acting (practices), and organizing (structures), thereby enhancing its transformative potential (SELINA, own definition, based on IPBES 2024) —such as inclusivity, reflexivity, empowerment, systemic integration, and normative orientation. This phase generated a longlist of 149 promising Seeds. In Phase 2, a subset of initiatives was selected for more in-depth analysis, allowing for a richer understanding of the qualities, barriers and leverage points shaping their development. In total 28 Seeds were selected based on 10 indicators and a geographical spread over Europe (at least 1 per member state where Seeds were nominated)

Collectively, the Seeds demonstrate that *glimpses* of transformative change are already underway across Europe. While most initiatives are still situated in niche or early acceleration phases, they are beginning to align paradigm shifts, experimental practices and institutional innovations in ways that address at least some root causes of biodiversity loss. To nurture this latent potential, practitioners should:

1. Deepen pluralistic co-creation to secure social licence and justice;
2. Institutionalise reflexive learning cycles that connect experimentation to policy;
3. Leverage multi-scalar scaling strategies—out, up, deep and team-up—to diffuse successful models; and
4. Directly confront economic and power structures that perpetuate unsustainable regimes.

Doing so will enhance the probability that today's Seeds mature into the systemic pivots required for a just and sustainable future.

In the following period VITO will have a more thorough look at the interviews and provide a guidance for practitioners on how to increase impact of their projects and recommendations to the EC how to bring the barriers to change down and strengthen the leverage points.

3 List of abbreviations

BD	Biodiversity
CBD	Convention on Biological Diversity
CSIC	National Biotechnology Centre, Madrid, Spain
EC	Ecosystem condition
EC	European Commission
EIA	Environmental Impact assessment
ES	Ecosystem Services
ESP	Ecosystem Services Partnership
EU	European Union
GIS	Geographic Information System
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
NGO	Non-governmental organisation
SEEA EA	UN's Natural Capital and Ecosystem Services Accounting
SoTC	Seeds of Transformative Change
UNEP	United Nations Environment Programme

4. Introduction to transformative change

The overall conclusion of the IPBES global assessment (IPBES 2019) was that goals for conserving and sustainably using nature and achieving sustainability cannot be met by the current trajectories, and that goals for 2030 and beyond, may only be achieved through transformative changes across economic, social, political and technological factors.

'This conclusion echoed similar calls that have been put forward by the IPCC, whose special Report on 1.5 degrees concluded that Transformative change would be required to meet this goal, and by agencies such as the European environment Agency and UNEP (EEA, 2019; IPCC, 2018; UNEP, 2019). The widespread demand for a transformative agenda to tackle global sustainability challenges demonstrates a growing consensus among scientists and policy communities that current approaches to addressing these challenges fall short. Despite this growing consensus, there remains a significant challenge in translating the relatively abstract concept into effective governance frameworks to guide and enable meaningful action on the ground' (Eklipse, 2020).

Transformative or transformational change refers to "a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values" (IPBES, 2024). Simply said doing things differently, rather than doing less or optimising the system.

Transformative change is linked to biodiversity and ecosystems because it is essential to:

- **Tackle root causes** of biodiversity loss (e.g. unsustainable economic systems, disconnection from nature, overconsumption, inadequate inclusion of diverse knowledge systems).
- **Reform economic and governance systems** to prioritize nature and long-term sustainability.
- **Promote inclusive decision-making** that values indigenous knowledge and local communities.
- **Shift societal values** toward conservation, equity, and sustainability.

Transformative change can be very disruptive. It often prompts a reaction of resistance among those who benefit from the status quo. New ideas often cannot diffuse across social and cultural barriers; local knowledges are rarely sufficiently included in policy making processes, and stakeholders often find it difficult to find common ground. In a first step, transactional coalitions will be formed (Marc Saxer, 2017) where the Natural Champions (the already convinced) work together with each other and with fence sitters (e.g. those who come on board provided it is in their best interest). Implementing win-win projects can already have some results on the ground but more importantly they can also create goodwill and trust. But sooner or later resistance is encountered. "Paradigm shifts are not academic exercises, but the outcomes of societal struggles" (Marc Saxer, 2017).

Hence, the paradigm can only be shifted by a broad societal transformative alliance.
This means the "already convinced" must go even further out of their comfort zone and reach out to those who do not share their interests and values, for example by bringing together diverse societal actors such as policy makers, civil servants, academics, entrepreneurs,

federations, labour unions, activists and journalists. Coalitions of this kind are not easy to build because these social groups usually have different interests and priorities. However, the idea is to bring them together around the same narrative: we need change. This does not mean that we bring a representation of the entire system[1] into the room as people who do not follow the narrative (meaning wanting to keep the status quo) will often turn such alliances into mere talk shops (Marc Saxer, 2017).

In SELINA, we aim to initiate the first steps in establishing these transformative alliances through the development of Communities of Practice (CoP). These Communities of Practice serve as laboratories in which new ideas can be experimented with and new incentive structures and narratives to bring about change can be explored. With the help of a facilitated dialogue, in which the project outcomes as well as the insights and experiences from their professional lives are central themes, practitioners will become empowered to develop new skills that they can enact in their daily practices. Experiences and knowledge created in SELINA concerning biodiversity, ecosystem condition and ecosystem services can also help to support the discourse.

Naturally, discourse needs to be translated into action. Success stories and "proof of concepts" are needed to give credibility to the narrative of change. In SELINA, we went searching for examples of projects and initiatives that in some way demonstrate having transformative potential. In SELINA, we call these Seeds of Transformative Change (SoTC). These projects were further analysed to see what characteristics they have that make them transformative, how they can be replicated elsewhere and how they canact as a catalyser for broader change. …

As SELINA is about uptake of BD, EC and ES assessment and accounting knowledge into policy processes, we looked more explicitly to projects where different values of nature were integrated in the processes. This includes mapping and assessment exercises, but also projects that target deeper systemic change leverage points [2] . We focused on a combination of actions that target different values-centred leverage points according to IPBES (2022) needed for Transformative Change towards more sustainable and just futures: (i) undertaking valuation that recognizes the diverse values of nature 'ii) embedding valuation in decision making (iii) reforming policies and regulations to internalize nature's values and (iv) shifting underlying societal norms and goals (see Figure 1).

In this report we want to find the barriers and leverage points for Transformative Change within decision-making processes and see what the role of BD, EC and ES knowledge can help with overcoming barriers or strengthen leverage points.
In what follows we shortly discuss the establishment of the CoPs as these are a first step in bringing different perspectives together and to learn from each other. These CoPs are the first place to gather insides in barriers and leverage points for Transformative change into a

[1] Systems thinking is a way of making sense of the complexity of the world by looking at it in terms of wholes and relationships rather than by splitting it down into its parts. A system is a set of things ... interconnected in such a way that they produce their own pattern of behavior over time (Donella H. Meadows, 2008).
[2] A leverage point is a place within a complex system where a small change can lead to significant and widespread effects. These points are crucial because they allow for impactful interventions with relatively less effort compared to targeting other areas (Donella H. Meadows, 2008).

just and sustainable future and the role of BD, EC and ES knowledge. They are also the place to gather Seeds of Transformative change. In a second part we go deeper into the nominated Seeds of Transformative change.

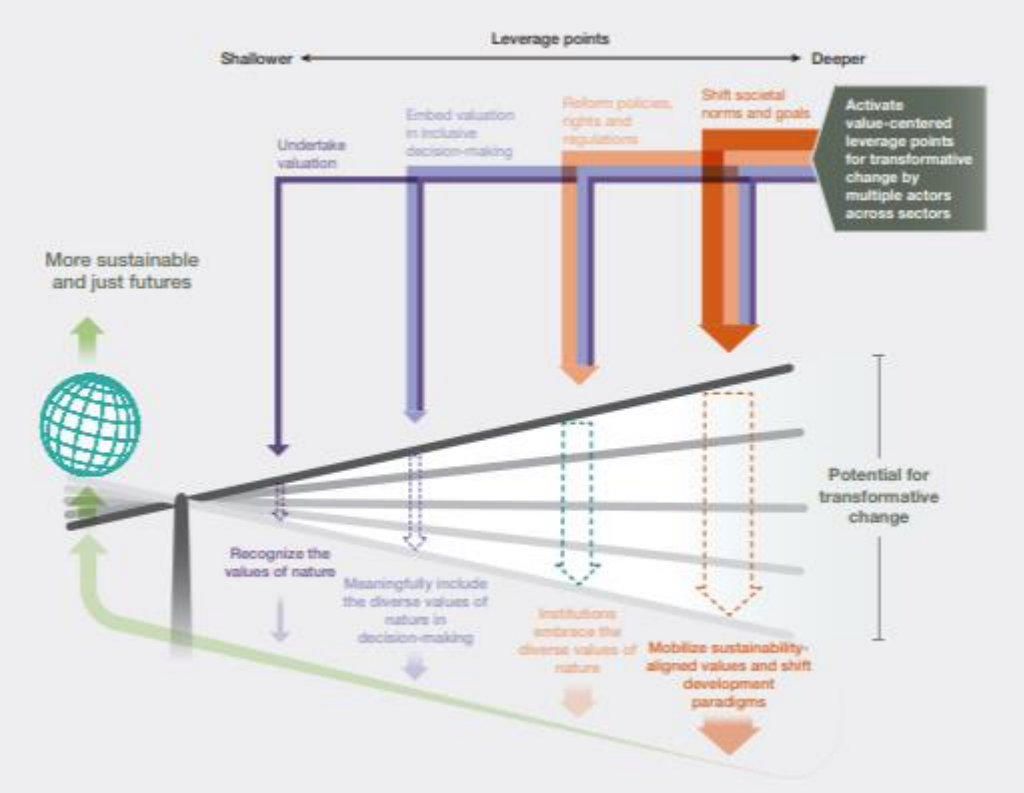

Figure 1: leverage points for transformative change and valuation of ecosystems source: IPBES values assessment 2022

4.1 Communities of Practice

Communities of Practice are groups of people who share a concern or a passion for something they do and an interest to learn how to do it better through regular interaction (Wenger-Trayner et al., 2023). In the context of SELINA, Communities of Practice foster dialogue between diverse stakeholders to promote transdisciplinary knowledge-sharing and address decision-making challenges.

The objectives of the CoPs that were installed or revived are threefold:

- In the short term, during the lifetime of the SELINA project, these CoPs will serve as platforms at MS level and as an EU-wide network to support the project and be supported by the project through knowledge exchange and learning processes.
- In the long term, as a wider goal, these CoPs serve as platforms for knowledge exchange and learning processes on mainstreaming and successful integration of knowledge on BD, EC and ES into public and private decision-making.
- And, as system thinkers in the making, 1 and 1 is never 2 but much more. These CoPs will be the place, where we connect with peers and enabling dialogues to get to know them better during discussions or excursions, to better understand their behaviours, beliefs, values, assumptions and mental models. It is a place to inspire each other.

In May 2024, 19 Communities of Practice were established or revived in the EU, in 2025 another 7 followed.

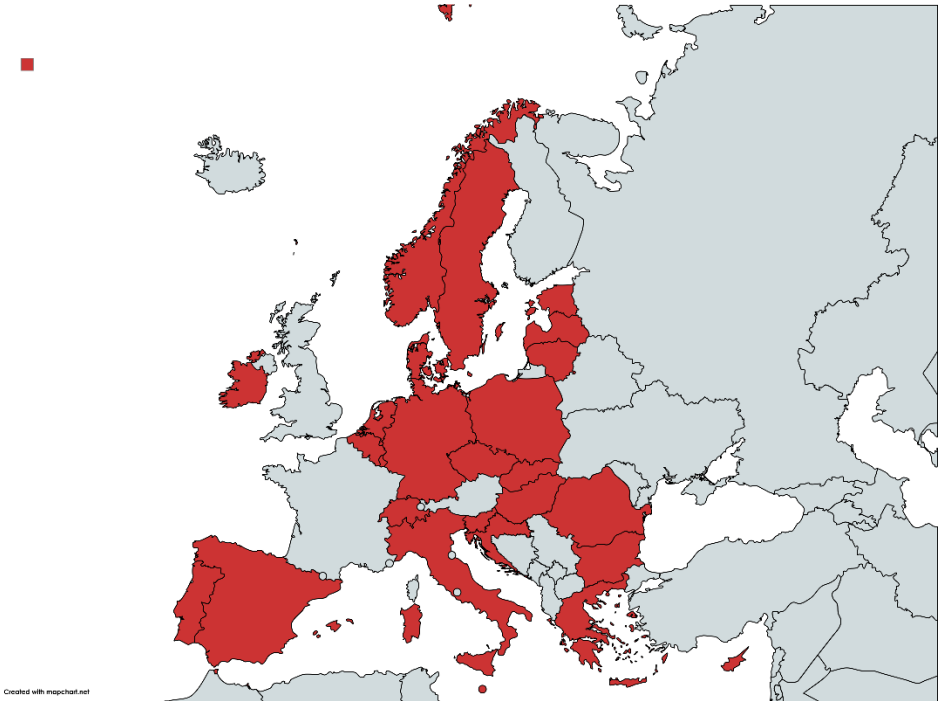

Figure 2: Member states that established or revived a Community of Practice within SELINA

First reflections

To facilitate a deeper understanding of the CoP within work package 2 (WP2), interviews were conducted with 10 SELINA partners. These interviews provided a general overview of the organisational structure of the CoPs, as well as insights into past and future meetings, activities, struggles and successes of CoPs meetings. The conversation also focused on the relationships among CoP members, the topics they have engaged with, and whether these discussions have led to lively exchanges of differing perspectives. Additionally, the political sensitivity of CoP topics and their potential impact on practice were addressed where relevant. Notably, most interviews highlighted the importance of involving "unusual suspects" (not only environmental sector but also social, economic and outsidecultural sectors e.g. journalists, artists, citizens, non-environmental government departments…) and critical perspectives.

Commonalities and differences

A first observation from comparing the SELINA CoPs across ten member states relates to the way they are set up. Of course, not all CoPs were newly established from scratch through the SELINA project, as some build on a previously established network. When WP2 partners did set up the community for the SELINA project, members often started their list of possible members by looking into partners and partner organisations from previous projects. This makes sense, as looking into existing networks allows for easier connection than contacting someone for the first time. Although WP2 partners also recognize that this may introduce

some bias as to who is included in these spaces, meaning that there is a bias and some stakeholder groups are not reached.

Differences in maturity between CoPs are also evident. Some WP2 partners reported that their CoP is in its early orientation phase, where CoP members have had an initial introductory meeting and, in some cases, took part in another CoP-related activity. other WP2 partners reported to already have had multiple meetings and activities. Yet, it is important to note, that the structure of activities or topics is rarely set in stone, as it is important to define own purpose, interest and scope to make it more valuable to the members when it is tailored to the national context. Besides, it is to be expected as CoPs constantly develop and evolve.
Many CoPs began by seeking out and highlighting "Seeds of Transformative Change" (see 4.2) initiatives, which provided the members with some context to discuss best practices in their field. In some CoPs, the gathering of Seeds remained plenary, while others used the Seeds to discuss practices in smaller groups based on their interest.

Interestingly, nearly all the CoPs dedicated time to build trust and personal connections in smaller groups and had the opportunity to meet in person. Whether CoPs came together in an online, in-person, or hybrid format differed per country. For some CoPs, meeting in person has not been possible due to budget, geographical or cultural factors. For example, organising in-person meetings for some (large) member states (e.g. Bulgaria) was a challenge, especially if their administrative structures prohibit them from sharing costs with CoP member organisations.

Another cultural factor influencing the CoP is the relevance or need for ecosystem services (ES) expertise. As ES methods and practices are perceived to become more relevant at the EU level due to MAES, Nature Restoration Law, Natural capital accounts etc., WP2 partners and CoP members may increasingly seek ES expertise. If the field is less a national priority, WP2 partners struggled to “motivate” stakeholders to participate on the CoP-meeting tackling these ES topics. This shaped the topic and goals of the meetings. For example, if members expressed the need to learn about ES methods or expertise, meetings and future meetings were scheduled to provide knowledge on a variety of relevant topics where ES expertise was requested. For example, by inviting speakers to present on relevant projects where ES were assessed, even by reaching out to other member states with more expertise in the relevant ES methods.

Achievements and transformative learning
Most CoPs are still more transactional coalitions rather than true societal transformative alliances, but they are nevertheless trying to involve a broader stakeholder group undertaking (stakeholders that have an influence on or are affected by ecosystems but are not specifically practitioners on ecosystem assessment) stakeholder mapping exercises, guided by WP2 methodology (stakeholder matrix in MS 17) in WP2. However, for many countries with a significant demand for ecosystem services (ES) expertise, having members of NGOs, governmental bodies, businesses, and research institutions share information and practices, has been a significant step forward. This has often been achieved by delivering presentations on good practices in varying ES fields, tailored to the interests of CoP members or by highlighting projects through the collection of "Seeds of Transformative Change" for subsequent discussion. According to several WP2 partners, establishing such a network and

getting multiple parties familiar with one another and with the same language and concepts has already been a big achievement.

Whilst the dissemination of ES expertise through the sharing of good practices can contribute to change (e.g. Feeney M et al. 2023, Elegbede I et al. 2023) and may be more contextually important for some member states than others, additional measures could be implemented to enhance transformative learning in CoPs. Transformative Learning is defined here as a process of deep learning in which individuals critically examine, question, and revise their understanding of themselves and the world around them, leading to profound changes in values, principles, and perspectives (based on Bostrom et al., 2018; Pisters et al., 2023). This includes inviting perspectives that are not predominant in ES practice, such as explicitly engaging speakers with critical viewpoints or incorporating "unusual suspects" as part of the CoP. For transformative learning to take place, it is crucial for CoP members to share opinions in a personal and confidential manner, thereby creating an environment conducive to exploring differing viewpoints. In the absence of established trust among CoP members, addressing challenging topics and genuinely sharing divergent opinions becomes increasingly difficult.

For those WP2 partners who indicated that their CoP is still in an orientation phase, they felt it was too soon to engage in discussions beyond practical knowledge sharing, e.g. how to change institutions. Interestingly, some CoPs dedicated time to focus on the interpersonal connections among members by facilitating discussions in smaller groups (e.g., through the World café method). In such formats, members often feel more at ease to share more personal, sometimes unexpected opinions, which allowed members to discuss their underlying perspectives. At times, this even caused members express their frustration with others or existing systems. Giving members the space to share their views and allowing differences in opinion to arise, while leaving room for members to reflect on these and learn from them, is a vital aspect of transformative learning. (Bostrom et al., 2018; Pisters et al., 2023).

Sustaining active engagement among members has proven challenging for multiple CoPs, which is a common occurrence within CoPs in general. Focussing activities on specific topics of interest to some members may exclude the interest of others. This is natural, as the CoP simply cannot cater to all members' needs. Embracing this, whilst also making sure that significant (especially non-dominant) perspectives are not left out, is a constant balancing act. This balancing act also involves catering to the needs of the larger organizations of CoP members (e.g. by catering to their knowledge needs), while also spending time on building trust among members and focussing on transformative learning.

Explicitly expressed needs

1) Some WP2 partners have articulated the need to reconsider the inclusion of "unusual suspects" in their existing community. For some, this recognition is accompanied by concerns that inviting individuals from outside the established fields of practice could shift the CoP's focus from ES methods and tools to broader objectives. Given that the CoP was initially established with a strict focus on ES, members expressed a strong need for expertise in ES methods and tools, making a shift in focus may seem impractical. In other CoPs, the call for including "more unusual" suspects originated from current members. However, there was a

recognized need for guidance on how to identify and engage these unusual suspects. Suggestions were made to collaborate with WP11 of SELINA to address this challenge in the future.

2) Additionally, there is a need for WP2 partners to connect with one another to learn from each other on their experiences of running CoPs. Despite the significant differences in content and context among the CoPs, sharing ideas and approaches between the partners may be a great source of inspiration.

VITO together with FSD are available for bilateral support on the organisation of CoP-meetings on methods and topics. VITO and FSD also developed guidance materials on various topics to support the different CoPS, including:

- Template outlines for CoP-meetings, Eye-opener workshop methodology, bilateral support;
- Tips and tricks to include “unusual suspects” and to create a safe space for participants, tips to engage participants in the CoP;
- Organisation of workshops to exchange experiences on leading a CoP (Workshop Leiden, workshop ESP European Conference 2024).

On the topic on international interactions mentioned in the needs, WP2-leads work together with WP10 on the Science-Policy-Society dialogues organised so that also experiences and approaches between the member states can be of inspiration.

A further methodology will be developed to reflect on the **Transformative Learning** of the different CoPs – A process of deep learning in which individuals critically examine, question, and revise their understanding of themselves and the world around them, leading to profound changes in values, principles, and perspectives (based on Bostrom et al., 2018; Pisters et al., 2023). This analysis will be added to the updated version of this report (D2.5) in 2027.

4.2 Seeds of Transformative Change & Transformative Qualities

As previously stated, the narrative of transformative change needs to be fed by actions and best practices.
Seeds of Transformative Change (SoTC) are tangible initiatives—such as projects, programmes, or networks—that embody novel ways of organising, valuing, and acting in the world, and that have the potential to contribute to more just and sustainable socio-ecological systems. These initiatives are often situated at the margins of dominant institutions, but they actively challenge prevailing paradigms, norms, and structures. Instead of merely improving the efficiency of the current system, SoTC introduce new logics—by redefining human-nature relationships, decentralising decision-making, or embracing plural values. They provide practical illustrations of how this reorganisation can begin to emerge from within existing systems. In the further text we refer to SoTC as Seeds.

Drawing from Bennett et al. (2016), Seeds are identified not only by their outcomes but by their characteristics: they tend to be inspiring, have a basis in place-based or relational worldviews, promote social-ecological integrity, and demonstrate feasibility even if still at a small scale. These Seeds—also called "bright spots"—act as early signals of alternative futures already in the making. They may operate in isolation or as part of broader networks, and they often reflect experiments in practice that offer insights into how transformations can be initiated and sustained over time.

Studying Seeds is crucial for three main reasons. First, they help identify early signs of transformative potential. As transformations are complex and nonlinear processes, Seeds allow us to detect the kinds of shifts—new practices, narratives, alliances, or values—that may scale or catalyse broader systemic change. Second, Seeds provide a window into enabling conditions. By examining which Seeds thrive or stagnate, researchers and policymakers can better understand the contexts—social, institutional, ecological—that facilitate or hinder change. Finally, Seeds align with a systems thinking approach: they often activate leverage points (Meadows, 1999) that, while small, can influence broader systemic dynamics by changing feedback, reconfiguring relationships, or altering goals and paradigms (IPBES 2024)

Within SELINA, the Seeds approach is applied through a two-phase process. In Phase 1, national Communities of Practice were invited to survey a wide range of initiatives and assess them using a framework of **transformative qualities** being traits or characteristics of an initiative that contribute to changes in ways of thinking (views), acting (practices), and organizing (structures), thereby enhancing its transformative potential (SELINA, own definition, based on IPBES 2024) —such as inclusivity, reflexivity, empowerment, systemic integration, and normative orientation. Rather than evaluating success based on short-term outputs, the focus is on whether an initiative disrupts business-as-usual, fosters new ways of knowing or governing, and holds potential for wider learning and influence. This phase generated a longlist of promising Seeds. In Phase 2, a subset of initiatives was selected for more in-depth analysis, allowing for a richer understanding of the qualities shaping their development.

This process is informed by the IPBES (2024) Transformative Change Assessment, which highlights the importance of shifts in views, structures, and practices. Seeds make these shifts visible. For instance, a seed might introduce new participatory governance methods (practices), emerge from a reimagined human-nature relationship (view), or be grounded in new alliances that bypass existing power structures (structures). Recognising these configurations helps SELINA assess not only where change is happening, but how and why.

Furthermore, Seeds reveal diverse pathways to sustainability that challenge dominant narratives. Many Seeds are based on relational or intrinsic values of nature, aligning with the IPBES Nature Futures Framework, which promotes "nature for nature," "nature as culture," and "nature for society." These visions contrast with instrumental approaches to nature and are often grounded in indigenous, local or alternative knowledge systems (IPBES, 2024_Chapter 2). By valuing this diversity, the SELINA Seeds framework helps avoid one-size-fits-all prescriptions and instead supports context-specific strategies for transformative change.

Ultimately, identifying and studying Seeds of Transformative Change is not only a research endeavour, but a strategic intervention. It helps highlight initiatives that may otherwise remain invisible and builds capacity among project partners and CoPs to engage with transformation as an ongoing, participatory, and value-laden process. As SELINA advances, these Seeds can become both signposts and catalysts—showing that different futures are not only necessary but possible and already under way. These success stories are needed to give credibility to the narrative of change (Marc Saxer, 2017).

5 Research questions

This Deliverable seeks to better understand how the SoTC contribute to biodiversity and ecosystem services outcomes by activating pathways towards systemic change. While many projects aim to improve environmental conditions, only a subset displays deeper transformative potential. These Seeds are the focus of our analysis. The central research question guiding this work is:

General Research Question (GRQ)

GRQ: How do Seeds of Transformative Change present Transformative Qualities that reflect their potential to catalyse systemic shifts in views, practices, and structures, in ways that address the underlying causes of biodiversity loss?

Sub-Research Questions

SRQ1: How do Seeds express alternative views, values, or paradigms, and to what extent do they challenge dominant ways of seeing and relating to nature and society?

SRQ2: What kinds of practices and interventions do the Seeds take up or develop, and how do these reflect transformative ways of acting?

SRQ3: How do Seeds attempt to influence, navigate, or transform institutional structures, governance systems, decision-making and power relations relevant to biodiversity management?

SRQ4: What role does quantitative scientific knowledge play in the Seeds, and how is it combined with other knowledge systems?

SRQ5: What internal or external factors support or constrain the transformative potential of the Seeds?

These five sub-research questions operationalise the GRQ by unpacking transformation into reinforcing dimensions. SRQ1 probes the shifts in worldview that open up the conceptual space for change. SRQ2 examines the practices that translate those visions into experimentation and learning. SRQ3 focuses on structural leverage, analysing how Seeds engage rules and power to confront deep-seated drivers of biodiversity loss. SRQ4 highlights knowledge integration, revealing how scientific, local and traditional knowledges merge to guide action. SRQ5 investigates the contextual conditions that shape the seeds development. Together, the GRQ and SRQs provide a clear analytical framework for the interview protocol and subsequent analysis, ensuring that each Seed is assessed not only for immediate outcomes but for its capacity to reshape views, practices and structures in ways that catalyse long-term, systemic transformation toward nature-positive futures (Nature Positive initiative 2023).

Answering these questions can help the processes in Strand B to strengthen the narrative of usefulness of assessing ecosystems in a multi-plural way. Identifying Seeds with transformative qualities will help discern leverage points for intervening in socio-ecological systems and define steps for initiatives (in particular SELINA Demonstration Projects) to work towards Transformative Change and increase their impact.

6 Approach

6.1 Identifying Seeds of Transformative Change

6.1.1 First SELINA Workshop in Sofia, Bulgaria: setting the scene

At the first SELINA Workshop in March 2023, VITO gave a contextual overview of the concept of systems thinking and how systems thinking as a methodological approach has developed over time. This initial part of the presentation addressed the questions “What is transformative change?” and “Why do we need transformative change?”.
The presenter outlined how systems thinking will be used to support the identification of Seeds of Transformative Change.

This presentation was followed by 4 break-out groups. For these groups, we took the assumption that integrating BD and EC and ES indicators into decision-making processes is a transformative path towards a just and sustainable society. We asked which possible barriers and leverages of integrating biodiversity and ecosystem condition and services information into decision-making the participants encountered. These questions were a first step in gathering information on barriers and leverages for integrating BD, EC and ES knowledge into

decision-making. A second step was the collection of initiatives or elements in the context of the country of origin that could facilitate this integration. These topics were further examined by collecting more initiatives (SoTC).

A second part asked for elements in the context or Seeds that could facilitate mainstreaming BD, EC and ES information in their country of origin.

Answers were gathered through a mentimeter. Although different stakeholder groups were present (scientists, practitioners, public administrations, businesses), most of the participants in the group (>50%) were Natural scientists.

Key leverages often mentioned in successful uptake/implementation of BD, EC, ES approaches into decision making were:

- Stakeholder's involvement
- Translating into the specific language/jargon of a stakeholders
- Transdisciplinary collaboration
- Political will/policy window
- Available data, indicators, methods
- Best-practice cases/ES champions
- Using system thinking, not only one perspective

Figure 3: word cloud from one of the groups: if you already integrated BD or ES approaches, what were the leverages that made uptake in decision making succeed?

Key barriers that made it difficult to uptake or even made the project fail:

- Lack of a binding/ legal framework/ regulations
- Funding
- Scepticism of stakeholders, fear, conservative thinking
- Lack of awareness in politics and society
- Lack of collaboration between different involved parties/stakeholders

- Political will
- Complexity (approach, system, nature, political process)
- Lack of common language/approaches= confusing
- (Perception of) lack of guidance, lack of data…
- Power imbalances

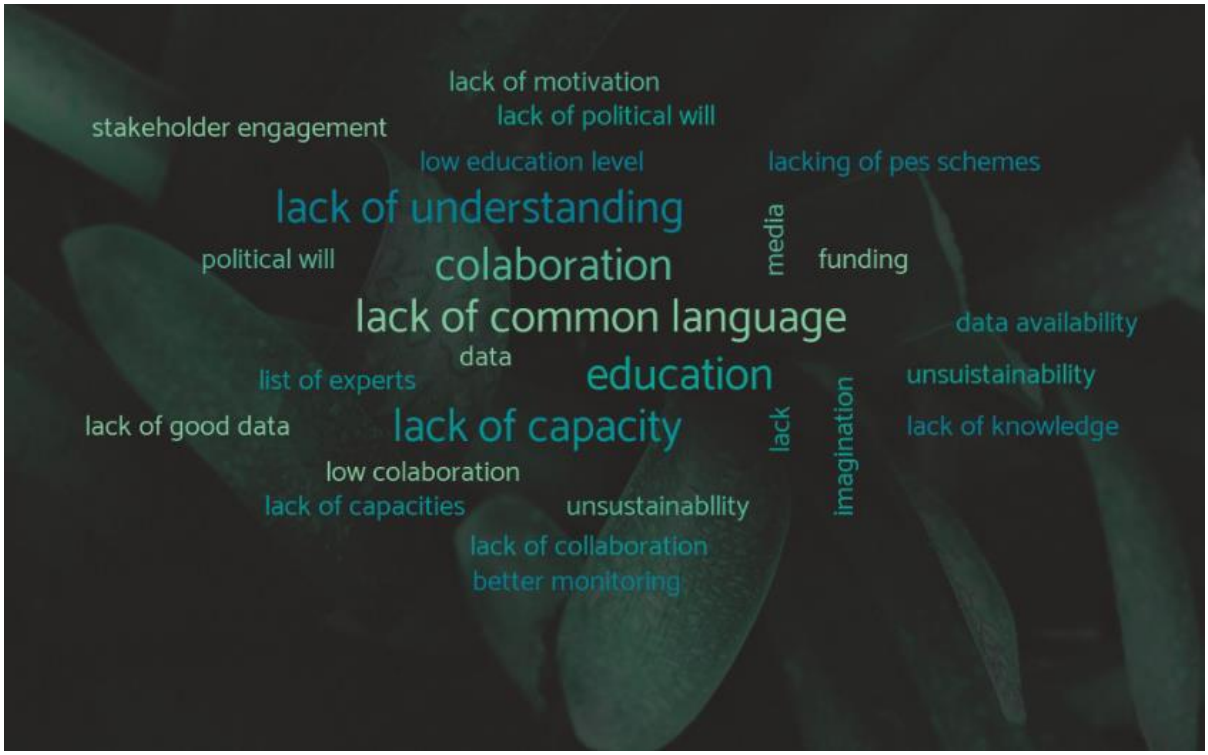

Figure 2: word cloud of group 4 answering: Which barriers/challenges need to be conquered to sucessfully integrate BD and ES into decision making or made it fail?

Specific circumstances or initiatives which could help to facilitate mainstreaming BD and ES approaches in the participant's country

- Legislative proposals on EU level, Environmental Laws
- Communities of Practice
- IPBES
- Courses/educational programs per stakeholder group
- Sharing good practices
- Bottom-up initiatives at local level
- Context: Extreme weather events/ post-pandemic nature attraction/ high energy costs/ deglobalization, invasive species

Looking at the outcomes of the session it strengthens our research questions for identifying and analysing good practices and which elements in these projects strengthen the above-mentioned leverages and take down the barriers encountered. The concept version of the survey for identifying Seeds, presented in Sofia, was tested and improved to increase the applicability.

6.1.2 CoP-meetings and short Survey

During the second half of 2024, 19 Communities of Practice around BD, EC and ES were established or revived (see chapter 5). During the kick-off meeting (or later meetings) the participants of these CoPs were asked to nominate projects that they think are seeds of Transformative Change. WP2 leads asked the CoP-leads to either discuss the potential seeds in the meeting using a short questionnaire or let the participants fill out the survey themselves after the meeting. WP2 leads also asked all the partners of SELINA to fill it out and to spread the survey amongst their networks and to stakeholders identified in earlier steps (MS17). In addition, it was sent out through social media of the SELINA-project, partners and CapsCo and Ecosystem Services Partnership (ESP). The collection of Seeds took place from September 2024 to February 2025.

The questionnaire first asked for some general information on the project and then asked in an open question why the participant would nominate the project as a potential Seed of Transformative Change:

“Could you explain why you have selected this initiative as a Seed of Change? What makes this initiative particularly promising or impactful, according to you? Kindly, mention some (potentially) transformational qualities of the initiative (see examples in next question) and, if possible, say something about its impact on decision-making. “

Next, the participants were asked to score their project on Transformative Quality statements. These statements are a selection of questions from VITO’s RealTouch Framework (Nevens et al, 2014) and key ingredients from Bulkeley et al (2020) (see Table 1).The participants scored from 1 (not at all) to 5 (To a very large extent) if the Transformative Quality statement applied to the nominated initiative.

RealTouch is a pragmatic tool VITO developed for reflecting, evolving, assessing and learning on Transition approaches in scientific work and action. It is a checklist that supports reflection and creative thinking on the key indicators that can “transitionise“ project ideas but also ongoing work. Along six ‘content’ and four ‘process’ issues that were considered relevant questions were developed. Per issue, 1 question was selected from the list of 10 to 12 questions, and reformulated to suit the context of SELINA. The WP2 leads of VITO selected these questions based on our own expertise, our understanding of the SELINA project, and the 6 principles of Transformative Change defined in Bulkeley et al. (2020).

Table 1: Ten Transformative Change issues RealTouch and Bulkeley's 6 principles of Transformative Change

RealTouch 10 "issues"	Bulkeley's 6 principles
Content	
Analysing the system	Address Root causes
Envisioning the future	
Exploring different pathways	Take multiple Paths
Experimenting	Realise Diverse co-benefits
Assessing and monitoring	
Translating	
Process	
Action (research), creativity	
Interdisciplinarity	Design Deliberative and inclusive processes
Transdisciplinary	Expand action arena
Learning	Adopt Proactive Approach to resistance

Finally, some leverages and barriers in the seed 's environment are surveyed:

- Plant growth depends not only upon the characteristics of the seed but also on its "growing environment". What key factors or developments in the context of the initiative have enabled this Seed of Change to germinate, grow and (possibly) bear fruit? Consider for instance, new policy and regulation, innovations in science and technology, changing market dynamics or socio-cultural trends. Try to be specific on these factors/developments. *
- What is needed, in your view, for the initiative to realise its full potential, and facilitate transformative change? Kindly explain why you think this is needed. a. What should be done at project level? b. What should be promoted/changed in the "growing environment"? (what barriers need to be taken away)

The complete survey can be found in Annex 1.

6.2 Selection Seeds for in-depth analysis

In the second reporting period 149 potential Seeds were collected. A further Seeds selection unfolded in three steps (see Table 2).

Table 2: Three steps I the selection process of Seeds

Steps	Purpose	Seeds Selected
1. Preliminary Screening	Select the Seeds per country that show more transformative potential	140 → 36
2. Identification & visualisation	Build a diverse, complementary set of high-potential transformative seeds by applying inclusion / exclusion and allocation rules. Output: Interactive map	36 → 28
3. Review & co-selection with partners	Agree final list in an online workshop	29

6.2.1 First Step - Preliminary Screening

The preliminary screening served as a first, systematic pass through the full set of 140 survey submissions. We began by calculating each seed's average score across the ten Transformative Quality indicators. Any initiative scoring below 2.5 overall, or posting fewer than two individual qualities above 3, was removed from further consideration.

Numeric filtering alone, however, was not considered sufficient: for every seed that cleared the cut-off we read the open-ended responses to verify that high scores were substantiated with credible evidence of transformative intent and practice. To this end, we formulated evaluation questions linked to RealTouch framework transformative qualities identified, as shown by the table below. This qualitative check allowed us to spot and discard "inflated" answers while rescuing a handful of genuinely promising seeds whose narrative strength compensated for a marginal numeric shortfall.

To avoid an early skew toward a few highly active countries, we then applied a balancing rule that capped the shortlist at three top-performing seeds per country. Where more than three candidates from one country met the score threshold, we retained those with the broadest stakeholder mix and the clearest articulation of systemic change logic. By the end of this step, 36 initiatives remained: each demonstrated at least a baseline level of transformative potential on its own and collectively they preserved a geographically plural foundation for the next, more fine-grained selection round.

Table 3 Transition management actions, transformative qualities and evaluation questions

TRANSITION MANAGEMENT: ACTIONS & PROCESSES	**DEFINITION**	***TRANSFORMATIVE QUALITIES (link to the survey questions)***	**EVALUATION QUESTIONS**
ANALYSING THE SYSTEM	Determining the relevant players and their interrelations, the key system functions, the institutions and regulations, barriers, and enablers. Quantitative & Qualitative Methods	*The initiative **challenges established 'mental models'** (i.e. basic values, assumptions, worldviews) that define dominant understandings of nature and underly human-nature interactions.*	-Are they key elements of the system where the seed takes place analysed/explore/understood? -Does the initiative critically question and challenge entrenched assumptions or worldviews related to biodiversity or systems?
ENVISIONING THE FUTURE	Defining a vision for the future wanted. Entails clear images/narrative of desirable systems based on shared principles of sustainable development.	*The initiative is guided by a **collective and inspiring long-term vision** on the sustainable use or functioning of ecosystems.*	-Does the seed have a desirable future vision? - Does the initiative articulate a clear and shared long-term vision for sustainable ecosystem use or restoration?
EXPLORING PATHWAYS & EXPERIMENTING	Explores and experiments with different scenarios to identify feasible alternative pathways and the alignment of on-going actions. Successful experiments link the more conceptual future visions with concrete action potential.	- *The initiative promotes and experiments with a **diversity of solutions, strategies or pathways** to improve ecosystem services and conditions, including unconventional/radically different solutions.* - *It generates diverse **co-benefits for different stakeholders.***	-Does the seed test innovative and diverse strategies to improve ecosystem services including radical/unconventional solutions?
INTERDISCIPLINARITY & TRANSDISCIPLINARITY	Involves a joint understanding and shared problem definitions among diverse stakeholders. This includes developing a common language and vocabulary, ensuring co-ownership of the process, and promoting active co-creation in analyzing problems, envisioning	*- The initiative involves a **wide range of stakeholders** in society who bring (very) different values, perspectives and/or knowledge to the table.*	*-Does the seed successfully bring together diverse stakeholders to develop a shared understanding and co-create solutions? - To what extent does the seed engage stakeholders in a way that*

	futures, and designing pathways to achieve sustainable solutions.	*- The initiative goes beyond informing stakeholders, towards actual/**deep involvement of stakeholders** in co-defining problems and co-creating sustainable solutions.*	*fosters co-ownership, joint analysis, and shared visions?*
LEARNING & CREATIVITY	It exhibits learning-by-doing and doing-by-learning approach, fostering proactive and creative thinking, and promoting an out-of-the-box attitude to challenge cultural norms and structures.	*The initiative stimulates joint **reflection on the root causes** of the problem, and dedicates a significant amount of time and effort to the collective learning process.*	-Does the seed promote reflection, creativity, and a learning-by-doing approach to tackle root causes and innovate solutions for sustainability?
ASSESSING	Includes follow-up actions to examining the compliance of the seed towards the new system. Monitoring and assessing tools are not designed to measure but to trigger action in the desired direction.	*Next to more established parameters for measuring biodiversity and ecosystem functioning, the **initiative also assesses less tangible, qualitative aspects** such as perception shifts, changing behaviour.*	Does the seed include assessment tools that not only measure progress but also inspire action and reflection?
TRANSLATING	Systemic change requires lessons learned from transition activities (e.g., experiments, backcasting, envisioning) to be multiplied and embedded in mainstream actions by relevant system stakeholders.	*-The initiative **actively supports (other) policy makers, companies, communities etc, who are not directly involved in the initiative**, in adopting/developing new approaches and revising existing pol...* *To create leverage for structural change (in policy, markets, culture etc.) the initiative **actively connects to other projects and/or broader coalitions of actors**.*	-Does the seed ensure that lessons from its activities are shared, adopted, and multiplied across relevant system stakeholders?

Source: developed based on Nevens et al. 2014 and Bulkeley et al. 2020

6.2.2 2nd Step – Identification and visualisation

With the 36 preliminarily screened seeds in hand, the focus shifted from basic eligibility to curating a balanced and complementary portfolio. Each seed was first tested against the inclusion / exclusion criteria set out in Table 4. These criteria sought early evidence of transformative potential: a rich stakeholder constellation, at least one unusual actor involved, and strong quantitative scores backed by qualitative justification. Seeds that failed any of these gates were removed.

Those clearing the bar were arranged across the allocation dimensions—sector, geographical scale and ecosystem type—to reveal gaps and surpluses. When several seeds competed for the same spot in this diversity matrix, we compared their narratives, stakeholder depth and systemic-leverage evidence, selecting the initiative that best filled an under-represented niche. Conversely, a seed sitting just below an inclusion threshold could still be retained when it was the sole candidate covering a missing sector–scale–ecosystem combination. Iterating this "fit-and-fill" exercise trimmed the list from 36 to 28 while maximising complementarity.

For every seed that remained, the research team produced a concise descriptive profile that documents its innovative features, links them to the ten transformative qualities, and explains how the initiative advances the objectives of the Seeds of Transformative Change project. A handful of seeds that did not tick every inclusion box were nonetheless kept because they strengthened the overall portfolio's breadth; their retention is justified in these qualitative profiles.

Finally, the 28 seeds were imported into Kumu to generate an interactive map displaying thematic links, stakeholder networks and geographic spread (see chapter 7.2.) This visualisation served as a decision aid in Step 3, ensuring the emergent portfolio was not only high potential on paper but also intelligible and strategically coherent when viewed as a whole.

Table 4: Criteria for further selection

INCLUSION/EXCLUSION CRITERIA		
CRITERIA	**ANSWERS**	**LOGIC BEHIND**
Diverse range of stakeholders involved*	YES, If at least 3 different stakeholder (groups) from the quintuple helix[3] appear.	Indicator of interdisciplinarity and transdisciplinary
Unusual stakeholders (citizens, local communities, celebrities, police, hunters, firefighters, veterinaries, architects, stone builders, schools, churches, sports clubs, artist, beekeepers, arborist, private forest owners, elderships, journalists, media)	YES, if at least 1 of the unusual stakeholders is included	Indicator of challenge existing paradigms and creativity.
Shows Transformative potential	Average score > 3 + at least 3 qualities score high (>4/5) + review guided by evaluation questions	Prioritizes initiatives that explicitly tackled the transformative qualities in the open questions

ALLOCATION CRITERIA			
CRITERIA	**ANSWERS**	**LOGIC BEHIND (WHY?)**	**PROPORTIONS TO ENSURE SEEDS DIVERSITY**
Sector	Public OR private OR public/private (hybrid)	Captures diversity in governance.	Public: 13 Seeds; Private: 4 Seeds; Hybrid: 9 Seeds
Geographical scale	Local OR/AND regional OR/AND national OR/AND inter/transnational	Captures diversity in scales. Insights into barriers/drivers in different scales.	Local: 8 Seeds; Regional: 7 Seeds; National: 8 Seeds; Inter/transnational: 5 Seeds;

[3] framework used to understand and structure collaboration among different societal sectors in innovation and policy-making: Adds the environment as 5th group in addition to Academia, Industry, government and society, allowing for sustainable development and ecological awareness

Ecosystems involved	Urban OR/AND forests OR/AND wetlands OR/AND rivers and lakes OR/AND marine and coastal OR/AND agroecosystems OR/AND heathland and grasslands OR/AND Mountains OR/AND Gorges & Cliffs(IUCN Global Ecosystem Typology)	Captures challenges/specificities in transformation in different ecosystems.	Urban:3/4; forests; 5/6; wetlands: 3/4 rivers and lakes: 4/5 marine and coastal: 2/3; agroecosystems; 4/5 heathland and grasslands: ¾; Mountain 1/2; Gorges & Cliffs 1/2;

6.2.3 3rd Step – Review and Co-selection with Partners

The final stage translated the draft portfolio into a jointly endorsed list through a two-hour online workshop with all SELINA partners. Prior to the session, participants received log-in credentials for the Kumu map that visualised the 28 candidate seeds and their thematic links; this interactive display allowed everyone to zoom in on their own country's seed(s) and explore cross-border connections.

During the workshop, we combined the Kumu map with a structured Miro board. Each partner was asked to locate the seed(s) linked to their country, examine the accompanying profile, and respond to four guiding questions:

1. Which transformative qualities, if any, are missing or understated?
2. What additional information is needed to assess the seed's potential?
3. Do you feel confident analysing this seed in Phase 2; if not, what obstacles do you foresee?
4. Would you prefer to work on a different seed, and why?

Partners annotated their answers directly on the Miro board, triggering real-time discussion and peer-to-peer clarification. This deliberation led to unanimous validation of 22 seeds and constructive adjustments to six others—ranging from minor data gaps to the replacement of a seed whose local partner identified an unforeseen feasibility issue. The outcome is a portfolio that all consortium members recognise as both methodologically robust and contextually grounded, ready for the deeper case-study work of Phase 2.

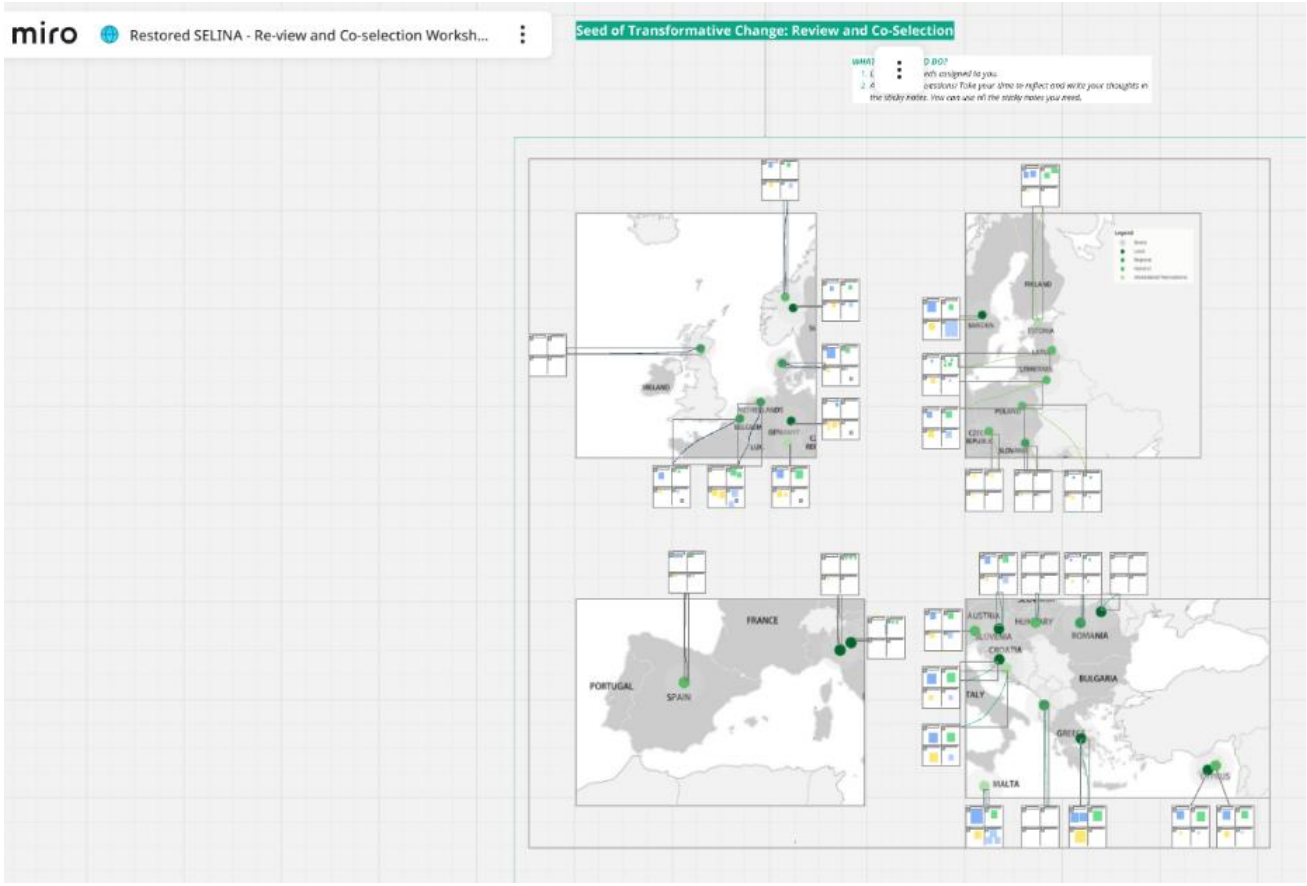

Figure 4 Screenshot from the Miro board used in the validation workshop

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6.3 In-depth analysis of the selected Seeds

6.3.1 In-depth semi-structured interviews – preparation phase

With the 28-seed portfolio confirmed, we shifted to designing a common, high-quality approach for field-level data collection. Because many SELINA partners are practitioners and researchers with a Natural scientific background or practitioners in ecosystem assessment, this phase served a dual purpose: generating evidence and building interviewing capacity across the consortium.

We began with a 90-minute live webinar that introduced the essentials of semi-structured interviewing, research ethics and consent, and the IPBES concepts underpinning "transformative change." The session blended short demonstrations, and open Q&A.

To translate the training into practice, we assembled a comprehensive **Interview Kit**. Its centrepiece is the 20-page booklet *Seeds of Transformative Change | Semi-Structured Interview Questions* (see Annex 2). The booklet couples concise "Theory in a Nutshell" primers with mandatory core questions, optional probes and ready-made answer-analysis boxes for notetaking, all organised in a six-step flow: introduction, origins & purpose, transformative qualities, growing environment, scaling and closing. The kit also includes a one-page Reflections Template that prompts interviewers to capture immediate impressions, moments of discomfort and issues requiring follow-up, thereby providing valuable meta-data for later cross-case analysis. Consent forms and a brief guidance round out the package.

Recognising the consortium's linguistic and cultural diversity, we encouraged partners to translate or adapt the wording while preserving intended meanings; the theory boxes act as anchors for these translations. All materials were uploaded to the shared SELINA repository and emailed to partners on the day of the webinar.

Partners were asked to conduct their interviews during **April and May 2025** and to upload the completed interview templates, reflection sheets and transcripts translated into English to the shared project folder.

6.3.2 Analysing the interviews

We sought to understand how the 28 Seeds of Transformative Change embody transformative qualities capable of tackling the root causes of biodiversity loss. Six subsidiary questions (SRQ1-SRQ6) probed shifts in *views* (paradigms and knowledge use), *practices* (innovation and learning) and *structures* (institutions, power and scaling).

Table 5: Relation between research questions and interview sections

Number	Question	Focus	Related to Interview Sections
SRQ1	How do Seeds present/express alternative views, values, or paradigms, and to what extent do they challenge dominant ways of seeing and relating to nature and society?	Inner transformation, cultural narratives, visions, and paradigms	Section 3.1 (Visions & Pathways)
SRQ2	What kinds of practices and interventions do the Seeds take up or develop, and how do these reflect transformative ways of acting?	Innovation, learning, experimentation, new approaches to action	Sections 3.3 and 3.3.1 (Approach)
SRQ3	How do Seeds attempt to influence, navigate, or transform institutional structures, governance systems, decision-making and power relations relevant to biodiversity management?	Rules, decision-making, institutional innovation	Sections 5.1–5.3 (Barriers, Enablers, Scaling)
SRQ4	What role does scientific knowledge play in the Seeds, and how is it combined with other knowledge systems?	Knowledge use and integration (scientific, local, traditional, experiential)	Section 3.2 (Origins & Purpose) and references in 3.1
SRQ5	To what extent do the Seeds identify or act on the root causes of biodiversity loss?	Structural causes: disconnection, inequality, domination, short-termism	Section 3.2 (Problem Framing), 5.1 (Scaling & Context)
SRQ6	What internal or external factors support or constrain the transformative potential of the Seeds?	Enablers and barriers: institutional support, networks, resistance, leadership	Sections 5.1–5.3 (Scaling, Governance, Outcomes)

- Step 1 – Data preparation

All interview files were logged in the *SoTC_Interviews* spreadsheet, where each row represents one transcript and carries harmonised metadata: Seed_ID, country, project type, ecosystem, interview language, interviewer and date. This table was imported into ATLAS.ti,

generating *document groups* that later allowed cross-tabulation by country, ecosystem or transformative quality.

- Step 2 – Building the hybrid codebook

A two-tier codebook combined deductive scaffolding with inductive openness:

- Deductive layer. Starting from the IPBES Transformative-Change Assessment, Transition-Management theory and the Up-Out-Deep scaling model, we drafted a first set of *analytic* codes. Each entry contains a concise definition and a code question—e.g. *"Where do interviewees describe rules or routines that block change?"* for the code *Institutional inertia*.

- Index layer. To mirror the six sections of the interview guide (e.g. *Visions & Pathways*; *Barriers & Enablers*), navigation-oriented *index* codes were added, making it easy to locate responses linked to specific guide sections (see the "Theory in a Nutshell" anchors in the booklet) ….

Ten transcripts were then read exploratively; salient new notions were promoted to inductive sub-codes, each framed by its own code question.

- Step 3 – Pilot coding and validation

The two lead coders independently applied the draft codebook to the same four transcripts, then met to reconcile differences. Agreement was reached through discussion rather than statistical thresholds, after which additional team members reviewed the revised definitions and posed clarifying questions. Their suggestions were integrated, yielding the final codebook.

- Step 4 – Full coding

All transcripts were double-coded: first, with index codes for structural way-finding, then with analytic (deductive + inductive) codes for interpretive depth. Memos captured emerging answers to SRQ1-SRQ6 and flagged vivid quotations.

- Step 5 – Thematic synthesis

ATLAS.ti's Query and Co-occurrence tools revealed patterns—such as links between *Scaling deep* and *cultural narratives* or between *institutional inertia* and specific ecosystems. Code-Document Tables contrasted themes across countries, while network views highlighted how enablers and barriers interact. These insights were distilled into typologies and narrative summaries that will feed the project's forthcoming cross-case comparison.

7 Results

7.1 Identifying Seeds

Over the period September 2024-february 2025 149 potential Seeds of Transformative Change were received, with 24 countries represented and 11 projects that involve multiple countries.
[Albania, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Germany, Greece, Hungary, Italy, Israel, Latvia, Lithuania, Malta, Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland]

There is good spread amongst the nominated projects in geographical and temporal scale (duration of the initiative).
53% of the seeds are a public sector initiative. Only a smaller part (15%) of the nominated projects come from the private sector (see figure XY).

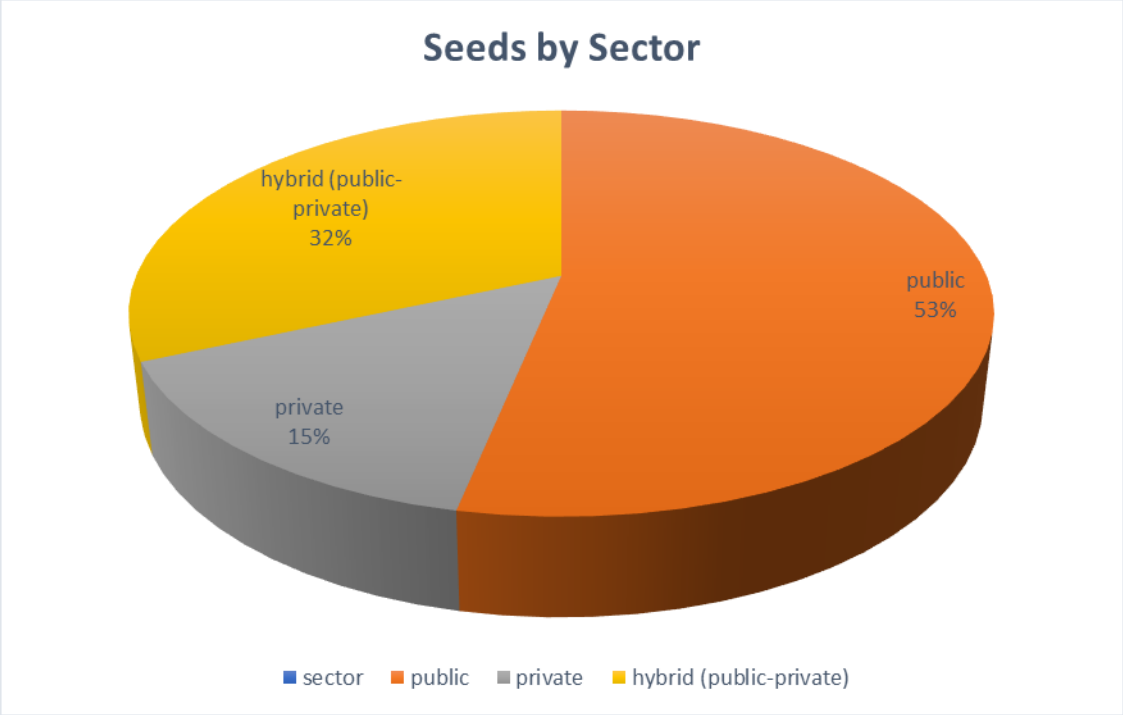

Figure 5: Sector of the Seeds nominated

The nominated Seeds are organised on different scales. Most of the Seeds takes place on multiple geographical scales (from local to regional, from local to national, national and international scales, all scales). A second large group is executed on the local level.

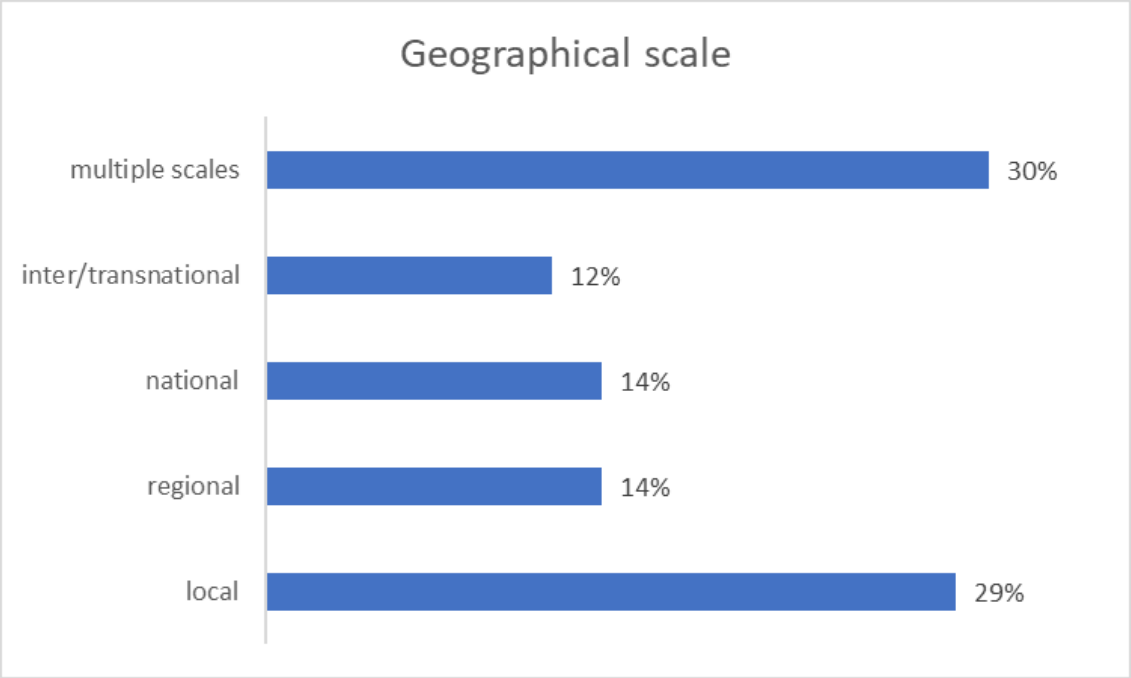

Figure 6: geographical scale of the nominated Seeds

All temporal scales are present. There are short term projects (up to 2 years) to medium (2-7 years) and long-term projects (>7 years).
More than 50% of the projects are still ongoing, one third is completed. A small part is still in the conception phase.

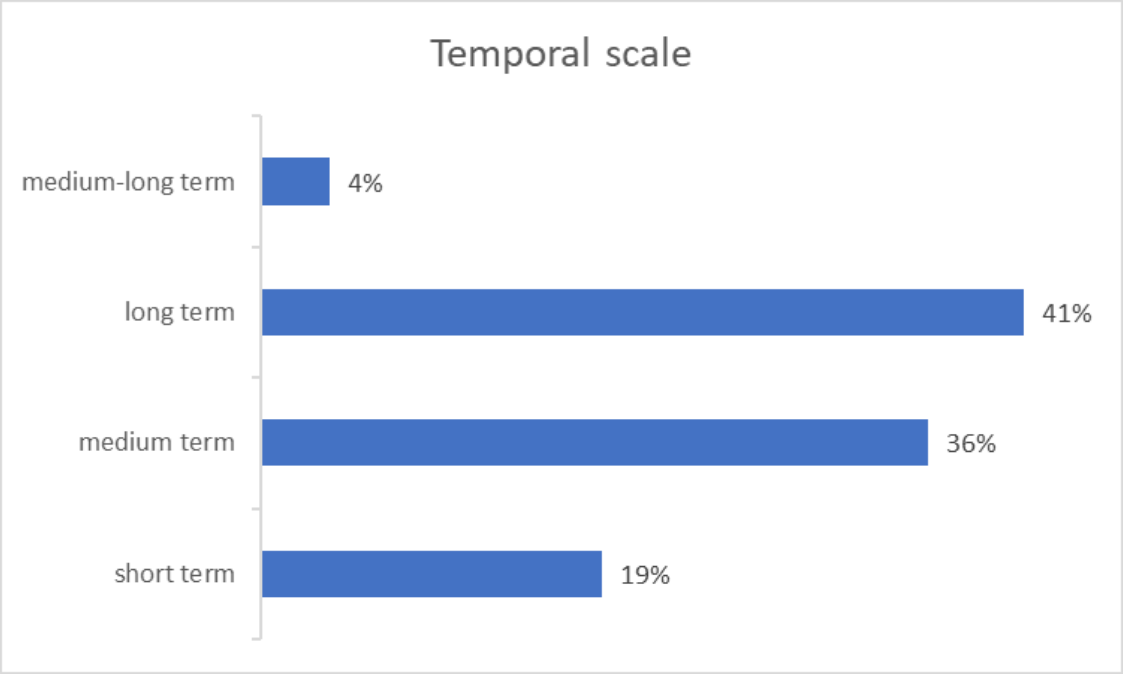

Figure 7: Duration of the nominated Seeds

Most of the seeds tackle all the ecosystem types present in the area. A small number of the seeds focus specifically on one ecosystem (mostly Forest, Marine and coastal or urban ecosystems).

We asked in the survey to score the project on Transformative Quality indicators that we consider the basis for Transformative Change. In the chart below we show how many times the indicator was scored higher than 3 (on a 1 to 5 score), meaning that the quality is for a large to very large extent present. See

Table 3 for an understanding of the indicators.

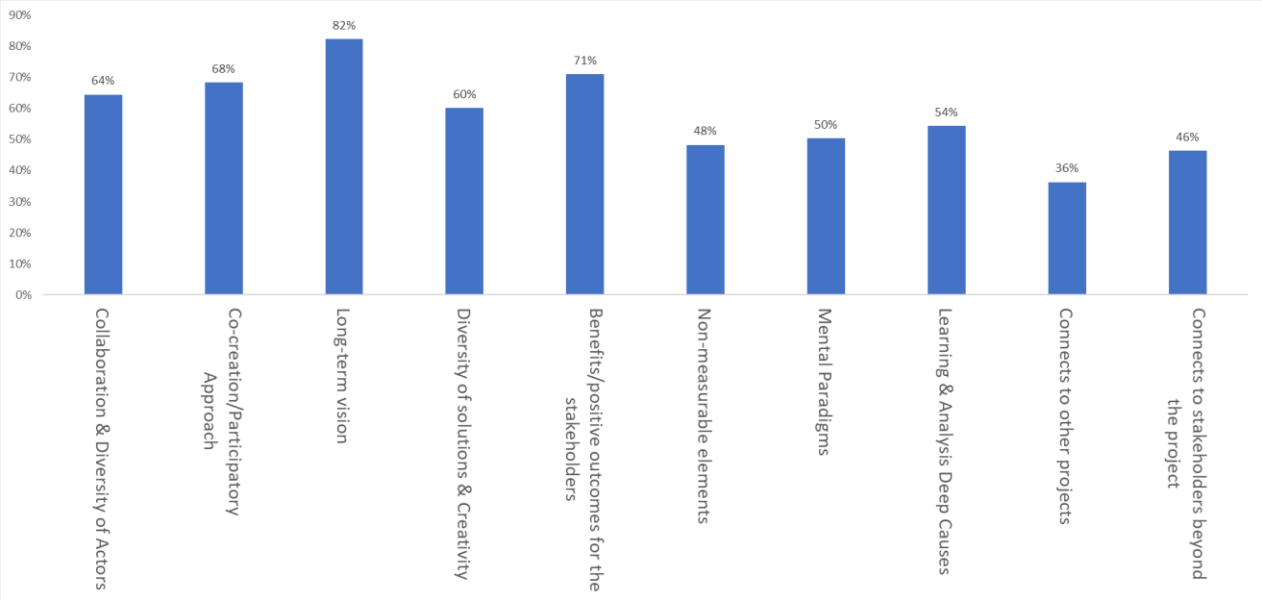

Figure 8: % of nominated Seeds scoring >3 on the Transformative Quality indicators

We see that all the indicators are tackled throughout the nominated initiatives. But there is a difference between the indicators. Most of the initiatives are guided by a collective long-term vision on the sustainable use or function of ecosystems (82%) and generate diverse co-benefits for stakeholders (71%). More and more projects involve a wide range of stakeholders who bring in different values, perspectives and knowledge (64%). For a majority of the initiatives this involvement goes beyond informing them, by co-creating together with them the projects (68%). 60% of the projects promote and experiment with a diversity of solutions, strategies and pathways to improve ES, EC including unconventional/radically different solutions.

This is already a strong change from the situation 10-15-years ago where stakeholder participation was more of a 'nice to have' and more focused on controlling stakeholders and managing risk, rather than real collaboration (Pamela Sloan, 2009).

The nominated seeds score less on the deeper leverages of transformative change (see Figure 1). Only 54% stimulate joint reflective thinking on the root causes of biodiversity loss: 1) Disconnection and domination over nature and people, 2) Concentration of power and wealth, and 3) Prioritization of short-term, individual, and material gains (IPBES, 2025). 50% of the initiatives tackle indirectly the first root cause by challenging established "mental models" (any sort of concept, framework, or worldview that people have to explain life). Most of them work on restoring awareness that we are connected to nature, we are a part of nature.

Also, plural values are not necessary considered. Only 48% of the nominated initiatives take less tangible, qualitative aspects such as perceptions, changing behaviour, relational values etc. into account. This points still on the overreliance on and institutionalisation of quantitative metrics; such metrics often failed to capture societal relevance, ethical dimensions or stakeholder values (Wilsdon et al 2015). The Responsible Research and

Innovation agenda of the EC emphasized already the need for complementing quantitative metrics with more inclusive and qualitative approaches.

Only 36% actively reached out to other projects or broader coalitions of stakeholders to create leverage. They also do not support policy makers, companies and communities who are not directly involved in the initiative, to adopt/develop new approaches and revising existing policies. This is probably because a lot of these initiatives are small or very context specific and do not have the capacity to do so.

7.2 Selected Seeds

The selection process resulted in identifying 28 seeds of transformative change out of the 149 seeds submitted by SELINA partners, ensuring representation across sectors, geographic regions, ecosystems, and project types.

1. Representing 24 countries, with at least one seed per country.
2. Including 3 additional international or multi-country initiatives.

You can look at the Seeds of Transformative Change visualization by clicking **here**.

7.3 Analysing Seeds through interviews

To date interviews were done for 16 Seeds. For the other Seeds it was not possible to contact one of the initiators or they did not want to participate in the interview. This report gives a preliminary analysis of the received interviews. In the 3rd reporting period, other projects will be considered for analysing.

Furthermore, these findings will be elaborated on and a guidance for practitioners will be set up for the Compendium of Guidance (CoG).

7.3.1 Spain

Seed: **Spain's National Strategy for Green Infrastructure**

Dimension	Quick evidence from the two interviews
Vision clarity (SRQ1)	Both respondents describe a **2050 vision** for a nationwide, connected green-infrastructure network that maintains ecosystem services and biodiversity.
Vision co-creation	Vision drafted by ministry staff + CSIC scientists; local communities consulted later → **partial** co-creation.
Pathway	Implemented via **3-year rolling work-programs** that are revised after each cycle (adaptive).
Root-cause orientation	Strategy acknowledges structural drivers (growth-centred planning) but still focuses mainly on connectivity "symptoms."
Scientific knowledge use	CSIC produced a **national baseline of habitat-connectivity maps**, corridor modelling, and a road-kill monitoring app. These data sets underpin ministerial orders, regional land-use plans, and EIAs → **strong evidence-sharing lever**.
Decision-making influence (SRQ3)	Green-infrastructure requirements integrated into several regional plans; scientific baseline cited in ministerial guidelines.

Main action levers	**Policy advocacy** (national→regional) **Research & evidence-sharing** **Governance-space creation** (annual inter-regional working group).
Key barriers (SRQ6)	**Fragmented governance** across autonomous communities. **Socio-economic inertia** that still frames nature as a constraint.
Key enablers	EU & national **legal mandates** . Rising **public awareness** after extreme-weather events. High **scientific credibility** of CSIC data.
Scaling pattern (SRQ3)	**Scale Out** through regional replication; **Scale Up** via inclusion in national regulations; **Scale Deep** still limited.
Equity & justice lens	Equity acknowledged as important but no concrete mechanisms yet.

Spain's National Strategy for Green Infrastructure exhibits strong **Vision Clarity**: both ministry and technical-agency interviewees articulate a 2050 goal of an interconnected ecological network that safeguards ecosystem services. The vision was drafted chiefly by the Ministry and CSIC, with only partial downstream engagement of local communities, so **co-creation is moderate**.

Implementation follows an **adaptive, three-year rolling pathway**; scientific diagnostics are updated each cycle, but deeper socio-economic drivers (e.g., growth-centred planning paradigms) remain largely unchallenged.

Decision-making influence is tangible: the strategy has already been transposed into several regional land-use plans and informs municipal zoning and EIAs. Influence relies on three levers – formal **policy advocacy**, **research/evidence sharing** (e.g. national habitat-connectivity maps, road-kill monitoring app), and a new **inter-regional working group** that convenes 17 autonomous communities.

The two strongest **barriers** are (i) **fragmented, multi-level governance** – political and administrative divisions slow adoption of regional strategies – and (ii) **socio-economic inertia**, where nature is still perceived as a constraint rather than an asset in territorial planning.

Enablers include a supportive legal framework (Spanish Law of Natural Heritage, anticipated EU Nature Restoration Regulation), rising public concern after climate-related disasters and the pandemic, and the high credibility of CSIC's scientific baseline.

Scaling is underway: **Scale Out** via replication in regional and local plans; **Scale Up** through incorporation into national regulations; however, **Scale Deep** – cultural value shifts – is only incipient. No explicit equity-oriented mechanisms were reported, signalling an area for future enhancement.

7.3.2 Sweden

Seed: Stockholm's Local Biodiversity Action Proposals

Dimension	Quick evidence from the two Sweden interviews
Vision clarity	Guiding document lays out a long-term city-wide vision and GIS "smorgasbord" of biodiversity measures
Vision co-creation	Vision and documents produced through multi-department workshops with community, NGOs and scientists
Pathway	Political mandate links the vision to three year work programs; pathway updated as measures are implemented
Root-cause orientation	Interviews acknowledge disconnection from nature, but actions still focus mainly on habitat loss/fragmentation (symptoms)
Scientific knowledge use	Extensive use of geo-data, habitat-network modelling and university collaboration to design and prioritise corridor actions
Decision-making influence	Action Plan (2020) embeds biodiversity in municipal planning; central funding and mandate empower staff to propose & carry out measures
Main action levers	Policy advocacy, multi-stakeholder workshops, research & evidence-sharing, and new governance spaces within city units
Key barriers	Earlier **lack of funding** and **fragmented governance**; short funding cycles still challenging
Key enablers	Strong **political decision**, earmarked funds, inclusive workshops, **high public interest**, and **credible scientific baseline**
Scaling pattern	**Scale Out** to other Swedish cities; **Scale Up** via inclusion in city policies; **Scale Deep** through public engagement; **Team-up** via regional ecologist network
Equity & justice lens	Measures intentionally benefit children and older adults, signalling attention to inclusive access to nature

Stockholm's **Local Biodiversity Action Proposals** articulate a clear, city-level vision whose GIS-based toolkit makes biodiversity actions tangible for planners and residents alike. The vision emerged from cross-departmental workshops that blended municipal experts, NGOs and academic ecologists, ensuring broad ownership. A politically endorsed **pathway** links the vision to rolling three year work programs; updates follow each implementation cycle.

Although interviewees recognise structural drivers such as society's disconnection from nature, current measures primarily tackle habitat fragmentation, indicating that deeper root-cause work remains ahead. The programme's credibility is underpinned by robust **scientific knowledge**—habitat-network models, biodiversity maps and ongoing collaborations with Stockholm University.

On the governance front, the 2020 Action Plan and dedicated municipal funds have inserted biodiversity criteria into land-use planning and facilitated unprecedented cooperation among city units. Core **action levers** include formal policy advocacy, knowledge-rich workshops and the creation of new inter-departmental decision spaces.

Historically, fragmented governance and short funding windows curtailed progress, but strong political leadership, earmarked budgets and rising public appreciation of urban nature now operate as powerful **enablers**. Scaling is multi-pronged: replication in other municipalities (**scale out**), incorporation into city policy (**scale up**), deepening cultural engagement through urban grazing and on-site signage (**scale deep**), and networking with

regional ecologists (**team-up**). Notably, several measures explicitly address children's and seniors' access to nature, introducing a modest yet distinct **equity dimension** to the programme.

7.3.3 Italy

Seed: BioValue – Ecological Re-qualification of the Fersina Stream (Trento, Italy)

Dimension	Quick evidence from the two BioValue interviews
Vision clarity	Long-term aim to "create a sustainable city where nature is fully integrated into urban planning," centred on transforming the Fersina into a river-park
Vision co-creation	Vision shaped through **144 local stakeholders** (municipal & provincial offices, NGOs, citizen groups, schools, researchers) via workshops and public events
Pathway	Clear pathway: BioValue principles embedded in the revised municipal plan (PRG) and new *Green Plan*; pilot funding allocated before project end
Root-cause orientation	Explicitly tackles urban **disconnection from nature**; but present actions still focus on habitat fragmentation more than power/wealth issues
Scientific knowledge use	University of Trento & external ecologists provide biodiversity mapping, ecosystem-service assessments, and hydro-biological monitoring that shape design and tender specs
Decision-making influence	BioValue guidelines now mandatory in the hospital tender; PRG article 86 sets river-requalification rules; municipal unit took over river sections from provincial service
Main action levers	Policy advocacy during PRG revision; **participatory workshops** & "Transformation Action Workshops"; research/evidence-sharing; manifesto & documentary for public awareness
Key barriers	Bureaucratic complexity of river works, rigid administrative steps, maintenance costs, possible public resistance to traffic restrictions, and looming political shifts
Key enablers	EU research funding, strong alignment with current municipal leadership, collaboration with scientific partners, and growing citizen interest in river access
Scaling pattern	**Scale Up:** BioValue methods embedded in PRG & Green Plan. **Scale Out:** high replication potential once Fersina pilots show results (other Trentino rivers). **Scale Deep:** public rediscovery of the river but cultural shift still nascent. **Team-up:** EU consortium links seven partners for knowledge exchange
Equity & justice lens	Vision includes equitable access (e.g., Parco dell'Orrido free for locals, tourist fee funds maintenance), signalling attention to benefit distribution

BioValue leverages EU Horizon funding to reimagine the Fersina stream as the green spine of Trento. Its vision—created with 144 stakeholders—promotes a city where urban infrastructure and biodiversity coexist. This co-created approach has already steered institutional change: principles from early workshops are codified in the revised **municipal regulatory plan** and the new Green Plan, while a hospital tender now requires blue-green infrastructure.

A robust scientific backbone underpins each step. University-led ecosystem-service maps, hydro-biological monitoring and literature reviews inform design choices, lending the project high credibility and enabling rapid policy uptake. Nevertheless, deeper structural drivers receive less attention; actions still concentrate on habitat fragmentation rather than power or economic paradigms.

Key **enablers** include EU funding, a supportive municipal administration and enthusiastic community engagement. Conversely, **bureaucratic rigidity**, long permitting chains and potential changes in political leadership threaten momentum. Public push-back may arise where traffic or parking is restricted to restore riverbanks.

Scaling prospects look promising. Methods align with EU guidelines (**scale up**), and similar rivers in Trentino are eyed for replication once pilot results are visible (**scale out**). Public rediscovery of the Fersina hints at an emerging cultural shift, while equity considerations—free local access versus tourist fees—introduce a modest justice dimension. Overall, BioValue illustrates how evidence-rich, participatory planning can embed biodiversity into urban governance and seed broader chang

Seed: ViTal – Venetian Lagoon Salt-Marsh Restoration & Stewardship (Italy)

Dimension	Quick evidence from the two ViTal interviews
Vision clarity	Long-term goal to restore **functioning salt-marsh ecosystems across the whole Venice Lagoon**, linking ecological health to social-economic renewal.
Vision co-creation	Vision co-defined at a **Feb 2020 workshop with 40+ stakeholders** (researchers, authorities, NGOs, businesses, citizens).
Pathway	Uses **pilot restorations + monitoring** to build evidence; training "conservation technicians" and preparing policy proposals for a future ministerial programme.
Root-cause orientation	Acknowledges industrial alteration, governance fragmentation and **disconnection from nature**; current actions still focus mainly on physical degradation.
Scientific knowledge use	Collaborates with **University of Padova** for hydrodynamic modelling, sediment cores, biodiversity surveys; combines remote sensing, piezometers & citizen science.
Decision-making influence	Continual dialogue with Port & Public-Works authorities is **shifting narratives**: marshes now seen as assets delivering ecosystem services, though no formal policy changes yet.
Main action levers	Policy dialogue, participatory workshops, **research & evidence-sharing**, public campaigns (comic book, exhibitions), and creation of a multi-actor lagoon forum.
Key barriers	• Fragmented governance & poor historical data sharing • Uncertain long-term funding • Potential future political shifts.

Key enablers	Trust-building, non-confrontational stance; supportive private funder (Laguna B); academic credibility; fertile social interest in lagoon heritage.
Scaling pattern	**Scale Out:** methodology transferable to other Adriatic or global lagoons. **Scale Up:** aims to embed monitoring in ministerial policy. **Team-up:** EU WaterLANDS consortium. **Scale Deep:** educational outreach beginning to shift public perceptions.
Equity & justice lens	Focus on **community reconnection** and new local jobs in restoration; seeks fair benefit-sharing via ethical funding schemes.

ViTal re-imagines Venice's iconic lagoon by restoring and stewarding its eroding saltmarshes ("barene"). Co-created with more than forty actors, the initiative's clear vision transcends carbon credits to embrace the full suite of lagoon ecosystem services and community wellbeing. Its **pathway** revolves around experimental pilot sites: scientists and conservation technicians collect hydrodynamic, vegetation and sediment data, feeding an adaptive loop that refines design standards for future restorations.

Scientific evidence—from University of Padova modelling to citizen-science bird counts—anchors ViTal's legitimacy and underpins policy dialogue. Although tangible regulatory change has yet to materialise, interviews show a **narrative shift**: once-dismissed wetlands are increasingly framed by authorities as socio-ecological infrastructure. Action levers range from technical advocacy and monitoring to creative outreach, including a children's comic and school programme that reconnect Venetians with their lagoon.

Key **enablers** are a collaborative, non-adversarial stance, supportive private funding, and academic partnerships. Conversely, **fragmented governance**, missing historical data and uncertain long-term financing constrain momentum; looming political change could reopen old disputes. Scaling prospects are multi-dimensional: replication in other lagoons (**out**), integration into national restoration guidelines (**up**), deeper cultural engagement through education (**deep**), and knowledge exchange via the EU WaterLANDS network (**team-up**). Equity considerations surface through local job creation and a commitment to benefit-sharing mechanisms, rounding out ViTal's transformative promise.

7.3.4 Slovenia

Seed: Krater – Creative Re-use of an "Empty" Construction Pit (Ljubljana, Slovenia)

Dimension	Quick evidence from the Krater interview
Vision clarity	No formal long-term vision: core goal is simply that "Krater should continue to exist and evolve" as an open, experimental space.
Vision co-creation	Vision continually reshaped by new collectives and collaborators who use the space for projects, workshops, and art.
Pathway	Activities evolve project-by-project; funding availability drives choices—no fixed roadmap.
Root-cause orientation	Explicitly critiques invisibility of urban nature, dominance of neoliberal planning, and lack of mechanisms to protect "regenerating" spaces.
Scientific knowledge use	Challenges mainstream invasive-species science; relies on artistic inquiry and literature that highlights positive roles of invasives; seeks new research partnerships.
Decision-making influence	No policy changes yet, but team is exploring "nature advocacy" legal avenues and negotiating with ecologists & lawyers.
Main action levers	Artistic installations (e.g., *Palace of the Wilderness*), public workshops, international cultural networks, research proposals, storytelling.
Key barriers	Chronic lack of funding, temporary land tenure, absence of legal category for self-regenerating sites, fragmented urban planning norms.
Key enablers	Complete creative freedom, inspiring central location, low polarisation of biodiversity debates in Slovenia, strong international art networks.
Scaling pattern	**Scale Out:** nine EU cultural bodies adopting Krater principles via *Future DiverCities*; **Scale Deep:** shifting public narrative of vacant lots; **Scale Up:** legal recognition of "nature advocate" status under exploration; **Team-up:** collaborations with museums & universities.
Equity & justice lens	Space shared freely with diverse collectives; aims to redefine "public good" in privatised urban contexts.

Krater began as an abandoned construction pit and has grown into a living laboratory where artists, designers and activists' experiment with invasive plants and alternative urban futures. Rather than pursuing a polished masterplan, the group's only fixed ambition is that the space persists as a public common; the "vision" is therefore minimal yet porous, continually re-written through incoming collaborations.

Projects unfold opportunistically—funding cycles dictate pace—yet all challenge dominant urban-development logics. Krater reframes invasives from existential threat to creative resource, a stance that positions art as research and critiques mainstream biodiversity science. The team actively reads pro-invasive literature and courts academic partners to launch new field studies.

Policy influence remains aspirational: members are drafting a "nature-advocate" concept and lobbying to classify Krater-like sites as urban heritage. Their main **action levers** are immersive installations, public workshops and EU cultural networks, notably *Future DiverCities*, through which nine European organisations are piloting Krater principles (**scale out**). Equity is integral: the pit is open to any collective needing space, recasting a marginal lot as shared urban value.

Progress is hampered by precarious land tenure, legal blind-spots and scarce funding, yet creative freedom, a prime inner-city location and the non-polarised appeal of biodiversity provide significant **enablers**. Krater exemplifies how low-budget, arts-led interventions can seed new cultural narratives about nature in shrinking urban commons.

Seed: Forest Fund – Incentivising Biodiversity-Friendly Forestry (Slovenia)

Dimension	Quick evidence from the interview
Vision clarity	Vision to secure a long-term future for species and habitat types by earmarking state forest profits for conservation; interviewees describe clear goals to "target actions more specifically" and grow the Fund's volume.
Vision co-creation	Developed by the Slovenia Forest Service together with the Ministry, nature-conservation institute, faculty scientists and local forest owners.
Pathway	Annual programme of investments and works prepared by the Ministry; actions planned, implemented, then monitored, with lessons fed into the next cycle (control–learn–adapt).
Root-cause orientation	Tackles high share of privately owned forests (77 %) and lack of incentives for owners; deeper economic drivers acknowledged but still treated indirectly.
Scientific knowledge use	Combines Natura 2000 research, field data from district foresters, university projects and species-habitat expertise to design measures.
Decision-making influence	Fund has "brought forestry and nature conservation closer," funds concrete measures, and knowledge flows from Nature Conservation Institute to regional units.
Main action levers	Multi-stakeholder dialogues, research & evidence sharing, public awareness, and the *Narcis* monitoring platform (new governance space).
Key barriers	Fragmented ownership, non-co-operation of some forest owners, gaps in species data, possible labour shortages, complex internal organisation
Key enablers	Dedicated funding stream, long Slovenian tradition of sustainable forestry, supportive legal framework, permanent presence of district foresters and strong knowledge base.
Scaling pattern	**Out:** presented as good practice in Romania, Albania, Slovakia; **Up:** insights expected to feed a new forest law; **Deep:** owner attitudes shifting via education; **Team-up:** alliances with ministries, institutes and small owners.
Equity & justice lens	Compensates private owners for non-intervention, aiming for fair benefit sharing where protected-area rules limit income

Slovenia's **Forest Fund** channels state-forest profits into targeted measures that incentivise biodiversity-friendly management in the country's predominantly private woodlands. Interviewees describe a **clear, ministry-approved vision**: ensure favourable status for priority species and habitats while expanding the funding envelope over time. That vision was co-crafted by the Forest Service, ministry officials, scientists and forest-owner representatives, producing an annual investment programme that follows a control-learn-adapt loop.
Scientific knowledge—Natura 2000 surveys, university projects, and district foresters' field data—steers action choice, from dead-wood retention to invasive removal. The Fund has softened historic divides between forestry and conservation: joint workshops and the *Narcis*

platform now circulate expertise across agencies, subtly reshaping **decision-making processes**.
Yet structural hurdles remain. Fragmented land ownership and patchy species data slow implementation, and some owners resist restrictions or paperwork. Strengths lie in a dedicated revenue stream, Slovenia's long tradition of close-to-nature forestry, and widespread public sympathy for native ecosystems.
Scaling prospects look solid. The model is already showcased abroad (**scale out**) and slated for inclusion in an upcoming forest law (**scale up**). Training and compensation schemes gradually shift land-owner mind-sets (**scale deep**), while partnerships with ministries, research institutes and smallholders (**team-up**) broaden reach. By translating profit from state forests into payments for ecosystem services, the Forest Fund demonstrates a pragmatic, equity-minded path toward transformative biodiversity stewardship.

7.3.5 Poland

Seed: "Active Blue – A Water-Friendly School" (Poland)

Dimension	Quick evidence from the single Poland interview
Vision clarity	Clear long-term vision: create "a society aware of the value of water, its importance in nature and the need to protect water resources."
Vision co-creation	Vision originated with Polish Waters but evolves with input from teachers and partner services (fire brigade, rescue teams) → *partial* co-creation.
Pathway	Explicit pathway of lessons, field visits, clean-ups, flower-meadow campaigns; activities updated as new research or regulations emerge.
Root-cause orientation	Addresses public **disconnection from water** and short-term over-use; actions still focus on awareness rather than structural economic drivers.
Scientific knowledge use	Educational materials built on hydrology, ecology and biodiversity research plus specialist input from rescue services.
Decision-making influence	Programme has shifted decisions in schools and water institutions (e.g. more water-protection events); science central to materials.
Main action levers	Public campaigns, classroom lessons, outdoor workshops, evidence-sharing, multi-stakeholder events with rescue/fire services.
Key barriers	Mainly procedural: criminal-record checks, data rules, COVID-19 interruptions; no major structural barrier identified.
Key enablers	Central funding from Polish Waters, in-house staff & tech, well-equipped schools, enthusiastic teachers, local-authority patronage.
Scaling pattern	**Scale Out:** from 4 to all 11 Regional Water Boards; **Scale Deep:** aims to embed water-saving habits in future generations; limited evidence of "up" institutionalisation.
Equity & justice lens	Universal, free education across Poland; no specific equity mechanism beyond nationwide access.

Polish Waters' **Active Blue – A Water-Friendly School** initiative pursues a straightforward but ambitious vision: raise a generation that values water and protects aquatic ecosystems. Although the vision originated within the agency, teachers and partner services continue to refine it, making co-creation practical if not fully egalitarian.

A concrete, evolving **pathway** turns the vision into action—downloadable lesson kits, on-site workshops, river-bank clean-ups and flower-meadow seedings. Materials adapt as new hydrological or ecological findings emerge, illustrating a modest adaptive-learning loop. Scientific knowledge is foundational: reports by hydrologists and ecologists inform content, while rescue professionals contribute to safety modules.

Influence on **decision-making** is evident at school and municipal levels: more water-protection events, safer field trips, and heightened collaboration with local authorities. Major **barriers** are procedural (child-safety certificates, data protocols) and pandemic-related, not structural. Generous central funding, eager teachers, and good school infrastructure stand out as **enablers**.

Scaling is already substantial: the programme has expanded from four pilot Water Boards to all eleven nationwide (**scale out**). Cultural change—children teaching families to conserve water—signals an incipient **scale deep** effect. Institutionalisation (**scale up**) is still limited, yet Active Blue demonstrates how a well-funded, science-based educational drive can quickly spread pro-environmental norms across an entire country.

7.3.6 Norway

Seed: "Norway in Red, White & Grey" – National Data-Driven Journalism on Nature Loss (Norway)

Dimension	Quick evidence from the two interviews
Vision clarity	No formal long-term vision: project began as a **spontaneous collaboration** to visualise land-take but now aspires to scale the method EU-wide.
Vision co-creation	Vision and outputs co-shaped by NRK digital-storytelling journalists and NINA researchers; open, iterative partnership.
Pathway	Ad-hoc pathway: innovative map production → national feature → new European project; no fixed roadmap.
Root-cause orientation	Highlights **short-term profit motives** in land development and public disconnect from nature; structural drivers named but not yet tackled directly.
Scientific knowledge use	AI-based land-cover change analysis + satellite imagery underpinned every story; journalists helped validate error, boosting trust.
Decision-making influence	Raised national debate; ~80 municipalities now declare "nature-neutral" planning; strengthens civil-society scrutiny of zoning.
Main action levers	Research & evidence-sharing, policy advocacy articles, interactive maps, TV synergy, creation of a cross-European journalist–scientist network.
Key barriers	Restricted access to key environmental datasets; fragmented data ownership hampers deeper analyses.
Key enablers	Rapid advances in AI & cloud computing; freely available Sentinel imagery; journalists' reach; high public trust in NRK science coverage.
Scaling pattern	**Out:** methodology being replicated by media houses in several EU countries; **Up:** EU bodies eye results for policy monitoring; **Deep:** shifting public narrative on land-take; **Team-up:** European journalist–scientist consortium.
Equity & justice lens	Empowers local NGOs & citizens with accessible land-take evidence, but no targeted equity mechanism yet.

Norway in Red, White & Grey sprang from an impromptu alliance between NRK digital storytellers and NINA researcher Zander Venter. With no pre-set roadmap, the team harnessed AI-driven satellite analysis to reveal previously invisible land-take nation-wide. This open co-creation—scientists sharing raw methods, journalists validating errors—produced highly trusted interactive stories and a primetime TV tie-in.

Although the seed lacks a classic "vision document," its emergent goal is clear: democratise land-change evidence and spark accountability. The journalism exposes root causes such as profit-driven zoning and societal detachment from nature, yet interventions remain focused on awareness rather than structural reform.

Impact is tangible: the feature catalysed a wave of **"nature-neutral" pledges** by ~80 municipalities and energised NGOs challenging weak environmental assessments. Key **enablers** include cutting-edge cloud computing, open Sentinel imagery and NRK's national reach; the main **barrier** is Norway's patchy public access to state-funded environmental datasets.

Scaling momentum is strong. The method is now replicated with media partners across Europe (**scale out**) and eyed by EU agencies for biodiversity monitoring (**scale up**). Combined media-science storytelling is shifting public discourse on land consumption (**scale deep**), while a budding trans-European network (**team-up**) amplifies influence. Despite the absence of formal equity mechanisms, open-data activism is empowering citizens to scrutinise land-use decisions, hinting at broader transformative potential.

7.3.7 Malta

Seed: HerpTrust – Malta ✧ Citizen Science & Education for Reptiles + Amphibians

Dimension	Quick evidence from the two Malta interviews
Vision clarity	Clear goal: create an open, long-term *"hub of information"* (e-course + species atlas) for every citizen question on Maltese herpetofauna.
Vision co-creation	Shaped jointly by Ecostack Innovations, Friends of the Earth-Malta, CY partners and feedback from teachers, students & NGOs.
Pathway	Low-cost, open-source pathway: build e-course → launch atlas & interactive map → run yearly citizen-science workshops to keep data and outreach growing.
Root-cause orientation	Tackles two structural causes: (i) public fear/misconceptions about snakes; (ii) chronic data gaps that block evidence-based policy.
Scientific knowledge use	University labs supply ecosystem-services & distribution research; project merges museum records, Natura 2000 reports, iNaturalist feeds and new citizen observations.
Decision-making influence	Atlas data already feeding Malta's Natura 2000 reporting; narrative shift as schools adopt reptile lessons. No formal policy changes yet.
Main action levers	E-learning course, citizen-science platform, public events, social-media storytelling, open-data advocacy.
Key barriers	Deep-seated snake fear; limited long-term funding; understaffed agencies; fragmented data ownership.
Key enablers	Erasmus+ funding, strong university–NGO alliance, open-source tech, enthusiastic students, easy island access to field sites.
Scaling pattern	**Scale Out:** template already copied for a new Cyprus–Malta butterfly atlas & offered to Balkan network. **Scale Up:** aims to inform future national monitoring law. **Scale Deep:** changing public attitudes through interactive map & school kits. **Team-up:** BioBalkan collaboration.
Equity & justice lens	All materials free, creative-commons, multi-language; citizen scientists acknowledged but may remain anonymous to feel safe.

The HerpTrust initiative represents a science-driven, low-cost strategy for addressing both knowledge deficits and negative socio-cultural perceptions surrounding Malta's herpetofauna. Its explicitly articulated objective is to establish an open-access digital hub—comprising a species atlas and a modular e-learning platform—that furnishes authoritative information for diverse user groups, including educators, decision-makers and lay citizens. Conceptualisation and subsequent refinement of this vision have been undertaken collaboratively by NGO practitioners (Friends of the Earth-Malta), academic ecologists

(Ecostack Innovations) and end-users from the educational sector, thereby ensuring transdisciplinary legitimacy.

The project's operational pathway is incremental yet adaptive: (i) development and public release of an interactive atlas that integrates museum specimens, Natura 2000 datasets, iNaturalist records and newly generated citizen-science observations; (ii) annual capacity-building workshops designed to sustain crowdsourced data inflows; and (iii) continuous revision of pedagogical materials in response to emergent ecological findings. This structure directly targets two underlying drivers of biodiversity decline—knowledge scarcity and entrenched biophobia—by coupling empirical data generation with attitudinal change interventions.

Preliminary evidence indicates policy-relevant impact: atlas outputs have already informed national Natura 2000 reporting, and reptile learning modules have been incorporated into several school curricula. Key enabling conditions include Erasmus+ seed funding, strong NGO–university alliances, and the logistical advantage of Malta's compact geography. Persistent barriers revolve around deep-seated ophidiophobia and post-grant financial uncertainty. Nonetheless, early replication efforts in Cyprus and within the BioBalkan network, alongside prospective integration into national biodiversity monitoring frameworks, underscore HerpTrust's potential scalability and contribution to transformative conservation practice.

7.3.8 Lithuania

Seed: National Ecosystem-Services Valuation Study (Lithuania)

Dimension	Quick evidence from the interview
Vision clarity	Initial long-term vision: integrate full ecosystem-services accounting into Lithuanian decision-making (legislation and other procedures).
Vision co-creation	Specification and review executed by a multi-stakeholder committee that included several national research institutes and sectoral stakeholders.
Pathway	Commissioned consultancy study → situational analysis → draft integration mechanisms → planned legislative amendments; pathway now stalled amid 2023 "de-bureaucratisation" agenda.
Root-cause orientation	Addresses systemic "invisibility" of non-market ecosystem services and the dominance of short-term, profit-centred decision paradigms.
Scientific knowledge use	Specification required extensive use of peer-reviewed literature; IPBES classifications served as the primary conceptual scaffold.
Decision-making influence	Findings informed a presidential initiative that inserted mandatory climate- and biodiversity-impact assessment into the Law on Legislative Framework, albeit for legislation only.
Main action levers	Publicly tendered research study; iterative stakeholder workshops; creation of spreadsheet-based calculators for legislative impact assessment.
Key barriers	Intensified political drive to "simplify" permitting, fear of slower decisions, methodological grey zones, and limited capacity among decision-makers.
Key enablers	EU Biodiversity Strategy 2020 mandate; presidential welfare narrative; active academic participation; broad stakeholder consultations.
Scaling pattern	**Up:** partial insertion into national legislative-impact protocol. **Out:** NGOs now invoke ecosystem-service language in forest-law debates. Wider replication remains dormant.
Equity & justice lens	Framed in terms of "welfare state" benefits for all citizens, yet no explicit distributive mechanisms were proposed.

Lithuania's national **Ecosystem-Services Valuation Study** was conceived during the EU Biodiversity Strategy 2020 cycle as a mechanism for mainstreaming comprehensive ecosystem-service accounting into domestic policy processes. The Ministry of Environment, advised by university scientists and sectoral representatives, commissioned a consultancy to deliver a situational analysis, identify priority services and propose integration points within existing decision procedures. IPBES conceptual frameworks underpinned both the technical specification and subsequent analytical work, ensuring alignment with international scientific consensus.

The initiative directly confronted two structural drivers of biodiversity decline: a pervasive lack of societal awareness regarding "invisible" regulating services, and the predominance of short-term, profit-oriented decision logics. Yet implementation momentum waned in 2023 amid a government-wide push for administrative streamlining and industrial competitiveness. Stakeholders—particularly in forestry—questioned additional data requirements, perceiving them as economic impediments.

Nonetheless, the study yielded a notable governance spill-over. Evidence and personnel from the project informed a presidential amendment to the **Law on Legislative Framework** mandating climate- and biodiversity-impact assessment for new bills, accompanied by spreadsheet calculators hosted by the Environmental Protection Agency. Moreover, civil-society actors now reference ecosystem-service value in forest-law deliberations, indicating a modest narrative shift.

Key enabling conditions included EU policy mandates, presidential advocacy and a strong domestic research base; principal barriers comprised political resistance to perceived "bureaucratisation" and unresolved methodological gaps. Without renewed political commitment, broader institutionalisation remains uncertain, yet the study provides a scientifically robust template for future integration of ecosystem-service valuation across Lithuanian decision arenas.

7.3.9 Latvia

Seed: "Rīgas meži" Ecosystem-Service–Based Forest Planning (Latvia)

Dimension	Rapid evidence from the single interview
Vision clarity	Long-term objective is an integrated forest-management plan that maintains timber revenue **and** maximises non--timber ecosystem-service (ES) value; open-source tool in GitHub will let any owner calculate ES scores.
Vision co-creation	Conceived by the company's planning unit and refined with Latvian researchers and municipal actors; external scientists "stand behind" the methodology.
Pathway	Step-wise: build ES database → embed scores in new 10-year management plan → annual recalculation → legislative proposals for tax reform and selective-harvest rules; pathway adapts as new data arrive.
Root-cause orientation	Targets the *information deficit* underpinning conventional, timber-only property valuation—identified as a national driver of unsustainable forestry.
Scientific knowledge use	Best-in-country scientists developed Latvian-specific algorithms; database updated with local monitoring to keep ES scores policy-ready.
Decision-making influence	Company invited to ministries and parliament; legal-amendment package now in preparation; other municipalities request replication.
Main action levers	Policy advocacy, research & evidence-sharing, participatory zoning workshops, public presentations.
Key barriers	Predominant barrier is *low societal understanding* of ES concepts—"hitting a closed door."
Key enablers	Strong support from company board, close collaboration with scientists, freely accessible Latvian geodata, and an in-house IT team to operationalise algorithms.
Scaling pattern	**Scale Out:** approach requested by other municipalities and applied to IKEA pilot forest; **Scale Up:** legal-amendment package under development; **Team-up:** project consortium with universities and national agencies; no deep cultural shift yet.
Equity & justice lens	Proposal to adjust property tax so public benefits from non-timber ES are acknowledged—an incipient distributive-justice angle.

The **"Rīgas meži" Ecosystem-Service Planning Initiative** exemplifies an enterprise-led attempt to institutionalise ecosystem-service (ES) valuation within Latvia's predominantly timber-oriented forestry paradigm. Motivated by a 2021 Riga City Council mandate for place-based, biodiversity-sensitive management, the company commissioned national scientists to construct a granular ES database covering fifteen services per forest patch. The resulting GitHub-hosted algorithm enables any stakeholder to delineate a polygon and obtain standardised ES scores, thereby operationalising previously "invisible" non-timber values.
This knowledge infrastructure undergirds a ten-year integrated management plan whose success indicator is *no net decline* in average ES scores across landscape units. Crucially, the initiative addresses a structural driver identified by interviewees—systemic ignorance of forest multifunctionality—rather than mere habitat symptoms. Scientific legitimacy is strong:

Latvian-specific data and peer-reviewed algorithms anchor both internal decision-making and forthcoming policy proposals.

Governance influence is emerging. Ministry and parliamentary committees have solicited presentations, and a comprehensive amendment package—covering selective-harvest rules and ES-based property taxation—is in preparation. Municipalities beyond Riga have expressed interest in adopting the methodology, signalling **scale-out** potential, while integration into national legislation would constitute **scale-up**.

Principal barriers centre on limited public and bureaucratic comprehension of ES concepts, whereas enabling conditions include executive-level support, robust researcher–practitioner collaboration and publicly available geospatial data. Although a deep societal value shift is not yet evident, the initiative provides a scientifically rigorous template for transitioning Latvian forestry toward multi-value stewardship and could catalyse broader transformative change once legislative embedding is achieved.

7.3.10 Hungary

Seed: "10 Million Trees" — Nationwide Community Tree-Planting Movement (Hungary)

Dimension	Quick evidence from the two interviews
Vision clarity	Core objective evolved from the symbolic target of "one tree per Hungarian" to a broader aspiration of catalysing a *"green civilisation"* that re-orders society's relationship with nature.
Vision co-creation	Vision originated with founder Iván Bojár; subsequently refined by a small professional core (forest ecologist, forestry technician, horticulturalist) and local community chapters — hence **partial** co-creation.
Pathway	Adaptive mix of four planting "modes" (urban avenues, Miyawaki mini-forests, institutional grounds, afforestation) guided by ecological site assessments; after-care protocols iteratively added.
Root-cause orientation	Movement explicitly critiques consumerism and societal alienation from nature, but current interventions still prioritise *symptom-level* habitat restoration.
Scientific knowledge use	Professional planting lists draw on potential natural vegetation (PNV) maps, field surveys and mycorrhiza / mulching trials led by HUN-REN researchers.
Decision-making influence	No formal policy changes yet; sporadic municipal uptake (mayors integrating greening in local plans) and high media visibility have shifted public narratives.
Main action levers	Large-scale public campaigns (National Tree-Planting Day), social-media mobilisation, celebrity ambassadors, and on-site ecological guidance.
Key barriers	Fragmented land tenure and restrictive land-use regulations; absence of state support; unstable funding and volunteer turnover.
Key enablers	Strong charismatic leadership dedicated operational duo, intrinsic cultural appeal of tree-planting, expert credibility, and "collective joy" experienced during mass events.
Scaling pattern	**Scale Out**: >100 local "10 Million Trees" chapters replicate the model; **Scale Deep**: tangible attitude shift as volunteers grasp ecological planting principles; limited **Scale Up** beyond municipal level so far; nascent networking with regional NGOs (**Team-up**).
Equity & justice lens	Activities are open to all political persuasions and socio-economic groups, fostering inclusive community action, but lack targeted distributive mechanisms.

Hungary's **10 Million Trees Foundation** constitutes a grass-roots response to escalating climate anxiety and biodiversity loss. Initially framed as a symbolic pledge—*one tree for every citizen*—the movement has matured into an explicit call for a "forest-structured" society capable of transcending consumerist paradigms. Vision formation remains leader-centric, yet early incorporation of forest ecologists and horticulturalists afforded the initiative scientific legitimacy and steered it away from naïve volunteerism.

Operationally, the pathway is both incremental and reflexive: urban street plantings, Miyawaki mini-forests, institutional greening and rural afforestation are selected through site-specific ecological diagnostics, while after-care protocols and mycorrhizal amendments are iteratively refined. Scientific inputs—including potential natural vegetation mapping—

ensure context-appropriate species mixes and markedly improve survival rates. Nevertheless, the emphasis on tree counts means structural drivers—land-use policy, consumer demand—remain largely unchallenged.

Governance impact is emergent rather than institutionalised. Although national ministries have shown little engagement, some municipalities embed programme guidance in local planning, and mass media coverage has re-framed planting as civic action rather than ornamental charity. Persistent barriers encompass fragmented land ownership, volatile funding streams and a politically unsupportive environment. Conversely, charismatic leadership, celebrity endorsement, and the inherent experiential reward of planting underpin strong volunteer mobilisation. Scaling manifests horizontally via >100 local chapters and vertically via modest municipal uptake; deeper cultural penetration is evidenced by volunteers' shift from casual planting to ecologically literate restoration. While explicit equity mechanisms are absent, the initiative's inclusive ethos and nationwide reach position it as a potent—if still partial—driver of transformative nature–society re-connection in Hungary.

7.3.11 Germany

Seed: BeeDAO – Parliamentary Decision-Making with Non-Human Actors (Germany)

Dimension	Quick evidence from the two BeeDAO documents
Vision clarity	Long-term aim to build a "parliament" where bees (and other species) participate in territorial decisions via sensor-derived, AI-translated statements
Vision co-creation	Concept initiated by artist-curator Einhoff and iteratively refined with biologists, beekeepers, programmers and designers
Pathway	Step-wise: sensor kit → data dashboard → blockchain voting → public parliamentary assemblies; now expanding to trees and other organisms
Root-cause orientation	Explicitly targets anthropocentric decision-making and societal disconnection from non-human interests
Scientific knowledge use	Collaboration with sensor developers and biologists; real-time hive metrics + micro-climate data feed an AI "delegate" that articulates needs
Decision-making influence	Local "bee territories" (3 km radius) direct micro-grants for planting; exhibitions catalyse municipal interest and public debate
Main action levers	Performative assemblies, artistic installations, blockchain smart-contracts, AI prompt engineering, museum exhibitions
Key barriers	Volatile tech costs (blockchain, AI), limited cultural funding cycles, anti-tech scepticism in art sector
Key enablers	German cultural-funding architecture, tradition of civic participation, Horizon-Europe network links, public fascination with bees
Scaling pattern	**Out:** new bee territories added at each exhibition; **Up:** exploratory talks with district parliament; **Deep:** perspective shift among visitors; **Team-up:** EU art-science consortia
Equity & justice lens	Opens membership to all citizens and "non-human" stakeholders; no targeted distributive-justice mechanism yet

BeeDAO constitutes an art-science intervention designed to re-configure urban environmental governance by institutionalising non-human representation. The project's

foundational vision—conceived by the Centre for Art and Urbanism (ZK/U) and progressively elaborated with beekeepers, biologists and software developers—envisages a multi-species parliament in which sensor-derived data from bee hives (and, prospectively, urban trees) are algorithmically translated into voting statements. This techno-performative apparatus directly confronts the structural driver of anthropocentric decision-making by operationalising an empathetic, post-human deliberative framework.

Operationalisation proceeds through an adaptive pathway: (i) deployment of bespoke sensor kits and blockchain-based smart contracts; (ii) periodic parliamentary assemblies in which human delegates debate alongside AI-generated "bee speeches"; and (iii) micro-grants that finance habitat enhancements within three-kilometre "bee territories." The approach couples rigorous real-time ecological monitoring with affective public engagement, thereby uniting scientific credibility with artistic communicative power.

Governance impact, while embryonic, is observable. Approximately fourteen territories implemented tangible biodiversity measures during *documenta 15*; subsequent exhibitions in Stuttgart and Wolfsburg have expanded both the data infrastructure and public constituency. Enabling conditions include Germany's robust cultural-funding regime and a civic culture receptive to experimental participation; conversely, rapid obsolescence of blockchain platforms and episodic funding threaten continuity. Scaling currently manifests horizontally through museum-mediated replication and vertically through nascent dialogue with district-level politicians; deeper cultural diffusion is evident in visitors' reported perspective shifts regarding non-human agency. Although explicit equity mechanisms remain absent, BeeDAO's inclusive membership model and emphasis on more-than-human representation gesture towards an expanded notion of environmental justice.

7.3.12 Czech Republic

Seed: LIFE IP "One Nature" — Integrated Natura 2000 Management Reform (Czech Republic)

Dimension	Evidence extracted from single interview transcript
Vision clarity	Long-term objective is to establish an *adaptive, evidence-based management cycle* for all Natura 2000 sites, anchored in clear national priorities and continuous monitoring.
Vision co-creation	Core vision set by the Czech Nature Conservation Agency (NCA) but refined with regional branches, scientists, site managers and private landowners.
Pathway	Formalised "plan–do–check–adapt" loop: revised prioritisation tool → management contracts → field monitoring → annual evaluation → pathway updated.
Root-cause orientation	Addresses systemic weaknesses: fragmented governance, short policy cycles, and weak data feedback; deeper power or equity issues are acknowledged but not explicitly tackled.
Scientific knowledge use	Risk assessment, conservation-status metrics and site-specific studies feed a national prioritisation matrix; adaptive cycle explicitly modelled on best-practice literature.
Decision-making influence	New prioritisation rules already inserted into NCA internal regulations; bilateral negotiations with hundreds of site managers alter on-the-ground practices.
Main action levers	Evidence sharing (risk matrix, monitoring reports), bilateral negotiation with landowners, pilot workshops on innovative methods (e.g., fire management, forest grazing).
Key barriers	Chronic funding gaps, communication deficits ("PR problem"), limited monitoring capacity, and short political attention spans.
Key enablers	LIFE-IP financing, legal mandate under EU Habitats Directive, protected space for experimentation, and growing stakeholder trust in risk-based prioritisation.
Scaling pattern	**Scale Up:** new management cycle embedded in NCA governance; **Team-up:** international networking via LIFE platform; no clear replication outside Czechia yet.
Equity & justice lens	Aims for fair compensation contracts with private owners, but broader distributive-justice mechanisms remain underdeveloped.

The Czech LIFE IP **One Nature** project constitutes a state-led attempt to institutionalise adaptive management across the national Natura 2000 network. Driven by the Nature Conservation Agency, the initiative articulates a transparent vision: replace ad-hoc, compliance-oriented conservation with a risk-prioritised, learning-centred governance cycle. While initial strategising was top-down, subsequent refinement occurred through iterative consultations with regional staff, academic ecologists and landowner representatives, conferring a measure of co-creation and pragmatic legitimacy.

Operationalisation follows a sequential pathway. A quantitative risk-assessment matrix, developed from scientific indicators of conservation status and threat exposure, ranks interventions across hundreds of sites. Resulting priorities feed contractual management

actions—ranging from innovative fire regimes to targeted grazing—whose outputs are monitored and reassessed annually, thereby closing the adaptive loop. This structure directly addresses systemic governance deficits (fragmented responsibilities, data-poor decision-making) rather than merely site-level symptoms.

Early institutional impact is evident: the prioritisation protocol has been incorporated into internal NCA regulations and has informed bilateral negotiations with landowners, modestly reshaping national conservation praxis (**scale-up**). Key enabling factors include substantial LIFE financing, the EU Habitats Directive's legal imperative, and a protected niche for experimentation. Conversely, limited monitoring capacity, unstable public funding and communication shortfalls constrain transformative depth; equity considerations are largely confined to compensation contracts. Nevertheless, the project delivers a replicable, scientifically grounded template for evidence-based Natura 2000 governance and may catalyse broader European uptake as methodological results disseminate via the LIFE platform.

7.3.13 Cyprus

Seed: LIFE with Vultures CY – Preventing the Extinction of the Griffon Vulture in Cyprus

Dimension	Quick evidence from the single Cyprus interview
Vision clarity	Explicit aspiration: a future in which Griffon Vultures "thrive in Cyprus, soaring freely … without the shadow of poisoning or any threat"
Vision co-creation	Vision co-designed by BirdLife Cyprus, Game & Fauna Service, Terra Cypria and Vulture Conservation Foundation, integrating local community input.
Pathway	Evolving roadmap: emergency restocking + feeding → anti-poison dog unit & working group → stakeholder training → long-term attitudinal change and policy reform.
Root-cause orientation	Tackles deep-seated predator–control culture, short-term livestock interests and lax enforcement that underpin illegal poisoning.
Scientific knowledge use	Population-viability analysis, GPS telemetry, ecosystem-service valuation and best practice from Spain/Balkans framed every action and advocacy message.
Decision-making influence	Created national Anti-Poison Working Group; police wildlife-crime protocols; poisoning on formal government agenda; three cases now headed to court.
Main action levers	Policy advocacy, multi-stakeholder workshops, anti-poison dog patrols, research dissemination, island-wide media & school campaigns
Key barriers	Entrenched poisoning norms, "code of silence" in rural areas, COVID-19 outreach disruptions, bureaucratic delays for mitigation works.
Key enablers	LIFE funding, EU Birds Directive leverage, public outcry after mass-poisoning event, EU vulture-conservation network, rising local pride in vultures.
Scaling pattern	**Out**: tools and training exported through VCF network; **Up**: national Anti-Poison Road-map and enforcement protocols; **Deep**: shifting cultural narrative on scavengers; **Team-up**: alliances with Balkan LIFE projects.
Equity & justice lens	Promotes fair farmer compensation schemes and inclusive workshops, yet distributive mechanisms still embryonic.

LIFE with Vultures CY constitutes an integrated, science-anchored intervention aimed at averting the local extinction of Cyprus's last Griffon Vulture population. Its co-created vision—as articulated by BirdLife Cyprus, governmental wildlife authorities and two conservation NGOs—imagines vultures once again performing their ecological sanitation role while being embraced as cultural heritage. An adaptive pathway blends emergency demographic support (translocations, supplementary feeding) with systemic change: an anti-poison dog unit, GPS-based surveillance, community workshops and policy advocacy.

Scientific evidence is foundational: population-viability analysis quantified extinction risk, telemetry identified mortality hotspots, and ecosystem-service studies reframed vultures as providers of carcass disposal and disease mitigation. These data underpinned establishment of a multi-agency **Anti-Poison Working Group** and development of police protocols—early manifestations of structural influence.

The project explicitly addresses root causes of biodiversity loss—domination over nature and short-term economic logic—by confronting the cultural normalisation of poison and

empowering rural actors with non-lethal predator-management options. Key enabling conditions include LIFE funding, EU legal obligations and heightened public concern following a catastrophic 2022 poisoning event; barriers persist in the form of rural secrecy norms and administrative inertia.

Scaling dynamics are multi-directional: methodologies have diffused through the Vulture Conservation Foundation (**scale-out**), new national roadmap and enforcement procedures mark institutional uptake (**scale-up**), and attitude surveys register emergent empathy toward scavengers (**scale-deep**). Although comprehensive equity mechanisms remain nascent, the initiative's participatory framing and compensation advocacy gesture toward more just human–wildlife coexistence in Cyprus.

Seed: Rehabilitation of Mountain Agricultural Dry-Stone Terraces (Cyprus)

Dimension	Quick evidence from the interview
Vision clarity	Long-term goal is to maintain vibrant mountain communities backed by restored terraces that control erosion, sustain farming and preserve cultural heritage.
Vision co-creation	Vision emerged through participatory workshops linking researchers, farmers, local unions, expatriate landowners and multiple ministries.
Pathway	Iterative sequence: EU-funded RECARE pilot → community restoration events → 3PRO-TROODOS terrace manual → planned vocational school and PRIMA-REACT4MED research on mechanised terraces.
Root-cause orientation	Confronts land abandonment, youth out-migration, short-term profit logics and the societal disconnection from traditional stewardship.
Scientific knowledge use	Erosion modelling, UAV slope-stability surveys, ecosystem-service valuation and paired-plot carbon/erosion studies guide site selection, design and advocacy.
Decision-making influence	Scientific evidence triggered a 2024 revision of Cyprus's agri-environmental subsidy scheme, increasing support for high-elevation terrace maintenance.
Main action levers	Policy advocacy, participatory multi-stakeholder workshops, hands-on restoration days, publication of a 200-page dry-stone manual, and media documentaries.
Key barriers	Fragmented land tenure, inadequate extension capacity, low farm profitability, rural depopulation and cultural amnesia regarding drystone techniques.
Key enablers	LIFE-style project funding, UNESCO heritage listing of drystone walling, strong local pride, scientific credibility, and Troodos's status as a recreation/biodiversity hotspot.
Scaling pattern	**Out:** NGOs replicate workshops in post-fire landscapes; **Up:** subsidy reform institutionalises terrace support; **Deep:** renewed cultural identity and inter-generational skill transfer; **Team-up:** dialogue with Croatian and Mallorcan drystone schools for vocational programme.
Equity & justice lens	Participatory process empowers smallholders; forthcoming training targets rural youth and migrant workers, but broader distributive-justice mechanisms still developing.

The Cypriot initiative to **rehabilitate mountain agricultural dry-stone terraces** exemplifies a science-society partnership that couples ecosystem-service evidence with revival of intangible cultural heritage. Originating in the EU-funded **RECARE** project (2015), researchers from The Cyprus Institute co-designed a vision with farmers, expatriate landowners and state agencies: terrace landscapes should once again sustain livelihoods, regulate hydrology and embody regional identity. This vision is operationalised through an adaptive pathway—community restoration events, a comprehensive drystone-wall manual, UAV-based slope-stability research and a planned vocational school—that iteratively expands technical capacity while cultivating local stewardship.

Scientific inputs are pivotal: erosion models indicate a 3.8-fold reduction in soil loss when walls are intact; UAV surveys inform modern terrace design; and ecosystem-service valuations reframe terraces as multi-functional nature-based solutions. These findings, disseminated through participatory workshops and policy briefs, precipitated a **2024 agri-environmental subsidy revision**, illustrating nascent institutional uptake. The project thus tackles systemic drivers—land abandonment, short-term profitability and knowledge loss—rather than treating erosion as a mere symptom.

Key enablers include LIFE-style funding streams, UNESCO's 2018 recognition of drystone walling and growing cultural pride, while persistent barriers encompass fragmented tenure, limited extension services and rural depopulation. Scaling dynamics are multi-scalar: replication in post-fire communities (**out**), subsidy reform (**up**), revived communal identity (**deep**), and emerging Mediterranean vocational alliances (**team-up**). Although distributive-justice mechanisms remain embryonic, the initiative provides an empirically grounded and culturally resonant template for landscape-level transformative change on Mediterranean mountain slopes.

7.3.14 Croatia

Seed: Urban Green Renewal Strategy of the City of Zagreb (Croatia)

Dimension	Evidence from the interview transcript
Vision clarity	Strategy aspires to a "greener, socially just city" where citizens co-manage biodiverse public space; vision derived after a comprehensive baseline analysis
Vision co-creation	Formulated through a public survey and multi-actor workshops involving municipal departments, private planners, NGOs and residents.
Pathway	Action catalogue links long-term goals to concrete measures (biodiverse lawns, pocket parks, participatory tree stewardship); pathway will be updated as monitoring data accrue.
Root-cause orientation	Intends to remedy spatial-justice deficits and citizen "delegation" of green-space care to city authorities (disconnection from nature + inequitable GI distribution).
Scientific knowledge use	Strategy team reviewed urban-ecology and participatory-planning literature, highlighted data gaps on invasive species, biodiversity and ES at city scale.
Decision-making influence	Draft strategy guides current municipal budget lines; biodiverse-lawn experiment adopted in other Croatian municipalities (scaling out).
Main action levers	Research & evidence-sharing, multi-stakeholder dialogues, public awareness campaigns, participatory maintenance pilots (e.g., reduced mowing).
Key barriers	Fragmented land tenure, limited city funds for maintenance, low ecological awareness in some departments, and regulatory rigidity for pilot NBS.
Key enablers	EU Green Deal narrative, existing local datasets, strong planner–scientist collaboration, and high public interest in heat-stress mitigation.
Scaling pattern	**Out:** practices replicated in other municipalities; **Up:** measures being inserted into amended General Urban Plan; **Deep:** early shifts in citizen expectations via biodiverse-lawn discourse; **Team-up:** knowledge exchange with Vitaprojekt's regional network.
Equity & justice lens	Strategy emphasises equitable distribution of green infrastructure and invites neighbourhood co-design; distributive-justice mechanisms still under refinement.

Zagreb's **Urban Green Renewal Strategy** exemplifies a municipally mandated yet participatory approach to embedding nature-based solutions (NBS) in post-socialist urban fabric. Conceived by a private planning consortium (Vitaprojekt) and refined through citizen surveys and inter-departmental workshops, the strategy articulates a systemic vision: equitable, biodiversity-rich public space co-maintained by residents and city services. Action pathways are operationalised via an adaptive catalogue—biodiverse lawns, pocket-park micro-interventions, neighbour-hood tree-stewardship schemes—anchored in baseline ecological and socio-spatial analyses.

Scientific knowledge plays a dual role. First, literature on collaborative governance informed procedural design; second, gaps in city-wide biodiversity, invasive-species and ecosystem-

service data prompted a monitoring agenda. By foregrounding spatial justice and civic stewardship, the strategy addresses two IPBES root causes—disconnection from nature and unequal benefit distribution—while acknowledging that deeper economic drivers remain largely intact.

Governance influence is already observable: budget allocations reference strategy priorities, and other Croatian municipalities have emulated the biodiverse-lawn pilot, evidencing horizontal **scale-out**. A forthcoming amendment to Zagreb's General Urban Plan indicates nascent **scale-up**, whereas media discourse around reduced mowing suggests an incipient **scale-deep** cultural shift. Enabling conditions include EU Green Deal alignment and a robust planner–scientist coalition; barriers persist in fragmented tenure, limited fiscal space and rigid regulatory frameworks. Overall, the initiative furnishes a replicable, data-informed template for transformative urban greening in Southeastern Europe.

Seed: NEXUSNET — Cross-Sector Transdisciplinary Network on Water-Energy-Food-Ecosystems Nexus (Croatia)

Dimension	Quick evidence from the single NEXUSNET interview
Vision clarity	Envisions an integrated, nexus-oriented research and training community that **overcomes disciplinary silos** and informs climate-resilient policy.
Vision co-creation	Vision co-designed through **charrette workshops** that gathered academics, NGO actors and early-stage researchers from Europe and North Africa.
Pathway	Iterative pathway: COST Action networking → thematic working groups → annual charrettes → spin-off interdisciplinary courses (biology × architecture) tackling real-world neighbourhood problems.
Root-cause orientation	Addresses concentration of knowledge-production power in the Global North by deliberately involving **marginalised North-African stakeholders** and challenging sectoral compartmentalisation.
Scientific knowledge use	Relies on comparative nexus case-studies, cross-disciplinary literature synthesis, and student design-research studios that generate place-based data.
Decision-making influence	Leadership maintains **direct channels to UN and European Commission units**, positioning outputs for agenda-setting; no formal policy change yet.
Main action levers	Knowledge co-creation workshops, joint curricula, research-evidence briefs, and international networking events.
Key barriers	Difficulty engaging business and policy actors; entrenched silo norms; limited funding for extended stakeholder participation.
Key enablers	COST Action framework, strong academic partnerships, enthusiasm of interdisciplinary students, and recognition of nexus discourse in EU policy.
Scaling pattern	**Out:** interdisciplinary course model replicated in partner universities; **Team-up:** collaboration with UN/EC and North-African institutes; early steps toward **Up** via policy-brief circulation; cultural **Deep** shift among students toward systems thinking.
Equity & justice lens	Explicitly promotes inclusion of southern Mediterranean voices historically excluded from European nexus debates, distributive mechanisms still emergent.

NEXUSNET, a COST-funded action headquartered at the University of Zagreb, seeks to institutionalise cross-sector, transdisciplinary learning around the water–energy–food–ecosystem (WEFE) nexus. The initiative's collaboratively articulated vision—developed through intensive charrette workshops—rejects siloed research in favour of a systems lens that integrates ecological limits with socio-economic realities. Crucially, the network counters the epistemic dominance of the Global North by actively recruiting North-African researchers who are disproportionately affected by climate-change impacts yet under-represented in European policy processes.

Operationally, NEXUSNET progresses via an adaptive pathway: thematic working groups synthesise nexus case-studies, annual charrettes refine shared methodologies, and spin-off studio courses pair biology and architecture students to address neighbourhood-scale challenges. These activities both generate new empirical insights and cultivate a cohort of practitioners fluent in integrative thinking. Scientific legitimacy derives from comparative case synthesis and design-research outputs that emphasise place specificity.

Governance influence is nascent but promising. Project leaders maintain established channels to UN and European Commission directorates, positioning policy briefs for forthcoming deliberations on integrated resource management. Persistent barriers include limited business-sector engagement, disciplinary inertia and modest financial resources for deep stakeholder participation. Enabling conditions comprise COST networking funds, strong academic alliances and a policy zeitgeist receptive to nexus framing.

Scaling dynamics are manyfold: course models are being replicated across partner universities (**scale-out**); policy briefs aim at EU agenda-setting (**scale-up**); and repeated charrettes nurture a cultural shift toward systems literacy among emerging scholars (**scale-deep**). Although concrete equity mechanisms remain embryonic, the deliberate inclusion of historically marginalised southern-Mediterranean voices signals movement toward more just knowledge production within European sustainability research.

7.3.15 Bulgaria

Seed: EdnoDarvo (OneTree) – Citizen-Driven Urban Tree-Mapping Platform (Bulgaria)

Dimension	Quick evidence from the two Bulgarian interviews
Vision clarity	Long-term goal is a **three-module system** (citizen, expert, municipal) for comprehensive urban-green-system management.
Vision co-creation	Originated by two co-founders but iteratively refined with scientists, programmers, NGOs and active citizens through events and EU projects.
Pathway	Incremental: citizen tree-map → expert assessment tools → administrative module; now adding biodiversity layers (shrubs, grass, bird-feeder tracker) and AI species ID.
Root-cause orientation	Confronts **data invisibility** of urban trees, weak citizen–municipality trust, and cultural undervaluation of green space; structural economic drivers only indirectly addressed.
Scientific knowledge use	Strong Bulgarian landscape-architecture tradition plus literature review; collaboration in Horizon-Europe "One Hundred Key Trees" provides satellite + field data integration.
Decision-making influence	Platform consulted in Sofia's urban-tree planning; dialogues with councillors and mayors; administrative module under negotiation with several municipalities.
Main action levers	Crowdsourcing platform, educational events (80 % of outreach), expert conferences, policy dialogues, media engagement.
Key barriers	Low municipal digitalisation, shortage of GIS staff, administrative delays, institutional distrust of citizen input, unstable CSR funding.
Key enablers	EU green-transition directives, rich legacy of urban trees (data resource), engaged volunteer network via TimeHeroes, and Bulgaria's biology-oriented LA training.
Scaling pattern	**Out:** platform usable EU-wide; river-mapping module piloted in Sofia and showcased internationally. **Up:** pending municipal adoption of admin module. **Deep:** gradual shift in public perceptions through education. **Team-up:** partners in Estonia, Denmark, Horizon-Europe consortium.
Equity & justice lens	Open, free tool invites any citizen; aims to democratise data access, but no explicit distributive mechanism yet.

EdnoDarvo represents a citizen-science–driven strategy for rectifying the chronic informational deficit surrounding urban trees in Bulgaria. Founded by a programmer and a landscape architect, the initiative has evolved into a tripartite vision: a crowdsourced tree registry (citizen module), a professional assessment interface (expert module) and a forthcoming municipal management system. This pathway is adaptive—new biodiversity layers, an AI-enabled species-identification feature and a river-ecosystem mapping add-on have been incorporated as learning unfolds.

Scientific legitimacy stems from Bulgaria's biology-intensive landscape-architecture curriculum and systematic literature review; participation in the Horizon-Europe "One Hundred Key Trees" project infuses cutting-edge satellite–field data fusion. By rendering urban greenery visible and relatable, EdnoDarvo tackles two IPBES root causes—societal disconnection from nature and knowledge deficits—while acknowledging that profit-driven land-conversion logics remain largely untouched.

Governance influence is emerging: Sofia municipality consults the team on tree-planning questions, and multiple cities are negotiating adoption of the administrative module. Yet scaling is impeded by low digital capacity in local governments, scarce GIS specialists and residual distrust of citizen inputs. Countervailing enablers include EU green-infrastructure directives, a rich legacy of mature urban trees that excites public imagination and an expanding volunteer network mobilised via national NGO platforms.

Horizontal replication—river-mapping and international partner pilots—signals **scale-out** potential, while ongoing municipal negotiations aim at **scale-up**. Educational events and media discourse are fostering a nascent **scale-deep** cultural shift toward valuing trees as urban assets. Although explicit equity mechanisms are still embryonic, the platform's open-access ethos democratises environmental knowledge and lays groundwork for more participatory urban-green governance in Bulgaria.

7.3.16 Belgium

Seed: 8-Week Nature-Connectedness Programme (Flanders, Belgium)

Dimension	Quick evidence from the two Belgian interviews
Vision clarity	Aspires to "restore the balance between humans and nature" and build long-term well-being through repeated nature experiences rather than one-off events. …
Vision co-creation	Concept initiated by INBO researchers, refined with facilitators and two pilot cohorts (33 participants) via iterative feedback.
Pathway	Iterative: literature review → pilot 1 (autumn 2024) → pilot 2 (spring 2025) with weekly group reflections, surveys at four time-points, and continuous adjustment of exercises.
Root-cause orientation	Directly tackles ***disconnection from nature*** and associated mental-health crisis; structural economic drivers acknowledged only tangentially …
Scientific knowledge use	Draws on **international research** showing that multi-week interventions outperform one-off nature contacts; integrates five "pathways to nature connectedness".
Decision-making influence	No policy changes yet; project still experimental, but internal debates in the institute challenge dominant "exact science" framing. Other government departments (e.g. health department picked up the topic)
Main action levers	Weekly facilitated reflection circles, individual nature tasks, qualitative surveys, media/blog dissemination, and forthcoming practitioner handbook.
Key barriers	Scepticism from "exact" scientists, difficulty quantifying qualitative outcomes, short-term funding, and limited reach beyond already motivated participants.
Key enablers	Supportive colleagues, safe experimental space, growing public interest in mental health, and an emergent community of practice around nature-connectedness.
Scaling pattern	**Out**: two provincial pilots completed, programme adopted informally by workplace wellness groups; **Deep**: participants report changed worldviews and spread practices to families; no **Up** institutionalisation yet; **Team-up** potential via Belgian "nature prescription" pilots.
Equity & justice lens	Open enrolment; participants were vulnerable groups (mentally challenged (ADHD, Autism, burn-out, depression); equity strategy still under-developed.

The Flemish 8-Week Nature-Connectedness Programme constitutes an exploratory intervention aimed at counteracting the psychosocial repercussions of human–nature estrangement. Initiated by researchers at the Flemish Research Institute for Nature and Forest (INBO), the seed replaces single-event "green breaks" with a longitudinal protocol combining individual nature tasks and weekly collective reflection. This design draws explicitly on international scholarship demonstrating that repeated engagement is necessary for durable gains in nature connectedness and pro-environmental behaviour.

The pathway is resolutely adaptive: after each pilot, facilitators revise exercise sequences, refine qualitative survey items, and recalibrate group-meeting formats. By foregrounding

experiential learning and affective registers, the project addresses the IPBES root cause of disconnection from nature while only indirectly engaging with broader economic drivers of biodiversity loss.

Governance influence is nascent. Although no formal policy has shifted, the programme has provoked epistemic debate within the institute, challenging the primacy of quantitative "exact" science and legitimising qualitative well-being metrics. Key enablers include a protected experimental niche inside the institute, mounting public concern over mental health, and an emerging Belgian movement advocating "nature on prescription." Conversely, stable funding and rigorous outcome measurement remain substantial barriers, as does scepticism from colleagues wedded to conventional ecological indicators.

Scaling is currently horizontal (scale-out) through workplace wellness adaptations and nascent community-of-practice exchanges, and vertical prospects (scale-up) hinge on embedding nature-connectedness protocols into forthcoming Flemish health-promotion frameworks. Participant narratives already reveal a scale-deep reorientation of personal values, suggesting the seed's potential to catalyse broader cultural shifts if systemic barriers can be overcome.

8 Discussion

How to make a project more transformative/impactful?

Building on the IPBES Transformative Change Assessment (TCA) definition of transformative change as "fundamental system-wide shifts across views, structures and practices"(IPBES 2024), our cross-country interview set offers an empirical window onto how such shifts begin to materialise in diverse European biodiversity initiatives. The 16 Seeds analysed to date collectively illustrate *incipient recombinations* of paradigms, routines and decision frameworks rather than fully fledged regime transitions—but these early signals are precisely what the TCA identifies as the "latent transformative potential" that can be amplified over time (IPBES 2024).

Emerging shifts in *views*
Across cases, we observe a consistent narrative reframing of nature from obstacle to asset. Spain's Green-Infrastructure Strategy and Latvia's ES-based Forestry Plan both mobilise spatial data and ecosystem-service valuations to legitimise ecological connectivity or non-timber values, challenging growth-centred planning logics. Krater and BeeDAO go further, advancing post-human or multispecies worldviews that explicitly contest anthropocentrism. These paradigmatic inflections resonate with the TCA's call to counter the underlying cause of "disconnection from and domination over nature and people". Yet only a minority of seeds embed explicit equity or justice mechanisms, indicating incomplete uptake of the four guiding principles—equity & justice, pluralism & inclusion, respectful human–nature relations and adaptive learning—seen as crucial for deliberate transformation (IPBES 2024).

Innovations in *practices*
Interview evidence reveals a rich portfolio of experimental practices aligned with transition-management theory, which emphasises iterative "transition experiments" that can be broadened and scaled up over 5–10 years (Loorbach 2010). Sweden's biodiversity "smorgasbord", BioValue's river-park pilots and ViTal's salt-marsh restorations all function as protected niches to test new socio-ecological configurations. Importantly, learning loops—three-year rolling work programmes in Spain or adaptive after-care protocols in Hungary—mirror the reflexive monitoring stage of the transition-management cycle (Loorbach 2010), suggesting that operational-level experimentation is already feeding back into tactical and strategic conversations.

Reconfiguring *structures*
Structural change is visible where seeds influence formal rules or resource flows. Spain has integrated green-infrastructure requirements into several regional plans; Slovenia's Forest Fund reallocates state-forest profits to private conservation; Cyprus has secured subsidy revisions for terrace maintenance. These shifts correspond to the "scale-up" dynamic, while replication across regions ("scale-out"), deep cultural embedding ("scale-deep") and alliance building ("team-up") appear in various combinations across the sample, echoing the multi-directional scaling pathways emphasised in transition scholarship. Nevertheless, entrenched governance fragmentation, short funding cycles and data asymmetries continue to inhibit structural consolidation, reflecting the TCA's diagnosis of "concentration of power and wealth" as a persistent root barrier (IPBES 2024).

Patterns across the six sub-research questions

SRQ1 (Worldviews). Twelve seeds articulate alternative visions that contest dominant paradigms; however, co-creation remains partial, risking future legitimacy gaps.
SRQ2 (Practices). All initiatives employ experimentation, yet only eight couple this with systematic learning metrics, underscoring a need for stronger reflexive governance.
SRQ3 (Structures & power). Policy leverage is emerging but uneven; formal institutional uptake is most advanced where legal mandates and dedicated funding converge (e.g., Slovenia, Spain).
SRQ4 (Knowledge integration). Most seeds blend scientific data with lay or traditional knowledge, but only Krater and BeeDAO explicitly value alternative epistemologies, signalling room for broader pluralism.
SRQ5 (Root causes). Direct engagement with systemic drivers—such as land-tenure inequities or consumerist logics—remains limited; seeds often address symptoms (habitat loss) rather than underlying economic paradigms. The root cause of disconnection with nature is explicitly tackled in the Belgian case.
SRQ6 (Enablers & barriers). Horizon or LIFE funding, scientific credibility and charismatic leadership consistently enable progress, whereas fragmented governance, short-term funding and socio-economic inertia remain cross-cutting obstacles.

Implications for transition governance

The findings corroborate transition-management propositions that multi-level, multi-actor orchestration is necessary to steer emergent change trajectories. Strategic visioning (Spain, Trento), tactical alignment (Latvia's GitHub ES tool) and operational experimentation (Malta's citizen-science atlas) illustrate how the tri-fold governance architecture can materialise in practice. Yet, reflexivity and inclusivity—central to adaptive learning and justice respectively—are still embryonic. Consistent with the TCA, deliberate efforts to embed pluralism and adaptive learning across all scaling modes will be essential for sustaining momentum (IPBES 2024).

Methodological reflections and limitations

Employing a hybrid deductive-inductive codebook anchored in IPBES and transition-management frameworks enabled systematic cross-case comparison, but reliance on partner-conducted interviews introduced heterogeneity in depth and framing. Only 16 of 28 selected seeds were interviewed, limiting statistical generalisation; however, qualitative breadth across 12 countries enhances analytical transferability. Future cycles should prioritise triangulation with observation and document analysis, and redress thematic gaps—especially equity mechanisms and power dynamics—in subsequent interviews.

9 Concluding insights

Collectively, the Seeds demonstrate that *glimpses* of transformative change are already underway across Europe. While most initiatives are still situated in niche or early acceleration phases, they are beginning to align paradigm shifts, experimental practices and institutional innovations in ways that address at least some root causes of biodiversity loss. To nurture this latent potential, practitioners should:

5. Deepen pluralistic co-creation to secure social licence and justice;
6. Institutionalise reflexive learning cycles that connect experimentation to policy;
7. Leverage multi-scalar scaling strategies—out, up, deep and team-up—to diffuse successful models; and
8. Directly confront economic and power structures that perpetuate unsustainable regimes.

Doing so will enhance the probability that today's Seeds mature into the systemic pivots required for a just and sustainable future.

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https://project-selina.eu/

11 Annex

11.1 Short Questionnaire Identifying SoTC

Introduction

Seeds of Change refer to **transformative or transformational change**, which is

> "a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values" (IPBES, 2019).

The **seeds** are then (ongoing) projects, initiatives, programmes etc with the potential to engender transformative change. Going beyond mapping, measuring and modelling qualities of ecosystems, these initiatives actively challenge the existing social, economic, political and/or technological order. For instance, by redefining users' understanding of human-nature interactions, by changing market dynamics or conditions, or by altering decision-making procedures in the public and private sector. This survey will look for initiatives with such '**transformational qualities**.

GUIDELINES

The task of this first phase is to be performed **by the national Communities of Practice (CoPs)**. We encourage CoPs to:

i) Adopt a panoramic view of the landscape of initiatives and actively search for initiatives that may be less well-known.

ii) Select those initiatives that display at least some (potentially) transformational qualities ("go beyond measuring and modelling ... actively challenge the existing order")

Finding Seeds of Change may be challenging. Most initiatives is likely to (i) consider elements of transformative change beyond the scope of the initiative, and/or (ii) steer towards optimization of the current system (doing things better) rather than fundamental change (doing better things; changing course). Identifying these 'rare birds' with transformational qualities, however, will help discern leverage points for intervening in socio-ecological systems, and define steps for initiatives (SELINA demonstration projects) to work towards transformative change.

Project ID sheet

Name of the project	
Country/countries	
Sector	*Select: Public – private – public/private (hybrid)*
Partner organisations	*List partner organisations, and indicate who initiated the project by adding "(initiator)"*
Geographical scale	*Select: Local – regional – national – inter/transnational*
Temporal scale	*Select: Short term – medium term – long term*
Phase	*Select: Conception – ongoing – completed + add starting and completion dates - year/month – year/month*
Ecosystem types	*Select: Forests, wetlands, rivers and lakes - marine and coastal – agroecosystems - heathland and grasslands - urban ecosystems*
Key objective(s)	
Decision-making context	*Mention the main plan/strategy/policy to which the project is linked + the potential or actual contribution of the project to this plan/strategy/policy (if applicable)*
Link with other public-private applications	*Mention other relevant plans/strategies/policies at regional, national and EU level to which the project is linked*
Stakeholder involvement	*Mention the main groups that are/were/will be involved in the project*

Q1. Could you explain why you have selected this initiative as a Seed of Change? What makes this initiative particularly promising or impactful, according to you? Kindly, mention some (potentially) transformational qualities of the initiative (see next page for some examples!) and, if possible, say something about its impact on decision-making.

Q2. Plant growth depends not only upon the characteristics of the seed but also on its "growing environment". What key factors or developments in the context of the initiative have enabled this Seed of Change to germinate, grow and (possibly) bear fruit? Consider for instance, new policy and regulation, innovations in science and technology, changing market dynamics or socio-cultural trends. Try to be specific on these factors/developments.

Q3. What is needed, in your view, for the initiative to realise its full potential, and facilitate transformative change? Kindly explain why you think this is needed.

a. What should be done at project level?
b. What should be promoted/changed in the "growing environment"?

Examples of transformative qualities

Note: this list is not exhaustive, but it shows a range of qualities derived from scientific literature that are likely to be relevant. Through this exercise, and more in-depth research later, we hope to uncover other and more specific transformational qualities.

	Transformative Quality	**Score (see p.4)**
1	The initiative involves a wide range of stakeholders in society who bring (very) different values, perspectives and/or knowledge to the table.	
2	The initiative goes beyond informing stakeholders, towards actual/deep involvement of stakeholders in co-defining problems and co-creating sustainable solutions.	
3	The initiative is guided by a collective and inspiring long-term vision on the sustainable use or functioning of ecosystems	
4	The initiative promotes and experiments with a diversity of solutions, strategies or pathways to improve ecosystem services and conditions, including unconventional/radically different solutions.	
5	These strategies/solutions (potentially) generate diverse co-benefits that are relevant for a wide range of stakeholders.	
6	Next to more established parameters for measuring biodiversity and ecosystem functioning, the initiative also assesses less tangible, qualitative aspects such as perception shifts, changing behaviour, changing stakeholder relations etc.	
7	The initiative challenges established 'mental models' (i.e. basic values, assumptions, worldviews) that define dominant understandings of nature and underly human-nature interactions.	
8	The initiative stimulates joint reflection on the root causes of the problem, and dedicates a significant amount of time and effort to the collective learning process.	
9	To create leverage for structural change (in policy, markets, culture etc.) the initiative actively connects to other projects and/or broader coalitions of actors.	
10	The initiative actively supports (other) policy makers, companies, communities etc, who are not directly involved in the initiative, in adopting/developing new approaches and revising existing policies/strategies.	

Assignment

Note: this assignment is to be carried out during or after the CoP (to be decided by the CoP responsible), by the SELINA partner in consultation with CoP participant(s) that have nominated the initiative as a Seed of Change.

Please attribute a 'score' between 1-5, depending on the extent to which a condition is met:

1 = Not at all
2 = To limited extent
3 = To some extent
4 = To a large extent
5 = To a very large extent

X = not applicable / don't know

Kindly note that:

- It may not always be easy to find the 'right' score. In case of limited doubt, go with your best guess. In case of serious doubt, please consult project participants.
- Below there is room to motivate your answers or add remarks (optional). This will help us interpret outcomes. Especially in case the answer to a question is '*not applicable / don't know*', it is helpful to know why this is the case.

Remarks/motivation of your answers

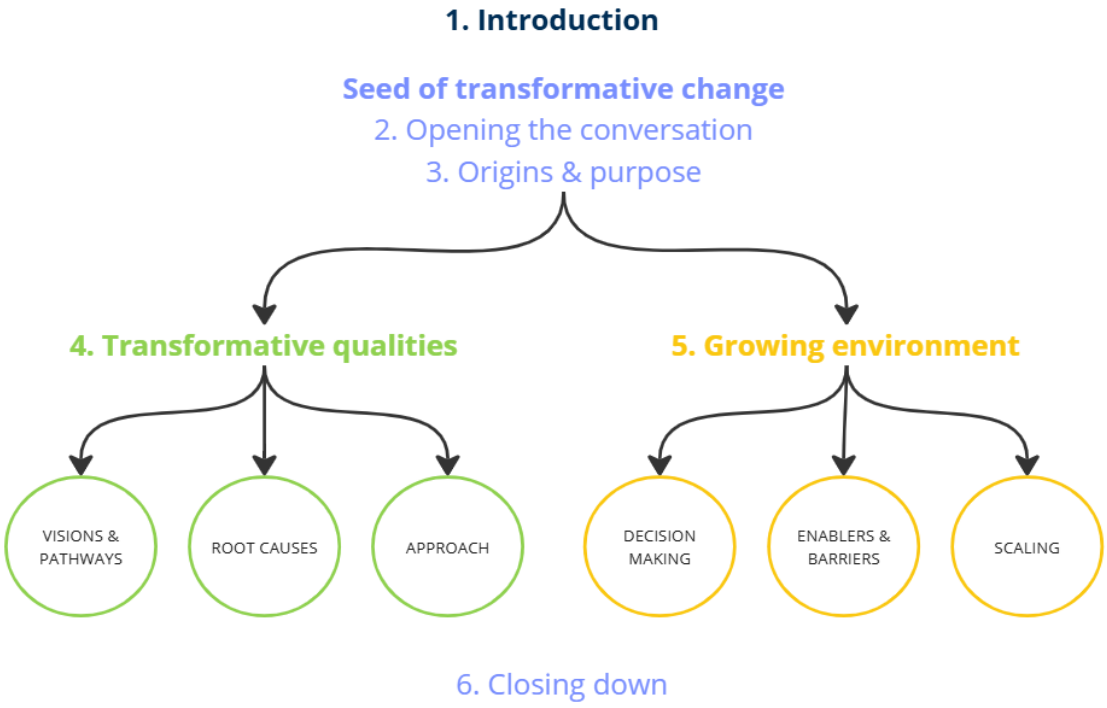
Question no	Remarks/motivation

Seeds of Transformative Change | Semi-Structured Interview Questions

Instructions:
This document contains all the questions, key concepts, and tools you need to conduct the interview. Please familiarise yourself with it before the interview.

What's inside:
▨ ***Theory in a Nutshell*** → Key concepts to guide your understanding on what we want to capture during the interview.
■ Main Questions → These are the core questions for each section. You should always ask these questions — they are the foundation of the interview.
■ *Probe Questions (in italics)* → ***Optional*** *follow-ups if you need to go deeper.*
☐ *Answer Analysis* → Boxes to capture the main points from the interview, with checklists and notes.

Interview Structure:



11.2.1 Table of Contents

11.2.2 Interview Questions

Theory in a Nutshell – What is transformative change? *– IPBES Transformative Change Assessment Page 5*

Transformative changes are fundamental, system-wide shifts in:

- *Views (ways of thinking, knowing and seeing)*
- *Structures (ways of organizing, regulating and governing)*
- *Practices (ways of doing, behaving and relating)*

that target the underlying causes of biodiversity loss: 1) The domination of nature and people 2) Concentration of power and wealth 3) Prioritization of individual and immediate values.

1. **Introduction** (for the Interviewer)

Purpose of this section: To present yourself, the project and the purpose of the interview.

Key Points to Cover:

I. **Introduce** SELINA project

a. Explain that the interview is part of the SELINA project.

b. Briefly outline the project's vision, mission, and goals (see website).

c. Address any questions the interviewee may have about the project.

II. Explain the **objectives** of the Interview

The interview helps us understand:

- What makes the initiative impactful.
- What challenges and barriers it faces.
- What conditions help or hinder its success.

This will feed into guidance for other initiatives seeking transformative change.

III. Encourage **open and honest** responses

There are no right or wrong answers — we want to learn from both successes and challenges.

IV. Ensure **confidentiality** and consent

Data will be handled with care. Review the consent document together and ensure it is complete.

V. Outline the **structure** and duration of the Interview

a. Inform the respondent that the interview will last approximately 1 to 1.5 hours.

b. Provide a brief overview of the structure:

i. Introductory questions about the initiative and the respondent's role.

ii. In-depth discussion on key features and context of the initiative.

iii. Final section for additional insights the respondent may wish to share.

c. Ask if the respondent has any questions before starting.

(For interviewer only)

Answer Analysis

- ***Basic information:***
- *Name of initiative:*
- *Date & time of interview:*
- *Respondent's name:*
- *Organization:*
- *Position:*

VI. **Start recording** (if consent is given, otherwise take notes)

2. **Opening the conversation (5 min)**
    a. To start, could you briefly describe the initiative and your role within it? What would you say is at its core?

(For interviewer only)

Answer Analysis:

- *Notes or quotes:*

3. **Origins and Purpose (10min)**

Purpose of this section: To understand the problem the Seed addresses and whether scientific knowledge on biodiversity, ecosystems, and ecosystem services helped shape how the problem was identified.

a. Let's go back to the beginning. Could you tell me why and how this initiative started? What was the main problem the initiative wanted to address?

b. Did you use any scientific knowledge about biodiversity, or ecosystem services to understand the problem and design the initiative?

> If yes, where did it come from *(e.g., research studies, collaborations with scientists, environmental reports)*?

> If no, what types of knowledge shaped the initiative instead — for example:

- Practical experience from your own work?
- Knowledge shared by local communities?
- Policy documents, government strategies, or legal frameworks?

- Others, please explain:

(For interviewer only - Do not read the categories aloud)

Answer Analysis – Origins and Purpose:

- *What elements were mentioned? Tick all that apply:*

☐ Scientific knowledge on biodiversity, ecosystem condition, or ecosystem services directly informed the problem framing.
☐ Scientific knowledge was one of several knowledge sources (alongside local, practical, or policy knowledge).
☐ No significant role for scientific knowledge — other types of knowledge were more important (please specify: _____).
☐ Interviewee was uncertain about the role of scientific knowledge.

- *Notes or quotes:*

4. Transformative Qualities (+/- 30min)

Purpose of this section: To understand how the Seed brings about changes in ways of thinking (views), acting (practices), and organising (structures) — and what features or qualities of the Seed make these changes possible.

Visions & Pathways

Theory in a Nutshell – Visions & Pathways *– IPBES Transformative Change Assessment Pages 19 to 21*

- *Vision = Aspirational and strategic long-term goals that guide change toward a more sustainable and just future.*
- *Pathways = A sequence of strategies and decisions that moves the initiative from the present to the desired future (the vision).*

To be transformative, visions and pathways might be:

- ✓ *Co-created through dialogue between diverse actors with different worldviews, including marginalized voices.*
- ✓ *Challenging dominant human-nature relations, moving towards care and reciprocity. Addressing the underlying causes of biodiversity loss and social injustice,*
- ✓ *Adaptive, evolving as the initiative learns and responds to changing contexts.*

Would you say the initiative has a clear long-term vision guiding its work? How would you describe the desired future this initiative wants to create?

Probes (only if needed)

- *Does the vision explicitly address human-nature relations and social inequalities?*
- *Was this vision developed together with others — like community members, scientists, policymakers, or youth? Who was involved, and how?*

Does the initiative link its long-term vision with the strategies and decisions you are taking today to achieve that future? How? Which actions?

Probes (only if needed):

- *How does the pathway evolve — do you change your actions based on what you're learning, or changes in policies, funding, or the environment?*
- *Has scientific knowledge about ecosystems, biodiversity, or ecosystem services influenced the pathway or the actions you take? In what way?*

(For interviewer only - Do not read the categories aloud)

Answer Analysis – Visions & Pathways:

➔ *Visions:*

- *What elements were mentioned? Tick all that apply*

  ☐ *Vision exists and is clear*

  ☐ *Vision addresses human-nature relations, reconnection with nature and cultural change*

  ☐ *Vision addresses social inequalities and power dynamics*

  ☐ *Vision addresses the Prioritization of individual and immediate values*

  ☐ *Collaboration, co-creation and deep involvement of diverse stakeholders in shaping the vision*

  ☐ *Vision focuses on business models and technology for sustainability*

  ☐ *Vision was developed mainly by the core team (less co-creation)*

  ☐ *Vision unclear / not explicitly mentioned*

- *Notes or quotes:*

➔ *Pathways*

- *What elements were mentioned? Tick all that apply*

  ☐ *Clear pathway linking actions to vision exists*

  ☐ *Pathway was co-created with diverse actors*

  ☐ *Pathway evolves based on learning and external changes*

  ☐ *Pathway addresses deeper causes (not just symptoms)*

  ☐ *Scientific knowledge influences the pathway*

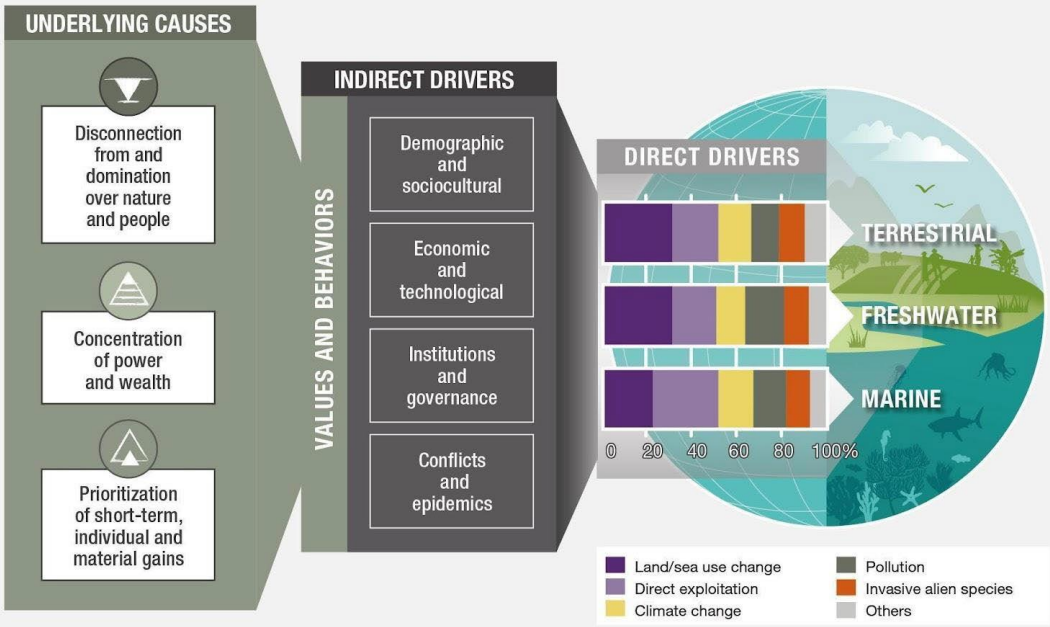
  ☐ *Pathway focuses mainly on immediate, practical solutions*

  ☐ *No clear pathway mentioned*

- *Notes or quotes:*

Root causes

Theory in a Nutshell – Root Causes *– IPBES Transformative Change Assessment Page Page 13.*
Root causes are the underlying, fundamental reasons behind a problem or issue. They go beyond surface-level symptoms and help explain why a problem exists.
The underlying causes for biodiversity loss identified by IPBES are —
1) Disconnection and domination over nature and people,
2) Concentration of power and wealth, and
3) Prioritization of short-term, individual, and material gains.
They are deeply linked to dominant societal values, worldviews, and behaviors.



What do you see as the root causes behind the problem your initiative addresses? Does the initiative deliberately aim to address these deeper causes?

(For interviewer only - Do not read the categories aloud)

Answer Analysis – Root Causes

- *What root causes were mentioned? Tick all that apply:*

☐ Disconnection from and domination over nature and people
(e.g., treating nature and certain social groups as objects to exploit, rooted in extractive worldviews, colonial legacies, or disconnect between people and ecosystems)
☐ Concentration of power and wealth
(e.g., economic and political systems that benefit a small elite, while environmental and social costs are pushed onto marginalised groups)
☐ Prioritisation of short-term, individual, and material gains
(e.g., economic and political systems focused on immediate profit, consumption, and short-term policy cycles, with little attention to long-term well-being)
☐ Other root causes mentioned, namely: _____
☐ The initiative works directly on these root causes
☐ The initiative focuses more on visible symptoms (e.g., habitat restoration, species protection, awareness raising), without addressing deeper causes

- *Notes or quotes:*

Approach

Theory in a Nutshell – Approaches *– IPBES Transformative Change Assessment Page 19-20.*
Approaches = the specific actions, methods or interventions used within that pathway to trigger change in views, structures, and practices.
IPBES identifies six types of approaches that can contribute to transformative change:

- *Systems: Focus on shifting the whole system, by changing objectives, feedbacks, and structures.*
- *Structural: Work to change economic, cultural, political, or social structures to support sustainability.*
- *Inner transformation: Aim to shift personal values, beliefs, and worldviews, strengthening relationships with nature and across generations.*
- *Empowerment: Focus on shifting power relations, enabling marginalised groups to assert their agency for equity and sustainability.*
- *Knowledge co-creation: Bring together diverse actors (scientists, Indigenous Peoples, local communities, civil society) to co-produce knowledge.*
- *Science and technology: Use scientific discoveries and technological innovations to create new solutions and perspectives, helping them scale into wider use.*

Important: Transformative change does not rely on a single approach. Different approaches are not ranked as better or worse — they are usually combined and adapted over time

Could you explain which actions, methods or interventions the initiative uses to solve the problem it addresses?

Follow-up questions *(choose the ones that apply the best)*

a) Do these interventions try to change how decisions are made, who holds power, or how economic systems affect biodiversity?
b) Do any interventions aim to change how people see nature, their values, or their connection to it?
c) Do they bring together different types of knowledge — like scientific, local, indigenous, or practical?
d) How important is collective learning? What do you focus on when learning together?
e) Do the interventions bring in new technologies or innovations?
f) Have you tried new ways of working — things you weren't sure would work but wanted to test?

(For interviewer only - Do not read the categories aloud)

Answer Analysis – Approaches (Q3.3.1)

- *What types of actions or methods were mentioned? - (Tick all that apply based on your interpretation after hearing the answer.)*

☐ Actions targeting how decisions are made, who holds power, or how economic systems work
☐ Actions aiming to change how people see nature and their relationship with it
☐ Actions supporting collaborative knowledge creation (combining scientific, local, indigenous, and experiential knowledge)
☐ Actions introducing new technologies, innovations, or tools
☐ Actions focused on experimenting with new ways of working
☐ Other types of actions, namely: _____
☐ No clear actions or methods mentioned

- *Which types of approaches does this link to?- (Tick all that apply based on your interpretation after hearing the answer.)*

☐ Systems approach → Linking views to understanding whole systems and feedbacks.
☐ Structural approach → Shifting views by questioning economic, political, or social structures.
☐ Inner transformation approach → Shifting personal values, beliefs, worldviews, or sense of connection to nature.
☐ Empowerment approach → Shifting views by focusing on power relations and justice.
☐ Knowledge co-creation approach → Shifting views by integrating different knowledge systems — scientific, local, indigenous.
☐ Science and technology approach → Shifting views through scientific knowledge or new technologies.
☐ Other ways views were shifted, namely: _____

☐ No clear evidence of view changes mentioned

- *Notes or quotes:*

Think of an action or intervention from your initiative that you're particularly proud of:

- How did that action change how people see nature or their relationship with it — especially in relation to short-term economic thinking or disconnection from nature?
- How did it change how people actually work with nature or manage biodiversity?
- And how did it change how decisions are made within the initiative — or how power and knowledge are shared?

(For interviewer only - Do not read the categories aloud)

Answer Analysis – Approaches (Q3.3.2)

- *Views (how people see nature, their relationship with it, and deeper causes like short-termism or disconnection)*

  ☐ No significant changes mentioned
  ☐ Changes mentioned – How the action triggered the change:
  _____

- *Practices (how people work with nature or manage biodiversity)*

  ☐ No significant changes mentioned
  ☐ Changes mentioned – How the action triggered the change:
  _____

- *Internal Structures (how decisions, power, and knowledge are shared within the initiative)*

  ☐ No significant changes mentioned
  ☐ Changes mentioned – How the action triggered the change:
  _____

  - *Notes or quotes:*

5. Seed's engagement with its growing environment (+/- 30min)

Purpose of this section: To understand how the Seed engages with and influences its wider environment.

Seed's influence on its growing environment

Theory in a Nutshell – Decision Making

Decision making = refers to the process of choosing a course of action. It may involve analyzing information, weighing options, considering potential outcomes, and making a final choice. Decision making takes place in public and private contexts, and may include problem-solving, strategic planning, policy development, or resource allocation.

Has the initiative influenced how decisions about biodiversity or ecosystems services are made — for example, contributing to changes in policies, governance processes, or public narratives?

> If yes, how did this happen, and what role did scientific knowledge play?

Probes (only if needed)

- *Was there a key moment — like a policy window, funding opportunity, or public crisis — that created a chance to influence governance or decisions?*
- *Has the initiative influenced how biodiversity loss is framed or understood by other stakeholders?*

(For interviewer only - Do not read the categories aloud)

Answer Analysis – Seed's influence on its growing environment

- *Influence in laws, policies, narratives on biodiversity or decision-making processes?*

☐ No significant changes mentioned

☐ Changes mentioned, please specify in the table:

What was influenced or taken up?	***Who was influenced***	***How did the initiative influence this?***	***At which scale?*** *(Individual, local, Regional, National, EU)*

- *Role of scientific knowledge*

☐ Scientific knowledge from the initiative directly influenced decision-making

☐ Scientific knowledge contributed indirectly (e.g., through awareness-raising or informing narratives)

☐ Other types of knowledge (local, indigenous, experiential) were more important

☐ No clear role for scientific knowledge mentioned

(Optional space for quotes or examples): : _____

- *Actions and interventions used (tick all that apply)*

☐ Policy advocacy or direct engagement with policymakers

☐ Multi-stakeholder dialogues or participatory processes

☐ Research and evidence-sharing (scientific, local, indigenous)

☐ Public campaigns or awareness-raising

☐ Creating new governance spaces (platforms, networks, advisory groups)

☐ Other, namely: _____

- *Notes or quotes:*

Conditions for Change

- Barriers

Theory in a Nutshell – Barriers for Transformative Change *– – IPBES Transformative Change Assessment Pages 15-17, 23-24.*

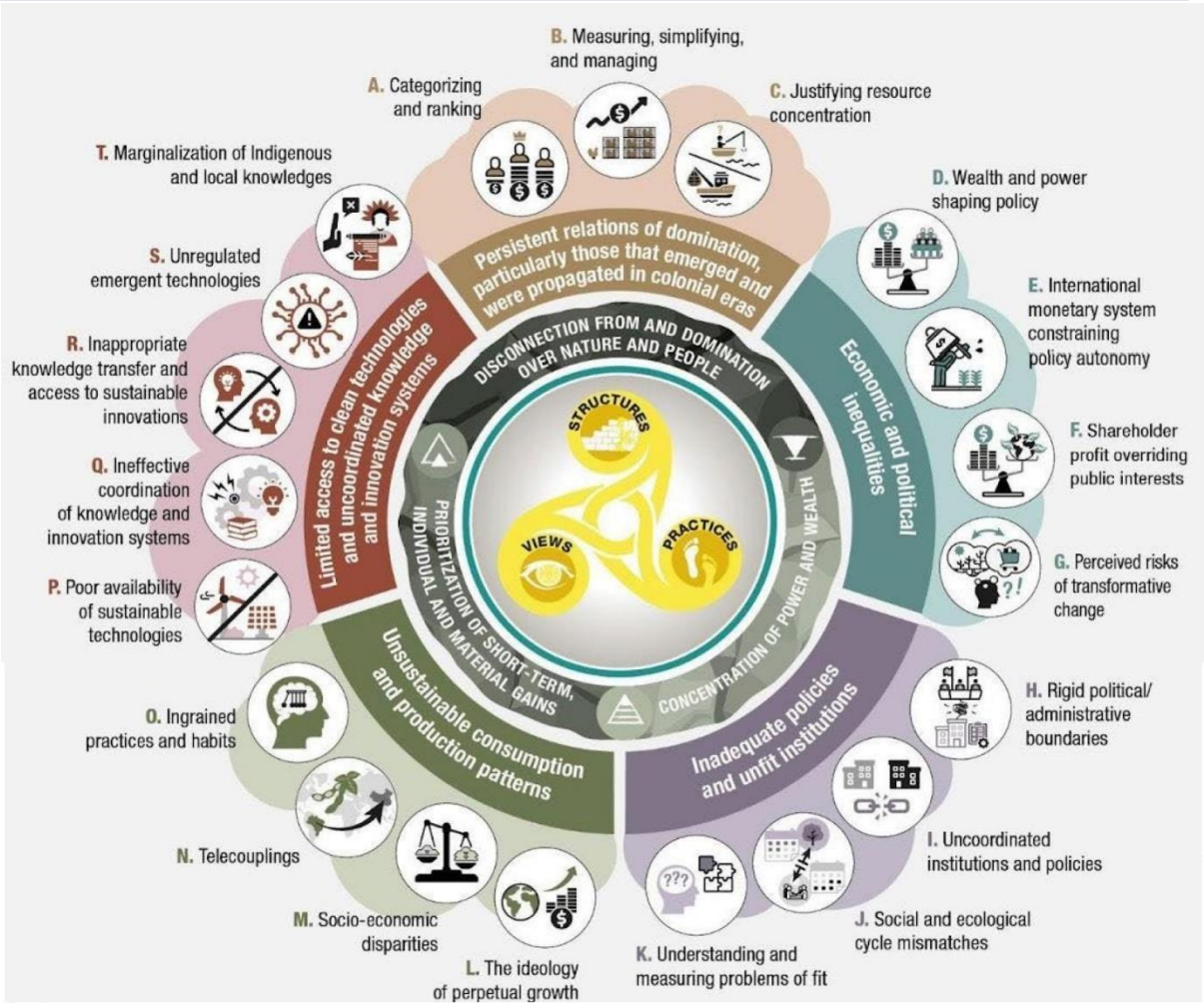
Barriers = systemic obstacles that block transformative change

IPBES identifies 5 overarching challenges that generate 20 barriers as you can see in the image below:

1. *Unfit policies and governance systems – fragmented governance, short-term focus, and weak enforcement.*
2. *Unsustainable consumption and production – driven by short-term profit, global supply chains, and consumer culture.*
3. *Limited access to technology and knowledge – excluding many from solutions and innovation processes.*
4. *Persistent relations of dominations*
5. *Economic and political Inequalities*

These challenges result in specific barriers, such as:

- *Vested interests blocking change.*
- *Lock-in to existing technologies and infrastructure.*
- *Short-term political cycles.*
- *Limited participation of marginalised voices.*
- *Fragmented knowledge systems.*



What factors in the environment make it difficult for the initiative to create change and address the problem it tackles? You can think of a specific moment when these external conditions created a serious challenge or setback.

- Enablers

Theory in a Nutshell – Enablers for Transformative Change *— IPBES Transformative Change Assessment Pages 15-17, 23-24.*

Based on IPBES and Transitions Management, key enablers include:

a) *Supportive policies and legal frameworks – aligning governance with sustainability and justice goals.*
b) *Inclusive governance – involving diverse actors, including marginalised groups, in co-creating solutions.*
c) *Cultural and social change – fostering values of care, responsibility, and connection with nature.*
d) *Learning and adaptation – building reflection and adjustment into ongoing processes.*
e) *Coalitions and networks – bringing diverse sectors and actors together to push for change.*
f) *Spaces for experimentation – creating protected spaces (niches) to test new approaches, allowing risk-taking and learning.*
g) *Multi-level alignment and scaling – connecting innovations at the Seed level with broader policies, markets, and governance, creating conditions for scaling and system change.*

Key message:

Transformative Seeds interact, and are shaped by their environment — barriers can block their development, while enablers can create space for innovation, scaling, and long-term impact.

What factors in the environment make it easier for the initiative to develop and create change? You can think of a specific moment when external conditions had a positive impact

(For interviewer only - Do not read the categories aloud)

Answer Analysis – Barriers & Enablers

- *Barriers – What group of barriers emerged?*

(Tick all that apply and add notes if needed.)

☐ Restrictive or fragmented governance and policies (unfit institutions, conflicting regulations, short-term focus)

☐ Lack of suitable or stable funding (short-term funding cycles, misaligned financial incentives)

☐ Power concentration and resistance from vested interests

☐ Cultural or social conflicts (opposing values, disconnection from nature, limited public awareness)

☐ Limited access to relevant knowledge, data, or innovations

☐ Other, namely: _____

***Notes or examples (including key moment if mentioned):*

- *Enablers - What group of enablers emerged?*

(Tick all that apply and add notes if needed.)

☐ Supportive policies and legal frameworks

☐ Inclusive governance processes (co-creation with diverse actors)

☐ Cultural and social shifts (increased public awareness, shifting values)

☐ Economic conditions (availability of suitable funding, economic incentives)

☐ Power dynamics (alliances with influential actors, shifts towards fair power relations)

☐ Physical infrastructure (improved infrastructure that facilitates sustainable practices)

☐ Access to knowledge and innovations (scientific, local, and indigenous knowledge)

☐ Scientific knowledge on biodiversity and ecosystem services supports credibility, legitimacy

☐ Spaces for experimentation and learning (protected spaces for testing new approaches and learning through trial and error)

☐ Other, namely: _____

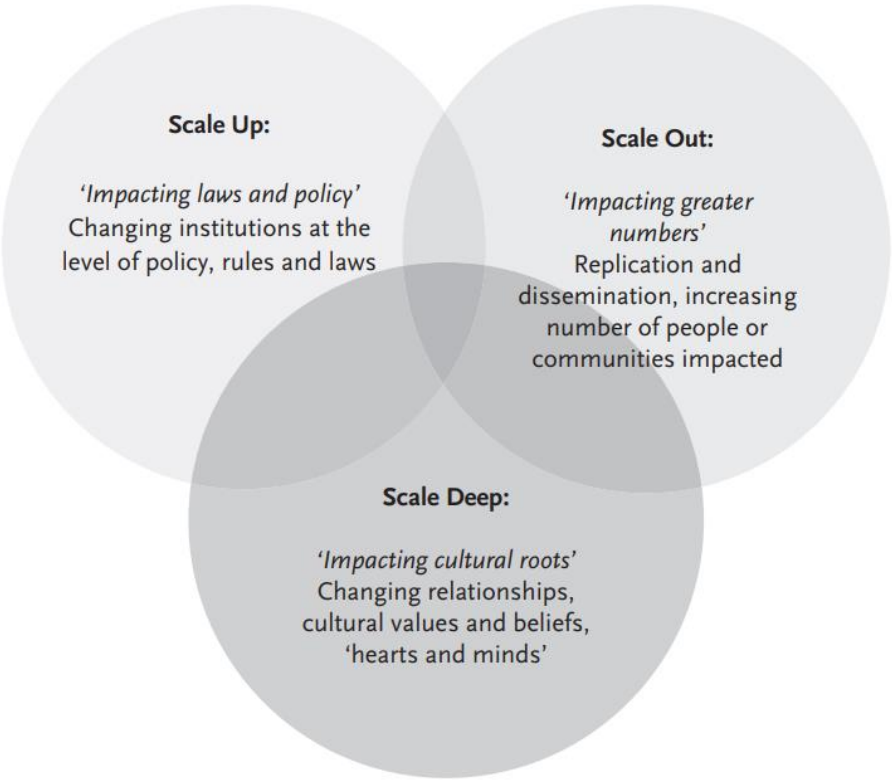
***Notes or examples (including key moment if mentioned):*

Scaling

Theory in a Nutshell – Scaling *– Academic Paper: Scaling Out, Scaling Up, Scaling Deep Strategies*
Scaling = How initiatives extend their influence and impact beyond their original setting, contributing to systemic change. Scaling is not just about getting bigger, but about influencing structures, practices, and views across society.

3 main types of scaling:

Figure 1 Scaling out, scaling up and scaling deep for social innovation



**These types of scaling could be supported by forming alliances with other initiatives to amplify influence and push for system change together.*
Key message:
Not all Seeds aim to scale — but those that do, rarely scale in only one way. Seeds with the highest transformative potential combine Scaling Out, Scaling Up, and Scaling Deep, while also teaming up with others to amplify their impact.

Have any of the initiative's actions, ways of working, or outcomes been replicated elsewhere or institutionalised? If yes, which ones and how? If not, why?

(For interviewer only - Do not read the categories aloud)

Answer Analysis –Scaling

- *Tick the boxes that apply based on the type(s) of scaling mentioned by the interviewee. Add notes if needed.)*

☐ Scaling Out – replicated or adapted in other places
Example: _____

☐ Scaling Up – incorporated into laws, policies, governance processes, or formal institutions
Example: _____

☐ Scaling Deep – influenced cultural values, worldviews, narratives, or ways of thinking
Example: _____

☐ Teaming Up – forming alliances with other initiatives to build collective influence and amplify impact
Example: _____

☐ No evidence of scaling mentioned

☐ Other type of scaling, namely: _____
Example: _____

- *Notes or examples:*

6.Closing down (+/- 5 min)

Thank you for your time and insights. Before we finish, is there anything important you feel we haven't covered that you'd like to add?

Would you be okay with us contacting you if we have follow-up questions after the interview?

Would you like us to share the interview transcript with you once it's ready?

(For interviewer only)

Answer Analysis:

- *Notes or quotes:*

Reflection Page

Capture your experience

write down your impressions and thoughts:

- How did the interview go? How did the interviewee respond?

- Did the interviewee feel uncomfortable at any moment? If yes, with what question?

- What stood out? What was very interesting?

- What was different from what you expected?

- What to keep in mind, or check with the interviewee afterwards?