

Deliverable 2.2

Nature-Positive Economy (NPE) Pilot Roadmaps



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Executive Summary

This report details the strategic pilot roadmapping process of the **GoNaturePositive!** project aiming to deliver a conceptual framework and practical pathways for a Nature-Positive Economy (NPE). By implementing a highly participatory multi-stakeholder approach, the project positions nature-based solutions (NBS) and nature-based enterprises (NBEs) at its core to demonstrate how nature-positive practices can generate systemic benefits for both people and the planet.

Methodology and Objectives

The project utilised a robust five-step "strategic roadmapping" methodology co-developed and facilitated by the University of Cambridge. This well-proven framework was designed to bring together diverse disciplines and collaborating organisations to shape a unified future direction.

The process successfully engaged a total of **over 230 stakeholders** across eight distinct target groups—including policymakers, businesses, finance, nature-based enterprises, and civil society—to co-create shared visions for 2050 and identify actionable initiatives across short, medium, and long-term horizons in six different pilots encompassing five economic sectors.

The main objectives of these pilot roadmaps are to demonstrate a replicable process for:

- **generating a multi-stakeholder vision** of the nature-positive economy in their own operating context and language
- **creating a shared understanding of the current challenges and potential solutions** with regards to transitioning towards the NPE and assessing potential for scaling
- **agreement on key priority NPE initiatives** that interested stakeholders are willing to take forward and commit to delivering in the short, medium (2030) or long term (2050).

Sectoral Pilot Roadmaps and Key Findings

The report presents the results from six distinct pilots spanning five critical economic sectors. Each pilot identified a vision at 2050, conducted a baseline assessment of the existing challenges, and defined pathways towards the vision, identifying initiatives and responsible across the target groups. Below are summarised vision, main challenges and strategic pathways for each pilot sector.

1. Green Buildings (Multi-Level: Europe, Czech Republic, Portugal)

- **Vision & Priorities:** Achieving a fully circular built environment where green roofs, living walls, and blue-green urban infrastructure transition from optional luxuries into mandatory urban infrastructure standards.
- **Main Challenges:** Highly fragmented cross-border policy, upfront capital expenses (CAPEX) and maintenance need (OPEX), a lack of standardized quality metrics, rigid building permit frameworks, and a shortage of certified green workforce skills.
- **Strategic Pathways:** Driven by the European Federation of Green Roof and Living Wall Associations (EFB) alongside national partners (AZSF in Czech Republic, ANCV in Portugal), the pathways focus on establishing a unified pan-European design and performance standard, creating quality benchmarks and certifications for green



systems and components, introducing preferential "green loans", and integrating NBS explicitly into Municipal Master Plans and school curricula.

2. Food Systems (Flanders, Belgium)

- **Vision & Priorities:** Transitioning completely to a fair agroecological system where healthy, organic food is recognized as a basic, affordable human right, and independent farmers receive a dignified, fair income.
- **Main Challenges:** Deep cultural and cognitive disconnection from the true value of food, the dominance of capitalist profit-driven value chains, high land prices, and intense land speculation that limits agricultural access.
- **Strategic Pathways:** Led by Voedsel Anders, this pilot outlines plans to embed systemic thinking and "One Health" principles into public education, deploy mandatory "True Cost Calculation" methods to expose hidden environmental costs, and build robust, community-backed regional food networks to bypass corporate logistics.

3. Blue Economy (Western Region, Ireland)

- **Vision & Priorities:** Shifting to an evidence-based, performance-driven marine economy where coastal community ownership and ocean health are positioned central to sustainable commercial development.
- **Main Challenges:** Persistent societal "blue blindness," deeply fragmented maritime governance, sluggish licensing processes, and a total lack of natural capital accounting models.
- **Strategic Pathways:** Facilitated by the Western Development Commission (WDC), the roadmap details the creation of localized ecosystem service baselines for every bay, the mobilization of a €10 million targeted blue tax incentive framework, and the establishment of a single centralized institution to drive pure and applied marine R&D.

4. Tourism (Valsugana, Italy)

- **Vision & Priorities:** Evolving a premier alpine destination from conventional "sustainable tourism" to an absolute "nature-positive" stewardship model that acts as a living school of sustainability.
- **Main Challenges:** Hyper-congestion of visitor flows at key hotspots, local housing crises driven by short-term rental speculation, and the high technical complexity of measuring direct visitor impacts on biodiversity.
- **Strategic Pathways:** Spearheaded by the Destination Management Organization (DMO) ApT Valsugana, the initiative focuses on smart intermodal traffic monitoring (train + bike), enforcing "Plastic-Free" event protocols, establishing strict regulatory caps on short-term rentals, and creating immersive ecotourism citizen-science programs.

5. Forestry (Friuli-Venezia Giulia, Italy)

- **Vision & Priorities:** Fully integrating a circular bioeconomy model where forests are managed via nature-positive standards to actively reinforce climate resilience and protect local mountain heritages.



- **Main Challenges:** Climate-driven ecosystem migrations (woodlands shifting in altitude), severe land fragmentation preventing cohesive planning, and steady rural depopulation.
- **Strategic Pathways:** Managed by the Legno Servizi Forestry Cluster, actions include integrating dual PEFC/FSC certifications, offering financial premiums for structural wood utilization, launching specialized vocational tracks like the "Geo-Forestry Technician", and consolidating small mountain municipalities to pool management resources.

6. Apiculture (Aburrá Valley, Colombia)

- **Vision & Priorities:** Establishing a globally recognized multi-stakeholder "Pollinators Network" to drive large-scale habitat conservation, safeguard food security, and ensure territorial autonomy.
- **Main Challenges:** Fragmented, non-systematized scientific data, urban sprawl causing severe habitat fragmentation, and heavy pesticide dependence in conventional agriculture.
- **Strategic Pathways:** The pilot co-created an adaptive governance framework structured into seven core components. Key actions include native species risk-mapping, designing interconnected ecological corridors (solitary bee hotels and native floral tracks), launching green microloans, and deploying certified pollinator-positive product labels.

Cross-Cutting Themes and Strategic Actions

While the operational environments differ significantly, the roadmaps converge on several critical cross-cutting breakthrough requirements necessary to unlock systemic macroeconomic change:

- **Policy & Standards:** Overcoming institutional fragmentation requires harmonizing regulatory frameworks with explicit, mandatory performance metrics for nature-based solutions (e.g., aligning building envelopes with EU directives like the Nature Restoration Law).
- **Finance:** Stakeholders demand a structural shift away from "one-shot" public grants toward sophisticated, market-ready private and blended financial tools, such as Green Impact Bonds, payments for ecosystem services (PES), and credit assessments tied directly to natural capital accounting.
- **Education & Workforce Capacity:** A foundational transformation requires integrating "systemic thinking" and environmental literacy into primary, secondary, and professional curricula, while creating robust vocational certification pathways to support a secure, well-paid green workforce.
- **Governance & Stewardship:** Systemic transition mandates moving completely away from rigid, top-down management models toward community-led "stewardship models" that empower local residents, small enterprise clusters, and indigenous groups as direct co-designers of their regional ecosystems.

Reflections and Conclusions

The GoNaturePositive! pilot roadmaps serve as replicable frameworks for transitioning from short-term, profit-driven economic logics toward an economy that treats nature as the



structural foundation for future prosperity. **A prominent conclusion across all pilots is that transformation is not limited by technical ability, as the necessary technologies and business practices largely exist today. Instead, barriers are systemic, tied to regulatory fragmentation, undervalued natural assets, and entrenched economic paradigms.**

Moving forward, the consortium notes that these roadmaps must not be treated as static, one-time document outputs. They are designed to operate as dynamic, living frameworks. To maintain momentum against stakeholder fatigue and bridge the gap between abstract scientific concepts and the day-to-day realities of local economic actors, the pilots advocate for a pragmatic, "small steps" implementation strategy. By embedding regular 6-month review cycles and establishing dedicated action plans, the project ensures that immediate, localized actions remain structurally bound to long-term 2050 NPE targets.



1. Introduction

1.1 Project Summary and Objective of this Deliverable

The GoNaturePositive! consortium is coordinated by Trinity College Dublin (TCD) and involves 20 partners across 14 countries, represented by research institutions, non-profits and environmental organisations who are leading the nature-positive agenda at global and European levels. The project runs from 1st Jan 2024 to the 31st Dec 2027.

GoNaturePositive! adopts a multi-stakeholder approach for systemic change, with nature-based solutions (NBS) and nature-based enterprises (NBEs) at its core. GoNaturePositive! delivers a clear definition and conceptual framework for the nature-positive economy (NPE). Research will take into account valuable existing knowledge from business and expand this with inclusive perspectives from other stakeholder groups. GoNaturePositive! will also demonstrate how nature-positive practices can generate multiple benefits for people and planet on the ground. Key to this demonstration is the role of six pilots across different countries in Europe and Colombia, representing five sectors among those having most impacts on nature and ecosystems. The project aims to pilot the concept of a NPE using a whole of society approach in real world cases.

As illustrated in Figure 1, the NPE roadmapping represents the core part of the second pillar of the GoNaturePositive! project, and the pilots follow the process logically in stages from left to right. Through the development of shared visions at different levels (EU, sectorial) and the identification of priority actions, the project aims to provide guidance to different actors (target groups – TGs) on how to transform the current economic system into a Nature-Positive Economy.

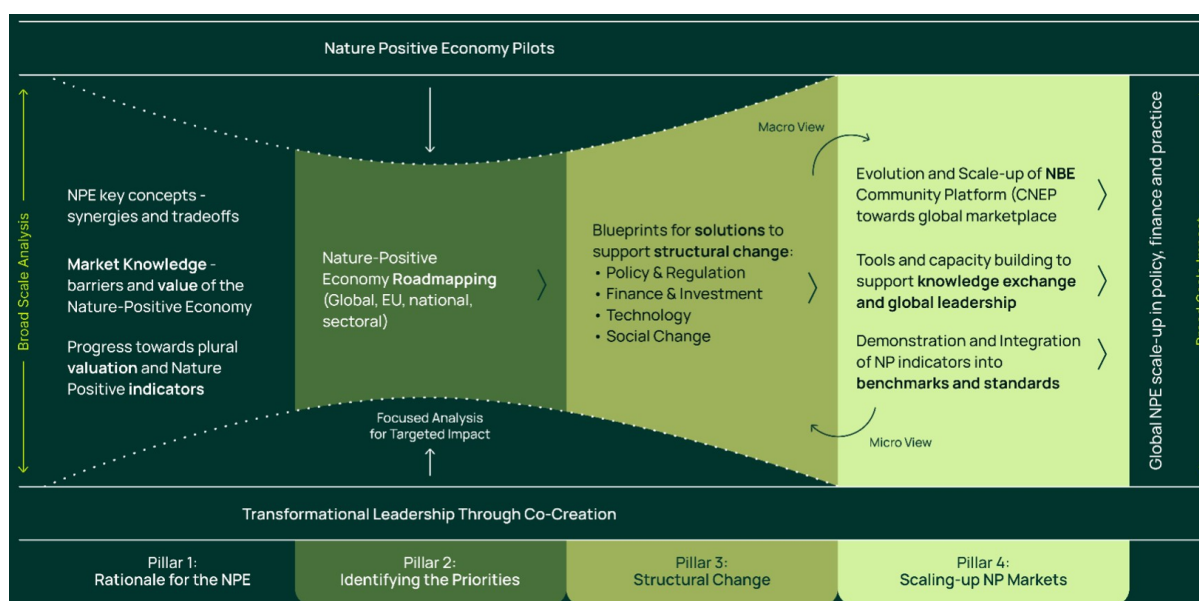


Figure 1 - Transformation process, underpinning the GoNaturePositive! Project



The six pilots of the project, encompassing five different sectors – construction, tourism, forestry, agriculture and food systems, blue economy – undertook a highly participatory co-creation process that moved from the concept of Nature Positive Economy theorised in Work Package (WP1) and aimed to identify practical pathways to achieve it. Pilot roadmaps are functional to achieve the GoNaturePositive! objectives, to test and take first steps of a transformative change at various scales (EU, national, regional, firm).

Pilots engaged different stakeholders, representing the eight target groups, in online and in-presence workshops, developed a shared vision in 2050, identified current challenges and roadblocks as well as initiatives that each TG could take in the short to medium-long term to overcome them. Each pilot also represents various stages of maturity in a largely bottom-up process, intended to build a shared understanding of the business case for transformation and mobilise collective action against priority initiatives.

This document presents the results of the workshops for each pilot, provides reflections on the process in each case, and provides an overview on which pathways (made of initiatives and responsible and timeline) can be undertaken to go towards a Nature-Positive Economy through different sector's perspective.

Pilot roadmaps are also functional helping to inform the direction for the blueprints that are developed in Work Package 3 which are concerned with transforming existing markets through solutions to overcome systemic roadblocks or opportunities.



2. Roadmapping methodology

The GoNaturePositive! project adopted a robust methodology to developing ‘strategic roadmaps’ for each pilot, following an IfM Engage, University of Cambridge facilitated process that has been well proven in other contexts and can now be followed and replicated globally by actors seeking to develop nature-positive economy roadmaps for their own area beyond the project. In this regard, the GoNaturePositive! pilot roadmapping method itself, supported by project templates can be regarded as a valuable capacity building tool.

Why develop a pilot roadmap? Europe is at an early stage of transition towards nature-positive economy practices across most sectors. The challenges and barriers remain substantial in the near-term, particularly from the perspective of individual economic actors. Following insights from Work Package 1, whole of society linkages and a collaborative multi-actor approach are needed to unlock long-term opportunities and economic pathways towards a nature-positive future.

A proven methodology adopted by policy-makers, consultants and engineering organisations is strategic roadmapping and technology roadmapping. This approach brings together diverse stakeholders in common purpose to shape a future direction (across disciplines and collaborating organisations). This has been well articulated by various academic publications and professional reports covering a range of sectors, scales and levels of analysis (Phaal, et al. 2004; Miedzinski, 2022) and most notably, emerging applications at national and international scale in support of transition towards the nature positive economy¹ (Government of Japan, 2023; WBCSD, 2023; WWF, 2024). The results of such roadmapping exercises provide a practical framework to help stakeholders (in the pilot study and externally) to conceptualise their current and/or potential future role/impact in the context of the bigger picture and how this can make a difference, which is a critical aspect of systems change.

What are the benefits of developing pilot roadmaps? Each pilot roadmap in this report provides a real-world exemplar of how economic actors in a specific context can co-create a collective NP vision of the future, agree on current pressing challenges and coalesce around targeted initiatives and actions at various scales (individual organisation, local, national, and outscale to Europe and Global) in the short, medium and long-term timeframes. In this regard, GoNaturePositive! pilot roadmaps constitute a major component of Project Objective 2 (PO2), delivering impact beyond the life of the project by illustrating: (I) high-impact pathways and measurable progression of mainstream business transformation towards nature-positive; (II) route-to-market scale-up of nature-based entrepreneurship and nature-based solutions; and (III) priority areas for policy actions and financial instruments within and across regional and national boundaries². Aggregation and sharing of learning across all pilots present an opportunity to gain valuable insights for NP transition across sectors, national economies and at the European scale.

What process did the pilots follow? All pilots followed a five-step process, as outlined in Figure 2, primarily underpinned by roadmapping workshops (either online or in-person or

¹ Exemplar NPE roadmaps (cross-sector) have been reviewed by Milestone 6, available from www.gonaturepositive.eu/resources

² GoNaturePositive! Proposal (2023), Key Exploitable Result 2 - Strategic NPE roadmaps co-developed with stakeholders



a combination of both), which in some cases were delivered separately in three distinct parts and in other cases were combined – based on geographical and availability preferences.

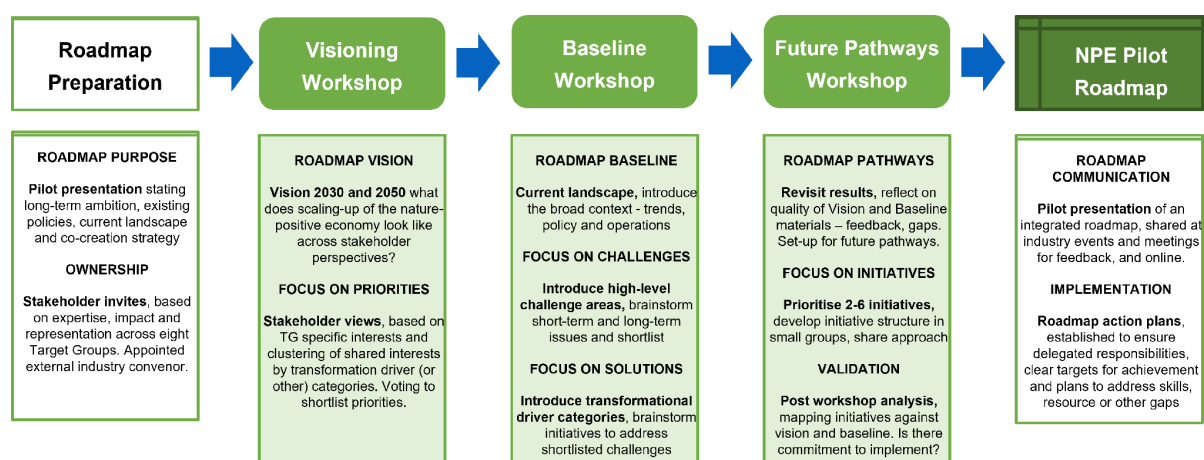


Figure 2 – Overview of the pilot roadmapping process

Step One - Roadmap Preparation making adequate preparation to ensure key experts and stakeholders were identified and duly invited to participate in workshops (Steps Two, Three and Four) and any post-workshop (Step Five) actions. This required being clear about the 'roadmap purpose' and who needs to take 'ownership' of the NPE roadmap. Early-stage planning required selecting an optimal workshop design and facilitation strategy. Template 1 (Table 1) provided guidance on the type of delegates that would be useful to pilots, organised by the project's eight Target Groups (TGs). Pilots were also encouraged to identify an external convenor with credibility across industry stakeholders, who could support the roadmapping workshops and implementation of Nature-Positive Economy initiatives.

A key lesson captured from pilot teams is that the level of confidence in the outputs of the roadmapping process depended on the number of delegates with adequate expertise/experience – underpinning the importance of good preparation. The total number of workshop delegates involved in the development of each pilot roadmap are included in Table 1.

Green Buildings - EU level	Green Buildings Czech	Green Buildings Portugal	Food systems	Blue Economy	Sustainable Tourism	Sustainable Forestry	Apiculture
50	35	63	20	22	34	30	30

Table 1 – Number of stakeholders involved in pilot roadmapping

Step Two - Visioning Workshop introduced the overall aims/motivations of the pilot and roadmapping process to workshop delegates and proceeded to kick off with the roadmap visioning exercises. This involved (i) brainstorming visions of a future from the perspective of each TG using Post-It notes to anonymously capture ideas (see Figure 3); (ii) facilitated support to cluster ideas cutting across TGs interests; (iii) voting on clusters to explore further; and (iv) moving into (c.3-4) breakout groups to articulate an overall



vision for each priority cluster. The clustering was either defined organically by delegates/ facilitators or mapped to the project's transformational change driver categories (policy, finance, business, technology and social change) and other. The output of this work was a consolidated vision statement, and in some cases, this was broken down into some more specific vision statement for specific clusters.

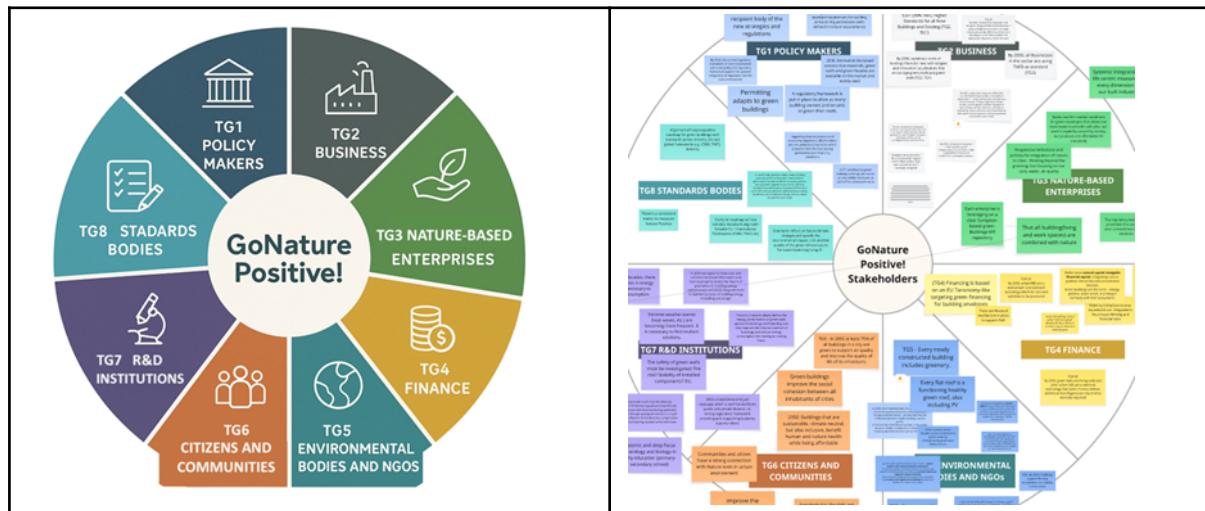


Figure 3 – Visioning Workshop (Step Two), inviting diverse stakeholder perspectives

Step Three - Baseline Workshop involved revisiting the visioning work to capture any further reflections and then moving on to take stock of the current landscape of barriers and challenges to achieving the shared vision. This involved a brainstorming exercise in small breakout groups, inviting Post-It notes mapped to a template with some initial suggested challenge topics by pilot teams (vertical axis), with an 'other' category for anything that did not fit, all mapped to two timeframes (I) past/current up to 2030 and (II) future (2030-2050) (horizontal axis). Breakout groups proceeded to voting on challenges to take forward to the next stage (red dots in Fig 4. template on left). Groups then proceeded to brainstorm potential solutions/initiatives in a new template (Fig 4, on right) where the vertical categories covered policy, finance, technology, social change and other across the same timelines (horizontal). Once more these were voted on in breakout groups to establish a consolidated picture of potential solutions/initiatives, which provided an opportunity to merge/strengthen similar suggestions across groups. The output of this work was a shortlist of typically 2-6 initiatives to take forward into Step Four. Some pilot workshops generated a lot of raw data in the form of Post-It notes, some of which provide a valuable reservoir of untapped ideas that can be revisited, analysed and used to inform further solutions/initiatives that were not pursued by the current cohort of delegates.

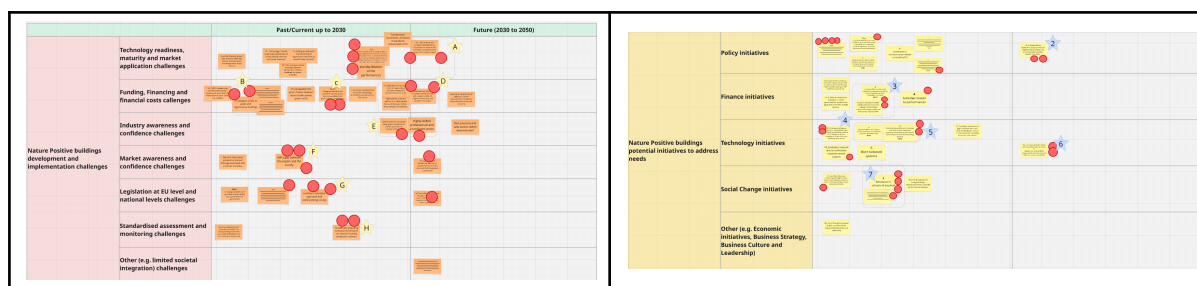


Figure 4 – Consolidated clustering of challenges (left) and potential solutions (right)

Step Four - Future Pathways Workshop involved recapping on Step Three and the workshop organisers bringing in new experts to support the further development of shortlisted initiatives. Depending on the number of initiatives, workshop delegates were divided up into breakout groups per initiative based on interests and background where possible. All groups were given *Template 4* that supports building the core components of a new initiative.

This template followed a set of questions for delegates to explore. Firstly, this involved scoping the initiative, asking delegates to describe (I) a successful end outcome, (II) the current situation, (III) key stakeholders that need to be involved, (IV) what can be addressed within this topic, clarifying what is in-scope and out-of-scope. Secondly, the technical design of the initiative was covered along two timeframes (current-2030 and 2030-2025), including: (V) milestones, (VI) indicators/KPIs, (VII) key activities, using previous Step Three cluster labels, and (VIII) supports needed, naming key resources, skills, knowledge, partnerships and other enablers. Thirdly, discussions concluded with (IX) brainstorming key risks and mitigation strategies and agreement on next steps. All initiative breakout groups came back together to share what they learnt. Following completion of this workshop, pilot teams analysed their complete results, integrating all outputs to ensure consistency with the original purpose, refining content and presenting back any updates to all delegates for validation.

Step Five - NPE Pilot Roadmap required pilot teams to summarise their workshop outputs visually using *Templates 5, 6 and 8* and reflect on the quality of their results. This included identifying gaps in terms of expertise, robustness of content generated, and how ownership of the overall roadmap and various initiatives will be convincingly demonstrated going forward. Some of this work was done internally using pilot organisational expertise. Some of it was also presented externally to the external convenor, all workshop delegates, and at external industry meetings to obtain feedback and validation, prompting refinement of results and inviting further ownership of selected Step Four initiatives (and unselected ones from Step Three). In order to ensure effective traction with the implementation of initiatives, pilots used *Template 9* to create action plans. This is consistent with research by Miedzinski et al. 2022, which points out in addition to vision and pathways, ‘action plans’ are needed to ensure commitment and prioritisation of concrete actions, milestones and targets.

Pilots were encouraged to ensure future dates were in place to revisit progress against their roadmaps (i.e., every 6 months). In order to effectively communicate their roadmaps to external audiences, pilots produced an integrated visual of their roadmaps, illustrating visions, challenges and initiatives in a single picture (*Template 10*).



List of Roadmapping Templates

Step One – Prep	Template 1 – Identification of Stakeholder Target Groups
Step Two – Future Vision	Template 2 – Planning for Visioning Workshop 1 Template 5 – Summary Results of Workshop 1
Step Three – Current Situation	Template 3 – Planning for Baseline Workshop 2 Template 6 – Summary Results of Workshop 2
Step Four – How do we reach Future Vision from the Current Situation	Template 4 – Planning for Pathways Workshop 3 Template 7 – Initiative Roadmap Template 8 – Summary Results of Workshop 3
Step Five – Analysis and Next Steps	Template 9 – Action Plan for Each Initiative Roadmap Template 10 – Visual Roadmap

Table 1 – List of Roadmapping Templates (www.gonaturepositive.eu/resources)

In the following sections the results of the roadmapping workshops are reported for each pilot (and sub-pilot for the case of Green Buildings). Each section presents the vision at 2050, the current challenges (baseline), and the pathways for reaching the vision. Furthermore, each pilot has presented in a summary some reflections on the overall process and the engagement of stakeholders.

Pilot Roadmaps

1. Green Buildings





3.1 Green Buildings

3.1.1 Green Buildings – Europe

Pilot Introduction

Representing the Green Buildings pilot within the GoNaturePositive! project, the European Federation of Green Roof and Living Wall Associations (EFB) works alongside its affiliated partners - the Portuguese Associação Nacional de Coberturas Verdes (ANCV) GREENROOFS® and the Czech Associations of Svaz zakládání a údržby zeleně, z.s. (SZÚZ) – Asociace zelených střech a fasád (AZSF) - to advance the integration of nature-based solutions into the built environment across Europe. EFB, as a network of national associations (currently 18 associations, which unite more than 1,800 companies - mainly SMEs, organisations and experts), brings together cross-European expertise to promote green roofs and living walls as key elements of sustainable and regenerative urban development, based on the understanding that buildings can actively contribute to biodiversity, climate adaptation, and human well-being.

Acting at the interface of policy, research, and practice, EFB serves as a coordination and knowledge hub, enabling the exchange of standards, best practices, and innovation among its members. The scope of EFB's interests extend into wider value chain of the built-environment and enabling technologies, where building design, materials and sustainable operations have an influence the efficacy and scalability of nature-positive solutions. For the purpose of developing a roadmap for Europe, EFB was supported by the European Construction Technology Platform (ECTP).

Vision

This is our shared future: **a fully circular, nature-positive built environment that restores ecosystems, empowers people, and ensures that nature and humanity flourish together.**

By 2050, cities and buildings have become living ecosystems: regenerative, circular, and inclusive, where people and nature thrive as one. The built environment restores more than it consumes, strengthening both community well-being and planetary health. Every policy, investment, and design decision supports a nature-positive transformation: vegetation and biodiversity are integral to urban planning; buildings are designed with living envelopes that purify air, store carbon, and reconnect people with nature. Regenerative design, circular materials, and green technologies are the norm. Businesses lead with transparency and innovation; finance institutions value natural capital; citizens enjoy affordable, healthy, and nature-rich homes. Standards ensure quality, safety, and long-term resilience across Europe and beyond. Education, research,



and cooperation unite all sectors: policymakers, enterprises, NGOs, and communities – in building cities that are not only climate-neutral, but ecologically restorative and socially just.

Baseline

During the Baseline workshop, the stakeholders have identified different challenges. For each one, they provided details on the state-of-the-art of the challenge, giving an overview of the baseline (policy, technology, social adaptation, finance, etc.). Here below challenges are reported and described.

1. Fragmented Policy, Weak Implementation & Standardisation

-
- Absence of a technical European Standard/norm for green roofs and walls (e.g. EN).
-
- Adaptation of relevant EU policies on the national level waters down the topic, and policy impact is lost due to different national prioritisations.
-
- National leadership in EU policy implementation is missing or insufficiently competent, leading to fragmented national policy results.
-
- Low integration of green roofs/walls into building frameworks and certification schemes.
-
- Policy lags behind innovation, failing to accommodate emerging technologies.
-
- Need for an EU-wide harmonisation and policy placement to create an open, competitive EU market.
-
- Changing mandates and public policy priorities from government to government.
-
- Greening buildings should be clearly and strongly put in CSRD in order to motivate / oblige stakeholders to invest.
-

2. Financing & Cost Barriers

-
- Upfront CAPEX and persistent OPEX costs of nature-positive solutions compared to conventional construction.
-
- Unclear ROI and competition for green finance and rooftop space (PV vs Multifunctional green Roofs).
-
- Changing political mandates and priorities affecting public funding availability.
-
- Low valuation of societal/ecosystem benefits, focus only on investor-level ROI.
-



- Limited availability of market-ready finance/insurance products (performance/impact-based, SROI instead of CBA).
- Market demand is inconsistent, reducing willingness of suppliers and investors to scale.
- Need for financial incentives for GI, e.g. the reduction of VAT, or with variable rates, depending on their ecological, technical, and social value.

3. Technology Readiness & Scalability

- Technology, in some cases, fails to meet biodiversity or habitat criteria.
- Limited large-scale deployment of living building materials and bio-based materials.
- Local sourcing of materials and workforce remain a challenge for system providers.
- Uncertainty among growers regarding future demand of appropriate plants.
- Need for climate-resilient, future-proof plant selection and knowledge.
- Sector expansion must integrate new players (e.g., construction companies shifting to NbS) without reducing quality.
- Low availability and regulatory frameworks of circular-economy product offerings.
- Climate change intensification (heat, drought) will increase maintenance challenges, affecting long-term performance.

4. Measurement & Monitoring Challenges

- Proper quantification of GI energy and biodiversity benefits in building applications remains challenging. No standardised studies to assess the impact of greenery on building consumption, in relation to climate conditions and to the vegetation type.
- Carbon impact: greening solutions are today calculated as more expensive regarding carbon footprint than having nothing because ecosystem services are not valued properly.
- Current EU frameworks, such as the Nature Restoration Regulation (Art. 8), focus mainly on the quantity of urban green, creating challenges for linking them to quality-based ecological metrics.



-
- Countries still lack national-level metrics to measure nature gain or nature-positive outcomes.
-

5. Knowledge, Skills & Awareness Gaps

-
- Limited technical and value chain knowledge, low professional capacity and expertise in some specific markets (not in others); lack of standardised training for all.
-
- Integration of nature-positive knowledge into the education system (vocation, applied and academic levels).
-
- Low awareness of biodiversity benefits; ecosystem services are undervalued.
-
- Knowledge remains fragmented and siloed across languages, institutions, and sectors.
-
- Lack of divers, context-specific case studies (e.g. for Mediterranean and hot/arid climates).
-
- Continued risk of low awareness of biodiversity and nature-related impacts of green buildings, hindering widespread market confidence and demand, unless targeted communication and evidence-building improve.
-

6. Societal Disconnect & Acceptance

-
- Weak societal connection to nature; cynicism and disengagement reduce support for green solutions.
-
- Limited communication and education on benefits; no clear responsibility for public outreach and awareness-raising.
-
- Unequal access to green and regenerative buildings.
-
- Significant and persistent gap between experts and society.
-

Pathways

The identification of the challenges has helped the participants to identify possible solutions to overcome the existing barriers. Solutions have been clustered according to the Target Group mostly responsible or suitable for carrying out the activities proposed.



Furthermore, a prioritisation exercise has been conducted, considering feasibility and impact, which has led to the identification of one (or a few) solution for each TG.

Selected solutions have then been analysed in detail, identifying objective, current state, scope of the initiative, expected outcomes, key activities necessary to reach the objective, milestones by 2030 and 2050, indicators, and risks and mitigation strategy.

While an overall restitution of all initiatives for each TG are reported in the Annex 1, here we report the six main initiatives for *“a fully circular, nature-positive built environment that restores ecosystems, empowers people, and ensures that nature and humanity flourish together”* presenting the objective, expected outcomes and key milestones:

1. Develop a European Standard for Green Roofs and Walls – TG7 Standard Bodies	
Objective	To create a pan-European Standard covering design, installation, maintenance, safety, and performance metrics (biodiversity, water, energy, carbon) for green roofs, living walls, and façade greening, with climate-zone differentiation.
Expected Outcome	• A harmonised EU standard accepted by industry players, enabling market growth. • Standards are linked to certification and regulate minimum specifications while allowing for local market and climate tailoring. • Turning green roofs/walls into defined products to boost uptake.
Milestones	• By 2030: EFB associated countries must vote to support the initiative (May 2026/27, EFB General Meeting). Workshop agreements for Building-Level (BL) and District-Level (DL) standards; Formal Standard Working Agreements finalized for both BL and DL. • By 2050: 2035 - Implementation of both Building- and District-Level Standards.

2. Develop New Financing Products – TG4 Finance	
Objective	Create and scale new financing instruments (Green Impact Bonds, SROI-based tools, OPEX financing, insurance-linked resilience products) to enable widespread adoption and long-term maintenance of green and nature-positive roofs and walls.
Expected Outcome	• Green infrastructure is standard, valued building fabric. • Financing tied to measurable performance criteria. • Market matures: public grants decrease, private and blended finance dominate. • Multifunctional roofs (minimum green+PV) widespread.



	Frameworks like Biodiversity Net Gain adopted.
Plans	By 2030: Living labs operational; more green finance instruments; clear ROI KPIs (water, biodiversity, health, OPEX); certification metrics integrated. By 2050: Multifunctional roofs standard; green infrastructure mandatory; blended finance mature.

3. Mandatory GI/NBS Performance & Ecological Metrics – TG1 Policymakers

Objective	Introduce mandatory minimum performance requirements for Green Infrastructure (GI) and Nature-Based Solutions (NBS) into key EU policies (EPBD, EED, etc.) and develop standardized ecological metrics, monitoring, and scoring to drive nature-positive outcomes.
Expected Outcome	- Quality Marking for entire green roof/wall systems and components. - Standardised, uniform performance metrics enabling multi-functional design. - Achieved minimum integration standard for GI/NBS across the EU. - A clear sectoral urban green agenda with understood performance benchmarks. - Cities have the data and understanding to set and meet their "satisfactory level".
Plans	By 2030: Achieve exemplar markings for systems and components; create and implement the application-metrics matrix (2x2 chart) for multi-functional design.

4. Low-Carbon Circular Materials and Local Supply Chains – TG2 Business

Objective	To drive investment and innovation in low-carbon, circular materials, local plant/substrate supply chains, and scalable solutions, transforming the green infrastructure market towards sustainability and resilience.
Expected Outcome	- A mature market for local, low-carbon materials and supply chains. - Regenerative design and circular materials are the norm. - Standards enable local material use and innovation. - Businesses expand portfolios of scalable, sustainable solutions.
Plans	By 2030: Map existing local projects under EFB. By 2050: Publish EFB guidance documents for circular/local implementation.

5. Cities And Communities - Fair Access to Green – TG5 Citizens and Communities

Objective	Ensure fair, inclusive, and equitable access to green roofs, living walls, and nature-based solutions across European cities, with a strong focus on vulnerable
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	communities, social housing, schools, healthcare facilities, and climate-exposed neighbourhoods.
Expected Outcome	• Green roofs and walls recognised as essential urban public infrastructure. • Reduced inequality in access to urban nature and ecosystem services. • Improved health, thermal comfort, and well-being in vulnerable communities. • Cities empowered to deliver socially just, nature-positive urban regeneration. • Stronger social acceptance and ownership of GI/NBS projects.
Plans	• By 2030: GI/NBS embedded in public buildings and social housing programmes; community pilots launched in multiple EU regions. • By 2050: Fair access to green infrastructure mainstreamed across European cities.

6. Skills Training - Developing Training for Professionals – TG6 R&D Institutions

Objective	Build a skilled, qualified, and future-ready European workforce capable of designing, installing, maintaining, and monitoring high-quality green roofs, living walls, and nature-positive building systems.
Expected Outcome	• Harmonised European training framework for green roofs and walls. • Recognised professional competencies and qualifications. • Higher quality, safer, and more resilient GI/NBS projects. • Strong link between standards, certification, and workforce skills.
Plans	• By 2030: EU-level training framework established; pilot programmes running in multiple countries. • By 2050: GI/NBS skills embedded in mainstream education and professional practice.

Summary

The roadmap was co-created through a structured online process consisting of two workshops (four sessions) held between November and December 2025: a Visioning session (4 November) followed by Baseline and Pathways sessions (4 and 9 December). The process engaged more than 50 participants across 8 target groups (Policy Makers, Business, Nature-Based Enterprises, Finance and Investors, Environmental Bodies and NGOs, Citizens and Communities, R&D and Academia, and Standards Bodies), ensuring full value-chain representation. Workshops were facilitated by experts of the University of Cambridge and combined plenary discussions, breakout groups, and prioritisation exercises to move from vision to concrete actions and milestones in 2027, 2030, and 2050.

The workshops were further complemented by a series of internal discussions and workshops within the EFB network and ECTP - European Construction Technology



Platform, which helped refine and consolidate the proposed pathways, solutions, and action plans to ensure they address the maximum range of identified challenges.

Feedback was very positive - particularly regarding the cross-sector exchange and the focus on implementable outcomes. A key takeaway is that overcoming fragmentation across policy, finance, and knowledge is both the main challenge and the main lever for scaling nature-positive solutions in the green building sector.

The roadmap identifies fragmentation across policy, standards, finance, and skills as the main barrier to scaling green roofs/walls and nature-based solutions (GI/NBS) in Europe and proposes key breakthroughs including a harmonised EU-wide standard, mandatory performance metrics, innovative financing models tied to measurable outcomes, fair access to green infrastructure and structured training systems for professionals. While challenges persist - such as low investor confidence, unclear ROI, skills gaps, and uneven social acceptance, with risks of inconsistent quality and greenwashing - the document highlights strong opportunities to scale through standardisation, pilot projects, public procurement, the development of local supply chains and inclusive community approaches, as well as training systems, ultimately positioning GI/NBS as essential urban infrastructure rather than optional features.

3.1.2 Green Buildings – Czech Republic

Pilot Introduction

The Czech Republic participates in the GoNaturePositive! project as one of the national pilot countries, together with Austria and Portugal. The Czech pilot is represented by the Czech Association of Green Roofs and Facades (AZSF), a specialised organisational unit of the Czech Association for Landscape Establishment and Maintenance (SZÚZ) and a member of the European Federation of Green Roof and Living Wall Associations (EFB). AZSF brings together professionals, companies and institutions active in the field of green roofs, green facades and vegetation on buildings. Its long-term work includes professional standards for green roofs, methodology for green facades, education and training, expert events, awareness raising, the Green Roof of the Year competition and the Certified Green Roof Installer programme.

The Czech pilot focuses on green roofs, green facades and related elements of blue-green infrastructure as climate adaptation measures in the building sector and as part of the transition towards a nature-positive economy. The scale of the pilot is national. This report presents the outcomes of the stakeholder engagement and roadmapping process carried out in the Czech Republic and reflects the views, experience and priorities of Czech stakeholders involved in the sector, including professional associations, designers, implementation companies, municipalities, researchers and public-sector.



Vision

By 2050, a nature-friendly economy will be based on the premise that green roofs, green facades, and other elements of blue-green infrastructure are a standard feature of new construction, renovations, and urban planning, and are no longer viewed as a luxury or as an exception. Their benefits are incorporated into technical standards, energy calculations, building operating economics, and financial decisions, so that sustainable solutions have better access to loans and other financial instruments, while direct subsidies are phased out because the market now considers these measures standard practice. Companies, investors, researchers, and public administration work with ample data, verified standards, and integrated designs that combine environmental, technical, and economic benefits and do not rely on one-size-fits-all solutions regardless of content. Also, societal thinking is changing: the unnecessary use of primary raw materials where recycled materials suffice is considered unacceptable, and green building is no longer associated with concerns that it is unnecessary, expensive, or technically problematic. The result is an economy that not only reduces the negative environmental impacts of construction but also actively increases the resilience of cities, improves quality of life, and treats nature as a full-fledged component of economic development.

Baseline

During the Baseline workshop, the stakeholders have identified different challenges. For each one, they provided details on the state-of-the-art of the challenge, giving an overview of the baseline (policy, technology, social adaptation, finance, etc.). Here below each challenge is reported.

1. The economy of green roofs: Costs, Benefits, Return on investment

-
- The common idea is that green roofs have high initial costs, which investors perceive as making construction more expensive without a clearly quantified return on investment.
-
- Lack of reliable quantified data on cooling performance and water savings. In addition, public contracts are often subject to lowest price competition, ignoring life cycle costs (LCC).
-
- Concerns about maintenance costs, pressure to remain competitive (preference for inexpensive “white roofs”), and a conservative management approach focussed on short-term profits rather than ESG goals
-

2. Finance, Subsidies and Incentives



-
- High initial investment costs, which, together with unclear economic return, discourage developers of industrial buildings in particular.
-
- Investors are not interested in increasing investments beyond the necessary limit.
-
- Public procurement suffers from bad practice, where, despite the legal obligation to take environmental aspects into account, tenders are primarily based on the lowest price, regardless of life cycle costs (LCC).
-
- Investors are also concerned about unclear follow-up care and lack quantification of benefits (e.g. water savings). In large companies, investment is hampered by management's focus on profit rather than ESG goals, and the overall burden is increased by the administrative and legislative complexity of permitting processes.
-

3. Where do Green Roofs make the most sense

-
- Disagreement over prioritisation, whether green roofs are more beneficial on large halls (impact on the global heat island) or in city centres (impact on the microclimate for people).
-
- In logistics centres, implementation is hampered by the technical and static limitations of lightweight structures.
-
- There is often a misconception of competition with photovoltaics or a preference for parking spaces over greenery.
-
- Cities do have strategies, but in practice they use them inconsistently.
-
- There is a lack of public data on failures that would allow lessons to be learned from mistakes.
-

4. The Role of the City: Leading by Example and Systemic Support

-
- Discrepancy between political leadership and the bureaucracy, where the enthusiasm of politicians' clashes with the passivity of civil servants (or vice versa).
-
- There is often anonymity of responsibility within the authorities, with no specific guarantor of the green roof agenda.
-
- Mayors encounter their own incompetence in awarding contracts, which leads to safe but ineffective competition for the lowest price.
-
- Cities work with their strategies in an uncoordinated manner and are often concerned
-



about discouraging investors with stricter requirements.

- The overall situation is exacerbated by the demotivation of officials by bureaucracy and, in some cases, political denial of climate change, which threatens the continuity of subsidy programs.
-

5. Expertise, Education and Know How

-
- The main obstacle is low awareness outside the professional community, with information spreading mainly among already convinced supporters.
-
- Implementation is hampered by a lack of commissions from architects and investors' concerns about the insufficient expertise of implementation companies.
-
- Negative perceptions are exacerbated by the volume of “bad practice”, where even isolated failures generate more mistrust than dozens of successful projects.
-
- Public administration often lacks the competence to assess quality, which leads to ineffective price competition.
-
- Rigid education system, which integrates the topic of green roofs into teaching only to a limited extent.
-

6. Legislation and Technical Barrier

-
- The development of green roofs is hampered by unclear and burdensome legislation, which, together with the demanding building permit process, increases the economic burden of projects. In the case of industrial buildings, a critical limitation is the statics of lightweight structures, which are often not designed to bear the load of vegetation layers.
-
- In urban planning, there is a persistent conflict with parking spaces, with authorities rigidly requiring paved areas at the expense of greenery.
-
- The myth of competition with photovoltaics persists, as does the poor application of public procurement law – contracting authorities ignore environmental aspects and compete only on the lowest price because they lack clear technical standards to rely on.
-



Pathways

The identification of the challenges has helped the participants to also identify possible solutions to overcome the existing barriers. Furthermore, a prioritisation exercise has been conducted, considering feasibility and impact, which has led to the identification of one solution for each TG.

Solutions have then been analysed in detail, identifying objective, current state, scope of the initiative, expected outcomes, key activities necessary to reach the objective, milestones by 2030 and 2050, indicators, and risks and mitigation strategy.

While a comprehensive overview of all initiatives is presented in the Annex 2, here are reported the initiatives for reaching the vision.

1. The City's Role as a Leader in the Development of Green Roofs and Residential Housing

Objective	To create a fully circular built environment where the city leads by example in promoting the green economy and sustainable construction, thereby motivating private investors and ensuring the prosperity of both people and nature.
Expected Outcome	An enlightened approach by city leadership, where green roofs are a standard requirement in zoning plans, supported by high-quality specifications and effective interdisciplinary cooperation among agencies.
Plans	• By 2030: training of building authority officials in key regions, introduction of mandatory green space rations, and pilot use of planning agreements. • By 2050: green roofs are a standard component of zoning plans for all cities with over 5,000 residents and full integration of green infrastructure into municipal budgets.

2. Economic Transformation and Financing of Blue-Green Infrastructure

Objective	To create a functional economic system in which investments in green spaces (especially public ones) are a priority in municipal budgets, and where the costs of implementation and maintenance are offset by demonstrable benefits and systemic incentives. The goal is to transform the perception of maintenance from a “costly burden” to an investment in long-term prosperity.
Expected Outcome	Green infrastructure is systematically integrated into municipal budgeting, and the market offers preferential green loans backed by data on climate risk reduction.
Plans	• By 2030: launching stable grant programs and introducing discounts on stormwater sewer fees in the residential sector; at least 3 banks offer green loans; pilot tax breaks in at least 3 cities; Development of an economic return calculator and a methodology for evaluating LCC including maintenance requirements.



	By 2050: green financing is a fully automated component of municipal budgets; green loans are standard; the cost premium for green solutions has fell below 5%.
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3. Legislative lobbying and systemic financial incentives for green infrastructure

Objective	To create a stable and predictable environment for investors through professional lobbying, the introduction of tax breaks, and simplified access to grants, leading to a fully circular built environment.
Expected Outcome	Green roofs are supported by a harmonised regulatory framework where incentives (subsidies, tax breaks) outweigh the administrative burden.
Plans	- By 2030: Professional lobbying and advocacy for the creation of strategic documents with regional and municipal leadership; Launch of stable SFZP grant programs; pilot implementation of tax breaks in at least 3 cities; amendment of the Public Procurement Act. - By 2050: Tax breaks implemented nationwide; grants replaced by systemic tools (breaks, discounts); fully harmonised regulatory framework with the EU.

Summary

The roadmapping process consisted of three workshops. The first workshop was held online on 25 November 2025 and was attended by 17 participants. All key stakeholder groups were represented by at least one participant, which made it possible to gather a broad range of perspectives from the outset. The second and third workshops, focused on Baseline and Pathways, were combined into one in-person meeting held in Ostrava on 4 March 2026, with 18 participants.

The process showed a high level of engagement among those stakeholders who agreed to participate. Participants generally perceived the initiative very positively and appreciated the opportunity to contribute to a wider discussion on the future role of green roofs, green facades and blue-green infrastructure in the transition towards a nature-friendly economy. At the same time, the process revealed a practical challenge: although stakeholders are often interested in the topic, it is difficult to identify and involve suitable representatives, and securing their participation in an in-person meeting is particularly demanding due to their limited time availability.

One limitation of the in-person workshop was that no representatives from the political sphere or the banking sector were unable to attend but attempts will be made to follow-up with these critical stakeholders. Nevertheless, the workshops provided valuable input from professional, technical, municipal and implementation perspectives. A particularly important takeaway was that the barriers to wider implementation of green roofs are not isolated, but interconnected across economics, legislation, public procurement, education, technical standards and municipal practice.



3.1.3 Green Buildings – Portugal

Pilot Introduction

Portugal is participating in the GoNaturePositive! project as one of the pilot countries, together with Austria and the Czech Republic. The national pilot is led by the National Association of Green Roofs (ANCV), a non-profit Environmental Non-Governmental Organisation and a partner of the European Federation of Green Roof and Living Wall Associations (EFB). ANCV's mission is to promote the integration of green infrastructure in Portuguese cities, with a strong focus on green roofs as key solutions to improve environmental quality, increase urban resilience and support biodiversity.

The association currently brings together around 180 members, including companies, professionals, academic institutions and other stakeholders active in the sector. ANCV plays a key role in connecting municipalities, the private sector, education and research institutions, and the wider community, helping to foster collaboration and share knowledge across different fields.

Within the GoNaturePositive! project, ANCV is focused on bringing forward national perspectives, particularly in relation to green roofs and living walls as nature-based solutions. These solutions are seen as important tools to address climate challenges, improve the environmental performance of buildings and support the transition of different sectors towards more sustainable and nature-positive urban models. This report presents the outcomes of the stakeholder engagement and roadmapping process carried out in Portugal, bringing together more than 600 contributions from a wide range of actors, including public authorities, businesses, researchers and civil society.

Vision

By 2050, Portugal's cities and buildings will have transformed into living, resilient, and circular urban ecosystems, where people, nature, and community thrive in balance. The built environment contributes to the regeneration of the territory, reinforcing environmental health and social well-being, while promoting sustainable economic opportunities. Public policies, municipal plans, and national regulations incorporate green roofs and facades as standard urban infrastructure, promoting climate resilience, biodiversity, and urban comfort. Strategic tax incentives and public and private financing systems support the expansion of domestic production of biomaterials and NBS solutions, ensuring that companies and developers have the necessary resources to innovate and grow. The business sector leads with transparency, innovation, and technical capacity, adopting circular practices and integrating green technologies into its projects. Intelligent systems, urban digital platforms, and artificial intelligence tools enable the integration of NBS with energy, water, and urban management, making solutions more accessible, efficient, and scalable.

Portuguese society is informed, aware, and demanding regarding green infrastructure. Formal education includes content on NBS, and green professions are well-established,



with certified technicians and consultants guaranteeing quality, safety, and effectiveness in the implemented solutions. Technical standards and national guidelines ensure standardization, while collaboration between the public, private, and academic sectors drives innovation and large-scale implementation.

This is the future of Portugal: a construction and urban rehabilitation market fully integrated with nature, sustainable, regenerative and inclusive, in which companies, citizens and financial institutions work together so that nature and communities thrive side by side.

Baseline

During the Baseline workshop, the stakeholders have identified different challenges. For each one, they provided details on the state-of-the-art of the challenge, giving an overview of the baseline (policy, technology, social adaptation, finance, etc.). Here below each challenge is reported.

1. Limited integration into public policies and urban regulations

-
- As Nature-Based Solutions, including green roofs and green walls, are not yet clearly integrated into the national Government Plan, which limits their prioritisation in public policies.
-
- Integration of NbS into Municipal Master Plans (PDM) and municipal regulations on urbanisation and building is still limited.
-
- Lack of national standards, installation and maintenance of these solutions.
-
- Lack of fiscal instruments and structured incentives that promote the adoption of NbS.
-

2. Economic barriers and lack of dedicated financial instruments

-
- Initial implementation costs for NbS, including green roofs and walls, are still perceived as high by developers, companies, and property owners.
-
- The absence of structured financial instruments hinders the widespread adoption of NbS solutions.
-
- Lack of consistent tax incentives, such as Green Property Tax or reduced VAT, that encourage investment in green infrastructure.
-



-
- Banks and financial institutions do not incorporate biodiversity and environmental impact metrics into credit assessments and investments.
-
- Limited funding specifically for demonstrator projects, technological innovation, and support for NbS companies, making the sector dependent on one-off initiatives.
-

3. Challenges in NbS solution innovation

-
- Investment is still limited in research and development (R&D) of NbS solutions adapted to the Portuguese context, including biomaterials and technical systems.
-
- Life Cycle Analysis (LCA) and tools such as the Digital Product Passport are still underutilised in the green infrastructure sector
-

4. Market structure still consolidating and a shortage of specialised skills

-
- Shortage of qualified professionals and technicians specialised in the planning, installation, and maintenance of these solutions.
-
- NBS sector, including green roofs and walls, is still in the consolidation phase in Portugal, with a limited number of specialised companies.
-
- Implementation and maintenance costs remain relatively high, hindering competitiveness compared to conventional solutions.
-

5. Low environmental literacy and limited societal involvement

-
- Lack of consistent integration of NbS into school curricula and educational programs, limiting the knowledge from an early age.
-
- Limited awareness of the societal, environmental, and health benefits associated with NbS.
-
- Lack of structured mechanisms for citizen participation and community involvement in sustainable urban projects.
-

Pathways

The identification of the challenges has helped the participants to identify possible solutions to overcome the existing barriers. Solutions have been clustered according to



the Target Group mostly responsible or suitable for carrying out the activities proposed. Furthermore, a prioritisation exercise has been conducted, considering feasibility and impact, which has led to the identification of one solution for each TG.

Solutions have then been analysed in detail, identifying objective, current state, scope of the initiative, expected outcomes, key activities necessary to reach the objective, milestones by 2030 and 2050, indicators, and risks and mitigation strategy.

While details are reported in the Annex 3 here are reported the initiatives for “a construction and urban rehabilitation market fully integrated with nature sustainable, regenerative and inclusive, in which companies, citizens and financial institutions work together so that nature and communities can thrive side by side”:

1. Integration of NbS into the Portuguese national political and regulatory framework	
Objective	To integrate green roofs and walls into public policies, urban regulations, and national strategies, making them a standard solution in urban planning (based on European Directives EED, NRL, EPBD, UWTD).
Expected Outcome	• Clear integration of NbS into the national and municipal policy framework, with defined requirements for their application in buildings and urban planning. • Existence of technical standards and certification systems for green roofs and walls ensures quality, safety and consistency in implementation. • Definition of national metrics and indicators that allow for the evaluation of the environmental, economic, and social performance of NbS. • Municipalities and public entities will have the technical capacity and regulatory framework to plan, implement, and monitor urban green infrastructure.
Plans	• By 2027: mandatory integration of green roofs into new buildings in the Master Plan and Municipal Urbanisation and Building Regulations; Creation of a national platform for registering green roofs; New reform of the Portuguese Green Tax System to include NbS. • By 2030: NbS in the National Government Plan; more public buildings with NbS; mandatory integration in new and renovated buildings (whether public or private); Tax incentives for sustainable companies. • By 2050: full integration of NbS, namely green roofs and walls, into climate, water and energy adaptation plans.

2. Structuring financial mechanisms and incentives for NbS in Portugal	
Objective	To create a stable and attractive financial framework that allows for scaling up the implementation of NbS, reducing costs and increasing public and private investment.



Expected Outcome	• Reduced implementation and maintenance costs over time. • Significant increase in public and private investment in NbS solutions • A more competitive market, with domestic production and economically viable solutions.
Plans	• Develop green credit lines and dedicated funds; integrate environmental impact metrics into the banking sector; support domestic production of biomaterials. • Develop cost-benefit and lifecycle assessment tools; support low-cost solutions and performance monitoring.

3. Market capacity building and societal engagement in Portugal

Objective	To strengthen technical and professional skills in the NbS sector and increase literacy, participation, and societal demands.
Expected Outcome	• An informed and demanding society regarding the integration of green infrastructure in cities. • Availability of specialised training and qualified professionals throughout the country. • Recognition and appreciation of green professions associated with NbS. • Increased community involvement in green roof and green wall projects.
Plans	• By 2027: integration of NbS into curricula; technical training programs; increased environmental literacy. • By 2030: consolidated community programs; green roofs as inclusive and educational spaces. • By 2050: Green professions fully recognised; an active and engaged society; cultural integration of NbS into daily urban life.

Summary

The roadmapping process in Portugal was carried out through two in-person workshop sessions held in Lisbon and Porto. A total of 63 participants took part, representing a wide range of stakeholders, including municipalities, companies, research and academic institutions, experts, and members of civil society.

The first session took place in Lisbon on 27 November, with the support of Instituto Superior Técnico (IST). The second session was held in Porto on 5 December, with the support of CIIMAR – Interdisciplinary Centre of Marine and Environmental Research. This session also included professional facilitation, which played an important role in supporting interaction among participants, encouraging discussion, organising working groups, and facilitating networking and exchange of ideas.



Participants showed a strong connection to sectors linked to a nature-positive economy, with significant representation from municipal technicians, experts in areas such as environment, water and biodiversity, companies involved in construction, materials and maintenance, as well as researchers and students. This diversity enabled a multidisciplinary approach, combining practical, technical, academic and institutional perspectives.

The process demonstrated a high level of interest and engagement, particularly regarding the role of nature-based solutions, including green roofs and green walls, in addressing urban and climate challenges. It was also observed that many of the contributions collected were aligned with the themes and priorities identified in the EFB workshop, showing a clear convergence of perspectives at the European level.

At the same time, the process highlighted the need to strengthen collaboration across sectors and to more consistently involve key actors, particularly policymakers and the financial sector, in future stages. A key takeaway from the sessions was that the challenges related to the implementation of NBS are not isolated, but interconnected across several dimensions, including regulation, financing, technical capacity, market development and public awareness.

The discussions reinforced the need for a coordinated and integrated approach across sectors to support the transition towards more sustainable and nature-positive urban environments in Portugal.

Pilot Roadmaps

2. Food Systems





3.2 Food systems

Introduction

In the Agri-Food pilot, Voedsel Anders represents the agroecological movement and perspective on transformational change in the food system. Agroecology is a practice, a social movement and a science, providing an alternative to the agro-industrial system of food production. Voedsel Anders is a network association in Flanders, Belgium that connects organisations that work on food-related, environmental or social issues. By building connections and looking for synergies, Voedsel Anders aims to strengthen and align the movement to form a strong alternative to dominant players in the agri-food system. A part of the work consists in aligning policy and advocacy work, organising public events to promote local and sustainable food systems, and raising awareness in other social domains about the importance to integrate the agroecological principles in that domain.

Vision

By 2050, everyone has access to healthy, tasty, fair, organic food and a healthy environment. These are basic human rights, accessible and affordable for everyone. Farmers are autonomous and independent from powerful actors. They receive a fair income and are supported by an active, conscious and engaged civil society. Nature is restored. Agriculture is circular and based on local food provisioning. Communities are no longer dependent on large external inputs (energy-wise and resource-wise) and maintain fair solidary relations with other countries in the world.

We all live on a shared earth. We realise that collaboration is stronger than competition. Therefore, people collectively bear the costs and responsibility of sustainable, fair food production. Care for good food, farmers, nature and each other are part of our culture and our daily practices. People will feel connected with each other, nature and food.

Farmers are producers of food, as well as caretakers of the landscape. They care for the soil, the water, the air, biodiversity and nature in general. Food waste is in the past. Chemical fertilizers, (organic) pesticides and other chemical inputs are obsolete. Circular agriculture adapts the livestock to the land's capacity. Agriculture is no longer the toy of a profit-driven economy, with unlimited speculation on land and food. We redistribute power, resources, land and profits from a healthy food system in a just way. We embrace different models of ownership. Through co-creative, practice-oriented and independent agricultural education, (future) farmers acquire the necessary knowledge and skills to farm in a nature positive way.

To achieve this vision, we all collaborate, from farmers, over industry, to citizen and policy, within a common framework. Food industry, processing and distribution have a serving role and facilitate the logistics of the food system. Policy, research, technology and the



financial system are also facilitating, not guiding, the food system. This vision and the agricultural and food policy is inclusive and fully respects and incorporates the rights and needs of peasants³, explicitly female peasants, Indigenous Peoples, members of the LGBTQI+ community, (labour) migrants, (climate) refugees, people with diverse skills and backgrounds and people in vulnerable contexts.

Baseline

In the roadmapping workshops, four well-known challenges came up as a priority to tackle. These challenges are both related to concrete practical obstacles, as well as to systemic issues that relate to our way of thinking about and valuing food.

1. Cognitive frameworks, values and norms are disconnected from the value of food

-
- We are disconnected from food, agriculture, and nature.
-
- Our education and food environment show us an industrial, unhealthy and unsustainable reality as the only option, while there is a diversity of food systems possible.
-
- We are used to convenience food, everything should be offered at all times, everywhere, with a certain “quality”. We are addicted to fast food, and mostly ‘cheap’ food. We are raised and educated to demand this from producers.
-
- Our health (including the health of the ecosystem) is not the priority of policy and consumer.
-
- Healthy, sustainable food is framed as expensive, and not realistic to achieve, by dominant actors, to marginalise a systemic transformation of our food system.
-
- Policy and economy are focussed on welfare and prosperity, not on wellbeing.
-
- Our lives are organised in a hasty, individualistic way, and we disregard the interconnectedness of people, nature and communities.
-

2. The logistic organisation of a fair, local food system

-
- The public’s demand for convenience, fast food, not seasonally bound, and unrealistic expectations of “perfect” crops is often not compatible/realistic regarding the offer.
-

³ UN Declaration on the Rights of Peasants (UNDROP) defines a peasant as a small-scale agricultural worker who relies primarily on family labour and has a close connection to the land.



-
- Disconnection from our local food systems makes people (unconsciously) take part in globalised food systems.
-
- Logistic organisation is in the hands of large corporations and multinationals, which takes away autonomy and power of local farmers and local networks.
-
- Discrepancy between demand and offer: agroecological/nature positive farmers have often a different offer than the conventional demand, different quantities, different varieties, different timing.
-
- Lack of time for citizens to visit local food initiatives, for farmers to engage in local markets and corresponding administration, and lack of money to pay a middleperson for it.
-
- Idea that logistic organisation is free and therefore no financial means for it (cfr. Package services that need to race from door to door for “free” deliveries).
-

3. The economic paradigm and reality

-
- A capitalist, profit-driven economy, focusing on producing profit, jobs and welfare do not question the type of welfare and life it offers to the people.
-
- Unfair and unjust value chains, with power, financial and technological concentration in the same hands.
-
- The neoliberal economic system, globalised food systems with unfair competition and neocolonial land use in Global South.
-
- Economy is seen as competitive, instead of collaborative.
-
- Food and land are seen as a speculative investment, making it a trading good instead of a basic need and right.
-
- Food can be sold under the production price.
-
- Subsidies from the CAP distort a fair price setting mechanism.
-
- Limited knowledge of farmers on labour income and basic farm economics.
-

4. Access to land

-
- Land is expensive.
-



-
- Land ownership is concentrated.
-
- Land is used as an investment to speculate upon, is bought, held in seasonal leasing, and sold again, making it uninteresting for farmers to apply long term soil conservation practices.
-
- Land is more profitable when it is not used for producing food, but instead for industry, housing, horses.
-
- Retiring farmers see their land as their pension, because they earned insufficiently throughout their lives to save enough, therefore they sell it to the highest bidder.
-

Pathways

The challenges clearly show how it is our thinking, narratives and perspectives on economy and business logic that drive the issues in the agri-food system. Therefore, the pathways (Annex 4) towards a nature positive economy mainly consists of challenging these narratives, and unlearning and relearning about food, peasant economies and establishing real alternatives.

1. Education	
Objective	To adopt systemic thinking as a basic attitude in our education (public and institutionalised) system.
Expected Outcome	All students, young and old, are trained in systemic, critical thinking and are able to apply this in their personal as well as professional life. Our education system is adapted to new education methods and learning goals.
Plans	• By 2030: 1 year of education on systemic thinking; 1 educational package for 1 course; education of teachers and other professionals to be able to teach in a systemic way; adaptation existing learning goals of our education system. • By 2050: graduates finished a whole educational programme of systemic thinking and One Health; the adapted learning outcomes of our education system are fully embedded; evaluation of the trajectory in place.

2. True Cost Calculation	
Objective	To change the economic narrative to create decent livelihoods for farmers and sustainable conditions for nature.
Expected Outcome	Societal costs are avoided and reduced. Farmers get a positive business case for agroecology. Collaboration and transparency in the value chain is strengthened.



Plans	• By 2030: an agreed upon calculation method to include all societal and environmental costs of the food system; a complete analysis of hidden costs in our high-level food system; a true cost calculation developed for 3 different production systems allows farmers to strengthen business case • By 2050: the true cost calculation is an educational tool to change the economic narrative of public and investors; an effective cost calculation developed for multiple production systems guides investing decisions.
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3. Establish regional food networks

Objective	To establish regional food networks as a logistical and educational alternative to industrial food.
Expected Outcome	Food hubs and other logistical or organisational infrastructure provide easy access to local food, also in big cities. The food networks are based on the principles of agroecology and help to connect us more with local good food. It enables good collaboration, transparency, efficient agreements on production, price and distribution.
Plans	• By 2030: delineated a region with enthusiastic food actors; governance and collaborative structure for the region established; logistical issues identified, and experiments set up. By 2050: Several established regional food networks that cover the needs of Flanders/Belgium; learning networks of food networks enhance each other; farmers produce for local consumption

Summary

The roadmapping process involved a wide group of stakeholders: farmers, peasants, teachers, businesses, civil society, and people from the academic and financial sector. While an effort was made to make the process all inclusive, we acknowledge that not all voices in the agricultural domain could be included, due to timing, capacity and interest to participate. In two workshops with around 20 participants overall, we developed a vision, identified and prioritised challenges and proposed pathways forward. The pathways acknowledge that the biggest change needs to be made in the unlearning of dominant narratives on what an economy is and what and how it should produce. This unlearning and relearning of what it can be, goes hand in hand with building an alternative for the corporate food production system, that does allow people to have access to food, and farmers to have decent livelihoods while caring for nature.

The biggest challenge remains to get engagement from the participants in rallying behind the nature positive concept, as these engagements need to fit in the work they already do.

Pilot Roadmaps

3. Blue Economy





3.3 Blue economy

Introduction

The Western Development Commission (WDC) is the statutory regional development agency for Ireland's Western Region, working to support balanced regional growth, enterprise development and sustainable economic opportunity across counties including Donegal, Sligo, Leitrim, Mayo, Roscommon, Galway and Clare. Through its role in regional policy, innovation and EU project delivery, the WDC has developed strong expertise in helping rural and peripheral regions respond to economic and environmental challenges while unlocking the value of natural assets.

The Blue Economy Pilot led by the WDC focuses on the blue economy and the sustainable use of marine and freshwater resources in Ireland's Western Region. This pilot recognises the region's deep connection to the Atlantic Ocean, coastal communities and rich marine biodiversity. It explores how sectors such as fisheries, aquaculture and coastal enterprises can evolve through a Nature Positive lens - creating jobs and economic value while protecting habitats, improving water quality and strengthening ecosystem health. In doing so, the pilot positions natural capital not as a constraint to growth, but as the foundation for future prosperity in coastal and rural communities.

WDC complements other actors in the region that deliver support to rural coast communities and businesses, including universities, cultural and innovation bodies, and government funded marine research and regulatory bodies. The Pilot engaged participants who are immersed in the practical regional realities, while also contextualising evidence and policy recommendations at European level on sustainable blue growth, biodiversity restoration and resilient regional economies.

Vision

By 2050, the Blue Economy will be fully nature-positive, guided by evidence-based policies grounded in expertise, scientific knowledge, and measurable data. Environmental, social, and economic priorities will be integrated within a holistic policy framework that places ocean health at the center of sustainable development. Government investment in Nature-Based Solutions will have enabled large-scale ocean regeneration, creating a performance-driven Blue Economy where measurable environmental impact unlocks capital, generates sustainable revenue, and finances the long-term health of marine ecosystems.

Coastal communities will play a central role in this transformation, with strong local ownership and participation shaping projects and ensuring social and economic benefits are shared. Blue-Green education will be inclusive, mainstream, and lifelong, equipping citizens with the knowledge and motivation to support development that works with nature. As a result, by 2050 working with and for nature will be a first-choice career path



for many young people, supported by high-quality, well-paid jobs that contribute to both environmental restoration and societal wellbeing. Informed and empowered citizens will actively demand nature-based approaches to development, ensuring that thriving oceans, resilient communities, and sustainable economic prosperity advance together.

Baseline

During the Baseline workshop, the stakeholders have identified different challenges. For each one, they provided details on the state-of-the-art of the challenge, giving an overview of the baseline (policy, technology, social adaptation, finance, etc.). Here below each challenge is reported.

1. Policy is very disconnected from businesses and NBEs

-
- Clear need for policy to become more streamlined, particularly when it comes to licensing and having one organisation responsible for aquaculture.
-
- Need for better communication pathway for policy development and consultation process so people can remain better informed and engage with the process more effectively.
-
- Clear need for policies to be nature-centric rather than nature-damaging.
-
- Clear need for policies to work cohesively together rather than competing against each other.
-

2. Nature Positive Finance

-
- Need for government funding for Nature based Solutions
-
- There needs to be more incentives and guidance for businesses to become NPE.
-
- Quasi Funding model with Public Partnerships included.
-
- Performance-based Blue Economy where NbS are rewarded, regeneration generates revenue with ocean health financed.
-
- Lack of accounting for natural capital in Ireland.
-

3. Education, including R&D



- Need for Blue and Green education to become inclusive, mainstream, lifelong and available for foundational learners.
- In schools, there needs to be more marine topics in the curricula.
- Problem of Blue & Green jobs being low paid.
- Gap highlighted in practical skills, and no real pathway between training and actual job security/retention.

4. Society

- Sense of 'blue blindness' in Ireland – as an island nation. Societal change. Why have we turned our backs on the ocean?
- Disconnect between blue economy and other sectors e.g. food systems, education systems – why is there not more integration and Blue Economy / NbS across all sectors.
- Need for thriving coastal communities, ocean health rewarded and financed.

Pathways

1. Value ecosystem services	
Objective	To Establish a baseline on value of ecosystem services for every bay/local community & develop communication with QR code at site.
Expected Outcome	The establishment of a clear baseline for the value of ecosystem services in each bay and coastal community, creating the evidence needed for informed planning and investment. Over time, this would support formal governance structures, legislative reform and incentive schemes that reward the protection and enhancement of marine and coastal ecosystems.
Plans	• By 2030: establishment of a task force to collate data, formalise and establish accountability, establishing targets and reporting. • By 2050: baseline assessment completed and Draft Heads of Bill done to change legislation; formalised structures on payment/incentives on ecosystem services.



2. Tax incentive / Blue Economy Investment

Objective	To develop a tax incentive and blue economy investment
Expected Outcome	The creation of a targeted tax incentive and investment framework that stimulates private and public capital into Ireland's Blue Economy. Over time, this would mobilise significant funding - up to €10 million by 2050 - supporting at least 10 businesses to grow, innovate or transition towards more nature-positive marine and coastal practices
Plans	• By 2030: BIM funding scoping • By 2050: 10 Mln of € mobilised, 10 businesses supported/benefitted by the measures.

3. Collaboration between policy groups

Objective	To enhance cross collaboration between policy groups through a targeted programme of site visits / learning trips
Expected Outcome	Improved coordination and shared understanding across policy groups through structured site visits and learning exchanges, leading to clearer alignment on priorities for the Blue Economy. Over time, this would result in agreed, cross-government objectives embedded in departmental delivery frameworks, supported by a shared evidence base and common targets for long-term economic and environmental outcomes.
Plans	• By 2030: Mapping stakeholders, reassessment of baseline; Assessing priorities; actual list of deliverables • By 2050: objective priorities that all Government Departments must deliver on e.g. increase GDP.

4. Nature Positive Finance

Objective	To develop a baseline of scoping of current industry finance
Expected Outcome	Development of clear, evidence-based understanding of current industry finance flows and investor appetite within the Blue Economy, providing a structured baseline for decision-making. Over time, this would enable the identification and articulation of concrete nature-positive investment opportunities, supporting the mobilisation of new capital into the sector by 2050.
Plans	• By 2030: Strong knowledge of current investor appetite • By 2050: clear breakdown of opportunities to bring in new investors

5. Teaching Natural Capital Accounting Approaches

Objective	To develop natural capital accounting approaches.
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Expected Outcome	Integration of natural capital accounting into mainstream economic and planning frameworks, enabling more accurate valuation of environmental assets in decision-making. Over time, this would expand from pilot learning and research programmes into a nationally embedded approach, supporting both higher education and secondary education systems in building long-term capacity and awareness.
Plans	• By 2030: pilot programme with a pioneering accounting school in the region, with blue-green module. • By 2050: national rollout and secondary schools.

6. R&D in the blue economy

Objective	To have one institution responsible for driving pure R&D and applied R&D in the blue economy
Expected Outcome	Establishment of a single, dedicated institution providing coordinated leadership for both pure and applied research in the Blue Economy, ensuring stronger innovation alignment and reduced fragmentation. Over time, this would evolve into a sustained national innovation ecosystem supporting nature restoration delivery, open-source technology development, citizen science, and just transition initiatives that accelerate practical, scalable solutions across marine and coastal sectors.
Plans	• By 2030: one institution responsible for driving pure R&D and applied R&D in the blue economy • By 2050: Continuity and adapt. Nature restoration plan implementation and inclusion of action steps; funding on open source, transparency for tech; link with farmer tools and more tech easy updates and rollouts. Tech festival like BT Scientists for Blue Green; just transition supports; citizen science training with tool, awards/badges.

Summary

The WDC, in collaboration with Óir na Farraige, convened two stakeholder workshops on 23rd and 24th February 2026 to support the development of a dedicated roadmap for the Blue Economy in Ireland's Western Region. Designed as a 1.5-day immersive engagement process, the workshops combined on-site learning, facilitated discussion and collaborative planning. This approach moved beyond traditional consultation methods by grounding strategic conversations in the realities of coastal enterprise, marine ecosystems and community development.

A total of 22 stakeholders participated, representing public bodies, marine and coastal businesses, NGOs, community organisations and wider sector interests. The programme began with an immersive site visit to DK Connemara Oysters, where participants experienced the oyster farming journey from seed to plate and viewed innovative



technology such as the Oyster FlipFarm system. This practical setting provided a valuable reference point for later discussions, demonstrating how innovation, environmental stewardship and commercial opportunity can coexist within the Blue Economy.

The workshops focused on visioning for a Nature Positive Blue Economy and establishing current baselines, opportunities and priorities for action (Annex 5). Engagement throughout was strong, with high levels of participation, open dialogue and a clear willingness to collaborate across sectors. Discussions were energetic and solutions-focused, producing tangible outputs and a shared sense of momentum. Participants recognised the value of a Nature Positive approach in balancing marine economic activity with ecosystem restoration, biodiversity protection and long-term coastal resilience.

Several important insights emerged through the roadmapping process. While there was strong appetite for partnership and coordinated action, participants also identified fractures within the system, including fragmented governance, disconnected initiatives and gaps in supports needed to enable early-stage transition. Stronger alignment between agencies, communities and industry was seen as essential, alongside clearer indicators, targeted supports and practical demonstration projects.

Overall, the workshops were viewed very positively and delivered benefits beyond the formal outputs alone. New relationships were formed, trust was strengthened across stakeholder groups and participants left with a stronger shared understanding of common challenges and opportunities. The process demonstrated a clear willingness to work collectively towards a more resilient and Nature Positive future for Ireland's coastal and marine economy.

Pilot Roadmaps

4. Tourism





3.4 Tourism

Introduction

Located in southeastern Trentino, Valsugana is a diverse alpine valley defined by the dramatic contrast between the wild, granite peaks of the Lagorai mountain range and the tranquil waters of Lakes Levico and Caldonazzo, both recurring Blue Flag recipients for their environmental quality. As **Italy's first GSTC-certified destination**, it serves as a living laboratory for sustainability, where pristine forests and high-altitude glacial lakes meet the fertile valley floor of the Brenta River. This natural heritage is further enriched by unique geological features, such as its rare ferruginous thermal springs, and the Arte Sella open-air museum, where contemporary art integrates seamlessly into the woodland, embodying the destination's commitment to a "Nature Positive" balance between human activity and ecological preservation. The **Valsugana case study**, as framed within the **GoNaturePositive!** project, highlights the transition of a tourism destination from "sustainable tourism" to a **Nature Positive (NP)** approach. This evolution is based on the principle that the net result of all tourism activities should lead to an absolute increase in nature toward its full recovery.

The **Destination Management Organization (DMO)** for the area is **Azienda per il Turismo (ApT) Valsugana Lagorai**. As a DMO, its role extends far beyond traditional marketing; it acts as a territorial laboratory for sustainable governance. While traditional DMOs focus on "Arrivals and Overnights," ApT Valsugana has pioneered a Stewardship Model. Its mission is to coordinate, promote, and develop the territorial tourist offer by prioritizing the well-being of the local community and the health of the ecosystem.

Vision

By 2050, Valsugana has established itself as a global gold standard for a Nature-Positive Economy that takes a balanced approach, where tourism is no longer a standalone industry but a vital and harmonious function of the local community.

Baseline

During the Baseline workshop, the stakeholders have identified different challenges. For each one, they provided details on the state-of-the-art of the challenge, giving an overview of the baseline (policy, technology, social adaptation, finance, etc.). Here below each challenge is reported.



1. Visitor Flow Management

-
- Need to manage, at strategic level, the distribution of tourists in space and time to mitigate the impact of overcrowding and promote sustainability.
-
- Decentralisation to be promoted also through iconic projects that can incentivise tourists to explore side valleys and less-frequented areas.
-
- Pressure from day trippers, with high impacts on roads and traffic as well as human footprint on main lakes. Need to think of other intermodal transportation options to connect the different tourist areas.
-
- Increase seasonal redistribution and slow tourism.
-

2. Impacts of events

-
- Promotion of rigid plastic-free event protocol and transform environmental goals into a standardised operational method at regional level.
-
- Need to go beyond recycling and monitor waste production at events.
-
- Ensure large influxes of day trippers do not result in environmental degradation, effectively mandating sustainable practices for all public gatherings.
-

3. Balance between tourism and community

-
- Involvement of residents and entrepreneurs to actively co-design the destination's future, ensuring that visitor management protects the local quality of life.
-
- Preserve and promote local employment to also preserve cultural authenticity.
-
- Financial mechanisms to direct tourism revenues towards farmers and other local actors that are stewards of the territory and the landscape.
-
- Prioritisation of renovation of buildings instead of new constructions.
-



4. Quality of living

-
- The region is currently addressing the housing crisis through a de-incentivisation and social revitalisation model that prioritises long-term residency over speculative tourism.
-
- 2-Property Role, which imposes a professional business status and higher tax burdens on owners of three or more units to curb the growth of “mini-hotel” empires.
-

5. Accessibility for all

-
- The region is currently transforming into a universal destination by integrating physical, sensory, and economic accessibility into its core infrastructure.
-
- Need for sensory and cognitive inclusion, featuring LIS-supported cultural sites, “quiet hour” protocols for neurodivergent visitors at major events, and poetic audio-descriptions for visual impairments to be developed across the destination
-
- Need for developing socially inclusive workforce that integrates people with disabilities into specific programs and grant system designed to eliminate communicative barriers.
-
- By providing technical audits and “OPEN” certifications for private businesses, the Tourist Board aims that the entire hospitality chain moves beyond mere legal compliance to offer a truly autonomous and dignified experience for every visitor.
-

6. Enhancement of cultural heritage

-
- Need to manage the trade-off between preservation of the “soul” of the valley and the physical integrity of its landscape.
-
- Through the Ecomuseo del Lagorai, intangible traditions—such as historical agricultural techniques and the role of women in mountain life—can be transformed into intergenerational educational tools rather than static exhibits.
-
- Strategy to effectively filters for a more contemplative visitor profile, ensuring that the valley’s cultural legacy remains a pristine, functional resource for future generations. Promote “slow” tourism, pedestrian and respectful.
-

7. Conservation of Biodiversity



- Evolve the region's current biodiversity strategy into a regenerative ecotourism model that transforms visitors from passive observers into active stewards of the landscape. Through "Citizen Science" initiatives like Bio-Blitz events and the digital monitoring of Natura 2000 sites, tourists can work alongside biologists to catalogue rare species, providing essential data for local conservation policies.
- Promotion of "Adopt a Cow" project, which explicitly links traditional grazing to the preservation of high-altitude meadow biodiversity.
- Enforcing "Lakeside Silence Zones" and promoting low-impact infrastructure like the Valsugana Cycle Path, the region actively reduces sensory and chemical pollution in sensitive habitats.
- Increase awareness of every visitor to understand their role in protecting the fragile alpine equilibrium of alpine valleys.

8. Balance between tourism and nature

- The region has established itself as a "living school of sustainability," where climate resilience and stakeholder education are integrated into the destination's operational DNA.
- Promotion of the GSTC framework and certification at Destination level. Increase the empowerment of operators in adopting sustainable practices and toolkits to transition toward carbon-neutral, plastic-free, and energy-efficient business models.
- Promotion of responsible behaviours and participation of visitors in conservation-linked activities (regenerative tourism – "nudge" strategy).
- The transition to climate-resilient infrastructure needs to be realized by increasing renewable energy use and implements adaptive resource management protocols. By prioritizing intermodal mobility and precise water monitoring, Valsugana ensures that its tourism "machine" remains functional and respectful of local ecological limits, even in the face of escalating climatic pressures.

9. Actions for sustainable mobility

- The region's mobility strategy to be centred on a seamless intermodal "spine" that integrates the 80km Valsugana Cycle Path with a modernized, electrified railway line. This system should allow for fluid "Train + Bike" transit, supported by specialized "Bici-Bus" trailers to ensure continuous service.
- To protect fragile ecosystems, Valsugana needs to actively regulates access to



“hotspots” like Val di Sella and the lakes through Limited Traffic Zones (ZTL), smart parking monitoring, and digital “nudges” via the Trentino Guest Card app.

- This transition to a low-impact destination needs to be further reinforced by a valley-wide e-bike sharing network and an expanded EV charging infrastructure, all powered by local hydroelectric energy.

Pathways

The identification of the challenges has helped the participants to also identify possible solutions to overcome the existing barriers. Solutions have been clustered according to the Target Group mostly responsible or suitable for carrying out the activities proposed. Furthermore, a prioritisation exercise has been conducted, considering feasibility and impact, which has led to the identification of one solution for each TG.

Solutions have then been analysed in detail, identifying objective, current state, scope of the initiative, expected outcomes, key activities necessary to reach the objective, milestones by 2030 and 2050, indicators, and risks and mitigation strategy.

While details are reported in the Annex 6 here are reported the main initiatives for reaching the vision.

1. Visitor Flow Management	
Objective	To improve tourist flow management by distributing visitors across the region and seasons, with a focus on daily trippers.
Expected Outcome	Achieve a balanced tourism ecosystem characterised by a reduction in peak season congestion at primary lakeside hubs and an increase in visitor engagement within rural upland areas and sustainable transport networks.
Plans	• By 2030: full operational status of passage counters/traffic light systems in key congestion areas to understand car usage rates; implementation of a pre-booking system for parking spaces; development of guidelines to be provided to guests regarding the use of the mountain; strengthening public or private transport services for tourist hotspot • By 2050: activation of studies on carrying capacity and implementation of the related management measures identified; at least 5 major events/activities successfully extended into the “off-seasons”.



2. Study of the positive impact of events

Objective	To monitor socio-economic and environmental impact of events at the destination and implement actions to ensure they maximise benefits for the local area and reduce negative environmental impacts.
Expected Outcome	Data-driven event ecosystem established, where major regional events adhere to the 'Plastic-Free' Protocol, resulting in a reduction in event-related waste.
Plans	• Promotion of sustainable transport such as shuttle services and attention to waste management. • Establish an online registration system and advertising dissemination. • Actively involve local communities in the planning and organisation of events, encouraging the participation of residents as volunteers, service providers, or content creators (artists, artisans, etc.). • Definition of shared metrics to evaluate the sustainability of events based on their environmental and socio-economic impact (e.g. waste management, use of eco-friendly materials, emissions compensation, promotion of sustainable transport, use of local products, integration of the local community in the organisation). • Promote events that highlight local traditions, culture, and typical products, generating income opportunities for small local businesses. • Establishment of a shuttle service for events from Sella to Borgo.

3. Balance between tourism and community

Objective	To create a strong and positive bond between the local community and the regional tourism system, promoting tourism services and experiences that also benefit the community, through the opportunity to enjoy cultural, educational, and social initiatives, the promotion of the local and responsible supply chain, and active and collaborative involvement.
Expected Outcome	Resilient and integrated tourism-community ecosystem where residents report high satisfaction with the 'living quality' of the valley.
Plans	• Rising awareness among public administration regarding the valorisation of spaces with financial interventions and support in the GSTC certification • Raise awareness among relevant bodies in allocating resources to the cause • Facilitation of access to credit for interventions on the topic • Apps and websites with health and wellness-oriented programs • Design of voluntourism experiences dedicated to tourists, residents, and company employees and promote them in the destination's activities calendar • Launching a "Local Ambassadors" program where some residents are trained to act as ambassadors of the area, guiding tourists on experiences. • Development of concessions dedicated to residents with a focus on certain particularly attractive goods/services (not managed by DMO).



	• Organise moments of ‘giving back’ to the territory aimed at demonstrating the multiplier effect and “positive community” of tourism with data and perspectives on tourism projects. • Creation and dissemination of a toolkit to guide businesses in adopting sustainable practices, with a particular focus on introducing and promoting local products (food and non-food) into their offerings, and preferring responsible local organisations. • Promotion of local producers (agricultural supply chain, milk supply chain, meat supply chain, fish supply chain) and catering companies that are attentive to the valorisation of the local supply chain and the seasonality of products and who are committed to preserving the healthiness of the territory with organic and/or sustainable cultivations. • Organization of workshops aimed at spreading knowledge of local products among operators, with guidelines on how to introduce them into their offerings (e.g., guided tours, tastings, educational programs) • Promote the launch of collaborations between tourism operators and local producers to facilitate the purchase of products (e.g. GAS, a portal for matching supply and demand) and the provision of experiences to tourists at agricultural companies. • Redevelopment of the Roncegno park area to promote wellness through forest medicine: well-being and health as attractors
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4. Quality of living

Objective	To reduce the negative impact of short-term rentals in popular tourist areas by ensuring equitable housing access for residents.
Expected Outcome	Restored housing market equilibrium in high-demand areas by capping short-term rental density and incentivising the conversion of tourist accommodations back to primary residences, ensuring that available housing stock remains affordable and accessible for local workers and families.
Plans	By 2050: • Launch of a dedicated working group in consultation with the Province for more stringent regulations on short-term rentals, particularly in hotspot areas (e.g., with respect to rent limits). • Intervene on state legislation and housing law.

5. Accessibility for all

Objective	To make the tourist destination inclusive and accessible to all, ensuring quality hospitality for people with various types of disabilities and disadvantaged conditions.
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Expected Outcome	Valsugana established as a “Destination for All” by achieving certified accessibility across primary tourist hubs and public transport, resulting in an increase in visits from travellers with specific access requirements.
Plans	By 2030: • Training for operators in welcoming people with various types of disabilities, involving local stakeholders. • Mapping and updating accessible services, sites, and experiences. • Collaboration with local associations to develop accessible experiences. • Creation of specialised centres for disabilities and specific research centres. • Improve the sensitivity and sentiment of those who welcome, starting with people with difficulties in schools.

6. Enhancement of cultural heritage

Objective	To promote and enhance local tangible and intangible cultural heritage, ensuring its integrity for future generations and promoting sustainable and respectful use by residents and visitors.
Expected Outcome	Increase in resident-led heritage initiatives and the successful preservation of intangible traditions.
Plans	• Positive evaluation and consideration of the objective • Interventions to support and enhance excellence and specificities • Multimedia tools to raise awareness of the specificities of the heritage • Increase appreciation of the territory • Promotion of a plan of training and information activities aimed at hospitality operators and business owners, students, and researchers • Innovation of the cultural product also through integration with the outdoors • Guides to the territory and its excellences and host training. • Census of heritage sites.

7. Conservation of Biodiversity

Objective	To promote and consolidate the protection and enhancement of biodiversity, creating an ecotourism model based on active visitor engagement and awareness, bringing them closer to nature and its protection.
Expected Outcome	Established a regenerative ecotourism model where the region's protected alpine habitats are managed through 'Active Engagement' protocols, resulting in an increase in local biodiversity health indicators and a documented shift in visitor behaviour from consumption to conservation advocacy
Plans	• Activate collaboration with parks and protected areas to develop experiences that promote awareness and protection of biodiversity, such as guided excursions, workshops, and citizen science activities.



	• Valorisation of local reserves by defining management methods. • limit/eliminate support for activities that are not in harmony with the environment (Levico-Vetriolo). • Raising awareness among new generations through schools. • Raising awareness among the elderly population. • Promotion of biodiversity storytelling initiatives. • Conferences, seminars, and international collaborations promoted by third-party entities dedicated to biodiversity are also open to residents. • Definition of a structured offering of immersive ecotourism experiences. • Greater promotion of environmental tourism offerings through platforms • specific training for local administrators.
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8. Balance between tourism and nature

Objective	To educate visitors and operators on sustainability issues affecting the destination, making them responsible for the role they can play in caring for them and providing support in the adoption of more sustainable practices, with the ultimate goal of reducing the negative impact of tourism on the use of natural resources and pollution. To support the transition to a climate-resilient tourism by actively engaging operators, administrations, and visitors.
Expected Outcome	Accelerated the transition to a climate-resilient destination where operators have implemented resource-reduction plans and visitors actively choose low-impact travel options.
Plans	• Promote gentle mobility with distribution throughout the year • Promote tax breaks for eco-friendly structures • Use tools to facilitate parking reservations • "Development of a multi-channel campaign for the adoption of responsible behaviour by guests and residents • Dissemination of information to raise visitor awareness on energy and water conservation, reduction of soil, air, and water pollution, and proper waste management. • Encourage green solutions by increasing vegetation (trees) e.g. Treeticket • Support for third-party certification of accommodation facilities with materials only (possibly provincial economic funds) and related promotion • Publication of training content for operators on energy efficiency (including renewable energy) and water efficiency, waste reduction and pollution of soil, air, and water bodies, food waste, the circular economy, and adaptation actions. • Promotion of opportunities for both visitors and operators to offset their emissions and projects with a positive impact, based on the characteristics of their trip (use of car, type of accommodation, experiences, etc.) or their structure • Planning at least one waste collection campaign per year or supporting similar activities already promoted by local associations



9. Actions for sustainable mobility	
Objective	To develop and enhance a sustainable mobility system that efficiently connects the various regions, improving accessibility and the visitor experience through intermodal connections, cycling infrastructure, and low-impact public and private transport services. To manage, monitor, and, where necessary, regulate access to side valleys and tourist hotspots.
Expected Outcome	Reduction in private vehicle traffic at key hotspots achieved.
Plans	• Propose an improvement in intermodal transportation and the offer of journeys on the Trento-Borgo line, in particular an evening journey departing from Trento after 10pm. • Improve the involvement and awareness of those who practice agriculture in solutions that can impact slow mobility • Encourage the use of the Guest Card in accommodation facilities • Implementation of intermodal solutions through the creation of interchanges between different means of transport, such as the possibility of transporting bicycles on public transport and park-and-ride facilities. • Encourage the experimentation of closing some streets to traffic with initiatives that liven them up (regular or for events) to also accustom residents • Promotion of slow mobility routes • Promote car-free tourism through the development of tourist packages that include the use of sustainable means of transport, such as bicycles, public transport, and electric vehicles. • Create a permanent table for sustainable mobility that includes tourist area, students, young people, families, commuters, public bodies, associations, other subjects active in sustainability

Summary

The roadmapping process for the Valsugana pilot represents a strategic transition from traditional sustainability to a Nature Positive Economy (NPE), structured through two participatory workshops designed to co-create a long-term vision for 2050. The first workshop was held online on January 27th with 10 participants through the interactive tool Mural. The second one was held in presence in Borgo Valsugana on February 12th through a facilitation methodology and 24 participants.

A "whole-of-society" approach defined the stakeholder engagement strategy, bringing together a diverse ecosystem that includes municipal administrators, tourism operators, and young "territorial ambassadors." This inclusive governance has fostered significant positive feedback, with the transition to a stewardship model being described as a "happy intuition" that has successfully shifted the destination's brand from simple promotion to active landscape management. This collaborative spirit has enhanced the DMO role as a local steward.



Despite this progress, the roadmapping journey has highlighted critical challenges, particularly the technical complexity of measuring direct biodiversity impacts and the risk of stakeholder fatigue among smaller operators. To mitigate these "criticalities," it is suggested to adopt a pragmatic "small steps" approach, balancing ambitious long-term restoration targets with incremental, actionable goals that provide immediate value to the local supply chain. In addition, it has emerged as a need the "translation" of complex, high-level theoretical concepts into concrete, relatable actions for the local community. While global frameworks like the Nature Positive Economy (NPE) provide essential scientific rigor, they often remain too abstract for local farmers, hoteliers, and residents whose primary focus is the day-to-day management of their activities.

Pilot Roadmaps

5. Forestry





3.5 Forestry

Introduction

The Forestry Pilot is located in the region of Friuli-Venezia Giulia, in the north-east of Italy. The **Legno Servizi Forestry Cluster** has been identified as the key organizational hub dedicated to supporting and developing the wood-forest supply chain in the region. Legno Servizi operates as a cooperative society and serves as a regional reference point for all stakeholders in the timber industry—ranging from forest owners and logging companies to sawmills and wood craftsmen. It acts as a bridge between public institutions and private enterprises to modernize the local forestry sector. The primary mission of Legno Servizi is to **valorise the regional forest heritage** and strengthen the local "Bosco-Legno" (Forest-Wood) supply chain. Its core objectives include:

- **Sustainability:** Promoting the sustainable management of forests to ensure long-term ecological and economic health.
- **Competitiveness:** Enhancing the market position of regional wood products against global competition.
- **Traceability:** Ensuring that wood products from Friuli-Venezia Giulia are recognised for their quality and ethical origin through certification.
- **Innovation:** Facilitating the transition toward a circular bioeconomy and smart forestry practices.

Legno Servizi implements its mission through several strategic pillars:

- **Certification Services (PEFC/FSC):** They guide regional companies through the process of obtaining Sustainable Forest Management and Chain of Custody (CoC) certifications. This ensures that the timber harvested in FVG meets international environmental standards.
- **Education and Training:** They recently launched the "**Geo-Forestry Technician**" (Tecnico Geo-Forestale) training path in Tolmezzo. They also organize workshops for students and professionals to cultivate the next generation of forestry experts.
- **Wood Traceability:** They manage the regional brand and database for certified local wood, helping consumers and builders identify 100% regional timber.
- **Environmental Outreach:** Through initiatives like "*Foresta in Città*" (Forest in the City) and National Tree Day events, they bring forest culture to urban centers (Udine, Trieste) to educate the public on the importance of wood as a renewable resource.
- **Regulatory Support:** They assist businesses in adapting to complex European regulations, such as the **EUTR** (EU Timber Regulation) and the new **EUDR** (EU Deforestation Regulation), ensuring regional companies remain compliant with international law.



Vision

By 2050, the forestry sector in Friuli-Venezia Giulia will be a model of nature-positive management, where forests are not only restored but actively contribute to climate resilience. Ecosystem services will be at the heart of forest management, driving sustainable practices that enhance biodiversity, water quality, carbon capture, and soil health. Pastures will be restored, abandoned areas revitalised, and the landscape will be more diverse, offering a harmonious balance between human activity and nature. Mountain communities will be more aware, open, and engaged, taking an active role in managing their forests and territories with expertise. Supported by skilled professionals, the sector will navigate climate change challenges and market demands, ensuring long-term environmental and economic resilience for future generations.

Baseline

During the Baseline workshop, the stakeholders have identified different challenges. For each one, they provided details on the state-of-the-art of the challenge, giving an overview of the baseline. Here below each challenge is reported, clustered by area or topic as emerged during the workshops.

1. Resilient forests to climate change

-
- Forests and woodlands are increasing in altitude due to climate change (ecosystem migration).
-
- Variation in the quality of wood.
-
- Increase in invasive species.
-
- Impact on biodiversity and local economies (e.g. tourism).
-

2. Alive Mountains and managed forests

-
- Need for safeguarding the woodlands and infrastructures.
-
- Land fragmentation leading to unsustainable forest planning and management.
-
- Need for multifunctional forest management, with different areas managed differently, according to specific needs.
-



-
- Depopulation of rural and mountain areas.
-
- Lack of involvement of local population in forest management.
-

3. More aware mountain communities

-
- Lack of interest in the importance of forests and the forestry sector.
-
- Lack of awareness and understanding on the importance of forests and biodiversity and of taking care of them.
-
- Lack of forest worker in general, but also of skilled and trained workers able to manage forests sustainably.
-
- Depopulation.
-

Pathways

During the workshop, the participants started from the challenges previously identified and focussed on solutions and initiative that could be implemented to reach the vision. Below, for each challenge area, details are provided in terms of objectives and outcomes of the initiative and actions to be implemented by 2030 and by 2050 timeframes (Annex 7).

1. Resilient forests to climate change	
Objective	To ensure the provision of forest ecosystem services is maintained also in a changing climate.
Expected Outcome	Forest ecosystems are able to adapt to a changing climate thanks to an effective and resilient forest planning and management that puts at the hearth the ecosystem services.
Plans	• By 2030: understand how to integrate the different certifications; investment in research and innovation; enhance research and technologies for the cascade use of timber; improve and enhance communication to companies, owners, and citizens; integration of forest education in schools. • By 2050: enhance transparency in processes and their legality; AI and technologies broadly applied to understand climate change, its effects, and to adapt forest management accordingly; financial education to forest companies; simplification of bureaucracy; interaction between policies (and policymakers) and public and private finance;



2. Alive Mountains and managed forests

Objective	To enhance a rationale use of the land, contrasting abandonment and fragmentation through management and valorisation of resources.
Expected Outcome	Forested landscapes see an improvement in their management and in the infrastructure, abandoned areas are restored, and there are an increased diversity and use of ecosystems.
Plans	• By 2030: enhance the Forest Cluster and foster the dialogue between the actors of the forestry sector in the region; have and approve a clear normative framework valid for all actors of the sector; training to technicians and in schools on ecosystem services; premium for the use of timber for structural purposes; improve monitoring of bark beetle. • By 2050: develop an interregional system to potentiate short value chains; develop carbon credits system also with a shared economic investment to develop the system.

3. More aware mountain communities

Objective	To enhance awareness of local communities on the importance of the environment and its management and reverse the depopulation trend.
Expected Outcome	(Mountain) communities are more aware, open, active, and expert in the management of their forests and lands, with particular attention to the next generation.
Plans	• By 2030: develop and provide professional trainings matching with what is requested by the territory; create local groups of citizens and foster associations to enhance community meetings and increase awareness on forest topic. • By 2050: redirect public investments more wisely and continuously to infrastructures and productive areas avoiding the one-shot practice; merge of small municipalities under a single one with more power and resources

Summary

The forestry pilot has held two workshops, both in presence, with the participation of several local actors and with a good representation of the different target groups. The first workshop, the visioning, was organised back-to-back with the local event for the day of the trees on 21st November 2025 in the premise of the convenor Legno Servizi Forestry Cluster. The second workshop was organised the 5th of March, and it was dedicated to both assessing the baseline and defining the pathways. The participation and interest from the participants were quite good. While a few participated to both



workshops, the two groups were mostly different, which needed to dedicate time to explain the process and the concepts of NPE two times.

Overall, the response was good, but for most stakeholders, coming from forestry companies, forest owners, regional government, associations, was difficult to understand how the concept of a NPE applies to their sector and how and what the sector can do to contribute towards the transitioning to a nature-positive economy. While the concepts of sustainability and sustainable forest management were well known, participants struggled to understand the differences with a nature-positive economy. Questions from participants were mostly focussing on which practices they would have to implement and what they should change from their current way of working.

The forestry sector in the region perceives itself as already on the pathway towards environmental sustainability and several initiatives have been started already and are currently carried out by regional authorities (e.g. certification of sustainable forest management of all regional forests, forest-timber value chain valorisation, etc.). The difficulty highlighted is to understand if and how these initiatives can fall into the NPE concept, while ensuring the economic sustainability of companies and the whole sector is the most challenging priority.

Pilot Roadmaps

6. Apiculture





3.6 Apiculture

Introduction

Apiculture plays a critical role in sustaining biodiversity, food security, and resilient local economies, particularly in rapidly urbanizing territories such as the Aburrá Valley in the Medellín Province in Colombia. Pollinators are essential for the reproduction of a large proportion of flowering plants and agricultural crops, yet they are increasingly threatened by habitat loss, climate change, unsustainable agricultural practices, and limited public awareness. In this context, strengthening apiculture systems and pollinator conservation efforts is both an environmental priority and a strategic opportunity for sustainable territorial development.

Through a participatory process led by ICLEI Colombia, stakeholders from government, academia, civil society, the private sector, and beekeeping associations collaboratively developed the Aburrá Valley Pollinator Roadmap. The process included interviews, workshops, and multi-stakeholder dialogues to identify priorities and strengthen territorial governance for pollinator conservation. Its creation marks a significant step towards overcoming fragmented efforts, enabling collective impact, and fostering long-term governance for biodiversity stewardship. The Network is essential for articulating territorial efforts, scaling solutions, and ensuring that pollinator protection becomes a cross-cutting priority in development agendas.

This section presents the Apiculture Pilot as a comprehensive and forward-looking initiative designed to address these challenges through an integrated, multi-stakeholder approach. It outlines a shared long-term vision, a diagnosis of current conditions, and a set of strategic pathways to guide action. The pilot emphasizes the importance of combining scientific knowledge, community engagement, policy alignment, and innovative practices to protect and enhance pollinator populations and their ecosystems.

By bringing together diverse actors—including communities, research institutions, public authorities, and the private sector—the Apiculture Pilot seeks to foster collaboration, strengthen capacities, and promote scalable solutions. Ultimately, it aims to position the Aburrá Valley as a leading example of how apiculture and pollinator conservation can contribute to biodiversity protection, climate resilience, and inclusive green development.

Vision

By 2050, the Aburrá Valley Pollinators Network will be a globally recognized model of biodiversity stewardship, innovation, and sustainable development. It will operate as a fully integrated, multi-stakeholder ecosystem connecting communities, research institutions, the private sector, policymakers, and civil society. Through advanced digital platforms, a comprehensive knowledge base, and adaptive governance structures, the



Network will drive large-scale conservation of pollinators and their habitats, support resilient green economies, and promote food security and territorial autonomy.

The Network will empower citizen engagement, ensure the mainstreaming of pollinator-friendly practices across agriculture, urban areas, and industry, and facilitate international replication of its sustainable models. By 2050, pollinators and their ecosystems will be fully embedded into the social, economic, and political fabric of the Aburrá Valley, creating a thriving, biodiverse, and climate-resilient territory where human development and ecological health are mutually reinforcing.

Baseline

During the Baseline workshop, the stakeholders have identified different challenges.

The **baseline workshop** played a critical role in identifying key challenges across policy, technology, finance, and social dimensions. Four main challenges were prioritized:

- (1) knowledge gaps and fragmented data systems,
- (2) habitat fragmentation and limited restoration efforts,
- (3) low adoption of pollinator-friendly agricultural practices, and
- (4) limited structured capacity-building and awareness initiatives.

For each one, stakeholders provided details on the state-of-the-art of the challenge, giving an overview of the baseline (policy, technology, social adaptation, finance, etc.). Here below each challenge is reported.

1. Knowledge gaps

-
- Knowledge gaps about pollinators and their ecosystems.
-
- Baseline information partially available; need for updated, systematised and locally focussed data.
-
- Fragmented research efforts.
-
- Isolated citizen science initiatives.
-
- No unified monitoring framework.
-

2. Habitat restoration and conservation

-
- Restore, connect, and protect pollinator habitats to increase biodiversity and ecosystem resilience.
-
- Fragmented ecosystems.
-



-
- Limited urban pollinator infrastructure.
-
- Isolated restoration efforts.
-
- Habitat fragmentation and urban expansion affecting connectivity.
-

3. Promotion of pollinator-friendly agricultural practices

-
- Limited adoption of pollinator-friendly practices.
-
- Emerging but unstructured green entrepreneurship.
-
- Weak market differentiation for pollinator-positive products.
-
- Conventional practices with pesticide dependence in some areas.
-

4. Capacity Building and Awareness Raising

-
- Growing interest but limited structured educational programming.
-

Pathways

During the workshops, the participants started from the challenges previously identified and focussed on solutions and initiative that could be implemented to reach the vision. Building on this baseline, stakeholders co-developed four strategic pathways (Annex 8), each with clear objectives, expected outcomes, and concrete action plans:

- Research and Knowledge Generation, aimed at consolidating scientific and applied knowledge to inform decision-making;
- Habitat Restoration and Conservation, focused on improving ecological connectivity and restoring pollinator habitats;
- Promotion of Pollinator-Friendly Agricultural Practices, supporting sustainable production systems and green market development;
- Capacity Building and Awareness Raising, strengthening public engagement and technical capacities.

These pathways reflect a balance between scientific evidence, territorial needs, and practical implementation, ensuring that the roadmap is both ambitious and grounded.

Below, for each challenge area, details are provided in terms of objectives and outcomes of the initiative and actions to be implemented.



1. Research and Knowledge Generation

Objective	To generate scientific and applied knowledge on the identification, distribution, biology, ecosystem services, and extinction risk of native pollinator species in Valle de Aburrá.
Expected Outcome	Consolidated knowledge base to inform conservation planning and public policy decisions.
Plans	- By 2030: Conduct baseline assessment of pollinator species and habitats; Species mapping, biodiversity monitoring, risk assessments, ecosystem service valuation studies, citizen science data collection; Train stakeholders in data collection and use. - By 2050: use advanced technologies and consolidate open-access knowledge systems; institutionalisation of education programs.

2. Habitat Restoration and Conservation

Objective	To restore and conserve pollinator habitats by reducing deforestation, creating ecological corridors, and protecting pollination zones across the Aburrá Valley.
Expected Outcome	Improved habitat connectivity and increased availability of floral and nesting resources for pollinators. Connected ecological corridors. Increased pollinator populations. Enhanced ecosystem resilience and climate adaptation.
Plans	- By 2030: Native plant restoration, corridor design, reforestation campaigns, establishment of pollinator gardens and conservation agreements; Identify priority restoration areas; Plant native floral corridors; Install native beehive and solitary bee hotels. - By 2050: Empower citizen participation and community leadership; Train communities in habitat creation.

3. Promotion of pollinator-friendly agricultural practices

Objective	To promote sustainable agricultural practices that protect and enhance pollinator populations.
Expected Outcome	Increased adoption of pollinator-friendly practices. Certified pollinator-positive products. Strengthened green local economy. Reduced pesticide uses and increased adoption of biodiversity-friendly farming systems.



Plans	• By2030: Training workshops and modules; Demonstration farms implemented with integrated pest management; Promotion of crop diversification and functional gardens. • By 2050: Install native beehives in farms; Develop certification scheme; Provide seed funding and microloans.
--------------	---

4. Capacity Building and Awareness Raising

Objective	To strengthen public awareness and technical capacities regarding the importance of pollinators and the need for their protection.
Expected Outcome	Increased societal engagement and behavioural change supporting pollinator conservation.
Plans	• By 2030: Workshops, community events, media campaigns, educational materials, webinars, school programs developed and launched. • By 2050: Position certified products in national and international markets; strengthen entrepreneurship ecosystem; Mainstream pollinator protection across all sectors (urban, agriculture, industry)

Summary

The roadmapping process for the Apiculture Pilot in the Aburrá Valley was built through a participatory, multi-stakeholder approach, with a strong emphasis on vision-building and priority-setting workshops. The workshops enabled the alignment of diverse actors and the co-creation of a long-term vision, positioning the Pollinators Network as a transformative platform for biodiversity conservation, sustainable development, and territorial resilience by 2050.

Through these sessions, stakeholders defined a shared vision of a fully integrated ecosystem connecting communities, research institutions, the private sector, policymakers, and civil society. The vision highlights the role of digital tools, knowledge systems, and adaptive governance in scaling conservation efforts, strengthening green economies, and embedding pollinator protection into the social and economic fabric of the territory.

A key outcome of the process was the definition of a governance structure and the organization of the network into seven core components: governance and coordination, knowledge generation, capacity building, communication, territorial articulation, sustainable production, and conservation. This structure provides a clear and actionable framework to guide implementation and ensure coordination across sectors.

Some challenges (criticalities) were encountered during the process, particularly related to data limitations, fragmented information, and coordination among diverse



stakeholders. However, these were addressed through continuous dialogue, adaptive facilitation, and the integration of multiple engagement methods, including workshops, surveys, and field visits.

Overall, participant feedback was highly positive. The process was recognized for creating meaningful spaces for collaboration, strengthening inter-institutional relationships, promoting knowledge exchange, and increasing awareness of the ecological and economic importance of pollinators.

A key takeaway is the importance of combining technical discussions with experiential learning, which enriched stakeholder engagement and contributed to a more robust, inclusive, and actionable roadmap. The result is a comprehensive strategy that not only defines a long-term vision but also provides concrete steps to advance towards a biodiverse, climate-resilient, and Pollinator Network.

4. Reflections and Conclusions

The GoNaturePositive! pilot roadmapping process **demonstrated the value of participatory and cross-sectoral collaboration in shaping pathways towards a Nature-Positive Economy (NPE)**. Across six pilots— green buildings, food systems, blue economy, tourism, forestry, and apiculture — key stakeholders engaged in a shared exercise of envisioning long-term futures, identifying systemic barriers and challenges, and co-designing practical pathways for transformation. Despite the diversity of contexts, readiness levels, geographies, and sectors involved in the pilots, the process revealed interesting convergences around some key common themes, highlighting both the complexity and the potential of the transition towards the NPE. Furthermore, the process also served to test methodologies usually applied in other contexts and research fields, providing useful insights on co-creation methodologies for the transformative change.

One of the clearest reflections emerging from the pilots is that the transition towards an NPE is limited by a multitude of challenges, spanning from policy, finance, market, technology, and social aspects. While in several sectors, many of the required technologies, business practices, and policy instruments, although needing refinement, already exist, in others robust methodologies and approaches are still to be developed and mainstreamed. All pilots, however, have highlighted how **the main barriers are systemic and interconnected, spanning governance, finance, regulation, market structures, education, and societal values**. Stakeholders repeatedly highlighted fragmentation — between policies, institutions, sectors, and actors — as a key obstacle preventing the scaling and mainstreaming of NPE approaches.

This fragmentation manifests itself in multiple ways. In the green buildings pilots, stakeholders pointed to the lack of harmonised standards, inconsistent policy



implementation, fragmented financial incentives, and insufficient technical capacity. In the food systems pilot, fragmentation was reflected in disconnected value chains, the dominance of industrial and profit-driven food systems, and the separation between consumers, food production, and nature. In the blue economy pilot, policy incoherence and the absence of integrated governance structures emerged as major challenges, while tourism, forestry, and apiculture similarly identified gaps between local practices, institutional frameworks, and long-term ecological objectives.

Another important reflection concerns the need to **rethink dominant economic narratives and value systems**. Across nearly all pilots, stakeholders emphasised that current economic models often undervalue ecosystem services, biodiversity, and long-term social well-being, while prioritising short-term profitability and growth. This challenge was particularly explicit in the food systems pilot, where participants stressed the need to “unlearn” dominant narratives around competition, productivity, and cheap food, replacing them with approaches centred on collaboration, care, resilience, and justice. Similar reflections emerged in the blue economy pilot, where natural capital accounting and ecosystem service valuation were identified as essential tools for shifting investment and governance priorities.

The pilots also demonstrated that the transition towards a Nature-Positive Economy requires **moving beyond isolated projects or niche initiatives towards systemic integration**. Nature-based solutions cannot remain optional or experimental additions; they must become embedded within **mainstream planning, investment, education, and governance systems**. In the green buildings pilots, for example, stakeholders envisioned green roofs and walls evolving from “innovative features” into standard urban infrastructure integrated into regulations, financing systems, and professional training. Likewise, the tourism pilot highlighted the need to evolve from “sustainable tourism” as a mitigation approach towards “nature-positive, balanced tourism” capable of actively regenerating ecosystems and communities.

A further key reflection is the importance of **multi-stakeholder governance and inclusive participation**. The roadmapping methodology itself proved highly valuable in bringing together actors that do not usually collaborate directly, including policymakers, businesses, researchers, NGOs, community representatives, financial actors, and citizens. Participants consistently valued the opportunity to exchange perspectives, identify common priorities, and better understand the interdependencies between sectors and stakeholder groups. At the same time, the process also **revealed practical challenges in ensuring balanced representation and sustained engagement**. Several pilots highlighted difficulties in securing participation from political representatives, financial institutions, and certain private-sector actors due to time constraints, competing priorities, or limited awareness (or interest) of the Nature-Positive Economy concept. This suggests that next steps and future roadmapping and implementation processes will require NPE leaders who hold legitimacy, are sufficiently funded over time, and can provide coordination and facilitation to advance strategies for long-term widening of participation and ownership-building.



The role of education, knowledge-sharing, and capacity-building emerged as another major cross-cutting theme. Almost all pilots identified significant knowledge and skills gaps as barriers to implementation. These ranged from technical expertise and professional training in green infrastructure, to environmental literacy and systems thinking within wider society. Participants stressed that achieving a Nature-Positive Economy will require not only specialised training programmes, but also deeper cultural and educational transformation. The integration of systems thinking, biodiversity awareness, and nature-positive principles into formal education systems was repeatedly identified as a long-term priority and informs opportunities to address knowledge gaps and future research proposals..

Importantly, the pilots also demonstrated that nature-positive transitions must be socially inclusive and equitable. Stakeholders consistently recognised that environmental transformation cannot succeed if it exacerbates existing inequalities or excludes vulnerable communities. The concepts of fair access, community participation, just transition, and shared ownership appeared across multiple sectors. Whether through equitable access to urban green infrastructure, support for farmers and coastal communities, or inclusive governance models, participants emphasised that nature-positive approaches must strengthen social resilience and ecological health.

Another significant conclusion from the process is the importance of measurable outcomes and credible monitoring systems. Many stakeholders highlighted the lack of standardised indicators, valuation methods, and performance metrics for biodiversity and ecosystem services. Without robust measurement frameworks, it remains difficult to demonstrate impact, attract investment, influence policy, or scale solutions. Consequently, several pilots prioritised the development of common standards, monitoring systems, natural capital accounting methodologies, and impact-based financial instruments as critical enabling conditions for the transition.

The overall roadmapping process itself has the potential to generate important methodological learning for wider replication in other sectors and contexts, supporting the scale up of the NPE. The structured five-step approach proved effective in guiding participants from vision-building to actionable pathways and helped create a shared language around Nature-Positive Economy concepts. The combination of visioning, baseline assessment, prioritisation exercises, and pathway development encouraged both creativity and practical thinking. Lastly, the use of multi-temporal milestones (2030 and 2050) enabled participants to connect immediate actions with long-term transformation objectives. The project team aims to repackaging the methodology into a usable toolkit that can support capacity building within the project (driving structural change and scaling-up the NPE) and beyond the life of the project in Europe and globally.

The process highlighted that roadmaps should not be understood as static outputs. Rather, they should be viewed as living frameworks that evolve over time through continuous learning, stakeholder engagement, experimentation, and adaptation. Notably,



pilots were at different stages of maturity and achieved varied levels of success in stakeholder participation, providing a launchpad for further development. Several pilots identified the need for regular review mechanisms, follow-up actions, and implementation-focused governance structures to maintain post-workshop momentum. During the following months of GoNaturePositive! project, 6-month review cycles will be planned with pilots to check the progress on the proposed implementation strategy and actions. Dedicated dissemination moments are going to be organised to keep the motivation and engagement of actors.

In summary, the GoNaturePositive! pilot roadmaps demonstrate that there is both willingness and capacity across sectors and regions to advance towards a Nature-Positive Economy. While the challenges identified are substantial — including regulatory fragmentation, financial barriers, societal disconnect from nature, and entrenched economic paradigms — the pilots also reveal a strong collective need and ambition to reposition nature as the foundation of economic and social prosperity. While these roadmaps do not have the specific ambition to be scalable outside the contexts where they have been developed and to represent the whole sectors, they contribute to a broader European and global conversation about how economies can transition towards models that restore ecosystems, strengthen communities, and generate shared prosperity within planetary boundaries.

Ultimately, the pilot roadmaps reinforce the understanding that achieving a Nature-Positive Economy is not solely an environmental objective, but a societal transformation process requiring coordinated action across all levels of governance, business, finance, education, and civil society. The transition will require persistence, experimentation, and collaboration, but the pilots demonstrate that pathways already exist — and that stakeholders across Europe and beyond are ready to begin building them together.



Annex - Pilot Roadmaps

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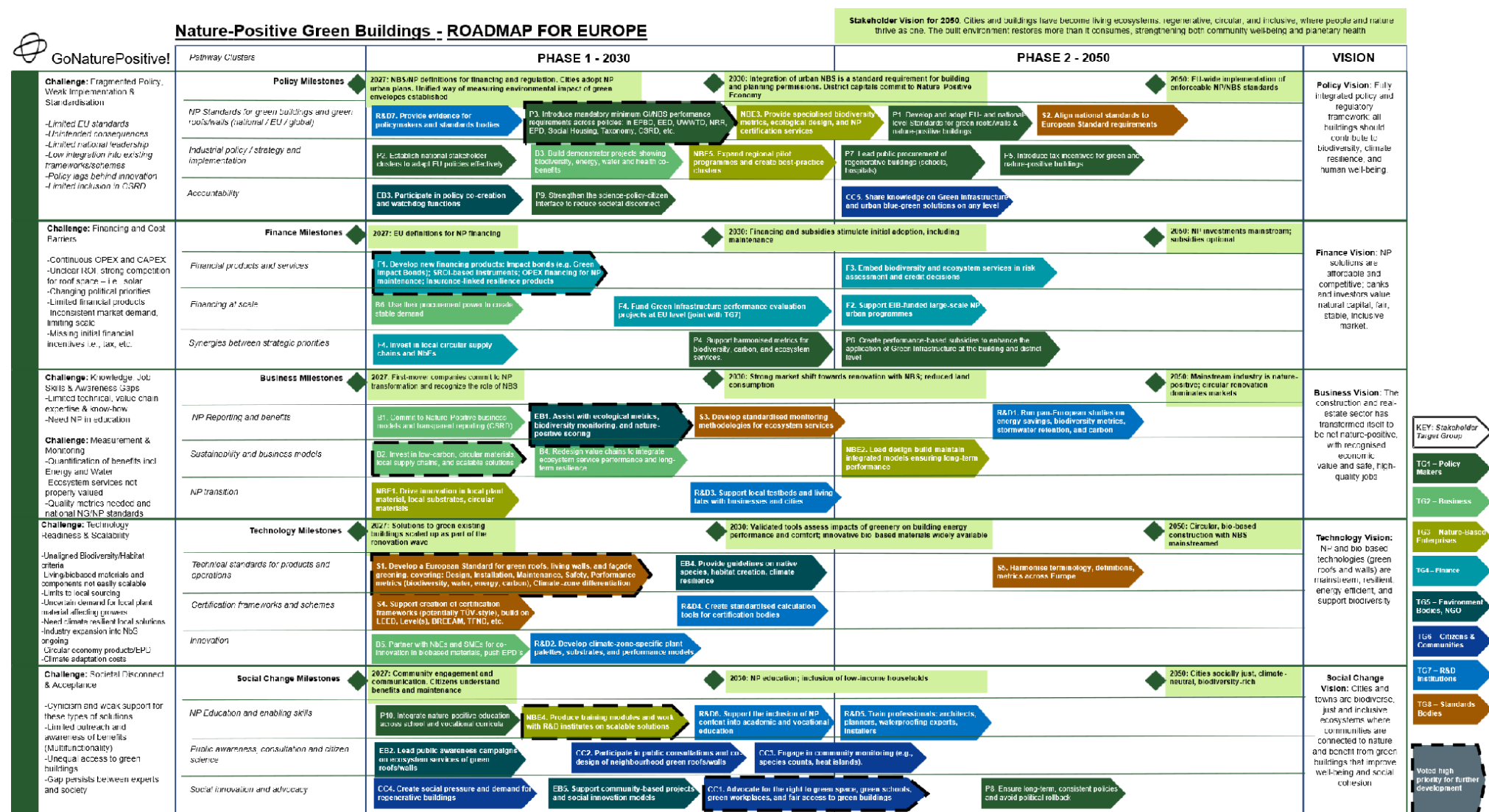
- 1 - Nature Positive Green Buildings - Roadmap for Europe
- 2 - Nature Positive Green Buildings - Roadmap for Czech Republic
- 3 - Nature Positive Green Buildings - Roadmap for Portugal
- 4 - Nature Positive Food Systems - Roadmap for Flanders
- 5 - Nature Positive Blue Economy - Roadmap for West of Ireland
- 6 - Nature Positive Tourism - Roadmap for Valsugana, Italy
- 7 - Nature Positive Forestry - Roadmap for Friuli-Venezia Giulia
- 8 - Nature Positive Apiculture - Roadmap for Aburrá Valley

Notes:

Roadmapping Templates for capacity building available from: <http://www.gonaturepositive.eu/resources>

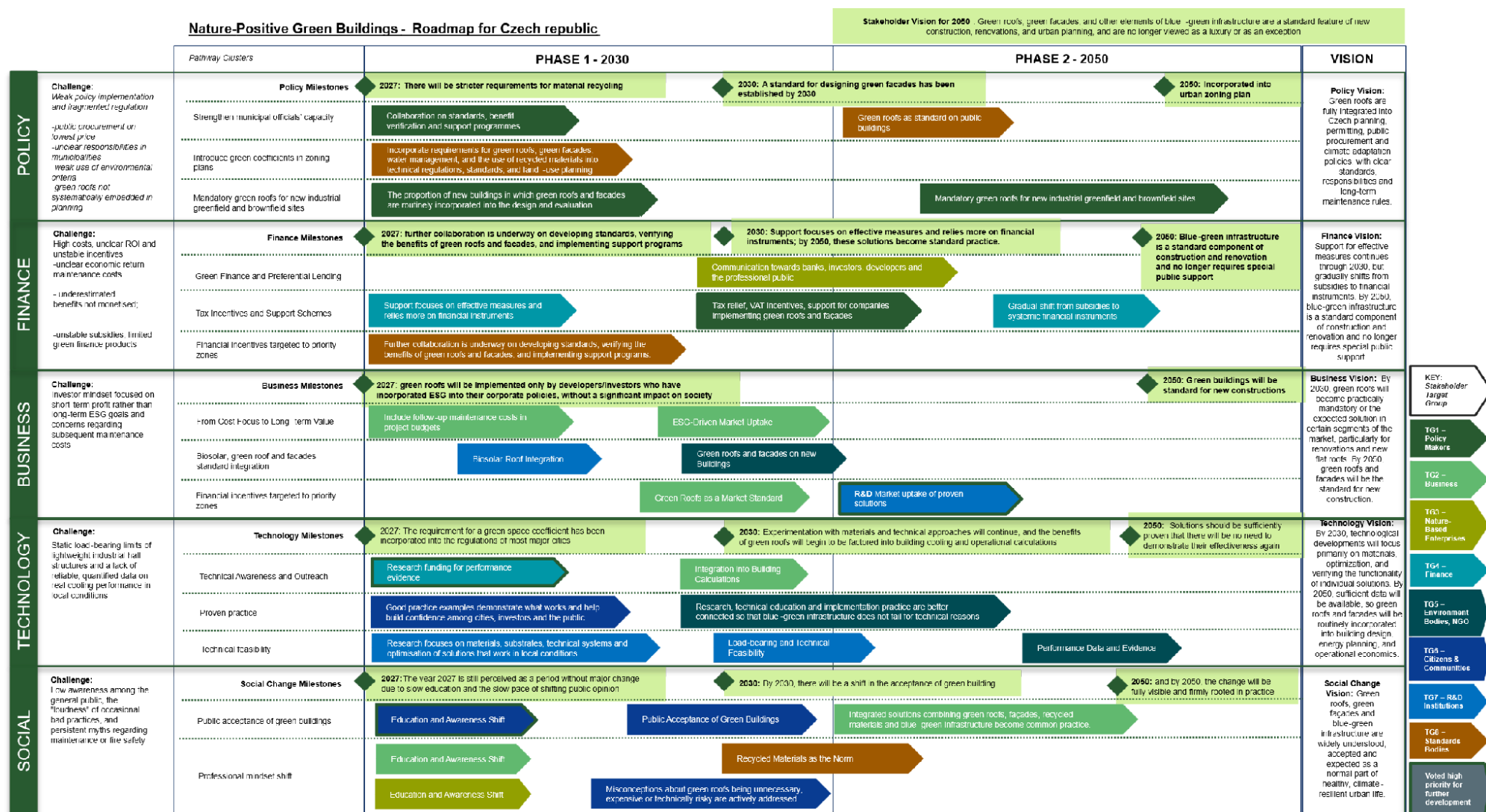


1 - Nature Positive Green Buildings - Roadmap for Europe



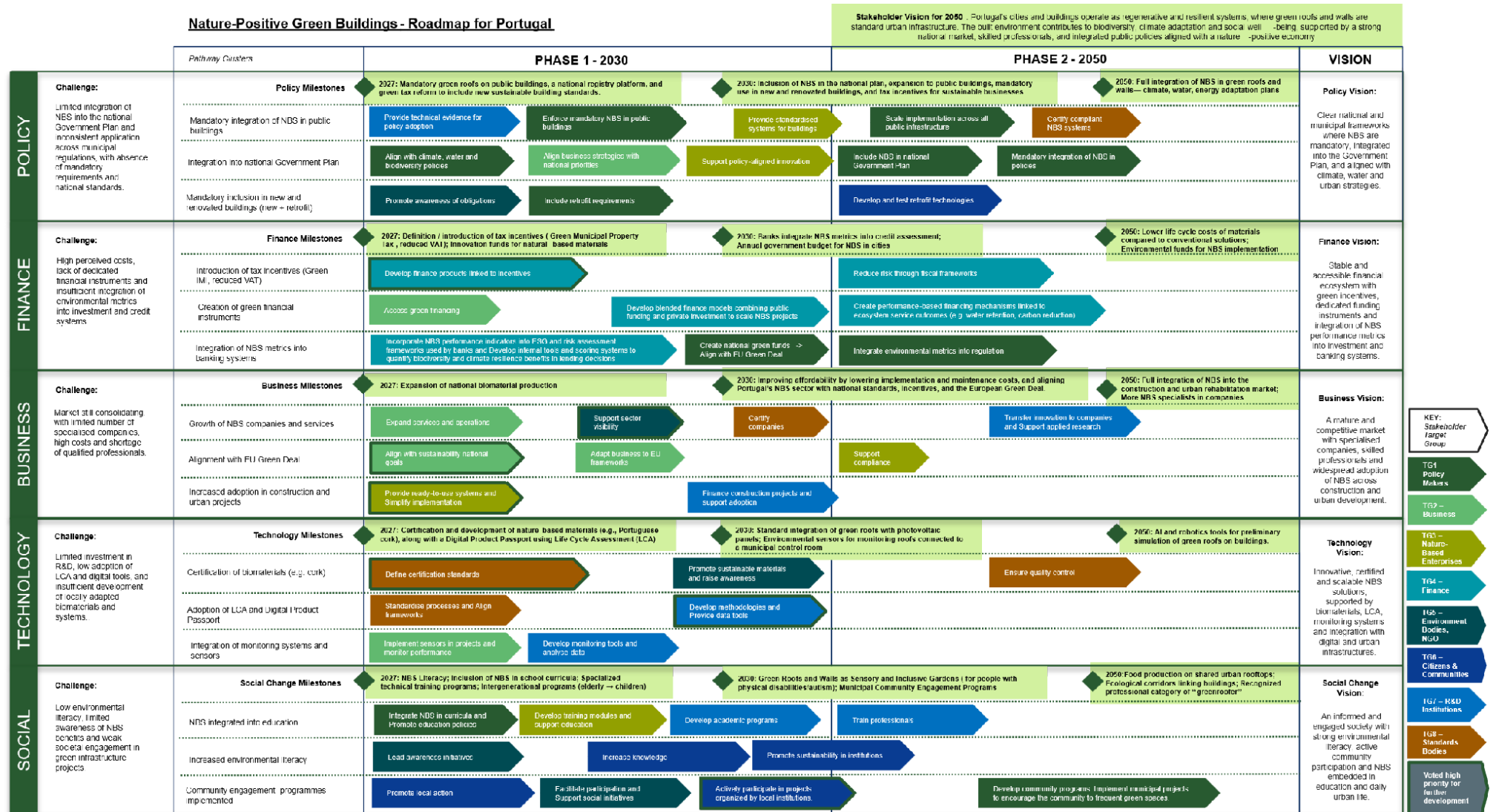


2 - Nature Positive Green Buildings - Roadmap for Czech Republic

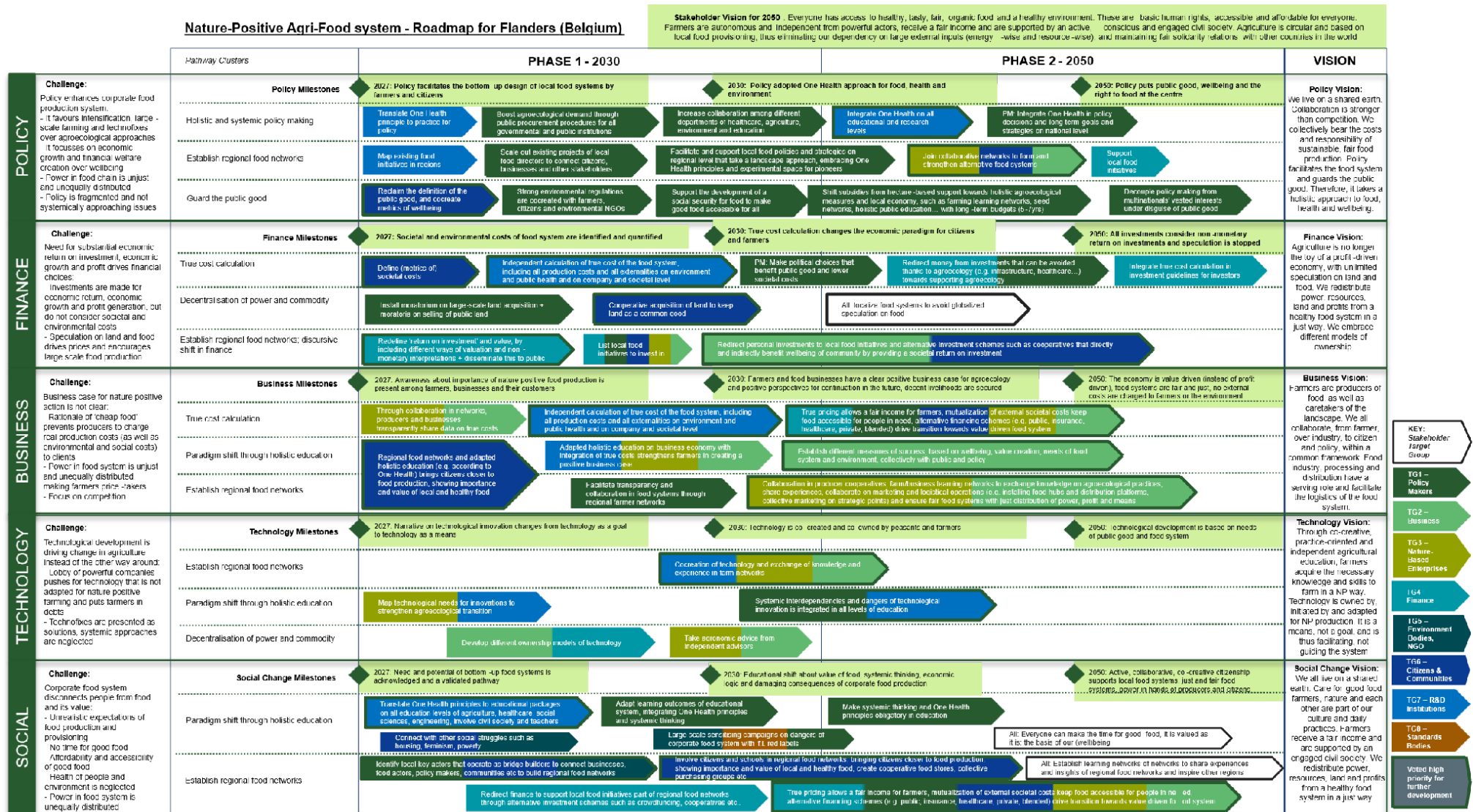




3 - Nature Positive Green Buildings - Roadmap for Portugal

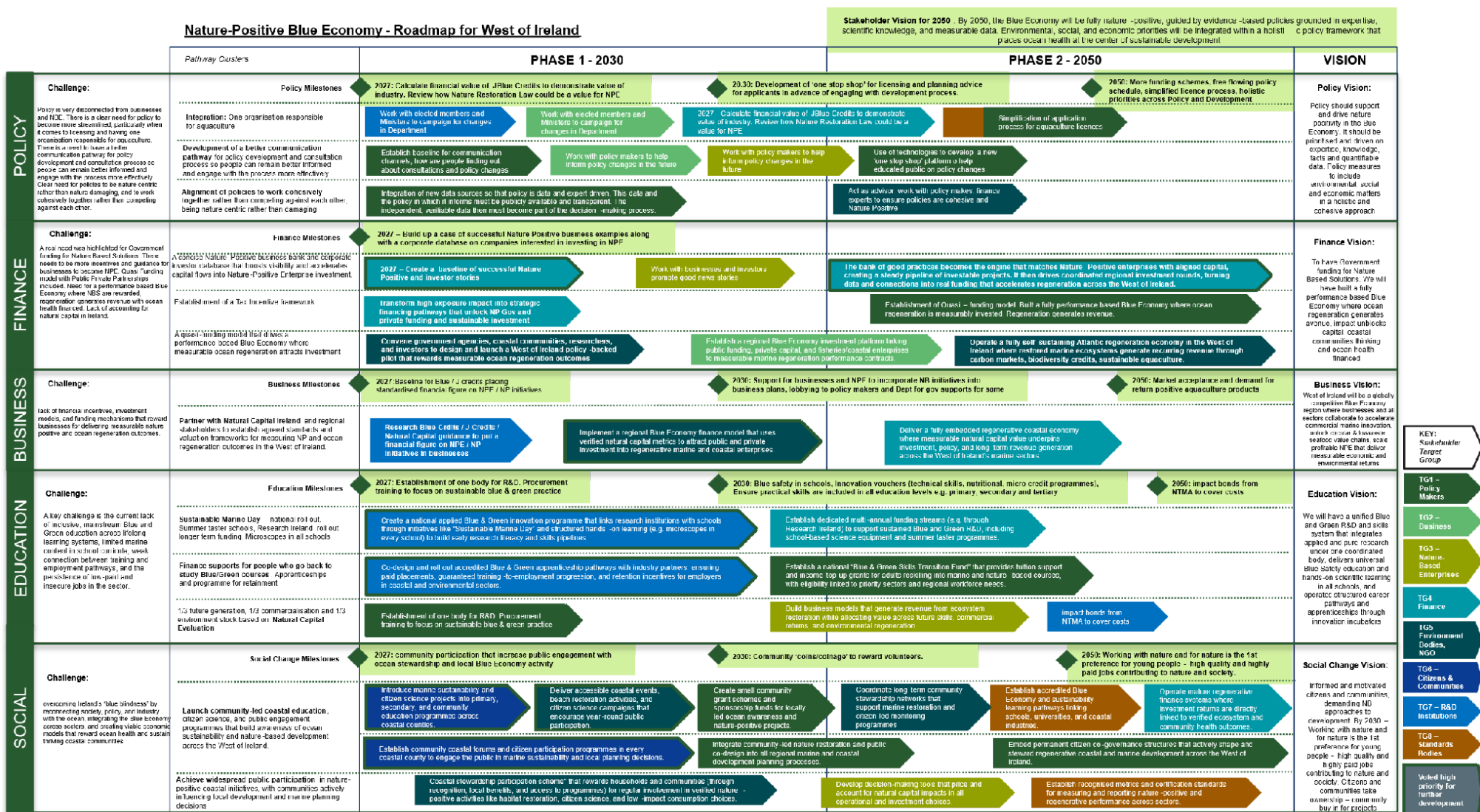


4 - Nature Positive Food Systems - Roadmap for Flanders



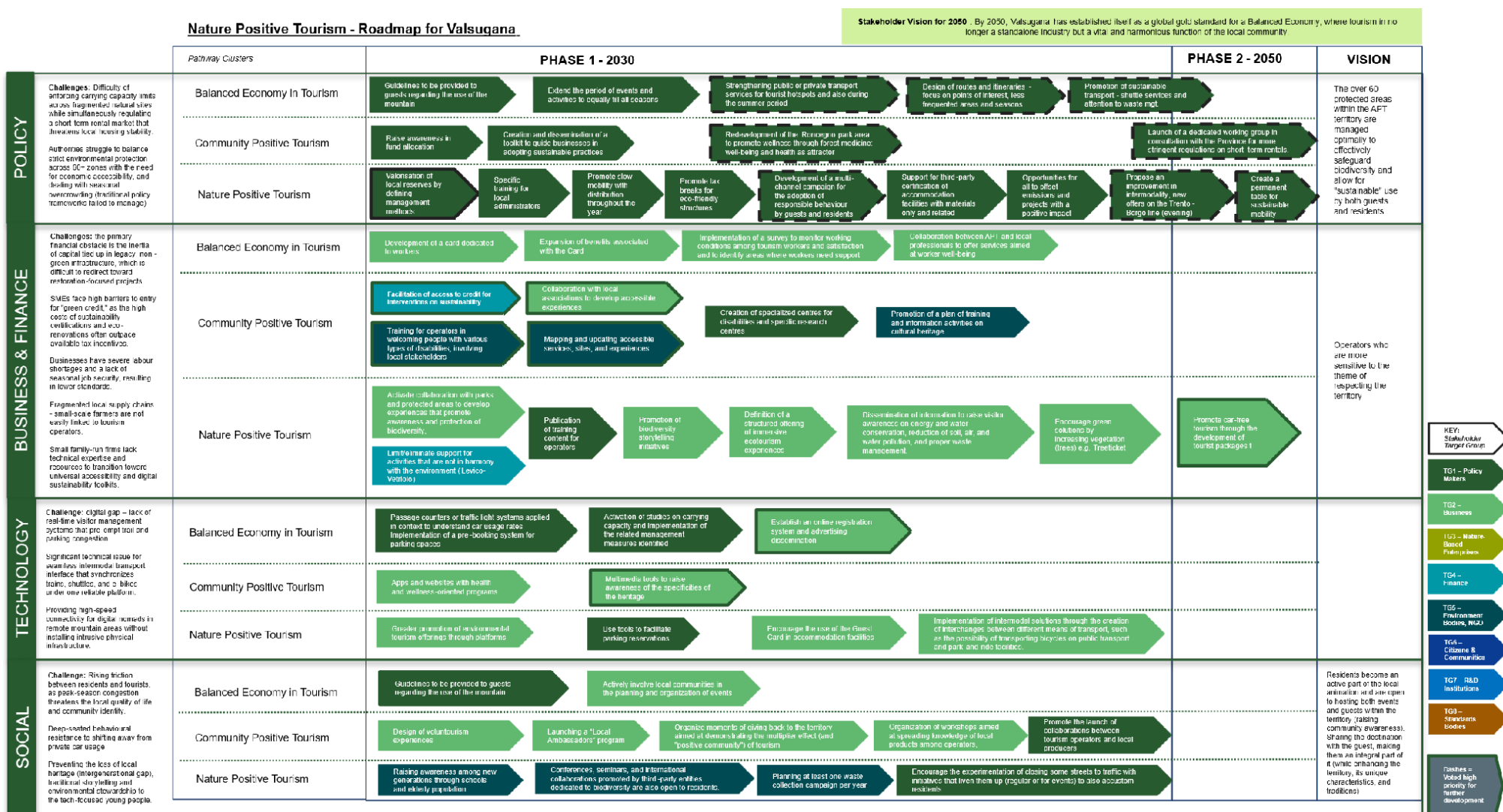


5 - Nature Positive Blue Economy - Roadmap for West of Ireland



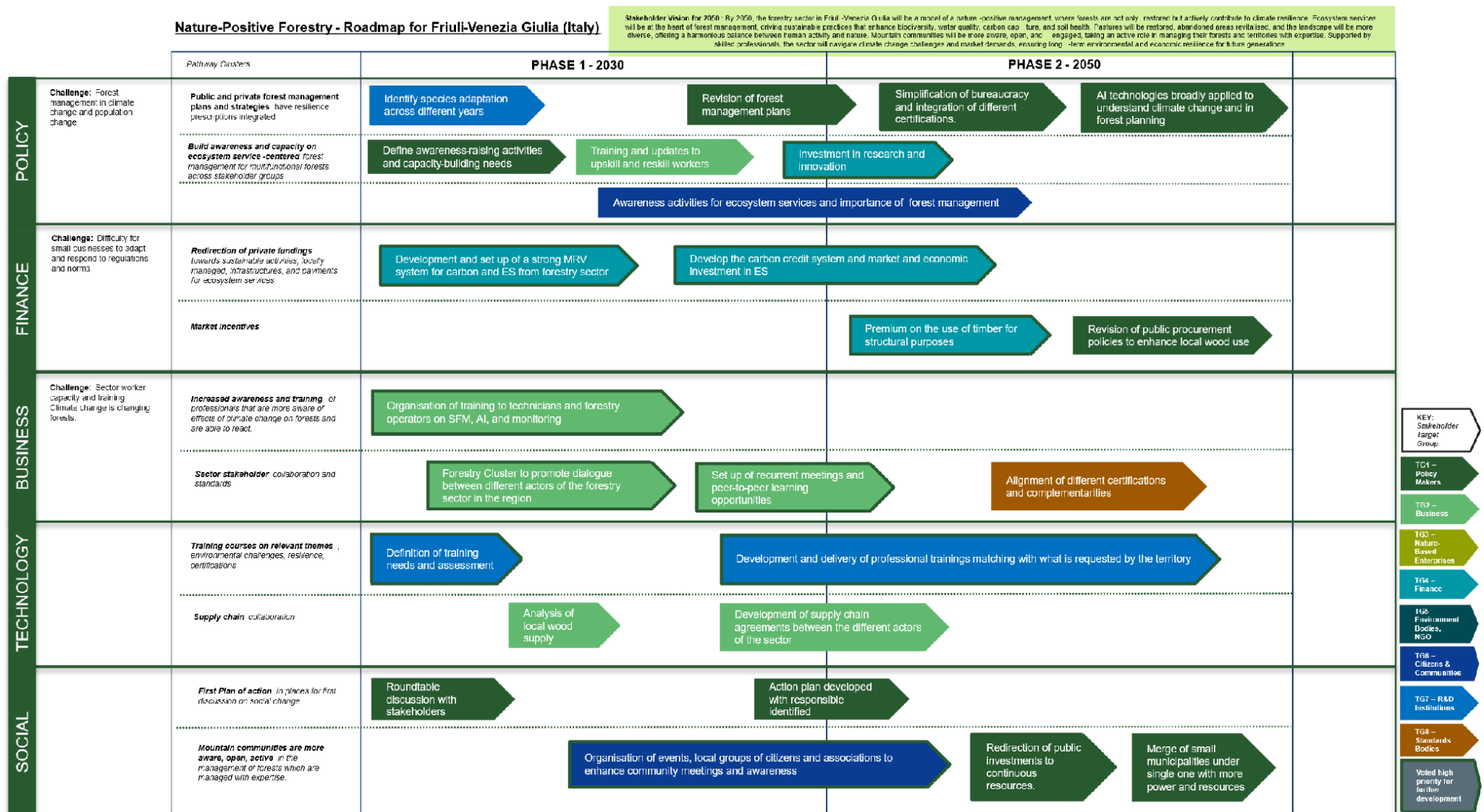


6 - Nature Positive Tourism - Roadmap for Valsugana



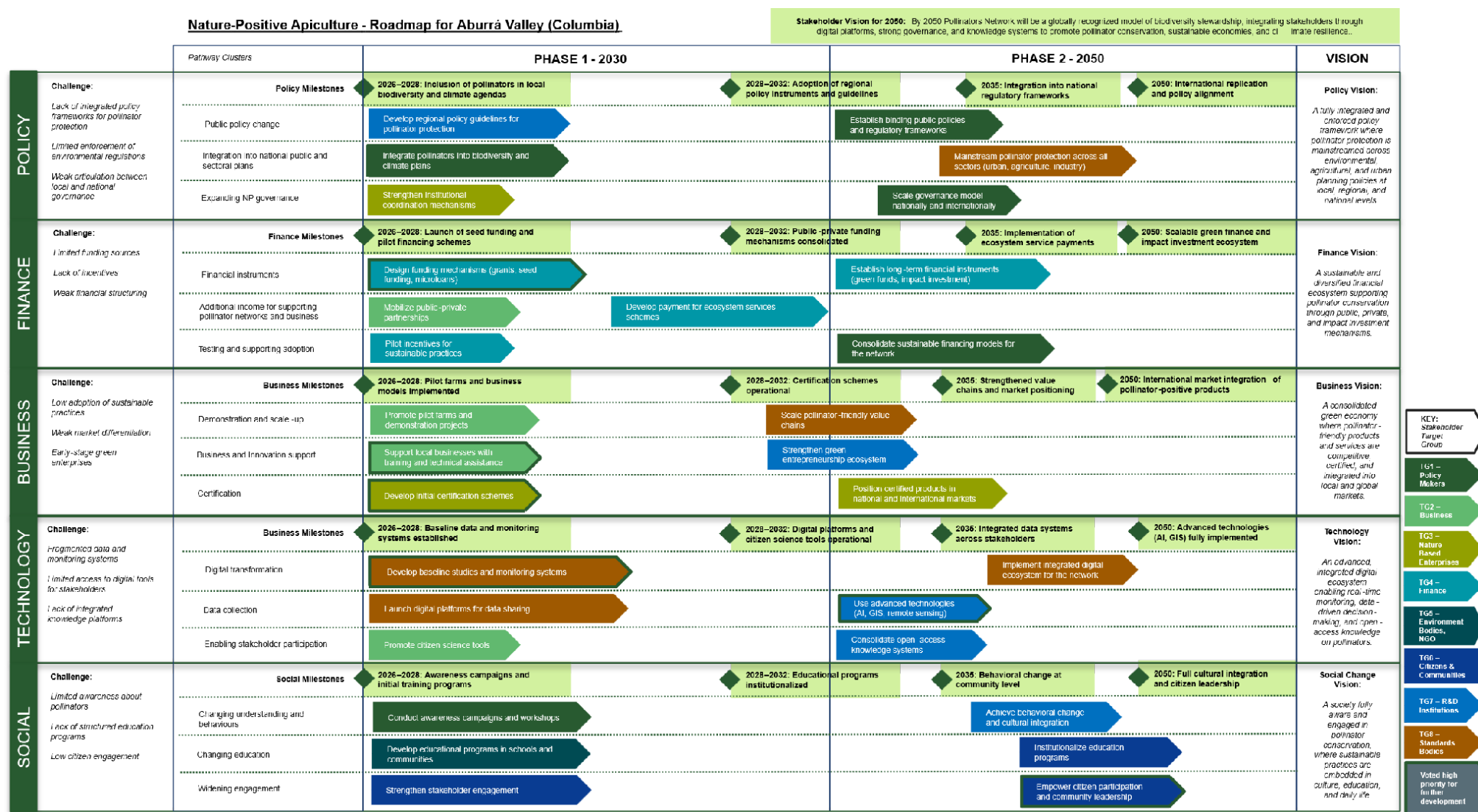


7 - Nature Positive Forestry - Roadmap for Friuli-Venezia Giulia





8 - Nature Positive Apiculture - Roadmap for Aburrá Valley





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