BioValue

D6.7 BioValue Policy, Research, and Innovation Highlights
WP 6 Management

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1. Technical references

Project Acronym	BioValue
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RE = Restricted to a group specified by the consortium (including the Commission Services)

CO = Confidential, only for members of the consortium (including the Commission Services)

v	Date	Beneficiary	Author
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LIST OF ABBREVIATIONS

E&F	Economic and Financial
E&FI	Economic and Financial Instruments
EA	Environmental Assessment
EAI	Environmental Assessment Instruments
EIA	Environmental Impact Assessment
EU	European Union
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
PIECES	Pluralizing, Impacting, Empowering, Contextualizing, Engaging, Scaling
SEA	Strategic Environmental Assessment
SP&M	Spatial Planning and Management
SP&MI	Spatial Planning and Management Instruments
WP	Work Package

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3. Executive Summary

The Horizon European project BioValue represents a paradigm shift in biodiversity governance investigation on how spatial planning can become a transformative driver for nature conservation and enhancement. By integrating Spatial Planning and Management Instruments (SP&MI), Environmental Assessment Instruments (EAI), and Economic and Financial Instruments (E&FI), the project delivered actionable outputs that bridge the persistent gap between EU biodiversity ambitions and local implementation capacity.

Operating across three "Arenas for Transformation" in Portugal, Italy, and Germany, BioValue has co-developed, with municipalities and interested parties, a suite of decision-support tools that enable biodiversity-inclusive planning. The project's innovations here included were all validated through experimentation and real-world application in spatial planning processes.

The project has culminated in ready-to-use policy tools that support the EU Biodiversity Strategy 2030 while addressing the practical constraints faced by spatial planners, policymakers and decision-makers.

This deliverable synthesises policy, research, and innovation highlights of BioValue project to date, with a focus on informing future EU strategies, regulatory adjustments, and multi-level implementation through transformative spatial planning practices.

4. Project Overview

4.1. Context and Motivation

Despite robust EU policy frameworks, Europe continues to experience biodiversity decline at alarming rates. The disconnect between high-level strategic objectives—embodied in the EU Biodiversity Strategy 2030 and the new emerging Nature Restoration Law—and practical implementation tools represents a fundamental governance challenge.

BioValue was conceived to tackle this implementation gap recognizing spatial planning as the backbone for policy mixes and the critical nexus for biodiversity valuation to be included in territorial development. The project's central hypothesis was that transformative change requires not new regulations, but more positive biodiversity driven spatial planning assisted by effective cross integration of existing instruments, through systems thinking, collaborative governance, and evidence-based decision-making.

4.2. Methodological Innovation Through Instrumental Integration

The project's methodological foundation rests on the analysis, enhancement and integration of three interconnected instrumental lenses:

- SP&M examining how zoning, design standards, and conservation measures can actively generate positive biodiversity outcomes
- EA transforming environmental assessment from procedural compliance to strategic biodiversity planning
- E&F exploring how economic incentives and financial mechanisms can support ecological goals

This triadic approach enables comprehensive analysis of policy instruments while maintaining focus on practical implementation at urban, municipal and regional levels.

4.3. Implementation and Timeline

BioValue was implemented over **36 months** (2022–2025), with major milestones including:

- WP1: Diagnostic of current planning instruments and institutional gaps (M1–M12)
- WP2–3: Tool development and instrument interaction (M6–M24)
- WP4: Case study implementation in Arenas for Transformation (M12–M30)
- WP5–6: Policy synthesis, communication, and exploitation (M24–M36)

5. Policy, Research & Innovation Highlights

Transformative change, using spatial planning to change land use from being one of main the drivers of biodiversity loss (land take) to turn it into a positive biodiversity enhancement, increasing biodiversity value

The IPBES reports and many other previous studies have been unanimous in identifying land use change, and land take, as one of the main responsible causes for biodiversity loss. The motivation behind the BioValue project has been to seek a paradigm change in spatial planning and its relationship with biodiversity. BioValue recognized the complexity in spatial planning processes as the backbone of setoral policies, and the multiple conflicts across sectors that accumulate in consequences for biodiversity, recognized the socio-ecological, but also economic benefits of biodiversity to peoples well-being, and the need for transformative governance in changing spatial planning requirements and practices generating an integrated approach in spatial planning to address biodiversity.

An integration approach: Safeguarding and enhancing biodiversity in spatial planning processes by integrating multiple instruments that already operate in relation to biodiversity, including spatial planning and management instruments (SP&MI), environmental assessment instrumentos (EAI), and economic and finantial instruments (E&FI).

BioValue emphasises the value of combining instruments to build coherent strategies. Aligning regulatory "sticks" with financial "carrots" and informational "sermons" can make biodiversity positive spatial planning both ambitious and feasible. Together, the BioValue recommendations and catalogue of instruments provide an actionable and adaptable configuration for embedding biodiversity at the core of spatial planning. By selecting context appropriate policy tools and recommendations, policymakers, planners, and practitioners can drive shifts in mindsets, governance structures, and societal values—whether through incremental steps or disruptive change—to support transformative action. This approach contributes to halting biodiversity loss by encouraging the enhancement of biodiversity value, advancing sustainable, resilient, and nature positive development in line with national and EU biodiversity goals.

Showcasing the transformative potential of spatial planning: BioValue delivers a set of Recommendations, a Catalogue of Instruments, and a Game for enabling transformative practices.

Considering a cyclical spatial planning process, BioValue delivers 14 recommendations targetting three moments connected to the spatial planning process: its external context, the whole spatial planning process and specific stages during the spatial planning process. The recommendations, tuned to each of these moments, intend to reshape contextual and internal planning mechanisms and promote a holistic, positive approach to biodiversity protection.

A comprehensive catalogue of instruments of SP&MI, EAI, and E&FI was created to support the transformative potential in the spatial planning processes. The Arenas assessed each instrument's political acceptability and implementation feasibility within real-world contexts.

A Cards Game was developed to create increased capacities among stakeholders that simulate negotiation and decision moments cross-relating the multiples instruments of BioValue with concret spatial planning situations or conditions, therefore checking on the appropriateness of the

instruments to address particular situations, or on the possibilities of using the instruments in combination.

Promoting empowerment and emancipation: The arenas for transformation approach
Arenas for Transformation were used as spaces where the capacity/potential for supporting spatial planning transformation processes was explored, experimented and tested. The arenas are spaces of experimentation, or 'experimental' areas for action, based on transdisciplinary research processes for co-creation. Practice partners were engaged actively in the research processes, nota s mere applicants, but also as thinkers, chasing approaches and solutions for problems they are too much familiar with. They acted as leaders in their Arenas, engaging local stakeholders in analysing and discussing situations, and in making decision in their own processes, testing and exploring the application of BioValue's scientific results and outputs. This led to empowered practitioners, actively involved in the research process and in the translation of research into practice.

Role of practice partners: Knowledge-creators and knowledge-brokers
Practice partners were central to knowledge co-creation and brokerage throughout the project (trhoughout the project WP1-3, and specifically in WP4). Through joint problem definition, theoretical and practice-oriented discussions, co-design and co-implementation of workshops, piloting and testing, and reflective learning cycles they generated empirical evidence and refined theoretical propositions grounded in everyday practice. They also acted as brokers—converting research findings into accessible context-specific formats (toolkits, guidance, policy briefs), connecting researchers with local stakeholders and decision-makers, and enabling transfer and scaling of innovations across organisational and institutional boundaries. This twofold role both improved the project's scientific validity (by testing theory in context, producing policy-ready outputs for real-world uptake) and maximised societal impact (by embedding change in practice and policy).

Promoting change in spatial planning practice: Models and tools to practically support the valuation of biodiversity in spatial policy and planning processes
The *PIECES Framework for Ecosystem Services Assessment (WP1)* advances beyond traditional economic valuation by incorporating instrumental, relational, and intrinsic values of nature. This methodological innovation addresses calls from the IPBES Values Assessment for more comprehensive approaches to nature valuation while maintaining practical applicability for municipal planning.
The *Mitigation Hierarchy (WP2-WP3)* explored with a way for planners to visualize intricate ecological relationships and feedback loops, which helps them pinpoint intervention points where biodiversity enhancement can be accomplished most successfully. By addressing the basic flaws in the linear cause-effect reasoning that underpins present EIA/SEA practice, this systems approach promotes more accurate impact prediction and the design of strategic enhancement. Complementing this analytical foundation, the pathways for Economic and Financial Instruments (WP3) explore how the EU renewed Sustainable Finance Strategy can be operationalized in spatial planning contexts. By aligning financial incentives with the enhanced mitigation hierarchy, E&FIs become tools for rewarding biodiversity enhancement rather than simply penalizing damage.
The *Reconceptualization of the spatial planning as a cyclical process (WP6)* rather than linear, represents a paradigmatic shift toward adaptive governance. This model incorporates a) continuous feedback loop between assessment and implementation, b) iterative refinement based

on monitoring outcomes, c) collaborative learning processes involving multiple stakeholders, and d) flexibility to address ecological uncertainty and social complexity.

Strategic Recommendations for Policy Reform: Enhancing national and European ambitions
What follows is a synthesis of specific recommendation for policy reform, with a multi-level perspective, for enhancing ambitions of environmental and spatial planning policies and regulations.

Addressing Current Regulatory Limitations

- Weak mandate: Biodiversity remains optional rather than mandatory in planning systems
- Fragmented processes: EIA/SEA procedures lack ecological coherence and early integration
- Limited uptake: Ecosystem services assessment remains peripheral to decision-making
- Poor vertical coordination: Disconnection between EU objectives and local implementation

Legislative Strengthening

- Mandate specific biodiversity-enhancing instruments in planning legislation
- Require early-stage integration of ecosystem services assessment
- Link planning instruments to EU Taxonomy Regulation environmental objectives
- Establish clear criteria for habitat area, quality, and connectivity outcomes

Assessment System Reform

- Update SEA/EIA regulations to require biodiversity enhancement beyond mitigation
- Mandate systems thinking approaches and cumulative impact analysis
- Strengthen tiering between strategic and project-level assessments
- Include long-term monitoring and adaptive management requirements

Institutional Capacity Building

- Invest in municipal biodiversity planning expertise
- Develop standardized training programs for planning professionals
- Create funding mechanisms for local biodiversity integration initiatives
- Establish technical support networks for tool implementation

Alignment with EU Policy Frameworks

- EU Biodiversity Strategy 2030: Through enhanced spatial planning integration
- Nature Restoration Law: Via systematic enhancement requirements in planning
- EU Green Deal: Through green infrastructure and ecosystem service mainstreaming
- EU Taxonomy Regulation: By linking planning instruments to environmental objective

Societal and Ethical Considerations

The project's emphasis on pluralistic valuation and participatory governance addresses fundamental questions about human-nature relationships. By incorporating intrinsic and relational values alongside instrumental considerations, BIOVALUE supports more ethically robust and socially legitimate planning decisions