Transnational Final Report

WP5 Activity 6: Reporting

Co-creating biodiversity CO-BIO in urban areas

Funded by the European Union

Contents

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Introduction

This transnational report synthesises the results from the six national final reports of the Co-Bio project, which aimed to co-create practical urban biodiversity initiatives across diverse European contexts. Implemented as one-year local cases from late 2024 to late 2025, these initiatives transformed everyday urban and peri-urban spaces, such as university campuses, social housing gardens, schoolyards and private households, into resilient ecosystems supporting native flora, pollinators and wildlife, while fostering community stewardship and climate adaptation.

The methodology followed a structured co-creation approach, engaging multi-stakeholder coalitions of lead organisations, residents, educational actors, experts, and public authorities in iterative cycles of ideation, participatory design, hands-on implementation, and monitoring. Co-creation was defined as a relational process that blends local knowledge with technical expertise, moving from shared diagnosis of environmental challenges to tangible nature-based solutions, ensuring both ecological impact and sustained community ownership throughout the project timeline.

These local cases took distinct forms adapted to their contexts, as summarised below:

Austria restored University of Vienna campuses via "Biodiversify UBB," implementing raised beds, sand habitats, and nesting structures through student-led actions and international networks.

Denmark created the "VILD START" (“WILD START”) biodiversity kits for 15 Skibet households, enabling simple habitat enhancements in private gardens with native plants and species-specific elements.

Greece piloted micro-ecosystems and pocket parks in Plataies and Athens, using gamification and pledges for co-stewardship among students and families.

Hungary's Wekerletelep initiative (“Wekerle, naturally!”) focused on small-scale garden transformations, awareness events, and school raised beds to support wildlife like birds and bats.

In Italy, a Biodiversity Garden was developed in Palermo's Euromadonie area, featuring endemic Sicilian species and educational zones for pollinators and herbs.

Portugal established Tiny Forests in two social housing dwellings in Vila Nova de Gaia, promoting native flora corridors and community maintenance.

Collectively, these cases share the goal of fostering a European approach to urban biodiversity by blending local knowledge with nature-based solutions, enhancing habitats, climate resilience and social cohesion. In addition to the content developed throughout this transnational report, more detailed information about each local case can be found at the project website.

This introductory section provided a shared foundation for understanding how local context shapes urban biodiversity action, briefly describing each initiative. The following

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sub-sections synthesise this information along three common dimensions: Geographic and Demographic Context, Initial State of Urban Biodiversity and Green Spaces, and lastly, Key Environmental Challenges and Opportunities. These subsections allow the framing of the subsequent analysis of Co-creation Processes, Solutions and Impacts from a transnational perspective.

Geographic and demographic context

Austria

The new campus of the University of Vienna Biology Building (UBB) in St. Marx, primarily used by students and university members and the Main Campus in Alsergrund, a large complex used by numerous students, residents, and university members as a learning site and public park.

Denmark

Skibet, a village near Vejle, featuring an active local climate partnership involving the municipality and citizens in climate action, biodiversity and community engagement.

Greece

Two contrasting environments: the dense metropolitan landscape of Athens and the community-centric setting of Plataies, with expansion to Megara and Pylos-Nestoros.

Hungary

Wekerletelep in Budapest's XIX district, a unique suburb with many green areas and a unique structure, deliberately planned to support community life through low-rise homes, spacious gardens, tree-lined avenues and shared green spaces encouraging everyday gardening and neighbourly encounters.

Italy

Euromadonie Roccella in Palermo, Sicily, a longstanding social and cultural meeting point for families, schools and community groups, featuring a strong local identity amid growing environmental pressures.

Portugal

Vila Nova de Gaia, a mosaic of dense urban, industrial, rural areas and Atlantic coastline. A high population density and urban expansion make green spaces, ecological corridors and microbiodiversity even more essential, focusing on social housing dwellings.

Initial state of urban biodiversity and green spaces

Austria

The UBB Campus was characterized by being highly sealed with minimal green spaces, despite closeby areas being greener with high ecological value, including urban forests, semi-arid grasslands, and green spaces between housing. As for the Main Campus, it

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was considered rich in wildlife and high ecological value with yard-structured grassland habitats full of wild bee habitats and semi-arid areas, though maintenance revealed to be insufficient during redesign.

Denmark

The case implementation focused on some households' private gardens in Skibet, where biodiversity support required mobilisation of small-scale actions to enhance local habitats for wild species across young gardens, older gardens and farm gardens.

Greece

The selected sites for project implementation included urban dense contexts facing local threats like construction, climate change and water scarcity, with neglected schoolyards and public spaces lacking vibrant green habitats for endemic flora and species such as the Cephalonian Fir and Black Redstart.

Hungary

The chosen area for the local case implementation could be described as having abundant green areas and old trees, but increasing artificial grass, concrete and paving stones in private gardens and a local mosquito problem.

Italy

At Euromadonie Roccella, the natural vegetation has been replaced by paved surfaces, fragmented public green spaces and limited areas dedicated to environmental education.

Portugal

Vila Nova de Gaia is characterized as a diverse network of green spaces including urban parks, gardens, forest areas and natural reserves like the Douro Estuary, but fragmented with few continuous ecological corridors. Abandoned or degraded small garden areas are particularly associated with social housing.

Key environmental challenges and opportunities identified

Austria

The lack of green spaces at both UBB and Main Campuses acted as catalyst for community action. Collaborations with student representatives, municipal departments and university were identified, as well as synergies with existing networks for hands-on restoration including scything workshops and habitat creation.

Denmark

Private gardens in Skibet poved to be a key environmental challenge due to their fragmented nature and varying types (young, older, farm gardens), which makes it difficult to create coherent habitats for wild species despite their potential. However, their private ownership offered an immediate opportunity for action, while the existing

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municipality-citizen climate partnership and co-creation workshops enabled testing tailored starter kits to overcome barriers such as the lack of knowledge and motivation among beginner households.

Greece

The combined effects of intense land scarcity, relentless construction, and administrative rigidity in Athens, alongside climate change and water scarcity in Plataies, created opportunities for high-level institutional partnerships with the Municipality to pioneer Pocket Parks as scalable green solutions, while the schoolyard setting enabled grassroots testing of co-stewardship models transforming neglected spaces into community-managed habitats.

Hungary

Urban pressures such as the growing replacement of natural vegetation with artificial grass, concrete surfaces, and paving stones in private gardens, alongside a local mosquito problem, created challenges for maintaining ecological connectivity and wildlife habitats. These conditions, and considering the area's strong community identity, offered an ideal scenario for awareness-raising, educational activities to restore nature-friendly practices, small-scale on-the-ground implementations and providing residents with materials like bat houses to support local wildlife

Italy

Conditions such as pavement expansion replacing natural vegetation, fragmentation of public green areas and scarcity of environmental education spaces created challenges for pollinator habitats and ecological connectivity, but the area’s existing community networks, strong local identity and favourable conditions for co-creation and civic participation enabled convergence of ecological awareness, cultural heritage and community engagement to establish a multifunctional Biodiversity Garden as a model for native species conservation and community-driven restoration.

Portugal

An initial local assessment allowed the identification of promising areas with development potential, evident urban heat islands and habitat fragmentation, ideal for requalification via Tiny Forests and nature-based solutions to enhance ecological connectivity and climate resilience.

Across the six local cases, a common picture is revealed: densely used urban or peri-urban environments where green spaces are often fragmented, under pressure from soil sealing, construction and climate-related stresses, but still hold significant ecological potential. At the same time, they highlight how different types of territories, from vulnerable social housing dwellings and university campuses to historic garden suburbs, small villages and metropolitan schoolyards, offer distinct combinations of community networks and institutional partnerships that can be mobilised to co-create biodiversity-friendly interventions.

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Co-Creation process

a) Stakeholders

Austria

The stakeholder selection and engagement process was based on a collaborative and multi-level approach coordinated by Öko Campus Wien and fully supported by Gartenpolylog. Following an initial stakeholder analysis initiated at the first face-to-face Co-Bio meeting, a strong local partnership network was established around the UBB Campus, involving project teams, students, academic units, municipal departments and local organisations. Students from the University of Vienna, particularly through the biology student representatives (STV), played a key role in outreach and engagement, while institutional partners such as the Faculty of Life Sciences, the University's Sustainability Office and a local housing company enabled the practical implementation of biodiversity measures. The process was further strengthened by an international biodiversity meeting held in Vienna, in June 2025, which also served as a dissemination event. Overall, the combination of existing networks and new partnerships was crucial for the efficient and timely implementation of multiple biodiversity actions.

Denmark

A local volunteer group of 13 residents from Skibet formed the core stakeholder group, supported by biodiversity experts from Vejle Municipality and Grønt Forum. The process expanded through open workshops and garden visits that invited the wider community, ultimately engaging 15 test households representing different garden types such as young gardens, older gardens and farm gardens.

Greece

The Athens Lifelong Learning Institute served as the central coordinator and facilitator. In Plataies, the stakeholder ecosystem mobilised 44 students as primary agents alongside eight teachers and parents. In Athens, high-level cooperation involved the Municipality of Athens including the Deputy Mayor for Green Spaces and the Parks Department, plus Organisation Earth as a strategic partner for urban space upgrades. Lastly, the project's expansion included the 5th Primary School of Megara and the Municipality of Pylos-Nestoros.

Hungary

Stakeholder recruitment was built on existing partnerships and community-based networks, initiated through the collaboration between GreenFormation and the Transition Wekerle Community Cooperative. Drawing on prior cooperation in developing the district's Climate Strategy, the founder of Transition Wekerle played a key facilitation role by helping to localise the project and mobilise additional stakeholders. Together with the Kiserdő Egyesület (Smallforest Protection Association), these actors formed the core team responsible for co-design, community outreach and implementation.

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Additional stakeholders were engaged through collaboration with the local community centre, which provided space for awareness-raising activities, and through open and targeted calls to identify garden owners and institutions willing to participate in on-the-ground biodiversity actions. Although initial responses were limited, private garden owners and a primary school were eventually involved. The process was further strengthened by the contribution of external experts in biodiversity and nature-friendly gardening. Overall, the recruitment combined open calls, targeted invitations and the strategic use of existing networks and relationships.

Italy

The stakeholder recruitment and co-creation process was coordinated by CESIE ETS, which connected scientific expertise with community needs and facilitated local participation. Botanists and environmental specialists contributed with ecological knowledge, particularly in the selection of native Sicilian species, while schools, teachers and youth groups played a central role through workshops, planting activities and educational initiatives. Residents and volunteers from the Euromadonie community provided place-based knowledge and ongoing practical support, supported by existing community networks that helped mobilise participation and ensure continuity. The Municipality of Palermo and local environmental organisations complemented the process with advisory input on urban biodiversity. Overall, stakeholder recruitment was based on targeted invitations, school engagement and the activation of existing relationships, resulting in a multi-level and well-integrated local partnership

Portugal

Stakeholder engagement was coordinated by RightChallenge as the official partner responsible for local implementation, in close collaboration with Gaiurb, the Municipal Company responsible for Urban Planning and Social Housing in Vila Nova de Gaia. Gaiurb played a decisive role by providing access to the intervention sites and by mobilising a multidisciplinary team of senior managers, landscape architects and social action technicians who were actively involved in the design and implementation of the Tiny Forests. The recruitment and engagement of the main target group, the residents of the selected social housing neighbourhoods, relied strongly on the continuous involvement of social action technicians. Their pre-existing relationships with residents fostered trust, enabled targeted invitations and supported sustained participation, while also encouraging wider community involvement. Overall, the engagement strategy combined institutional collaboration with personalised, trust-based community mobilisation to ensure effective and continuous stakeholder participation.

b) Implementation

Austria

The co-creation process was implemented through a participatory and iterative approach. The project began with a status quo assessment and idea workshops at the UBB Campus, where proposals were evaluated for feasibility and site-specific

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constraints were considered. Activities included planting geophytes, workshops with students, community focus groups, a scything session and engagement with a local kindergarten. Event dates and updates were communicated through university channels, student representatives, flyers and social media, while a mailing list ensured continuous information sharing. The process also remained flexible, allowing new initiatives, such as raised-bed installations, to be dynamically integrated, supported by a coordinated communication strategy and cooperative design framework.

Denmark

An iterative collaboration with an active volunteer group of 13 residents, supported by biodiversity experts from Vejle Municipality and Grønt Forum, allowed the implementation of the co-creation process. Such process involved open workshops, garden visits and the development of a local "Green Masterplan" to identify community priorities. Through these activities, the "VILD START" biodiversity box was co-designed to help households, particularly beginners, take practical steps to support local biodiversity. Implementation steps included selecting garden types, choosing suitable plants and materials, tailoring three types of biodiversity boxes to different habitats, creating simple instructions, and addressing practical barriers for residents. The process culminated in the mobilisation of 15 households to test the pilot boxes, ensuring hands-on participation and iterative feedback.

Greece

The co-creation process was implemented through two complementary tracks: structural planning of a "pocket park" in Athens and hands-on engagement in Plataies, with the latter illustrating the methodology in practice. In Plataies, a structured "5-Act" process guided participants from passive observers to active co-creators. Activities included introductory discussions on local biodiversity threats, creative exercises personalising the concept of biodiversity, gamified learning about local species, and collective outdoor planting of native species in the schoolyard. The process concluded with a commitment ceremony, where students, teachers, and parents made personal pledges to maintain the site, ensuring shared ownership and long-term sustainability of the co-created green space.

Hungary

The co-creation process was implemented through a structured, collaborative approach led by the core team combining local knowledge, professional expertise and residents' everyday experiences. The project focused on multiple small-scale interventions, which encouraged diverse ideas and activities. The process included regular meetings, both in-person and online and ongoing communication with GreenFormation handling administration and local partners engaging residents. Stakeholder involvement extended to experts, schools, and the wider community through presentations, guided tours, tree walks and initiatives such as "1 m^2 for Nature," which promoted mini wildflower meadows, and the provision of bird and bat houses. Children were actively engaged through a drawing competition, schoolyard planting, and hands-on garden

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activities. Permaculture planning sessions with private garden owners provided practical learning experiences, while workshops and planning meetings with schools fostered participatory design of green spaces, demonstrating the iterative and inclusive nature of the implementation process.

Italy

A structured sequence of research, design and participatory implementation was followed. Environmental experts conducted botanical studies to identify endemic and rare species, which informed the spatial design of thematic plots, including medicinal herbs, pollinator plants, aromatic shrubs, and native trees. Workshops and meetings with teachers, residents and volunteers shaped the garden's educational and community features, while planting days involved families and students in establishing the different zones. CESIE facilitated outdoor learning spaces with paths, signage, and small installations to support guided tours and immersive activities. The garden became a dynamic learning environment through seminars, composting workshops, seed-saving sessions, and hands-on activities, with local botanists and community groups assuming responsibility for maintenance, seasonal care and biodiversity monitoring to ensure long-term stewardship

Portugal

The co-creation and implementation of Tiny Forests was carried out by a multidisciplinary team coordinating the full process from planning to ongoing care. The approach combined interactive presentation sessions for local communities, environmental education workshops and activities specifically targeting children and young people, including games, competitions and hands-on planting exercises. These activities ensured sustained engagement, adapting technical content into accessible and emotional formats and addressing site-specific concerns which arose from suggestions made by residents of each selected site. Despite challenges related to bureaucratic delays and public procurement, the team was able to maintain community involvement through continuous educational and participatory actions. Overall, the process fostered inclusiveness and active participation across different age groups and social backgrounds, ensuring both co-creation and ownership of the implemented green spaces

c) Developed Solutions

Austria

The co-created solutions implemented through the Biodiversify UBB project encompassed human, ecological, financial and material dimensions. Human-focused actions included collaborative workshops with students, local communities and international partners, hands-on activities such as scything, seed saving, geophyte planting and the creation of insect nesting infrastructures, as well as peer learning and community-building events fostering empowerment and multispecies awareness. Ecological interventions comprised the restoration and diversification of habitats such

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as sand areas, meadows, hedges, drystone walls, raised beds and pannonic open soil for wild bees, planting and seeding around 60 native species, removal of invasive neophytes, and installation of swift nesting boxes, with citizen science monitoring through the app iNaturalist. Financially, the project leveraged collaborations and extra budgets to implement these measures efficiently, while material solutions included ecological tools, educational signage, and digital communication infrastructures. Together, these initiatives created an integrated framework combining biodiversity restoration, community engagement and multispecies stewardship on the campus.

Denmark

The developed solutions centered on the “VILD START” biodiversity boxes, co-created with a local volunteer group and biodiversity experts from Vejle Municipality and Grønt Forum. These boxes were designed to support different garden types, young, older and farm gardens and included native bare-root plants, wildflower seeds, species-specific elements such as hedgehog houses or kestrel boxes, simple visual instructions and checklists. The process also integrated community engagement through open workshops, garden visits and a local “Green Masterplan” to identify priorities and focus areas. A pilot distribution involved 15 households, complemented by a community event and a digital platform on arter.dk for species identification and sharing, creating a replicable model that enabled households, especially beginners, to take practical steps toward supporting local biodiversity.

Greece

In the Greek local case, the developed solutions combined tangible environmental interventions with social innovation. Physically, the project transformed a schoolyard into a micro-ecosystem using native flora and implemented the “Pocket Park” model in Athens, offering a replicable strategy for urban regeneration that supports local biodiversity. Socially and methodologically, the project introduced a “Co-Stewardship Framework,” promoting active community ownership and responsibility for the care of green spaces. This was reinforced through interactive educational tools, including a gamified “Hangman” activity to teach about local species, and a “Pledge” mechanism, where participants committed to specific stewardship actions, ensuring the sustainability and long-term impact of the co-created solutions.

Hungary

In the Hungarian local case, the developed solutions targeted both awareness-raising and practical biodiversity actions in Wekerletelep. Activities included thematic presentations and guided tours to inform residents, permaculture-led planning sessions for two private gardens with plantings, soil, tools, and a small pond, and the installation of three raised beds in a schoolyard. Engagement of children and families was promoted through a drawing competition, while residents also received bird and bat houses and seed packets to encourage ongoing participation. Together, these initiatives created tangible opportunities for supporting urban biodiversity while fostering community involvement and environmental learning.

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Italy

The developed solutions of the Biodiversity Garden combined ecological restoration with educational and community-focused elements. The project established thematic planting zones featuring endemic Sicilian species, pollinator-friendly plants, medicinal herbs, and aromatic shrubs. Educational infrastructure such as interpretive signage, outdoor classrooms, and guided learning paths supported hands-on workshops on composting, sustainable cultivation, and seed saving, linking scientific knowledge with traditional ecological practices. Community planting days engaged schools, families, and volunteers, fostering shared responsibility for the garden, while a monitoring system tracked plant resilience and pollinator populations. Cultural heritage was integrated throughout, highlighting the connections between Sicilian flora and local traditions, resulting in an accessible, multifunctional space that supports biodiversity, environmental education and community participation.

Portugal

Developing solutions for the Tiny Forests implementation combined ecological, social and educational components through the coordinated work of a multidisciplinary team, including senior managers, landscape architects, social action technicians and residents. The project used its budget to acquire land, vegetation, gardening tools and materials for workshops and educational activities. Implementation steps included site analysis and selection, participatory planning sessions with residents, environmental workshops to raise awareness, hands-on planting of Tiny Forests with technical support and ongoing monitoring and care facilitated by social action technicians. This integrated and flexible approach ensured that solutions were tailored to community needs, promoted active participation and supported the long-term sustainability of the green spaces.

Across the six Co-Bio local cases, the co-creation process reveals a shared pattern of building multi-layered stakeholder coalitions that blend lead organisations, local communities, educational actors, experts and public authorities into a continuous participatory cycle from idea to implementation. Each initiative moves from initial engagement via workshops, meetings or narrative formats into concrete hands-on actions, often supported by gamified or experiential activities that make biodiversity tangible and accessible to non-experts. The resulting solutions consistently combine physical interventions such as plantings, raised beds, ponds, nesting structures, Tiny Forests or micro-ecosystems with educational and methodological tools, including monitoring systems, starter kits, co-stewardship pledges, and awareness-raising events, creating a strong link between ecological restoration and community learning.

At the same time, the cases illustrate distinct approaches shaped by their institutional and social contexts. In Austria, student- and university-led networks drive campus-scale restorations and international exchanges, while the Portuguese case foregrounds social mediation in vulnerable housing areas, using social workers as key bridges to residents. Denmark and Hungary experiment with household- and neighbourhood-level tools, from

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biodiversity starter boxes to permaculture plans and Open Garden events, focusing on lowering the threshold for individual action. Greece develops a highly structured, gamified co-stewardship framework that couples physical planting with behavioural commitments, whereas Italy and Portugal integrate cultural identity and local narratives into their green spaces, turning them into community symbols as well as ecological assets. Together, these differences provide a diverse repertoire of co-creation models that can inform a broader European approach to urban biodiversity initiatives.

Key outcomes and lessons learned

Austria

The Austrian local case generated significant environmental, social, and institutional outcomes. Ecologically, the project enhanced habitat diversity through the restoration of degraded campus areas, the reintroduction of local and pannonic plant species, the creation of sand habitats, drystone walls, raised beds, and the installation of nesting boxes for swifts, benefiting both generalist and specialist species. Socially, the participatory process strengthened networks among students, university actors, local residents, and biodiversity initiatives, fostering empowerment, confidence, and long-lasting collaborations. Key challenges included lengthy permission processes, logistical and financial constraints, and limited time for deeper community work. Lessons learned highlighted the importance of strong partnerships, trust-based communication, flexible planning, and student empowerment, as well as the value of celebrating small successes. From a long-term perspective, the restored sites will continue to be maintained, new biodiversity projects are planned, and the case has increased awareness, quality of life, and commitment to biodiversity stewardship within the university community.

Denmark

In Denmark, the main outcome was the co-creation and testing of the “VILD START” biodiversity box. Environmentally, the initiative activated small-scale biodiversity measures across 15 private gardens, while socially it generated high enthusiasm, visibility, and a strong sense of collective action within the Skibet community. The distribution event played a key role in building community spirit and shared learning. Challenges included cost sensitivity, varying needs between experienced and beginner households, limited follow-up time for busy families, and low uptake of the digital platform. Lessons learned showed that starter kits are most effective when combined with community events, flexible and visual guidance, and affordable pricing. The case demonstrated the value of co-creation and design thinking in producing replicable, household-level biodiversity tools that can be adapted across contexts.

Greece

The Greek local case produced both tangible environmental improvements and strong social innovation outcomes. Environmentally, neglected spaces were transformed into

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micro-ecosystems using native flora, notably in a schoolyard in Plataies, while the "Pocket Park" model in Athens offered a scalable solution to urban heat, biodiversity loss, and land scarcity. Socially, the project succeeded in shifting participants from passive involvement to active co-stewardship, strengthening intergenerational bonds and collective responsibility through participatory planting, gamification, and public pledges. Key challenges related to limited urban space and complex administrative procedures, particularly in Athens. Lessons learned emphasized that physical interventions alone are insufficient: interactive methods, emotional engagement, and symbolic commitment mechanisms are essential to foster long-term ownership and sustainability of nature-based solutions.

Hungary

The Hungarian local case combined awareness-raising, education, and small-scale biodiversity actions, resulting in visible environmental improvements and strengthened community engagement. Environmental impacts included the creation of pollinator-friendly spaces, raised beds, a small pond, and the distribution of seeds and bird and bat houses, providing practical entry points for action. Socially, presentations, guided walks, and the drawing competition successfully reached diverse age groups and fostered intergenerational dialogue around urban nature. Challenges emerged from institutional constraints, coordination across multiple sites, and limited timeframes, which restricted implementation in some locations. Key lessons highlighted the effectiveness of experiential, place-based activities and the value of showcasing real, local examples. The continuation of initiatives such as "Open Garden" reflects the project's capacity to build local confidence, partnerships, and momentum beyond the Co-Bio timeframe.

Italy

In Italy, the Biodiversity Garden delivered strong environmental and social outcomes by integrating ecological restoration with education and cultural identity. Environmentally, the reintroduction of endemic Sicilian species and pollinator-focused planting enhanced urban ecological resilience and created valuable micro-habitats, supported by ongoing monitoring. Socially, the garden became a shared learning and community space, engaging schools, families, volunteers, and educators through hands-on activities and intergenerational participation. Challenges included coordinating multiple stakeholders and ensuring long-term maintenance, requiring adaptive planning and capacity building. Lessons learned underscored the importance of combining scientific expertise with participatory approaches, involving schools early to secure stewardship, and grounding biodiversity initiatives in local culture. The garden now serves as a reference model for similar initiatives in Palermo and beyond.

Portugal

The Portuguese local case generated environmental, social, and cultural impacts through the co-creation of Tiny Forests in social housing contexts. Environmentally, new green spaces increased biodiversity, improved air quality, mitigated urban heat islands, and enhanced ecosystem resilience. Socially, the project strengthened environmental

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education, social inclusion, and community empowerment, fostering cooperation between residents, NGOs, companies, and public actors. Culturally, Tiny Forests became symbols of care, identity, and collective responsibility. Major challenges included bureaucratic delays linked to public procurement and sustaining community engagement in socially complex contexts. Lessons learned highlighted that co-creation is fundamentally relational, requiring trust, empathy, and translation of technical language into accessible and meaningful narratives. The multidisciplinary approach, strong social mediation, and focus on visible, concrete actions proved essential for resilience, long-term impact, and community ownership.

Across the six Co-Bio local cases, the key outcomes demonstrate a consistent convergence between tangible biodiversity gains and intangible social transformation. All initiatives produced visible environmental improvements, ranging from restored habitats, native plantings and pollinator support to Tiny Forests, ponds and micro-ecosystems, while simultaneously strengthening environmental awareness, stewardship and community ownership. A shared lesson across contexts is that physical interventions alone are insufficient: long-term impact depends on combining ecological actions with participatory processes, education and ongoing care mechanisms. Empowerment, whether of students, families, residents or volunteers, emerges as a cross-cutting outcome, reinforcing the idea that biodiversity initiatives function most effectively when people see themselves as active custodians rather than passive beneficiaries.

Conclusion

The Co-Bio project demonstrates that urban biodiversity regeneration is most effective when ecological ambition is inseparable from social co-creation. Across six diverse national contexts, the local cases confirm that biodiversity initiatives gain durability, relevance and scale not through isolated physical interventions, but through processes that cultivate community ownership, trust and shared responsibility. Whether implemented in university campuses, schoolyards, neighbourhood gardens, private households or social housing areas, the project consistently shows that people become long-term stewards of nature when they are actively involved in shaping it.

A central conclusion emerging from all cases is the transformative power of co-creation as a relational process. In Austria and Italy, participatory, student- and community-driven approaches fostered empowerment, innovation and new institutional collaborations that continue beyond the project's lifetime. In Greece, the integration of gamification and symbolic commitment mechanisms translated abstract environmental goals into daily behavioural change, reinforcing a durable co-stewardship mindset. Hungary and Denmark demonstrated that small-scale, low-threshold actions, such as starter kits, permaculture-inspired gardens or Open Garden initiatives, can successfully bring biodiversity into everyday life, making it visible, tangible and approachable for families and residents with varying levels of experience. In Portugal, the project highlighted the essential role of social mediation and multidisciplinary teams, especially

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in vulnerable contexts, where trust-building and sustained engagement are prerequisites for ecological success.

Despite contextual differences, several shared lessons stand out. First, combining physical ecological interventions, such as Tiny Forests, ponds, native plantings, nesting structures or biodiversity gardens, with educational, cultural and experiential activities consistently leads to stronger outcomes than infrastructure alone. Second, early and continuous stakeholder involvement, residents, students, schools, experts, NGOs and public authorities, enhances both legitimacy and long-term stewardship. Third, while administrative and bureaucratic constraints were common across countries, flexibility, adaptive planning and strong local partnerships proved decisive in overcoming delays and maintaining motivation.

The project also underscores that replicability does not imply uniformity. Instead, Co-Bio offers a flexible repertoire of co-creation models that can be adapted to different institutional settings, social realities and spatial scales. From household-level starter kits in Denmark to campus-wide transformations in Austria, from gamified co-stewardship in Greece to socially mediated regeneration in Portugal, the diversity of approaches strengthens the project's European relevance and policy value.

In conclusion, Co-Bio shows that urban biodiversity regeneration is as much a social innovation challenge as an environmental one. Its success lies in the quality of partnerships, the resilience of teams, and the ability to translate ecological goals into meaningful, shared experiences. By embedding biodiversity within everyday practices, local identities and collective care, the project provides a strong foundation for scaling co-created, inclusive and resilient nature-based solutions across Europe.

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