

Multi-Level Collaborative Governance for Environmental Protection and Climate Adaptation: Insights from EU-funded Projects

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Abstract

The implementation of the EU's ambitious goals for ecological transition and climate adaptation calls for a paradigm shift toward systemic, inclusive, and nature-based governance models for managing environmental assets. Recognizing the growing strategic relevance of the interdependence between governance and stewardship, this contribution offers a critical reflection on the implementation and outcomes of several EU-funded projects (LIFE and Interreg) led by the Roma Tre research group in the Agro Pontino. These projects have fostered the development of an innovative, collaborative, and adaptive governance framework that integrates formal regulatory mechanisms with voluntary agreements (Pacts and Environmental Contracts) and community-driven initiatives (Land stewardship agreements). Operating across multiple governance levels, this approach aims to enhance participatory environmental management, strengthen institutional capacity, and support long-term socio-ecological resilience.

Keywords: collaborative governance, land stewardship, environmental contract

Introduction: Integrating Collaborative Governance and Environmental Stewardship for Climate Resilience in Europe and the Mediterranean Basin

Climate change represents one of the most pressing and complex challenges of the 21st century, with profound implications for ecosystems, societies, and economies worldwide. Nowhere is this more evident than in the Mediterranean Basin, a region identified as a global climate change hotspot due to its accelerated warming – approximately 20% faster than the global average (IPCC, 2022). This region is increasingly vulnerable to extreme weather events, prolonged droughts, biodiversity loss, and land degradation, all of which threaten ecological integrity and socio-economic stability (EEA, 2020).

In response to these escalating threats, the European Union (EU) has articulated a comprehensive policy framework aimed at fostering climate resilience and ecological sustainability. Key initiatives such as the European Green Deal (European Commission, 2019), the EU Biodiversity Strategy for 2030 (European Commission, 2020), and the EU Strategy on Adaptation to Climate Change (European Commission, 2021) underscore the need for systemic, inclusive, and nature-based approaches to environmental governance. These strategies emphasize the restoration of degraded ecosystems, the expansion of protected areas, and the integration of biodiversity considerations across all sectors of policy and planning.

However, the implementation of these ambitious goals necessitates a paradigm shift in governance models. Traditional top-down approaches, while still relevant, are increasingly being complemented by collaborative governance frameworks that emphasize co-production of knowledge, shared decision-making, and multi-actor engagement (Ansell & Gash, 2008). Collaborative governance is particularly well-suited to address the multifaceted and cross-sectoral nature of climate adaptation and biodiversity conservation, where ecological, social, and institutional dynamics intersect in complex ways.

The collaborative governance model, as defined by Ansell and Gash (2008), involves formal, consensus-oriented, and deliberative processes in which public agencies engage non-state stakeholders in collective decision-making. This model is characterized by iterative cycles of trust-building, shared understanding, and incremental successes that reinforce stakeholder commitment and deepen collaboration. In this context, the adaptive governance approach incorporates learning, monitoring, and feedback to enhance governance effectiveness over time (Folke et al., 2005; Westerink et al., 2017).

In parallel, the concept of environmental stewardship has gained prominence as a complementary framework for implementing governance strategies at the local level. Environmental stewardship refers to actions undertaken by individuals, groups, or networks to protect, care for, or responsibly use the environment in pursuit of both ecological and social outcomes (Bennett et al., 2018). These actions are deeply embedded in local contexts and are influenced by a range of factors, including social, cultural, financial, and institutional capital.

The interdependence between governance and stewardship is increasingly recognised in the literature. While governance structures provide the institutional scaffolding necessary to mobilize actors and allocate resources, stewardship actions operationalize these strategies through concrete, place-based interventions. Johnson et al. (2020) highlight the critical role of civil society in environmental governance, emphasizing that local stewards – often organized in formal and informal civic networks – play a pivotal role in managing and transforming local environments.

This synergy is particularly vital in hybrid landscapes characterized by overlapping peri-urban, rural, and natural components. In such contexts, governance processes must be coordinated across multiple scales and sectors, requiring the activation of diverse stakeholders and the transparent management of shared resources. The landscape approach advocated by Westerink et al. (2017) exemplifies this need for spatially coordinated multi-actor governance arrangements in agri-environmental management.

Moreover, the effectiveness of both governance and stewardship is contingent upon the capacity of local actors. Capacity encompasses a range of assets, including social networks, cultural traditions, financial resources, physical infrastructure, human skills, and institutional frameworks (Bennett et al., 2018). External actors such as governments and NGOs can play a facilitative role by enhancing local capacity, providing incentives, and fostering partnerships.

A critical component of this integrated approach is the co-production of knowledge. Effective environmental governance requires the integration of scientific and local knowledge systems, a process that is often hindered by communication barriers, trust deficits, and institutional constraints (Rodela & Swartling, 2019). Transdisciplinary collaborations and social learning processes are essential for overcoming these challenges and for building a shared understanding of environmental issues and solutions. Social learning is a powerful mechanism for fostering inclusive and context-sensitive governance. It enables individuals and groups to learn collectively by sharing knowledge, experiences, and perspectives.

In this context, this article proposes to address climate and environmental challenges facing Europe and the Mediterranean Basin, applying an integrated approach that combines collaborative governance with environmental stewardship. Such an approach must be adaptive, inclusive, and grounded in local contexts. It must also prioritize the co-production of knowledge and the empowerment of local actors.

Specifically, this contribution explores the multi-layered governance model developed and tested in the Agro Pontino (Italy) from the perspective of the research group actively involved in EU-funded projects highlighting critical tensions, challenges, opportunities and potential trajectories emerging from the intersection of collaborative governance and stewardship practices fostering transformative action for environmental sustainability and climate adaptation.

Methodological approach

The methodological approach adopted is grounded in an innovative multi-level governance model structured on two interrelated levels: a territorial level with a strategic function and a local level with an operational function. This framework enables the integration of formal regulatory instruments with voluntary mechanisms, fostering inclusive, adaptive, and action-oriented decision-making processes that are essential for addressing environmental sustainability and climate adaptation challenges.

The first, strategic and territorial level is implemented through two main governance instruments: Pacts and Environmental Contracts. These tools operate under the principles of vertical and horizontal subsidiarity through voluntary commitments promoting cohesion between institutions across multiple levels and sectors. Specifically, the Pact is an open and permanent working group where a plurality of actors – including public authorities, associations, small enterprises – define shared goals for environmental sustainability and climate adaptation. Likewise, the Environmental Contract is a voluntary governance tool that engages institutions, local authorities, associations, and citizens in a participatory process to promote the sustainable management of a water basin, integrating water resource protection, hydrogeological risk prevention, ecological and landscape enhancement, and socio-economic development (Bastiani, 2011).

The second, operational and local level is realised through Land Stewardship Agreements (LSAs), a voluntary public-private collaborative tool that fosters cooperation between landowners and users (farmers, foresters, shepherds, hunters, fishers, passive recreationalists) to promote the sustainable management and conservation of natural and cultural landscapes through long-term, participatory commitments involving a wide range of civil society groups (Sabaté et al., 2013). LSAs – typically lasting ten years – formalize the commitments of stakeholders for the implementation, management, and maintenance of green infrastructure in peri-urban and rural areas, providing the necessary institutional and financial scaffolding to ensure their durability. By sharing a management model and objectives for landscape maintenance and biodiversity conservation, landowners and users become active players (Magaudda et al., 2020).

The innovative contribution of the model lies in the structurally and functionally integrated relationship between the two levels. Pacts and Environmental Contracts serve as strategic coordination frameworks, aligning planning instruments, policy priorities, and institutional efforts across sectors in a coherent and systemic manner. LSAs, on the other hand, serve as implementing tools that translate strategic goals into concrete actions, strengthening the operational dimension of climate adaptation by embedding resilience and ecological connectivity at the community scale and ensuring their long-term effectiveness and continuity. This governance system is based on an iterative, flexible and participatory process involving networking activities, stakeholder consultations, joint drafting of strategies and agreements, definition of planning and incentive criteria, and identification of funding resources.

Case studies: LIFE BEEadapt and Interreg Euro-MED Coastrust in the Agro Pontino

Study area

The Agro Pontino, a vast coastal plain in southern Lazio bordered by the Lepini Mountains and the Tyrrhenian Sea, is the result of a radical transformation of both its natural and cultural landscapes. This transformation occurred during the 1930s through the implementation of the so-called 'Great Reclamation', a major hydraulic engineering effort that drained extensive marshlands and converted them into arable land. The intervention profoundly altered the region's ecological systems, land use patterns, and settlement dynamics, giving rise to a landscape now dominated by agricultural infrastructure and a dense network of drainage canals. The territory also includes a significant stretch of coastline, encompassing ecologically valuable systems such as sandy dunes, coastal lakes (including Fogliano, Monaci, Caprolace, and Paola), and wetlands, many of which are protected within the boundaries of Circeo National Park. These areas are biodiversity hotspots and represent highly sensitive ecosystems that are increasingly vulnerable to anthropogenic pressures. While agriculture remains the dominant land use, tourism has emerged as a growing component of the region's socio-economic profile. The coastal zone, with its unique natural features, historical settlements, and recreational amenities, attracts a wide range of visitors throughout the year. However, the expansion of tourism – particularly in the absence of adequate regulation – can exacerbate land use conflicts, contribute to habitat fragmentation, and place additional stress on water resources and waste management systems. Thus, balancing economic development with environmental sustainability poses an ongoing challenge for regional planning and governance. Despite

the historical significance of its agricultural matrix, the Agro Pontino is currently facing multiple environmental challenges (Magaudda et al., 2019). The unchecked expansion of urban and rural settlements, coupled with the intensification and industrialization of agricultural practices, has led to a progressive decline in the ecological functionality and biodiversity of the landscape. These dynamics are eroding the resilience of the region's agroecosystems and exacerbating the impacts of climate change.

In this context, the coastal and peri-coastal zones of the Agro Pontino emerge as a particularly relevant case study for analysing the interactions between agriculture, tourism, urbanization, and ecological conservation. The pressing need for integrated landscape management strategies – capable of reconciling productivity, biodiversity conservation, and climate adaptation – is increasingly evident, especially considering the threats posed by sea-level rise and the growing fragility of coastal ecosystems (Fig. 1).



Figure 1 – Coastal ecosystem of the Agro Pontino (Giovanni Mastrobuoni).

Over the past two decades, the Province of Latina has played a central role in initiating a process of environmental recovery and territorial requalification across the Agro Pontino. Recognizing the potential of green and blue infrastructure systems – such as windbreak strips, canal banks, and riparian buffer zones – as ecological connectors, the Province has promoted a planning approach aimed at restoring landscape continuity and enhancing ecosystem services (Benelli et al., 2022). In alignment with the objectives of the EU Water Framework Directive (2000/60/EC) and the Habitats Directive (1992/43/EEC), the Province has undertaken numerous studies and monitoring activities focused on the region's environmental conditions and challenges. This commitment culminated in the adoption of the Provincial Territorial Coordination Plan (*Piano Territoriale Generale Provinciale* – PTGP) in 2010, which formally integrated the Provincial Ecological Network as a strategic planning tool. This network represents a key instrument for the conservation of local habitats and the restoration of ecological processes, with particular attention to agricultural landscapes through targeted strategies aimed at reducing pollution and re-establishing ecological continuity.

This wide-area planning framework has been reinforced through a series of EU-funded projects that have mobilized territorial stakeholders and supported demonstrative interventions. These projects – LIFE Rewetland (2010 - 2014), LIFE Greenchange (2018 - 2023), Interreg MED Coasting (2018 - 2019), LIFE BEEadapt (2022 - ongoing), and Interreg Euro-MED Coastrust (2024 - ongoing) – have collectively contributed to an evolving model of integrated governance for environmental regeneration (Fig. 2).

They emphasize collaboration, the valorisation of natural capital, and the operationalization of green and blue infrastructure as key elements for sustainable land management and climate resilience.

The Agro Pontino thus represents a dynamic laboratory for exploring innovative approaches to regional governance that combine ecological restoration, sustainable agriculture, and inclusive territorial development. Through a gradual yet continuous process, the region is moving toward a more balanced relationship between human activity and the environment, underpinned by strategic planning, multi-actor engagement, and an increasingly structured framework for ecological connectivity.



Figure 2 – Agricultural and natural landscape of the Agro Pontino (LIFE Greenchange).

Life BEEadapt

The LIFE BEEadapt project “A Pact for Pollinator Adaptation to Climate Change” (LIFE21CCA-IT-LIFE BEEadapt/101074591) is funded under the LIFE Programme’s Climate Action subprogramme and coordinated by the National Park of the Tuscan-Emilian Apennines. It brings together a diverse network of institutional, scientific, and civil society actors, including the Institute for BioEconomy of the National Research Council (CNR-IBE), the Sustainable Development Foundation, the University of Camerino, Legambiente, RomaNatura, the Municipality of Aprilia, Confagricoltura Latina, U-Space srl, and the Department of Architecture at Roma Tre University. The project addresses the increasingly severe impacts of climate change on wild pollinators – such as bees, hoverflies, moths, and butterflies – by adopting an integrated approach that combines ecological, agronomic, and territorial governance measures. These actions aim to strengthen the adaptive capacity of pollinator communities in response to climate-induced stressors. LIFE BEEadapt is situated within a broader context of declining pollinator populations across Europe and the Mediterranean, a trend largely attributed to altered phenological cycles and the growing frequency and intensity of extreme weather events (Gordo & Sanz, 2010; IPBES, 2016; ISPRA, 2023). In this regard, the project places pollinators at the centre of local adaptation strategies by promoting ecological connectivity and habitat diversity. This is operationalized through the development of flower meadows, shelters, and other green infrastructure interventions within urban, peri-urban, and rural areas, thereby extending flowering periods, re-establishing synchrony between floral and pollinator phenology, and ensuring the availability of refuge habitats. These ecological interventions are integrated with agronomic and land-use practices that enhance resource availability and functional landscape management.

Pilot activities are being implemented in five target areas across Italy: the Tuscan-Emilian Apennines National Park, the Torricchio Nature Reserve in the Marche region, the agricultural landscapes of the Agro Pontino, the Municipality of Aprilia, and protected areas within the city of Rome managed by RomaNatura. To facilitate

the implementation of these interventions, the project fosters a collaborative multi-level governance model, articulated through two primary instruments: Pacts for the Adaptation of Pollinators to Climate Change and LSAs. In the Agro Pontino, the Pact is coordinated by Confagricoltura Latina and is conceived as a strategic governance instrument to coordinate and promote the active participation of territorial stakeholders in climate adaptation initiatives, both during and beyond the LIFE BEEadapt project period. The Pact seeks to integrate existing planning and programming frameworks to improve access to funding opportunities for local actors, support environmental management through technical documentation, and enhance the territorial effectiveness of ecological interventions through a network-based logic. Land stewardship agreements are identified as the primary implementation mechanism for the on-the-ground management of pollinator-friendly green infrastructures. The governance process underpinning the Pact is guided by key principles, notably the activation of an open and inclusive participatory process to ensure the comprehensive identification of challenges and the co-definition of actionable solutions, which are essential for achieving durable and measurable outcomes. Furthermore, the Pact is designed to align with the specific territorial, social, and institutional contexts in which it operates, ensuring coherence with existing regulatory frameworks, planning tools, and strategic programs. A central output of the Pact is the development of a Local Agenda, comprising a dynamic and evolving set of actions aimed at achieving the Pact's objectives. This agenda is structured as a living document, designed to be continuously updated and expanded based on the evolving needs and contributions of stakeholders.

The governance framework established by LIFE BEEadapt builds upon the foundation laid by the previous LIFE Greenchange project, which was coordinated by Province of Latina. LIFE Greenchange aimed to enhance the ecological integrity of the Agro Pontino, as well as northern Malta and Gozo, by restoring ecological connectivity and increasing the availability of natural habitats within agricultural landscapes. These efforts sought to mitigate the effects of fragmentation caused by infrastructure development, urban sprawl, and intensive farming. A key component of LIFE Greenchange was the creation of a governance mechanism – the Pact for Biodiversity – signed on September 3, 2020, by representatives of regional and local institutions, environmental authorities, and farmers' associations. This Pact functioned as an open and permanent forum for dialogue, aiming to coordinate the management of agricultural areas through the sharing of practices, tools, and knowledge. It also sought to harmonize priorities and funding mechanisms for ecosystem conservation and restoration (Magaudda et al., 2020).

Within this context, LIFE BEEadapt continues and expands upon the governance architecture established by LIFE Greenchange in the Agro Pontino region.

On one hand, through a renewed participatory process, the project organizes targeted stakeholder workshops addressing pollinators and sustainable agricultural practices – such as the event on Eco-Scheme 5 (March 31, 2025, held with Confagricoltura Nazionale and ANSA, with 50 farmers in attendance) – to develop a shared strategy for strengthening pollinator resilience to climate change and promoting the adoption of LSAs. Key stakeholders involved in the Pact include Province of Latina, representatives from agricultural associations (Confagricoltura, CIA, Coldiretti), Circeo National Park, Municipalities of the Agro Pontino (Latina, Sabaudia, San Felice Circeo, and others), farmers and environmental NGOs.

On the other hand, LSAs function as the operational tools of the Pact, facilitating the on-the-ground implementation of conservation measures. To date, six LSAs have been signed by farms directly involved in pilot interventions. These agreements include three key parties: the beneficiary of the LIFE BEEadapt project (Confagricoltura Latina), which is responsible for the implementation of green infrastructure using LIFE funds and serves as the designated landscape stewardship organization; the farms tasked with the management and maintenance of the green infrastructure; and the landowners, when distinct from both the beneficiary and the farms, whose participation is essential for the legal and operational validity of the agreements. The participating farms serve as demonstration sites for adaptive land management practices aimed at enhancing pollinator conservation. By signing the LSAs, farmers formally commit to managing the green infrastructure developed through the LIFE project in accordance with jointly defined principles and standardized protocols. Additional LSAs will be formalized throughout the project's duration, with the expectation that many will remain active beyond the project's conclusion. This ongoing engagement underscores the long-term sustainability and potential for broader replication of the governance model established by LIFE BEEadapt.

Interreg Euro-MED Coastrust

The project Coastrust “Promoting shared stewardship for Mediterranean Coasts, led by the Region of Western Greece, was funded in 2024 by the Interreg Euro-MED Programme 2021-2027, under the priority ‘Greener MED’, Specific objective RS02.7 ‘Enhancing protection and preservation of nature, biodiversity and green infrastructure’. It is framed within the Mission ‘Protecting, restoring and valorising the natural environment and heritage’ and will run until 2026. The project consortium is composed of nine partners from seven countries (Croatia, Greece, Italy, Malta, Spain, Albania, Bosnia and Herzegovina), ensuring a wide geographical coverage within the Programme area. Partners consist of a variety of organisations with complementary roles and expertise, belonging to the public administration (Region of Western Greece, Regional Development Agency of the Dubrovnik-Neretva County, Institute for Nature Conservation in Albania, Office of The Prime Minister of Herzegovina - Neretva Canton Government, Andalusian Federation of Towns and Provinces), the non-profit sector (SUBMON, Nature Trust Malta, Sustainable Development Foundation) and the academia (Roma Tre University). Additionally, nine associated partners (mostly local authorities) take part in the project, with different roles ranging from advisory, to dissemination and replication of results, to operational support to pilot actions implementation.

Coastrust addresses the need to sustainably use, manage, protect or restore ecosystems with the involvement of stakeholders and citizens, consistently with the European orientations promoting participatory approaches to biodiversity conservation. It is a ‘Testing’ type of project, i.e. intended to ‘experiment common instruments, policies, strategies and action plans already developed to validate concrete solutions to be transferred’ (Interreg Euro-MED, 2022). To this aim, the project applies the environmental stewardship concept to coastal areas undergoing anthropogenic pressures and aims to test and establish multi-level and multi-stakeholder governance mechanisms to support the sustainable management of natural resources at land and sea. The composition of the consortium mirrors this multi-level approach, by involving public institutions with different scopes and jurisdictions (a Macro Region, a Regional authority, an association of Municipalities in Spain, a Regional Development agency) in order to shed light on the diverse administrative, organizational and management challenges posed by participatory governance models.

The project works on both the strategic/methodological level and at the implementation/operational one. At the first level, it intends to establish the necessary conditions to enable environmental stewardship and to develop a methodology for defining common goals for sustainably manage coastal areas through stewardship. A preliminary version of this methodology has already been released and will be further refined throughout the project lifetime to be ready for transferring and replication within the Programme area. At the implementation/operational level, the project supports the development of pilot activities, including both a strategy and a set of actions for each of the 8 coastal areas targeted, developed with the engagement of institutions and private actors at all scales and consistently with the areas’ specificities and needs. Target areas were chosen so as to feature the widest range possible of site-specific environmental, geographical and socioeconomic issues, in order to allow for the design of more comprehensive stewardship strategies: river mouths (i.e. the Neretva Delta in Croatia and Bosnia y Hezergovina and the Buna River in Albania), protected coastal and marine areas (i.e. the Circeo National Park in Italy and the Ćirkewwa Marine Park in Malta), coastal lagoons, sandy beaches, etc.

In the Province of Latina, the activities that are being carried out by the Department of Architecture of Roma Tre University were designed to build on the outcomes and actions of previous initiatives, which since 2010 have been testing multi-level governance tools and mechanisms for improving the sustainability and effectiveness of the management of local assets: the LIFE projects Rewetland and Greenchange, the River Contracts of Cavata – Linea Pio, Amaseno and Ufente, and the Coast Contract developed within the framework of the Interreg MED Coasting. All these initiatives had served to mobilize the local stakeholders’ network and engage different categories (local authorities, protected areas management bodies farmers, NGOs) in co-design processes, raising awareness on environmental protection issues and on the need of a change of paradigm in territorial governance.

Coasting specially builds on the Coasting experience, which in turn aimed to capitalize previous experiences of multi-stakeholders’ contractual tools for sustainable and collaborative territorial governance (such as the *Contrat de Baie* of Marseille and the River Contracts), by applying their methodology to the coastal tourism sector in the Mediterranean area. This was achieved through participatory workshops involving both public and private actors, which in the area considered led to the development of the Agro Pontino Coast Contract, the first practice transferring the River Contract tool to a coastal area in Lazio region (Magaudda et al., 2021). Promoted by the

Lazio Regional Government and coordinated by the Province of Latina, the process acknowledged the synergic connection between biodiversity, landscape, climate change and tourism (Magaudda et al., 2021) and aimed at developing an integrated strategy for the management of the coastal area, balancing the improvement of the tourism sector and the maintenance and enhancement of the area's environmental quality.

As a matter of fact, the Coast Contract has been taken as a reference strategic framework to give continuity to: thus, the Roma Tre team is working to use environmental stewardship as an operational tool to implement those parts of the Contract that are most suitable to actively mobilise the local civil society – environmental associations, schools, neighbourhood committees, etc. Members of these target groups will be encouraged and tutored into presenting concrete stewardship initiatives to be supported by the project and implemented in the Circeo National Park by means of stewardship agreements involving the park authority and other interested parties (i.e. beach concessionaires).

In order to proceed with the target groups mobilization, the Roma Tre team, in collaboration with the Province of Latina (that is associated partner in the project) has organized a series of meetings to explain the project rationale, build the participants' capacities on environmental stewardship, and establish and operate a Local Action Group to develop the coastal stewardship strategy and the actions to implement it. The main actors targeted, besides local authorities, were relevant entrepreneurial associations (beach resorts managers, fishermen, etc.), small enterprises, and especially non-profit organizations already active in the protection and enhancement of the environmental assets of the area. Attendance to the meetings was deemed satisfactory, and the process was particularly successful in establishing contacts among NGOs, which often work separately, unaware of each other's activities.

Nevertheless, meetings attendance and involvement were negatively affected by widespread feelings of saturation, on one hand, and disappointment, on the other. Saturation is here intended as a condition of over-stimulation of territorial actors, which have been called to engage in numerous consecutive projects that, from their standpoint, have still not led to concrete results. Despite the organizers' effort to clarify the specific scope of Coastrust and highlight its continuity with previous initiatives, this feeling persisted especially in 'veteran' stakeholders. Moreover, the fact that the Coast Contract was virtually shelved, due to multiple reasons including lack of coordination, political input, and dedicated funding, generated a sense of disappointment that can ultimately put at risk the project success. In a wider perspective, these criticalities can even rise questions about the effectiveness of using EU-funded projects for the gradual implementation of governance mechanisms. In fact, in the case of Coastrust, the promoters' willingness to resume and bring forward the work done so far is now clashing with some stakeholders' disappointed expectations towards public authorities, which are blamed for not giving course to the decisions taken with the local community, somehow downplaying past participation efforts.

Conclusion and future perspectives

Collaborative learning processes are crucial to address contemporary environmental challenges and support resilient socio-ecological transitions.

The experience gained through the LIFE BEEadapt and Interreg Euro-MED Coastrust projects in the Agro Pontino confirms that combining multi-level collaborative governance models and land stewardship tools is a promising way to carry out this process. Strategic instruments (Pacts and Environmental Contracts) and operational mechanisms (LSA) can be mutually reinforcing and, when properly integrated, can help overcome common challenges in environmental governance, such as institutional fragmentation, discontinuous stakeholder engagement, and lack of coordination among sectoral policies. In fact, while the governance framework provides the institutional architecture for collective learning, coordination, and adaptive management, stewardship operationalizes these principles on the ground through concrete actions and incentives. Together, they create a dynamic system capable of fostering community empowerment, aligning public and private interests into dynamic collaborative networks to respond to environmental pressures, and promoting shared responsibility in the management of common goods.

However, structural limitations persist that may put collaborative learning at risk and ultimately jeopardize the long-term sustainability of these processes. Chief among them are the dependence on project-based EU funding, the weak institutionalization of Pacts as formal governance tools, and the risk of stakeholder disillusionment and desertion in the absence of tangible follow-up.

The case studies analysed suggest that the implementation of the model should imply an intentional, well-structured process that cannot be confined to the boundaries of EU projects, which are limited in terms of both duration and funding. Such projects, though able to trigger the process, should be framed within a clear long-term vision and engagement system, adaptive and flexible enough to include non-traditional actors in the management of environmental assets, and able to overcome institutional and epistemological barriers, as well as to acknowledge the value of the local communities' knowledge and initiatives. These challenges call for a rethinking of the mechanisms used to support and enhance land stewardship, including the structural integration of stewardship practices into public plans and programmes, their continuous, adaptive monitoring and follow-up, and the introduction of payment schemes for ecosystem services (PES) to reward stakeholders' engagement.

In conclusion, the convergence of collaborative governance and land stewardship represents a promising pathway for advancing the EU's goals for climate resilience and biodiversity, and for ultimately building resilient socio-ecological systems. It aligns with the EU's vision of a just and green transition, where local communities are empowered to shape their environmental futures and contribute meaningfully to global sustainability goals. However, in the light of the experiences analysed, there is a clear need to strengthen the institutional and social infrastructure of territories through tools capable of linking strategic vision with concrete action. This entails investing not only in pilot projects, but also in capacity-building pathways, regulatory recognition, and incentive mechanisms. Collaboration between practitioners, public officers and academia, as demonstrated in the case of the Agro Pontino, can support this transition.

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