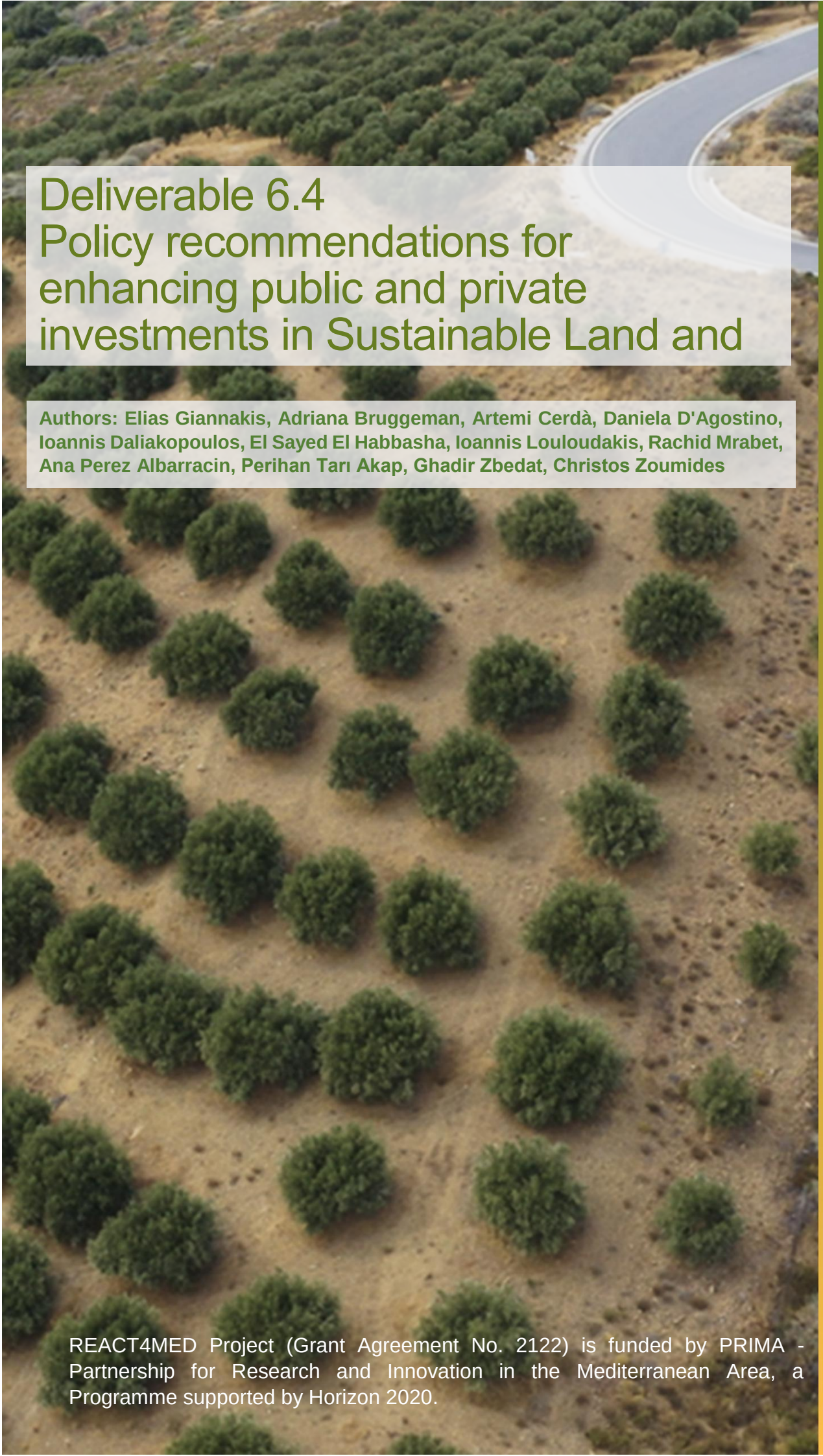

Deliverable 6.4
Policy recommendations for enhancing public and private investments in Sustainable Land and

Authors: Elias Giannakis, Adriana Bruggeman, Artemi Cerdà, Daniela D'Agostino, Ioannis Daliakopoulos, El Sayed El Habbasha, Ioannis Louloudakis, Rachid Mrabet, Ana Perez Albarracin, Perihan Tarı Akap, Ghadir Zbedat, Christos Zoumides

PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

REACT4MED

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Table of Contents

List of acronyms

ABE: Agricultural Bank of Egypt

ABHS: Sebou Hydraulic Basin Agency

ADA: Agency for Agricultural Development

AECMs: Agri-Environment-Climate Measures

AfDB: African Development Bank

ANEF: National Agency for Water and Forests

CAP: Common Agricultural Policy

CEF: Cyprus Environment Foundation

CIADP: International Centre for Agriculture and Land Development

EBRD: European Bank for Reconstruction and Development

EIB: European Investment Bank

ESG: Environmental, Social, and Governance

EU: European Union

FAO: Food and Agriculture Organization of the United Nations

GAEC: Good agricultural and environmental conditions

GCF: Green Climate Fund

GEF: Global Environment Facility

IFAD: International Fund for Agricultural Development

KKYDP: Kırsal Kalkınma Yatırımlarının Desteklenmesi Programı

LDN: Land Degradation Neutrality

NDP: National Drainage Project

NGO: Non-Governmental Organization

OECD: Organisation for Economic Co-operation and Development

PES: Payments for Ecosystem Services

PNAEPI: National Drinking Water Supply and Irrigation Programme

PNE: National Water Plan

POs: Producer Organisations

PPPs: Public-Private Partnerships

PSR Puglia: Puglia Rural Development Programme

SMEs: Small and Medium-sized Enterprises

SLWM: Sustainable Land and Water Management

SPV: Special Purpose Vehicle

TEEB: The Economics of Ecosystems and Biodiversity

UNCCD: United Nations Convention to Combat Desertification

UN: United Nations

UNEP: United Nations Environment Programme

US: United States

USAID: U.S. Agency for International Development

Summary

The Mediterranean region faces growing land and water degradation pressures, intensified by climate change, resource scarcity, and population growth. Sustainable Land and Water Management (SLWM) is essential to enhance agropastoral productivity and rural resilience. Yet, financing restoration initiatives remains a major constraint - public funds are insufficient, and private investment is often limited by perceptions of high risk, long payback horizons, and the lack of market valuation for ecosystem services.

Bridging this gap offers not only an environmental necessity but also an economic opportunity to link restoration with inclusive rural development and climate resilience. Global experience shows that restoration is most effective when ecological objectives are aligned with economic incentives. Successful cases – from China's Loess Plateau to Africa's Great Green Wall - illustrate that combining public finance, community participation, and private investment through blended finance models generates multiple co-benefits: improved soil fertility, reduced erosion, enhanced carbon sequestration, and diversified rural incomes. These global lessons provide a valuable framework for Mediterranean countries, where similar environmental and socioeconomic dynamics prevail.

Evidence from the Mediterranean case studies confirms that success depends on coupling financial innovation with local participation and policy coherence. In Cyprus, the CAP Strategic Plan (2023-2027) supports terrace restoration and vineyard investment through subsidies and eco-schemes, while small private grants from the Cyprus Environment Foundation complement EU measures by funding community-based training and regenerative practices. In Egypt, large-scale state-led programs such as the National Drainage Project (NDP) and concessional loans from the Agricultural Bank of Egypt showcase the power of coordinated public-donor partnerships to rehabilitate degraded land and prevent salinization. The NDP's long-term investment in subsurface drainage systems has improved productivity and food security, while institutional collaboration with the FAO, UNDP, and World Bank strengthens technical and financial delivery capacity. In Italy's Puglia region, the Rural Development Programme and private agribusiness investments highlight the value of blending public subsidies with private equity to promote sustainable viticulture. Organic conversion grants, modernization aid, and corporate sustainability investments collectively improve competitiveness while ensuring environmental compliance. Similarly, Spain's CAP eco-schemes promoting the use of chipped pruned branches demonstrate how targeted payments - differentiated by slope and linked to fire prevention - can mainstream sustainable soil management practices at landscape scale. Türkiye's Rural Development Investments Support Programme (KKYDP) combines 50% grants for irrigation and drainage infrastructure with subsidized agricultural loans from Ziraat Bank, lowering entry barriers for small farms. In Greece, the National Reforestation Plan and regional ESG mechanisms are linking public restoration projects with private capital seeking carbon offsets and biodiversity credits. Israel's water strategy combines large-scale desalination with wastewater reuse and public-private partnerships for water infrastructure, while Morocco's Green Morocco Plan and Mirova Sustainable Land Fund blend public and private capital to mobilize investments in agroforestry and regenerative agriculture.

Across all these examples, the integration of economic instruments, such as Payments for Ecosystem Services (PES), green bonds, concessional loans, tax incentives, and carbon or biodiversity credits, emerges as a central mechanism for scaling SLWM investments. These tools internalize the external benefits of restoration and create measurable returns for investors. In particular, the growing interest in carbon farming and biodiversity credits presents a new avenue for Mediterranean countries to mobilize ESG-aligned investments.

The synthesis of global lessons and Mediterranean case studies points to several key enablers of successful restoration finance. First, blended finance and public-private partnerships can pool diverse capital sources while distributing risk and promoting innovation. Second, coherent policies - linking agricultural, water, and environmental frameworks - enhance investor confidence and maximize project impact. Third, capacity building at the community level remains indispensable for translating financial mechanisms into practical restoration outcomes. Fourth, restoration investments are most sustainable when tied to income-generating activities such as eco-tourism, high-value agriculture, and carbon markets. Scaling up SLWM in the Mediterranean therefore requires an integrated strategy that combines innovative finance, inclusive governance, and coherent policy alignment. The REACT4MED project's pilot sites demonstrate that connecting global best practices with local realities is crucial to designing effective restoration finance models. By aligning public, private, and community resources, the region can transform restoration from an environmental obligation into a catalyst for climate resilience, food security, and sustainable economic growth.

1 Introduction

The global demand for agricultural commodities continues to place mounting pressure on natural resources. Farmers and rural communities face the compounded impacts of ecosystem degradation, climate change, resource scarcity, and food insecurity. These challenges are particularly acute in the Mediterranean region, where the sustainable management of land and water resources is essential to enhance agropastoral productivity, prevent land degradation, and improve livelihoods.

A major barrier to achieving sustainable land and water management in this region is the financing of ecosystem restoration efforts. Investments in restoration not only generate income for local communities but also protect essential natural assets like forests and water, while revitalizing degraded lands. Although restoration generates multiple co-benefits, such as protecting water resources, reducing soil erosion, sequestering carbon, and creating jobs, funding often remains insufficient. According to the UNCCD (2025), meeting global restoration needs will require $1 billion daily between 2025 and 2030, yet current investments fall far short.

For the Mediterranean, bridging this financing gap is not only an environmental necessity but also an economic opportunity. Investments in restoration contribute to Land Degradation Neutrality (LDN), a key global target under SDG 15.3, while enhancing resilience in rural economies. Moreover, restoration can generate blended returns - environmental, social, and financial - aligning with the growing interest of institutional investors in Environmental, Social, and Governance (ESG) portfolios (OECD, 2021).

In recent years, forward-thinking banks, corporations, and investors have pledged to support projects that deliver financial returns while providing social and environmental benefits (United Nations, 2021). However, despite these promising developments, a significant gap remains in the capital needed to scale up sustainable land management practices. This gap underscores a critical issue: the limited involvement of the private sector in financing large-scale restoration projects, which threatens the sustainability of these efforts.

This report explores the key dimensions of financing restoration initiatives, including the challenges involved (Chapter 2), emerging investment opportunities (Chapter 3), and the use of economic instruments (Chapter 4), as well as the potential of public-private partnerships (PPPs) to mobilize resources and scale up action (Chapter 5). Building on insights from global best practices (Chapter 6) and reviews from the REACT4MED pilot sites (Chapter 7), it sets out policy recommendations tailored to the Mediterranean context (Chapter 8), with the aim of fostering sustainable, inclusive, and resilient land and water management.

2 Challenges in Financing Restoration Projects

Despite growing global recognition of the importance of ecosystem restoration, financing for sustainable land and water management (SLWM) projects in the Mediterranean remains limited. Multiple barriers constrain both public and private investment, including financial, institutional, and socio-cultural challenges.

These are outlined below.

- **Perception of High Risks:** Restoration projects are often seen as risky investments due to the long timeframes for returns and their dependence on environmental factors. Investors face difficulties in quantifying potential returns, which discourages private sector participation. Salzman et al. (2018) highlight the substantial upfront investment required and the difficulties in mobilizing private capital (UNEP, 2020). Hodge and Greve (2007) emphasize the need for clear regulatory frameworks to reduce investor uncertainty in PPPs.
- **Lack of Market Incentives:** Ecosystem services like carbon sequestration, water purification, flood protection, and biodiversity maintenance are undervalued or not priced in markets. As a result, land managers receive little to no financial reward for protecting or restoring natural capital. The Economics of Ecosystems and Biodiversity (TEEB, 2010) highlights that the inability to capture these benefits creates systemic underinvestment.
- **Capacity and Knowledge Gaps:** Local communities frequently lack access to the technical expertise, financial literacy, and institutional capacity required to initiate and sustain restoration efforts. While the UN Decade on Ecosystem Restoration (2021–2030) emphasizes capacity building, gaps remain at the operational level. Critchley et al. (2021) stress that without dedicated support for knowledge transfer, many restoration projects risk failure. In the Mediterranean, these gaps are particularly evident in smallholder farming systems, where limited access to advisory services, credit, and modern water-saving technologies hampers the uptake of sustainable practices.
- **Policy Gaps and Fragmentation:** Fragmented or inconsistent policies undermine investor confidence and limit the scalability of restoration projects. In transboundary river basins such as the Nile and Drin, divergent national policies on water and land use create a disjointed regulatory environment. Critchley et al. (2021) highlight how fragmented governance structures hinder restoration outcomes. Even within the European Union, misalignments between the Common Agricultural Policy (CAP), the EU Water Framework Directive, and national strategies sometimes reduce the effectiveness of financial incentives for SLWM (European Court of Auditors, 2021).
- Restoration financing also faces **social and equity-related obstacles**. Projects that rely on private investment may exclude smallholders or marginalized groups if benefits are not equitably distributed. Pretty and Ward (2001) underline that equitable participation is essential for community buy-in. In the Mediterranean, land tenure insecurity, especially in North Africa, complicates restoration investment by reducing incentives for long-term stewardship of land and water resources.

3 Investment Opportunities

Findings from global reviews identify potential investment areas to catalyse SLWM in the Mediterranean region:

- **Agroforestry and Agroecological Practices:** These practices promote sustainable land use, enhance soil fertility, and sequester carbon while producing marketable goods such as timber and sustainable crops. In Spain, dehesa systems – traditional agrosivopastoral systems - are widely recognized as multifunctional landscapes that deliver a combination of economic, ecological and cultural benefits (Gaspar et al., 2009). In Morocco, agroforestry with date palms improves resilience in oasis systems (Hamriri et al., 2024).
- **Water Management Technologies:** Efficient irrigation systems, water harvesting, and soil moisture retention technologies can increase productivity and conserve water resources. Tunisia has implemented large-scale water harvesting using traditional systems like the jessour (Calianno et al., 2020) and meskats (Majdoub et al., 2014) to revitalize farming, supported by International Fund for Agricultural Development (IFAD) and the Global Environment Facility (GEF). The funding supports the renovation and installation of these systems, which are crucial for drought and rainfall resilience in arid and semi-arid regions of Tunisia (Schiettecatte et al., 2005). Spain has modernized irrigation infrastructure through EU Rural Development Programs, reducing water losses while enhancing productivity (Tarjuelo et al., 2015; Berbel et al., 2019). On the other hand, Israel pioneered drip irrigation technology, which has since been exported globally, enhancing water-use efficiency and fostering the development of a dynamic international agri-tech sector (Megersa et al., 2015; Abraham et al., 2019).
- **Nature Restoration and Carbon Farming:** Carbon markets represent untapped potential for reforestation and wetland restoration projects in the Mediterranean. Carbon farming has received increasing attention in the EU, reflecting the need for agriculture to both contribute to meeting EU climate objectives and to adapt to climate impacts. Funding can come from public funds such as the Common Agricultural Policy, or private sources via supply chains or carbon markets (McDonald et al., 2021). Wetland restoration, such as the case of Lake Karla in Greece, can generate carbon credits alongside significant biodiversity gains (Aubert et al., 2022).
- **Sustainable Eco-Tourism:** Biodiversity-rich landscapes and cultural heritage sites in the Mediterranean provide strong potential for eco-tourism ventures that reinvest revenues in conservation. In Greece, the restoration of Lake Karla has been closely associated with the development of eco- and cultural tourism, generating benefits for local communities while simultaneously enhancing the region's wetland ecosystems (Trakala et al., 2023). In Italy's Cinque Terre, terrace restoration has been supported by agri-tourism and wine tourism revenues (Santoro et al., 2021). In Morocco, community-based eco-tourism initiatives finance nature conservation projects (Chellik et al., 2023).

4 Economic Instruments

A wide range of economic instruments can be employed to attract investment in SLWM restoration projects. These include payments for ecosystem services (PES), green bonds, loans, taxes, subsidies, and carbon trading systems, all of which play a crucial role in incentivizing restoration efforts. By internalizing the external benefits of ecosystem services, these instruments create financial returns for investors.

- **Payment for Ecosystem Services:** PES schemes encourage landowners to conserve or enhance ecosystem services by providing financial compensation for their efforts (Ferraro & Kiss, 2002). Payments may be linked to improvements in water quality, carbon sequestration, or biodiversity conservation. Research by Pagiola et al. (2005) shows how PES programs in Latin America have been effective in reducing poverty while supporting ecosystem restoration and conservation.
- **Green Bonds:** Issued by governments or financial institutions, green bonds are used to raise capital for large-scale SLWM projects. They are especially attractive to investors interested in sustainability and have increasingly been utilized to fund restoration efforts, particularly for water resource management projects. According to UNEP (2020), the use of green bonds has expanded globally, facilitating significant investments in environmental restoration. The European Investment Bank (EIB) has issued sustainability bonds that fund climate adaptation and water infrastructure in Southern Europe. Morocco issued Africa's first sovereign green bond in 2016, with proceeds partly directed to renewable energy and sustainable water projects (LSEG Africa Advisory Group, 2018).
- **Loans:** Several loan types can be used for SLWM restoration, depending on funding sources, collateral, and support from public or private entities: (a) Market-rate loans: These loans allow borrowers to secure capital, with interest rates determined by their repayment ability and market conditions; (b) Concessional loans: These loans provide more favourable terms, such as extended grace periods or lower interest rates; (c) Subsidized loans: These offer reduced interest rates, often due to government or multilateral subsidies, making them more affordable for borrowers. For example, the European Bank for Reconstruction and Development (EBRD) has provided concessional loans, often alongside EU grants, to support Morocco's sustainable water management, promoting water-efficient technologies and practices (European Commission, 2023).
- **Environmental Subsidies and Tax Incentives:** Governments can promote private investment in SLWM restoration through direct subsidies or tax incentives. For instance, landowners who adopt sustainable grazing practices might receive subsidies, while companies investing in SLWM technologies could benefit from tax reductions (Scherr et al., 2004). Börner et al. (2014) highlight how subsidies play a key role in fostering private investments in forest restoration projects. Additionally, cap-and-trade programs can be used to limit environmental degradation by allowing firms to trade permits within set pollution caps.
- **Carbon Trading Mechanisms:** Restoration projects can be integrated into carbon markets, where countries or companies looking to offset their carbon emissions invest in initiatives such as reforestation or wetland rehabilitation (FAO, 2015). Carbon credits generated from these projects can

provide a revenue stream, as discussed by Bayon et al. (2000) and Streck (2004), who explore how mechanisms like the Clean Development Mechanism (CDM) fund restoration projects. Blignaut et al. (2007) demonstrate how projects like the removal of invasive species can also participate in carbon markets.

- Various credits have emerged recently to offset externalities that were previously unaccounted for. Common types of credits for SLWM projects include:
    - **Carbon credits:** These credits generate revenue by verifying the removal or avoidance of one metric ton of CO_2, often through reforestation or emissions reductions (McKinsey, 2020). Although current carbon prices are insufficient to provide consistent returns, some projects rely on future increases in carbon credit prices to ensure profitability (EIB, 2023).
    - **Biodiversity-enhanced credits:** Building on carbon credits, these add a premium to account for biodiversity outcomes, addressing broader climate and environmental challenges (EIB, 2023).
    - **Carbon farming credits:** These credits are earned through practices such as planting cover crops that sequester carbon while protecting soil health, as part of regenerative agriculture. The EU's Fit for 55 plan highlights the potential of carbon farming for carbon sequestration, though challenges exist regarding monitoring and the risk of early carbon release (McDonald et al., 2021).
    - **Wetland mitigation credits:** Used primarily in the U.S., these credits offer opportunities to generate revenue from wetland protection and restoration (Westervelt Ecosystem Services, 2022).
- **Collateralization of Future Revenues:** Though not strictly a financing tool, collateralization is increasingly used for nature-based projects outside the EU to reduce the risk of default. Future revenue streams from SLWM projects can be used as collateral, providing security for loans or project finance. One of the main obstacles to SLWM financing is the delayed cash flow generation, making long-term investment essential.

5 Public-Private Partnerships (PPPs)

Public-Private Partnerships (PPPs) play a vital role in mobilizing private sector investments for large-scale restoration initiatives. They can effectively pool private capital, distribute risks, and drive technological advancements in environmental restoration efforts.

- **Risk-sharing Mechanisms:** Governments can mitigate the risks tied to restoration projects by providing guarantees or insurance against potential project failures. Such mechanisms encourage private companies to invest in long-term restoration efforts, especially in regions facing climatic uncertainties or political instability (OECD, 2018; UNEP, 2020). For example, in Tunisia, land restoration projects supported by the International Fund for Agricultural Development (IFAD) blended public funding with farmer contributions, reducing risks and strengthening local ownership. This shared investment model improved sustainability while enhancing land productivity and rural livelihoods (IFAD, 2018).
- **Blended Finance:** A combination of public funds, such as grants or low-interest loans, with private investments can help finance pilot projects. By demonstrating the feasibility and effectiveness of these projects, blended finance approaches can pave the way for larger-scale initiatives.
- **Sustainable Agriculture and Forestry Partnerships:** PPPs could focus on promoting sustainable agricultural practices and forestry projects. These partnerships aim to deliver environmental benefits while offering attractive economic returns to investors, creating a win-win scenario.
- **Water Use Agreements:** In Mediterranean, PPPs can concentrate on enhancing water infrastructure and irrigation systems. Revenue-sharing models based on water usage fees could be established, ensuring that both public authorities and private investors benefit from improved water resource management.
- **Regulatory Frameworks:** Successful PPPs depend on clear and supportive regulatory environments. Clear guidelines and risk-reduction strategies are crucial, particularly in developing regions, where political or legal uncertainties may deter private investments. Strong regulatory frameworks ensure investor confidence and are pivotal for the success of PPPs (Hodge & Greve, 2007; Van den Hurk & Verhoest, 2015).

6 Global Success Stories

Around the world, large-scale restoration initiatives demonstrate how innovative financing, strong governance, and community engagement can transform degraded landscapes into productive and resilient ecosystems. These cases offer critical lessons for the Mediterranean, where similar challenges and opportunities exist.

- **China's Loess Plateau Restoration Project:** This large-scale initiative successfully restored severely degraded land by fostering collaboration between the government and local communities. As a result, it significantly enhanced agricultural productivity and improved water management in the region (Liu et al., 2007; World Bank, 2007).
- **The Great Green Wall (Africa):** Led by African nations, this initiative brings together governments, private investors, and international donors to combat desertification. The project aims to restore 100 million hectares of degraded ecosystems across 11 countries, offering valuable lessons in forming large-scale partnerships for land restoration. According to Mirzabaev et al. (2022), every dollar invested in restoration yields an average of $1.2 in returns, with estimates ranging from $1.1 to $4.4 depending on the scenario.
- **Australia's Murray-Darling Basin:** This project demonstrates the successful integration of water markets with conservation objectives, illustrating how trading mechanisms can complement environmental restoration efforts (Connell & Grafton, 2011). However, Grafton and Wheeler (2018) reported that the actual increase in the volumes of water in terms of stream flows, as a result of the water reforms in the Murray-Darling Basin, is much less than claimed by the Australian government. They found that subsidies to increase irrigation efficiency reduced stream and groundwater return flows, while buy-backs of water entitlements are more cost effective than subsidies.
- **Land Degradation Neutrality (LDN) Fund:** Launched by the United Nations Convention to Combat Desertification (UNCCD), this groundbreaking impact investment fund finances profitable sustainable land management and restoration projects worldwide. It has secured over $150 million in commitments from investors (United Nations, 2021).
- **The Green Climate Fund (GCF)**[1], established in 2010 under the UNFCCC, is one of the largest global climate finance mechanisms, dedicated to helping developing countries mitigate and adapt to climate change by promoting low-emission and climate-resilient development. It mobilizes financial resources from public and private sectors, including governments, multilateral organizations, and private investors. Notable GCF-funded initiatives in the region include:
    - **FP119** - Water Banking and Adaptation of Agriculture to Climate Change in Northern Gaza, which enhances water security and climate resilience[2].

[1] https://www.greenclimate.fund/
[2] https://www.greenclimate.fund/project/fp119

  - **ALBAdapt** – Climate Services for a Resilient Albania, aimed at strengthening climate services and adaptive capacity .
- **Latin American PES Programs:** Payment for Ecosystem Services (PES) schemes in Latin America have proven effective in funding watershed management and forest restoration. Pagiola et al. (2002) and Porras et al. (2008) showcase how these programs restore ecosystems while generating income for local communities.

While global examples are valuable, the Mediterranean region itself provides compelling success stories that highlight context-specific solutions:

- **Spain – Dehesa and Montado Systems:** Traditional agrosilvopastoral landscapes in Spain (dehesa) and Portugal (montado) are globally recognized for integrating grazing, forestry, and crop production. Supported by CAP funds, these multifunctional systems enhance biodiversity and provide high-value products, while sustaining rural economies (Gaspar et al., 2009).
- **Greece – Restoration of Lake Karla:** Once drained, Lake Karla was restored through EU and national investment, creating a wetland that now supports eco- and cultural tourism, improves water management, and enhances biodiversity. The project has become a model for linking restoration with sustainable livelihoods in rural communities (Trakala et al., 2023).
- **Italy – Cinque Terre Terrace Restoration:** In Liguria, the rehabilitation of terraced vineyards has been sustained by revenues from wine tourism and agritourism. By blending cultural heritage with restoration finance, the initiative demonstrates how landscape conservation can be tied to rural development (Santoro et al., 2021).
- **Tunisia – Jessour and Meskats Water Harvesting:** Supported by IFAD and the GEF, traditional water-harvesting systems have been revitalized to improve drought resilience. By combining government cofinancing with farmer contributions, these projects reduced risks, strengthened ownership, and enhanced land productivity, while ensuring the long-term sustainability of agropastoral livelihoods (Schiettecatte et al., 2005; Calianno et al., 2020).
- **Morocco – Oasis and Eco-Tourism Initiatives:** In southern Morocco, community-based eco-tourism initiatives generate revenues that finance conservation in fragile oasis systems. Agroforestry practices with date palms, often supported by international donors, enhance resilience to climate change while sustaining cultural landscapes (Hamriri et al., 2024; Chellik et al., 2023).

Summing up, global and Mediterranean experiences show that restoration is most successful when ecological objectives are closely aligned with economic and social incentives. Key lessons include:

– The power of blended finance (public funds, community contributions, private capital).
– The importance of policy alignment and supportive regulation.
– The potential of traditional knowledge and cultural heritage when combined with modern innovation.
– The value of linking restoration to income-generating activities (eco-tourism, high-value agriculture, carbon credits).

- For the Mediterranean, scaling such models will require not only replicating success stories but also adapting them to local socio-economic and ecological contexts.

7 Examples from REACT4Med case-studies

During the backcasting exercises of the sustainability visioning with the stakeholders in the Ecological Restoration Living Labs, various barriers were identified (D3.3). These barriers formed the motivation for the review and identification of policies and financial mechanism that could support the ecological restoration practices tested in the pilot areas in the eight countries, as presented in this chapter.

7.1 Cyprus

7.1.1 Strategic Rural Development Program - Subsidies relevant to drystone terraces

Cyprus's CAP Strategic Plan 2023–2027 mobilises four complementary instruments that protect existing drystone terraces and finance their restoration or construction to mitigate erosion risks. The package comprises a baseline conditionality (GAEC 8) and three paid interventions: an agri-environment-climate action dedicated to drystone walls, a vineyard investment grant, and an environmental investment scheme under the fruit-and-vegetables sectoral programme.

- **Baseline conditionality (GAEC 8): preservation of landscape features**

As part of conditionality, GAEC 8 requires farmers to preserve landscape features, explicitly including drystone walls/terraces. This is a zero-payment baseline obligation that prevents removal or degradation of such features across all holdings receiving direct support. Any paid scheme described below must deliver maintenance or improvements beyond this baseline.

- **Agri-environment-climate action A.A. 1.3 C: "Drystone Walls"**

The A.A. 1.3 C measure (Συντήρηση ή διατήρηση ξερολιθιών εντός αγροτεμαχίων) provides an annual per-hectare payment to farmers who conserve and maintain drystone walls within or around their parcels using traditional techniques. Eligibility requires at least 5 metres of standing wall per 0.1 ha of the parcel, with a minimum height of 60 cm. The payment level is €340/ha/year, with a total multi-annual budget of €2.54 million (2023–2027). This eco-scheme is designed to reward routine upkeep/re-stacking of stones and repairing collapsing terrace walls thereby safeguarding soil structure, slowing runoff, and stabilising slopes in mountain landscapes. Because GAEC 8 already prohibits terrace destruction, this measure functions as a top-up for demonstrable, rule-compliant maintenance that sustains the ecological function of existing terraces. Beneficiaries commit to traditional, mortar-free maintenance, and compliance can be verified through visual inspection of wall integrity, height and continuity. The measure suits farms with existing terrace system (e.g., vineyards, olives, mixed orchards), where annual minor works keep structures serviceable and effective for erosion control.

- **National wine sector scheme (ΕΡΣΑ): Investment aid for sustainable viticulture**

For vineyards requiring capital works, the wine sector investment measure supports both new construction and repair of drystone terraces as part of farm infrastructure for sustainable production. Eligible costs are defined at €30/m² for new drystone walls and €10/m² for repair of existing structures. The grant covers up to 50% of eligible expenditure, capped at €40,000 EU contribution per year. This measure targets one-off structural upgrades, for example, rebuilding collapsed retaining walls, or extending terrace benches on steep slopes, thereby enabling vineyards to meet erosion-control standards and reduce sediment transfer to waterways. After works are completed, beneficiaries can transition into A.A. 1.3 C for ongoing maintenance payments.

- **Fruit & Vegetables sectoral programme (INVRE, Art. 47(1)(a)): Environmental investments**

Producer organisations (POs) in the fruit-and-vegetables sector may finance environmental protection investments within their operational programmes. Building drystone retaining walls is explicitly included among approved land-improvement works to prevent soil erosion. Aid rates and cost ceilings are set by each PO, allowing programmes to tailor support to local geomorphology and farm scale (e.g., orchard terraces in erosion-prone catchments). This measure is well suited to collective, landscape-level planning, for instance, coordinating terrace development across multiple member farms on a hillside to maximise hydrological benefits.

7.1.2 Private Financing Mechanisms for SLWM

An example of private financing mechanism in Cyprus is the Cyprus Environment Foundation (CEF[3]), a locally focused philanthropic fund within the Conservation Collective network that channels private and corporate donations into grants for grassroots environmental projects across the island. Through periodic calls, CEF provides flexible small-to-medium grants and can help leverage additional co-funding. Applications are assessed against an impact framework spanning environmental, social, economic criteria and policy outcomes. Some of the awarded grants explicitly cover regenerative land use and sustainable resource management. For example,

- the **Greening Cyprus in the Fire-Affected Areas**[4] was awarded €6,800 for Apr 2022–Feb 2023. The aim was to restore drystone terraces and implement basic water-harvesting measures in the 2021 burned Larnaca uplands, coupling on-site training in terrace building with community planting and school outreach. The grant restored ~40 metres of terraces and ~100 native trees were planted while training volunteers.
- CEF also funded a local NGO and the project **Combating Desertification in Cyprus Through Composting**[5]. The project was awarded €5,000 for Apr–Jun 2022 and designed a practical green-waste-to-compost scheme for a cluster of seven rural communities. The model aligns farmer and municipal incentives by proposing a local compost facility financed through a mix of farmer membership fees,

[3] https://cyprusenvironment.org/
[4] https://cyprusenvironment.org/grants/greening-cyprus-in-the-fire-affected-areas/
[5] https://cyprusenvironment.org/grants/combating-desertification-in-cyprus-through-composting/

contributions from local authorities and prospective government incentives for compost application per treated hectare.

In practice, the CEF grants complement public schemes (e.g., CAP subsidies) by financing instruments and initiatives such as community mobilisation, training (e.g., drystone skills), planning and monitoring, and by offering light, catalytic match-funding, though small but potentially impactful local private co-investments (e.g., compost, tourism or agrifood value chains).

7.2 Egypt

7.2.1 Egyptian government agencies and programs

Ministry of Agriculture and Land Reclamation

International Centre for Agriculture and Land Development (CIADP)

Concerned with land improvement and integrated water resources management projects, it often implements projects in collaboration with international organizations to improve irrigation and drainage efficiency.

Core Mission

- Implementing land improvement projects to enhance soil productivity.
- Promoting integrated water resources management to ensure sustainable use of irrigation and drainage systems.
- Supporting sustainable agriculture by combating soil degradation (salinity, alkalinity, erosion).

Partnerships

- CIADP often works in collaboration with international organizations such as the FAO, UNDP, the World Bank, and USAID to improve irrigation efficiency, drainage systems, and land reclamation.

Key Activities

- Designing and executing projects to improve irrigation and drainage efficiency.
- Supporting farmers with technical expertise and modern agricultural practices.
- Participating in large-scale national projects, such as the National Drainage Project (NDP), which modernizes underground drainage networks to prevent soil salinization and improve productivity.

Impact

- Helps reduce waterlogging and salinity, two of the biggest threats to Egyptian agriculture.
- Contributes to food security by improving land productivity.
- Strengthens climate resilience in agriculture through sustainable land and water management.

- If you're a farmer or stakeholder in Egypt, access to CIADP's support is usually coordinated through Land Improvement Associations at the village level, or through the local agricultural administration, which connects farmers with loans, technical support, and subsidized irrigation systems.

The **National Drainage Project (NDP)** in Egypt is one of the country's largest and longest-running agricultural infrastructure programs. It has been ongoing for decades and is considered a cornerstone of Egypt's land and water management strategy. Here's a clear breakdown:

Purpose

- **Modernize and expand drainage networks**: Focused on installing covered subsurface drainage systems (underground pipes) in Egypt's old agricultural lands.
- **Prevent soil salinization**: Excess irrigation water often raises groundwater levels, leading to salt accumulation in the soil—a major cause of declining productivity.
- **Improve agricultural productivity**: By ensuring proper drainage, the project helps maintain soil fertility and crop yields.

Scope

- **Scale**: A massive, nationwide project covering millions of feddans (Egyptian acres).
- **Duration**: Implemented in multiple phases since the 1970s, with ongoing expansions.
- **Technology**: Uses underground pipe networks to drain excess water, replacing older open-drainage systems.

Key Stakeholders

- **Government of Egypt**:
  - Ministry of Agriculture and Land Reclamation: Oversees land improvement and coordinates with farmers.
  - Ministry of Water Resources and Irrigation: Leads on irrigation efficiency and canal development.
- **Research & Technical Support:**
  - Land and Water Research Institute (Agricultural Research Center) provides studies and recommendations on soil degradation.
- **Financial & International Partners:**
  - **World Bank**, **USAID**, **FAO**, and **UNDP** have all supported phases of the project with funding and technical expertise.

Benefits

- **Boosts crop yields** by preventing waterlogging and salinity.
- **Protects soil health** and extends the life of Egypt's most fertile lands (especially the Nile Delta).
- **Supports water efficiency** by balancing irrigation and drainage.
- **Improves rural livelihoods** through higher agricultural productivity and reduced land degradation.

Access for Farmers

- Farmers in areas included in NDP plans receive subsurface drainage installation **without bearing the full cost**, as it is largely state- and donor-funded.

- Additional support may come through **Agricultural Bank loans** or **Land Improvement Associations** at the village level.

The **NDP is a backbone project for Egypt's food security**, ensuring that the country's limited arable land remains productive despite challenges like salinity, climate change, and population growth.

Ministry of Water Resources and Irrigation

Mainly involved in irrigation efficiency improvement projects and canal and mesqa development projects, which indirectly contributes to preventing land degradation by achieving water balance.

7.2.2 The Agricultural Bank of Egypt (ABE)

The **Agricultural Bank of Egypt (ABE)** is one of the country's most important financial institutions, especially for rural development and farmers.

- A **state-owned bank** dedicated to supporting Egypt's agricultural sector.
- It has one of the largest branch networks in the country, reaching deep into rural areas where other banks often don't operate.

Core Functions

- **Soft Loans for Farmers**: Provides low-interest financing to farmers for:
  - Land improvement projects
  - Modern irrigation systems (drip and sprinkler irrigation)
  - Agricultural machinery and inputs
- **Land Reclamation**: Funds projects to reclaim desert land for cultivation.
- **Rural Development**: Supports small-scale farmers and rural communities with credit and financial services.

Broader Role in Egypt

- Plays a **strategic role in food security** by ensuring farmers have access to affordable financing.
- Works alongside government ministries (Agriculture, Water Resources & Irrigation) to implement national projects like:
  - The **National Drainage Project (NDP)** to modernize underground drainage networks.
  - Programs to combat soil salinity and improve irrigation efficiency.
- Partners with **international organizations** (FAO, UNDP, World Bank, USAID) that fund sustainable agriculture and climate adaptation projects.

Steps for Farmers to Apply for Loans

1. **First Point of Contact – Local Associations**
   - Farmers usually start with their **Land Improvement Association** at the village or district level.
   - These associations coordinate with the Ministry of Agriculture and Irrigation and help farmers connect with the bank for financing.
2. **Visit the Agricultural Administration**

- Farmers can go to their **local agricultural administration office** to ask about available programs.
- They'll be informed about:
  - **Financial support** (soft loans from ABE)
  - **In-kind support** (like subsidized or free installation of modern irrigation systems in some projects).

3. **Direct Application at ABE Branches**
   - With one of the largest rural branch networks in Egypt, farmers can apply directly at their nearest **Agricultural Bank of Egypt branch**.
   - Required documents typically include:
     - National ID card
     - Proof of land ownership or lease contract
     - Agricultural plan or purpose of the loan (e.g., irrigation, seeds, machinery)
     - Sometimes a guarantor or collateral, depending on loan size
4. **Special Programs**
   - If the farmer's land is included in the **National Drainage Project (NDP)**, drainage works may be implemented **without full cost to the farmer**, as they are state-funded.
   - Other government or international programs (UNDP, FAO, World Bank, USAID) may also provide **subsidized financing** through ABE.

7.3 Greece

7.3.1 National Strategic Framework for Forestation and Land Restoration

Forestation and reforestation in Greece are not standalone interventions but part of a broader multi-level strategy that integrates forest policy, climate adaptation, flood-risk management, and agricultural transformation. Several key instruments define this strategic context:

National Forest Strategy (2018–2038)

Adopted by Ministerial Decision 170195/758 (November 2018)[6], the National Forest Strategy sets a 20-year vision for multifunctional forest management. It promotes the expansion of forest cover, restoration of degraded areas, sustainable forest economy, biodiversity conservation, and climate-change mitigation and adaptation. It explicitly includes the afforestation of agricultural lands and the development of protective forests in erosion- and flood-prone catchments.

National and Regional Climate Adaptation Strategies (NAS / RAS – ΕΣΠΚΑ / ΠεΣΠΚΑ)

[6] https://www.kodiko.gr/nomothesia/document/685301/yp.-apofasi-ypen-gdddp-61420-447-2019

The National Adaptation Strategy and its regional equivalents[7] integrate land-use, forestry, agriculture, and water management. They identify forestation, reforestation, terracing, and soil-cover measures as adaptation actions that reduce erosion, enhance carbon sinks, and protect rural landscapes from floods and droughts.

Flood-Risk Management Plans (Σχέδιο Διαχείρισης Κινδύνων Πλημμύρας[8], ΣΔΚΠ)

Implementing the EU Floods Directive 2007/60/EC, these basin-level plans combine structural works with land-use and Best Management Practices (BMPs) in forestry, livestock and agriculture. Several, if not all of these regional plans call for afforestation of agricultural land within flood-risk zones, declaration of protective forests in torrent catchments, soil-cover and water-retention practices (terraces, vegetation belts), and coordinated databases to monitor watershed and coastal dynamics. These measures recognise forestation as a core tool of flood prevention and landscape resilience.

CAP Strategic Plan for Greece 2023–2027

Greece's CAP Plan[9] aligns rural development with environmental and climate goals, introducing eco-schemes, agri-environment-climate measures, and investment supports for perennial crops, terraces, and biodiversity management. It provides the main financial vehicle for integrating tree-based systems and forestation practices into mainstream agriculture.

Recovery and Resilience Plan ("Greece 2.0")[10]

Under the EU Recovery and Resilience Facility, Greece's National Reforestation Plan and fire-prevention investments reinforce the strategic link between forest restoration, ecosystem services, and green transition objectives. These projects complement CAP funding by financing large-scale planting, anti-erosion, and flood-control infrastructure.

Implementation and Financing Landscape

Building on this strategic framework, Greece combines public subsidies, eco-schemes and investment measures under the Common Agricultural Policy (CAP) with new private and regional financing initiatives linked to ESG frameworks. The result is a diverse toolbox that supports forestation, reforestation, agroforestry and, when relevant, slope restoration, addressing both ecological protection and productive rural development.

7.3.2 Public / Subsidy-Mechanisms

Non-productive forestry and erosion-control investments

These actions finance tree establishment and structural works that protect soil and water on marginal land. The afforestation measure supports the creation of new forest areas on agricultural land, covering all costs

[7] https://ypen.gov.gr/perivallon/klimatiki-allagi/prosarmogi-stin-klimatiki-allagi/
[8] https://floods.ypeka.gr/
[9] https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans/greece_en
[10] https://greece20.gov.gr/en/

of planting, guarding, and initial maintenance, with 100% grant aid. The measure's indicative budget is €27.45 million, with average support around €8,000 per plan. It aims to expand forest resources, enhance biodiversity, and strengthen natural protection against erosion and flooding.

Complementary to this, the drystone terrace measure funds the construction of traditional "αναβαθμίδες" (dry-stone terraces) — emblematic landscape features that retain soil and water and form habitats for wildlife. With a total public budget of €4.48 million, it provides full (100%) funding for around 300 projects. These terraces are essential preparatory works for reforestation on steep or fire-affected slopes, stabilising the terrain and improving infiltration before or together with tree planting.

The forest-risk prevention and restoration measure further integrates these goals. With €60.36 million of public expenditure, it covers prevention infrastructure (forest roads, firebreaks, fuel management), reforestation after fires, anti-erosion works, and conservation of forest genetic resources. Projects may involve mixed planting, slope stabilisation and restoration of forest roads or drainage systems.

Investment grants for professional farmers (Μέτρο 4.1.5[11])

This long-standing investment programme for professional farmers supports modernisation and establishment of new perennial plantations. The 2023 Ministerial Decision (YA 427/2-3-2023, Article 9) defines the conditions for purchase, transport and establishment of multi-year crops (productive life ≥4 years). Beneficiaries must document land tenure and use certified propagation material but may freely choose species as the regulation does not exclude forest or woody species. This flexibility has already allowed planting of walnuts, olives, carobs and mulberries, all relevant for agroforestry and afforestation-style projects on private land. The measure's design allows linking productive objectives (nuts, oil, biomass) with landscape restoration and long-term carbon storage. It can therefore bridge the gap between forestation subsidies and commercial investment, particularly when applied to sloping, erosion-prone terrain.

Eco-schemes for climate, biodiversity and terraces

Several eco-schemes[12] under Greece's CAP Plan contribute indirectly to forestation and slope stabilisation:

Eco-scheme 1 (Resilient and adapted species and varieties) promotes the use of drought- and heat-tolerant species, with payments ranging from €109-1,845/ha depending on crop type.

Eco-scheme 3 (Improved cover-crop practices) rewards continuous soil cover and biodiversity-friendly ground vegetation (up to €150/ha), reducing runoff and erosion on both arable and permanent crops.

[11] https://www.agrotikianaptixi.gr/metra-paa-pages/ependytika-epicheirimatika/metro-4-ependyseis-se-georgikes-ekmetallefseis-kai-gia-georgika-proionta/ypometro-4-1-ependyseis-se-georgikes-ekmetallefseis-schedia-veltiosis/drasi-4-1-5-ylopoiisi-ependyseon-me-stocho-tin-anthektikotita-ti-viosimotita-kai-tin-psifiaki-oikonomiki-anakampsi-ton-georgikon-ekmetallefseon/

[12] https://ead.gr/οικολογικά-σχήματα-eco-schemes/

Eco-scheme 8 (Maintenance and improvement of crops on terraces) offers €200/ha for maintaining or improving cultivation on terraced slopes, ensuring the persistence of vegetative cover and the structural integrity of terraced landscapes.

Together, these interventions provide a functional framework for tree-based slope management: terraces stabilised through dry-stone construction, planted with perennial species supported under Measure 4.1.5, and managed under eco-schemes that reward soil and biodiversity benefits.

National Reforestation Plan and RRP investments

The National Reforestation Plan, financed through the Recovery and Resilience Facility (RRF) under Greece 2.0, represents the most ambitious national initiative for forest-ecosystem restoration. With a total budget of roughly €224 million (2021–2025), it foresees the restoration of about 16,500 ha of degraded forest ecosystems using mainly native species, along with anti-erosion and flood-protection works in burned or vulnerable catchments.

A key complementary component is the "antiNERO" programme[13], also financed through the RRF, which focuses on fire-prevention and forest-protection infrastructure. antiNERO targets around 5,700 ha of reforestation and more than 80,000 ha of preventive measures, including fuel-breaks, forest-road maintenance, fire-monitoring infrastructure, and anti-erosion works. Together, these projects form the operational backbone of Greece's modern fire-management and forest-resilience strategy.

Flagship actions include the Attica Forest Regeneration Project, aiming to plant 2.5 million trees in fire-affected peri-urban forests such as Penteli and Parnitha, as well as targeted reforestation in critical watersheds and Natura 2000 sites.

These RRP investments fund the capital-intensive phase—planting, restoration works and protective infrastructure—while CAP forestry and eco-scheme measures ensure the continuity of maintenance and environmental services over the long term.

Forestry projects under the Rural Development Programme

In 2024, the Decentralised Administration of Crete secured approval for ten forestry projects under the Rural Development Programme (RDP / ΠΑΑ) measure "Investments in the Development of Forest Areas and the Improvement of Forest Viability". The total public budget amounts to €3.82 million, co-financed by the European Agricultural Fund for Rural Development (EAFRD).[14] The actions are distributed among all four Forest Directorates of Crete and are scheduled for completion by August 2025. Six projects focus on fire-prevention infrastructure and management—including fuel-break works, forest cleaning, construction of water tanks and a fire-suppression system in the Preveli biotope, while four projects concern reforestation and ecological restoration of burned or degraded areas such as Selakano (Lasithi), Keri (Heraklion), Kolektro

[13] https://commission.europa.eu/projects/national-reforestation-plan-restoration-and-prevention-antinero-antierosion-and-flood-protection_en
[14] https://dasarxeio.com/2021/05/19/97026/

(Ierapetra) and Afrata (Chania). The process is coordinated by the Decentralised Administration with the support of ΜΟΔ S.A., in cooperation with municipalities and development organisations, ensuring a strong multiplier effect for the environment and local communities. This example demonstrates how national RDP forestry measures translate into tangible, regional-scale forestation and prevention projects that align with both the National Reforestation Plan and the climate-adaptation goals of Crete's Regional Adaptation Strategy (ΠεΣΠΚΑ).

7.3.3 Private / Investment Mechanisms

Alongside public subsidies, Greece is developing a growing framework of private and blended financing instruments that align with ESG (Environmental, Social and Governance) principles and carbon-neutral investment strategies. These mechanisms extend beyond traditional donations, creating structured pathways for private capital to fund verified environmental projects.

Green Fund and blended EU co-financing

The Green Fund (Πράσινο Ταμείο) remains the key national vehicle for blending public, EU, and private funds in environmental projects. It co-finances LIFE integrated projects (e.g. LIFE-IP 4 NATURA) and national reforestation or fire-prevention programmes. Through its flexible grant schemes, the Fund can match corporate or philanthropic donations, extending the reach of restoration activities and long-term monitoring.

National and regional ESG mechanisms

A pioneering development is the Regional Mechanism for Climate Action in Crete ("Περιφερειακός Μηχανισμός Υποστήριξης της Κρήτης για την Προσαρμογή στην Κλιματική Αλλαγή"), announced by the Region of Crete and coordinated by the Hellenic Mediterranean University with funding from the Green Fund (Πράσινο Ταμείο). Among other interventions, the Regional Mechanism aims to function as a clearinghouse between science, public projects and ESG-oriented private finance, by (a) identifying high-TRL (Technology Readiness Level) research and innovation projects with strong climate-mitigation or adaptation potential (such as REACT4MED), (b) curate a portfolio of ready-to-invest public environmental projects, such as reforestation, anti-erosion works, or water-retention systems on degraded slopes, and (c) allow private companies seeking ESG credits or carbon offsets to co-finance or adopt these projects, providing measurable environmental outcomes aligned with EU Taxonomy criteria. This represents a shift "from theory to practice," transforming regional sustainability goals into a pipeline of investable projects. For Crete, this model will integrate publicly funded restoration (e.g. RRP or CAP) with private capital motivated by carbon accounting, biodiversity credits and social co-benefits (employment, local resilience).

Corporate ESG and philanthropic partnerships

Corporate responsibility and ESG-oriented finance are increasingly visible in Greece's reforestation landscape. Some examples include:

We4all and The Hellenic Initiative mobilise private and expatriate funds for tree planting in fire-affected regions, combining restoration with volunteer education.

Alpha Bank's "Restoring Forests in Greece" links ESG-labelled investment products with reforestation commitments: for every €1,000 invested, a proportion funds tree planting in collaboration with Reforest'Action and the Forest Research Institute of Thessaloniki.

Όλοι Μαζί Μπορούμε (All Together We Can) is a nationwide civic and corporate initiative that organises volunteer reforestation and tree-planting events across Greece, such as on Mt. Hymettus and Penteli. It mobilises private sponsors, media partners and citizens, planting thousands of fire-resilient native trees each year. The programme links social participation with measurable ESG outcomes in restoration, education and community resilience.

Other private consortia in energy, construction and tourism sectors integrate carbon offset planting, landscape rehabilitation or eco-tourism components into their ESG portfolios.

7.4 Israel

7.4.1 Public / Subsidy Mechanisms

National and Public Programs

National water strategy (desalination + reuse): Israel's Water Authority and the national utility (Mekorot) rely on large-scale seawater desalination and extensive wastewater reuse to stabilize supplies in arid/semi-arid zones. Desalinated water now constitutes a major share of municipal supply, delivered via the National Water Carrier and regional grids.

Wastewater reuse for agriculture: The country is recognized as a global leader in effluent recycling; over ~85% of treated wastewater is reused- predominantly in agriculture- under quality standards that enable safe application and reduce freshwater withdrawals.

Watershed and landscape rehabilitation: Public agencies and quasi-public bodies (e.g., KKL-JNF) co-finance afforestation, runoff harvesting, terrace rehabilitation, and erosion control to reduce hydrological risk and enhance ecosystem services in drylands, often in collaboration with local municipalities.

7.4.2 Private / Investment Mechanisms

PPP/BOT desalination concessions: Israel's flagship plants (Ashkelon, Hadera, Palmachim, Sorek) were procured as long-term Build-Operate-Transfer projects with private finance and availability-based payments—crowding in institutional capital and transferring construction/operational risks.

Corporate water-tech & agritech ecosystem: A mature private sector (engineering firms, startups, and growers) invests in desalination, reuse, leak detection, irrigation hardware/analytics, and saline-water cropping, supported by competitive R&D and commercialization tracks.

7.4.3 Policy levers tailored to Israel

1. Performance-based incentives for reuse and on-farm efficiency: Tie grants or tariff rebates to verified outcomes (e.g., cubic meters of potable-water savings, nutrient load reduction, or yield-per-m^3 gains), using audited meters and remote sensing.
2. Quality-indexed effluent pricing: Differentiate tariffs by treatment grade and agronomic risk to steer demand toward higher-value reuse while funding tertiary upgrades.
3. Landscape-scale PPPs: Extend the successful desalination PPP template to catchment restoration (erosion control, recharge basins, fire-break forestry) with outcome payments indexed to reduced sediment loads or increased baseflow.
4. Blended finance for climate-resilient irrigation: Combine public grants (design/TA) with concessional debt for smallholders to adopt precise irrigation, soil-moisture sensing, and deficit-irrigation regimes; repay via water-savings sharing.
5. Data infrastructure: Mandate open, high-frequency data on withdrawals, reuse volumes, non-revenue water, and salinity. Enabling pay-for-performance contracts and private innovation.

7.5 Italy

7.5.1 Public / Subsidy-Mechanisms in Puglia

PSR Puglia Sub-measure 11.1 – Payments for conversion to organic farming[15]

This is part of the Puglia Rural Development Programme (PSR). Sub-measure 11.1 gives payments to farmers converting land from conventional or integrated farming methods to organic farming.

Eligibility: Farmers (with VAT, active farmers), on at least 1 hectare; or associations covering together ≥ 50 hectares.

Usefulness for table grapes: If a conventional table grape farm wants to switch to organic methods, this subsidy helps offset the transition costs (labour, inputs, certification, etc.).

Indicative amount: 900 €/ha/year, that applies for the years of conversion (2 years for annual crops, 3 for tree/vine crops) before entering maintenance.

PSR Puglia Sub-measure 11.2 – Payments for the maintenance of organic farming methods[16]

It supports farmers already using organic methods, helping maintain organic production practices. Regular payments to sustain those practices.

15 https://psr.regione.puglia.it/en/sottomisura-11.1

16 https://psr.regione.puglia.it/en/sottomisura-11.2

Eligibility: Active organic farmers, area at least 1 ha (or associations ≥ 50 ha), must keep the land under organic management for the commitment period.

Indicative amount: 900 €/ha/year of maintenance payment that applies once the land is already organically managed (i.e. not in conversion).

Grants for modernization in the table grape / cherry sectors[17]

There is recent financing in Puglia to modernize table grape farms: non-repayable grants (i.e. subsidies) covering 60-80 % of costs for renewing crops, improving competitiveness, agronomic improvements etc.

PSR Puglia Measure 4.1.A – Support for investments aimed at improving profitability, competitiveness, sustainability of agricultural holdings[18]

This is a funding for tangible and intangible investments by farms (including vineyards), or producer organizations, cooperatives etc.; helps with technology, infrastructure, etc.

Relevance: A table grape farm (organic or conventional) could use this to buy better equipment, implement more sustainable practices, improve infrastructure (irrigation, protection, shading, post-harvest facilities) to reduce environmental impact and increase output value.

Indicative amount**:** minimum around 30,000 € and maximum around 3,000,000 € for individual farms; for collective/inter-farm (associations) up to 4,000,000 €. The exact percentage depends on whether the farm is in a disadvantaged area or under special constraints; whether the project is collective or individual; whether the farm is integrated with a producer organisation or supply chain; whether the investments include innovation, sustainability, energy, etc.

Projects under PSR / Operational Groups targeting table grapes[19]

For instance, “Apulian seedless grapes from field to table: innovation, nutrition, sustainability” is a project (Operational Groups under PSR Puglia) with public funding to improve agronomic techniques, reduce environmental impact, improve efficiency in table grapes.

Also, “Sustainability and innovation in the Apulian viticulture of table grape” (a public project) aims at making production more sustainable (including biologic or low-impact production) and improving competitiveness.

7.5.2 Private / Investment Mechanisms

Equity Puglia[20]

It’s a financial instrument put in place by Regione Puglia in collaboration with “Puglia Sviluppo” and savings management companies (venture capital / SGRs) to invest in startups and innovative SMEs. There is public + private capital. Its relevance to organic / conventional table grape farms: If a farm or agritech venture tied

17 https://cherrytimes.it/en/news/grants-cherry-table-grape-farms-modernization-italy

18 https://psr-collaudo.regione.puglia.it/en/sottomisura-4.1.a

19https://eu-cap-network.ec.europa.eu/projects/apulian-seedless-grapes-field-table-innovation-nutrition-sustainability_en

20https://pugliasviluppo.eu/en/news/equity-puglia-eighty-million-available-for-startups-and-innovative-companies

to table grapes has innovation (e.g. new sustainable practices, processing, packaging, value-added products, digital tech etc.), it could potentially access this fund. For example, if converting to organic, or developing new varieties or traceability, or introducing sustainable supply chain innovations.

Private agribusiness investment (example: Schenk Italian Wineries & Tenute Masso Antico)[21]

It's a wine-company group making investments in organic vineyards (in Puglia) as part of its sustainability strategy. Schenk Italian Wineries acquired organically managed vineyard land, committed to converting vineyards to organic, and invested in sustainable infrastructure (solar panels, etc.).

This is private capital being deployed in farm acquisition, land management, and conversion to organic, with a business model oriented toward quality, sustainability, international markets. A farm could partner with such an investor, or attract investment by offering sustainable or organic certification + export potential + traceability etc.

7.6 Morocco

Morocco faces mounting pressure from climate change, water scarcity, and land degradation—especially in agriculture-dependent regions. Morocco succeeded to ensure the availability of water resources to its population, while also supporting vital sectors especially agriculture although the context of scarcity. However, the approach adopted by the country failed to balance developmental imperatives with the safeguarding of water resources as it prioritizes agriculture and relying heavily on groundwater for irrigation. The Moroccan agricultural market comprises about 1.5 million farms. To enhance both public and private investments in sustainable water and land management, targeted policy recommendations drawn from recent research and strategic insights are also summarized herein.

7.6.1 Morocco's government agencies and programs in financing sustainable soil and water management

Morocco funds sustainable soil and water management primarily through its Ministry of Equipment and Water and the Agency for Agricultural Development (ADA)[22] belonging to the Ministry of Agriculture, which implements programs under the national Generation Green, often financed by international partners like the World Bank[23]. Key programs include large-scale irrigation infrastructure, promoting water-efficient farming techniques like drip irrigation, and implementing projects to manage water resources at the basin level, such as through the Sebou Water Fund.

Key Government Agencies and Institutions

21 https://winenews.it/en/schenk-italian-wineries-invests-37-hectares-of-vineyard-in-puglia-and-6-hectares-in-montepulciano_504216/

22 https://www.ada.gov.ma/

23 https://documents1.worldbank.org/curated/en/099060723024517055/pdf/P179192045ef5f070b83c069916d70dcd3.pdf

- **Ministry of Equipment and Water**

Responsible for determining government priorities and investing in large water infrastructure projects like dams and canal systems. National Program for Water Supply and Irrigation (2020-2027 PNAEPI) is a strategic, high-cost initiative launched on royal instructions to address climate change impacts and increase water supply. The PNAEPI aims to diversify the sources of supply, guarantee water security, and reduce climate change impacts by accelerating investments to strengthen water supply for drinking and irrigation uses. The PNAEPI's major objectives are: (a) expanding water supply by increasing water storage capacity and the contribution of non-conventional sources to the water matrix (wastewater reuse and desalination), and safeguarding groundwater resources; (b) improving water efficiency by reducing water losses in conveyance and distribution networks (potable water and irrigation) and improving water productivity in the irrigated agriculture sector; (c) achieving universal access to water supply in rural areas; and (d) increasing awareness on the value of water. Among other factors, the successful implementation of the PNAEPI relies on: (a) boosting cross-sectoral coordination; (b) adapting the sector's financial framework to reflect the increasing cost of water mobilization; (c) adopting critical regulations relating to non-conventional water resources, participative aquifer management contracts, and water data management and information systems; (d) strengthening the performance of the River Basin Agencies (*Agence du Bassin Hydrauliques* ABHs), in particular concerning water withdrawal control and enforcement; and (e) supporting the on-going reform of the potable water and wastewater service sector aimed at improving service delivery and financial sustainability. The initial estimated cost was over 115.4 billion dirhams supported by a substantial budget and international funding, including from the World Bank.

- **Agency for Agricultural Development (ADA)**

A national public entity focused on developing agricultural needs through action plans and projects, including those related to climate change and sustainable water use.

- **Sebou Hydraulic Basin Agency (ABHS)**[24]

Oversees the Sebou Water Fund, a mechanism that supports local water management and nature-based solutions in the Sebou River basin.

- **National Agency for Water and Forests (ANEF)**

Involved in the management and financing of water and forest resources, often collaborating on projects like the Sebou Water Fund.

Key Programs and Initiatives:

- **Green Morocco Plan (Plan Maroc Vert) and the Generation Green Strategy**[25]

[24] https://www.abhsebou.ma/
[25] https://www.inter-reseaux.org/wp-content/uploads/bds_no20_plan_maroc_vert_en.pdf

This overarching national strategy for agriculture includes programs focused on improving water efficiency, particularly through the large-scale modernization of irrigation systems, according to Green Climate Fund[26].

- **The 2050 National Water Plan (PNE)**

PNE is an ambitious infrastructure plan that has been designed to tackle the water demand-supply gap in coming decades. The gap is currently estimated at 1.8 billion cubic meters (m3) per year at the national level. In the absence of any new water infrastructure construction, and taking into account the effects of climate change (with the increase in demand for irrigation estimated at 10 percent and the decline in precipitation and underground water resources), the gap is projected to reach 7 billion m3 a year by 2050. The 2050 PNE lists a series of mostly engineering solutions to close this deficit. On the one hand, the PNE aims to reduce the water demand91 by 2.2 billion m3/year by 2050, by (i) reducing water losses in transport and the distribution of potable water (up to 0.4 billion m3/year); and (ii) saving 1.8 billion m3/year of water in the agriculture sector through modernized irrigation. On the other hand, the PNE plans to increase water mobilization by 4.6 billion m3/year by 2050 through: (i) dam construction and interconnections (3 billion m3/ year); (ii) desalination (1 billion m3/year); (iii) wastewater use (0.3 billion m3/year); and (iv) rainwater harvesting (0.3 billion m3/year). Thus, even if the PNE actions are fully implemented, leading to the expected results by 2050, the increased supply level of sustainable water would be 17.6 billion m3/year, while the demand would be 17.8 billion m3/year, leaving a residual water deficit of about 0.2 billion m3/year.

- **National Plan for Water Irrigation Saving**

This initiative, supported by various donors including the African Development Bank (AfDB), focuses on value chain development and promoting water-saving irrigation techniques.

- **Morocco Water Security and Resilience Program**

A program, partially supported by the World Bank, aimed at strengthening institutions and increasing water availability, including by improving water distribution networks.

- **Sebou Water Fund**[27]

A local fund supporting projects in the Middle Atlas region, promoting nature-based solutions, water-efficient crops, and the restoration of areas like the Atlas Reserve Biosphere to improve soil health and water retention.

Financing Sources

- National Budget:

The Moroccan government allocates significant funds for water sector investments.

[26] https://www.greenclimate.fund/ae/ada-morocco
[27] https://lpm.org.ma/freshwater/le-fonds-de-leau-du-sebou/

- International Financial Institutions:

Agencies such as the World Bank, European Bank for Reconstruction and Development (EBRD), Green Climate Fund, and the International Fund for Agriculture Development (IFAD) provide financing for specific projects and programs.

7.6.2 Public Sector Policy Recommendations

Shift from Supply-Driven to Demand-Driven Water Management

- Transition away from intensive irrigation practices toward water-demand management.
- Prioritize equitable access and conservation over expansion of water-intensive crops.

Reform Agricultural Subsidies

- Redirect subsidies from export-oriented irrigated crops to support rainfed agriculture and agroecological practices.
- Encourage crop diversification to reduce pressure on aquifers.

Invest in Climate-Resilient Infrastructure

- Expand climate-adaptive irrigation systems and soil conservation technologies.
- IMF models show such investments could reduce drought-related GDP losses by up to 60%.

Strengthen Water Governance

- Establish transparent, decentralized water governance frameworks.
- Empower local water user associations and municipalities to manage resources sustainably.

Integrate Water Scarcity into Sectoral Planning

- Make water availability a central criterion in urban planning, agriculture, and industrial development.
- Require water impact assessments for major projects.

7.6.3 Private Sector Policy Recommendations

Morocco leverages a variety of private and blended finance mechanisms for sustainable soil and land management, including blended finance funds like the Mirova Sustainable Land Fund which combine public and private capital, direct private investment stimulated by the Green Morocco Plan, and innovative bank-led initiatives such as the CAM's "Green Card" that channel client commissions into forestry projects. These efforts are supported by a strengthened institutional framework and public-private partnerships to enhance investment in land degradation reversal and other sustainable practices.

Key Mechanisms

- **Blended Finance**

Funds like Mirova Sustainable Land Fund 2[28] employ blended finance structures, combining public and private capital to mitigate risks and attract private investment into sustainable land management (SLM) projects. MSLF2 supports reversing land degradation by investing in agroforestry, regenerative agriculture, and sustainable forestry. These approaches will enhance soil health, increase biodiversity, and improve carbon sequestration, making agriculture and forestry more resilient to climate variability and extreme weather events.

- **Private Investment via National Plans:**

Morocco's Green Morocco Plan (launched in 2008) and its successor Generation Green (2020-2030) have focused on modernizing the agricultural sector and creating a favorable environment to attract both domestic and foreign private investors, triggering significant investment in projects and public-private aggregations.

- **Bank-Led Initiatives**

CDG Capital[29] has partnered with the Green Climate Fund to enhance investment in climate action. Additionally, the Attijariwafa Bank's [30] "Green Card" program allows a portion of bank card commissions to fund sustainable forestry projects, mobilizing private capital for conservation efforts.

- **Green Financing Instruments**

As the concept of green finance grows, instruments such as green loans, green bonds, and sustainable investment funds are being used to align financial activities with environmental and social criteria.

- **Public-Private Partnerships (PPPs)**

These partnerships, exemplified by cooperation between banks, public agencies, and agricultural actors, are crucial for organizing sustainable activities and facilitating access to formal financing for smallholders.

Supporting Framework

- **Institutional Reforms**

Morocco has improved its investment environment through modernizing institutional, legislative, and regulatory systems to make the agricultural and land management sectors more attractive to investors.

- **Foster Capacity Building** & **Knowledge Sharing**
    - Build platforms for collaboration between research institutions, agribusinesses, and local farmers.

[28] https://www.greenclimate.fund/project/fp263#:~:text=The%20Mirova%20Sustainable%20Land%20Fund,is%20disabled%20in%20your%20browser.
[29] https://www.greenclimate.fund/ae/cdg-capital
[30] https://www.attijariwafabank.com/en

- Promote training programs on sustainable practices and climate adaptation.
- Initiatives often include technical assistance and support for small- and medium-sized enterprises (SMEs) to enhance their investment readiness and operational capacity, enabling them to effectively participate in sustainable projects.

- **Incentivize Green Investment**
  - Offer tax breaks, low-interest loans, and public-private partnerships for companies investing in water-saving technologies or land restoration.
  - Create green bonds focused on sustainable agriculture and water infrastructure.
- **Promote Corporate Water Stewardship**
  - Encourage industries to adopt water efficiency standards and report usage transparently.
  - Recognize and reward businesses that meet sustainability benchmarks.
- **Support Innovation and Start-ups**
  - Fund incubators focused on smart irrigation, soil health monitoring, and drought-resilient crops.
  - Facilitate access to venture capital for climate-tech solutions tailored to Moroccan ecosystems.
- **Enable Land Tenure Security**
  - Clarify and protect land rights to encourage long-term private investment in land rehabilitation and sustainable farming.

7.7 Spain

7.7.1 Strategic Rural Development Program - subsidies relevant to chipped pruned branches in Spain with special reference to the País Valencià region.

Introduction

Spain's CAP Strategic Plan 2023–2027 is developing a new strategy to promote the use of chipped pruned branches as a mulch. This is having two main strategies: i) to subsidies the land that use chipped pruned branches (per ha) and to subsidies the machinery to chop the branches. There are other subsidies such as the municipality subsidies, but they use to apply only in same municipalities and this is related to the prevention of the forest fires, and not to recover the soil fertility and biota.

The use of chipped pruned branches was initiated in the 80s by independent groups of organic farmers. These farmers were the pioneers of organic farming and went against the trend of using and abusing pesticides and herbicides. The organic farming trend growth in the 90' with the official establishment of the organic agriculture in Europe and then the expansion in Spain as an agriculture producer in Europe. The

rules were created and managed from the European Union headquarters, and they were funded with subsidies later[31]. The chipped pruned branches were applied only in organic farms until the 2000s. It was a definitive jump to the chemical farming due to the lower costs of the machinery mainly in large farms. The prosecution of the use of fire by the administration, and the subsidies by the European Union contributed to the initial change from fire to chopping. However, in 2020, less than 30 % of the agriculture land applied the use of chipped pruned branches but in the last 5 years, the subsidies of the European Union contributed to the expansion of the chipped pruned branches strategy due to the benefits to the soil restoration. Right now, at the study area of the REACT4MED project, the Canyoles river watershed, 67 % of the land apply this strategy that is very positive to restore the soil biota, reduce pesticide application and the cost of labour. This increase is partially done by the impact of the REACT4MED project exchange with the farmers in citrus plantations where the biomass generated is very high. However, also other factors contributed to the shift into an increase in the use of tractors to chop the branches instead to collect them and burnt. The causes are the lower labour cost of the chopping, intensification of the prosecution of the use of fire, subsidies to the farm per ha, and farmer's awareness of the need to protect the soil and restore the structure and organic matter. There are still some negative views of the chipped pruned branches as they are being seeing as dirt. The perception of the farmer is not the best for the chipped pruned branches strategy since his reputation is damaged as many farmers consider dirt the cover of mulch or litter coming from the chipped pruned branches. However, the transition from the use of fire to the use of chipped pruned branches is going in the right direction and the policies that contribute with subsidies is relevant to initiate and consolidate the change. The main constrains today is the small size of some farms that avoid the use of large tractors. There is another constrain which is the perception of farmers as dirt, and this results in the removal of the chipped branches after being chopped. This is why the new subsidies request that at least 40 % of the soil will be covered with the mulch of chipped pruned branches.

7.7.2 Local and regional funding to reduce the risk of forest fires (promote chipped pruned branches)

Along the last five years we found that there is a campaign to use pruned branches by the municipalities and the regional government to avoid forest fires coming from agriculture fires, which are relevant in the cause of forest fires in Spain. Pruned branches cannot be burnt during summer and dry periods of the year. In fact, there is a ban to burnt branches in the interface between forest and agriculture land by the regional government. This is why many municipalities chopped the branches in the farm with no cost, or they gave subsidies to the farmers. The municipalities near forest land reacted to this with free of payment services of chopping branches and claim to the Valencia government a payment for this service. As an example, the Bicorp municipality received 40204 € along the year 2024 with 136.5 km² and 554 inhabitants[32] and San Miguel de las Salinas delivered 1227.38 € for a municipality surface of 54.90 km² and 6976 inhabitants in 2024. Every municipality subsidence the farmer with similar amount of funding, but usually the funding can

[31] https://www.boe.es/buscar/act.php?id=BOE-A-1993-28231
[32] https://www.bicorp.es/noticia/servicio-gratuito-triturado-restos-agricolas-2024

no cover all the farmers. As an example, in San Miguel de las Salinas there is a payment of 22 € per Km2, and in Bicorp 3 € per ha. In forest land, the government of Valencia contribute with subsidies from 1000 and 4000 € per ha to chop all the pruning of trees in forest land[33], which inform us that the subsidies to chop the branches is very low. The ban of the use of forest fire is the main driver to move to chop the branches in many municipalities. This is seen by many farmers. This is seen by many farmers as an imposition rather than a choice.

Funding machinery to chop branches

The use of machinery to chop branches was the main constrain. The farmers use to collect the branches and burnt. The machinery (tool) used for this cost was below 1000 € but the new machinery to chop the branches cost 6000 € and request to have a powerful tractor (300000 €). The constrain of the machinery was solved with subsidies. The last call for subsidies delivered 549.280,93 € (2024) for 213 machines. The ***Ministerio de Agricultura, Pesca y Alimentación*** contributed with subsidies to improve the use of new machinery. This is a general trend to make more production the farms[34].

7.7.3 The Spain's CAP Strategic Plan 2023–2027

The main source of funding to use chipped pruned branches is coming from Europe (CAP). See here the documents and details[35].

Royal Decree 1048/2022, of 27 December, on the application, as of 2023, of interventions in the form of direct payments and the establishment of common requirements within the framework of the Strategic Plan of the Common Agricultural Policy, and the regulation of the single application for the integrated administration and control system.

See here a detailed funding for machinery:

Article 43. Description of the practice of inert covers of pruning remains.

1. In order to comply with the practice of inert covers of pruning remains, the farmer must comply with the following commitments:

a) Crush the pruning remains and deposit them on the ground, thus establishing an inert cover of pruning remains as a "mulching", on the ground. To verify this requirement, the farmer must record in the farm logbook or, in the digital farm logbook, in accordance with the entry into force of the latter, the date of establishment of the inert cover from the crushing of the pruning remains on the ground, this date not being later than March 1 of the year in question. This entry must be made in the month following that date.

b) Deposit on the ground a quantity of pruning residues occupying a minimum area, in each lane of 40% of the free width of the crown projection, as defined in Article 3.33), and which is sufficient to allow the

[33] https://dogv.gva.es/es/resultat-dogv?signatura=2025/3931
[34] https://www.mapa.gob.es/es/prensa/ultimas-noticias/detalle_noticias/mas-de-1.200-agricultores-y-ganaderos-se-beneficiaran-del-plan-renove-2024-para-la-renovacion-de-maquinaria-agricola/a4d86822-659d-4b26-9561-4d0924dd5d2a
[35] https://www.boe.es/buscar/doc.php?id=BOE-A-2022-23048

environmental benefits of the practice to be achieved, this width may not be less than 0.5 metres. To verify this requirement, the farmer must record in the farm notebook or in the digital farm notebook, in accordance with the entry into force of the latter, the width of the cover and the free width of the crown projection. This entry must be made no later than within the month prior to the end date of the period for modifying the single application.

c) Phytosanitary treatments will not be allowed on the area occupied by the inert cover of pruning remains.

d) Exceptionally, shallow surface maintenance work on the roofs that does not involve, in any case, the modification of the soil structure, or the disappearance of the roof at any time of the year, or that prevent the environmental benefits of the same from being achieved. It will be the autonomous communities, by virtue of the agronomic characteristics of the area, that may allow and define such maintenance work. The Autonomous Communities shall send the Ministry of Agriculture, Fisheries and Food such information on the maintenance work permitted on the roofs based on Annex II, on communications, of Royal Decree 1047/2022, of 27 December.

2. This practice shall not be carried out when the beneficiary identifies pest problems on woody crops, for which the distribution of pruning remains infected by them in the field could lead to their spread. In those cases in which the competent authority has authorised a phytosanitary treatment on the crop due to the detection of a pest of this type, the beneficiary may not carry out this practice if, once the treatment has been applied, pest problems continue to be identified on woody crops.

3. Once the commitment has been made by the farmer, if the competent authority for plant health declares the existence of a pest on the pruning remains, the management of said remains shall be carried out in accordance with the existing regulations or recommendations for each type of pest present. Thus, the following exceptional situations will be contemplated, without prejudice to the farmer continuing to be a beneficiary of the aid, in those cases in which the competent authority so specifies:

a) The application of phytosanitary products on the inert cover of pruning remains will be allowed.

b) The removal of pruning remains will be allowed.

c) The burial of pruning remains will be allowed after treatment. The Autonomous Communities shall submit this information to the Ministry of Agriculture, Fisheries and Food on the basis of Annex II, relating to communications, of Royal Decree 1047/2022, of 27 December.

In Spain, the Spain's CAP Strategic Plan 2023–2027 is the main source of funding to promote the use of chipped pruned branches. The municipalities also contribute to chop the branches with funding to avoid the use of fire as a tool to remove the branches and then avoid the risk of forest fires. There is another indirect source of funding to promote the use of chipped pruned branches: the funding to stablish new young farmers. An example of the low funding is the municipality of Altea (34.43 Km2; 21739 inhabitants), that invested 1000€ to promote the use of chipped pruned branches.

A range of aid for young people to establish themselves as farmers was developed in the Region of Valencia and among the requirements[36] is that 25 percent of the cultivated area has to have the remains of pruning crushed. This call from last June 30th, 2025, will promote the use of chipped pruned branches within the new farmers with an investment of 23.000.000 €. This example shows an indirect policy to increase the use of chipped pruned branches.

The payment of the CAP reaches 270 € $ha^{-1.}$ And 23%, about 60 or 65 euros, will depend on the applicant committing to comply with one of these two things (eco-regimes): crushing pruning remains or maintaining spontaneous vegetation cover between the trees at least between October and February. It is not a question of complying with both, nor one or the other, but of choosing one of the two and complying with it to the letter, because it will be inspected and there will be possible sanctions for non-compliant.

The CAP strategy in based in different Eco-schemes, one of the new elements of the Common Agricultural Policy (CAP) 2023-2027, support farmers in adopting practices that minimize the negative impact of agriculture on the environment and climate and help them evolve toward more sustainable agricultural models. For the chipped pruned branches, the following is compulsory: the pruning remains will have to be crushed and deposited on the ground (mulching). The inert cover must also have a minimum surface area of at least 40% of the free width of the canopy projection. Phytosanitary products or herbicides may not be used for the cover (there are exceptions). For both practices it is very important to consider the slope of the plot, as it will be the most conditioning factor to charge one amount or another per hectare for these eco-regimes. The payments will be 61.07 € ha-1 on slopes lower than 5 %, 113.95 € ha-1 for 5 to 10 % and 166.17 € ha-1 for slopes higher than 10% or with terraces. All those apply if the property is above 15 ha.

Summary

Most of the subsidies to apply the chipped pruned branches strategies in agriculture land are coming from the CAP funding. The amount of payment depends on the slope of the plantation, so, if it is flat land, the aid is **61.07 € ha-1** and **113.95 € ha-1** in medium-slope (5-10%) and **165.17 € ha-1** for steep slope land (more than 10%) and terraces. Other subsidies are coming from an indirect funding by the municipalities to reduce the use of fire as a tool and then the risk of forest fires. Another source of subsidies is coming from the regional government to promote young farmers, and it make compulsory to apply the chipped pruned branches strategy to 25 % of the land.

[36] https://dogv.gva.es/es/resultat-dogv?signatura=2025/25101

7.8 Türkiye

7.8.1 Rural Development Investments Support Programme (KKYDP) – subsidies for irrigation and drainage infrastructure

Turkey's Ministry of Agriculture and Forestry implements the Rural Development Investments Support Programme (Kırsal Kalkınma Yatırımlarının Desteklenmesi Programı – KKYDP). Within the framework of the 16th Stage KKYDP Communiqué (No: 2024/43, Official Gazette, 20 February 2025), grant support is provided for farm and rural infrastructure projects, including irrigation and land improvement works. Subsurface drainage systems fall under the category of "land improvement / on-farm infrastructure" and are eligible for support subject to technical approval[37,38].

- Grant rate: 50% of eligible expenditure (co-financing required).
- Eligible works: subsurface drainage pipes, collector systems, land levelling, on-farm distribution channels and related civil works.
- Target group: individual farmers, cooperatives, and producer organisations.
- Implementation: applications managed by Provincial Directorates; beneficiaries must maintain investments for at least five years after completion.

By covering half of investment costs, KKYDP lowers entry barriers for small and medium-sized farms and accelerates adoption of subsurface drainage in irrigated plains such as Menemen[37,38].

7.8.2 Private Financing Mechanisms for SLWM – Agricultural Investment Loans by Ziraat Bank

Ziraat Bank, Turkey's largest agricultural lender, offers **subsidised credit lines** for on-farm infrastructure including irrigation and drainage. These loans are governed by the Presidential Decree on subsidised agricultural loans (Official Gazette, 30 December 2023, No. 8038)[39]. In 2025 communications it is stated that, on average, about 70% of interest costs on subsidised agricultural loans are covered by the government, materially lowering effective borrowing rates [40].

- Coverage: loans may finance up to 75% of the investment amount (project-dependent).
- Terms: repayment periods of 5–7 years, with possible 1–2 year grace periods.
- Eligibility: Farmer Registration System (ÇKS) registration and project approval required.

[37] Ministry of Agriculture and Forestry – KKYDP main portal.
[38] Zonguldak Provincial Directorate announcement of Communiqué No: 2024/43 (Official Gazette, 20 Feb 2025).
[39] Presidential Decree No. 8038 on subsidised agricultural loans (Official Gazette, 30 Dec 2023).
[40] Presidential Communication on subsidised agricultural credit (statement indicating ~70% of interest borne by government, 2025).

- Resilience features: restructuring/rescheduling options exist for producers affected by disasters or income shocks, helping align repayments with crop cash-flows[41].

Blending KKYDP grants (50%) with subsidised Ziraat credit enables small and medium farms in Menemen to implement costly subsurface drainage with limited upfront capital and manageable repayments[39,40,41].

[41] Ziraat Bank – Agricultural Credit Restructuring Schemes page.

8 Policy Recommendations and Market Reforms

8.1 Policy Recommendations for Promoting Private Sector Investment in SLWM

Based on the analysis of pilot sites and global success stories, the following policy recommendations are suggested:

1. **Establish Robust Legal Frameworks for PPPs**: To attract private investment in SLWM restoration projects, it is crucial to develop clear legal and regulatory guidelines. These frameworks should address property rights, environmental standards, and the terms of long-term contracts. Hodge and Greve (2007) emphasize the importance of regulatory clarity for the success of PPPs globally, while Van den Hurk and Verhoest (2015) highlight its relevance in developing countries.

2. **Promote Integration with Carbon Markets**: Carbon markets can provide financial incentives by allowing SLWM projects - such as reforestation or wetland restoration - to generate carbon credits, which can be traded for profit. Streck (2004) outlines how carbon credits can support restoration efforts, and Blignaut et al. (2007) explore their application in South Africa for ecosystem rehabilitation.

3. **Prioritize Payment for Ecosystem Services**: Governments should prioritize implementing PES schemes, rewarding landowners for maintaining ecosystem services. Such programs are especially important in water-scarce regions, where upstream conservation efforts benefit downstream areas. Wunder (2005) details the global success of PES models in promoting environmental sustainability.

4. **Enhance Fiscal Incentives**: Offering tax breaks, subsidies, and low-interest loans to businesses investing in SLWM technologies can spur private sector engagement. This is particularly relevant for the adoption of water-efficient systems and sustainable farming practices in water-stressed areas. Scherr et al. (2004) and Börner et al. (2014) discuss how fiscal incentives can stimulate private investment in conservation technologies.

5. **De-risking mechanisms to enhance investment in SLWM restoration projects:**

    a) **Guarantees:** Guarantees can encourage private sector participation by mitigating risks they would typically avoid. Although guarantees alone may not substantially accelerate growth in the SLWM sector, when combined with other financial instruments, they can attract additional funding sources by providing a safety net for investors.

    b) **Securitisation:** Securitisation allows banks and capital providers to access secondary markets, enabling them to reinvest capital. Developing a securitisation model for small-scale natural assets can significantly reduce financing costs and unlock additional funding for SLWM projects. This process involves bundling assets with similar characteristics and transferring them to a separate entity, typically a special purpose vehicle (SPV), to shield them from external creditor claims.

c) **Risk Hedging through Insurance:** Insurance can serve as a risk-hedging tool, aligning with broader risk management strategies. By offering insurance solutions tailored to SLWM projects, potential risks in these initiatives can be mitigated, creating opportunities for more investment in Mediterranean SLWM projects.

d) **Contingent Loans and Equity-like Debt:** These instruments share the financial risk associated with project success and revenue generation. They provide an alternative to traditional equity structures, particularly for projects that lack liquidity, such as cooperatives. While these instruments can lead to higher interest rates due to the associated risks, blending them with other financial tools can help reduce costs.

6. **Encourage Cross-Border Collaboration**: In shared river basins, policies should facilitate transboundary cooperation for effective water management and restoration efforts. Harmonized policy frameworks and shared monitoring can increase restoration success. Conca (2006) and Zeitoun and Allan (2008) discuss the benefits of cross-border water cooperation.

7. **Invest in Capacity Building**: Strengthening the capacity of local communities and governments is essential for the successful implementation of SLWM projects. This includes technical training in sustainable farming, water management, and governance, as well as developing financial skills to manage public-private partnerships. Addressing the lack of financial expertise at the project level is essential, as it remains a significant barrier. Pretty and Ward (2001) and Engle and Lemos (2010) highlight the critical role of capacity building in successful SLWM initiatives.

8. **Create Regional Green Investment Platforms**: Establishing regional platforms that pool funding from various countries can mobilize resources for large-scale SLWM projects. Such platforms would be particularly useful in the Mediterranean, combining international and private sector investments. Chiabai et al. (2011) underscore the importance of green financing for ecosystem restoration.

8.2 Market Reforms for Promoting Private Sector Investment in SLWM

This section examines how market reforms can be introduced to encourage private sector investment in SLWM projects, fostering the creation of self-sustaining markets over time. Private sector involvement can generally be incentivized through two main approaches, often described as the "carrot and stick" strategy (EIB, 2023):

- **Carrot (financial incentives):** Providing financial rewards for private entities that invest in SLWM solutions.
- **Stick (financial penalties):** Imposing costs on entities responsible for environmental degradation that SLWM solutions aim to address.

Reward-based incentives (carrot): Reward structures offer financial compensation to private actors for achieving outcomes desired by governments from SLWM projects. Under this model, entities would be paid for delivering specific environmental results. This approach helps overcome the “public goods” issue, where private investors often cannot capture sufficient benefits from their contributions to SLWM. In such schemes, the target groups could include those directly causing environmental harm, like farmers who pollute water bodies, or other entities that can contribute to SLWM without being directly responsible for the degradation. One well-established reward mechanism is as previously mentioned PES, which compensates landowners for providing important environmental services. A prime example is the EU’s Agri-Environment-Climate Measures (AECMs) under the CAP, which funds SLWM practices on private agricultural lands. The advantages of reward-based schemes include their voluntary nature, making them less coercive and politically palatable, as they don’t directly restrict economic activities, avoiding clear ‘losers’. However, they do divert scarce public funds and may not always spur additional private investment. In cases where incentives cover the full project cost, private capital may not be utilized. Co-funding schemes, where public and private benefits overlap, could help bridge this gap, encouraging both private and public investment.

Punitive incentives (stick): Punishment-focused incentive structures penalize those responsible for environmental degradation, requiring them to bear the costs of restoration or prevention. This includes regulatory controls that mandate specific environmental outcomes. While these controls may not technically qualify as incentives, they effectively force private entities to comply with environmental goals by restricting certain harmful activities. Regulatory interventions, though often overlooked as a method to drive private sector investment, can be highly effective. They ensure compliance and limit harmful activities, but not all regulations promote private investment in SLWM. For example, the EU Water Framework Directive has led to significant public investment in water quality improvements, but its impact on private investment is less clear (EIB, 2023). Another example of a punitive mechanism is the Natura 2000 initiative, which restricts certain land-use activities to protect biodiversity.

Effective regulatory frameworks must be designed to target private entities, motivating them to engage in SLWM projects. Combining both carrot and stick approaches can strike a balance, ensuring that private sector participation is both encouraged and enforced where necessary.

9 Conclusion

Sustainable land and water management in the Mediterranean offers a promising pathway to restore ecosystems while enhancing local livelihoods. The evidence from global success stories, regional pilot cases, and national programs demonstrates that restoring degraded ecosystems can generate multiple co-benefits: safeguarding water resources, reducing soil erosion, enhancing carbon sequestration, diversifying rural incomes, and improving food security. Yet, despite this strong rationale, the financing gap remains significant, and public resources alone are insufficient to meet the scale of the challenge.

This report highlights several interconnected priorities for bridging this gap. First, creating enabling conditions for private sector engagement is essential. The perception of high risks, long investment horizons, and the undervaluation of ecosystem services continue to discourage private actors. To address this, governments must establish robust legal frameworks, transparent regulatory environments, and innovative risk-sharing mechanisms that reduce uncertainty for investors. Second, economic instruments such as PES, green bonds, concessional loans, and carbon credit schemes can internalize the value of ecosystem services and generate tangible financial returns. Linking Mediterranean SLWM projects to carbon markets and biodiversity credits has strong potential to mobilize blended finance and attract institutional investors seeking ESG-aligned opportunities. Third, PPPs emerge as a powerful vehicle for scaling up restoration. By pooling capital, sharing risks, and leveraging complementary strengths, PPPs can make large-scale projects viable. Examples from Tunisia, Morocco, Spain, Turkey and Cyprus show that when public funding is combined with community contributions and private investment, restoration becomes more sustainable and impactful. Fourth, capacity building and knowledge transfer remain critical. Many communities, especially smallholder farmers, face barriers in terms of technical expertise, financial literacy, and access to modern water-saving technologies. Without targeted support, the uptake and long-term success of restoration initiatives will remain limited. Strengthening advisory services, supporting cooperatives, and fostering local ownership are essential to ensure that investments deliver inclusive benefits and do not marginalize vulnerable groups. Fifth, policy coherence and alignment across sectors and governance levels are crucial. Fragmentation between agricultural, water, and environmental policies undermines investor confidence and project effectiveness. Coordinated strategies - such as aligning CAP instruments with water and biodiversity directives - can help scale restoration outcomes across transboundary basins and diverse national contexts. Finally, experiences from both global and Mediterranean cases underscore the importance of linking restoration to income-generating activities. Whether through eco-tourism in Greece and Morocco, high-value agroforestry in Spain and Portugal, carbon farming across the EU or innovative water-tech sectors as in Israel, restoration efforts are most sustainable when ecological benefits are matched by economic opportunities for local communities.

In conclusion, scaling up SLWM in the Mediterranean requires a comprehensive approach that combines innovative finance, supportive policies, inclusive governance, and practical capacity-building measures.

The region's diversity, from Cyprus's small-scale terraces to Egypt's large-scale drainage systems, from Greece's reforestation initiatives to Israel's water technology ecosystem, and from Morocco's oasis

restoration to Turkey's irrigated agriculture, demonstrates that tailored, context-specific solutions blended with transnational financing mechanisms can unlock significant restoration potential. By leveraging blended finance, fostering cross-border cooperation, and embedding restoration within broader rural development strategies, the region can transform current challenges into opportunities for climate resilience, food security, and sustainable growth.

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