

#TA2030 PILOT ACTION

Climate Change
Adaptation and
Resilience through
Landscape Transition

FINAL
REPORT
2023



Pilot Action FINAL REPORT October 2023

PORTUGAL

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1. Introduction

On December 1st, 2020, the Informal Meeting of EU Ministers responsible for spatial planning, territorial development, and/or territorial cohesion was held in Germany. The ministers agreed upon and established the **Territorial Agenda 2030 of the European Union**, which laid out its implementation through **dedicated actions across Europe inspired by pilot actions** that may demonstrate, test and develop practices which contribute to achieving the Territorial Agenda 2030 priorities.

The **Pilot Action ‘Climate change adaptation and resilience through landscape transition’** was set up in the first half of 2021, during the Portuguese Presidency of the Council of the European Union, focusing on climate change adaptation and building environmental, social, and economic resilience through spatial planning. Linking **Green and Just Transition objectives**, in line with the European Green Deal, as well as related EU sector policies and the Long-term vision for rural areas, this pilot was conducted in the wake of the Territorial Agenda 2030, emphasizing the need to **increase the resilience of all places impacted by climate change** and to **build upon the particularities and potential of each territory and landscape**.

The **final report of the pilot action** has been developed by the **Portuguese and Croatian partners**, in a participatory process that involved a peer review undertaken by the Network of Territorial Cohesion Contact Points (NTCCP) and ESPON. Bringing together learning, best practice and policy recommendations, the report frames a side-by-side view of the vulnerability assessment, risk management, and territorial resilience strategies carried out in the adaptation to the various effects of climate change in these two countries, **underlining the importance of place-based policies to territorial cohesion**.

In effect, both strategies combine a **concern with providing solutions for the short-term needs of the population with a consideration for the longer-term horizon implemented into the policy vision**. A balance between both time frames is essential to ensure a successful and sustainable implementation of adaptation efforts across the local economy.

The two strategies concern **regions where the fate of people and territories are strongly intertwined in the effort for climate change adaptation**. Thus, intersectoral approaches are necessary for a successful implementation of an overarching climate change adaptation framework that cuts across all levels of development policy. These approaches should be capable of integrating all levels of government and all actors of the appropriate networks of governance.

Climate change impacts and the necessary adaptation measures are, in fact, context-specific and **require customized responses at all levels of governance**. Through a multi-level governance approach, the methodologies that underpin this pilot action ensure that cooperation and coordination among stakeholders and sectors are maintained, and that diverse governance levels are engaged. This approach emphasizes the need for horizontal and vertical coordination, evidence-driven policymaking and the integration of territorial development to achieve successful outcomes.





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1.1. Rationale of the Pilot Action and link to the Territorial Agenda 2030

The **Territorial Agenda 2030** of the European Union highlights the importance of orientations for **strategic spatial planning** while calling for the **strengthening of the territorial dimension of sectoral policies across all governance levels**.

The Pilot Action focuses on integrating climate change adaptation and environmental, social, and economic resilience into spatial planning, to decrease the risk and the effects of natural hazards and mixed/environmental hazards. This involves integrating climate change adaptation and territorial resilience measures, providing funding for ecosystem services, promoting sustainable value chains and developing innovative governance approaches for planning systems into the relevant policy as well as into stakeholder engagement.

In Portugal, both the National Spatial Planning Policy Programme (PNPOT), approved in 2019, and the Landscape Transition Programme (PTP), approved in 2020, are aligned with the orientations of the Territorial Agenda 2030, stressing the relevance of well-functioning and resilient ecosystems to address climate change adaptation and to effectively promote territorial cohesion.

The Pilot Action ‘Climate change adaptation and resilience through landscape transition’ also marks the early Portuguese adoption and implementation of a set of national priorities that would come to be clearly systematized on a European level by the Territorial Agenda. Through an experimental and integrated spatial planning approach to a vulnerable rural area and through a long-term commitment across all levels and sectors of governance, it aimed at increasing the synergy and complementarity between the EU and national funding mechanisms.

The implementation of the Landscape Planning and Management Programme (PRGP) for the Serras of Monchique and Silves, in the southern Portuguese region of Algarve is one of the case studies that inspires this pilot action. The implementation process of this programme is itself a pilot project from which lessons will be taken for 20 Landscape Planning and Management Programmes for vulnerable areas until 2025. The pilot action also integrates the results within the framework of the ESPON project ‘Territorial Impacts of Natural Disasters’ (TITAN-SOPOORT).

In Croatia, the case study is related to ‘Control of floods and management of floodplain ecosystem’. The pilot action provides a good example of implementation of nature-based solutions for the extreme events caused by climate change in protected areas, namely in the Central Sava Basin (CSB), with its natural wetlands and floodplains, that combines natural values with the function of storage of floodwaters of the Sava River. One of the most important areas along the Sava River is the protected area of the Lonjsko Polje Natural Park.

On one hand, this pilot action focuses on building resilience to the risk and the effects of natural hazards and mixed/environmental hazards by integrating climate change adaptation and **territorial, environmental, social, and economic dimensions into the strategic programmes**. It also incorporates the importance of funding opportunities for a land use and management transition that **boosts the valuation of ecosystem services, promotes**





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sustainable value chains, and develops an innovative governance approach to the planning systems that engages the relevant policy decision makers and stakeholders.

This pilot action seeks to critically strengthen the interaction between spatial planning and other relevant sectoral policies, e.g., environmental, agricultural and forestry, through an integrated and holistic landscape perspective. Through this perspective, landscapes are the complex result of human interaction with natural systems and resources and a crucial starting point from which to begin the promotion of territorial cohesion through an innovative and social culture. A culture with means and fresh ways of ensuring that territorial organizations can act with resilience and efficiency to address persistent challenges, namely, that crucial agents allocate public funding into sectoral policies as they promote territorial resilience and develop a sense of active stakeholder participation in the process of performing a real landscape transformation.

With the aim of exploring innovative solutions and initiatives, the starting point of this pilot action is the implementation process of the Portuguese Landscape Planning and Management Programme of the Serras of Monchique and Silves case study as, in recent years, Portugal suffered major rural fires that severely affected rural areas already subjected to socio-demographic and economic decline processes.

As a political response, the country adopted policy measures aiming to ‘value’ the territory through landscape transition and territorial revitalization of vulnerable rural areas. The main challenge is on how to implement a Programme and design the implementation processes that bring a “new rural economy” to these territories, based on the relation between protected and productive forest areas, agriculture, tourism, urban-rural relations, and payments for ecosystem services. These policy measures were developed and are being implemented within the legal framework of the National Spatial Planning Policy Programme (PNPOT), approved in 2019, alongside the Landscape Transformation Programme (PTP), approved in 2020.

The pilot action ‘Climate change adaptation and resilience through landscape transition’ aims to develop experimental, integrated approaches for vulnerable rural areas, building a long-term commitment across all levels and sectors of governance, while creating better synergies and levels of complementarity between EU and national funding mechanisms.

Aiming to be an experiment towards a new approach to landscape transition and a guiding programme for public and private policies in the creation of landscapes that are more resilient, this Pilot Action links to the EU initiative Long-Term Vision for Rural Areas and the Territorial Agenda 2030 priorities, namely, the objectives to develop a ‘Just Europe’ and a ‘Healthy Environment’ in a more ‘Green Europe’. This approach guided a policy programme that has a deeper embeddedness in rural areas’ territorial dynamics and an emphasis on forestland transformations, which take several years or even decades and, as such, demand long term planning.

Moreover, the Territorial Agenda 2030 reports mainly on the importance of well-functioning and resilient ecosystems for the mitigation of the impact of climate change and the essential role of integrated management and cooperation beyond administrative boundaries.





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1.2. Activities developed

The pilot action ‘Climate change adaptation and resilience through landscape transition’ seeks to strengthen the interaction between spatial planning and other relevant sectoral policies, e.g. environment, agricultural and forestry, through an integrated and holistic landscape perspective.

Addressing the allocation of public funding for sectoral policies and how they promote territorial resilience, it crucially developed a sense of active stakeholder participation in the process, as they are the real ‘landscape transformation agents’.

Therefore, activities mainly focused on the need to consider the resilience of rural areas and long-term commitment of the local actors involved various outputs such as collecting and sharing information from existing ESPON and INTERREG projects, e.g. conferences, workshops, meetings, visits, communication and dissemination activities related to the implementation process.

During 2022:

- Opening calls for the funding of priority actions of the Landscape Planning and Management Programme (PRGP) of the Serras of Monchique and Silves;
- Public discussion sessions and their conclusion for 3 PRGP;
- Kick off processes for another 5 PRGP;
- Draft Report of the Pilot Action ‘Climate change adaptation and resilience through landscape transition’.

During 2023:

- Kick-off processes for another 6 PRGP;
- Joint Croatian study conclusions to the Pilot Action, incorporating sea level rising as an effect of climate changes;
- Organization of a Critical Friend Visit to Monchique and Silves (Algarve) on the 21st and 22nd of September 2023 for a peer review of the final draft of the Final Report on the ‘Climate change adaptation and resilience through landscape transition’ Pilot;
- Presentation of the final report during the second semester of the Presidency of the Council of the European Union.

How a TA2030 Pilot Action results on the ground was a priority. To that end, a **self-assessment exercise was conducted, concerning the process of landscape transition towards increased territorial resilience to climate change and the adaptation of rural and coastal areas to its foreseeable effects.** Structuring and reflecting upon the results achieved so far, in view of its peer review by partners and the ensuing publication and discussion raised the following questions:

- Was it successful and, if so, why?
- What can be done better?
- What should have been done differently?

The ‘Critical Friend Visit to Monchique and Silves’ (Algarve) on the 21st and 22nd of September 2023 was a fundamental step towards strengthening the final report of the ‘Climate





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change adaptation and resilience through landscape transition' Pilot, as the peer review generated valuable feedback and recommendations from members of ESPON and the Network of Territorial Cohesion Contact Points.

1.2.1. The importance of the Critical Friend Visit to Monchique and Silves (Algarve/Portugal)

The Portuguese Directorate-General for Territory (DGT), in collaboration with the Institute for Nature Conservation and Forests (ICNF), the Regional Coordination and Development Commission (CCDR) of Algarve, and the Municipalities of Monchique and of Silves (CMM and CMS), hosted the members of the Network of Territorial Cohesion Contact Points (NTCCP) for the 'Critical Friend Visit' to Portugal on September 21st and 22nd, 2023.

This visit aimed to facilitate the exchange of valuable ideas, experiences, and expertise to strengthen the work presented and both countries' collective efforts towards achieving the objectives of the Territorial Agenda 2030. In conjunction with Croatian partners, the Institute of Physical Planning of Primorje and Gorski Kotar County, and the Croatian Institute for Spatial Development, the Final Draft Report of the joint Pilot Action 'Climate Change Adaptation and Resilience through Landscape Transition' was presented.

The participants embarked on a journey from the heart of Lisbon to the rugged landscapes of the Serras of Monchique and Silves where the importance of the design and implementation processes of the Portuguese Landscape Transition Programme (PTP) and its programmatic measures were emphasized. Special attention was given to the Landscape Planning and Management Programme (PRGP) of the Serras of Monchique and Silves, with a visit to the Parra National Forest, to highlight its significance in facilitating a sustainable adaptation to the recurring rural fires that pose a threat to this invaluable element of the natural heritage and the communities intertwined with its prosperity.



Another fundamental aspect of this landscape is the Iberian lynx, who is being brought back from extinction and reintroduced to the surrounding ecosystem thanks to the fundamental work of the National Centre for the Reproduction of the Iberian Lynx. A visit to the Centre highlighted the significance and importance of restoring natural species' habitats to new wildlife dynamics that (re)shape the landscape.





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Alongside these field visits, a session took place at Silves Educational Farm in which members of the municipalities of Silves and Monchique, the local Civil Protection, CCDR-Algarve and ICNF presented testimonies on the work that has been accomplished in the transition of this territory and the challenges that persist.



The field visits, testimonies and presentations on both case studies allowed for a greater context and understanding on the work that went into their development. The ‘Critical Friend Visit’ provided an opportunity to share this knowledge with members of the NTCCP and ESPON and to create an engaging environment for a peer review that would strengthen the final report of the Pilot Action. During the ‘Peer Review Workshop’, NTCCP members were asked to put forth some questions regarding both case studies.

The questions, comprising a wide range of items, evoked from both case studies and the field trip experience were grouped in four main topics transcribed below.

- I. What was the most time-consuming part in the implementation process of this pilot action process? Were there some significant obstacles, or critical lessons to implementing this landscape transition pilot action?
- II. Why were these two case studies relevant for the Pilot Action and TA2030 processes, namely to the coming PRGP that will be addressed soon and to the development of the sea level rising tool?
- III. How can objectivity be ensured while enabling a participatory public process? Do you have a target audience for your Pilot Action and do you want to offer “the reader”?
- IV. How do both cases want to move forward - locally/regionally (replication?), nationally (legal changes?) and on a European scale (ESPON target analysis, URBACT)? Any particular lessons for spatial planning? And are there any lessons that would make the implementation of the TA 2030 more helpful in the future?





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These set of questions were particularly useful in gaining a greater insight into certain key details, towards a better clarification of the obstacles and difficulties that were faced on the ground as a part of the pilot action.

Some main remarks that strength the Pilot Action link to the Territorial Agenda 2030:

The most time-consuming part of the Portuguese Pilot Action was overcoming obstacles related to communication and trust with local stakeholders, as previous spatial planning experiences at national and European scale faced difficulties due to a perception that their implementation process was protracted and handled distantly.

For example, hard lessons were learned during the capacity building of local institutions to work closer with their citizens and pool their efforts as they faced heavily bureaucratic processes (namely, municipalities and stakeholder associations).

Being aware in advance that the degree of implementation was the key success factor of the Pilot Action, the local actors' involvement turned out to be the most important challenge. It involved a complex calculation of the real average costs of the transition and maintenance actions, clearly indicating the local economic benefits of applying to the calls that, in an innovative way for spatial planning, are associated with the Landscape Transition Programme.

The Landscape Transition Programme is an instrument that itself embodies the TA 2030 objectives - it works toward a long-term vision for progressively green and just territories, while its three main goals consist of increasing their balance and resilience to fire, boosting new economies and improving ecosystem services.

The big challenge was to elect priority areas and actions, as well as identifying their cost so that they could be supported by funds. These will ensure a progressive and funded transition of the landscape that will have a meaningful impact on people's lives. The example of the options for oaks or eucalyptus is quite illustrative of the short- or long-term scenarios that are on the agenda during this co-creative process.

Another PRGP that will be addressed soon is the PRGP of the Serra of Caldeirão which, together with the Serra of Monchique, form the natural mountain borderline between Algarve and Alentejo and will function as the region's main green infrastructure.

As we have been in the Lynx Centre in Silves, it is timely to refer that the Serra of Malcata, an area which will the target of a PRGP, is close to Serra Gata, in the Spanish border, where the flagship measure of the process is the rehabilitation of wild rabbit habitats to create the conditions that will allow for a greater presence of lynxes. This transition seeks to develop a rural mosaic of shrubs, agriculture and pasturages.

Lastly, we have the example of the Serra of Lousã, where the big forestry companies have vast and continuous areas of eucalyptus and pines and where the transition must focus on the development of watercourse gallery banks, other deciduous forest species, agricultural and pasture areas.

Regarding the matter of 'Objectivity', it is the part of the process of the Strategy that ensures results. It searches for the 'how and where' of the strategy, alongside the steps of knowledge 'what will change', Operability, i.e., 'how much does it cost', Responsibility, i.e., 'who manages' and Transparency, i.e., 'to follow the change'. They are interactive and influence each other from the beginning of the landscape transition program as it was co-created with a participatory public process.

The target audience for our Pilot Action is as broad as possible, as we want to offer the reader an easy, clear, and result-oriented way of approaching the strategy.

Moving forward, 20 PRGP's will be held until 2025, providing local/regional replications of the methodology's focus on building resilience to fire, boosting new economies and improving ecosystem services tailored to each territory's natural and social





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characteristics. A strong lesson for spatial planning is that strategies, legal instruments and money are not enough to ensure the transition - now it is time to act! And this lesson must be heard on a European scale to make the implementation of the TA 2030 more helpful in the future.

It was particularly gratifying to recognize our concerns and expectations transmitted in an informal interview about our Pilot Action to the rapporteur of the Committee on Regional Development on the Draft Report to the European Parliament on the implementation of territorial development (CPR, Title III, Chapter II) and its application in the Territorial Agenda 2030 of the EU.

The report highlights that TA2030 is a real and proper instrument, serving as a basis for programming Member States' territorial strategies in a way that ensures the EU's cohesion and a greater decisiveness in the allocation and merging of funds with the focus on levels of governance close to the ground.

2. Climate Change Adaptation and Resilience through Landscape Transition Pilot Action

2.1. Timeline for the implementation of the pilot action

From 2021 to 2023.

2.2. An Ambitious Agenda

The ambitious vision for this pilot action seeks to combine and integrate the **Territorial Agenda 2030**, the **Long Term Vision for Rural Areas**, the **European Rural Pact**, the **National Spatial Planning Policy Programme (PNPOT)** and the [ESPON-TITAN project](#) (Territorial impacts of natural hazards) results. The policy paper '[Territorial evidence and policy advice for the prosperous future of rural areas](#)' was the joint Portuguese Presidency of the Council of the EU and ESPON contribution to the **Long-Term Vision for Rural Areas of the European Commission**.

In line with the principles and priorities of the **Territorial Agenda 2030**, it focuses precisely on that time horizon and on the overarching objectives of a Just Europe and a Green Europe. In it, **place-sensitive policy actions** emerge as drivers for a long-term vision, with a set of recommendations and responses to support the shift in the **focus of the rural areas onto people and places**.

Because of the **inherent complexity and slowness of the processes associated with the dynamics of rural areas**, and as they are the resulting fabric of natural systems' transformations and management, long-term development should build towards a solid and mature enhancement of living standards while investing in building up **social trust**.

In the same way, **a common understanding is a basis for long-term cooperation and coordination between places and levels of government**. Policy sectors and societal groups, while addressing these complex issues and utilizing the diversity of rural areas' potential, are





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called upon, perhaps as never before, to take the opportunity to **promote synergies between cohesion, agricultural and rural development policies.**

Importantly, the long-term vision for rural areas requires recognizing the importance of building resilience into, as well as **learning from, the existent functional rural networks and partnerships that already implicitly contribute to territorial cohesion and combining those with the successful experiences of urban networks.**

Bringing policies, citizens and territories closer through local politicians' capacity for dialogue promotion and knowledge sharing; and going beyond predominantly theoretical exercises to match local needs with specific national strategies is aligned with the main steps identified by **Portugal's National Dimension of the European Rural Pact:**

- Possess a National Spatial Planning Policy Programme;
- Assure the sectors' long-term commitment to a common vision for rural areas;
- Identify and prepare the necessary funds and their access - keeping it simple, fair, and place-based;
- Ensure that investments and decisions positively impact people's lives and incomes;
- Focus on the main local goals while not losing track of the global positive effects that may be associated with the overarching Rural Pact goals;
- Gather key actors on the ground who are empowered to act;
- And implement pilot and demonstrative place-based solutions that can be upscaled and replicated, like the pilot action ***Climate change adaptation and resilience through landscape transition.***

Another element that informed the ambitious agenda driving the Pilot Action was the ESPON's analysis of the Portuguese case study, by using ESPON TITAN results - **ESPON SOPORT.** Special attention was given to the development of the Landscape Planning and Management Programme, as authorities indicated that its development would require a particular **support of the transition process from the theoretical and technical scope of the report towards the practical implementation of that instrument.**

In this case, the strategic vision places a central focus on the programme, its steps, the methodology in place and the tools created to support its real delivery, as related to 4.3. "The SOPORT approach".

2.3. Climate Change Adaptation and Resilience through Landscape Transition Pilot Action: Main Objectives

- Develop experimental and integrated land planning approaches for vulnerable rural areas;
- Decrease the risk and the effects of natural hazards and mixed/environmental hazards, integrating the perspectives of climate change adaptation and environmental, social, and economic resilience building through spatial planning;
- Build a long-term commitment across all levels and sectors of governance, for better synergies and complementarities between the EU and national funding mechanisms;





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- Promote sustainable value chains and develop innovative governance approaches for planning systems, relevant policy and stakeholder engagement;
- Funding land uses that provide ecosystem services;
- Learning to carry out 19 Landscape Planning and Management Programmes (PRGP) by 2025, with areas between 25 000 and 40 000 ha.

2.4. Climate Change Adaptation and Resilience through Landscape Transition Pilot Action: Priorities

As each pilot action under the Territorial Agenda 2030 addresses one or several of its priorities, *Climate change adaptation and resilience through landscape transition* has four thematic priorities for that landscape transition approach:

- **Integrating climate change adaptation and resilience:** territories need to be better prepared for extreme events. Risks such as wildfires, loss of biodiversity and reduction in agricultural productivity become higher and costlier;
- **Fostering ecosystem services and the green economy:** biodiversity must be considered a heritage component and an asset in danger of irreversible losses that must be defended and protected;
- **Mobilizing endogenous resources and improving natural capital valuation:** improving natural capital as a differentiating and enhancing factor must be a goal;
- **Building innovative processes of governance and stakeholder engagement in a long-term perspective:** landscape transition takes time and requires trust.

Therefore, this pilot action is closely related to the priority concepts of ‘Functional regions’ under the objective Just Europe and ‘Healthy environment’ under Green Europe, also meeting the EU initiative Long-term Vision for Rural Areas.

The Portuguese and Croatian strategies **represent pioneering approaches towards spatial planning**. In these approaches, climate change adaptation and territorial development models are articulated into a cohesive, place-based long-term vision, already integrated into spatial planning strategies and legislation in Portugal and to be considered in the Croatian spatial planning framework. These strategies respond to the economic and social needs of European communities as the territories they depend on are affected by increasing pressure from the consequences of climate change. In both cases, the main environmental vulnerability that these territories face is addressed as the key aspect of climate change adaptation strategies.

In the case of **Portugal**, where 73.3% of the land is used for forestry, agricultural, and agroforestry purposes, rural fires represent a serious cyclical problem for the country's rural areas. These fires accumulate with and aggravate other socio-economic tendencies to negatively impact the development prospects of these territories. These factors serve as two elements of a vicious cycle whereby decreased economic activity leads to depopulation, which in turn leads to a decrease in the vital contribution of productive land use and management in areas already vulnerable to rural fires.





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In the case of **Primorje-Gorski Kotar County, a Croatian region** where 93% of its inhabitants live in coastal or insular areas, the rising sea levels pose both environmental and economic threats. Predictions indicate that the Adriatic Sea may rise by 32cm to 65cm by the end of the 21st century.

Although the areas of intervention of the Serra of Monchique and Silves and the Primorje-Gorski Kotar County are different, the task their governing authorities face is similar: to integrate the unique characteristics of their territories into the appropriate territorial development instruments at service in implementing the most suitable land management policies. Failure to adapt to the vulnerabilities of climate change could result in acute consequences to their economy, communities, and environment.

As the Territorial Agenda 2030 highlights, **the vulnerability to the effects of climate change varies significantly across different territories**. Rural fires, sea-level rise, and other natural and technical hazards pose increasing risks in various regions and require place-based responses, cooperation, and responsible coordinated policies. Climate change adaptation initiatives can create opportunities for development by leveraging the sectors of forestry and agriculture, as well as green and blue economies into innovative economic clusters.

Adopting an **integrated place-based approach to climate change adaptation efforts is crucial for promoting territorial cohesion**. This approach focuses on unlocking the unique potential of each territory's set of resources while recognizing the need for solutions tailored to each territorial reality and, above all, it contributes to long-term territorial development and resilience.

The pilot action 'Climate change adaptation and resilience through landscape transition' is a small yet significant step towards the fulfilment of the priorities of the Territorial Agenda 2030. By **demonstrating the benefits of an integrated and place-based approach to more resilient and sustainable territorial development in the face of climate change**, it provides valuable lessons and inspiration for other regions facing similar challenges.

Indeed, although differing in land planning priorities, the Portuguese and Croatian cases are united in spirit and in practice through the commonalities of their strategies and purposes. All of Europe's territories, be they rural, coastal or otherwise, call upon forward-looking territorial policies that ensure the Just and Green Europe that the Territorial Agenda 2030 intends to bring forth. It is hoped that the success of this pilot will **encourage further actions on climate change adaptation and mitigation throughout Europe**, as we work towards a more resilient and sustainable future for all places.





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2.5. The pioneer Landscape Planning and Management Programme (PRGP) of the Serras of Monchique and Silves

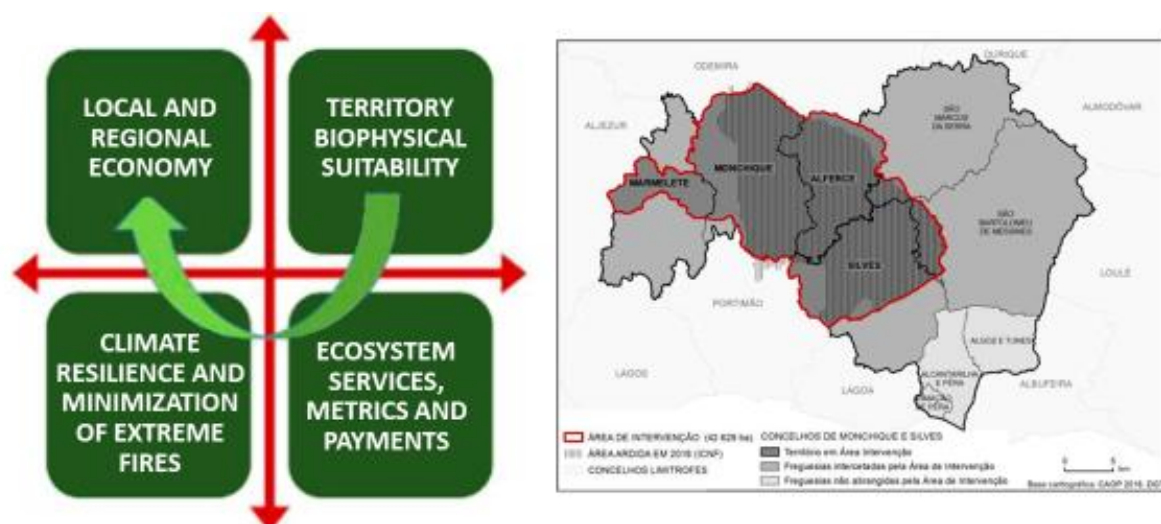
On the 21st of May of 2020, the Council of Ministers approved the **planning and management guidelines**, the **priority actions**, and the **monitoring system** for the **Landscape Planning and Management Programme** of the Serras of Monchique and Silves (PRGPSMS). The PRGPSMS was motivated by and developed after the rural fires of August 2018, which covered an area of about 43 thousand ha.

The PRGPSMS was elaborated in light of the National Spatial Planning Policy Programme's (PNPOT) review guidelines, given the urgent need for public intervention to promote landscape reconversion initiatives in territories at high risk of rural fires. Designed after in-depth work in terms of identifying the policy needs, gaps, priority areas and an analysis of what the desired landscape should be, the PRGPSMS followed a participatory approach.

It is an experimental and innovative exercise, based on an approach to spatial planning that is landscape-based and aimed at fostering new work processes and new contents to be considered in territorial management and sectoral policy instruments.

For that programme, there are four strategic axes considered (Figure 1.): economy, territorial susceptibility, resilience to fires, and ecosystem services. During the preparation, the writing team, the administration, and the consulted stakeholders co-designed the desirable and viable landscape on which the guidance is based.

Figure 1. Four strategic axes in a specific intervention zone (PRGPSMS)



Source: Directorate-General for Territory, 2022





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The cycle of implementation is as follows:

- **Planning frameworks** - National Spatial Planning Policy Programme (PNPOT), Regional Programme for Forestry Management (PROF), Ecosystem Services (ES), and Instruments of Territorial Management (IGT);
- **Strategy** - Assuring a socio-ecological transition as a reference point for a new economy in low-density rural territories. Valuing natural capital, ecosystem services and soil suitability, promoting resilience to fires and climate change and stimulating the economy of proximity, in a locally based participatory process that strengthens the territorial culture and the entrepreneurial capacity of the actors;
- **Design** - Land planning concepts, local economy, fire resilience and Geographic Information Systems (GIS);
- **Implementation and management** - key performance indicators, governance models, actions in the field, rural extension, evaluation, review and adaptation;
- **Knowledge management** - scientific production, dissemination, recognition.

2.5.1. Scoping Administrative Structure and Portugal's Spatial Planning System

Spatial planning and regional development in Portugal are based on four main levels: national, regional, inter-municipal and municipal (the last two covering the same hierarchical level in terms of territorial actions). The institutional design of the Portuguese planning system follows an integrated and coordinated structure, where a systematic and hierarchical approach generates high levels of coordination through a cascade of instruments (Figure 1) from the national to the local level, following criteria of 'conformity' between them.

The first level with territorial planning competencies, which is the backbone of the entire territorial organization, is the Directorate-General for Territory which, through the National Spatial Planning Policy Programme (PNPOT)¹, establishes a territorial framework that must be considered in plans and programmes at lower levels. As a strategic guideline, this instrument explicitly assumes sustainable development, territorial resilience, energy and carbon efficiency and the prevention of collective risks among the main objectives of the land planning policy in Portugal.

¹ <https://pnpot.dgterritorio.pt/>

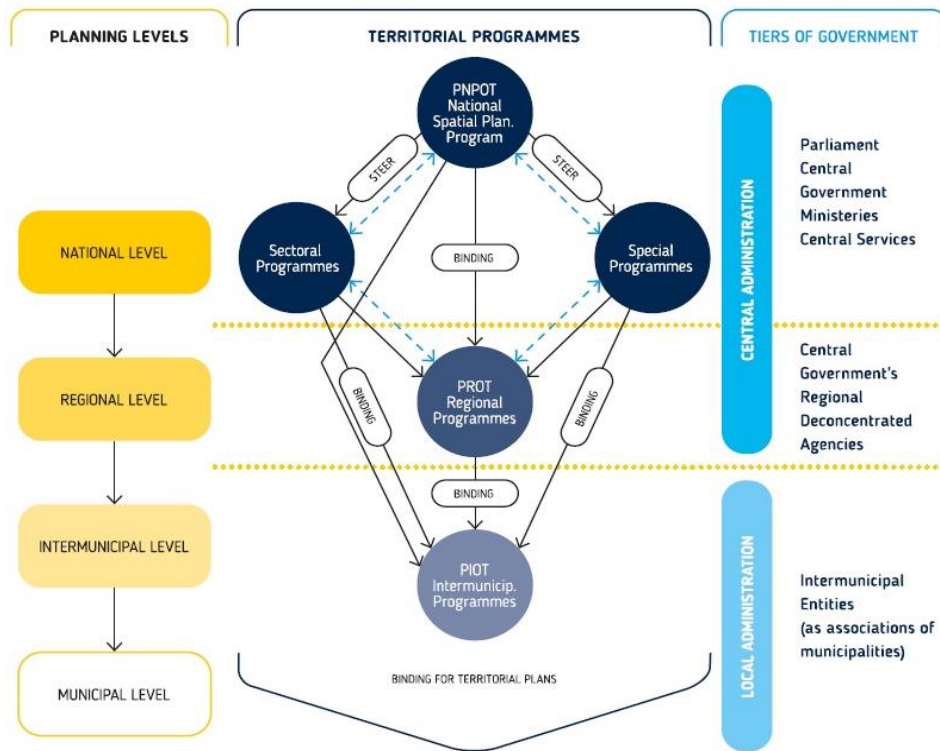




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Figure 2- Territorial Programmes, planning levels and tiers of government in Portugal



Source: Directorate-General for Territory, 2021

The territorial trends identified in the PNPOT (2019) highlight the effects of climate change, with rural fires considered as critical vulnerabilities. From the analysis of these trends, it can be concluded that, by 2030, Portugal may be facing a more vulnerable territory.

At the regional level, the territorial programmes that are applicable in each of the regions of Portugal are the Regional Programmes (PROT), which are directly linked to the programmes of a national scale (managed by the Regional Coordination and Development Commissions, and Deconcentrated Agencies).

At the municipal scale (inter-municipal and municipal levels), different urban instruments are developed (Figure 3): (1) the Master Plan, based on the strategic and land-use plan, (2) the Urban Development Plan, where the urban land-use zoning is established, and (3) the Detailed Local Plan. These are managed by local administrations (municipalities, inter-municipal entities, and other associations of municipalities).

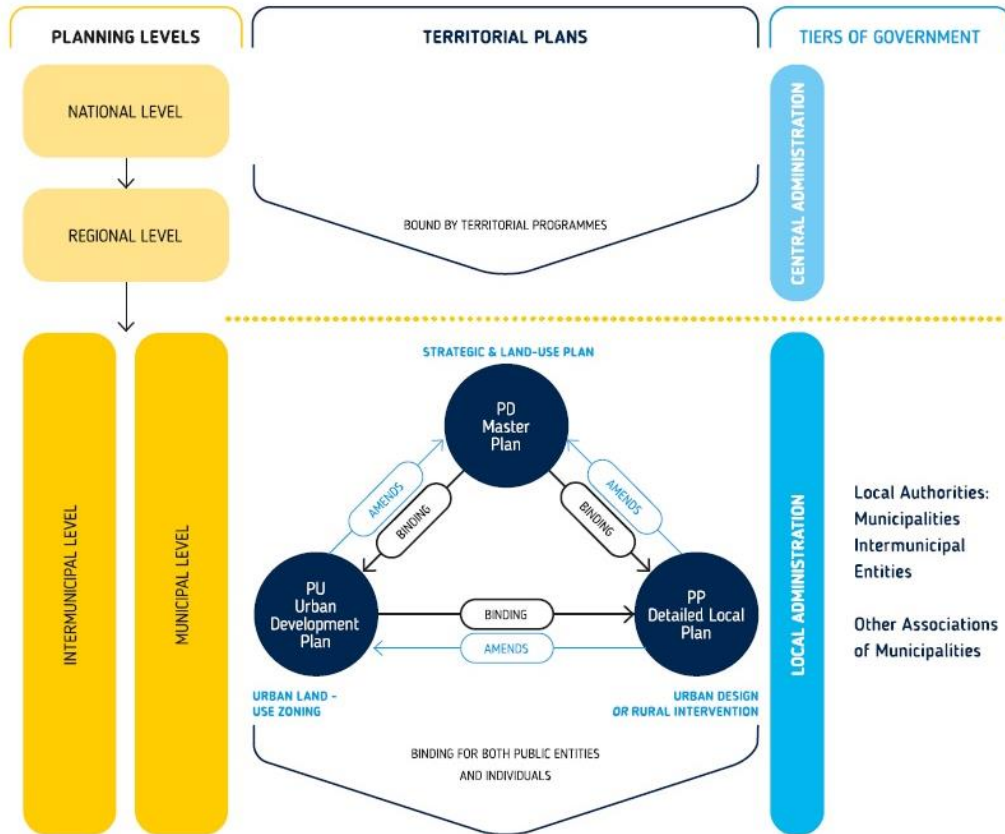




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Figure 3-Territorial Plans, planning levels and tiers of government in Portugal



Source: Directorate-General for Territory, 2021

Every single level includes actions related to risks and climate change, as sectoral programmes' strategies at the national level, the above-mentioned regional programmes and territorial plans are all addressed within the PNPOT.

Still at the national level, it is important to mention that some specific regulations on rural fires are established in the National System for Integrated Management of Rural Fires (SGIRF), which is based on two pillars of action that the Independent Technical Committee considers key to reducing the impact of rural fires. These two pillars, Rural Fire Management and Rural Fire Protection, are significantly different from the previous plan (2006-2018). They are based on integrated coordination, where conservation and forest planning are crucial to the success of the system, given its role in the construction of a sustainable rural landscape. The chain of processes includes the pillars of rural fire management and the protection of people and property in six stages (planning, prevention, preparation, pre-suspension, suspension and relief, and post-fire), which, in all stages, are led by three main drivers: governance, qualification, and the information and communication system.





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In a multi-scale dimension, in terms of the public authority on planning in the context of rural fires, it is important to underline the following entities and their competences:

- **Directorate-General for Territory²** (DGT) - the national authority for land planning and territorial development, recognized for the results of its work in the areas of territorial valuation, the valuation of geographic and land registry information, and for its research and innovative experimentation, as well as its practices of institutional transparency and openness;
- **Forestry Authority³** - the nature conservation authority (Institute for Nature Conservation and Forests - ICNF), responsible for legal authorizations in the matter of productive forest use and management. Their mission is to propose, monitor, and ensure the implementation of the conservation policies of nature and forests, aiming at their conservation, sustainable use and valuation, while promoting the public recognition of their potential for leisure and their status as natural heritage;
- **Water authority⁴** - the Portuguese Environment Agency (APA) is the main environmental regulator in Portugal, monitoring, planning, licensing, inspecting, and issuing evaluations and permissions regarding the use of water in the 'Public domain of water: rivers, water courses, groundwater, etc.'. It has decentralized services at regional levels;
- **National Agency for the Integrated Management of Rural Fires⁵** (AGIF) - responsible for the planning, management, strategic coordination and evaluation of the National System for Integrated Management of Rural Fires (SGIFR), an important support tool in terms of rural fires;
- **Regional Coordination and Development Comissions⁶** (CCDR) - responsible for implementing environmental, spatial, and urban policies, fostering regional development and media incentives, as well as technically supporting local authorities and associations. They contribute to the definition of the general basis of regional development policy within the framework of the national economic and social development policy, as well as implementing, evaluating and monitoring environmental and spatial planning policies at the regional level;
- **Municipalities⁷** - responsible for the development of Territorial Management Plans (POT).

2.5.2. Landscape Planning and Management Programme (PRGP)

The rural fire in the Serra of Monchique in 2018, following the cyclical occurrence of rural fires in Portuguese forest areas, left a trail of destruction in the landscape that required a strong political response for its recovery.

² www.dgterritorio.gov.pt

³ www.icnf.pt

⁴ www.apambiente.pt/ www.vapa.pt

⁵ <https://www.agif.pt/en/about-agif/mission>

⁶ www.ccdr-alg.pt

⁷ Climate change adaptation and resilience through landscape transition Pilot Action - Municipalities of Monchique and Silves cm-monchique-pt and www.cm-silves.pt.





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As a Territorial Sectoral Programme (part of the spatial planning system), the **National Landscape Transition Programme (PTP)** embodied the landscape transformation concept, going beyond the mere recovery of the region's biodiversity.

It is a real **co-designed** process that aims to achieve a **new landscape that is more resilient to fires**. In addition, it serves as a referential for a new rural economy, promoting **multi-funding payment models** for transformations that improve ecosystem services.

Moreover, the concept derives from the **National Spatial Planning Policy Programme (PNPOT) territorial model**, supported by its **structural conditions referential**, which point toward the following elements of the Portuguese territory as essential to bear in mind in the programme design:

- 73.3% of Portugal's mainland area is allocated to forestry, agricultural and agroforestry uses and, if these are added to the areas of pastures, 92.3% of the territory is encompassed;
- Portuguese rural areas present a set of particular weaknesses that are mainly associated with demographic factors, namely depopulation and ageing of the existing population, and socioeconomic factors, more specifically a strong connection of the rural population to agricultural activity and activities which in general provide low incomes;
- Significant areas risk demographic loss (of more than 15% of the population in 2030), aggravating the already inverted demographic structure and its repercussions on family, social and economic structures within the territory;
- More than 2/3 of the territory corresponds to areas with a Synthetic Index of Regional Development where competitiveness < 100, NUT III, 2016. (Portugal=100);
- A great number of areas susceptible to soil desertification;
- The signaling of Areas of forest concentration (> 60% of the municipality's area) and also areas of soil erosion and coastal over-occupation.

The National Spatial Planning Policy Programme (PNPOT) identifies which **vulnerable areas of the forest** need to be valued, setting the bases for the **Landscape Transition Programme (PTP)** and its programmatic measures.

The spatial model foreseen for the two programmatic planning measures - **Landscape Planning and Management Programmes (PRGP)** and **Integrated Landscape Management Operations, (OIGP)** - stems from the perspective centered on the **concept of landscape as a complex reality resulting from human action on natural systems**.

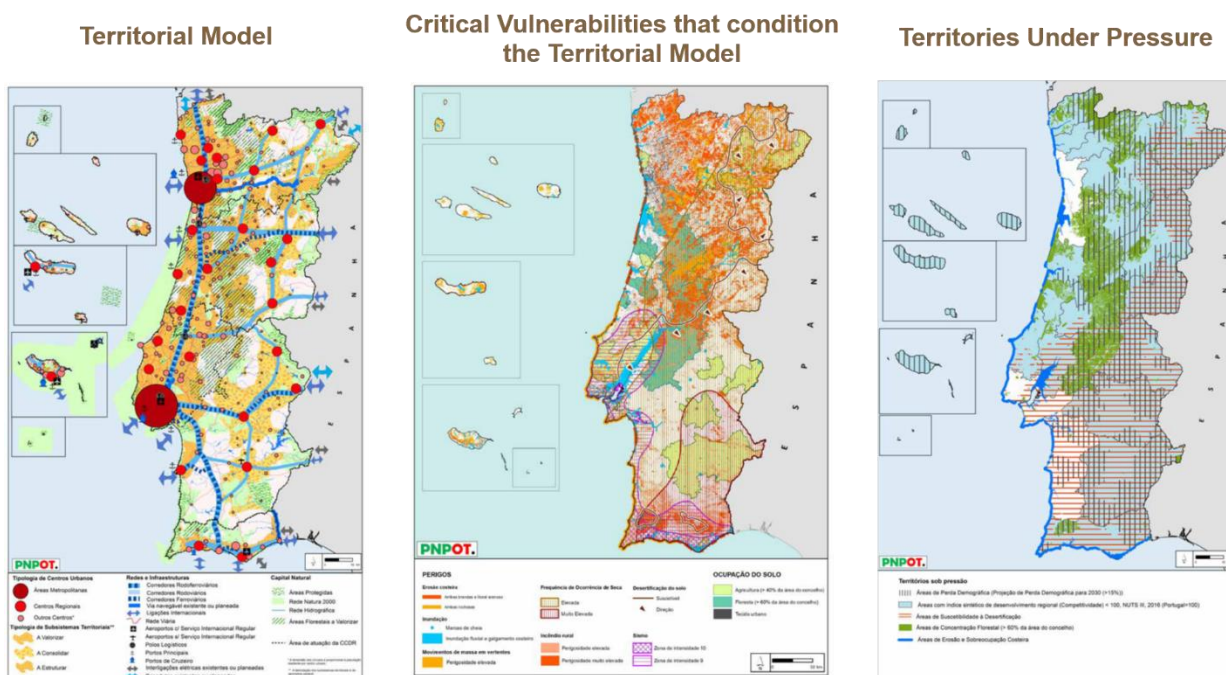




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Figure 4. National Spatial Planning Policy Programme territorial model

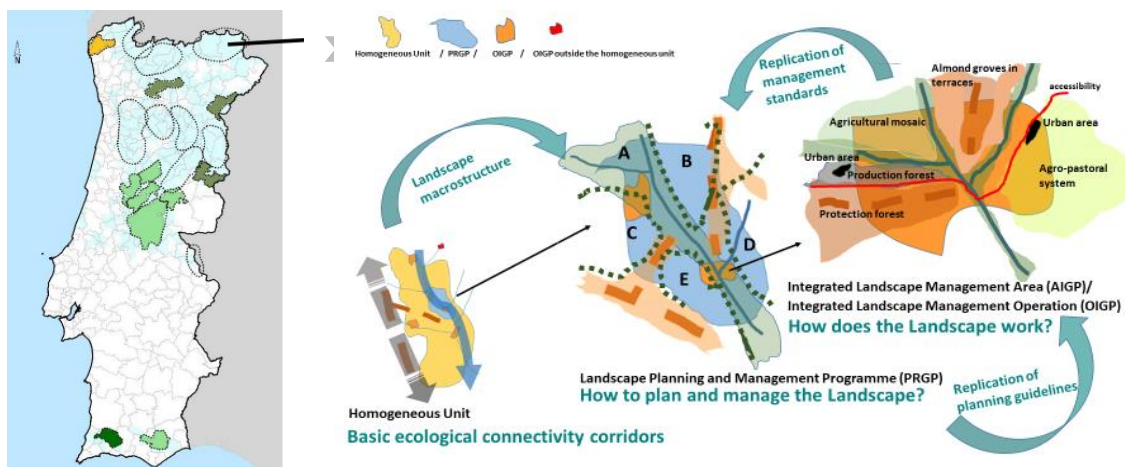


Source: Directorate-General for Territory, 2020

Defining a set of **Homogeneous Units** concerning rural fire vulnerability, a set of main **ecological connectivity corridors** are mapped out, structuring the organization of the landscape and establishing its macrostructures, macro systems and planning guidelines.

The same principles apply to the **Integrated Landscape Management Operations (OIGP)**, which, through the constitution of implementation projects, define the necessary directives for landscape management. The opportunity of their **simultaneous elaboration** brings out the strong link between planning and implementing and the mutual benefits their link can generate.

Figure 5. Spatial model of the two programmatic planning measures - Landscape Planning and Management Programmes (PRGP) and Integrated Operations for Landscape Management (OIGP)



Source: Directorate-General for Territory, 2022

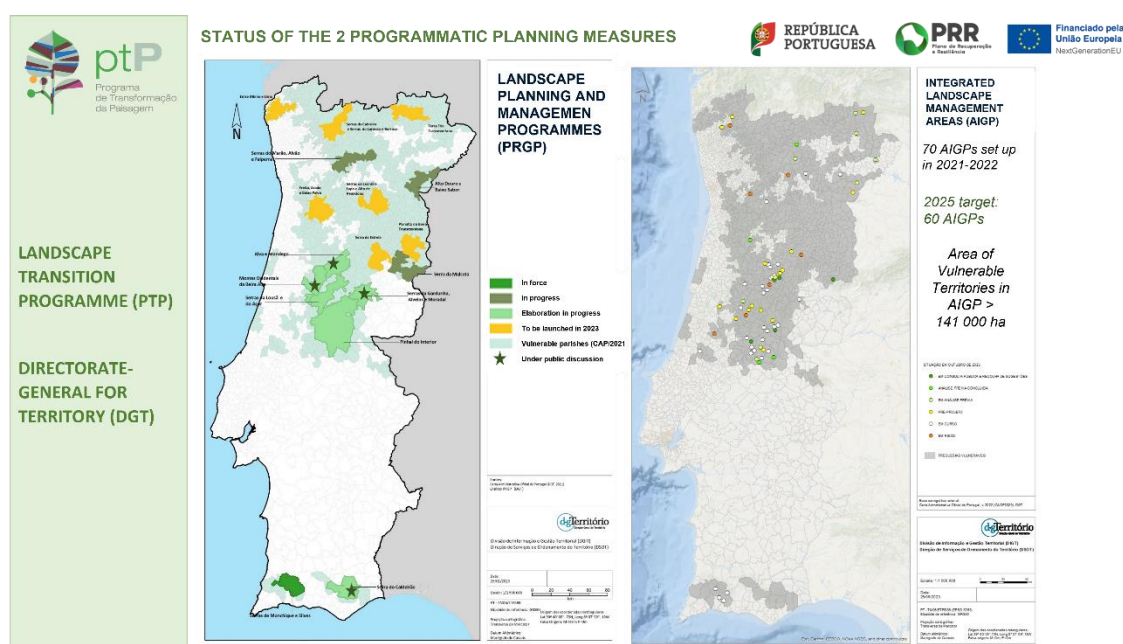


The total area to be covered by the Landscape Planning and Management Programmes (PRGP) is around 1 million ha, which covers approximately 30% of territories vulnerable to wildfires. By 2025, 20 PRGPs will be in effect. The current status of these Programmes (as of October 2023) is the following:

- 1 is completed - Landscape Planning and Management Programme of the Serras de Monchique and Silves;
- 3 waiting for Ministries approbation;
- 4 in Public Discussion;
- 2 in completion;
- 7 starting in 2023;
- 3 starting in 2024.

The area with Landscape Planning and Management Programmes that are finalized or in progress in 2022 adds up to 690 thousand ha.

Figure 6. Status of PRGPs as of October 2023



Source: Directorate-General for Territory, 2022

Outlined in 2021, the 70 Integrated Landscape Management Operations (OIGP) are agroforestry areas marked for joint intervention towards productive land use and management in areas characterized by small properties and rural fire vulnerability, spanning a total area of approximately 141 thousand ha.

These Integrated Operations define, in space and time, the actions to transform landscapes through forest changing and management practices, as well as the financial resources and monitoring systems to be implemented in the 4 000 to 5 000 ha (average of the areas).





2.5.3. The ESPON SOPORT approach

Currently, the Landscape Planning and Management Programme of the Serras of Monchique and Silves (PRGPSMS) programme is about to start its implementation and management phase, since the document is already formally in force, having gone through the strategy, planning and design process during the last years. The results of the discussions, diagnosis, participatory processes, and exercises on priority action areas can be found in the specific report, which is publicly available ⁸. This means that, having concluded the stages of diagnosis and planning, the monitoring of the content could still be done among the administration team and together with the stakeholders involved.

The methodology proposed by [the ESPON SOPORT case study](#) was developed precisely to supply public administration with an **effective tool to reassess the content of the Programme**, and to identify possible opportunities for improvement, not only in the present situation but also in the following PRGPs to be designed for different regions of the Portuguese territory over the next years. Lessons were gathered from the elaboration and implementation of the PRGPSMS and are indeed an asset that will not be ignored for the development of future programmes.

In general, the methodology developed is flexible enough to be applied in different territorial and social contexts, although it was developed to support the implementation of the Portuguese PRGPSMS. Specifically, it is developed as a **basis for the performance of a consultation with the stakeholders, with the main goal being the gathering of feedback on the challenges and feasibility of the actions proposed in the PRGPSMS.**

This methodology guides the actors along the different steps of the process, leading them to share their perspectives (or their institutions') by encouraging a reflection on their individual experiences and points of view, pushing them to look at opportunities, and, finally, inviting them to be proactive towards the achievement of the indicated actions.

In addition, it is also meant to be useful for the administrative officials of the Programme and those other individuals in administrative functions who will support the stakeholders in putting the programme into action. This role-playing exercise may give them an opportunity to identify gaps, detect elements for improvement and overcome possible risks in terms of its implementation.

In both cases - stakeholder consultation and administrative staff role-play exercise - a fruitful debate is generated, raising hot-spot topics for re-discussion, which could lead to a better instrument, one that is more coherent with the reality and with minimized risks of non-compliance.

The organization of the structure of the tool is based on the intended **sequential steps of the consultation**. Considering that the main goal is to have the stakeholders' feedback regarding the actions established, the methodology is presented in simple steps (Figure 7).

⁸ https://www.dgterritorio.gov.pt/sites/default/files/ficheiros-dgt/relatorio_tecnico.pdf

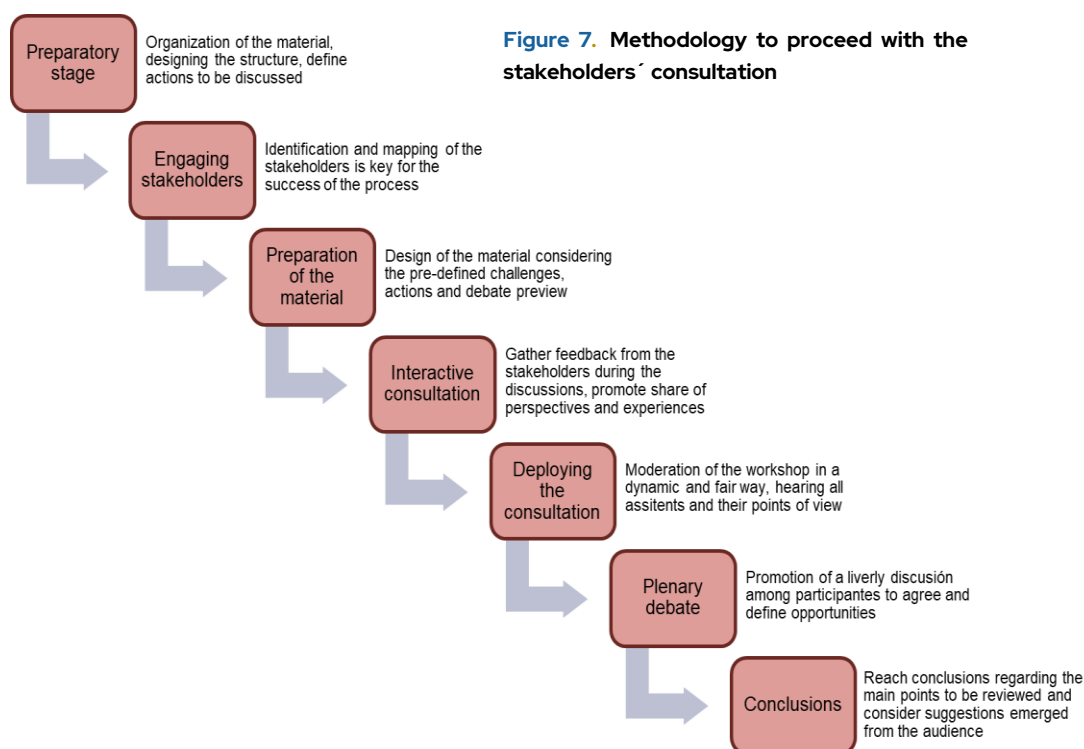




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Results from the application of the consultation methodology are focused both on the different administrative departments supporting the stakeholders and the application of the methodology with the stakeholders themselves, receiving their feedback and identifying other challenges not yet considered during the exhaustive process of elaboration of the programme.



Source: ESPON, 2022

Their input may be useful when re-evaluating the plan, as well as reflecting on further development of actions, supporting the decisions on how to guide the stakeholders through the implementation process.

From that moment on, corrective actions and the design of supporting strategies may be considered by the administration to better cohere the plan with reality and guarantee that the stakeholders in charge will indeed implement the actions.

There are some **key policy messages** that emerge from the development of the presented methodology, which could be useful to inform the consultation process:

- The stakeholder consultation should include members from multiple administrative levels and promote the participation of actors with heterogeneous profiles. These can be, generally speaking, from the different departments of the national, regional, and local administration, from associations, from the academy, consultants, and community leaders;
- Guarantee a minimum number of assistants, so that the feedback gathered may better represent the challenges and general feelings regarding the limitations encountered in implementing the actions;





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- Make use of the flexibility that the tool offers, by including additional challenges and elements that may be raised along the consultation process;
- Be aware that the tool is designed to cover basic needs, although a deeper review of and complement to the actions should be proposed further, in a formal context, with the team in charge of the specific plan guiding the analysis;
- The exercises indicated in the pathway aim at rethinking the complaints and disagreements into suggestions and solutions, promoting a transformation of the identified limitations and weaknesses into strengths and opportunities to be considered;
- The co-learning process, an indirect objective of the implementation of the tool, should be approached with an open mind towards the review of planning instruments already in place, with a main view towards fostering a systematic and continuous improvement of planning approaches.

2.6. The Landscape Transition Concept

2.6.1. Anatomy of the Process

2.6.1.1. Building a Strategy for Results

The pilot project of the Landscape Planning and Management Programme of the Serras de Monchique and Silves in Algarve (PRGPMS) enabled the restoration of key Natura 2000 Network habitats. Beyond that restorative effect, the **landscape transformation concept should underpin the support of local welfare and mitigation of the future impacts of climate change, while helping the local community to recover from the disaster caused by the rural fires.**

That is why five major key points guide the Strategy for results:

1. **Knowledge** - what will change in landscape transformation and valuation by sharing knowledge from the national and European programs, projects and targeted analysis for the selected areas?

Output: Landscape design, Transformation matrix and Planning and Management guidelines.

2. **Objectivity** - how and where transformations will occur through the identification of actions.

Output: Landscape structures and strategic areas for transformation purposes.





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3. **Operationalization** - how much does it cost, identifying incomes and financing sources.
Output: public financing electable actions.
4. **Responsibility** - who is responsible for the management of the dedicated contracts?
Output: Governance models.
5. **Transparency** - disclosing the monitoring of territorial and result indicators.
Output: Accountability reports using geographic information.

Figure 8. A Strategy for Results



Source: Directorate-General for Territory, 2022

2.6.1.2. From Territorial Models to Landscape Transition

Having a better relationship between scientific knowledge and public administration helps to build better public policies and to provide coherence in spatial planning, **guaranteeing an alignment between the macro scale and micro scale**, which is pivotal for the landscape transition.

These integrated scale approaches are also essential for a better **multi-funding system**, supporting the implementation of the Programme as the framework that matches structural and strategic transformation actions under a multi sectoral approach - using CAP, Environmental and Regional Funds.



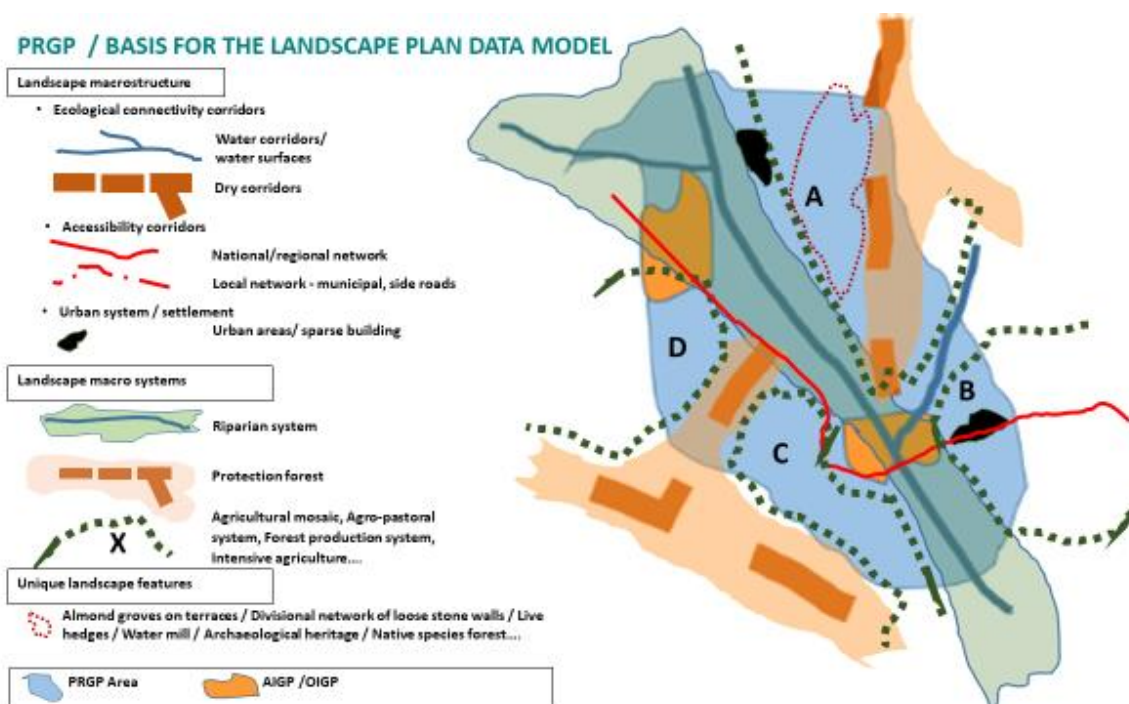


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Landscape structures at macro and micro scale must identify the same elements relating to ecologic structures and the resilience to fire structure.

Figure 9. Landscape transformation territorial model



Source: Directorate-General for Territory, 2022

That harmonization through a common territorial model allows for:

- The macrostructures of the landscape to perform functions of fire resilience and ecological connectivity besides the coherence and articulation between scales;
- The continuity and comparability between territories with a common data model, which is essential for monitoring;
- The identification of macro systems' land use for the reorganization and management of the landscape, adding value to local economies with local actors, and the identification of those macro systems which are the differentiator triggers serving as an engine for transformation and new forms of management;
- The strategic environmental assessment process associated with macro systems land uses as the basic instrument of this programme.

2.6.1.3. Involving sectors and stakeholders

The Legal Regime for Landscape Transition Programme was designed from the pilot project of the Landscape Planning and Management Programme of the Serras of Monchique and Silves in Algarve.





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The integrated and place-based approach developed in the Landscape Planning and Management Programmes needs to be fully grasped by sectoral entities since the initial phases of the consultation process showed some difficulties. Efforts should focus on creating a joint understanding of what is relevant for landscape transition beyond the institutional point of view.

After two years of the implementation process, there is a growing trust and burden sharing between the various partners, sectors, and levels of public administration and the private sector. Stakeholders from different sectors and levels confirmed, in four workshops from an ongoing Portuguese research project, that the diagnosis, vision, general objectives, and measures are relevant and particularly opportune.

The Landscape Planning and Management Programme of the Serras of Monchique and Silves **provided 1.8 M€ from the Environmental Fund and called for meetings with regional and local stakeholders** to identify the relevant actions to be financed. That preliminary initiative was indeed **critical to kick-start joint actions and actors** working together on the ground.

By the end of the Landscape Planning and Management Programmes foreseen to be underway by 2025, institutions and actors shall be empowered to undertake the landscape transition process through collective, co-constructed processes that lead to weighted choices in accordance with their major eco-socio-economic referentials:

- Introducing strategic considerations into landscape use and management other than the dynamics of the market;
- (Re)equating the basis of social and economic organization through social innovation with a view towards gaining scale and attractiveness;
- (Re)allocating resources to ensure that more can be done with less:
 - Planning a result-oriented strategy;
 - Building new management and financing models;
 - Waging prevention efforts rather than fighting rural fires.

For public participation in the 19 Landscape Planning and Management Programme successors of Serras of Monchique and Silves, an **executive summary** should explain precisely **what is relevant for an integrated and place-based approach, guiding the understanding of the documents towards a better comprehension of the timings and actions involved in a landscape transition implementation.**

2.6.1.4. Timeline for Funding Transition and Management

The new Landscape Planning and Management Programmes are already producing lessons concerning the:

- **Multi-funding model:** operationalization of the model that will implement the landscape transformation until 2025 and will be maintained for 10 years;





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- **Governance model** for the implementation and maintenance of transformative changes in the short and medium/long-term;
- **Capacity building**: highlighting the importance of mobilizing and empowering the local agents, boosting inclusive, participatory processes and multi-stakeholder dialogues.

The Landscape Planning and Management Programmes' **three major targets will impact 3.3 M hectares of vulnerable forest territories**:

- **Territorial resilience** through the reduction of the territory's vulnerability to rural fire;
- **Territorial Valuation** through productive land use and management practices more suited to each territory and the improvement of the services provided by the ecosystems;
- **Boosting a new economy** that increases the value of territorial assets and stimulates local economic activities.

These **three common hotspots will provide**:

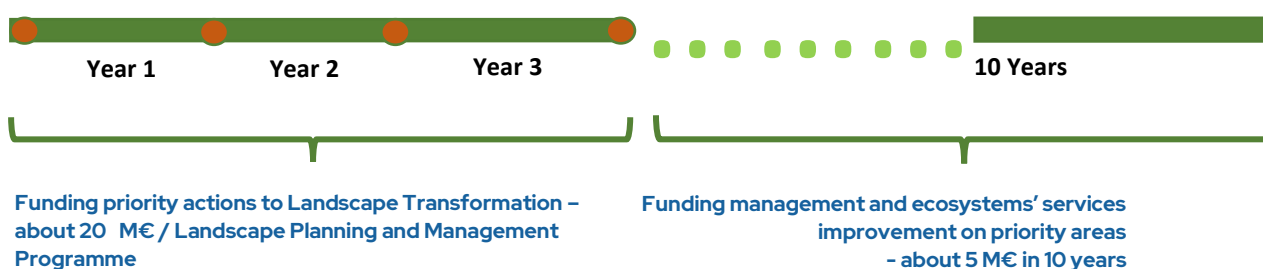
- Increased biodiversity;
- Improvement of ecosystem condition and services;
- Increased carbon sequestration capacity;
- Increased regulatory systems and ecological connectivity (with a great increase in riparian galleries);
- And increased support conditions for tourist and leisure activities.

The focus on the role of spatial planning to face hazards related to climate change and the need to consider rural areas' risk of rural fire to improve their resilience and ecological connectivity **requires the long-term commitment of the actors involved**.

The **timeline foreseen for results** (Figure 10) comprehends **three years for the implementation of the priority transformation actions with public environmental funds**, supported through **ten years of management and funding of land use that promotes ecosystems' services improvement**.

The transformation processes require that local actors' initiatives apply to other funds as well - Common Agriculture Policy or European Regional Development Funding - to create **local dynamics that generate new models for rural economies**.

Figure 10. Timeline for results



Source: Directorate-General for Territory, 2022





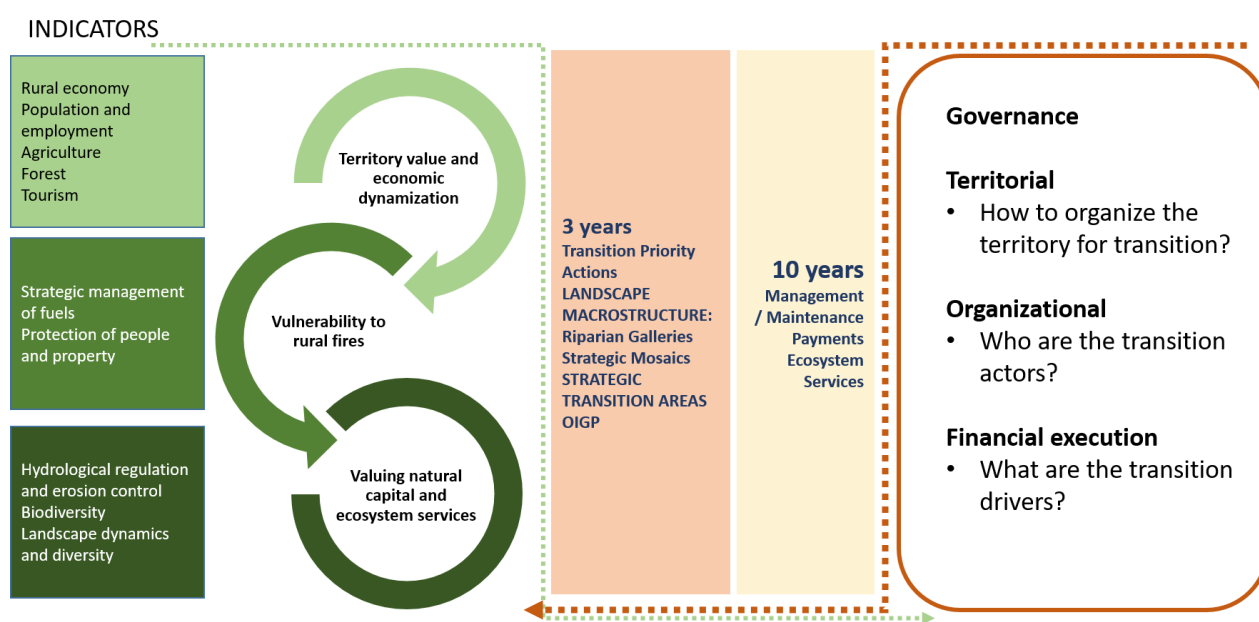
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2.6.1.5. Monitoring system

Below is the governance model with the key performance indicators (KPI):

Figure 11. Governance model



Source: Directorate-General for Territory, 2022

3. Vulnerability Analysis of the Coastal Area of Primorje-Gorski Kotar County due to Sea Level Rising

3.1. Administrative Structure and Croatian Spatial Planning

3.1.1. Scope of the Research/Scope of the Case Study

The coastal area of the Republic of Croatia is characterized by an increased concentration of population, which leads to the uncontrolled development of tourism and the increasing need for the exploitation of marine resources. Natural features are the main development potential of this area, and therefore it is of utmost importance to protect and consume the space as thoughtfully as possible.

The Primorje-Gorski Kotar County is one out of seven coastal counties in the Republic of Croatia, and according to the Nomenclature of Territorial Units for Statistics (NUTS) it belongs to the Adriatic Croatia region (HR NUTS 2). The County is functionally divided into three distinct sub-regions: mountainous area of Gorski Kotar, coastal area (mainland) and Islands (Krk, Cres, Rab, Lošinj), as shown on the figure below.





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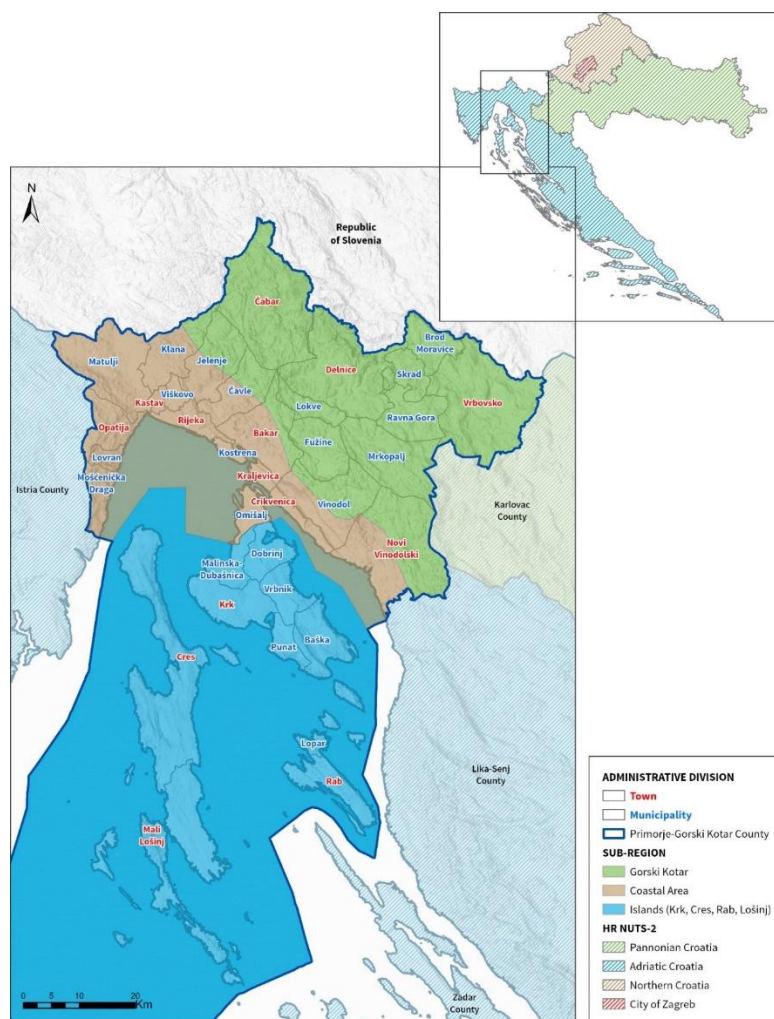
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The Primorje-Gorski Kotar County is administratively a regional self-government unit and includes 36 local self-government units, of which 14 are towns and 22 are municipalities. County is located in the western part of Croatia and is located on the border between two large physiognomic regions of Croatia, Adriatic Croatia and mountainous Croatia, which is one of the fundamental factors in the natural and socio-economic diversity of the County.

The Primorje-Gorski Kotar County borders the Republic of Slovenia to the north, Istria County to the west, Karlovac County to the east, and Lika-Senj and Zadar counties to the southeast.

In 2021, 265.419 inhabitants lived in the area of the Primorje-Gorski Kotar County. It is important to emphasize that out of the total number of inhabitants, 93 percent of them are situated in the area of coastal area and islands, with the dominance of the City of Rijeka, where approximately 40 percent of the population of the entire County lives.

Figure 12. Administrative territorial organization of The Primorje-Gorski Kotar County



Source: Public Institution Institute for Physical Planning of Primorje - Gorski Kotar County, 2023.





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The land area of the County covers 3.589 km², while the associated aquatorium is 4.344 km². The area of the aquatorium includes internal sea waters that extend from the coastline to the border of the territorial sea, which extends 12 nautical miles (22.2 km) southwest of the island of Susak.

The territory of the Primorje-Gorski Kotar County includes 15 islands, 36 islets and 98 rocks, of which only 9 are permanently inhabited (Cres, Krk, Rab, Lošinj, Ilovik, Unije, Susak, Vele Srakane, Male Srakane), 7 of them are occasionally inhabited (Sv. Marin, Zaglav, Koludarc, Košljun, Maman, Sv. Petar, Trstenik), while the remaining 133 are uninhabited.

The length of the coastline of the Primorje-Gorski Kotar County is 1.235 km, of which 168 km is the coastal part of the mainland, and 1.067 km is the coastal part of the island. Like most of the Croatian coast, the coast of the Primorje-Gorski Kotar County is characterized by a distinct indentation.

Most of the coastline is natural (at about 82% of the total length), and the rest is anthropogenic coastline (concrete waterfronts, beaches, harbours, riverbanks, coastal roads, embanked coasts and breakwaters). The favourable position also affected the economy, and a large part of the population works in economic activities related to transport and the sea.

3.2. Croatian Spatial Planning System

3.2.1. Planning Hierarchy in Croatia

The **Spatial Development Strategy of the Republic of Croatia** is a fundamental national document for guiding the spatial development. Based on established core values of the Croatian territory and the spatial development management system, as well as the substantiated state and trends, it defines general objectives of spatial development up to 2030, starting points, priorities, guidelines and implementation framework. All spatial plans must be in compliance with the Strategy.

Pursuant to the *Physical Planning Act*⁹, spatial plans are adopted at the state, district (regional) and local levels.

Spatial plans at the state level are **the State Plan for Spatial Development**, the Spatial Plan of the Protected Ecological Fishing Belt of the Republic of Croatia, the Spatial Plan of the Epicontinental Belt of the Republic of Croatia, the Spatial Plan of the National Park, the spatial plan of a nature park and other spatial plans of areas with special features the adoption of which is prescribed pursuant to the State plan for spatial development and urban development plan of a detached building area outside the settlement for economic and/or public purposes of state significance. Regional level spatial plans are **county spatial plans**, Spatial plan of the City of Zagreb and urban development plan of a detached building area outside the settlement for economic and/or public purposes of county significance. Local level spatial plans are **spatial**

⁹ Official Gazette 153/13 - *Provisional Translation*, 65/17, 114/18, 39/19, 98/19





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development plans of a town or municipality, general urban plan and urban development plan. A lower-level spatial plan shall be aligned with the higher-level spatial plan.

3.2.1.1. Planning in the Primore-Gorski Kotar County- Public Institution Institute for Physical Planning of Primorje-Gorski Kotar County

Since its establishment, The Primorje - Gorski Kotar County has, in the area of planning, set foundations for the future and created spatial planning presumptions for progress. It has defined a vision of the County as a competitive, sustainable and socially fair region desirable for work and living. The County's Institute for Physical Planning has been expertly carrying out the tasks of spatial development, i.e., the preparation, coordination and monitoring of spatial plans and other development documents, and also leads and manages the spatial development of the County with an information system.

For the purposes of drafting the Spatial Plan of the Primorje-Gorski Kotar County and other spatial planning documents, County Institute for physical planning prepares a series of expert studies and analyses. Expert studies and knowledge are a fundamental prerequisite for drafting a spatial plan. Data and comprehension related to other phenomena in space must be done through targeted analyses, research, measurements, monitoring or studies (expert study, separate).

3.3. Legislative Framework

Adaptation to climate change is highly dependent on location and context, and it is up to each country to take measures that are its priority.

3.3.1. European Union

In 1976, the Convention for the Protection of the Mediterranean Sea, the so-called **The Barcelona Convention** was signed by the Mediterranean countries and the European Community. In 1995 the Convention was amended into the **Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean**. The Barcelona Convention is the legal framework for implementation of the Mediterranean Action Plan (MAP), and it is completed with seven specific protocols, among which **Integrated Coastal Zone Management Protocol (ICZM Protocol)** should be emphasized. The protocol envisages the creation of coastal plans and programs that can be separate documents or integrated into other plans and programs. They should be applicable at the analysed territorial level, determining





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the conditions for the purpose and use of maritime and land parts of coastal areas. The Protocol is the first international legal document that proposes specific instruments for protection and adaptation to the impact of climate change. In coastal areas, it is necessary to determine a land zone where construction is not allowed, taking into account areas exposed to the impacts of climate change and natural disasters and hazards. In March 2013, the Climate-ADAPT online platform was launched, which organizes data on adaptation actions for all EU members, according to the provisions of the EU Strategy on Adaptation to Climate Change from the same year. In 2014, the Directive of the European Parliament and of the Council on establishing of a framework for maritime spatial planning entered into force. This document prescribes the minimum requirements for spatial planning, considering the interaction of land and sea, taking into account the long-term changes caused by climate change. In 2021 the European Commission adopted its new EU strategy on adaptation to climate change. The new strategy sets out how the **European Union can adapt to the unavoidable impacts of climate change and become climate resilient by 2050**. The Strategy has four principle objectives: to make adaptation **smarter, swifter and more systemic**, and to **step up international action on adaptation to climate change**.

The European Green Deal (European Commission, 2019) emphasizes the importance of diplomacy and well-designed tax reforms that would encourage resilience to climate changes. The Green Deal encourages the joint action of EU member states by exchanging information, guidelines and good practices in the field of climate change, and by raising public awareness on the threats and consequences of climate change and environmental degradation and how to combat them. More recent reports of the **Intergovernmental Panel on Climate Change (IPCC)** also state that coordination between governing bodies and spatial planners is a key factor for an effective response. The need for investments in education and climate literacy of society was pointed out in order to facilitate negotiations on compromises, reduce short-term risks and build long-term resilience and sustainability.

The IPCC also lists the possibilities of strengthening resistance to climate change by applying "green" solutions for the protection, restoration and adaptation of ecosystems. Integral management of water systems and ecosystem adaptations can locally reduce the risks caused by climate disturbances and have a beneficial effect on society.

The practical application of integral management of the Mediterranean coastal area is visible differently in different countries that are signatories to the Barcelona Convention. The dynamics of implementation in Croatia need to be increased in order to strengthen the implementation of the Protocol at regional levels in order to mitigate and reduce the negative effects of climate change on the coastal area. Numerous negative effects have been recorded in recent years on the entire Mediterranean and on the Croatian coast of the Adriatic as well (e.g. Rovinj, Mali Lošinj, Cres, Opatija, Rijeka, Crikvenica, Vela Luka, etc.).





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3.3.2. Croatian Legislation

Despite the adopted international conventions and regulations, the implementation of integral coastal zone management is in its initial phase in Croatia. Comprehensive vulnerability analyses have not yet been carried out for the coastal zone area of the eastern Adriatic in the spatial plans. Thus, it is not possible to take into account or prescribe specific measures for coastal areas threatened by climate change risks and projected sea level rise in the development planning. In addition, it is obvious that the protection of the coastal and island area of the Adriatic sea, in relation to the expected rise in sea level and the effects of climate change on the coastal area, has not been adequately addressed or implemented appropriately and consistently.

In the legal system of the Republic of Croatia, protection of the coastal zone is to be carried out on the basis of laws, by-laws and other plans and programs. Of the laws, the following stand out: Nature Protection Act, the Environmental Protection Act, the Water Act, the Maritime Code, the Maritime Domain and Sea Ports Act and finally the Physical Planning Act.

The need for additional research is emphasized by the **Climate Change Adaptation Strategy in the Republic of Croatia for the period up to 2040 with a view to 2070**. The strategy predicts a rise in the level of the Adriatic Sea between 32 and 65 cm by the end of the 21st century and offers possible solutions to reduce high vulnerability. It also emphasizes the importance of proper spatial planning, which has an integrative function in the planning of spatial development, land use and marine area, where climate change represents a significant threat to the management of spatial development. Therefore, the planning and arrangement of space is a tool of environmental protection, but also adaptation to climate change.

Further adaptation of the coastal area to sea level rise is necessary, especially because careful planning can avoid or reduce future negative effects on the coastal area and the resulting costs. At the same time, sea level rise will take place relatively slowly, reducing adaptation costs, which in turn will strongly depend on the quality of long-term spatial planning. A long period enables learning in practice, i.e., timely adjustments and corrections of existing spatial plans.

3.4. Description of the Project Purpose

Coastal areas, their sensitive and endangered natural and cultural heritage included, are a priority national interest of all countries. **The Constitution of the Republic of Croatia**, Article 56, emphasizes, that *'the sea, the seacoast and the islands, ... are of interest to the Republic of Croatia, they have its special protection'*. The present interdependence of coastal and marine conditions is reflected in human activities along the coastline. This interdependence of human activities and resources explains why sectoral approaches cannot provide satisfactory results. Therefore, improvement can only be achieved through integral development management, where spatial planning is one of the key instruments.





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During the last decades, extreme hydrological events with large amounts of precipitation have often been recorded in the territory of the Republic of Croatia, resulting in the occurrence of historically largest water waves and extremely high-water levels with floods.

A strategy for dealing with sea level rise consists of protecting vulnerable areas and/or retreating from them. There is no unified solution to this problem, but it is necessary to establish the best methods for solving each individual endangered place. The problems that will arise due to sea level rise demand individualized approach due to the complexity of the coastal area of the Republic of Croatia and Primorje - Gorski Kotar County in terms of relief, geological structure, wave action, population, etc. A combination of short-term and long-term strategies is recommended which include protective measures and withdrawals.

Preparations for the project '**Vulnerability analysis of the coastal area of the Primorje-Gorski Kotar County due to sea level rise**' coincided with the frequent floods in the coastal area of the Primorje - Gorski Kotar County, caused by high sea levels. These events additionally indicated the need to carry out an analysis of the vulnerability of the county's coastal area due to climate change, i.e., rising sea levels.

The Public Institution Institute for Physical Planning of the Primorje-Gorski Kotar County, has launched a research called '**Vulnerability analysis of the coastal area of the Primorje-Gorski Kotar County due to sea level rise**', as an expert study for the preparation of spatial planning documents. The research was carried out in cooperation with the Faculty of Civil Engineering of the University of Rijeka.

3.5. Methodological approach

Based on a review of all relevant research on coastal vulnerability in the Adriatic, the Mediterranean and globally, in this research a coastal vulnerability assessment method based on the calculation of the Coastal Vulnerability Index (CVI) was used.

It is a relatively simple method of assessing coastal vulnerability, which consists of several partial indices (sub-indices), where individual analyses can be very complex, especially in the case of an indented coastline, with a total length of over a thousand kilometres. The methodological approach used in other researches, especially when selecting individual variables for analysis and calculation of sub-indices, was adapted taking into account the heterogeneity of the natural features of the observed area, including its geological structure, geomorphological, hydrographic and oceanographic features.

Ultimately, the Coastal Vulnerability Index (CVI) was defined based on vulnerability sub-indices with regard to:

- Variable a - **geological fabric**;
- Variable b - **coastal slope**;
- Variable c - **wave action**;
- Variable d - **coastal flooding**;
- Variable e - **the favourable influence of beaches**.

Based on the previously described vulnerability sub-indices of the coastal belt of the Primorje-Gorski Kotar County, the final CVI index was determined according to the formula:





$$CVI = \sqrt{\frac{a^2 + b^2 + c^2 + d^2 - e^2}{5}}$$

A significant limitation in the conduct of the research was the (in)availability of substrates of appropriate precision. The aforementioned limitation was most evident through the low precision of the digital elevation model (25 m), which can significantly affect the precision of the analysis carried out. Those limitations are especially sensitive if the results of the coastal vulnerability analysis are projected onto the area behind the coastal line (e.g., defining the inundation limit of the coastal area for certain scenarios of sea level rise).

For this reason, the goals of the research were adapted to the mentioned limitations in such a way that the focus was on detecting potentially endangered areas scheduled for further analysis in local frameworks, i.e., using more appropriate substrates of higher precision.

The base for the analysis that followed is the coastline defined by point, positioned on every 25m of the coastline, which is simplified and adjusted at certain locations due to the value of significant wave heights. Analysis was carried out in each of the 47,560 points on the Primorje-Gorski Kotar County coastline and their respective transverse profiles, perpendicular to the coastline, depending on the characteristics of the calculation of each sub-index.

3.6. Description of Project Results

According to the analysis carried out, the results of the vulnerability of the coastal belt of the Primorje-Gorski Kotar County are presented by individual variables and the final coastal vulnerability index (CVI). All results are aggregated for all 20 coastal local self-government units in the County, and the particularly endangered areas are stressed out along with the presentation of the results.

Regarding the results, it is evident that according to variable **A - geological structure**, the towns of Crikvenica (8.2%), Rab (7.7%) and Mali Lošinj (7.6%) have the greatest relative vulnerability. There are a large number of towns and municipalities (Bakar, Kostrena, Rijeka, Krk, Malinska-Dubašnica and Vrbnik) that do not have any large-grained/fine-grained sediments near the coastline, i.e., parts of high and very high vulnerability.

According to variable **B - coastal slope**, Mošćenička Draga shows extremely high vulnerability (55%), followed by Baška (43.5%), Lopar (30.1%), Cres (23.8%) and Rab (19.1%). The least threatened are Malinska-Dubašnica (0%), Dobrinj (0.3%), Rijeka (1.4%) and Lovran (2.6%). For most towns and municipalities, the coastline vulnerable to this variable is located in the unbuilt parts or parts outside of the building areas. However, in Kostrena (7.1%), Bakar (5.2%), Kraljevica (4.8%), Opatija (4.2%), Rab (4.2%) and Punat (4.1%) vulnerable part of the





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coastline located in already built-up areas is significantly higher than the average for the entire county (1.2%).

Vulnerability analysis by variable **C - maximum wave height**, shows the smallest threat in the protected bay of Bakar (0%), Malinska-Dubašnica (0%), Omišalj (0.1 %) Kraljevica (0.2 %) and Lopar (0.8 %). At the same time, densely built and populated Rijeka (47.9%), Opatija (47.7%), Lovran (42.8%) have the largest shares of coast with high and very high vulnerability.

Variable D - flooding of the coast, is the most sensitive variable, given that the largest part of the coast is threatened precisely by this variable. All sub-regions (mainland coastal area, island groups) have a share of endangered coast at the level of the county average (24.4%). The most vulnerable to the influence of this variable are Rijeka (69.4%), Dobrinj (49.1%), Punat (46.7%), Opatija (44.1%), Malinska-Dubašnica (37.5%) and Crikvenica (35%). Just in Rijeka, Opatija and Crikvenica, as highly urbanized units, the largest part of the threatened coast is located in already built-up areas or in building areas planned for construction and development. Relatively less vulnerable to the influence of this variable are Mošćenička Draga (4.8 %), Vrbnik (9.6 %), Baška (10.1 %), Lopar (11.3 %) and Cres (11.9 %).

Regarding the final Coastal Vulnerability Index (CVI), most areas of the County (67.4%) are of low and very low vulnerability, while 13% are of high and very high vulnerability. The average vulnerability is 2.02, which corresponds to low vulnerability.

Table 1. Primorje-Gorski Kotar County - representation of the final Coastal Vulnerability Index (CVI)

Vulnerability		Representation	
qualitative	quantitative	(m)	(%)
Very low	1	555.125	46,7
Low	2	246.575	20,7
Moderate	3	232.925	19,6
High	4	113.675	9,6
Very high	5	40.700	3,4
<i>Average value</i>	<i>2,02</i>		

Source: Vulnerability Analysis of the Coastal Area of the Primorje-Gorski Kotar County due to Sea Level Rise, 2022.

The most endangered is the island of Susak, whose entire coastline is of high and very high vulnerability. The town of Mali Lošinj is of moderate vulnerability, which is mostly connected to the risk of coastal flooding, while other factors are more moderate. The mostly uninhabited southern area of the island of Cres (Punta Križa) is moderately to highly vulnerable due to low coasts and exposure to high waves. The island of Rab generally has a high CVI, with an average value of 2.3. Its coast is mostly not endangered (59%), but with large parts of the coast (23.8%) threatened by high and very high vulnerability. The area of Liburnia (Lovran, Opatija, Mošćenička Draga) is highly vulnerable as well, with CVI values around 2.90. One of the most threatened areas is the City of Rijeka, which includes the 4 km long Rijeka Breakwater, significantly increasing the overall vulnerability.

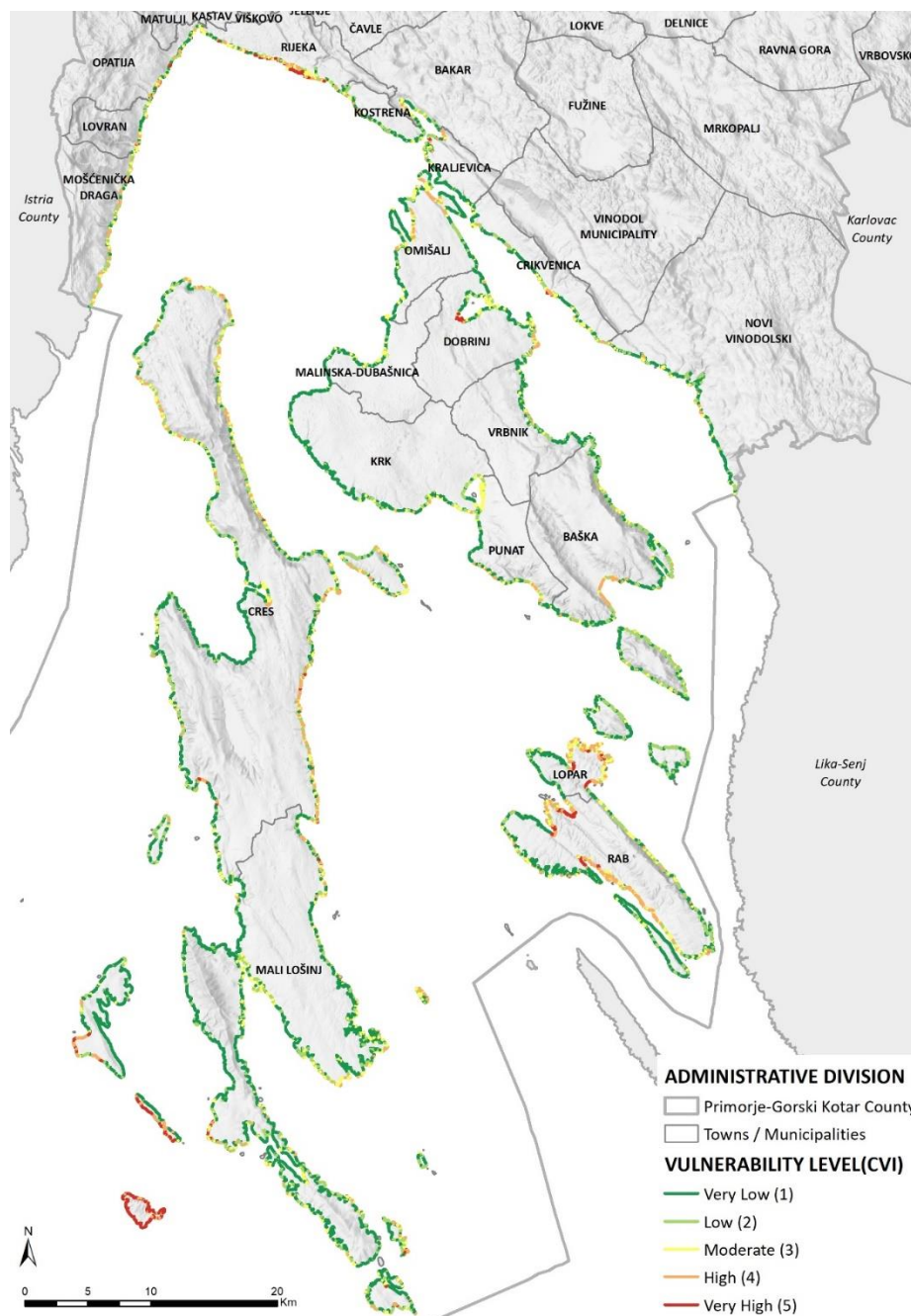




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Figure 13. Primorje-Gorski Kotar County - results of the final Coastal Vulnerability Index (CVI)



Source: Vulnerability Analysis of the Coastal Area of the Primorje-Gorski Kotar County due to Sea Level Rise, 2022.

For the purpose of additional analysis of the determined vulnerability and dissemination of the research results, the data set with the vulnerability results on the coast was additionally elaborated and overlapped in relation to the building areas determined by the spatial planning documentation. The representation of the coastal line, which was determined by research to be very high and highly vulnerable, was analysed, as follows:

- in building areas (taken from valid spatial planning plans of towns and municipalities);





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- in the area of existing construction outside building areas (taken from the official cadastral plan).

The analysis showed that a quarter (26.3%) of the total coastline, determined as highly and very highly vulnerable, overlaps the building areas of the settlement.

Table 2. Vulnerability of the coastal area of Primorje-Gorski Kotar County in relation to all building areas and built-up areas outside building areas determined by spatial planning plans of towns and municipalities

	Total length of PGC coast		Coast length with high and very high vulnerability (CVI=4 and 5)			
	km	%	km	%	% of the total length of the coast purpose	% of the total length of the PGC coast
Coast purpose						
All purposes	1.193,88	100	178,30	100	14,9	14,9
Building areas of the settlement	165,97	13,9	43,58	24,4	26,3	3,6
Built parts	151,44	12,7	41,76	27,6	27,6	3,5
Un-built parts	14,53	1,2	1,82	12,5	12,5	0,2
Separate building areas outside the settlement	136,22	11,4	23,38	13,1	17,2	2,0
Built parts	103,26	8,6	17,36	9,7	16,8	1,5
Un-built parts	32,95	2,8	6,02	3,4	18,3	0,5
Built-up areas outside building areas	14,13	1,2	0,98	0,5	6,9	0,1
Non-construction areas outside building areas	877,56	73,5	110,36	61,9	12,6	9,2
All built parts of building areas in total	254,7	21,3	59,12	33,2	23,2	5,0
All building areas in total	302,18	25,3	66,96	37,6	22,2	5,6
All construction areas in total	316,32	26,5	67,93	38,1	21,5	5,7

Source: Vulnerability Analysis of the Coastal Area of the Primorje-Gorski Kotar County due to Sea Level Rise, 2022.

The representation is even higher if only built-up parts of the building area of the settlement is considered. Furthermore, of the established very high and highly vulnerable coastal line, all built-up part of the building area covers a third of that line, and all existing and planned building areas cover almost 40%!

3.7. Results Application in Spatial Planning

In relation to the impact of climate change, due to the predicted sea level rise, the need to establish criteria, guidelines and recommendations for spatial planning of the coastal area is emphasized at the level of strategic documents of the European Union. With the





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ratification of European directives, protocols and strategies, this need was clearly implemented in the legislative framework of the Republic of Croatia. Despite this, in spatial planning at the national, regional and local level, such comprehensive studies of the vulnerability of the coastal area have mostly not been carried out so far.

Consequently, the impact of climate change and the vulnerability of the coastal area from rising sea levels are not systematically integrated and considered in spatial planning as a necessary expert study document for defining specific construction and spatial planning requirements.

In order to apply the results of the conducted research in spatial planning, their interpretation was considered in relation to different types of planning (strategic, implementation), i.e., planning level (regional/local level) and implementation in relation to the type of planned changes in space (construction of linear infrastructure, coastal buildings and other buildings located on the coastal area).

3.7.1 Research Results in Relation to the Legislative Framework

The Physical Planning Act prescribes a restriction on construction within a zone of 100 m from the coastline in detached part of the building area outside a settlement and on the area outside the building areas where it is intended to build a golf course and an outdoor sports and recreation field.

The analysis of the results of this research shows that it is necessary to reconsider the need to apply construction restrictions on the coastal part of the building areas of the settlement and to reconsider the need to limit the further along-coast expansion of all existing building areas that were determined by this research to be of high and very high vulnerability.

3.7.2 Application of Research Results in the Spatial Plan of the Primorje-Gorski Kotar County (strategic level)

In addition to the need of reinterpretation of the vulnerability of the coastal line at a level appropriate to the scale of the County Spatial Plan (1:100 000), it is necessary to:

- Reconsider the need to amend the topics that determine the sensitivity of the area (Art. 372) with the topic of the vulnerability of the coastal area;
- Reconsider the need for the display in the graphic part of the Spatial Plan of the Primorje-Gorski Kotar County - restriction measures on use of space, which also includes:





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- prescription of requirements and/or guidelines before planning and for construction planning, implementation and monitoring in threatened coastal areas through spatial plans at the local level,
- in accordance with all of above, prescribe requirements for local spatial plans to review planned, yet unbuilt parts of building areas, parts of which are located along the highly and very highly vulnerable coastal line, as determined by this research.

3.7.3 Application of Spatial plans at the local level (implementation level)

The main conclusions of carried out research, which should be applied when drafting spatial plans in the coastal area identified as highly and very highly vulnerable, and if necessary, also moderately vulnerable, in accordance with additional and more detailed research on the possible impacts of predicted climate changes, are as follows:

- Conducting additional detailed research and, based on the outcome, prescribing additional requirements for the planning, construction, arrangement, design and maintenance of buildings and areas as well as infrastructure and facilities;
- For linear infrastructure buildings that must be located on the coastal area (with expert opinion of the necessity of location on the coastal area), and buildings and surfaces that by their nature require location on the coast (with expert opinion of the justification of location planning in high and very high and not less vulnerable coastal area), prescribe specific construction requirements as well as (if necessary) the obligation to previously carry out more detailed research of the vulnerability of the coastal area;
- Prescribe specific construction requirements for buildings and the development of areas that by their nature do not require location on the coast (with prior expert opinion of the justification of the accommodation of such a building or area). If necessary, preliminary detailed research of the vulnerability of the coastal area should be carried out (as a basis for creating a spatial plan i.e., its changes/additions).

In built-up parts of building areas:

- for new construction - to prohibit/permit with the prescription of specific construction requirements;
- for replacement construction - prohibit/allow with the prescription of specific construction requirements;
- for reconstruction - prescribe specific requirements for reconstruction.

In unbuilt parts of building areas:

- review and expertly justify the retention of unbuilt parts of building areas on the vulnerable coastal area;
- obligate prescription of specific construction requirements in the guidelines used for drafting of an urban development plan.





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4. Main Takeaways from the Pilot Action

To identify the main takeaways from the Pilot Action the 3 previous questions associated to the **self-assessment exercise, concerning the process of landscape transition towards increased territorial resilience to climate change and the adaptation of rural areas to its foreseeable effects** are retaken.

The answer to the question **Did the Pilot Action ‘Climate Change Adaptation and Resilience through Landscape Transition’ succeed, and if so, why?** lies in the implementation process, which meets the Territorial Agenda 2030 in both principle and practice. Here are the factors that contributed to the success of this pilot project:

- **Experimentation in public policies:** the Landscape Transition Programme (PTP) was designed based on the pilot project of the PRGP of Monchique and Silves. The Vulnerability Analysis of the Primorje-Gorski Kotar County Coastal Area due to Sea Level Rising in Croatia seeks ways to include adaptation measures in spatial planning documentation at the regional and local implementation level;
- **A shared vision to achieve ‘the desired future’:** stakeholders from different sectors and levels have confirmed that the diagnosis, vision, and general objectives of the PTP are relevant. The Vulnerability Analysis of the Primorje-Gorski Kotar County Coastal Area due to Sea Level Rising drives the reconsideration of the need to apply construction restrictions to the coastal part of building areas and the further expansion of all existing building areas of high and very high vulnerability;
- **Coherence between national policies:** spatial planning, coastal area management strategy, forestry, and civil protection should share levels of coherency between national policies;
- **Articulation between policy instruments:** managing bottom-up/top-down instruments and stakeholders collaboratively ensures coherence between the local and regional scale as well as application of research results in the implementation of spatial plans at the regional and local level;
- **Trust:** after two years of the PTP implementation process and planned program measures, there is growing trust and responsibility sharing between the various sectors and levels of public administration and the private sector. The Vulnerability Analysis of the Primorje-Gorski Kotar County Coastal Area due to Sea Level Rising project could provide the basis for the coastal vulnerability analysis of the seven coastal counties of the whole of Adriatic Croatia.
- **The role of science:** a better relationship between scientific knowledge and public administration leads to better public policies. Strengthening the contribution of spatial planning skilled institutions' research results contributes to disseminate scientific knowledge.

In short, the factors that led to the successful elaboration of this Pilot Action were the bottom-up/top-down management of stakeholders, working collaboratively towards concrete and differentiated changes and results. This was a fundamental step for mobilizing communities and territories towards intersectoral spatial planning platforms working at national, regional, and local levels, and for European territorial cooperation that drives and enables stakeholders to change. The success of this Pilot Action underscores the importance of building trust, sharing responsibility, and working together towards a shared vision of the future. By experimenting with public policies, articulating policy instruments, and strengthening the role of science, we can create positive change that benefits everyone.





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How can we make the Pilot Action (even) better?

The success of the Pilot Action ‘Climate change adaptation and resilience through landscape transition’ depends on **better funding**, which is essential for expanding its impact to other vulnerable forest territories or coastal areas. Achieving this requires a healthy relationship between various funds that are crucial for European territorial cooperation, including those related to agriculture, forests, biodiversity, and territorial cohesion. In addition, a balanced approach to coastal area management necessitates spatial planning that focuses on the vulnerability to rising sea levels in the development of territories that are more resilient.

Empowering local agents and spatial planning authorities through capacity building is also crucial for the sustainability of the Pilot Action. This involves engaging in strong participatory processes and multi-stakeholder dialogues. The Pilot Action ‘Climate change adaptation and resilience through landscape transition’ is an excellent example of a multi-sectoral approach that requires long-term commitment from various sectors towards a common vision for rural or coastal areas. However, there is still a need for clearer availability and easier access to funding that is tailored to specific territorial needs.

What can we learn from the Pilot Action going forward?

Governance models play a vital role in the transition and management processes necessary to implement transformative changes, including at the European territorial cooperation level. Encouraging an open mind to more flexible, innovative, and dynamic ideas that can generate positive impacts on the day-to-day lives of communities, their infrastructure and livelihoods is also essential. One of the most important impacts of this project could be the reconnection of communities with their territories, providing a common purpose of belonging to a place, and a culture that grounds and drives their aspirations.

European territorial cooperation, with Territorial Agenda 2030 taking the lead, must open up new paths of **cooperation between stakeholders**. More action, with a greater focus on the main local goals without losing sight of the global positive effects that may be associated with other strategies and instruments, requires a powerful mobilization to assemble and empower local key actors and authorities to act and use the available funds smartly.

The **preparatory services to support the Rural Pact** are also essential, including the evaluation of the EU Programming for action in rural areas, which means assessing the level to which EU funds support rural areas in 2023. Only smart combinations of public policies aimed at investments, actors, and specific models can achieve the territorial, social, economic, and inter-generational justice that the rural space is due.

Moreover, the ESPON 2030 Programme has approved a new **Thematic Action Plan “Nature-Based Adaptation to Climate Change”**¹⁰ which will fill the gaps in scientific evidence that could support a better understanding of the territorial aspects of climate adaptation by Nature-based Solutions, which are particularly relevant for coastal areas.

This report on the Pilot Action ‘Climate change adaptation and resilience through landscape transition’ aims to be a **self-assessment exercise** concerning the process of landscape transition towards increased territorial resilience to climate change and the adaptation of rural and coastal areas to its foreseeable effects. It is an effective co-designed process that aims to achieve **new landscapes that are more resilient** to fires, serve as a **referential for a new rural economy**, and promote **multi-funding payment models** for transformations that improve ecosystem services. Additionally, the process aims to create **more resilient coastal areas** that are less exposed to risks.

¹⁰ See: <https://www.espon.eu/espon-2030/taps/Nature-based-adaption-to-climate-change>





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5. (Common) Conclusions

The Pilot Action 'Climate change adaptation and resilience through landscape transition' was comprised of **two case studies: the Landscape Planning and Management Programme of the Serras of Monchique and Silves in southern Portugal and the Vulnerability Analysis of the Primorje-Gorski Kotar County Coastal Area due to Sea Level Rising in Croatia**. The ultimate goal of both of these strategies was to address the immediate needs of the population while simultaneously considering long-term implications, with the aim of preventing the detrimental consequences of climate change on rural, coastal, or insular areas.

However, simply having these strategies in place is not enough - the real challenge lies in their implementation. Implementing these strategies often involves limited participation from individuals with varying levels of experience in identifying problems and opportunities, as well as difficulties in communicating effectively between partners.

To combat these challenges, it is essential to monitor the progress of programs like the Landscape Planning and Management Programme in Portugal and to implement the proposed measures into Spatial Plan of the Primorje-Gorski Kotar County with the possibility to replicate it in other Croatian coastal areas or other countries. By doing so, we can empower territories and people to address the impending threat of global warming and prevent it from exceeding the two-degree Celsius limit.

The Territorial Agenda 2030 objectives for a 'Just' and 'Green' Europe provide a framework for sustainable policy actions towards climate change adaptation and risk prevention or management. By aligning these objectives with the long-term policy goals to support the Cohesion Policy objective of a greener and low-carbon Europe, we can work towards meeting the objective of not exceeding the two-degree Celsius limit.

To achieve this, we must put our plans into action and work collectively towards landscape transition processes. This requires a coordinated effort among actors with diverse backgrounds to reallocate resources, create result-oriented strategies, and build new management and financing models. By focusing on prevention rather than fighting the effects of climate change, we can ensure that more can be done with less.

The Pilot Action 'Climate change adaptation and resilience through landscape transition' has provided invaluable insights into the territorial consequences, opportunities, and challenges of climate adaptation spatial planning methodologies in diverse European regions. By emphasizing **place-based solutions** and **involving knowledge, actors, and institutions/sectorial authorities**, we can provide guidance to national, regional, and local initiatives and work towards a 'Just' and 'Green' Europe.

Moving forward, it is crucial to keep in mind the motto of a more resilient and sustainable future for all places when revising the Territorial Agenda 2030. By strengthening the balance between the 'Just' and the 'Green' Europe and using place-based strategies from elaboration to implementation, we can ensure that **no individual or place is left behind**.





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8. List of Acronyms (and translations)

AGIF - Agência para a Gestão Integrada de Fogos Rurais (National Agency for the Integrated Management of Rural Fires)

CCDR - Comissões de Coordenação e Desenvolvimento Regional (Regional Coordination and Development Comissions)

CVI - Coastal Vulnerability Index GIS - Geographic Information Systems

ICNF- Instituto de Conservação da Natureza e das Florestas (Institute for Nature Conservation and Forests)

IGT- Instrumentos de Gestão Territorial (Instruments of Territorial Management)

IPCC - Intergovernmental Panel on Climate Change

NTCCP - Network of Territorial Cohesion Contact Points

OIGP - Operação Integrada de Gestão da Paisagem (Integrated Landscape Management Operations)

PNPOT - Programa Nacional da Política de Ordenamento do Território (National Spatial Planning Policy Programme)

PRGP - Programa de Reordenamento e Gestão da Paisagem (Landscape Planning and Management Programme)

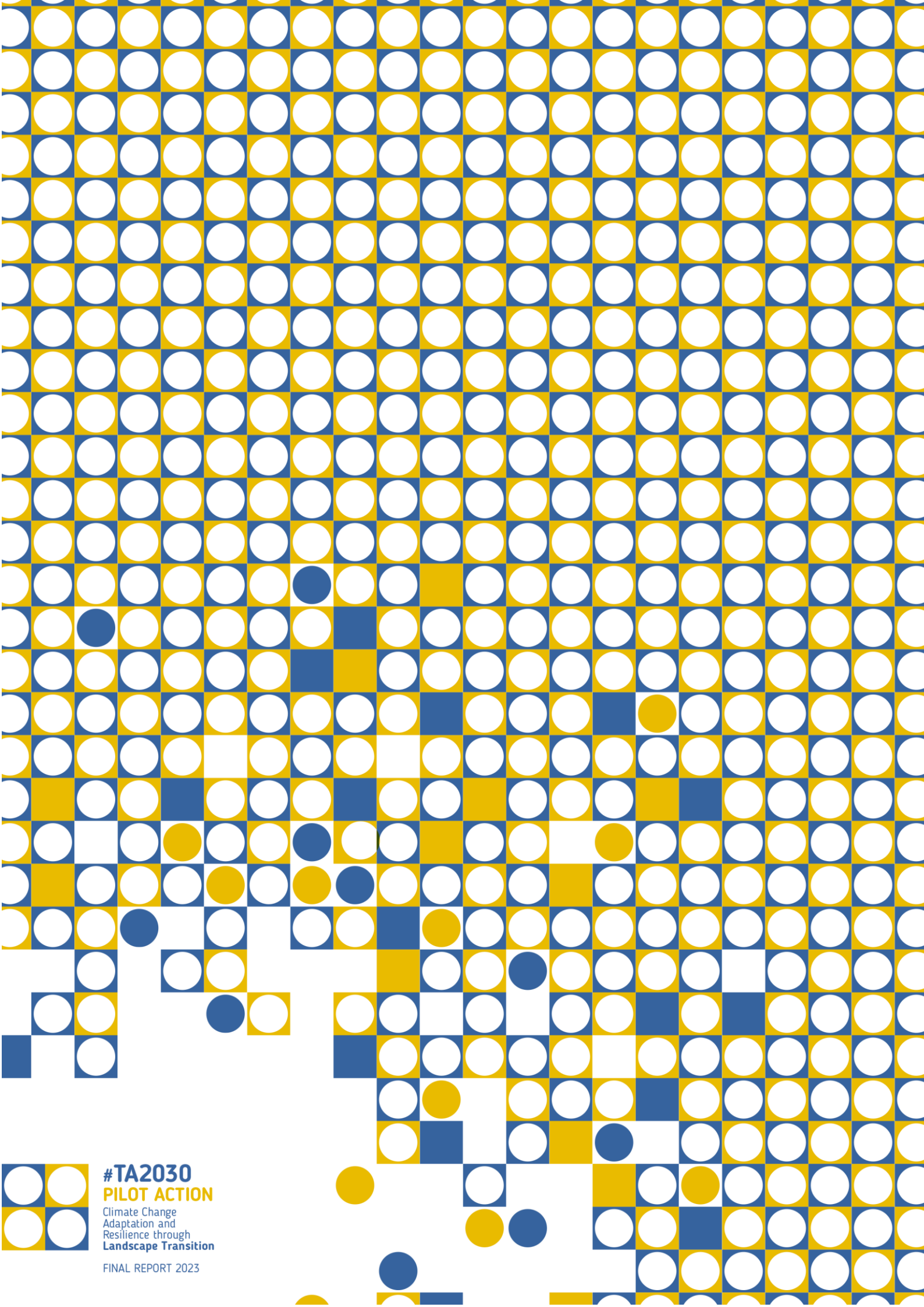
PRGPMS - Programa de Reordenamento e Gestão da Paisagem das serras de Monchique e Silves (Landscape Planning and Management Programme of the serras of Monchique and Silves)

PROF- Programa Regional de Ordenamento Florestal (Regional Programme for Forestry Management)

PTP- Programa de Transformação da Paisagem (Landscape Transition Programme)

SGIFR - Sistema de Gestão Integrada de Fogos Rurais (National System for the Integrated Management of Rural Fires)





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