

# PT CCA transfer plans to twins

**Deliverable 3.24**

28 January 2025



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<b>Deliverable Name</b>	PT CCA transfer plans to twins
<b>Related Work Package</b>	3
<b>Deliverable lead</b>	CIM-RC
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<b>Project Full Name</b>	Regions for climate change resilience through Innovation, Science and Technology
<b>Project Acronym</b>	RESIST
<b>Grant Agreement Number</b>	101093968
<b>Instrument</b>	Innovation Action
<b>Start date</b>	01/01/2023
<b>Duration</b>	60 months
<b>Type of Delivery (R, DEM, DEC, Other)<sup>1</sup></b>	R
<b>Dissemination Level (PU, CO, CI)<sup>2</sup></b>	PU
<b>Date last update</b>	28/01/2025
<b>Website</b>	<a href="https://resist-project.eu">resist-project.eu</a>

Revision nº X	Date	Description	Author(s)
0.1	11/11/2024	First draft	LSDT4
0.2	26/11/2024	Review by adelphi	Lara Möllney (adelphi)
0.3	13/01/2025	Internal review	Gaia Marotta (ERRIN)
0.4	14/01/2025	Coordinator review first	Vilija Balionyte-Merle (SINTEF)
0.5	24/01/2025	Integration of comments	Carlos Silveira (CCDRC)
0.6	27/01/2025	Operational coordinator review	Catarina Azevedo (INOVA)
0.7	27/01/2025	Coordinator review final	Vilija Balionyte-Merle (SINTEF)

Please cite this deliverable as:

PT CCA transfer plans to twins. Deliverable 3.24 of the RESIST project

<sup>1</sup> R=Document, report; DEM=Demonstrator, pilot, prototype; DEC=website, patent fillings, videos, etc.; OTHER=other

<sup>2</sup> PU=Public, CO=Confidential, only for members of the consortium (including the Commission Services), CI=Classified



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## Abbreviations

AIGP	Integrated Areas for Landscape Management
CCA	Climate change adaptation
CCDRC	Regional Development and Coordination Commission of Centro region
CIMBAL	Inter-municipal community of Baixo Alentejo
CIM RC	Inter-municipal community of Coimbra region
EN AAC	National Climate Change Adaptation Strategy
LSD	Large-scale Demonstrator
LSDT	Large-scale Demonstrator-Twinning Region
NGO	Non-governmental Organisation
OIGP	Integrated Operations for Landscape Management
PIAAC BA	Intermunicipal Plan for Adaptation to Climate Change in Baixo Alentejo
PIAAC RC	Intermunicipal Plan for Adaptation to Climate Change in the Coimbra Region
PIAAC MT	Intermunicipal Plan for Adaptation to Climate Change in Médio Tejo
PFB	Productive Fuel Break



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# 1 Introduction

## 1.1 Motivation

The RESIST projects aims at strengthening the resilience, accelerating the transformation and increasing the adaptive capacity of different climate vulnerable regions in EU, through the implementation of 4 large-scale demonstrators that focus on the development of different innovative approaches for Climate Change Adaptation (CCA).

Mutual-learning activities among partners have been structured in order to assure the scalability and replication of know-how and different innovative solutions, while assuring the adequacy to the different territorial and institutional frameworks.

Large Scale Demonstrator 4 (LSDT4) is focused on the occurrence of forest fires and the consequent externalities (as soil erosion and the loss of biodiversity). Considering the existing knowledge and experience on integrated territorial approaches to promote fuel management and land use and occupation changes towards more fire-resilient territories, one of the goals within RESIST is to assure the promotion of knowledge exchange between partners and regions that face similar challenges.

The deliverable aims to provide a detailed plan for the CCA solutions transfer between the RESIST Leading region Central Portugal (Portugal) and Twinning regions Extremadura (Spain) – from LSDT4 – and Baixo Alentejo (Portugal) – from LSDT3. The deliverable briefly presents the solutions that are being demonstrated by the regional stakeholders in both the Leading and Twinning regions, and focuses on the solutions that will be transferred to the Twinning regions in RESIST. The transfer plan includes an overview of the strengths and expertise from the solution-providing region, an analysis on the key challenges, needs and existing climate adaptation solutions from the solution-receiving regions, as well as a detailed description of the planned transfers.

## 1.2 Overview of planned transfers within RESIST for all regions

The RESIST project addresses climate-related challenges and needs of twelve climate-vulnerable regions in Europe, each with distinct socioeconomic profiles. These regions are Southwest Finland (Finland), Central Denmark (Denmark), Catalonia (Spain), Central Portugal (Portugal), Normandy (France), Eastern Macedonia and Thrace (Greece), Blekinge (Sweden), Zemgale (Latvia), Puglia (Italy), Baixo Alentejo (Portugal), Vesterålen (Norway), and Extremadura (Spain).

As part of the project, adaptation solutions developed by RESIST regions are transferred to other “receiving” project regions. The original project structure organizes the regions into four clusters, each consisting of one more advanced region, known as a Large Scale Demonstrator Region, and two Twin Regions. Each cluster is referred to as an “LSDT”. While the Large Scale Demonstrator Regions — namely Southwest Finland, Central Denmark, Catalonia, and Central Portugal — were pre-selected as providing regions, any region within the project could choose to offer solutions for



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transfer. Figure 1 shows an overview of all planned transfers, which will be implemented within the remaining project time (2025-2027).

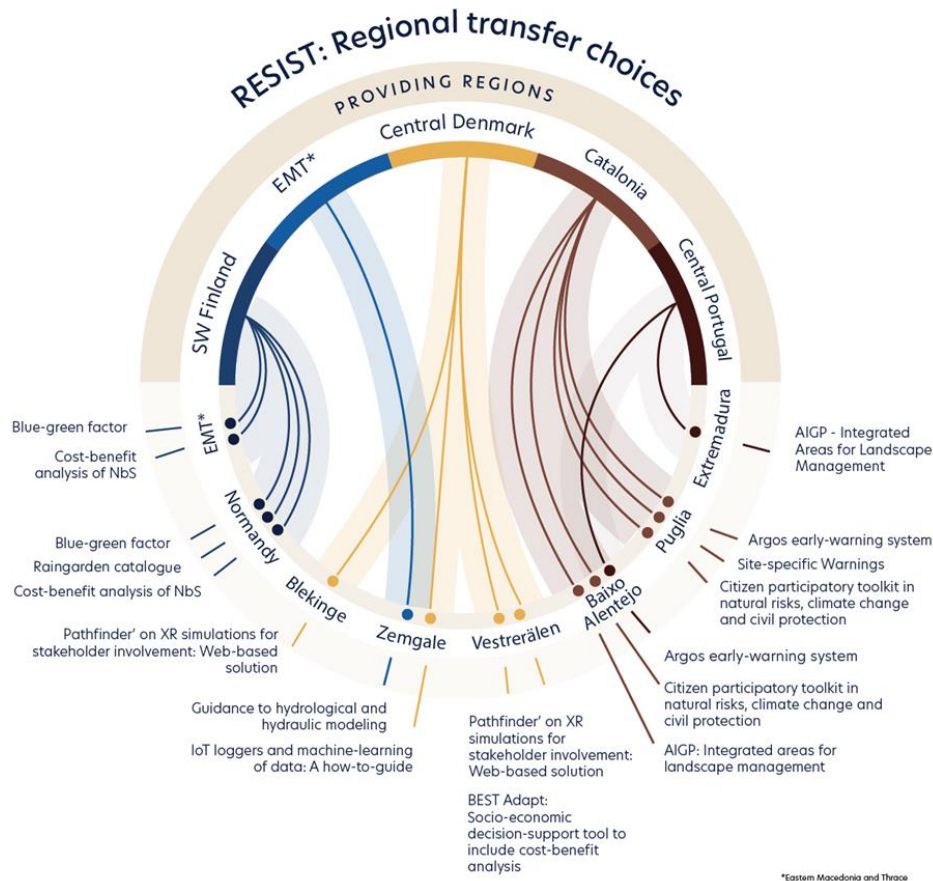


Figure 1: Overview of transfers between the regions.

South-West Finland (LSDT1) is transferring five innovative solutions. These include the "Blue-green factor", a policy instrument used to increase blue- and green infrastructure in urban areas, and "Cost-Benefit analysis of NbS", which provides a systematic method for identifying the benefits and costs of Nature-based Solution (NbS) projects over their lifetime. Both solutions are transferred to the regions of Normandy (LSDT1) and Eastern Macedonia and Thrace (LSDT1). Additionally, South-West Finland transfers the "Raingarden catalogue" to Normandy. This catalogue provides valuable insights into raingardens, promoting sustainable water management in residential areas. All three regions belong to LSDT1, no transfers outside the original LSDT are performed by South-west Finland.

Eastern Macedonia and Thrace (LSDT1), a region that joined RESIST as a twin-region, is also contributing a solution to the transfer process. The "Guidance to Hydrological and Hydraulic Modelling" solution is transferred to Zengale (LSDT3). This solution provides comprehensive

guidance for hydrologic and hydraulic modelling, enhancing water management and increasing resilience to flood-related hazards.

Central Denmark (LSDT2) is sharing its expertise with Zemgale (LSDT2) through the solution "IoT Loggers." The solution facilitates the deployment and use of IoT groundwater loggers, supporting effective data collection and analysis. Furthermore, Central Denmark transfers "BEST Adapt: Socio-economic Decision-Support Tool to Include Cost-Benefit Analysis" to Vesterålen (LSDT4). This tool integrates socio-economic factors to enhance informed decision-making in climate adaptation efforts, particularly focusing on flood-related hazards. Additionally, Central Denmark provides the "Pathfinder on XR Simulations for Stakeholder Involvement – Web-Based Solution," an online tool designed to support the selection and implementation of XR solutions for immersive stakeholder engagement. This solution is transferred to both Vesterålen and Blekinge (LSDT2). Central Denmark, therefore, facilitates solution transfers both within and beyond its LSDT.

Catalonia (LSDT3) contributes the "Argos Early-Warning System," an early-warning and decision-support tool designed to assist emergency managers and other stakeholders in anticipating impacts and managing weather-related emergencies more effectively. It also offers the "Citizen Participatory Toolkit in Natural Risks, Climate Change, and Civil Protection," which is a compilation of various formats and methods for engaging citizens in climate adaptation, tailored to different social groups. Both solutions are transferred to Baixo Alentejo (LSDT3) and Puglia (LSDT3). Additionally, Catalonia transfers the "Site Specific Warnings" solution to Puglia, which integrates site-specific warnings into the Argos early-warning system. Catalonia does not transfer solutions outside of LSDT3.

Central Portugal (LSDT4) shares the "AIGP – Integrated Areas for Landscape Management", a comprehensive approach aimed at promoting the collective management and utilisation of agroforestry spaces in smallholdings and areas with high fire risk. This approach is grounded in an integrated territorial strategy that addresses the need for effective landscape planning and management. It aims to increase the area of managed forest at a scale that enhances resilience to fires, boosts natural capital, and in a way that supports the rural economy. This solution will be transferred to Extremadura (LSDT4) and Baixo Alentejo (LSDT3).

### 1.3 LSDT-4: Parties and content of the transfer plans

LSDT4 comprises the Large-Scale Demonstrator of Central (NUTS II) Portugal (with a specific focus on the pilot areas of Médio Tejo and Coimbra, which are both NUTS III regions), with Twinning Regions in Vesterålen (Norway) and Extremadura (Spain).

CCDRC is the coordinator of this LSDT. The demonstration activities are focused on the development of solutions to promote a more effective management and valorisation of the forest, reducing the effects of climate change in the region (particularly the occurrence of large rural fires). The activities in the region are being jointly carried out by CIM Região de Coimbra, CoLAB ForestWISE, BLC3, CIM Médio Tejo, MédioTejo21 and Instituto Politécnico de Portalegre.

Considering the focus on fostering the resilience of territories towards the occurrence of forest fires, all partners were actively involved in identifying possible connections with other LSDTs and partners



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from other regions that could be interested in exchanging knowledge in this area. Moreover, even though Vesterålen (Norway) is involved in LSdT4 as a twinning region, the main challenges identified in this territory are related to sea level rise and water temperature rise, which differ from those identified within LSdT4. This gap led to the identification of other possible solutions to transfer from regions in other RESIST LSDTs.

Thus, following the challenges and needs of the RESIST regions presented in the deliverable D1.11 'Needs Assessment for Leading and Twinning Regions updated and finalised' and cooperation with the partners representing the regions, Central Portugal proposed to transfer the innovative solution 'AIGP - Integrated Areas for Landscape Management' (a 'process and management practice' based solution) to the regions of Extremadura (Spain) – involved in LSdT4 – and Baixo Alentejo (Portugal) – involved in LSdT3.

This solution contains a range of components and intends to increase the landscape's resilience to wildfires and climate change impacts through fuel management and land use and occupation changes through an integrated territorial approach in a continuous territory. Some of the main features of this approach are: i) stakeholder engagement; ii) changing of land use, with the adoption of more resilient species to form a barrier to the spread of wildfires (e.g. arbutus); iii) development of new business models; iv) communication and training.

## 1.4 Solution-providing region: Strengths and expertise

### 1.4.1 Key regional expertise in the field of climate resilience and climate change adaptation

As already outlined in Deliverable 1.11 ('Needs Assessment for Leading and Twinning Regions updated and finalised'), the NUTS III Coimbra and Médio Tejo regions (located in Central Portugal) face similar challenges regarding their vulnerability towards forest fires. Both territories face demographic challenges – such as low birth rates and emigration from rural areas, which leads to an abandonment of land and increase of forest fuel – and a fragmented land structure, which hinders the implementation of new management tools and hampers the success of new policies.

In this context, in Portugal, based on the ENAAC (the National Adaptation Strategy), a National Adaptation Plan (P-3AC) was developed with the goal of implementing adaptation measures, based on planning exercises at national, regional and municipal level. The strategy comprises eight lines of action. It emphasises the importance of preventing rural fires through structural interventions in the agricultural and forestry sectors. As Portugal does not have an established regional government level, it relies on Regional Coordination and Regional Development Commissions (CCDR) and Inter-Municipal Councils (CIM) and Metropolitan Areas to address aspects that concern the NUTS II and NUTS III levels.

Considering the focus of the project in the promotion of changes in landscape and better planning, as well as in the establishment of a collaborative model with private landowners and public



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administration entities, CIMs will play a crucial role in the implementation of the AIGP and the “village condominiums” (as described in Table 1) approaches in the defined pilot areas, as they act at an intermediate level, which is, simultaneously close to the regional authority but also to the municipalities, with an easier access to landowners. Additionally, and more importantly, one the legal duties of CIMs is, precisely, to ensure the coordination of actions between municipalities and central administration services in different areas, including land-use planning nature conservation, and natural resources, as well as security and civil protection (article 81 of Law 75/2013).

In Médio-Tejo, CIM Médio Tejo benefits from the cooperation with MédioTejo21 (a Regional Agency for Energy and the Environment) and Instituto Politécnico de Portalegre (a Polytechnic Institute that will support and coordinate the activities regarding the conversion of biomass in renewable gases). The approach in this territory is to explore the collection of biomass in AIGP to the production of renewable gases, through a specific refuelling station, to be used in vehicles that can transport that same biomass between the collection points and the gasifier. The surplus production can be made available to the community, as an alternative sustainable source of energy for instance, for the mobility sector, contributing to a greater diversification of energy sources in the region and, as such, greater security and resilience of the regional energy system, while guaranteeing a lower level of forest fuel.

In the Coimbra region, CIM Região de Coimbra, in cooperation with Colab ForestWISE, is focused on improving the participatory and governance model of AIGP (Integrated Areas of Landscape Management) and “village condominiums” regional programmes while exploring innovative economic models for private landowners (to discourage land abandonment), with the purpose of increasing the resilience of territories to forest fires. BLC3 is working on the further application of its TRL5 Biorefinery process, while assuring the testing and adaptation of their available solutions to real contexts, such as new systems of lignocellulosic biomass valorisation in high value biobased products by a new planning and governance mechanism to biomass collection with economic viability.

## 1.4.2 Overview of solutions available for transfer

The following Table 1 lists the three solutions from Central Portugal presented to Extremadura region and Baixo Alentejo (CIMBAL). **AIGP (Integrated Areas for Landscape Management) was selected as the best option for both territories**, as it was perceived to match their interests and needs, given that the high forest fire risk is common for all of the regions. The other two solutions will be partially taken into account during the implementation of the AIGP approach, while good practices are examples for the public and private sectors.



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**Table 1: Overview of solutions shortlisted for transfer by Central Portugal**

<b>Solutions for transfer</b>		
<b>Name of solution</b>	<b>Solution type</b>	<b>Short description</b>
AIGP - Integrated Areas for Landscape Management	Process and management practices	<p>AIGP, implemented through OIGP, offers an innovative approach to grouped land management (more than 100 hectares) aimed at reducing wildfire risks and enhancing resilience to climate change.</p> <p>These initiatives involve landscape transformation, species reconversion, and territorial revitalisation, supported by defined financial and operational frameworks.</p> <p>Responsibility lies with landowners or management entities, enabling sustainable forest resource management and territorial development. By combining technical measures, such as fuel load reduction and protection zones, with community engagement, AIGP/OIGP promote safer, more resilient landscapes over areas exceeding 100 hectares.</p> <p>For the AIGP to have an impact in the long run, a set of specific enablers/facilitators must be put in place, namely, the stakeholder engagement (workshop with forest owners and local inhabitants to contribute to the intervention plan), changing land use (evaluating the current situation and identifying the different management options suitable for each area, which include actions as reduction of fuel load, replacement of species, improvement of existing forest stands, etc.), new business models (favouring agroforestry species that are resilient to wildfires and climate change impacts) and communication and training (mainly targeted to forest firefighters).</p>
Village Condominium - Buffer zones for rural villages	Processes and management practices	<p>Village Condominiums focus on creating 100-meter buffer zones around rural communities to safeguard residents and increase resilience to wildfires and climate change. These zones reduce fuel loads and maintain safe distances</p>



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		<p>between vegetation and buildings, mitigating fire risks and protecting communities.</p> <p>In regions like Central Portugal, this strategy transforms unmanaged, flammable vegetation into landscapes with native broadleaf species, reducing flammability and enhancing biodiversity. By integrating safety and ecological restoration, Village Condominiums promote sustainable development and long-term resilience in rural areas.</p> <p>For the village condominiums to have an impact in the long run, a set of specific enablers/facilitators must be put in place, namely the stakeholder and communities' engagement (workshop with forest owners and local inhabitants to contribute to the intervention plan), selection of occupation types and species more resilient to wildfires and adapted to climate change (evaluating the current situation and identifying the different management options suitable for each area, which include actions as reduction of fuel load, replacement of species, improvement of existing forest stands, etc.), new business models (favouring agroforestry species that are resilient to wildfires and climate change impacts, and silvopastoralism) and communication and training (mainly targeted to forest firefighters).</p>
<p>Valorisation of biomass for nature base solutions (NbS) and (new) products</p>	<p>Processes and management practices</p>	<p>Residual forest biomass can be valorised into valuable resources to reduce wildfire risk and create new business models through nature-based solutions (e.g., shredding and incorporation of the biomass into the soil, construction of live fascines and shelter structures), energy generation (heat and electricity), pellets and fertilisers (biochar) production.</p>



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## 2 Transfer Plan – Central Portugal to Extremadura

### 2.1 Solution-receiving region: Challenges, needs and climate adaptation solutions

#### 2.1.1 Key regional needs in the field of climate resilience and climate change adaptation

##### Key climate-related risks in Extremadura

“Mapa del Cambio Climático en Extremadura” is the important baseline knowledge for climate risks in the region. Regarding future temperatures in the RESIST project area (Las Hurdes and Sierra de Gata), it is projected that maximum and minimum temperatures will increase until 2050. This projected rise in minimum temperatures will also lead to a decrease in the number of frost days. Projections also reveal a substantial decrease in precipitation until 2050 and concentration of intense precipitation in few extreme events. This reduction in rainfall poses a significant threat to the native flora and fauna, as well as the agricultural, energy, and industrial sectors within the area, as already outlined in the deliverable D1.11 ‘Needs Assessment for Leading and Twinning Regions updated and finalised’.

Extreme events in the Extremadura region pose significant challenges and potential risks. Flooding is a concern, as it can cause severe damage to the infrastructures in several sectors. In Extremadura, rainfall-induced erosion is the primary cause of fertile soil loss and ultimately contributes to desertification. The region, with its geomorphological characteristics of steep slopes and narrow valleys, is particularly prone to flash floods after heavy rain.

Regarding forest fires, Extremadura has experienced a considerable number of fires, with intentional human activities triggering almost half of the incidents in the last decades. Higher temperatures increase the likelihood of fires starting on forested land and facilitate their spread due to the heightened flammability of materials under increased heat. Climate change will likely influence the fire regime, leading to more ignitions and easier propagation as aridity increases, summer rainfall decreases, and extreme temperatures become more likely, drying out fuels and promoting ignition. In addition, heat waves pose a significant threat, particularly to the RESIST project area, where the percentage of the elderly population is higher compared to other areas in Extremadura. Droughts and aridification are likely to affect the area, with a reduction in precipitation and more unequal distribution. This aridification, coupled with reduced water resources and higher temperatures, can lead to the desiccation of forest fuels, increasing the risk of forest fires and a loss in agricultural and forest production. Additionally, agriculture and rainfed farming in Las Hurdes and Sierra de Gata will



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face specific challenges due to the adverse effects of heat waves and aridification on the edaphic and agrolological potential of the area.

### **Extremadura's key challenges and needs in climate change adaptation from Central Portugal**

The solution to be transferred to Extremadura, AIGP - Integrated Areas for Landscape Management from Central Portugal, was selected as the practice with higher potential for application because it addressed the forest fires, which is one of the most important climate challenges to both, Central Portugal and Extremadura. Further climate risks entail erosion (loss of fertile soil), droughts and desertification, heat, and flash floods, which are also linked to forest fires. Hence, the relevant stakeholders to be involved in Extremadura for this adaptation solution are farmers, forest landowners, local and regional governments, civil society and the private sector (tourism, timber/biomass companies).

The climate impacts are associated to the forest fires (decline in precipitation and rise in temperatures), while the social groups affected by those impacts are private sector companies in forestry, the population in villages (specifically vulnerable groups such as elderly) and private forest landowners/farmers. In terms of needs for the region, the key ones are related to the identification and integration of vulnerable population groups into planned measures; facilitation and support to stakeholders and municipalities; support for avoiding maladaptation; and governance, policy and legal framework.

There are additional needs and challenges that should be taken into account, such as establishing a supportive political setting to enable and encourage both public and private preventive actions, integration of gender and vulnerable groups to ensure inclusive and equitable adaptation to forest fires, engaging the private sector and NGOs for a successful implementation of the measures, and supporting screening with maladaptation tool.

Through the knowledge transfer from Central Portugal to Extremadura, the regions can jointly explore strategies to engage the private sector in enhancing forest management practices more actively, possible collaboration that can extend to improving economic incentives for private forest owners who adopt good forest landscape management practices, exchanging concepts and good practices on including vulnerable populations in the landscape management and community engagement efforts and, lastly, the exchange of data and models for enhancing fire management systems.

The following list summarises the possible knowledge transfer from Central Portugal to Extremadura region:

- Drought-resistant and adapted tree and shrub species assessment;
- Bioeconomy and new governance approaches (exchange sessions, lessons learned documentation, regulation of AIGP or analogous systems, policy briefs and recommendations, etc.) for residual forest biomass valorisation as fuel, fertiliser and restoration of landscapes;



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- Private sector (landowners, companies) engagement in forest management practices and stakeholder engagement (e.g., workshop of stakeholder engagement, roadmaps, mapping of needs and interests of stakeholders, guidelines and other materials);
- Good practices addressed to vulnerable groups and social equity;
- Development of new business models to attract new investments and funds, specially targeted to SMEs;

Central Portugal, with its universities, research centres, and public entities for regional planning, can share expertise in modelling and monitoring of fires and risk mapping, fire-smart landscape implementation with different stakeholders and monetising forest products through tourism and other sectors.

### 2.1.2 Solutions chosen for transfer

The Integrated Areas of Landscape Management (AIGP) is a grouped management model, under the responsibility of a management entity, operationalised through Integrated Landscape and Management Operations (OIGP). The aim of AIGP is to jointly manage agroforestry areas in small-scale holdings, located in vulnerable territories with a high fire risk. The adoption of an integrated territorial approach seeks to effectively respond to the needs of landscape planning and management and to promote the active management of forest areas, the valorisation of natural capital and boost rural economy. This approach has a high potential to complement the “Mosaico” approach in the Extremadura Region, considering some socio-economic similarities and the structure of rural property.

This solution (AIGP) is the most viable to apply for the Extremadura region, considering for both regions the same climate change impacts (e.g., desertification, heat waves, higher temperatures, wildfires, water scarcity), the high fire and pest risks, the loss of biodiversity and habitats, proliferation of exotic species and rural areas with a high rate of ageing and depopulation. Hence, this solution is focused on creating better environmental and social planning through an integrated territorial approach based on biomass fuel management and land use and occupation changes in rural areas to increase the landscape's resilience.

This management model is part of the current Landscape Transformation Program (“Resolução do Conselho de Ministros nº49/2020, de 24 de junho”), a public initiative targeting the implementation of a strategy for the forest vulnerable territories with high fire risk.

The major challenges of AIGP are the mobilisation and participation of landowners, especially in highly depopulated and ageing rural contexts. Thus, it requires the involvement of local key stakeholders and opinion leaders, such as local governmental organisations, to give credibility and engage landowners in this management model and approach. The ability to implement the operations needed to properly manage and transform the landscape so that it becomes more



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resilient can be a challenge in regions that are not actively managed by the owners and are not willing to invest.

**Table 2: Overview of chosen transfer solutions from providing Central Portugal to Extremadura**

<b>Chosen transfer solution from Central Portugal to Extremadura</b>		
<b>Name of solution</b>	<b>Solution type</b>	<b>Short description</b>
AIGP - Integrated Areas for Landscape Management	Process and management practice	<p>Land abandonment and high operational costs due to limited economies of scale are among the main difficulties caused by the large proportion of small-scale private holdings. This solution targets non-industrial small-scale agroforestry land, engaging landowners in the definition and operationalisation of Integrated Areas for Landscape Management.</p> <p>The AIGP approach, in a continuous territory of more than 100 hectares, aims to increase landscapes' resilience to wildfires and climate change impacts through fuel management, land use, and occupation changes.</p> <p>To implement this solution, a great challenge is to involve and commit forest owners, in the medium and long term, to develop a joint management of their lands, reinforcing the landscape resilience and scale economic benefits.</p>

### 2.1.3 Additional activities and solutions being developed within the receiving region

In the Extremadura region, the University of Extremadura (UEX), in cooperation with the regional government, municipalities, companies and NGOs, has designed and implemented a tool-kit (MOSAICO) for integrated territorial planning for wildfire mitigation through agro-silvo-pastoral practices. MOSAICO was developed in 2016, and it has been improving since then. It is based on the implementation of community-led, preventive landscape units (called Productive fuel breaks, PFB) that create fuel discontinuities and hamper fire spread.



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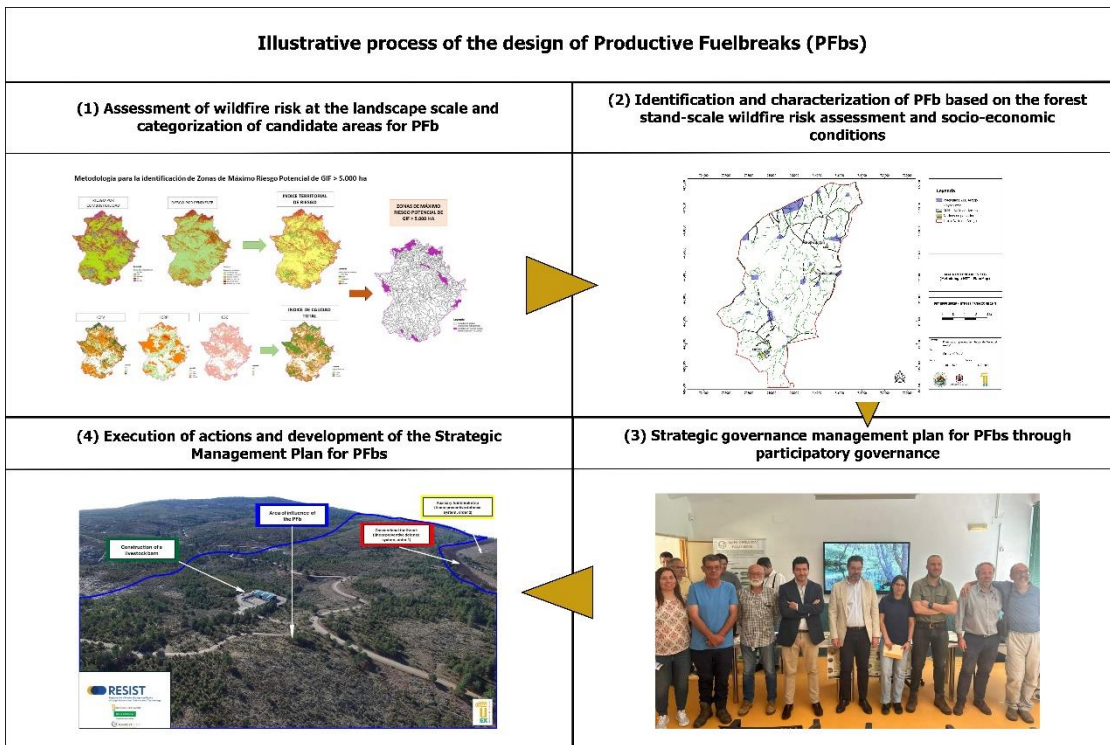
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Gómez, Á. (2023)

Figure 2: Illustrative process of the design of Productive Fuelbreaks in Extremadura.

The updated version of the toolkit can be consulted on the website: <https://mosaico-land.com/>. The toolkit includes methods of social engagement, improved governance, planned land uses and fire prevention. It is academically validated by several scientific publications (for example: <https://link.springer.com/article/10.1007/s10980-023-01618-w>). This solution partially overlaps the one proposed by AIGP, and thus, there is a potential for reciprocal exchange and mutual learning. This should result in enhanced tools and improved performance for fire prevention and economic valorisation of the target areas.

In Extremadura, the University of Extremadura and the Regional Forest Service are already cooperating in Mosaico-related tools to implement landscape initiatives and will continue in the context of RESIST. On the other hand, FUNDECYT will also participate as facilitator, especially in logistic tasks such as workshops organisation, result dissemination, and monitoring of the project's achievements.

**Table 3: Overview of additional solutions developed within the recipient region (Extremadura)**

<b>Additional solutions developed within the recipient region (Extremadura)</b>		
<b>Name of solution</b>	<b>Solution type</b>	<b>Short description</b>
MOSAICO tool-kit	Community-led fire prevention	integrated territorial planning for wildfire mitigation through agro-silvo-pastoral practices through community engagement
Productive fuel-breaks, PFB	Preventive infrastructure and Nature-based solution	Strategic and permanent fuel reduction through economically valuable practices

### 2.1.4 Systemic perspective on regional adaptation efforts

Wildfires are the most important climate change-related challenge in Extremadura, in close association with drought. The combination of solutions to be transferred (AIGP) and already existing ones (MOSAICO, PFB) have the potential to transform the regional system of fire prevention in Extremadura and to adapt it to the new climate scenario (with longer and more severe fire season). This transformative (rather than incremental) potential would be based on the following expected advances:

- Implementation of new governance schemes adapted to new scenarios related to climate change and depopulation of rural areas;
- Engagement of local communities in landscape planning and adaptation (landscape stewardship);
- Increase in the area treated for fuel management (and its useful life) due to reduced costs when fuel is removed with profitable land use practices;
- Generation of co-benefits associated with fire-smart landscapes, such as new products and businesses, enhanced governance schemes, and improved ecosystem services;
- Implementation of new financial schemes for large-scale landscape changes, including enhanced private-public cooperation.

## 2.2 Planned transfers

### 2.2.1 Transfer 1: Integrated Areas of Landscape Management (AIGP)

#### 2.2.1.1 Solution description and transfer goals

The AIGP (Integrated Areas of Landscape Management) is a concept and planning instrument created and based on the Portuguese regulation “Resolução do Conselho de Ministros no. 49/2020,



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de 24 Junho” (Resolution of the Council of Ministers no. 49/2020). These areas are intended to promote the common management and exploitation of agroforestry spaces in areas of smallholdings and high fire risk.

The methodology is based on an integrated territorial approach to respond to the need for planning and managing the landscape and increasing the area of forest managed on a scale that promotes resilience to fires, the enhancement of natural capital and the promotion of the rural economy.

Integrated Landscape Management Operations will be carried out in these areas, using a grouped management model, targeted to specific micro-territorial contexts, under the responsibility of a management entity and supported by a set of maintenance and management actions over time and remuneration for ecosystem services.

Some actions include technical training and the provision of the material resources needed to mobilise and support rural landowners, including support for land registry operations where they do not exist, as well as crop reconversion and actions that promote the enhancement and revitalisation of the territory.

Goals to be achieved with the transfer:

- **Stakeholder Engagement:** While fuel management is mandatory by law, promoting land use and occupation changes benefits from integrating the needs and expectations of the forest owners to increase their interest and commitment in the long run in the management of their properties. To achieve this, the implementation of AIGP and OIGP, in the context of the RESIST project, starts from a bottom-up approach, presenting the objectives and expected outcomes and compiling the interests and expectations already in place. Forest owners and local inhabitants are invited to participate in a workshop and to contribute to the intervention plan by pointing out what they are willing to change (or not). The participatory process and approach are customised according to each community and jointly with key actors identified in each case study.
- **Changing land use:** This process involves evaluating the current situation and identifying, from a technical point of view, the different management options suitable for each area. Incorporating the results of the participation processes, the actions to be implemented are defined, and the respective forestry/farming operation plan is outlined, which may include reducing the fuel load (vegetation management), replacing species, and improving existing forest stands, among other actions.
- **New business models:** In some case studies, local community and forest owners are keen to perform land use and occupation changes, favouring agroforestry species that are resilient to wildfires and climate change impacts. However, these changes should be supported by sustainable business models that are able to generate economic benefits for those who face the costs of maintenance. Visits to model plantations will be promoted to showcase their potential.
- **Communication and training:** Training of forest firefighters on good forestry practices (on fuel management practices and other silvicultural practices), conflict management and



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interaction with the population with practical dynamic and brainstorming exercises, as well as on natural engineering techniques, with focus on on-site processing of residual forest biomass. By adopting these techniques, professionals learn to align prevention efforts with principles of sustainability and operational efficiency, strengthening the connection between natural resource management and community safety.

Due to the similarities between the proposed and the existing solutions, a high degree of implementation is expected within the time frame of the RESIST project. Since Extremadura has already developed a relevant social network with many engaged actors through the whole value chain, the region is more interested in actions related to direct land use change and new business models. Among them, initiatives related to the processing and valuation of forest products (such as resin, biomass, timber, or fruits) have the highest priority. Also, training different target groups related to fire management and fire response is of great interest. Finally, more expertise is needed in relation to financial schemes favouring landscape changes needed in the region.

### 2.2.1.2 Measures to overcome barriers and customisation needs

The Extremadura region land is mainly owned by private small landowners (about 80%), like in Portugal, but also by municipalities. In this last case, management is carried out by the Regional Government. Given this situation, there are no constraints regarding authorisation to intervene on the property. However, there are social tensions and conflicts with local populations that need to be overcome.

One of the main difficulties faced in implementing AIGPs in the supplier region (Central Portugal) is the initial resistance by the part of landowners. This largely stems from concerns related to many landowners having the idea that these interventions are a threat to their autonomy and rights over land. There is uncertainty about the direct and indirect costs that these interventions may entail, which increases scepticism, and, in many cases, the benefits of land use changes and integrated management are not immediately clear to landowners.

In the receiving region (Extremadura), it is expected that similar challenges may arise, since the majority of forest land is privately owned, with a sociocultural context in which local traditions and individualised management predominate. Furthermore, the integration of collective management practices can be seen as a disruptive change, especially in areas with more isolated or ageing rural communities. However, current efforts in collective management in Extremadura are generating positive results that will enhance further uptake (<https://arragoparticipa.com/>).

The experience gained by UEX and Junta de Extremadura since 2016 during the development of MOSAICO and other projects with similar goals (LIFE, POCTEP, Operational Groups, among others) led to the identification of the following critical risks that might impede or slow landscape changes and the associated co-benefits:



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- **Weak governance scheme** leading to inadequate relationships among the relevant actors;
- **Legislative barriers** precluding some landscape changes in protected areas or areas with long-term approved plans;
- **Bureaucratic burden** increasing the time/cost of implementation of the desired changes;
- **Insufficient financial support** or inadequate timing of the financial support needed by local stakeholders.

Presenting the project to be developed and informing local communities and forest landowners of the importance and benefits arising from the implementation of the intervention are the challenges facing the adoption of an approach that is analogue to the AIGP, in Extremadura. Public participation approaches should be used to engage local communities and to mitigate arising potential conflicts of interest.

**Table 4: Measures to address barriers and customisation needs**

<b>NAME OF THE SOLUTION: AIGP</b>			
<b>Type of barrier</b>	<b>Barrier description</b>	<b>How can the barrier be overcome?</b>	
		<b>Measure to address barrier</b>	<b>Customisation of solution</b>
Governance	Insufficient engagement of key actors	Identification of key actors and stimulus for their proactive action	It needs to be applied in the RESIST pilot area, which includes two counties and 24 municipalities
Legislation	Maladaptation to current and predicted scenarios	Involvement of the relevant public departments to facilitate changes	Spanish Forest Law and its regional application cannot be modified in the project's life
Bureaucracy	Excessive loads and multiple steps to reach the target	Involvement of the relevant public departments to facilitate changes and digitalisation of administrative tasks	The Extremadura team within RESIST has hired a technician to deal with these issues specifically
Investment	Poor access to credit or subsidies	Search for funds in competitive calls at various levels	Connections between the leading and twinning regions will promote participation in new partnerships



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**Table 5: Solution profile for AIGP, customised to Extremadura**

NAME OF SOLUTION: AIGP		
<b>Short description of the adaptation solution</b> The Integrated Areas of Landscape Management (AIGP) is a concept and planning instrument. The areas are intended to promote the common management and exploitation of agroforestry spaces in areas of smallholdings and high fire risk.	<b>Type of solution</b> Management model or process	<b>Solution providing region</b> Central Portugal
VALUE PROPOSITION		
<b>Target group</b> Landowners, local communities and stakeholders.	<b>Main benefits for the target group (purpose)</b> Increasing land management through the involvement of local communities' in defining the interventions to be carried out; Increasing the territory's resilience to rural fires through the use of indigenous species that are more resilient to rural fires; Economic profitability in the future through the production of agroforest goods with differentiating characteristics that can be associated with a private brand (e.g. olive oil); Optimising the use of unused forest residues for energy production and other uses; Enhancing the value of other ecosystem services, such as biodiversity, carbon storage, protection of watersheds, etc.	<b>Social and environmental co-benefits for target group and other groups</b> Increase the security of people and existing assets; Increase landscape and community resilience to rural fires; Promote effective landscape management; Boost rural economy; Increase trust between stakeholders and local communities involved.
SOLUTION DETAILS		
<b>Climate impacts addressed</b> Wildfires	<b>Delivered results</b>	<b>Spatial scope</b>



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	<p>Interventions in the territory, such as wood felling, fuel management, density corrections, planting with indigenous species, taking advantage of natural regeneration, economic return, etc.</p>	<p>Depending on the capacity and acceptance of the solution by local stakeholders, between 10 and 1000ha depending of the specific conditions of the area that is the subject of the intervention, in terms of land use, orography, natural barriers, etc.</p>
<p>VALUE CREATION AND DELIVERY</p>		
<p><b>Key resources</b> Funding</p>	<p><b>Key activities</b> Involve stakeholders in the intervention plan design and implementation so that they feel committed to continuing/maintaining the intervention initially carried out, including:</p> <ul style="list-style-type: none"> <li>• Present the management model to local stakeholders and communities, highlighting its importance and potential benefits;</li> <li>• Involve local stakeholders to identify their motivations and needs concerning the intervention area;</li> <li>• Definition of the technical solution, co-design with local stakeholders and communities, and integrating regional needs and the characteristics of the territory.</li> </ul> <p>Use fire-resilient techniques and cultures adapted to the characteristics of the territory (slope, tree density) so that maintenance costs and fire risk are as low as possible.</p>	<p><b>Project owner and key partners</b> Project owner – CIMs coordinating the pilot areas Key partners – Regional Government (Forest Service), landowners, municipalities and local community</p>
<p>COSTS AND PLANNING</p>		



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<p><b>Estimated costs (implementing and operating)</b> More detailed information is presented below (2.2.1.3)</p>	<p><b>Revenues/monetised benefits</b> In Extremadura, the RESIST project only contributes funds for small pilot initiatives. Therefore, most private initiatives proposed during the transfer will need to search for additional financial support (through public or private calls and with the support of RESIST-UEx).</p>	<p><b>Time frame for planning and implementation until fully functional</b> 2025-2027. More detailed information is presented below (2.2.1.4)</p>
<p>CONTEXT</p>		
<p><b>Necessary prerequisites</b> Human resources with adequate training to carry out the intervention, e.g.:</p> <ul style="list-style-type: none"> <li>- External facilitators, to support the involvement of local communities through the planning phase;</li> <li>- The planning and monitoring of the intervention should be supported by a technician with knowledge in the forestry area;</li> <li>- The intervention itself must be carried out by operational teams specialised in carrying out forestry work in areas with adverse conditions (e.g. slope) and able to develop environmental good practices.</li> </ul>	<p><b>Success factors</b> Communities' engagement in the process, increasing the sense of ownership of the intervention; Short period between planning and Implementation phases, combining external workers with landowners' efforts to implement some activities (e.g. fuel management, removal of trees, tree density correction); Dissemination and demonstration activities to communicate what is being carried out, also increasing the participation of other landowners and citizens.</p>	<p><b>Limiting factors</b> Maintenance of the intervention in the future Long periods needed from application in public calls to execution of landscape practices</p>



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### 2.2.1.3 Resources and costs

The following table outlines the key resources and costs planned for the successful implementation and operation of the project. Below is a breakdown of the resource categories, funding details, and the alignment with the RESIST project budget.

**Table 6: Key resources and costs analysis (Extremadura)**

Cost Category	Description	Funded by RESIST
<b>Technical Support</b>	Forest Engineers and Technician	Yes
<b>Service Procurement</b>	External service contracts (implementation of productive fuel breaks)	Yes, 115.000 euro
<b>Travel and Workshops</b>	Travel expenses, meals, and event organisation	Yes
<b>Equipment maintenance</b>	Maintenance of plantations and associated infrastructures	Yes
<b>Operational Costs</b>	Printing of communication materials, notices, etc.	Yes

Resource categories:

- **Technical Support:** Two forest engineers from Universidad de Extremadura and a third technician (hired by the Forest Service) will provide technical support. The staff costs of these human resources are funded by the RESIST project (we estimate an allocation of 80 person-months).
- **Service Procurement:** The project requires external services, such as forest exploration and analysis. These activities are essential for achieving the project's objectives and are partially financed by RESIST.
- **Travel and Workshops:** Expenses for travel, accommodation, meals, and the organisation of workshops or events are fully covered by the RESIST budget. These activities are essential for collaboration and knowledge sharing among stakeholders.
- **Equipment Maintenance:** Maintenance and technical support for equipment (productive fuel-breaks and associated infrastructures) after installation are vital for the project's sustainability. These costs will be covered by RESIST during the life of the project and by the Association of landowners beyond 2027.
- **Operational Costs:** Printing of materials, such as communication tools and public notices, is necessary for outreach and dissemination. These costs are fully supported by the RESIST budget.



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- **Future Costs Beyond the Project Timeline:** Operational costs, such as equipment maintenance, will persist beyond the project timeline. Plans to cover these costs include exploring additional funding opportunities or partnerships with relevant stakeholders.

This detailed breakdown ensures transparency and demonstrates careful planning regarding the allocation of resources and funding within the project framework.

### 2.2.1.4 Planning the transfer

#### Objective, purpose, results and planned activities

The transfer will include several steps needed to implement an analogue AIGP model in Extremadura. This model implies that landowners get together and identify a joint intervention plan targeting landscape resilience to forest fires, including potential land use changes and substitution of forest species. For the model application it will be necessary to identify the intervention area, and the landowners involved. The landowners – facilitated by a promoter or management entity – will then jointly identify needs and actions to increase landscape resilience to fire. Based on the information collected from owners and the population and the characteristics of the territory, the intervention plan must be defined and subsequently implemented.

**Table 7: Logframe Matrix for the planned transfer**

Transfer project description	Indicators	Source of verification	Assumptions
<b>Overall objective</b> Promote landscape transformation, enhancing its resilience to wildfires, while promoting its value natural capital and the rural economy	Area intervened annually (ha); Area with a change in the land use and/or forest specie (ha); Number of landowners involved in the AIGP (no.).	Land use data Fire data Questionnaires, surveys, interviews, pictures and videos	Implementation of new land uses will take place during RESIST and after the project as landscape change is a gradual process



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<p><b>Purpose</b></p> <p>Communities become more empowered and more capable to manage their land; Trust gains between communities and local governmental organisations</p>	<p>Number of active land owners in the AIGP; Number of collective initiatives promoted by citizens</p>	<p>Land use data Fire data Questionnaires, surveys, interviews, pictures and videos</p>	<p>The empowerment of communities and the promotion of rural economic dynamics are key factors to generate a sustainable landscape transformation approach.</p>
<p>Landscape become more resilient to wildfires</p>	<p>Decrease in burned area (ha); Less severe forest fires</p>		
<p>Local economic dynamics are initiated (e.g. olive oil, strawberry tree products)</p>	<p>Number of new economic initiatives</p>		
<p><b>Results</b></p> <p>1 – Local Stakeholder Network (identified during the participatory process)</p>	<p>Number of stakeholders and forest owners involved</p>	<p>Land use data Forest data Fire data Questionnaires, surveys, interviews</p>	<p>Stakeholders and landowners' engagement in decisions will promote a greater success on the implementation of the intervention plans;</p>
<p>2 – Intervention plans of AIGP, defined through a participatory process (including the activities to be carried out)</p>	<p>Area integrated in the intervention plan (ha)</p>		<p>Transformation into a more diverse landscape will generate more resilient territory to wildfires in the long term, and able to be more productive.</p>
<p>3 – Actions implemented from the intervention plan (e.g. fuel management, forest restoration)</p>	<p>Area intervened per type of intervention (ha); Area occupied by indigenous agroforest species (ha)</p>		
<p>4 – New business plans</p>	<p>Number of business plans developed</p>		
<p><b>Activities</b></p> <p>1 – Identify and select relevant stakeholders to be engaged</p>			<p>Involvement of local stakeholders and forest owners may initiate</p>

<p>2 – Field Visits and context diagnosis          3 – Promote participatory workshops with local stakeholders and communities to define the intervention plan;          4 – Development of the intervention plan, considering the existing territory and landscape and the interests of stakeholders and local communities.          5 – Operational execution of the intervention plan, with external and internal means and resources;          6 – Monitoring and assessment activities;          7 – Support to develop and implement business plans.</p>			<p>complementary activities to the project.</p> <p>Empirical and traditional knowledge can be restored and innovated towards resilient, adaptable landscapes that support biodiversity, mitigate climate change, and sustain livelihoods for future generations.</p>
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### Next steps

The following stages of transfer are foreseen:

**Table 8: Steps and Planned Actions for Intervention Development**

Stages	Planned Actions	Deadline
<b>Initial phase</b>	Meetings with local agents (authorities, homeowners associations) to identify priorities and obstacles and first field visits.	Until June 2025
<b>Participatory Sessions</b>	Community workshops to define common goals and present possible (adjusted) solutions considering local needs.	July to December 2025



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<b>Technical Preparation</b>	Preparation of detailed intervention plans (land use change, fuel management and planting).	January to October 2026
<b>Pilot Implementation</b>	Execution of the first interventions on selected area, monitoring of activities implemented and support to business plan development.	October 2026 to 2027

### Timeline until 2027

Considering the experience of CIM Região de Coimbra, an initial meeting with the main local stakeholders will be organised to present the project and to collect key information characterising the area – initial phase.

Secondly, initiatives to interact with the local community to present the type of intervention being carried out, as well as to identify the population's motivations for the area to be intervened, should be organised – participatory sessions.

In the third stage, the technical and intervention project must be prepared and validated with the landowners and inhabitants – technical preparation.

Planning and implementation of the technical and intervention project – pilot implementation.

#### 2025 (engagement)

- Q1: meetings of relevant RESIST partners
- Q2: meetings with public representatives
- Q3: participatory sessions with private stakeholders and field visits
- Q4: establishment of specific interventions

#### 2026 (planning and start of execution)

- Q1: meetings for financial plan
- Q2: participation in calls and meetings with the public sector to get funds
- Q3: participation in calls and meetings with the public sector to get funds
- Q4: practical implementation of landscape interventions

#### 2027 (execution)

- Q1: practical implementation of landscape interventions
- Q2: practical implementation of landscape interventions
- Q3: practical implementation of landscape interventions
- Q4: practical implementation of landscape interventions



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## 3 Transfer Plan – Central Portugal to Baixo Alentejo

### 3.1 Solution-receiving region: Challenges, needs and climate adaptation solutions

#### 3.1.1 Key regional needs in the field of climate resilience and climate change adaptation

##### **Key climate-related risks in Baixo Alentejo**

The Intermunicipal Plan for Adaptation to Climate Change in Baixo Alentejo identifies the main climate risks in the region and respective climate projections.

Both minimum and maximum temperatures will rise significantly in the region until the end of the century. An increase in the number of hot days is further expected. Total annual precipitation is expected to decrease by the end of the century over the entire region. However, given projected rising annual temperatures and decreasing annual total precipitation, more arid climatic conditions might nevertheless be expected in the region by the end of the century. Thus, the following 5 climatic trends are identified as having the highest potential for negative impacts on the region under future climatic conditions: 1) increase in average temperature, 2) more frequent heatwaves, 3) more frequent heavy precipitation events, 4) decrease in annual average precipitation, 5) overall more arid conditions.

Therefore, the 4 climatic trends are prioritised as bearing most risks for the region as: increase in average annual temperature; increase in the frequency and intensity of heat waves; increase in the frequency and intensity of droughts

##### **Baixo Alentejo's key challenges and needs in climate change adaptation from Central Portugal**

The solution to be transferred to Baixo Alentejo, AIGP - Integrated Areas for Landscape Management from Central Portugal, was selected as the practice with higher potential of application, because of the high forest fire risk and desertification, and the large areas owned by rural landowners that characterise the rural landscape of Alentejo. Further climate risks entail erosion (loss of fertile soil), droughts and desertification and extreme heat. Hence, the relevant stakeholders to be involved in Baixo Alentejo for this adaptation solution are farmers, rural landowners, local and regional administration entities, civil protection, public companies and other local authorities and networks.



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The climate impacts being addressed are associated with heatwaves, forest fires, drought, and flooding. The social groups affected by those impacts are the civil protection sector, municipalities, parish councils, fire brigades and civil society (specifically vulnerable groups such as the elderly). The required support for the RESIST initiative in the Baixo Alentejo region is multifaceted. Key aspects revolve around utilising technology, identifying good practices, and ensuring their effective application, for instance, for supporting adaptation action in small, rural villages and localising vulnerable groups. Another area where support is required is innovative business models, potentially involving the private sector, to increase the sustainable production systems and to introduce appropriate forest species. Moreover, pursuing more innovative and efficient ways to engage stakeholders is of interest to the region. Through the knowledge transfer from Central Portugal to Baixo Alentejo, the regions can jointly explore good practices and activities for integrated management of Alentejo's rural landscape. The following list summarises the possible knowledge transfer from Central Portugal to Baixo Alentejo region:

- Drought-resistant and adapted tree and shrub species assessment;
- Bioeconomy and new governance approaches (exchange sessions, lessons learned documentation, regulation of AIGP or analogous systems, policy briefs and recommendations, etc.) for residual forest biomass valorisation as fuel, fertiliser and restoration of landscapes;
- Private sector (landowners, companies) engagement in forest management practices and stakeholder engagement (e.g., workshop of stakeholder engagement, roadmaps, mapping of needs and interests of stakeholders, guidelines and other materials);
- Good practices addressed to vulnerable groups and social equity;
- Development of new business models to attract new investments and funds, specially targeted to SMEs;

### 3.1.2 Solutions chosen for transfer

Although the characteristics of the Baixo Alentejo region are different from those of the Coimbra region, both in terms of the size of the properties (in Baixo Alentejo, the average area per owner is higher) and the risk of fire itself is lower (although it is present in some areas), there are relevant common issues for both regions from the point of view of the effects of climate change, namely desertification and heat waves. Both territories have a high density of rural areas and population ageing. According to the 6<sup>th</sup> National Forest Inventory, Alentejo and Central Portugal regions registered 1335 and 1093 thousand hectares of forest area respectively. In this sense, it still makes sense to take a collective approach that allows intervention in the territory in an integrated way on a larger scale, looking for solutions that enhance its economic value using appropriate species and production systems and that contribute to reducing the impacts of climate change.

The adoption of an integrated territorial approach seeks to effectively respond to the needs of landscape planning and management and increase the managed forest area on a scale that promotes resilience to fires, the valorisation of natural capital and the promotion of the rural economy.

**Table 9: Overview of chosen transfer solutions from Central Portugal to Baixo Alentejo**

<b>Chosen transfer solution from Central Portugal to Baixo Alentejo</b>		
<b>Name of solution</b>	<b>Solution type</b>	<b>Short description</b>
AIGP - Integrated Areas for Landscape Management	Process and management practice	<p>Land abandonment and high operational costs due to limited economies of scale are among the main difficulties caused by the large proportion of small-scale private holdings. This solution targets non-industrial small-scale agroforestry land, engaging landowners in the definition and operationalisation of Integrated Areas for Landscape Management.</p> <p>AIGP approach, in a continuous territory of more than 100 hectares, aims to increase the landscape's resilience to wildfires and climate change impacts, through fuel management and land use and occupation changes.</p> <p>To implement this solution, a great challenge is to involve and commit forest owners, in the medium and long term, to develop a joint management of their lands, reinforcing the landscape resilience and scale economic benefits.</p>

### 3.1.3 Additional activities and solutions being developed within the receiving region

**Table 10: Overview of additional solutions developed within the recipient region (Baixo Alentejo)**

<b>Additional solutions developed within the recipient region (Baixo Alentejo)</b>		
<b>Name of solution</b>	<b>Solution type</b>	<b>Short description</b>
"Argos" digital platform (transfer solution from	Digital Solution	Argos is an early warning system and decision support tool for emergency managers and



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<p>Catalonia (LSDT3) to Baixo Alentejo).</p>		<p>other stakeholders to anticipate impacts and better manage the climate-related emergencies that climate change is bringing. It centralises relevant information and provides tailored information to specific critical elements, together with assistance in managing the situation.</p> <p>It is a tool particularly focused on extreme heat-related risks. The target users from Baixo Alentejo region will be the civil protection and forest management teams within CIMBAL network, Civil Societies and other relevant public entities.</p> <p>Argos will be adapted to focus on high temperature and heat waves and will be applied to better analyse past events and to better identify the vulnerable areas and plan specific PIAAC-BA actions and measures updates.</p>
<p>Citizen participatory toolkit in natural risks, climate change and civil protection (transfer solution from Catalonia (LSDT3) to Baixo Alentejo).</p>	<p>Practices and Methodologies</p>	<p>Designed with a citizen-centered approach, this solution aims to strengthen communities by promoting inclusive participatory processes and social actions that address natural hazards, climate change and civil protection participation.</p> <p>This solution can be applied at different levels of governance and within a wide range of social organisations, regardless of their size or structure.</p> <p>As in Catalonia, in Baixo Alentejo and in a first phase will be specifically intended for protection and forest management within CIMBAL network, Civil Societies and other relevant public entities.</p> <p>The solution will focus on the capacity building of civil protection for better cooperation, the increase of knowledge and raising risk awareness and self-protection.</p> <p>It can, after, be used for a larger target group in order to promote citizen involvement processes in order to generate new behaviours to be adopted as climate change adaptation or mitigation.</p>



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### 3.1.4 Systemic perspective on regional adaptation efforts

The region is covered by the regional and by the inter-municipal adaptation plan (PIAAC-BA). PIAAC-BA aims to create the conditions for the territory and its stakeholders to be better prepared for the effects of climate change. To achieve this goal, the following specific objectives have been defined, among others:

- Deepen existing knowledge of climate change, including extreme weather events, their additional impacts and natural and technological risks;
- Identify and select adaptation actions to be implemented;
- To implement and detail concrete actions and measures to adapt to the most relevant climate impacts;
- Identify the operational means and the necessary financial framework; Integrate adaptation actions into the current activities of regional organisations and their sectoral policies, instruments and plans;
- Empowering regional stakeholders and, in particular, CIMBAL and its municipalities, and ensuring the necessary technical assistance to facilitate assertive action and to inform decision-making processes;
- Involve, raise awareness and sensitise all local, regional and national stakeholders, as well as the general population, ensuring mobilisation around the Plan's objectives;
- Communicate, promote and disseminate knowledge about impacts and vulnerabilities, especially by involving stakeholders and organisations in drawing up the strategy;
- Promote more efficient management of infrastructures, resources and services, in line with current and projected vulnerability to climate change;
- Contribute to making informed strategic decisions based on concrete data and credible forecasts, with a view to adapting more effectively to the perceived impacts of climate change.

The solutions to be transferred and demonstrated (to Baixo Alentejo by CIMBAL and with the support of project partner ITECONS) respond to these objectives, particularly regarding deepening existing knowledge, adapting and detailing concrete actions and measures to adapt to the most relevant climate impacts and involving, mobilisation and raising awareness among all local, regional and national players, as well as the general population, ensuring their mobilisation.

## 3.2 Planned transfers

### 3.2.1 Transfer 1: Integrated Areas of Landscape Management (AIGP)

#### 3.2.1.1 Solution description and transfer goals



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The Integrated Areas of Landscape Management is a concept and planning instrument created and based on the Portuguese regulation “*Resolução do Conselho de Ministros no. 49/2020, de 24 Junho*” (Resolution of the Council of Ministers no. 49/2020). These areas are intended to promote the common management and exploitation of agroforestry spaces in areas of smallholdings and high fire risk.

The methodology is based on an integrated territorial approach to respond to the need for planning and managing the landscape and increasing the area of forest managed on a scale that promotes resilience to fires, the enhancement of natural capital and the promotion of rural economy.

Integrated Landscape Management Operations will be carried out in a pilot area, using a grouped management model, targeted to specific micro-territorial contexts, under the responsibility of a management entity and supported by a set of maintenance and management actions over time and remuneration for ecosystem services.

Some actions include works regarding soil preparation and removal of excessive fire fuel/biomass and placing of protection equipment for the existing species in the pilot area taking into consideration the natural regeneration of the land and the existing fauna and flora species, technical training to mobilise and support rural landowners, including support for land registry operations where they do not exist, as well as support for crop reconversion and actions that promote the enhancement and revitalisation of the territory.

Integrated Areas of Landscape Management (AIGP), implemented by Integrated Operations of Landscape Management (OIGP), represent an approach to grouped management, which is fundamental to mitigate the risks of forest fires and promote the resilience of territories.

The OIGP defines integrated interventions to landscape transformation, reconversion of species, territorial valorisation, and revitalisation, as well as the operational model, financial resources, management, and monitoring system to be implemented. The responsible entities for the implementation of OIGP are the owners of the areas covered by AIGP or the managing entity to which the management powers of their buildings are transferred.

Thus, the responsibility for implementing the OIGP lies with the owners covered by the AIGP, although it is envisaged that they will be able to pass on the management powers to the management entity. AIGP/OIGP constitute an effective tool for the sustainable management of forest resources and the promotion of more resilient and sustainable territorial development. Through a combination of technical measures, such as reducing fuel load and creating protection zones, with awareness-raising actions and the involvement of local communities, it is possible to build safer and more resilient landscapes in the face of climate change challenges.

Goals to be achieved with the transfer:

- **Stakeholder Engagement:** While fuel management is mandatory by law, promoting land use and occupation changes benefits from integrating the needs and expectations of the forest owners to increase their interest and commitment in the long run in the management of their properties. To achieve this, the implementation of AIGP and OIGP, in the context of



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the RESIST project, starts from a bottom-up approach, presenting the objectives and expected outcomes and compiling the interests and expectations already in place. Forest owners and local inhabitants are invited to participate in a workshop and to contribute to the intervention plan by pointing out what they are willing to change (or not). The participatory process and approach are customised according to each community and jointly with key actors identified in each case study.

- **Changing land use:** This process involves evaluating the current situation and identifying, from a technical point of view, the different management options suitable for each area. Incorporating the results of the participation processes, the actions to be implemented are defined, and the respective forestry/farming operation plan is outlined, which may include reducing the fuel load (vegetation management), replacing species, and improving existing forest stands, among other actions.
- **New business models:** In some case studies, local community and forest owners are keen to perform land use and occupation changes, favouring agroforestry species that are resilient to wildfires and climate change impacts. However, these changes should be supported by sustainable business models that are able to generate economic benefits for those who face the costs of maintenance. Visits to model plantations will be promoted to showcase their potential.
- **Communication and training:** Training of forest firefighters on good forestry practices (on fuel management practices and other silvicultural practices), conflict management and interaction with the populational with practical dynamic and brainstorming exercises, as well as on natural engineering techniques, with focus on on-site processing of residual forest biomass. By adopting these techniques, professionals learn to align prevention efforts with principles of sustainability and operational efficiency, strengthening the connection between natural resource management and community safety.

### 3.2.1.2 Measures to overcome barriers and customisation needs.

In the Baixo Alentejo region, medium and large properties with cork oak forest predominate. The number of owners involved in defining the project is smaller than in the Coimbra region but given the existence of small, isolated villages, it is also important to involve local communities in defining the areas around the villages.

Involve forest owners and local communities in defining the interventions to be carried out in the territory, starting by informing them about the importance and benefits arising from the implementation of the interventions. There must be awareness of the importance of complementary uses (e.g. pastoralism) to increase effective landscape management.



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**Table 11: Measures to address barriers and customisation needs**

<b>NAME OF THE SOLUTION: AIGP</b>			
<b>Type of barrier</b>	<b>Barrier description</b>	<b>How can the barrier be overcome?</b>	
		<b>Measure to address barrier</b>	<b>Customisation of solution</b>
Bureaucracy	Excessive loads and multiple steps to reach the target	The solution will be transferred using a pilot area in a municipal management land to promote a smooth involvement of the relevant public departments and to facilitate the development of the solution transfer tasks	There already exists a close contact between CIMBAL and the municipal team that manages the area.
Diverse demographic context	Differences in demographic composition may influence the development of the solution as demographic diversity must be considered and appropriately addressed.	A thorough assessment of the demographic context in which the solution is applied is essential.	Based on this assessment, the content, communication channels, and overall approach may need to be adapted to ensure the solution effectively reaches and engages the specific groups.
Time Constraints Among Participants	Stakeholders in the receiving region may face challenges in allocating sufficient time to discuss, learn, adapt, and implement the solution.	Effective coordination and the establishment of clear deadlines will be essential to manage time constraints.	Proposing realistic and flexible timeframes and ensuring commitment to meeting these deadlines will help facilitate the successful implementation of the solution, while considering stakeholders' availability and capacity.



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**Table 12: Solution profile for AIGP, customised to Baixo Alentejo**

NAME OF SOLUTION: AIGP		
<p><b>Short description of the adaptation solution</b></p> <p>The Integrated Areas of Landscape Management (AIGP) is a concept and planning instrument. The areas are intended to promote the common management and exploitation of agroforestry spaces in areas of smallholdings and high fire risk.</p>	<p><b>Type of solution</b></p> <p>Management model or process.</p>	<p><b>Solution providing region</b></p> <p>Central Portugal</p>
VALUE PROPOSITION		
<p><b>Target group</b></p> <p>Landowners, local communities and stakeholders.</p>	<p><b>Main benefits for the target group (purpose)</b></p> <p>Increase land management through the involvement of local communities' in defining the interventions to be carried out;            Increase the territory's resilience to rural fires through the use of indigenous species that are more resilient to rural fires.</p>	<p><b>Social and environmental co-benefits for target group and other groups</b></p> <p>Economic profitability in the future through the production of agroforest goods with differentiating characteristics that can be associated with a private brand (e.g. olive oil);            Optimising the use of unused forest residues for energy production and other uses;            Enhancing the value of other ecosystem services, such as biodiversity, carbon storage, protection of watersheds, etc.</p>
SOLUTION DETAILS		
<p><b>Climate impacts addressed</b></p> <p>Wildfires</p>	<p><b>Delivered results</b></p> <p>Interventions in the territory, such as wood felling, fuel management, density corrections, planting with</p>	<p><b>Spatial scope</b></p> <p>Depending on the capacity and acceptance of the solution by local stakeholders, between 10 and 100ha.</p>



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	indigenous species, taking advantage of natural regeneration, economic return, etc.	
<b>VALUE CREATION AND DELIVERY</b>		
<b>Key resources</b> Financing	<b>Key activities</b> Involve stakeholders in the intervention plan design and implementation so that they feel committed to continuing/maintaining the intervention initially carried out, including: 1) Present the management model to local stakeholders and communities, highlighting its importance and potential benefits; 2) Involve local stakeholders to identify their motivations and needs concerning the intervention area; 3) Definition of the technical solution, co-design with local stakeholders and communities, and integrating regional needs and the characteristics of the territory.	<b>Project owner and key partners</b> Project owner – CIM coordinating the pilot area Key partners – landowners, municipalities and local community. ITECONS will also support CIMBAL in the involvement of stakeholders, local training and in the development of demonstration actions to stakeholders in order to show the potential benefits of AIGP.
<b>COSTS AND PLANNING</b>		
<b>Estimated costs (implementing and operating)</b> The estimated costs include personnel costs (43 PM's in total), external service for soil preparation and removal of excessive fire fuel/biomass and placing of protection equipment for the existing species (52.710,00€), some budget for communication and for the development of participatory and capacitation actions.	<b>Revenues/monetised benefits</b> No monetised benefits.	<b>Time frame for planning and implementation until fully functional</b> Three years. More detailed information below (3.2.1.4)



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CONTEXT		
<p><b>Necessary prerequisites</b> Human resources with adequate training to carry out the intervention, e.g.:</p> <ul style="list-style-type: none"> <li>- External facilitators, to support the involvement of local communities through the planning phase;</li> <li>- The planning and monitoring of the intervention should be supported by a technician with knowledge in the forestry area;</li> <li>- The intervention itself must be carried out by operational teams specialised in carrying out forestry work in areas with adverse conditions and able to develop good environmental practices.</li> </ul>	<p><b>Success factors</b></p> <p>Communities' engagement in the process, increasing the sense of ownership of the intervention; Short period between planning and Implementation phases, combining external workers with landowners' efforts to implement some activities (e.g. fuel management, removal of trees, tree density correction); Dissemination and demonstration activities as a way to communicate what is being carried out, also increasing the participation of other landowners and citizens.</p>	<p><b>Limiting factors</b></p> <p>Maintenance of the intervention in the future</p>



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### 3.2.1.3 Resources and costs

The following table outlines the key resources and costs planned for the successful implementation and operation of the project. Below is a breakdown of the resource categories, funding details, and the alignment with the RESIST project budget.

**Table 13: Key resources and costs analysis (Baixo Alentejo)**

Cost Category	Description	Funded by RESIST
<b>Technical Personnel</b>	CIMBAL Team (including the support of the civil protection and forest department) ITECONS Team (for local training and in the demonstration to stakeholders of the potential benefits of AIGP)	41 PMs - CIMBAL 2 PMs - ITECONS
<b>Service Procurement</b>	External service (e.g., solution implementation support - soil preparation and removal of excessive fire fuel/biomass and placing of protection equipment for the existing species in the pilot area taking into consideration the natural regeneration of the land and the existing fauna and flora species.)	52.710,00€
<b>Subcontracting</b>	-	No
<b>Travel and Workshops</b>	Travel expenses, meals and event organisation	Yes, final value tbd (ITECONS and CIMBAL)
<b>Equipment Maintenance</b>	Maintenance and technical support post-installation	No
<b>Operational Costs</b>	Printing of communication materials, notices, etc.	300,00€

Resource categories:

- **Technical Personnel:** CIMBAL Team (with the support of the municipalities civil protection and forest department and the forest sappers) will play a crucial role in operational tasks, particularly in management and monitoring. Project partner ITECONS will support CIMBAL in the involvement of stakeholders, local training and in the



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development of demonstration actions to stakeholders in order to show the potential benefits of AIGP. These teams are funded by the RESIST project.

- **Service Procurement:** The project requires external services, for the works regarding soil preparation and removal of excessive fire fuel/biomass and placing of protection equipment for the existing species in the pilot area taking into consideration the natural regeneration of the land and the existing fauna and flora species. These activities are essential for achieving the project's objectives and are financed by RESIST.
- **Travel and Workshops:** Expenses for travel, accommodation, meals, and the organisation of workshops or events are fully covered by the RESIST budget. These activities are essential for collaboration and knowledge sharing among stakeholders.
- **Equipment Maintenance:** Maintenance and technical support for equipment after installation are vital for the project's sustainability. However, these costs will not be covered by the RESIST project since the local partner will assume the maintenance and the availability of equipment.
- **Operational Costs:** Printing of materials, such as communication tools and public notices, is necessary for outreach and dissemination. These costs are fully supported by the RESIST budget.
- **Future Costs Beyond the Project Timeline:** Operational costs, such as equipment maintenance, will persist beyond the project timeline. Plans to cover these costs include exploring additional funding opportunities or partnerships with relevant stakeholders.

This detailed breakdown ensures transparency and demonstrates careful planning regarding the allocation of resources and funding within the project framework.

#### 3.2.1.4 Planning the transfer

The transfer will consist of the different steps necessary to implement an AIGP model in the Baixó Alentejo region. The application of this model aims to contribute to the prevention of forest fires and the economic valorisation of the area. For the model application, it is necessary to identify the intervention area and the owners of the selected area and involve them in defining the intervention to be carried out. This has already been done, and CIMBAL has identified a specific public area managed by one of its municipalities. The local community and local stakeholders must also be involved in showing the interventions and changes that they can recommend. Based on the information collected from owners and the population and the characteristics of the territory (e.g. climate and water availability), the intervention plan can have some adaptations.



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Table 14: Logframe Matrix for the planned transfer

<b>Transfer project description</b>	<b>Indicators</b>	<b>Source of verification</b>	<b>Assumptions</b>
<b>Overall objective</b> Promote landscape transformation, enhancing its resilience to wildfires, while promoting its value natural capital and the rural economy	Area intervened annually (ha); Area with a change in the land use and/or forest specie (ha); Number of landowners involved in the AIGP (no.).	Land use data Fire data Questionnaires, surveys, interviews	Implementation of new land uses will take place during RESIST and after the project as landscape change is a gradual process
<b>Purpose</b> Communities become more empowered and more capable to manage their land; Trust gains between communities and local governmental organisations	Number of active forest owners in the AIGP; Number of collective initiatives promoted by citizens	Land use data Fire data Questionnaires, surveys, interviews	The empowerment of communities and the promotion of rural economic dynamics are key factors to generate a sustainable landscape transformation approach.
Landscape become more resilient to wildfires	Decrease in burned area (ha); Less severe forest fires		
Local economic dynamics are initiated (e.g. olive oil, strawberry tree products)	Number of new economic initiatives		
<b>Results</b> 1 – Local Stakeholder Network (identified during the participatory process)	Number of stakeholders and forest owners involved	Land use data Forest data Fire data Questionnaires, surveys, interviews	Stakeholders and landowners' engagement in decisions will promote greater success in the implementation of the intervention plans;



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<p>2 – Intervention plans of AIGP, defined through a participatory process (including the activities to be carried out)</p>	<p>Area integrated in the intervention plan (ha)</p>		<p>Transformation into a more diverse landscape will generate more resilient territory to wildfires, and able to be more productive.</p>
<p>3 – Actions implemented from the intervention plan (e.g. fuel management, forest restoration)</p>	<p>Area intervened per type of intervention (ha); Area occupied by indigenous agroforest species (ha)</p>		
<p>4 – New business plans</p>	<p>Number of business plans developed</p>		
<p><b>Activities</b></p> <p>1 – Identify and select relevant stakeholders to be engaged 2 – Field Visits and context diagnosis 3 – Promote participatory workshops with local stakeholders and communities to define the intervention plan; 4 – Development of the intervention plan, considering the existing territory and landscape and the interests of stakeholders and local communities. 5 – Operational execution of the intervention plan, with external and internal means and resources; 6 – Monitoring and assessment activities; 7 – Support to develop and implement business plans.</p>			<p>Involvement of local stakeholders and forest owners may initiate complementary activities to the project.</p> <p>Empirical and traditional knowledge can be restored and innovated towards resilient, adaptable landscapes that support biodiversity, mitigate climate change, and sustain livelihoods for future generations.</p>

## Next steps and Timeline until 2027

Considering the experience of CIM Região de Coimbra, Baixo Alentejo will try to promote a successful solution transfer. Initially, there must be a meeting with the main agents in the area to intervention to collect the main elements characterising the area- initial phase.

Secondly, the technical and intervention project must be prepared – technical preparation.

Workshops will also be held with the local community to present the type of intervention being carried out – participatory and capacitation sessions.

Implementation of the technical and intervention project – pilot implementation execution

### 2025 (engagement and planning)

Q1: meetings whit CIM Coimbra

Q2: meetings with public representative of the pilot area and services acquisition procedures preparation

Q3: final establishment of specific interventions

Q4: participatory sessions with other stakeholders

### 2026 (execution)

Q1: meetings regarding financial plan and funds

Q2: practical implementation of landscape interventions

Q3: practical implementation of landscape interventions

Q4: practical implementation of landscape interventions and workshops development for local authorities

### 2027 (capacitation and monitoring)

Q1: Capacitation actions – local community and monitoring

Q2: Capacitation actions – local community and monitoring



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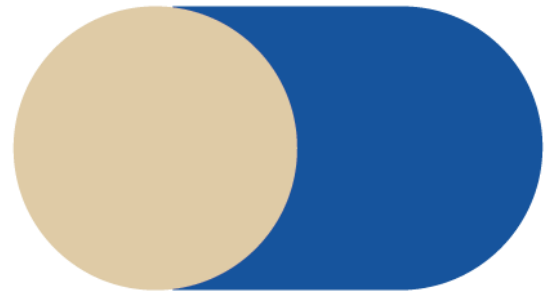
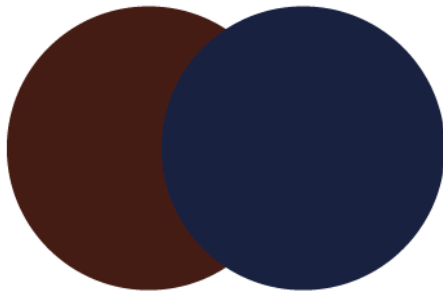
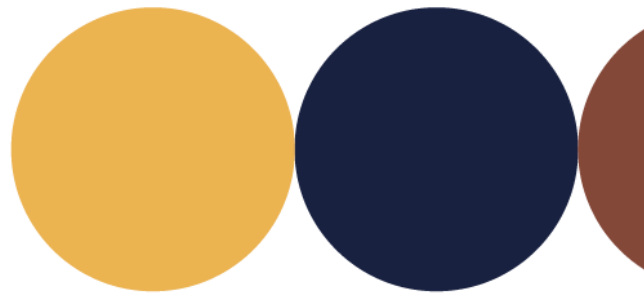
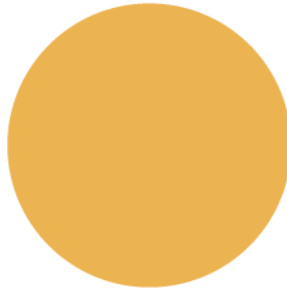
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