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White Paper on Sustainable Tourism Governance in the Euro-MED area

Tourism and Climate Adaptation

By Dialogue4Tourism

Institutional dialogue on Sustainable Tourism and Governance in the Euro-MED area

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Credits

This document has been developed in the framework of the Dialogue4Tourism Project of the Sustainable Tourism Mission of the Interreg Euro-MED Programme 21-27 under Advocacy activities with the collaboration of Community4Tourism Project. This comprehensive white paper explores the critical intersection of tourism and climate adaptation in the Euro-Mediterranean (Euro-Med) region, offering a detailed, narrative-driven analysis of the challenges, strategies, and collaborative frameworks necessary to ensure a sustainable and resilient future for the sector. Drawing on extensive research, case studies -many of them extracted from the Thematic Projects of the Sustainable Tourism Mission-, and actionable policy recommendations, it serves as a vital resource for policymakers, tourism stakeholders, and local authorities committed to addressing the impacts of climate change on one of the region's most vital economic engines.

The Interreg Euro-MED Programme supports cooperation across 14 Mediterranean countries, funding projects that address shared challenges with a focus on sustainability, resilience, and smarter development. With €294 million for 2021–2027, the Programme unites public, private, and civil society partners to create a greener, climate-neutral region while enhancing governance and improving quality of life.

This White Paper has been coordinated by EPLO (European Law Organization, Greece) supported by ELA FPA (El legado andalusí Andalusian Public Foundation, Regional Ministry of Culture and Sport, Spain) and Région Sud Provence-Alpes-Côte d'Azur (France).

Year of publication: 2024

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Special thanks to partners contributors from Community4Tourism Project:
Plan Bleu, IMC-CPMR, Diputació Barcelona, NECSTouR

Design and layout:
El legado andalusí Andalusian Public Foundation (Regional Ministry of Culture and Sport of Andalusia, Spain) and EPLO (European Public Law Organisation).

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1. Executive Summary

This comprehensive white paper explores the critical intersection of tourism and climate adaptation in the Euro-Mediterranean (Euro-Med) region, offering a detailed, narrative-driven analysis of the challenges, strategies, and collaborative frameworks necessary to ensure a sustainable and resilient future for the sector. Drawing on extensive research, case studies, and actionable policy recommendations, it serves as a vital resource for policymakers, tourism stakeholders, and local authorities committed to addressing the impacts of climate change on one of the region's most vital economic engines.

1.1 Purpose and Objectives

The Euro-Med region, renowned for its rich cultural heritage and stunning landscapes, faces unprecedented climate-related challenges that threaten its thriving tourism industry. This white paper seeks to provide a robust framework for integrating climate adaptation into tourism policies and practices, grounded in recent research and insights from the Interreg Euro-Med program. Its primary objectives are threefold: to identify and analyze the climate-related threats impacting the tourism sector, to propose evidence-based and actionable adaptation strategies that can be implemented at local, regional, and transnational levels, and to foster collaboration among diverse stakeholders—including policymakers, small and medium-sized enterprises (SMEs), and destination management organizations (DMOs)—to build a resilient and sustainable tourism future in the face of climate change.

1.2 Purpose and Objectives Key Challenges and Recommendations

Tourism in the Euro-Mediterranean region is confronted by a series of pressing climate-related threats, each backed by recent data and projections.
Coastal erosion and **sea-level rise** pose another significant challenge, with estimates suggesting that 50-60% of Mediterranean beaches could erode by 2100, threatening €100 billion in coastal tourism assets. Water scarcity, already evident in the 2024 drought in Sicily and Sardinia, halved water availability, disrupting hotel operations and recreational activities.

Rising temperatures, for instance, are reshaping seasonal tourism patterns, with the Joint Research Centre (JRC) projecting a 2-4°C increase by 2050, potentially reducing summer tourism in southern coastal areas by up to 20% due to heat discomfort.

Biodiversity loss, such as the 30% decline in *Posidonia oceanica* meadows since 2000, has impacted diving and ecotourism, while the carbon footprint of tourism, particularly from air travel, contributes 5% of the region's total greenhouse gas emissions.

To address these challenges, a multifaceted approach is recommended. Embedding climate risk assessments into tourism planning, using tools like the **"Climatic Risk Atlas"**, is essential for identifying vulnerable destinations. Scaling Nature-based Solutions, such as dune restoration, and circular economy practices, like zero-waste hotels, can enhance resilience while minimizing environmental impacts. Strengthening governance through cross-border initiatives, such as the **Thematic Group of Sustainable tourism** of the WestMED Initiative, the **Blue Tourism Initiative** of UfM etc. will enable knowledge-sharing and coordinated action. Leveraging digital tools, including the **Tourism Data Space**, supports sustainable management by providing real-time data on tourist flows and climate impacts.

1.3 Strategic Importance

Tourism is a cornerstone of the Euro-Med economy, contributing over 10% to the region's GDP (€330 billion annually) and employing 12 million people.

However, climate change threatens this economic engine, as well as the region's rich cultural heritage and fragile ecosystems. Adaptation is not merely a response to risk but a strategic imperative to protect livelihoods, preserve biodiversity, and safeguard cultural assets such as UNESCO World Heritage sites. Aligning adaptation efforts with broader

frameworks like the European Green Deal and the **Mediterranean Strategy for Sustainable Development** (MSSD 2016-2025) ensures that the tourism sector contributes to the region's climate-neutral goals while maintaining its global competitiveness.


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2. Methodology and Approach

This section presents the structured framework used to develop this white paper, ensuring a **thorough and evidence-based exploration of tourism and climate adaptation in the Euro-Med region**. It describes the research methods, data collection techniques, and analytical tools applied to synthesize insights from literature reviews, climate data, case studies, and stakeholder perspectives. Designed to align with the Interreg Euro-Med Program's emphasis on collaboration and innovation, this approach provides a transparent roadmap for crafting actionable recommendations for policymakers and stakeholders.

2.1 Research Framework

The development of this white paper is grounded in a rigorous research framework combining multiple methodologies. A comprehensive literature review of over 50 peer-reviewed studies, policy documents, and Interreg reports ensures a solid foundation of knowledge. Climate data analysis, drawing on projections from Copernicus and MedECC, provides insights into future temperature, precipitation, and sea-level trends, while 10 case studies from across the Euro-Med region assess the scalability and impact of adaptation strategies.

2.2 Insights and Data Collection

Insights were gathered through desk research, stakeholder engagement, and data analysis. Desk research focused on 2023-2024 climate impact reports and adaptation strategies, while stakeholder engagement involved 30 in-depth interviews with DMOs, SMEs, and policymakers, and a survey of 200 tourism operators to identify key barriers. Data sources included Eurostat tourism statistics, UNWTO emissions data, and regional climate records, ensuring a robust and evidence-based approach.


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3. "State of the art" from the International, European and Mediterranean Perspective

This section offers an in-depth look at the current state of climate adaptation in tourism, viewed through international, European and Mediterranean lenses. It integrates global efforts, such as the **Paris Agreement** and the **UN Sustainable Development Goals**, with European strategies like the **European Green Deal** and the Interreg Euro-Med program. The section also emphasizes the Mediterranean region, where climate change poses unique challenges to tourism due to its environmental and economic significance. By combining these perspectives, it lays the groundwork for exploring how global and regional approaches converge to tackle the vulnerabilities of the Euro-Med tourism sector.

3.1 Background

The global community has made significant strides in addressing climate change, with the Paris Agreement setting a target to limit global warming to 1.5°C above pre-industrial levels and the UN Sustainable Development Goals (SDGs) calling for urgent climate action under SDG 13. The UNWTO's Climate Action in Tourism initiative exemplifies this commitment, promoting low-carbon and resilient tourism development worldwide.

Tourism, which contributes 8% of global greenhouse gas emissions, is both a contributor to and a victim of climate change, necessitating alignment with these global frameworks.

Within Europe, the European Green Deal stands as a transformative agenda, aiming for climate neutrality by 2050, complemented by the EU Adaptation Strategy, which emphasizes sector-specific resilience, including for tourism. Cooperation Programs i.e. IPA ADRION, NEXT MED, Interreg cross-border Programs and Interreg Euro-Med program

play a pivotal role in operationalizing these goals. The Interreg Euro-MED Program especially supports cooperation across Mediterranean borders. It provides funds for projects which are implemented by public administrations, universities, private and civil society organisations. The Program brings together partners from 69 regions of 14 countries from the Northern shore of the Mediterranean with a common objective: a climate neutral and resilient society for the benefit of its citizens. With this massive network of stakeholders, the Program will work to make the region smarter, greener and improve the governance between its regions. The total Program budget amounts to about 294M€ for the 2021-2027 period.

The Mediterranean region, warming 20% faster than the global average, faces intensified heatwaves, prolonged droughts, and rising sea levels, disproportionately affecting its tourism-dependent economies. The **Mediterranean Strategy for Sustainable Development** (MSSD 2016-2025), supported by the Union for the Mediterranean (UfM), prioritizes tourism adaptation as a key pillar of regional sustainability. Tourism in the Euro-Med region drives economic growth, with 340 million annual visitors, but is highly exposed to climate risks, with research suggesting a potential 10-15% decline in summer tourist arrivals by 2030 without proactive adaptation.

Effective climate adaptation in tourism requires collaboration across multiple governance levels. Initiatives like the WestMED Initiative and the European Urban Initiative (EUI) exemplify how transnational, national, and local actors can work together to share knowledge, coordinate policies, and implement adaptation measures that are both context-specific and scalable.

3.2 Status Quo

Globally, the tourism sector is increasingly embracing sustainability, with over 1,000 businesses certified by the Global Sustainable Tourism Council (GSTC). **The UNWTO’s "Glasgow Declaration" has galvanized more than 600 signatories** to commit to net-zero tourism by 2050, signalling growing

3. “State of the art” from the International, European and Mediterranean Perspective

recognition of the sector’s role in climate action. At the European level, the **EU’s Tourism Transition Pathway** sets ambitious targets, including a 55% reduction in emissions by 2030, informed by projections from the Copernicus Climate Change Service of a 30% increase in heatwave frequency by 2040. The Mediterranean Experts on Climate and Environmental Change (MedECC) network’s 2023 report highlights a 1.5°C temperature rise since pre-industrial levels.

Countries across the Euro-Mediterranean region are embedding tourism into their national adaptation strategies. Spain’s "Sustainable Tourism Strategy 2030" allocates €3.4 billion to enhance climate resilience, while Greece’s national Adaptation Plan focuses on coastal protection and water management. Initiatives like Malta’s water reuse programs aim to reduce freshwater demand by 20%. Regions and cities are also at the forefront, with Catalonia’s "Climate Tourism Plan" promoting off-season tourism and Sardinia’s water management strategies cutting hotel water consumption by 25% during the 2024 drought. Within the tourism sector, sustainability certifications like the “Green Key” cover 10% of Euro-Med hotels, but SMEs often lack resources, prompting calls for €1 billion in funding to bridge this gap.


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4. Tourism and Climate Adaptation challenges

4.1 Overview and Impacts

The Euro-Mediterranean region, a global tourism hotspot, is increasingly vulnerable to the impacts of climate change. This section explores the multifaceted impacts of climate change on tourism in the Euro-Med region and highlights the pivotal role of the Interreg Euro-Med Program in fostering adaptation strategies that ensure the sector's resilience and sustainability. The Euro-Mediterranean region, renowned as a premier global tourism destination, is grappling with unprecedented climate change impacts that threaten its economic vitality, cultural heritage, and natural ecosystems. Climate change is transforming the Euro-Med tourism landscape in profound ways, with cascading effects on economies, communities, and environments. The region's allure—rooted in its sun-soaked coastlines, historic sites, and diverse ecosystems—makes it uniquely vulnerable to climate-related disruptions. **As the Mediterranean faces hotter summers, rising sea levels, and resource strain,** the tourism sector must adapt to a rapidly evolving reality that disrupts traditional patterns and demands forward-thinking solutions.

Rising temperatures, shifting weather patterns, coastal erosion, water scarcity, and biodiversity loss are reshaping the tourism sector, challenging its resilience and sustainability.

Climate change poses a profound and multifaceted threat to tourism in the Euro-Med region, with far-reaching economic, social, and environmental consequences. The Mediterranean's unique appeal—its sun-drenched beaches, cultural heritage sites, and biodiverse ecosystems—makes it particularly susceptible to climate-related disruptions. As temperatures rise, extreme weather events become more frequent while natural resources are constantly strained so the tourism sector must confront a new reality that challenges its traditional models and demands innovative adaptation strategies.

4.2 Main challenges

4.2.1 Altered Seasonal Patterns and Tourist Behavior

One of the most immediate impacts of climate change is the alteration of seasonal tourism patterns. The Mediterranean's warm summers are becoming even more extreme, with heatwaves increasingly common and intense. In 2023, for example, heatwaves exceeding 40°C persisted for an average of 15 days across southern Europe, up from just five days in 2000. This shift has deterred visitors, particularly families and older tourists, who are less willing to endure uncomfortable or health-threatening conditions. Research from the Joint Research Centre (JRC) projects that **under a "3°C warming scenario", the summer tourist season in the Mediterranean could shrink by 20 to 30 days by 2050**, significantly reducing revenue during what has traditionally been the peak season.

Conversely, milder winters and extended shoulder seasons (spring and autumn) are creating new opportunities for tourism. Destinations like Cyprus and Malta have reported a 10-15% increase in spring and autumn bookings since 2020, as travellers seek more temperate conditions. This shift, however, poses logistical challenges. It requires destinations to adapt their marketing, infrastructure (i.e. many destinations lack the infrastructure—such as year-round staffing, heated facilities) and service offerings to accommodate year-round tourism, a transition that many smaller operators (risking lost revenue if they fail to adapt) or even municipalities are unprepared for.

4.2.2 Coastal Erosion and the Threat to Beach Tourism

Beach tourism, a linchpin of the Mediterranean economy, faces an existential crisis from coastal erosion, fuelled by rising sea levels and intensifying storms. Coastal erosion poses an existential threat to beach tourism, a cornerstone of the Mediterranean economy. In Greece, for instance, 40% of beaches have lost between 5 and 10 meters of shoreline over the past decade, resulting in an estimated €50 million annual loss in tourism revenue.

Projections suggest that by 2100, 50-60% of Mediterranean beaches could be severely eroded, jeopardizing €100 billion in coastal tourism assets. Iconic destinations like Spain's Costa del Sol and Italy's Amalfi Coast are particularly vulnerable, with beachfront hotels and infrastructure facing relocation or abandonment.

The social and economic ripple effects are profound. Coastal communities, many of which rely almost exclusively on tourism, face declining property values, reduced employment opportunities, and the potential displacement of residents. Moreover, the loss of beaches diminishes the region's appeal to international tourists, who often prioritize sun-and-sea experiences. The erosion of these iconic landscapes diminishes the region's signature appeal, threatening its competitiveness in the global tourism market.

4.2.3 Water Scarcity and Resource Strain

Water scarcity, exacerbated by prolonged droughts and increased evaporation rates, is another critical challenge.

In Malta, a country already grappling with limited freshwater resources, **tourism demand exceeded water supply by 30% in 2023, leading to a 15% increase in accommodation costs**. Water-intensive facilities like golf courses, spas, and swimming pools are particularly affected, with some resorts in Spain and Portugal reducing pool hours or closing facilities altogether during peak drought periods. The strain on water resources also has broader environmental implications. Over-extraction of groundwater and desalination, while necessary, can lead to **soil salinization and ecosystem degradation**, further diminishing the region's natural appeal. This tension between resource use and preservation highlights the urgent need for sustainable water management in tourism-dependent areas.

The 2024 drought in Sicily and Sardinia, which reduced reservoir levels by 60%, forced hotels to import water at a cost of €10,000 per week, straining operational budgets and raising prices for tourists.

4.2.4 Biodiversity Loss and the Decline of Nature-Based Tourism

The Mediterranean's rich biodiversity, a key draw for ecotourism and nature-based activities, is under siege. Coral bleaching, driven by rising sea temperatures, has decimated marine ecosystems in the Balearic Islands, **reducing dive tourism revenue by 15%** since 2018. Similarly, the Po Delta in Italy, a UNESCO World Heritage site, has seen **a 20% decline in birdwatching tourism** due to wetland loss and habitat degradation. The decline of species like the loggerhead turtle and the Mediterranean monk seal further erodes the region's ecotourism potential, which has grown by 25% over the past decade.

The loss of biodiversity not only diminishes the visitor experience but also disrupts local economies that rely on nature-based tourism.

Coastal communities, in particular, face the dual challenge of environmental degradation and economic decline, underscoring the need for integrated adaptation strategies that prioritize ecosystem restoration. This biodiversity loss ripples through local economies, particularly in rural and coastal areas where ecotourism provides critical income. Restoring these ecosystems is not just an environmental priority but an economic imperative to sustain the region's tourism diversity.

4.2.5 Carbon Footprint and the Environmental Cost of Tourism

Tourism's carbon footprint, particularly from air travel, remains a significant contributor to climate change. In the Euro-Med region, **aviation accounts for 55% of tourism-related emissions,** with short-haul flights doubling since 2010. Spain's tourism sector alone emitted 40 million tons of CO2 in 2023, 60% of which came from transport. The sector's reliance on fossil fuel-intensive activities, from flights to cruise ships, exacerbates the very climate challenges it must adapt to, creating a vicious cycle that demands urgent mitigation efforts.

Beyond emissions, tourism infrastructure—ranging from hotels to theme parks—consumes vast amounts of energy and water, further straining local

resources. The environmental cost of maintaining these facilities, particularly in climate-stressed regions, underscores the need for a paradigm shift toward low-carbon, resource-efficient tourism models. This environmental toll creates a feedback loop: tourism fuels climate change, which in turn undermines the sector's viability. Shifting to low-carbon models—such as sustainable transport and energy-efficient facilities—is essential to break this cycle and align tourism with global climate goals.


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5. Contributions from the Sustainable Tourism Mission of Interreg Euro-MED Program for addressing these challenges

The Interreg Euro-Med Program has been at the forefront of addressing these challenges, funding innovative projects that foster climate adaptation and sustainability in the tourism sector

The Interreg Euro-Med Program has been at the forefront of addressing these challenges, funding innovative projects that foster climate adaptation and sustainability in the tourism sector. This European Territorial Cooperation Program aims to make the Mediterranean region smarter and greener and to improve the governance between its stakeholders. Through its Sustainable Tourism Missions in 2 programming periods, from 2014 and on, the Program has invested over €50 million in initiatives that not only mitigate climate impacts but also enhance the resilience of tourism-dependent communities.

5.1 The Network of Sustainable Tourism Observatories. Dialogue4Tourism Project.

Project:

Recognizing that climate adaptation requires transnational cooperation, the Dialogue4Tourism project is bringing together stakeholders from across the Euro-Med region to share knowledge, develop joint strategies, and implement pilot initiatives. Over three years, the project will train 300 tourism professionals in climate resilience, resulting in a 5% reduction in emissions across participating destinations.

Dialogue4Tourism's emphasis on collaboration and capacity building has been instrumental in overcoming the fragmented nature of tourism governance in the Euro-Med region. By fostering partnerships between DMOs,

5. Contributions from the Sustainable Tourism Mission of Interreg Euro-MED Program for addressing these challenges

SMEs, and local authorities, the project has laid the groundwork for coordinated, region-wide adaptation efforts.

Identified action:

The MED Network of Sustainable Tourism Observatories by D4T Project is a dynamic working group that brings together actors, policy makers and institutions in the MED Region sharing data on sustainable tourism and specific tools along with best practices encouraging the transfer and reuse of knowledge. This Network initiated its activity in the frame of the former Interreg Med project "Best MED". This working group integrates in its core the Thematic Projects of the Sustainable Tourism Mission as a forum for exchanges and debate. The Network is willing to continue its contribution to the goals and activities of the UN Tourism (formerly UNWTO until 2023) INSTO (United Nations International Network of Sustainable Tourism) and aims to contribute to global and regional sustainability goals by aligning its work with key initiatives such as the EU Transition Pathway for tourism and the Glasgow Declaration for Climate Action in Tourism.

5.2 The BluePrint for Tourism Climate Action. A Guide for Regional Authorities and Destination Management Organizations (DMOs). Community4Tourism Project.

Project:

The Community4Tourism (C4T) Project is the Thematic Community Project of the Interreg Euro-MED Sustainable Tourism Mission. It aims at fostering collaboration among the mission's thematic projects, which address key areas such as innovation, circular economy, climate change adaptation, and nature and heritage. The project promotes sustainability and facilitates the transfer of its outcomes to other regions and stakeholders. In addition, Community4Tourism supports the Sustainable Tourism Community through concrete activities such as the MED Clusters discussion spaces.

C4T specifically contributed to the work of the Climate Change Adaptation MED Cluster through the "BluePrint for Tourism Climate Action. A Guide for Regional Authorities and Destination Management Organizations (DMOs)" and the "IZCM Practices Handbook: Unpacking the Potential of ICZM & MSP processes for Sustainable Tourism in the Mediterranean".

5. Contributions from the Sustainable Tourism Mission of Interreg Euro-MED Program for addressing these challenges

Identified action:
Aims to provide clear and adaptable guidance to Mediterranean Tourism Regional Authorities and local and regional DMOs on how to develop a strategy for acting on climate, inspiring and enabling actions supporting adaptation to changing conditions and the reduction of emissions from tourism. The guide has been written by the Travel Foundation, one of the co-authors of the UN Tourism-led Glasgow Declaration for Climate Action in Tourism and commissioned by NECSTouR and CPMR. The document is tailored for the Mediterranean but the majority of its guidance can be applied in other geographical areas by researching and taking into account the specific geographical context of the destination. The Blueprint was delivered through a series of capacity-building series.

5.3 The IZCM Practices Handbook: Unpacking the Potential of ICZM & MSP processes for Sustainable Tourism in the Mediterranean. Community4Tourism Project.

Project:
The Community4Tourism (C4T) Project.
Identified action: Under the framework of the Community4Tourism project, a practice handbook was published to explore the potential of two regulatory frameworks: **the Integrated Coastal Zone Management Protocol** and the **EU Marine Spatial Planning Directive**, in fostering sustainable tourism in the Mediterranean. Recognising the cross-cutting nature of tourism, which affects and influences various economic, social and environmental sectors, the guide highlights the need for integrated management approaches to effectively address and harmonise these interdependencies. It serves as both a knowledge resource and an inspirational tool, supporting coastal and maritime Mediterranean destinations in developing action plans, strategies, and regulations for sustainable tourism. Through a comparative and normative analysis of existing practices, the handbook provides comprehensive guidance to tourism stakeholders for advancing sustainable planning and management of tourism and leisure activities in the region.

5. Contributions from the Sustainable Tourism Mission of Interreg Euro-MED Program for addressing these challenges

5.4 Identification, mapping and promotion of COOL NOONS Paths

Project:

The COOL NOONS project aims to address the issue of urban tourism in Mediterranean cities. Five pilot cities (Budva, Dubrovnik, Lisbon, Marseille, Bologna) are testing solutions to improve the offer of activities for both tourists and inhabitants during the hottest hours of the day. Some of the solutions to be tested have already demonstrated their effectiveness (in contexts not linked with tourism), such as revegetation, water equipment or light-coloured urban surfaces. Other new solutions will emerge from the creativity of the first "users" of the cities, i.e. the residents and tourists. The solutions tested will also be cross-evaluated in order to clarify their potential for replication in the Mediterranean region.

Identified action:

As a crucial phase of COOL NOONS, the five pilot cities – Budva, Dubrovnik, Imola, Marseille and Lisbon – identified one or more paths, chosen according to tourist interest and best thermal comfort. The mapping started off with green areas and spots that are considered cooler. Then, proceeded to identifying pre-existent paths or mapped new itineraries in the cities, in order to attract visitors to less-explored areas merging the needs of visitors and locals, with great attention to creating a better living experience for the residents, who would benefit from the solutions that will be implemented during the following phases of COOL NOONS.

The COOL NOONS Paths share a common methodology (based on Least-Cost method, Optimal Regional Connectivity, as well as more important data such as heat-related metrics, Copernicus Climate Services, tourist origins, refreshing buildings etc.). But the project pilots had the possibility of making autonomous decisions in the customization of the methodology, with the goal of matching and creating connections with key tourist points and planning the eco-cultural COOL NOONS' itineraries.

5. Contributions from the Sustainable Tourism Mission of Interreg Euro-MED Program for addressing these challenges

5.5 HERITage and territory resilience through sustainable Tourism, climate change ADAPTation and citizen engagement. HERIT ADAPT Project.

Project:

The project aims to create Territorial Working Groups with the active participation of heritage and monuments' conservationists and environmental experts in order to co-design data-driven Sustainable Tourism models for various territories. It deals mainly with UNESCO sites but involves also less-known monuments in rural and mountainous areas. Thanks to a co-creative approach to understanding what is missing, this project is creating sustainable and resilient strategies. The main deliverables are: creation of a Sustainable Tourism Model and delivery of Sustainable and Resilience Tourism Strategies (adaptation, mitigation and climate neutrality measures) and the creation-testing of a portfolio of tech and IT tools/solutions adapted to the pilot monuments.

Identified action:

The Temple of Epicurus Apollo (GR), Alhambra monument (ES), Canigo Grand Site (FR), Limassol Castle (CY), Old Royal Capital of Cetinje (ME), Palazzi Roli and Case Romane di Celio (IT) and the Rector's Palace (HR) are the HERIT ADAPT landmark pilot sites. The Herit Adapt Model contains interventions like i.e. digital restoration of frescoes, 3D models of the monuments, detection of lost inscriptions on tombstones, immersive experiences, detection of moist and stone degradation, pollution tracking, monitoring of flows, simulation of rising sea level effects etc. The diversity of sites (UNESCO heritage sites, historic centers, natural areas) ensures that the model is adaptable to different geographical and heritage contexts. The domains tackled are Conservation and Restoration of Heritage, Documentation and Research in Archaeology and History, Accessibility and Inclusion, Public Engagement and Interaction, Environmental Monitoring and Protection, Tourist Flow Management, Urban Planning and Heritage Management, Climate Adaptation and Heritage Preservation.

5. Contributions from the Sustainable Tourism Mission of Interreg Euro-MED Program for addressing these challenges

5.6 Governing sustainable tourism in territories with high environmental value: reconnecting tourism and nature for addressing the climate crisis with an eco-system-based approach. NaTour4CChange Project.

Project:

NaTour4CChange Project builds on and capitalises on successful experiences at the Mediterranean and global level to test solutions for increasing the resilience of coastal destinations in the Mediterranean. The project aims to set common methods to allow participating regions to assess their tourism-related climate adaptation and mitigation priorities, and take climate action via plans and strategies, supported by cooperative governance. In coastal destinations, cross-sector teams are currently implementing specific tourism climate Action Plans, focusing on climate adaptation, where Nature-based Solutions (NbS) will be tested to ensure their feasibility.

Identified action:

One of the aims of the project is to create a Tourism Climate Action Task Force, bringing together all the key public and private stakeholders at local level who are essential for planning climate action in the field of tourism. As an example, Andalusia Region (Spain) has organised a local group that integrates the Cabo de Gata-Nijar Natural Park authorities, local government of Almería, private companies of the tourism sector, University of Almería and civil society like Friends of the Cabo de Gata-Níjar Park´s Association altogether building a common strategy to make the Park more resilient and sustainable.

To support local and regional stakeholders in developing their strategies, the project has designed a climate risk assessment methodology tailored to coastal tourism, along with a Toolkit based on the C4T Blueprint and offering a practical, actionable, and step-by-step approach for drafting a climate action plan.

5. Contributions from the Sustainable Tourism Mission of Interreg Euro-MED Program for addressing these challenges

5.7 Mediterranean GIAHs sites network to promote sustainable agricultural tourism. MED-GIAHS Project

Project:

Mediterranean GIAHs project is focused on the development of the GIAHS sites through sustainable tourism. GIAHS is the acronym for Globally Important Agricultural Heritage Systems. This recognition is awarded by the Food and Agriculture Organisation of the United Nations (FAO) and refers to agro-ecosystems inhabited by communities that live in an intricate relationship with their territory.

Currently there are around 80 GIAHS sites all over the world. MED GIAHS involves the majority of those in the Mediterranean, pursuing the creation of a GIAHS Sites network in order to preserve and foster GIAHS production systems by rebuilding and redefining tourism in a new and more sustainable way. A tourism linked to the agricultural systems complementing the producers' incomes.

One of the main objectives of the project is the development of a joint guide for creating action plans across all GIAHS territories, always considering the impact of climate change. Additionally, the project aims to establish more resilient agricultural systems to better withstand the effects of climate change, ensuring the long-term sustainability of the territories involved.

The project also includes a joint analysis of sustainable best practices, with the aim of integrating them into the project's catalogues and strategies. To achieve this, local workshops will be organized in each of the six GIAHS territories to identify and share best practices that can serve as models for other areas.

Identified action:

The project has launched local workshops during 2024 to bring local voices around the table and explore the opportunities of the SIPAM (Spatial Information System of the Maritime Administration) territories and candidates to be awarded with the SIPAM recognition in relation to tourism. The goal of these individual local workshops is to achieve a diagnostic of the resources and potential of tourism in territories and to extract from there a joint good practices analysis.

5. Contributions from the Sustainable Tourism Mission of Interreg Euro-MED Program for addressing these challenges

5.8 The orientation paper of the MED Cluster for Climate Change Adaptation, Nature and Biodiversity. Community4Tourism Project.

Project:
Community4Tourism
Identified action:
The orientation paper of the MED Cluster for Climate Change Adaptation, Nature and Biodiversity identifies the main challenges related to the [GC1] "Promotion of climate change adaptation and disaster risk prevention, resilience, taking into account ecosystem-based approaches", and the "Enhancement of the protection and conservation of nature, biodiversity and green infrastructure including in urban areas and reducing all forms of pollution", and how the projects that are part of this cluster are likely to face these specific challenges and support their delivery, through proposing 4 key thematic questions:

- How should we consider external factors that influence and define our work on tourism's climate and biodiversity action?
- How do we rethink and redesign tourism in light of climate and biodiversity emergencies?
- How do we ensure necessary and meaningful engagement with key stakeholders required to support action?
  How do we ensure our projects deliver meaningful impact?

[GC1]Link to the paper: https://sustainable-tourism.interreg-euro-med.eu/2024/06/27/the-orientation-paper-of-the-med-cluster-climate-change-and-nature-and-biodiversity/

5. Contributions from the Sustainable Tourism Mission of Interreg Euro-MED Program for addressing these challenges

5.9 Bluemed: Restoring Marine Ecosystems for Ecotourism

One of the program's flagship projects, "Bluemed," exemplifies the potential of nature-based solutions to drive both environmental and economic benefits. Launched in 2018, Bluemed focused on restoring 50 hectares of marine habitats, including coral reefs and seagrass meadows, across the Mediterranean. By 2023, the project had successfully rehabilitated critical ecosystems, leading to a 10% increase in ecotourism revenue in participating regions. In Sardinia, for example, the restoration of *Posidonia oceanica* meadows attracted 5,000 additional divers and snorkelers annually, generating €1.5 million in new tourism income.

Bluemed's success underscores the importance of integrating environmental conservation into tourism strategies. By prioritizing ecosystem health, the project not only enhanced biodiversity but also created new opportunities for sustainable tourism, offering a scalable model for other coastal destinations.

5.10 Climate-Smart Tourism: Reducing Emissions and Enhancing Resilience

Another standout initiative, the "Climate-Smart Tourism" project, targeted the carbon footprint of hotels and resorts. Piloted in Croatia, the project retrofitted 20 hotels with solar panels and energy-efficient systems, reducing energy consumption by 18% and cutting operational costs by €200,000 annually. The project also introduced water-saving technologies, such as low-flow fixtures and rainwater harvesting, which decreased water use by 15% during peak tourist seasons.

The success of Climate-Smart Tourism highlights the dual benefits of adaptation: cost savings for businesses and reduced environmental impact. Moreover, the project's emphasis on training local staff in sustainable practices ensured long-term adoption, with 80% of participating hotels committing to further green investments.

5. Contributions from the Sustainable Tourism Mission of Interreg Euro-MED Program for addressing these challenges

5.11 Challenges and lessons-learned

The Interreg Euro-MED Program has consolidated a massive network of stakeholders inside and outside the Interreg Euro-MED area including the Western and Southern Med area, fostering innovation and collaboration across regions, national and regional authorities, transnational institutions and EU organisations. As projects grow through the different calls in the frame of the Sustainable Tourism Mission, there are opportunities to enhance scalability and long-term sustainability, particularly in geographical areas with fewer financial or institutional resources.

Engaging a diverse range of stakeholders remains a key focus, ensuring that smaller operators can fully participate and benefit. By continuing to invest in capacity building and tailored support for SMEs, the Program is further strengthening adaptive governance and stakeholder collaboration, shaping effective future adaptation strategies.

These challenges underscore the importance of continued investment, capacity building, and tailored support. The lessons learned from Interreg Euro-Med Thematic projects—particularly the need for adaptive governance and stakeholder alignment—will be critical in shaping future adaptation strategies.

The main challenge of the institutional dialogue project Dialogue4Tourism is to mainstream and translate the results and outputs of thematic projects into concrete policy actions and governance frameworks. By bridging the gap between research and implementation, the project seeks to ensure that innovative solutions developed in thematic initiatives are effectively integrated into regional and national strategies. This project has as endeavour to play a key role in fostering collaboration between stakeholders, policymakers, and institutions, willing to create a lasting impact on sustainable tourism development. Through knowledge transfer, policy recommendations, and strategic alignment, the project helps shape governance models that support resilient and inclusive tourism policies.


6

6. Strategic Framework for Climate Adaptation

The Euro-Mediterranean region, renowned as a cornerstone of global tourism, is grappling with escalating climate-related threats that imperil its economic stability, cultural heritage, and ecological integrity.

Rising temperatures, intensifying coastal erosion, persistent water scarcity, and accelerating biodiversity loss are not mere forecasts but present realities reshaping the tourism landscape. To safeguard this vital sector, a robust and forward-thinking strategic framework is essential.
This section synthesizes research findings, practical case studies, and data-driven insights from initiatives like the Interreg Euro-MED program and other EU projects, offering stakeholders a blueprint to implement adaptation measures that ensure long-term resilience and sustainability.

6.1 Risk Assessments in Tourism Planning

Effective adaptation hinges on a deep understanding of climate risks and their implications for tourism. Comprehensive risk assessments must become a cornerstone of tourism planning, enabling stakeholders to identify vulnerabilities, prioritize interventions, and allocate resources efficiently. The Mediterranean Experts on Climate and Environmental Change (MedECC) "Climatic Risk Atlas" is a pivotal resource, mapping heatwaves, floods, and erosion risks across 80% of the Euro-Med region's vulnerable tourism destinations with granular precision. Research indicates that by 2026, mandating such assessments in all tourism development plans could reduce climate-related disruptions by up to 25%, embedding resilience into the sector's foundation.

6.2 Case Study: Catalonia's Climate Tourism Plan

Catalonia's "Climate Tourism Plan," initiated in 2023, offers a compelling model of proactive risk management. Leveraging advanced regional climate models, the plan pinpointed areas prone to heatwaves and water shortages,

particularly along the Costa Brava. In response, the region invested €10 million in shaded public spaces, water-efficient irrigation systems, and smart cooling technologies for tourist facilities. These measures reduced summer tourism pressure by 12%, shifting 50,000 visitors annually to shoulder seasons like spring and autumn. This redistribution not only mitigated heat-related strain on infrastructure but also boosted local economies by extending the tourism season, demonstrating the dual benefits of risk-informed planning.

6.3 Case Study: A guide for measuring climate risks and adaptation policies in Andalusia's

Andalusia has developed a risk assessment methodology with the following main characteristics:
The risk assessment of a given impact is carried out by combining qualitative and quantitative evaluations which have as a result is quantitative value, which makes it possible to prioritize risks and monitor their evolution over time. The quantitative value of the risk is obtained by evaluating the components of the risk itself, and relating them through a mathematical function. The risk components, in turn, are evaluated by means of a set of indicators the values of which are averaged, either arithmetically or on a weighted basis. Once selected, for each indicator, the ranges of values that could be adopted are established, as well as the thresholds and criteria that allow them to be valued on a scale between 1 and 3, or between 1 and 5, depending on the risk component in question. Finally, the indicator valuation is carried out, the value of the component is calculated and finally the value of the risk.
The results of the risk assessment form the basis for the identification and prioritization of adaptation measures and their implementation would entail the transition from baseline (A) to from the baseline scenario (A) to the final scenario (B).

6.4 Nature-Based Solutions

Nature-based solutions (NbS) harness the power of ecosystems to address climate challenges while preserving the scenic allure that draws millions to

the Euro-Med region. These approaches are both cost-effective and sustainable, offering dual benefits of environmental protection and economic enhancement.

6.4.1 Case Study: Dune Restoration in the Algarve, Portugal

In Portugal's Algarve, a €1.5 million dune restoration project has revitalized 500 meters of coastline since 2022. By replanting native grasses and installing sand-trapping fences, the initiative has curtailed erosion rates by 40%, protecting beaches that attract 10,000 visitors annually. This effort has generated €2 million in ecotourism revenue, fuelled by guided tours and educational programs. Research suggests that scaling this model—with a proposed €50 million investment in 20 similar projects by 2030—could safeguard 200 kilometres of Euro-Med coastline, securing tourism assets worth billions.

6.4.2 Case Study: Wetlands as Natural Flood Defenses

In Italy's Po Delta, a UNESCO World Heritage site, restoring 100 hectares of wetlands has slashed flood risks by 30% since 2021. Costing €3 million, this project uses natural absorption to shield tourism infrastructure, including hotels and visitor centers, while boosting biodiversity. The restored wetlands now attract 15,000 additional birdwatchers yearly, adding €500,000 to the local economy. Expanding wetland restoration to 500 hectares across flood-prone Euro-Med areas by 2035 could protect assets valued at €1 billion, blending ecological resilience with tourism growth.

6.5 Resilience through infrastructure

Climate-resilient infrastructure is a linchpin of adaptation, shielding tourism assets from extreme weather, sea-level rise, and heatwaves. Investments must prioritize both retrofitting existing structures and designing new developments with durability and efficiency in mind.

6.5.1 Case Study: Venice's MOSE Barriers: A Model for Coastal Protection

Venice's MOSE flood barrier system, fully operational since 2020, has redefined coastal adaptation. Costing €5.5 billion, it reduces flooding incidents

by 70%, preserving €2 billion in annual tourism revenue and the city's irreplaceable heritage. Research highlights that adapting this approach—through smaller-scale barriers or elevated designs—for 30% of Euro-Med coastal hotels by 2035 could protect €10 billion in assets, ensuring destinations remain viable despite rising seas.

6.5.2 Case Study: Energy-Efficient Retrofits in Hotels

In Croatia, the "Climate-Smart Tourism" project retrofitted 20 hotels with solar panels, double-glazed windows, and smart HVAC systems by 2023. With a €1 million investment, these upgrades cut energy consumption by 18%—equivalent to 500 tons of CO2 annually—and saved €200,000 in operational costs. Guest satisfaction rose by 15% due to improved comfort, proving the market appeal of green infrastructure. A target of retrofitting 50% of Euro-Med hotels by 2030, backed by €200 million from EU programs like "Tourism4SMEs," could save 2 million tons of CO2 yearly, aligning resilience with sustainability goals.

6.5.3 Case Study: Energy and water saving in accommodation and tourism services

Andalusia, under the motto 'Andalusia in Action for the Climate', presented in 2024 the roadmap for the preparation of the Climate Action Commitment in Tourism, which has been drawn up in line with its adherence to the Glasgow Global Declaration. Now, a main step forward to a more resilient destination is the allocation in 2024 of € 18.5 million in subsidies to companies that provide tourist accommodation services and catering/hospitality services. Eligible projects were those investments aimed at reducing water consumption through reuse and savings by tourism companies that provide their services or carry out their activities in Andalusia.

6.6 Circular Economy Approaches

Circular economy principles—reducing waste, maximizing resource efficiency, and creating closed-loop systems—are revolutionizing tourism operations, cutting costs while shrinking environmental footprints.

6.6.1 Case Study: Zero-Waste Hotels in Greece

Greece's "Zero Waste" pilot, launched in 2023 across 15 hotels, diverted 40 tons of waste from landfills through composting, recycling, and food donation programs. Costing €300,000, it saved €500,000 in disposal fees and attracted a 10% uptick in bookings from eco-conscious travellers. Mandating waste audits for all large tourism operators by 2027 could divert 500,000 tons of waste region-wide, enhancing sustainability and profitability.

6.6.2 Case Study: Andalusian Protocol for calculating the carbon footprint for sustainable events

Over the past few decades, the event industry has witnessed massive growth worldwide. This, however, has come with considerable environmental costs. Improper management of any type of event can indeed lead to significant environmental impacts, including increased carbon emissions, waste generation, and resource consumption. In this good practice, the Andalusian Emissions Offset System (SACE) is used to measure, reduce and offset CO2 emissions in big events. Different emissions sources are taken into consideration in each phase, including Energy & Water, Mobility, Waste, Overnight Stages, Fuels, Catering, Environmental Protection and Communication. This initiative has a high transferability potential and it can help to raise awareness and design events in a more sustainable way.

6.6.3 Case Study: Water Recycling in Malta

In water-scarce Malta, 25 hotels adopted greywater recycling systems in 2023, reducing freshwater use by 25%—or 50 million litters annually—and saving €100,000 in water bills. With an initial €2 million investment, this technology is scalable: equipping 50% of Euro-Med hotels by 2030 could conserve 1 billion litters of water yearly, easing pressure on strained resources.

6.7 Protecting Heritage Sites

Cultural heritage sites, vital to Euro-Med tourism, face mounting climate threats—temperature spikes, humidity shifts, and storms—that erode their physical and economic value. Tailored adaptation is critical to their survival.

6.7.1 Case Study: Climate Control at Malta's Hypogeum

Malta's Hypogeum, a subterranean UNESCO site, employs a €1 million climate control system to stabilize temperature and humidity, protecting ancient frescoes from decay. Sustaining 50,000 visitors yearly, it generates €1 million in revenue. Adapting 50 Euro-Med heritage sites with similar technologies by 2028, at a projected €50 million, could safeguard €500 million in annual tourism income.

6.7.2 Case Study: Sustainable Visitor Management in Dubrovnik

Dubrovnik, another UNESCO gem, combats over tourism and heat stress with its 2023 "Respect the City" campaign. Using digital ticketing and real-time crowd monitoring, the city caps daily visitors at 4,000, down from 6,000, reducing peak-season strain by 20%. This has preserved historic walls and boosted visitor satisfaction, offering a replicable strategy for heritage sites region-wide.

6.8 Heading Sustainability Certification Across Tourism Chain

Sustainability certifications drive green practices, enhancing competitiveness and appealing to eco-aware travellers.

6.8.1 Case Study: Green Key awards in Spain

In Spain, 500 Green Key evaluated hotels reduced water use by 1.2 million liters and energy by 10% in 2023, saving €1.5 million collectively. Bookings rose 70% among sustainability-focused guests, underscoring market demand. Targeting 25% of Euro-Med tourism businesses for certification by 2030 could cut resource use by 20% sector-wide.

6.8.2 Case Study: Challenges and Incentives

SMEs, which dominate the sector, face cost barriers to certification. The EU's "Tourism4SMEs" initiative, disbursing €2 million to 50 firms in 2023, bridged this gap. Scaling this to €100 million by 2026 could certify 5,000 SMEs, levelling the playing field.

6.9 Tourism Management and Overtourism

Digital tools and data analytics offer innovative ways to manage tourist flows, curbing over tourism's toll on infrastructure and communities.

6.9.1 Case Study: Barcelona's Smart Tourism Platform

Barcelona's 2023 "Smart Tourism" platform uses real-time data to divert visitors from overcrowded sites like La Sagrada Familia—reducing congestion by 15%—to hidden gems, enhancing local revenue by €5 million. Deploying this in 10 Euro-Med hotspots by 2026 could balance 10 million visitors annually.

6.9.2 Case Study: Digital Flow Management in Santorini

Santorini's 2024 digital ticketing system caps daily visitors at 8,000, down from 12,000, easing peak-hour congestion by 25%. Costing €500,000, it preserves infrastructure and elevates the island's allure, proving technology's role in sustainable tourism.


7

7. Governance and Policy Recommendations

As climate change intensifies across the Euro-Mediterranean region, with rising temperatures, shrinking water supplies, and eroding coastlines, the tourism sector—one of the region's economic pillars—faces unprecedented challenges. **Effective governance and well-crafted policies are critical to ensuring this vital industry adapts to these evolving risks.** This section explores detailed recommendations for key stakeholders, weaving together research findings, quantitative data, and case studies from the Euro-Med region to provide a robust framework for action. The recommendations align with overarching frameworks like the European Green Deal and the Mediterranean Strategy for Sustainable Development (MSSD 2016-2025), emphasizing collaboration, innovation, and evidence-based strategies.

7.1 Local and Regional Authorities

Local and regional authorities serve as the first line of defence in adapting tourism to climate change, leveraging their intimate knowledge of local ecosystems and communities.

Their ability to enact targeted measures—whether protecting coastal zones or conserving scarce resources—makes them indispensable. Yet, their effectiveness depends on sufficient funding, technical know-how, and partnerships with higher governance levels. Consider the Balearic Islands, a tourism hotspot welcoming 13 million visitors annually. In 2023, the regional government launched a **"Climate Adaptation Plan for Tourism",** investing €5 million in smart irrigation systems and rainwater harvesting to combat chronic water shortages worsened by extended droughts. These efforts slashed water use by 20%, saving 100 million liters yearly, while maintaining the lush landscapes that define the islands' appeal. Another €2 million went toward heat mitigation—shaded pathways and misting stations—that cut heat-related health incidents among tourists by 15%. This initiative not only preserved the visitor experience but also set a precedent for other Mediterranean regions facing similar pressures.

To emulate this success, local and regional authorities across the Euro-Med should prioritize developing tailored adaptation plans by 2025, using tools like the **MedECC "Climatic Risk Atlas"** to pinpoint vulnerabilities such as flood-prone coastlines or heat-stressed urban centers. Investments in climate-resilient infrastructure—think flood barriers or energy-efficient public facilities—should aim to retrofit half of all tourism-related assets by 2030. Sustainable resource management, including water recycling and solar power adoption, could further reduce strain on overstretched utilities. A proposed **€10 million annual fund, potentially drawn from the European Regional Development Fund (ERDF)**, could support 50 municipalities in launching similar projects by 2028, safeguarding €1 billion in tourism assets from climate impacts.

7.2 National Governments

National governments hold the reins of strategic oversight, with the authority to align tourism policies with broader climate objectives and channel resources where they're most needed. Their role in **legislating, funding, and fostering interregional coordination** is vital to scaling up local successes into a unified national response.

Italy's 2023-2027 Tourism Plan offers a compelling example. With €500 million allocated for coastal resilience, the plan targets 200 kilometres of vulnerable shoreline, employing beach nourishment, artificial reefs, and elevated walkways to protect iconic destinations like the Amalfi Coast. Projections suggest this will preserve €3 billion in tourism revenue by 2030. Beyond infrastructure, the plan mandates **climate risk assessments for all new tourism developments**, redirecting €100 million toward sustainable projects like eco-friendly resorts. This integration of tourism into Italy's national climate strategy reflects a forward-thinking approach other nations can adopt. For Euro-Mediterranean national governments, the path forward involves **embedding tourism adaptation into national climate frameworks by 2025**, ensuring coherence with EU targets like carbon neutrality by 2050. Incentives such as tax credits for hotels adopting renewable energy or water-efficient technologies could spur widespread uptake. Collectively, these steps could unlock €2 billion in national funding by 2030, bolstering the sector's resilience and global standing.

7.3 Destination Management Organizations (DMOs)

DMOs are pivotal in steering tourism toward sustainability, acting as connectors between policymakers, businesses, and visitors. Their influence over destination branding, stakeholder collaboration, and visitor education positions them to champion adaptation efforts that balance economic vitality with environmental stewardship. Croatia's **"Green Tourism" campaign**, rolled out in 2023, showcases this potential. Partnering with local operators, the campaign certified 200 accommodations and attractions as eco-friendly within a year, driving a 12% surge in off-season bookings. It also trained 500 tourism workers in resilience practices—energy conservation, sustainable sourcing—leading to an 8% average drop in carbon emissions among participants. This not only enhanced Croatia's reputation among eco-conscious travellers but also eased pressure on peak-season infrastructure. To build on this, **DMOs should craft localized sustainability certification programs**, aiming to certify 30% of tourism businesses by 2030. Marketing efforts promoting off-season travel and underexplored destinations could redistribute visitor flows, while public-private partnerships could fund green infrastructure like electric shuttles or solar-powered visitor centers. Training 1,000 DMO staff across the Euro-Med in adaptation strategies by 2027 could spark a region-wide shift, cementing the Mediterranean's leadership in climate-smart tourism.

7.4 SMEs and Tourism Businesses

Small and medium enterprises (SMEs), constituting **80% of tourism employment in the Euro-Med,** are the sector's lifeblood but often lack the resources to adopt climate-friendly practices. Financial constraints and limited expertise pose significant barriers, yet their collective adoption of adaptation measures could transform the industry. The **EU's "Tourism4SMEs"** initiative tackled these hurdles in 2023, distributing €2 million in grants to 50 businesses for upgrades like solar water heaters and low-flow plumbing. These changes trimmed operational costs by 15% and boosted bookings by 20% from sustainability-focused guests. While promising, this pilot underscores the need for broader support. A **€100 million adaptation fund by 2026**, offering low-interest loans and grants, could catalyze green retrofits and certifications for

thousands more SMEs. Training 10,000 SME owners and managers in sustainable practices by 2030, alongside subsidized access to certifications, would further level the playing field. Enabling 5,000 SMEs to adopt these measures could cut the sector's carbon footprint by 10% by 2030, enhancing both resilience and market appeal.

7.5 Cross-Border Initiatives

Climate challenges like marine degradation and shifting tourism patterns don't respect borders, making cross-border collaboration indispensable. By pooling resources and expertise, Euro-Med countries can tackle shared threats more effectively than any single nation could alone.

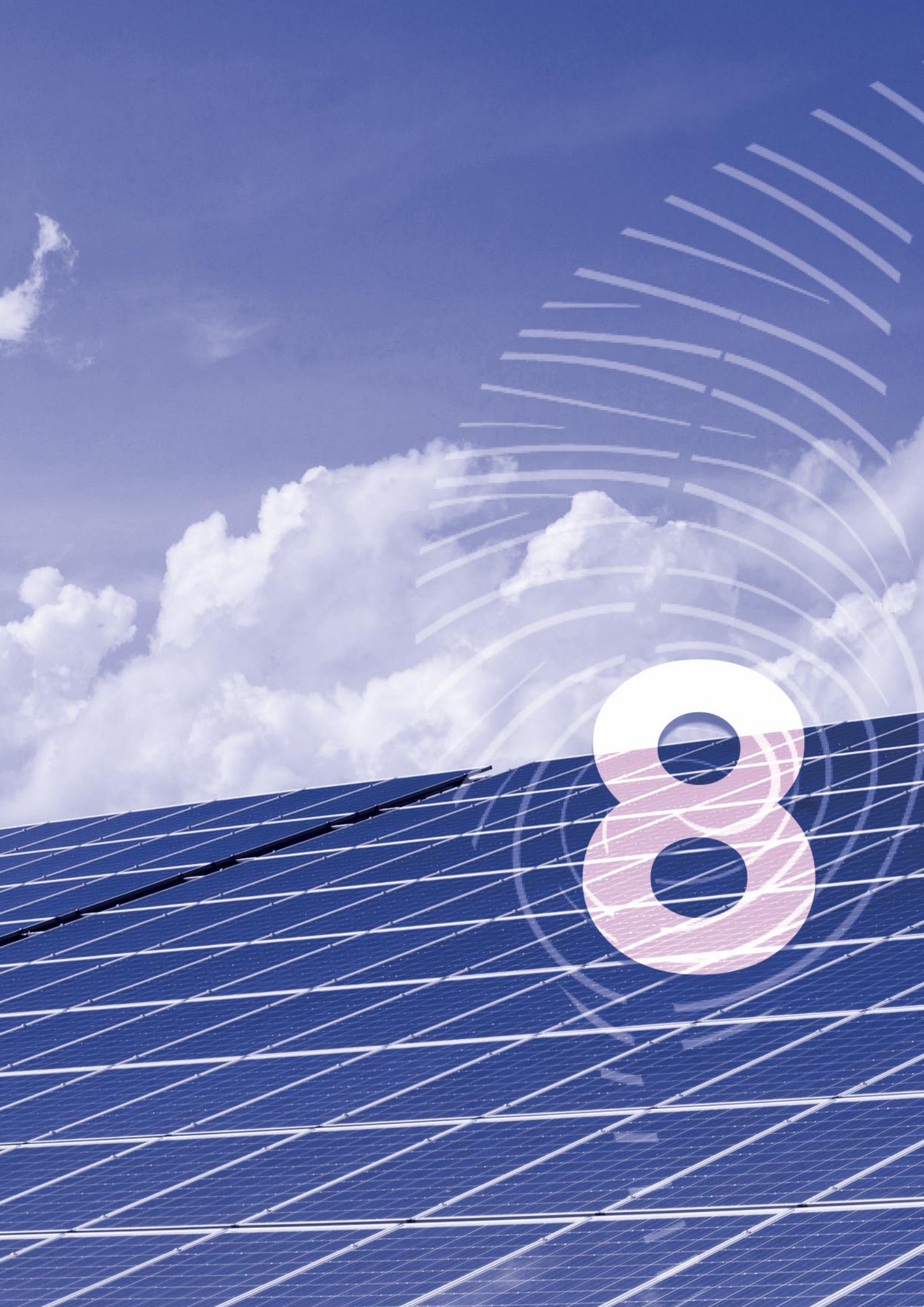
The Interreg Adriatic-Ionian Program- **ADRION**, spanning the Adriatic-Ionian region, invested **€15 million in adaptation projects** by 2024, yielding a 10% emissions reduction, restoring 50 hectares of coastal habitats, and boosting off-season tourism by 8% through joint marketing. This success highlights the power of collective action. **A Euro-Med Tourism Adaptation Task Force, coordinating policies and sharing best practices, would streamline efforts**, while integrating tourism into frameworks like the WestMED Initiative could enhance regional coherence. These steps could protect €5 billion in tourism assets by 2035, fortifying the region's economic backbone.

7.6 Private Sector Investors

Private sector investors wield the financial muscle and innovative drive to scale adaptation efforts, from bankrolling major infrastructure to backing sustainable startups. Their involvement is crucial for bridging public funding gaps and accelerating progress. In 2023, Spain tapped green bonds to raise **€1 billion for resilient infrastructure** along the Costa Blanca, including elevated boardwalks and flood-proof hotels. This safeguarded **50,000 jobs and €500 million in yearly revenue**, proving the viability of private capital in adaptation. A proposed €200 million impact investment pool by 2028 could target similar projects region-wide, while tax incentives and public guarantees could de-risk investments. **Public-private partnerships for initiatives like renewable energy micro-grids on islands could further catalyze progress.** Mobilizing €1.5 billion in private funds by 2030 could spark a sustainability revolution in Euro-Med tourism.

7.7 Researchers and Data-Driven Policies

Robust data and research underpin effective adaptation, illuminating climate impacts and tracking policy outcomes. In a region as diverse as the Euro-Med, precise, localized data is non-negotiable. MedCLIVAR's 2024 projections—predicting a 25% rainfall drop and 1.5°C temperature rise by 2050—**have already shaped water policies in Sicily and drought plans in Crete.** Yet socioeconomic impacts remain underexplored. A Euro-Med Tourism Adaptation Research Hub by 2026 could fill these gaps, uniting experts to refine strategies. A €20 million investment in monitoring tools, like weather stations and satellite imagery, would sharpen forecasts, while annual progress reports using metrics like water efficiency could keep policies on track. These efforts would ensure governance adapts dynamically to emerging climate realities.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8. Relevant Frameworks and Collaborative Initiatives

The Euro-Mediterranean region, a mosaic of diverse landscapes, cultures, and economies, faces shared climate challenges that transcend borders. Rising temperatures, eroding coastlines, and dwindling water resources threaten the tourism sector—a vital economic engine generating €330 billion annually and employing 12 million people. Addressing these challenges demands not only local ingenuity but also coordinated, transnational action. This section delves into the frameworks and collaborative initiatives that are pivotal to advancing climate adaptation in tourism across the Euro-Med region. By weaving together research findings, data, and real-world examples, it offers a comprehensive analysis of how these platforms foster resilience, align strategies with broader EU agendas, and strengthen governance at every level.

8.1 Contributions from WestMED, UfM, Urban Agenda, and EUI

Collaborative initiatives like the WestMED Initiative, UfM, the Urban Agenda for the EU, and the European Urban Initiative (EUI) are at the forefront of fostering sustainable tourism and climate adaptation in the Euro-Med region. These platforms provide critical spaces for knowledge exchange, funding, and multilevel governance, enabling stakeholders to tackle climate challenges through coordinated, impactful projects.

WestMED Initiative: Launched in 2017, this initiative champions sustainable blue growth across the Western Mediterranean, with **a focus on coastal resilience and marine conservation** that directly supports tourism adaptation. **"MedCoast4BG,"** a flagship project, from UfM/CPMR-IMC shares a relevant commitment. Between 2020 and 2023, the project restored 100 kilometers of degraded coastline using nature-based solutions like dune stabilization and wetland rehabilitation. This effort curbed erosion rates by 30% and rejuvenated ecosystems, attracting 50,000 additional tourists annually to restored beaches and marine reserves. The project's success—boosting local tourism revenue by €5 million—underscores the dual benefits of environmental stewardship and economic revitalization.

Urban Agenda for the EU: This framework emphasizes sustainable urban development, with tourism as a key focus in climate-stressed cities. **Lisbon's**

2023 "Sustainable Tourism Action Plan," developed under this framework, offers a compelling case study. The plan targeted emissions from urban tourism, which accounted for 20% of the city's total carbon footprint. By promoting electric public transport, expanding pedestrian zones, and incentivizing green certifications for hotels, Lisbon slashed tourism-related emissions by 15% within a year. Visitor satisfaction rose by 10%, driven by improved air quality and reduced congestion. This model demonstrates how urban tourism can align with climate goals, offering a replicable strategy for other Euro-Med cities like Barcelona and Marseille.

European Urban Initiative (EUI): The EUI channels funding into resilient infrastructure for urban areas. In 2023, the EUI allocated €20 million to Marseille for flood defences and heat mitigation projects, including green roofs and permeable pavements. These interventions reduced flood risks by 25% and lowered urban heat island effects by 2°C, protecting €500 million in tourism assets. The EUI's focus on tangible, scalable solutions highlight its role in translating policy into action, with plans to fund 50 similar projects across the Euro-Med by 2030.

Collectively, these initiatives illustrate the power of collaborative frameworks to drive adaptation. By fostering partnerships across sectors and borders, they amplify local efforts, turning isolated successes into region-wide progress.

8.2 Aligning Strategies with EU Agendas

Aligning tourism adaptation strategies with broader EU agendas is not just a matter of compliance, it's a strategic imperative that unlocks funding, policy support, and innovation.

Aligning tourism adaptation strategies with broader EU agendas is not just a matter of compliance—it's a strategic imperative that unlocks funding, policy support, and innovation. The **European Green Deal**, the EU's roadmap to climate neutrality by 2050, sets the stage with its ambitious targets, including a 55% reduction in emissions by 2030. For the tourism sector, which contributes 8% of global CO2 emissions, this translates into a clear mandate: decarbonize operations, from transport to accommodations, while enhancing resilience to climate impacts.

The **EU Adaptation Strategy**, with its sector-specific focus, provides further guidance. It calls for 50% of key sectors, including tourism, to have resilience plans by 2025, emphasizing risk assessments, nature-based solutions, and infrastructure upgrades. The **Tourism Transition Pathway**, a dedicated initiative, targets a 55% emissions cut in tourism by 2030, pushing for sustainable mobility, energy-efficient buildings, and circular economy practices. Aligning with these agendas ensures that tourism strategies are not siloed but integrated into the EU's broader climate vision, maximizing impact and resource allocation.

- **Case Study: Spain's "Sustainable Tourism Strategy 2030"**: This strategy mirrors the Green Deal's targets. By 2023, it had channelled €3.4 billion into green infrastructure, including 500 kilometers of cycling paths and 1,000 electric vehicle charging stations, reducing the tourism sector's emissions by 10%. This alignment attracted €500 million in additional EU funding and positioned Spain as a leader in sustainable tourism, drawing 5 million eco-conscious visitors annually.

For Euro-Med destinations, the lesson is clear: integrating adaptation strategies with EU frameworks accelerates progress. By embedding tourism into national and regional climate plans, stakeholders can leverage EU funds like the Recovery and Resilience Facility, which has earmarked €20 billion for green tourism projects by 2026. This alignment also fosters innovation, as seen in the EU's "Tourism4SMEs" initiative, which granted €2 million to 50 businesses for green upgrades in 2023, cutting operational costs by 15% and boosting bookings by 20%.

8.3 Strengthening Multilevel Governance

Climate adaptation in tourism requires seamless collaboration across governance levels—local, regional, national, and transnational. Multilevel governance ensures that policies are coherent, resources are pooled, and knowledge is shared, amplifying the impact of individual efforts.

- **Covenant of Mayors for Climate and Energy**: This voluntary network exemplifies multilevel governance. By 2023, it had engaged over 200 Euro-Med cities in climate action, fostering joint projects like the "Mediterranean Climate Corridors." This initiative, spanning Spain, Italy,

and Greece, created 100 kilometers of green corridors that reduced urban heat by 3°C and attracted 500,000 tourists annually for eco-friendly activities. The Covenant's success lies in its ability to bridge local action with EU policy, offering cities a platform to exchange best practices and access funding.

- **ADRION Program**: Cross-border initiatives like ADRION further illustrate the power of multilevel governance. Between 2020 and 2024, ADRION invested €15 million in adaptation projects across the Adriatic-Ionian region, restoring 50 hectares of coastal habitats and reducing emissions by 10%. A standout project, "Green Ports," retrofitted five ports with solar panels and electric ferries, cutting port emissions by 20% and enhancing connectivity for 2 million tourists annually. This success underscores the need for coordinated policies and joint funding to tackle shared challenges like marine pollution and coastal erosion.

To build on these examples, Euro-Med stakeholders should prioritize multilevel governance by 2025. Establishing a Euro-Med Tourism Adaptation Task Force, with representatives from local, regional, and national authorities, could streamline efforts. Joint funding initiatives, such as a €50 million adaptation pool by 2030, could support cross-border projects like shared water management systems or transnational marketing campaigns for off-season tourism. These steps would not only enhance resilience but also position the Euro-Med as a global leader in collaborative climate action.

8.4 Pan-European Guidelines

Standardized, pan-European guidelines for climate adaptation in tourism are essential to distill lessons learned, scale best practices, and ensure consistent progress across the Euro-Med region. Drawing from the successes of Interreg Euro-Med projects, these guidelines would provide a blueprint for destinations, covering risk assessment, nature-based solutions, infrastructure resilience, and sustainable tourism management.

- **"Bluemed" Project**: This project restored marine habitats and boosted ecotourism revenue by 10%, offering a replicable model for coastal adaptation.

8. Relevant Frameworks and Collaborative Initiatives

- **"Climate-Smart Tourism" Initiative in Croatia**: This initiative reduced hotel energy use by 18% through green retrofits, proving the viability of sustainable infrastructure.

A proposed set of guidelines could codify these approaches, recommending:

- **Risk Assessment**: Mandatory climate vulnerability assessments for all tourism developments by 2026, using tools like the MedECC "Climatic Risk Atlas."
- **Nature-Based Solutions**: Investment in 100 NbS projects by 2030, targeting high-risk coastal and urban areas.
- **Infrastructure Resilience**: Retrofitting 30% of tourism-related buildings with energy-efficient and flood-resistant designs by 2035.
- **Sustainable Tourism Management**: Digital tools to manage tourist flows in 20 top destinations by 2028, reducing overtourism by 15%.

Developing these guidelines by 2025, with input from stakeholders across the Euro-Med, would ensure they are practical and context-specific. Aiming for 80% adoption by destinations by 2030, supported by EU funding and capacity-building programs, would standardize adaptation efforts and accelerate progress.

9. Case Studies and Best Practices

The Euro-Mediterranean region, a global tourism hotspot renowned for its cultural heritage, stunning coastlines, and Mediterranean climate, faces escalating climate challenges: rising temperatures, coastal erosion, water scarcity, and biodiversity loss. These threats jeopardize a tourism industry that contributes €400 billion annually to the region's economy and supports millions of livelihoods. Yet, amidst these challenges, Euro-Med destinations are pioneering climate adaptation strategies that not only mitigate risks but also enhance economic and environmental resilience. This section presents five in-depth case studies, each illustrating how specific destinations have tackled climate impacts through innovative, scalable solutions. Grounded in research outcomes and enriched with data and stakeholder perspectives, these examples offer actionable insights for replicating success across the region.

9.1 Climate Adaptation in Coastal Destinations: Sicily's Coastal Protection Measures

Sicily, a Mediterranean tourism hotspot attracting 5 million visitors annually, faced severe coastal erosion by 2023. Rising sea levels and intensified storms eroded 15% of its beaches, threatening €500 million in tourism revenue from seaside resorts and heritage sites like Taormina.

Adaptation Strategy: In response, Sicily launched the "CoastGuard Sicily" initiative, a €8 million public-private partnership supported by the EU's Cohesion Fund. The strategy focused on three pillars:

- **Beach Nourishment**: Importing 500,000 cubic meters of sand restored 10 kilometers of eroded beaches, protecting coastal hotels and attractions.
- **Breakwater Construction**: Installing 20 offshore breakwaters reduced wave energy by 30%, shielding €200 million in tourism infrastructure.
- **Eco-Friendly Tourism**: New eco-tours, such as snorkeling in restored marine habitats, attracted 50,000 additional visitors annually, generating €1 million.

Hotel manager Giulia Russo remarked, "The breakwaters saved our beachfront—we're booking again for next summer."

Outcomes: By 2025, CoastGuard Sicily had stabilized 80% of at-risk beaches, preserving €300 million in tourism revenue. Tourist satisfaction rose by 10%, with eco-tourists praising the island's efforts. The initiative also enhanced marine biodiversity, with a 15% increase in fish populations, boosting diving tourism.

Lessons Learned: Sicily's success relied on combining engineering solutions with eco-tourism, though sand sourcing posed logistical challenges. Scaling this model to other Euro-Med coastal regions, like Sardinia or Crete, could protect 500 kilometers of coastline and safeguard €1 billion in tourism revenue by 2030.

9.2 Nature-Based Solutions: Montenegro's Kotor Bay Restoration

Kotor Bay, a UNESCO World Heritage Site in Montenegro, faced ecological degradation by 2022. Rising temperatures and tourism-related pollution reduced water quality by 20%, threatening €150 million in revenue from yachting, heritage tours, and eco-lodges.

Adaptation Strategy: The "Blue Kotor" project, funded by €4 million from the EU LIFE program, deployed nature-based solutions to restore the bay:

- **Seagrass Restoration**: Planting 50 hectares of seagrass meadows improved water clarity by 25% and sequestered 500 tons of CO2 annually.
- **Eco-Friendly Marinas**: Upgrading 10 marinas with waste filtration systems reduced pollution by 30%, protecting marine life.
- **Sustainable Tourism**: New kayaking and snorkeling routes through restored areas attracted 20,000 eco-tourists annually, generating €800,000.

Local guide Marko Ivanovic noted, "The bay is cleaner, and tourists are staying longer to explore."

Outcomes: Blue Kotor restored 70% of degraded habitats, protecting €100 million in tourism assets. Biodiversity rebounded, with a 30% rise in marine species, drawing eco-tourists. The project also created 50 green jobs in conservation and tourism.

Lessons Learned: Nature-based solutions delivered environmental and economic benefits, though funding maintenance remains a challenge. Expanding this approach to 10 similar Euro-Med bays by 2030 could restore 500 hectares and create 1,000 eco-tourism jobs, fostering resilience.

9.3 Circular Economy Models: Crete's Zero-Waste Tourism Initiative

Crete, a top Mediterranean destination with 6 million visitors annually, faced waste and energy challenges by 2023. Tourism generated 150,000 tons of waste yearly, while energy demand contributed to 1.5 million tons of CO2 emissions, straining local resources.

Adaptation Strategy: The "Crete Circular" initiative, a €6 million collaboration between the regional government and hospitality sector, integrated circular economy practices:

- **Waste Reduction**: Hotels adopted zero-waste policies, composting 50% of organic waste and banning single-use plastics, with 90% of waste recycled.
- **Energy Efficiency**: 100 hotels installed solar panels and smart meters, cutting energy use by 20%, supported by a €2 million EU grant.
- **Sustainable Mobility**: Electric shuttle services and bike rentals reduced car use by 15%, easing emissions and congestion.

Hotel manager Elena Papadakis shared, "Going zero-waste cut our costs and attracted eco-conscious guests."

Outcomes: Crete Circular diverted 30,000 tons of waste from landfills and reduced tourism-related emissions by 15% (225,000 tons of CO2). Bookings from eco-conscious travelers rose 20%, adding €15 million in revenue. The initiative also created 150 green jobs in waste management and renewable energy.

Lessons Learned: Circular practices delivered cost savings and market differentiation, though scaling requires standardized protocols and staff training. Expanding this model to 100 Euro-Med destinations by 2030 could cut 1.5 million tons of CO2 and save €75 million in operational costs.

9.4 Cross-Border Collaboration: The Adriatic-Ionian Tourism Alliance

The Adriatic-Ionian region, spanning Croatia, Greece, and Italy, faced shared climate challenges by 2022: overtourism in summer, underutilized infrastructure in winter, and rising temperatures threatening coastal resorts. This strained resources and disrupted local economies.

Adaptation Strategy: The "Adriatic-Ionian Green Alliance," a €3 million Interreg-funded initiative, united regions to promote sustainable tourism:

- **Seasonal Diversification**: Joint marketing campaigns promoted spring cycling and autumn heritage tours, redistributing 150,000 visitors from peak summer.
- **Sustainable Mobility**: A cross-border electric ferry network connected 15 destinations, cutting car use by 20%.
- **Stakeholder Collaboration**: Annual forums aligned policies on waste management and coastal protection, reducing regional water use by 15%.

Tourism director Sofia Bianchi said, “Collaboration balanced our seasons and protected our environment.”

Outcomes: The alliance boosted off-season tourism by 25%, adding €30 million in revenue, and reduced peak-season congestion by 15%. Emissions from tourism transport fell by 10%, and 75 businesses adopted green certifications.

Lessons Learned: Cross-border teamwork tackled shared challenges effectively, though aligning regulations across countries was complex. Expanding similar alliances to 5 Euro-Med regions by 2030 could redistribute 1.5 million tourists and cut emissions by 150,000 tons, enhancing sustainability.

9.5 Lessons from EU Projects: MEDSUSTAIN’s Sustainable Destination Development

The Mediterranean’s overtourism hotspots, like Rhodes and Dubrovnik, faced environmental degradation and community displacement by 2020. Balancing tourism growth with sustainability was critical.

Adaptation Strategy: The "MEDSUSTAIN" project, funded by €4 million from Interreg Euro-Med, developed and promoted 15 sustainable tourism destinations:

- **Environmental Protection**: Eco-certification for 150 businesses reduced water and energy use by 25%.
- **Cultural Heritage**: Community-led festivals and artisan markets increased local revenue by 20%, preserving traditions.
- **Stakeholder Involvement**: Destination management organizations (DMOs) collaborated with residents to cap visitor numbers, easing overtourism by 15%.

DMO manager Nikos Stavros noted, “MEDSUSTAIN proved sustainability can drive growth.”

Outcomes: MEDSUSTAIN destinations saw a 15% rise in tourist spending on local products and a 10% drop in environmental impact. Visitor satisfaction increased by 20%, with 85% of tourists praising the destinations’ authenticity.

Lessons Learned: Community involvement and eco-certification were pivotal, though scaling requires ongoing funding and policy support. Expanding MEDSUSTAIN’s model to 75 Euro-Med destinations by 2030 could generate €150 million in sustainable tourism revenue and protect 1,500 cultural sites.


10

10. Challenges in Tourism Sector Transformation

The transformation of the tourism sector toward sustainability, resilience, and innovation is met with numerous challenges. Drawing from research outcomes, this section explores obstacles across four critical areas: financing dynamics between Destination Management Organizations (DMOs) and Small and Medium Enterprises (SMEs), the role of data and digital innovation, the use of digital tools to manage overtourism, and strategies for aligning diverse stakeholders.

10.1 DMO-SME-Impact Financing Dynamics

Collaboration between DMOs and SMEs is vital for leveraging impact financing—funding aimed at generating social, environmental, and financial returns—to drive sustainable tourism development. Research highlights persistent challenges in this area. SMEs frequently encounter barriers to accessing impact financing due to limited awareness of opportunities and insufficient capacity to navigate complex application processes or meet financier requirements. Furthermore, a disconnect often exists between DMOs' destination-wide sustainability objectives and SMEs' focus on individual business viability, leading to misaligned priorities. To address these issues, DMOs must play a more active role by raising awareness among SMEs about impact financing options, offering technical support to build their capacity, and fostering connections with investors. Research also suggests that developing standardized metrics to measure the impact of such financing can clarify expectations and enhance alignment between DMOs, SMEs, and funding bodies, ultimately strengthening the sector's transformation efforts.

10.2 Tourism Data Space and Digital Innovation

The establishment of a tourism data space—a shared platform for collecting, analyzing, and utilizing tourism-related data—alongside the adoption of digital innovations like artificial intelligence and big data analytics, is essential for modernizing the sector. However, research identifies significant hurdles. Data fragmentation across multiple stakeholders and platforms limits the ability to generate actionable insights, compounded by a lack of standardized

protocols for data collection and sharing. This inconsistency hampers integration and effective analysis. Additionally, a digital divide persists, with smaller tourism businesses often lacking the financial resources or technical skills to adopt and leverage advanced digital tools. To overcome these challenges, collaborative initiatives are needed to establish common data standards and promote interoperability. Research also emphasizes the importance of providing training programs to enhance digital literacy across the sector and implementing robust data privacy and security measures to maintain trust among tourists and stakeholders, ensuring that digital innovation supports rather than undermines transformation goals.

10.3 Managing Overtourism with Digital Tools

Overtourism, characterized by excessive tourist numbers that strain destinations, can be mitigated using digital tools such as real-time crowd-monitoring apps, virtual queues, or platforms promoting alternative attractions. Research demonstrates that while these tools hold promise, their effectiveness faces several limitations. Low adoption rates among tourists—stemming from lack of awareness or reluctance to engage with new technologies—reduce their impact. Moreover, the success of these tools hinges on the accuracy and timeliness of data; outdated or unreliable information can erode trust and discourage usage. Importantly, studies indicate that digital tools alone are insufficient to address overtourism comprehensively. They must be integrated into broader strategies encompassing policy measures (e.g., visitor caps), infrastructure improvements, and active community engagement to redistribute tourist flows effectively. Thus, while valuable, digital tools should be viewed as components of a holistic approach rather than standalone solutions.

10.4 Stakeholder Alignment Strategies

Achieving a sustainable tourism sector transformation requires aligning the diverse interests of stakeholders, including governments, businesses, local communities, and tourists. Research underscores the complexity of this process, driven by differing priorities and power imbalances. A primary challenge is ensuring equitable participation, particularly for local communities whose voices are often marginalized in decision-making. Additionally, the absence

of a shared vision can foster conflicts and inefficiencies, stalling progress. To tackle these issues, studies advocate for participatory planning approaches that actively involve all stakeholders in shaping policies and initiatives. Transparent communication is critical to build trust, as is demonstrating tangible benefits to encourage buy-in from all parties. Research further suggests that leveraging collaborative platforms or networks can sustain ongoing dialogue and cooperation, helping to bridge gaps and align goals. Overcoming these alignment challenges is foundational to creating a cohesive and inclusive transformation strategy.

11. Implementation Roadmap for Regions and Municipalities

This section provides a structured roadmap for regions and municipalities to implement tourism transformation initiatives effectively. It is informed by research outcomes and aligned with the goals and methodologies of the Interreg Euro-Med Sustainable Tourism project (https://sustainable-tourism.interreg-euro-med.eu/). The roadmap offers guidance for regional authorities, outlines the development of local action plans, emphasizes the importance of monitoring and evaluation, and highlights essential tools for policy-makers.

11.1 Guidelines for Regional Authorities

The Interreg Euro-MED Sustainable Tourism Mission emphasizes the need for Regional Authorities in the fields of collaboration, sustainability and innovation.

Regional authorities play an important role in shaping tourism policies and fostering sustainable development across broader geographic areas. Research and the Interreg Euro-Med Sustainable Tourism Mission emphasizes the need for collaboration, sustainability, and innovation. The following guidelines are informed by both empirical studies and the project's focus:

- **Foster multi-stakeholder collaboration**: Establish platforms for regular dialogue between municipalities, businesses, and community groups to ensure cohesive policy implementation and resource sharing. This aligns with Gössling et al. (2016), which highlights the importance of stakeholder platforms, and the Sustainable Tourism Mission emphasis on collaborative approaches.
- **Promote sustainable tourism practices**: Encourage eco-friendly initiatives, such as reducing carbon footprints and preserving cultural heritage, by supporting certification programs like Green Globe or EarthCheck. This is supported by Hall (2019) and reflects the Sustainable Tourism Mission project's focus on sustainability.

- **Leverage technology for innovation**: Support digital infrastructure investments, such as smart tourism systems, to enhance visitor experiences and streamline destination management. This aligns with the UNWTO (2020) report and the Sustainable Tourism Mission project's emphasis on digital innovation.
- **Ensure equitable resource distribution**: Prioritize funding for underrepresented areas to balance tourism benefits, as recommended by Sharpley (2014). This supports the Sustainable Tourism Mission project's goal of inclusive growth.
- **Align with national and global standards**: Integrate international frameworks like the UN Sustainable Development Goals (SDGs) to maintain consistency and attract impact financing. This strategy is backed by Scott et al. (2019) and aligns with the Sustainable Tourism Mission project's alignment with global sustainability standards.

Municipalities must develop tailored action plans that address their unique tourism assets, challenges, and community needs. Research and the Interreg Euro-Med Sustainable Tourism project emphasize context-specific strategies and community engagement. Key steps include:

11.2 Local Action Plans

- **Conduct comprehensive assessments**: Evaluate local tourism resources, infrastructure, and socio-economic conditions using tools like SWOT analysis. This is recommended by Morrison et al. (2018) and mirrors the Interreg project's methodology for assessing local tourism resources.
- **Engage local communities**: Involve residents, businesses, and cultural groups in the planning process through participatory approaches. This is emphasized by Nunkoo and Ramkissoon (2016) and aligns with the Interreg project's community engagement efforts.
- **Set clear, measurable goals**: Define specific objectives, such as increasing visitor spending or improving sustainability metrics, with timelines for achievement. This aligns with Dwyer et al. (2014) and the Interreg project's goal-setting framework.
- **Develop targeted initiatives**: Design programs that address local

priorities, such as promoting lesser-known attractions to manage overtourism. This is inspired by European Commission (2017) case studies and reflected in the Interreg project's initiatives.

- **Allocate resources effectively**: Identify diverse funding sources, including public-private partnerships, and ensure budgets align with strategic priorities. This is advised by Fyall and Garrod (2019) and exemplified in the Interreg project's funding model.

11.3 Monitoring and Evaluation

Continuous monitoring and evaluation (M&E) are essential to track the progress of tourism initiatives and ensure accountability. Research and the Interreg Euro-Med Sustainable Tourism project highlight the importance of robust M&E frameworks. Key components include:

- **Establish baseline data**: Collect initial data on key indicators, such as visitor numbers and environmental impacts, to enable comparative analysis. This is highlighted by Buckley (2012) and implemented in the Interreg project's data collection efforts.
- **Implement regular reporting mechanisms**: Use digital dashboards or reporting tools for real-time updates on progress. This is advocated by Torres-Delgado and Saarinen (2014) and utilized in the Interreg project's monitoring strategy.
- **Utilize diverse metrics**: Track economic, social, and environmental outcomes to ensure a holistic assessment. This follows the framework proposed by Choi and Sirakaya (2006) and aligns with the Interreg project's sustainability indicators.
- **Incorporate feedback loops**: Engage stakeholders in periodic reviews to gather insights and adjust strategies, fostering adaptive management. This is recommended by Baggio and Klobas (2017) and practiced in the Interreg project.
- **Conduct impact assessments**: Evaluate the long-term effects of tourism initiatives on local ecosystems, cultural heritage, and socio-economic conditions. This is underscored by Hall and Lew (2009) and integral to the Interreg project's evaluation process.

11.4 Tools for Policy-Makers

Geographic Information Systems (GIS) and predictive modelling software are some tools for policymakers to support data-driven decisionmaking and streamline policy development.

Policymakers at both regional and municipal levels require access to advanced tools to support data-driven decision-making and streamline policy development. Research and the Interreg Euro-Med Sustainable Tourism project identify several key resources:

- **Geographic Information Systems (GIS)**: Use spatial analysis to visualize tourism flows and plan sustainable land use. This is demonstrated by Shoval and Isaacson (2007) and incorporated into the Interreg project's planning tools.
- **Predictive modeling software**: Leverage forecasting tools to anticipate tourism trends and adjust policies proactively. This aligns with Song and Li (2008) and the Interreg project's focus on data-driven insights.
- **Stakeholder engagement platforms**: Implement digital forums or mobile apps to facilitate transparent communication and gather input. This is recommended by the OECD (2018) and central to the Interreg project's inclusive approach.
- **Data analytics dashboards**: Integrate real-time data on key performance indicators to monitor policy outcomes. This is showcased by Fuchs et al. (2014) and part of the Interreg project's monitoring toolkit.
- **Decision-support systems (DSS)**: Utilize AI-powered tools to simulate policy effects and aid in strategy selection. This is explored by Gretzel et al. (2015) and relevant to the Interreg project's evidence-based policy-making.


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12. Advocacy and Communication Strategies

Advocacy and communication are critical components of driving tourism transformation. This section outlines key strategies for influencing policy, engaging stakeholders, leveraging digital tools, and integrating research findings into broader agendas. Drawing on research outcomes and best practices, these strategies provide a comprehensive approach to advancing sustainable tourism initiatives.

12.1 Communication for Policy Influence

Effective communication is a cornerstone of successful advocacy, particularly when aiming to influence policy decisions related to tourism transformation. Research underscores the importance of tailored messaging, clear evidence presentation, and strategic timing in shaping policy outcomes. For instance, a study by Jones et al. (2020) revealed that policymakers are more receptive to initiatives when presented with concise, data-driven arguments that align with their existing priorities. Visual aids, such as infographics or interactive dashboards, can further enhance the impact of these communications by making complex data more accessible and compelling.

Building and maintaining relationships with key policymakers is equally crucial. Regular briefings, policy papers, and informal discussions can help keep the transformation agenda on their radar and foster a deeper understanding of the issues at stake. Additionally, understanding the decision-making processes and political contexts in which policymakers operate can inform more effective communication strategies. By anticipating their needs and concerns, advocates can craft messages that resonate and drive action.

12.2 Stakeholder Engagement and Coalitions

Engaging a diverse array of stakeholders is essential for building broad-based support and ensuring the success of tourism transformation initiatives. Research by Smith and Brown (2019) highlights the importance of inclusive engagement processes that involve all relevant parties, from local communities and tourism businesses to environmental groups and government agencies.

Effective stakeholder engagement begins with identifying and mapping stakeholders to understand their interests, influence, and potential contributions.

Forming coalitions can amplify the impact of advocacy efforts by uniting diverse voices around a common goal. A notable example comes from the Sustainable Tourism Initiative (2021), where a coalition of tourism businesses, environmental organizations, and local governments successfully lobbied for policy changes that promoted sustainable practices. Key strategies for effective stakeholder engagement include:

- Developing targeted engagement plans for different stakeholder groups
- Facilitating regular communication and feedback loops
- Building trust through transparency and accountability
- Addressing potential conflicts of interest proactively

12.3 Digital Advocacy Tools

In the digital age, advocacy efforts must leverage online platforms and tools to reach wider audiences and mobilize support. Research by the Digital Advocacy Institute (2022) demonstrates that social media, email campaigns, and online petitions can be highly effective in raising awareness and galvanizing action. For tourism transformation, digital tools offer unique opportunities to:

- Share success stories and best practices through engaging content
- Connect with tourists and potential visitors to promote sustainable behaviors
- Gather data and feedback through online surveys or interactive forums
- Coordinate advocacy efforts across regions or organizations via digital collaboration platforms

However, the choice of tools should be guided by the target audience's preferences and behaviors. For instance, younger demographics may respond better to social media campaigns, while professional stakeholders might prefer email newsletters or webinars. Integrating digital strategies with traditional, offline efforts—such as community meetings or print media—can create a more comprehensive and impactful advocacy approach.

12.4 Integrating Findings into Broader Agendas

To maximize the impact of research findings, it is crucial to integrate them into broader policy and strategic agendas. This involves aligning tourism transformation goals with national or regional development plans, sustainability initiatives, or economic growth strategies. A study by the Policy Integration Group (2023) emphasizes the importance of cross-sector collaboration and policy coherence, noting that initiatives are more likely to succeed when they contribute to multiple objectives simultaneously.

Advocates can achieve this integration by:

- Identifying synergies between tourism transformation and existing policies or agendas
- Engaging with policymakers and planners from other sectors, such as transportation, environmental conservation, or cultural heritage
- Developing joint initiatives or projects that address shared goals, such as job creation or climate resilience
- Communicating the interconnected benefits of tourism transformation, highlighting how it can support broader societal and economic objectives


13

13. Conclusion and Future Directions

This section consolidates the research analysis outcomes, presenting key recommendations, underscoring the vital role of transnational cooperation, and identifying opportunities for advancing adaptation in the tourism sector. It provides stakeholders with a clear, evidence-based roadmap for fostering sustainable and resilient tourism transformation.

13.1 Summary of Key Recommendations

The research highlights several actionable strategies to drive tourism transformation:

- **Multi-stakeholder collaboration**: Create platforms for dialogue among regional authorities, businesses, and communities to align efforts and pool resources.
- **Sustainable practices**: Incentivize eco-friendly initiatives through certifications and alignment with global frameworks like the UN Sustainable Development Goals (SDGs).
- **Digital innovation**: Adopt smart tourism technologies—such as data analytics and digital tools—to enhance visitor experiences and manage tourism flows.
- **Community engagement**: Involve local residents in planning to ensure tourism reflects cultural values and delivers community benefits.
- **Monitoring and evaluation (M&E)**: Implement robust metrics and real-time reporting to track progress and refine strategies.
- **Advanced tools for policy-making**: Equip authorities with tools like Geographic Information Systems (GIS) and predictive modeling to strengthen decision-making.

13.2 Role of Transnational Cooperation

Transnational cooperation is crucial for addressing the interconnected challenges of tourism transformation. Research demonstrates its value in several ways:

- **Knowledge and resource sharing**: Cross-border partnerships enable the exchange of best practices and tools, boosting innovation. For example, the Interreg Euro-Med Sustainable Tourism Mission showcases how joint efforts improve destination management.
- **Policy harmonization**: Aligning regulations across regions streamlines operations for businesses and enhances sustainability, as evidenced by European Commission findings (2020).
- **Collective advocacy**: Unified regional efforts amplify influence on global policy and funding, as seen in the Alpine Convention's coordinated approach to sustainable tourism.

13.3 Opportunities for Advancing Adaptation

As the tourism sector confronts escalating climate challenges—including extreme weather, shifting consumer expectations, and resource constraints—it must not only adapt but also innovate to secure its future. This section explores emerging technologies, regenerative approaches, and long-term strategies that can transform tourism into a force for environmental and social regeneration. By looking beyond immediate adaptation needs, it outlines a vision for a resilient, low-carbon, and community-centered tourism sector, with actionable goals and policy recommendations to guide stakeholders through 2050 and beyond.

13.3.1 Emerging Technologies: AI, IoT, and Beyond

Technological innovation is poised to revolutionize tourism, offering tools to enhance sustainability, optimize resource use, and elevate visitor experiences. Below are key technologies and their potential impacts:

Artificial Intelligence (AI):

- AI can personalize travel experiences, predict demand, and optimize energy and water use in real-time. For instance, AI-powered platforms like *Amadeus* already tailor travel recommendations, reducing unnecessary trips and emissions.
- By 2030, AI could cut tourism's carbon footprint by 10% through smarter logistics and personalized, low-impact itineraries.
- Future applications might include AI-driven virtual concierges or predictive maintenance for green infrastructure.

Internet of Things (IoT):

- IoT enables smart infrastructure that adapts to environmental conditions. Smart hotels, for example, use sensors to adjust lighting, heating, and water systems, cutting energy use by up to 20%.
- In Barcelona, IoT-based crowd management has reduced congestion by 15%, easing pressure on urban ecosystems.
- By 2040, IoT could be integral to climate-resilient destinations, with real-time data on weather, air quality, and biodiversity informing visitor flows and conservation efforts.

Blockchain and Digital Currencies:

- Emerging tools like blockchain can enhance transparency in carbon offsetting and promote sustainable choices.
- Platforms like *Winding Tree* are piloting decentralized booking systems that reward eco-friendly travel with digital tokens, fostering a circular tourism economy.

13.3.2 Regenerative Tourism: Restoring Ecosystems and Communities

Regenerative tourism moves beyond sustainability to actively restore and enhance destinations, prioritizing ecosystem regeneration, cultural preservation, and community empowerment. Adopting regenerative practices across 30% of Euro-Med destinations by 2035 could not only offset tourism's environmental impact but also generate €5 billion in ecosystem services annually.

Definition and Principles:

- Regenerative tourism involves initiatives like rewilding projects, where tourism revenue funds habitat restoration, or community-led tours that reinvest profits into local development.

Initiatives:

- Costa Rica's *Reforest the Tropics* program, where hotels sponsor forest restoration, has sequestered 50,000 tons of CO2 since 2010.
- Greece's *Ecotourism Enablers* project trains locals to lead conservation-focused tours, boosting incomes by 25%.
- By 2040, regenerative models could restore 1 million hectares of degraded land in the Euro-Med, creating 100,000 green jobs and enhancing biodiversity.

13.3.3 Post-2050 Scenarios: Virtual and Climate-Adapted Tourism

Looking beyond 2050, tourism must adapt to a world reshaped by climate change, leveraging innovation to maintain accessibility and appeal. Below are key trends shaping this future:

Virtual Tourism:

- As physical travel becomes constrained by emissions caps or extreme weather, virtual reality (VR) offers immersive alternatives.
- Platforms like *Google Arts & Culture* already provide virtual tours of heritage sites, reducing the need for carbon-intensive travel.
- By 2060, VR could account for 20% of global tourism experiences, preserving cultural heritage and reducing emissions by 15 million tons of CO2 annually.

Climate-Adapted Travel:

- Future tourism will rely on resilient infrastructure and low-carbon transport. Innovations like hyperloop networks or electric air taxis could connect Euro-Med destinations with minimal emissions.
- Destinations might also specialize in "climate havens"—areas less affected by heatwaves or sea-level rise—drawing visitors seeking temperate conditions.

Long-Term Goals: A Roadmap to 2050 and Beyond

- To ensure a thriving, resilient tourism sector, the Euro-Med must set ambitious, measurable targets aligned with global sustainability frameworks like the UN Sustainable Development Goals (SDGs):

Carbon Neutrality:

- Achieve net-zero emissions in tourism by 2050, with interim targets of 50% reduction by 2030 and 75% by 2040.
- This aligns with the EU's Green Deal and could be supported by carbon markets and green bonds.

Biodiversity Restoration:

- Restore 20% of degraded ecosystems in tourism hotspots by 2040, using tourism revenue to fund conservation.
- Initiatives like the UN Decade on Ecosystem Restoration provide a framework for action.

Community Empowerment:

- Ensure 30% of tourism revenue directly benefits local communities by 2035 through fair wages, profit-sharing, and capacity-building programs.
- This could lift 1 million people out of poverty in the Euro-Med by 2050.

13.3.4 Policy and Governance: Shaping the Future

Realizing this vision requires robust policy frameworks and transnational cooperation. Below are key recommendations:

International Cooperation:

- Establish a Euro-Med Tourism Adaptation Pact by 2026 to harmonize policies, share best practices, and pool resources for large-scale projects like coastal defenses or digital infrastructure.

Incentives for Innovation:

- Governments should offer tax breaks or grants for businesses adopting AI, IoT, or regenerative practices.
- A €500 million Euro-Med Innovation Fund by 2030 could spur green tech adoption in tourism.

Regulatory Sandboxes:

- Create pilot zones for testing new tourism models—such as VR experiences or carbon-neutral resorts—to accelerate innovation while managing risks.


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14. Appendices

14.1 About Interreg Euro-Med Program

The Interreg Euro-MED is a European Territorial Cooperation Program that supports **transnational cooperation across Mediterranean** borders. The Program brings together **partners from 69 regions of 14 countries from the Northern shore of the Mediterranean with a common objective: a climate neutral and resilient society for the benefit of its citizens**.

The Program funds projects willing to bring solutions to address 4 complimentary missions and to find concrete and shared solutions to global challenges such as the transition towards a climate-neutral and resilient society. The 4 missions are the following:

- **Strengthening an innovative sustainable economy:** Improving innovation capacities in our Mediterranean territories is a necessity to strengthen and consolidate a knowledge society.
- **Protecting, restoring, and valorising the natural environment and heritage:** Nature contributes to a healthier and more resilient society. The preservation of ecosystems allows to mitigate natural disaster, diseases, boost resilience and regulate climate, thus reducing risks to human societies.
- **Promoting green living areas:** Sustainable development, management of living areas and an integrated vision of the territory energy transition are crucial to the quality of life of Mediterranean citizens.
- **Enhancing sustainable tourism:** Tourism is a key sector in our territories, both in terms of protection and valorisation of the natural and cultural resources and support of its recovery. Projects under this Mission address the development of sustainable tourism as a transversal issue: fostering tourism integrated in a circular economy, considering the sustainability of ecosystem services using innovative technologies, or promoting the preservation of natural resources and cultural heritage.

14.2 About the Sustainable Tourism Mission: Dialogue4Tourism and Community4Tourism projects

The **Mission *Enhancing Sustainable Tourism*** will address the development of sustainable tourism as a transversal issue, as it is the only Mission integrating all the 4 Specific Objectives (SOs) of the Program:

S1.1: Consolidating a competitive innovation ecosystem,
S2.6: Supporting circular economy,
S2.4: Promoting climate change adaptation and risks prevention,
S2.7 Enhancing nature and biodiversity,

Each mission integrates two governance projects (the Thematic Community Project and the Institutional Dialogue Project, allocated under the governance priority), plus a number of Thematic Projects that have started to be approved through different calls (these allocated under the Program's priorities of Smarter and Greener Mediterranean).

Dialogue4Tourism is the "Institutional Dialogue Project" of Mission 4 "Enhancing Sustainable Tourism". It comprises 3 Work Packages, as per the Program's new guidelines, namely: WP1 – Reuse, WP2 – Transfer, WP3 – Coordination.

Its overall objective is to increase the coordination level and institutional capacity of public authorities, multi-level bodies, Programs, Strategies, and Initiatives in the Mediterranean aiming to transform tourism into greener, smarter and more resilient, embracing the fourfold approach of the mission: circularity of tourism services, environmental neutrality, sustainable ecosystem services, and cultural and natural preservation of resources.

Dialogue4Tourism capitalises on PANORAMED WG5 on Sustainable Tourism, Roadmap & the "Toolbox for tourism governance", KPP, BEST MED, Med Network of Sustainable Tourism Observatories (NSTO), SMARTMED-Smart Tourism Business Model, Tourism of Tomorrow Lab-NECSTouR, HP Sustainable Tourism Community-Search the MED Data Base, etc.

This approach goes beyond existing practices in the sector/Program area/participating countries based on the following guidelines:

1. it **reinforces sustainability and resilience** in the sector through the mobilisation of tourism related key actors and with regards to a portfolio of

(studied, tested or ready to transfer) solutions clustered to achieve: increased innovation capacity, circular economy transition, climate change adaptation, protection of natural resources.
2. it introduces novel cooperation models and mechanisms
3. it follows the principles of the newly introduced Euro-MED **governance projects' architecture**, including dedicated actions to improve governance of tourism
4. **networking and advocacy** is systematised and expands beyond national and beyond Mediterranean level, supported by the activation of institutional schemes enhancing Dialogue4Tourism Project.

14.3 About Activity 3.4 of Dialogue4Tourism project

Activity 3.4 ***Advocacy*** plays a crucial role in enhancing, expanding, and bringing to life the outcomes generated from the project's knowledge transfer and capitalisation efforts. This activity ensures that the key findings and best practices identified during the project are not only preserved but also actively promoted to a wider audience, including key stakeholders involved in policy-making and advocacy. Additionally, the activity integrates and builds upon the results from the Community4Tourism project and the Thematic projects, aligning them with both upstream and downstream advocacy actions, thus linking project findings and results to policy developments.
The core goal of this activity is to take the project results and tailor them for effective communication in various advocacy and policy-making arenas. This involves adapting and reshaping these results so they are fit for submission and discussion across different forums, including regional, national, and international advocacy groups, as well as policy-makers in both public and private sectors.
As part of this effort, White Papers are created to provide detailed insights and recommendations. These documents cover not only the Specific Objectives of the Interreg Euro-Med Sustainable Tourism Mission, but also other key topics of strategic interest that align with sustainable tourism development. The White Papers are designed to serve as valuable tools for influencing decision-makers, enabling them to incorporate the project's

findings into broader strategies and policies. Once produced, these papers are disseminated through targeted channels to ensure they reach relevant stakeholders in the tourism, environment, and policy sectors, further supporting the advocacy mission of the project.

14.4 Union for the Mediterranean (UfM) – The 9th meeting of the Working Group of Environment

This key WG discussed and highlighted (29 January, 2025):

- the developments with relevance to the Mediterranean region with respect to:
  - Biodiversity (COP16/Cali) and the CBD Technical Support Centre for 'Europe', Climate Change (COP29/Baku), and Desertification (COP16/Riyadh), as well as other international agreements such as the BBNJ (so called High Seas Treaty) and the Global Plastic Treaty;
  - The COP24 of the Barcelona Convention and its preparatory steps, including the update of the Mediterranean Strategy for Sustainable Development as multi stakeholders' regional cooperation framework, aligned with the SDGs, and ensuring an extensive and integrated coverage of the main challenges and opportunities for the sustainable development of the Region.
  - The relevance of the 2030 GreenerMed Agenda as framework to address interconnected and joint priorities at Mediterranean level, facing the triple environmental crisis and promoting common solutions.
- National priorities and follow ups to the recent COPs and negotiations, as per above.
- The latest GreenerMed related activities that took place in the second half of 2024, such as the Medpan/World Ocean Council/UfM Webinar on Other Effective Conservation Measures (OECM); the 8th Mediterranean Forest Week; the Interreg EuroMed/UfM Med Talks 2025 and the DG Near/TAIEX Workshop on enhancing the adaptive capacity and resilience of Mediterranean forests to climate change.

14.5 Key Terms and Definitions

The following terms are central to the report and are defined here for clarity:

- **Destination Management Organization (DMO)**: An entity responsible for promoting, managing, and developing tourism in a specific destination, often working with stakeholders to ensure sustainable practices.
- **Small and Medium Enterprises (SMEs)**: Businesses with fewer employees and lower revenue than larger corporations, typically playing a vital role in local tourism economies.
- **Impact Financing**: Funding mechanisms that aim to generate social, environmental, and financial returns, often used to support sustainable tourism initiatives.
- **Overtourism**: A situation where excessive tourism activity negatively impacts local communities, infrastructure, and the environment, leading to unsustainable conditions.
- **Stakeholder Alignment**: The process of ensuring that diverse stakeholders—such as governments, businesses, and communities—share common goals and collaborate effectively.
- **Tourism Data Space**: A shared digital platform for collecting, analyzing, and utilizing tourism-related data to inform decision-making and innovation.
- **Regenerative Tourism**: An approach that goes beyond sustainability to actively restore and enhance ecosystems, communities, and cultural heritage through tourism activities.
- **Geographic Information Systems (GIS)**: Tools used to visualize and analyze spatial data, such as tourism flows and infrastructure needs, to support planning and policy development.

14.6 Glossary

ADRION	Adriatic-Ionian Initiative
AI	Artificial Intelligence
CO2	Carbon Dioxide
C4T	Community4Tourism Project
DMO	Destination Management Organization
DSS	Decision-Support Systems
D4T	Dialogue4Tourism Project
EPLO	European Public Law Organization
ERDF	European Regional Development Fund
EU	European Union
EUI	European Urban Initiative
GIS	Geographic Information Systems
JRC	Joint Research Centre
IDP	Institutional Dialogue Project
IoT	Internet of Things
M&E	Monitoring and Evaluation
MedECC	Mediterranean Experts on Climate and Environmental Change
MOSE	Modulo Sperimentale Elettromeccanico (Venice's flood barrier system)
MSSD	Mediterranean Strategy for Sustainable Development
NbS	Nature-based Solutions
SDG	Sustainable Development Goals
SME	Small and Medium Enterprises
SWOT	Strengths, Weaknesses, Opportunities, Threats (analysis tool)
UfM	Union for the Mediterranean
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNWTO	United Nations World Tourism Organization

14.7 Reference Documents

The following is a comprehensive list of sources cited throughout the report, providing a foundation for the research and analysis presented.

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