



Regions 4Climate

Fostering smarter, faster and systemic adaptation in the Azores, the Basque Country, South Aquitaine and Tuscany

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This policy brief examines the regional governance and steering instruments of four European regions in the Regions4Climate Faster Adaptation Challenge Suite and provides recommendations for smarter, faster and more systemic adaptation.

We found that

- The Azores, the Basque Country, South Aquitaine and Tuscany have established or are establishing adaptation strategies and institutional capacity that can support scaling and acceleration of adaptation.
- Existing data and knowledge systems need to be better integrated into decision-making, monitoring, and innovation processes at the local and regional levels.
- Local, regional and national authorities should define clearer mandates related to adaptation, ensure policy alignment across governance levels, and mainstream adaptation into spatial and sectoral planning to translate plans into coherent action.
- Moving beyond project-based funding is critical to sustain adaptation across the full policy cycle.

Introduction

Climate change poses a growing threat to regions across Europe, with more frequent and severe weather events disrupting communities, economies, and ecosystems. Adaptation is essential to build resilience and protect vulnerable areas, but it requires adequate planning, coordination, and policies.

The European Commission's European Missions - Adaptation to Climate Change Implementation Plan outlines three objectives: smarter, faster and systemic adaptation. The plan presents these objectives as sequential and mutually reinforcing intervention steps that build on one another to achieve the Mission's overall goals. **Faster adaptation** involves mobilising partnerships and engagement, formulating vision and pathways, and orchestrating innovative solutions (See Fig. 1). Faster adaptation builds on smarter adaptation, but the partnerships and engagement can also serve to open new opportunities for stronger digital and knowledge services and a more comprehensive understanding of the regions' risks. Faster adaptation is also the foundation for systemic adaptation, helping to deliver cross-border value and impact at scale.

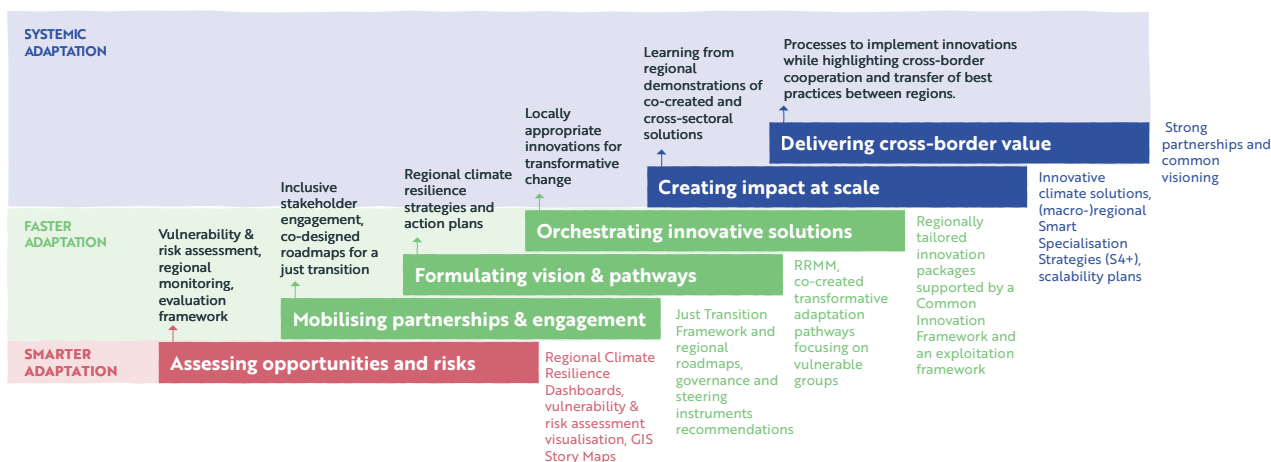


Figure 1 The implementation steps for achieving Adaptation Mission Objectives, which also align with the smarter, faster and systemic adaptation approaches. Adapted from the EU Mission on Adaptation to Climate Change – Implementation Plan. Smarter adaptation refers to step 1, Faster adaptation refers to steps 2-4, while Systemic adaptation refers to steps 5-6. Selected actions that regions are implementing in Regions4Climate are on the left of each step and selected research and innovation support examples provided by the project are on the right. These examples are not exhaustive.

This policy brief synthesises the Regions4Climate project’s governance and policy insights on transformative adaptation for **Challenge Suite 1: Faster Adaptation** in the Regions4Climate regions of: **the Azores, the Basque Country, South Aquitaine and Tuscany**.

In their Regions4Climate Innovation Packages, this group of regions is working to **accelerate their adaptation efforts** to reduce coastal risks (sea level rise, coastal erosion, storm surge and ocean warming) and protect and restore the integrity of coastal ecosystems. Although this Challenge Suite focuses their Innovation Package activities that support faster adaptation, the recommendations take a more comprehensive perspective based on insights related to smarter, faster and systemic adaptation.

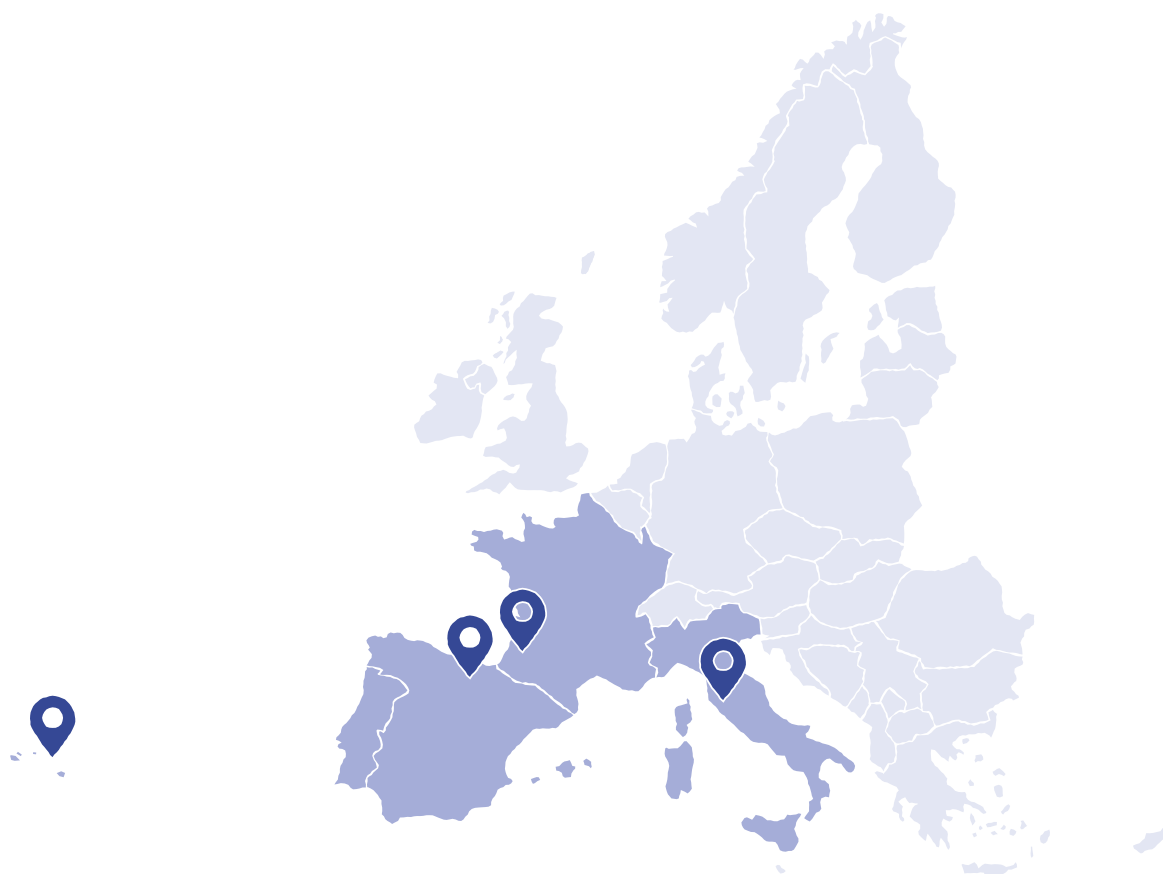
Climate change adaptation is the process of adjusting to current or anticipated climate conditions and their impacts¹, enhancing adaptive capacity, strengthening resilience, and reducing vulnerability². **Governance** is considered the combination of formal and informal institutions, procedures and mechanisms that steer policy and decision-making³.

This policy brief draws on conclusions from the Regions4Climate Governance recommendations (D4.3)⁴ and draft Policy recommendations (D4.4)⁵, as well as the regions’ self-assessment results using the Regional Resilience Maturity Model (RRMM)⁶. Using the RRMM, the regions evaluate their adaptation readiness across multiple dimensions and indicators. For this policy brief, we draw on the results focused specifically on governance- and policy-related dimensions, namely Dimension 1: Regional Governance and Institutional

- 1 IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 p
- 2 Singh, C., Iyer, S., New, M.G., Few, R., Kuchimanchi, B., Segnon, A.C., Morchain, D., 2022. Interrogating ‘effectiveness’ in climate change adaptation: 11 guiding principles for adaptation research and practice. *Climate and Development* 14, 650–664. <https://doi.org/10.1080/17565529.2021.1964937>
- 3 Levi-Faur, D. 2012. *The Oxford Handbook of Governance*. Edited by D. Levi-Faur. Oxford: Oxford University Press. p. 8
- 4 Malmström, et al. 2024. Regions4Climate D4.3 Governance Recommendations.
- 5 Tuhkanen, et al. 2025. Regions4Climate D4.4 draft Policy and Steering Instrument Recommendations.
- 6 Manuelli, et al. 2023. Regions4Climate D4.1 Regional Resilience Maturity Model and Framework.

capacity, Dimension 2: Plans and policy instruments, and Dimension 6: Finance and resources. The overview of relative maturity patterns across regions helps contextualize the strengths and gaps identified in the governance mechanisms, and steering instrument analysis. This analysis assesses how regional governance strengths and gaps contribute to faster, smarter, and systemic adaptation. The brief aims to share integrated governance and policy recommendations for adaptation with local and regional authorities within the Challenge Suite 1, as well as with local and regional governments more broadly across the EU.

Climate adaptation governance can be understood through considering aspects such as structure or the effective coordination among local, regional, and national authorities, key actors driving decision-making and implementation, as well as mechanisms, such as the steering instruments. These include regulatory instruments, such as regulatory frameworks and policies; financial instruments, such as financial incentives and penalties, dedicated funding, etc., and informational instruments, such as collaborative platforms, networks, etc. Clarifying responsibilities, empowering key actors, and optimizing the tools used to achieve governance objectives enable policymakers to strengthen climate adaptation governance.



Map 1 The four regions of Challenge Suite 1.

Regional governance and steering instrument analysis

The Azores

- **Geography** – The Azores is an autonomous region of Portugal, consisting of nine volcanic islands in the mid-Atlantic (2,333 km², population around 246,000). Due to its geographical location and the increasing frequency of extreme weather events, the region experiences flooding, which contributes to severe coastal erosion, posing a risk to the population, property and economic activities linked to the sea and the coast.
- **Economy** – The economy has relied on agriculture, livestock raising, dairy farming and fisheries, with tourism growing rapidly in recent years. This expansion has increased pressure on natural resources and threatens the existing balance of farming, nature areas, water usage and other environmental concerns.
- **Governance** – The Azores has broad legislative autonomy within Portugal, including the competence to adopt binding climate change frameworks as well as legislative and management authority over the key affected sectors.
- **Regulatory instruments** – Portugal's Climate Law (2021) recognises autonomous regions as subjects of climate action. Other key policy frameworks include a national coastal management plan, a national plan for recovery and resilience, and the regional climate change programme, which is binding for all public entities. Inter-municipal and municipal spatial planning plans guide implementation locally.
- **Financial instruments** – Funding includes support for climate emergencies through insurance for the restoration of damaged property and support for public investments in resilience. The region benefits from the national environmental fund, EU funding through its regional program program, Açores 2030, and the NextGenerationEU initiative.
- **Informational instruments** – Knowledge related to adaptation is generated and shared through public information campaigns as part of European projects, public competitions for climate innovation, and the State of Spatial Planning reports. The Azores is a member of the Covenant of Mayors.

STRENGTHS

- **International collaboration for biodiversity:** The region actively collaborates with its Macaronesian partners on marine protected areas, sustainability and microplastics monitoring on beaches⁷. The region is committed to continuing and further developing this cooperation as part of its regional adaptation strategy⁸.
- **Technical-scientific cooperation:** A dedicated working group under the regional climate strategy⁸ supports coherence in climate adaptation policy implementation through a shared technical-scientific framework on adaptation.

⁷ Action Plan 2019-2030 Azores (2019)

⁸ Regional Strategy for Climate Change (ERAC) (2011)

- **Broad inclusion of actors in climate actions:** There is wide societal participation in climate policy making through formal recognition of the public, private and third sectors, and citizens as subjects of climate action under the Climate Law.
- **Risk-oriented strategies:** The regional program for climate change⁹ prioritises risk-based approaches, including relocating infrastructure from high-risk zones and imposing stricter land-use controls in such areas. Regional development is supported by data collection, e.g. using earth observation technologies to collect data and improve adaptation knowledge, especially for coastal risks^{7,10}.
- **Integration of nature-based solutions (NbS) in land-use planning:** The region's program for climate change⁹ promotes NbS through measures such as a ban on grazing on wasteland to foster passive restoration and promote of adaptive management of protected areas.

AREAS OF IMPROVEMENT

- **Multi-level and cross-sectoral coordination:** The Azores has a strong legal foundation for adaptation, supported by the region's autonomous status and a regional climate strategy. Although the RRMM highlights the region's support for municipalities in developing local adaptation plans, it suggests that vertical coordination across local, regional and national levels is insufficiently formalized which creates a lack of clarity around responsibilities at different levels. According to the RRMM, cross-sectoral coordination also remains limited and largely depends on central coordination within the regional government.
- **Continuous funding:** Although the region uses a variety of financial instruments for adaptation and resilience, financial planning for climate resilience is still evolving. While resources are allocated through regional programmes, a comprehensive strategic approach to financing climate resilience has not yet been established, and funding remains largely sporadic or project-based rather than dedicated and continuous funding across the full adaptation cycle.
- **Climate services:** The region has strong research-to-policy partnerships and adaptation policies that reflect risk-informed planning. However, the policies do not explicitly aim to advance the frontiers of knowledge around climate risk in the way that the regional development⁷ and S310 strategies do. Advancing climate risk knowledge could contribute to monitoring and evaluation systems for climate resilience policies, which according to the RRMM, are still developing.
- **Local knowledge integration and public awareness:** Despite the recognition of local actors in the Climate Law, regional policy frameworks do not yet explicitly address how local and traditional knowledge can support adaptation and resilience. This limits the extent to which planning reflects lived experience and local priorities, which are important to ensure a socially just transition. The RRMM analysis indicates that local knowledge is only partly integrated into existing policies. The gap is closely linked to broader challenges of low public awareness and limited participation, which further hinder opportunities for communities to contribute local knowledge, as well as the inclusive and effective implementation of climate adaptation measures.

⁹ Regional Program for Climate Change (PRAC) (2019)

¹⁰ Research and Innovation Strategy for Smart Specialisation in the Autonomous Region of the Azores (2021)

The Basque Country

- **Geography** – The Basque Country, in northern Spain bordering France, is a mountainous region with a steep coastline (7,234 km² and population around 2.2 million) mostly concentrated along the coast. It spans the Atlantic and Mediterranean climatic zones and is a biodiversity hotspot with a variety of ecosystems. One-fifth of the territory is part of the Nature 2000 network. The region faces challenges related to fluvial flooding, sea level rise, and heat stress.
- **Economy** – The region is wealthy (with about 5.7% share of Spain's GDP), densely populated, and highly industrialised, with a strong manufacturing sector. The economy, with fisheries, livestock and agriculture, alongside tourism closely links to natural and cultural heritage, particularly along the coast and in major urban centres.
- **Governance** – Spain is a unitary decentralised state, where the division of powers across the country is asymmetrical (quasi- federation) with legislative powers at the sub-national level. As an autonomous community, the Basque Country holds extensive legislative and administrative competences over several relevant sectors (education, health, spatial planning amongst others). A distinctive feature of the Basque Country is the presence of a supramunicipal, subregional level of government at the provincial tier. Provincial councils (*Diputaciones*) hold significant administrative competences and play a key role in coordinating municipalities. Regarding climate change and the green transition, the region focuses on inter-institutional coordination among different Basque authorities and sectors, as well as cooperation between the private sector, research institutes, and local authorities. According to the RRMM, this coordination is formally anchored through the Basque Office for Energy Transition and Climate Change (*Oficina Vasca de Transición Energética y Cambio Climático*), a key governance body for climate policy, including climate adaptation. This Office was established under the Climate Change and Energy Transition Law (Law 1/2024), adopted in 2024 by the Basque Country.
- **Regulatory instruments** – The Law 1/2024 establishes a comprehensive and binding legal framework to achieve climate neutrality, territorial resilience, and a just transition by 2050, with an explicit commitment to make every effort to advance this objective to 2045. Unlike many climate laws that prioritise mitigation, this law gives adaptation and resilience a status equivalent to emissions reduction, explicitly recognising climate impacts as unavoidable and already affecting the territory. The law explicitly recognises that regions and local authorities are responsible for over 90% of climate adaptation measures, positioning regional governance as central to adaptation delivery. The law explicitly aims at mainstreaming climate adaptation into sectoral and territorial policies, including spatial planning, infrastructure, agriculture, water management and biodiversity protection.
- **Financial instruments** – Adaptation is supported through grants for multiple adaptation related themes, tax deductions for environmental investments, green public procurement and penalties for non-compliance with climate legislation (Law 1/2024). The Basque Country dedicates 1.9% of the total budget to climate change, with 1.7% to mitigation, and 0.2% to adaptation. The Basque Government has dedicated support programmes that fund R&D, innovation and demonstration projects focused on climate change adaptation (i.e. Klimatek). The region is also highly active in securing EU project funding and plans to allocate a dedicated regional budget for climate actions. In this context, the LIFE IP Urban Klima 2050 project is an accelerator to activate climate action in the Basque Country.
- **Information instruments** – Knowledge is generated through different tools such as, climate change scenarios, sea level rise scenarios, regional vulnerability assessments and climate change impact modelling, among others, that are shared through regional platforms (GeoEuskadi) and transborder networks. Public awareness is promoted through a network of environmental education centers (Ekoetxea) and initiatives like Basque Climate and Energy Week (AsteKlima).

STRENGTHS

- **Continuous knowledge generation and sharing:** The regional development and adaptation plans^{11,12} promote the generation and dissemination of knowledge and learning on topics such as climate mitigation, coastal adaptation and NBS. The Basque Science, Technology and Innovation Plan 2030 (PCTI Euskadi 2030) focuses on the triple technologicaldigital, energyclimate and socialhealth transition, leveraging public-private collaboration. Programmes such as Klimatek promote and fund demonstration projects and transfer advanced knowledge among municipalities, local stakeholders, universities and tech companies constituting a corner-stone of the R,D&I in the region¹¹. The lessons learnt with the Klimatek projects are intended to transfer to municipalities through a financial instrument named "orden de subvenciones".
- **Collaboration:** The region has multiple avenues for cooperation on sustainability transition topics, including cross-border cooperation (Transborder Scientific Interest Group "Littoral Basque" and The Pyrenees Working Community), municipal cooperation (UDALSAREA 2030 the Basque network of sustainable municipalities) and research cooperation (Basque Research & Technology Alliance). Also involvement of the private sector is steered by different initiatives under the RIS3 Basque Country's Circular Economy Strategy 2030¹³: the Basque Ecodesign Center, the Programme for Innovation in the Circular Economy and the Basque Ecodesign Hub. A new interdepartmental coordination body – the KAIA Board (Klima Aldaketaren Inpaktua) – has been created to foster collaborative climate adaptation governance and mobilize financing for demonstration projects.
- **Mainstreaming climate adaptation in spatial planning:** Adaptation is required by law to be integrated into spatial planning at the regional and urban levels. Climate risk reduction should be embedded across policy areas, including civil protection, territorial strategies, coastal management, waterway management, urban planning, health or land-use planning^{11,12}. The Coastal Sectoral Territorial Plan of the Basque Country (currently under adoption) is a leading example of the integration of climate change scenarios (e.g., sea level rise and temperature projections) across multiple time horizons into coastal zoning guidelines and adaptation criteria.
- **Climate-proofing infrastructures:** Adaptation is integrated into urban planning, with a focus on anticipating vulnerabilities and risks related to sensitive infrastructure, including water supply¹¹. A set of demonstrator projects has been defined which respond to the hotspots in the Basque Country suffering from the impacts of climate change.

AREAS OF IMPROVEMENT

- **Monitoring and Evaluation:** Despite substantial progress in data generation, spatial mapping, regionalised climate scenarios, and vulnerability and risk assessments at the municipal level, the establishment of a systematic framework for monitoring and evaluating adaptation impacts remains a key challenge.
- **Financial instruments:** While diverse resources exist for planning and implementation, funding for monitoring, evaluation, and re-planning phases is not secured. Strengthening adaptation-related financial and penalising instruments could improve compliance, while risk transfer mechanisms could help manage residual climate risks that are prohibitively costly or technically unfeasible to mitigate. In this context, the Social Fund introduced by the Basque Climate Change and Energy Transition Law (Law 1/2024) offers an opportunity to mobilise dedicated public resources to protect

¹¹ Urban Agenda for the Basque Country (Basque 2050) (2021)

¹² Climate Change Strategy of the Basque Country to 2050 (KLIMA 2050) (2015) under review.

¹³ Circular Economy Strategy of the Basque Country 2030 (2019)

and adapt the territory and to support a just transition. It also helps to channel financing towards measures that reduce climate risk and address residual impacts, complementing regulatory and penalty-based approaches.

- **Private sector engagement:** Private sector involvement occurs mainly through public-private partnerships (PPPs) or voluntary initiatives as businesses are not legally required or strongly incentivized to participate in adaptation. Despite the already mentioned efforts (see PCTI 2030, RIS3 Strategy, Klimatek) the involvement of the private sector in adaptation actions remains a challenge, as stressed in the RRMM. Such involvement could be encouraged through regulatory and financial incentives to structurally embed collaboration, for example, through tax incentives for companies adopting climate resilience measures, or mandatory climate risk disclosures as part of corporate reporting.

South Aquitaine

- **Geography** – South Aquitaine is a coastal area along the southwest coast of France (7,645 km² and population around 679,300), with a coastline characterized by a mostly rocky environment, multiple bays with delimited sandy beaches, rocky cliffs, and a complex nearshore bathymetry with a mix of sand and rocks.
- **Economy** – The economy is strongly tied to the Atlantic Ocean, encompassing fishing, sailing, logistics, nautical sports, and a dominant tourism sector.
- **Governance** – France is a decentralized unitary state without legislative powers at sub-national level. South Aquitaine corresponds to eight coastal municipalities, which are part of the 158 municipalities of the Basque Country Urban Community (Communauté d'Agglomération Pays Basque or CAPB) administrative unit. The CAPB covers the western and southern parts of the larger administrative region of Nouvelle-Aquitaine. The CAPB has been managing local affairs in the region since 2017, it operates as an intermediate level of government. The Nouvelle-Aquitaine Region addresses climate change mitigation and adaptation through sector-specific regulatory measures and the allocation of financial resources, but the CAPB implements and operationalises at the local level. According to the RRMM, collaboration with national authorities is well defined within the French institutional system.
- **Regulatory instruments** – The French Climate Law (2021) guides adaptation and resilience measures and establishes a national strategy for integrated coastal management. According to the RRMM, climate resilience is supported by regional and local spatial planning instruments, notably strategies for coastal risk management and broader climate policies. At the regional level, climate change adaptation actions are included in the Anticipating Climate Change in Nouvelle-Aquitaine adaptation plan¹⁴. The main local strategy for South Aquitaine is the Local Coastal Risk Management Strategy (SLGRL)¹⁵, coordinated by the CAPB. Priorities and actions have been established locally, in consultation with coastal municipalities and involving regional and national representatives who participate in the steering committees. The Nouvelle-Aquitaine Region's climate change adaptation strategy directly informs and shapes that of the CAPB, which translates it into consistent local implementation.
- **Financial instruments** – Adaptation is supported by different instruments at the national level, including The Green Fund (Fonds Vert) or the Partnership Planning Projects (Projet Partenarial d'Aménagement¹⁶), as well as various types of EU funding.

¹⁴ Anticipating Climate Change in Nouvelle-Aquitaine (2020)

¹⁵ Local Coastal Risk Management Strategy (SLGRL) (2017)

¹⁶ [Partnership development project contracts and major urban planning operations](#)

- **Informational instruments** – Knowledge is mobilized through regional collaborative initiatives between research, stakeholders, and public authorities, such as GIS Littoral, Joint Research lab KOSTARISK, and Regional Coastal Observatory (OCNA). National bodies, such as the French agency for ecological transition (ADEME) and the High Council for Climate, provide expertise and evaluation support for the region, while NGOs support public outreach.

STRENGTHS

- **Anticipatory measures:** The regional development plan/S3 strategy¹⁷ (Nouvelle Aquitaine) includes measures to accelerate the rollout of land-use adaptation solutions. The region plans to limit land artificialization and anticipate environmental risks, such as coastal retreat and flooding. The Local Coastal Risk Management Strategy specifies all actions related to coastal protection, adaptation, and managed retreat to be implemented in the area¹⁵.
- **Climate services:** The regional development plan/S3 strategy¹⁷ (Nouvelle Aquitaine) promotes cross-sectoral and regional data pooling to monitor and steer environmental issues, thereby enabling faster adaptation. The regional adaptation plan¹⁷ (Nouvelle Aquitaine) refers to further risk assessments to build on the work done to map climate change impacts in the region (e.g. IMPACT2C project). The Local Coastal Risk Management Strategy includes monitoring of coastal erosion across the eight coastal municipalities¹⁵. The RRMM indicates that the existing monitoring systems are mainly tracking selected indicators, rather than providing a comprehensive evaluation.
- **Stakeholder participation:** The Nouvelle-Aquitaine adaptation plan¹⁴ aims to broaden stakeholder participation to include economic actors and participants beyond mobilized citizens, thereby improving knowledge sharing and promoting wider public involvement in climate action.
- **Innovation:** Nouvelle Aquitaine's regional development plan/S3 strategy encourages the establishment of regional innovation testing and demonstration centers to promote and develop innovations aligned with the ambitions of the regional ecological and climate roadmap (Néo Terra).
- **International cooperation:** The region collaborates with the Spanish Basque Country, particularly on coastal protection and is involved in a proposed transregional agreement among France, Spain, and Andorra for ecosystem protection in the Pyrenees¹⁴. The Basque Country adaptation plan¹⁸ also refers to the cooperation with the Spanish Basque Country on shared issues and involvement in European initiatives.

AREAS OF IMPROVEMENT

- **Horizontal coherence:** While adaptation is mainstreamed into some sectors and local adaptation plans exist, the integration across sectoral policies remains partial. For example, regional and local plans for tourism, a key sector, and transport do not consider adaptation or climate resilience.
- **Continuous funding:** While the region employs a variety of financial instruments, financial programming in the (French) Basque Country Climate Plan is mostly provisional and project-based and there is no coherent strategy for securing funding for the entire adaptation cycle. The RRMM also emphasizes the lack of a coordinated regional financing strategy. Limited use of incentivizing or penalizing

¹⁷ Regional scheme for economic development, innovation and internationalisation 2022-2028 SRDEII (2022)

¹⁸ Basque Country Climate Plan -territorial climate-air-energy plan (2021)

instruments for adaptation can limit adaptation by private individuals and private sector actors and may limit the climate-proofing of sectors such as agriculture and tourism.

- **Local engagement:** While the Basque Country adaptation plan¹⁸ recognises the value of diverse knowledge, it could more explicitly outline ways to engage local communities. Operationalising inclusion to understand their perspectives, including their experience of how they are affected by climate change in policies embeds engagement into practice.
- **Multi-level coordination:** Coordination exists in practice, but the region has no legal framework for ensuring coherence of climate resilience goals across national, regional, and local levels. Improving coherence between local, regional and national policies on climate resilience depends on better coordination of existing frameworks, strengthened multi-level governance and a shared long-term vision that fully integrates climate change adaptation.

Tuscany

- **Geography** – Tuscany is a central Italian region along the Ligurian and Tyrrhenian Seas (22,985 km²; population ~3.7 million). It is characterised by a predominantly hilly and mountainous landscape, a western coastline, and the Arno River valley, where its major cities, including the capital Florence, are located.
- **Economy** – The region is a major tourist destination, particularly in summer, with a strong focus on coastal tourism alongside broader regional economic activities.
- **Governance** – Italy is a regionalized unitary state with legislative powers at the sub-national level. Tuscany has ordinary legislative and administrative competences, reflecting principles of local autonomy and decentralisation.
- **Regulatory instruments** – Adaptation is steered through a national adaptation strategy (2015) which provides guidelines and a more recent climate adaptation action plan (2023) that guides regional institutions. Tuscany has adopted several laws and planning instruments related to adaptation topics, as well as public-private agreements for sustainable practices. Climate resilience is addressed through several regional strategies and sectoral plans, including those related to energy, forestry, water management and land-use planning¹⁹.
- **Financial instruments** – Financial resources for climate resilience are distributed across sectoral programmes and initiatives, often through national and European funding schemes, e.g. ERDF, Horizon and Interreg, for funding adaptation. Key funding sources for adaptation include the National Recovery and Resilience Plan, which covers the green transition. The region also benefits from the European initiative RepowerEU, which provides financial incentives for the energy transition, which is perceived as supporting climate resilience, as well as ERDF, Horizon and Interreg, for funding adaptation.
- **Informational instruments** – Adaptation-related knowledge is generated and shared through EU-funded projects and regional initiatives, including voluntary river management contracts and model forest networks. Tuscany hosts the Mediterranean Model Forest Network secretariat and is developing monitoring systems and open data platforms to support knowledge sharing and stakeholder engagement.

¹⁹ Intelligent Specialisation strategy of Toscana 2021-2027 (preliminary version) (2022)

STRENGTHS

- **Coastal risks assessment and management:** Both the S3¹⁹ and the Regional Development Programme²⁰ of Tuscany support climate adaptation through their aims to protect and monitor the shoreline and the beach at the regional level. Both policies mention the use of technologies for hydro-geologic and hydraulic risk studies, monitoring, and forecasting. This data informs adaptation planning in the region, for instance, to improve the climate resilience of port infrastructure to coastal risk²⁰.
- **Multi-level coordination:** Adaptation is currently steered by non-binding national adaptation policies (strategy and plan). According to the RRMM, governance arrangements for climate resilience are supported by regional institutions and multiple sectoral plans addressing environmental and climate-related issues. Coordination between regional and local authorities exists and the region supports municipal adaptation initiatives and emergency response mechanisms. In addition, in Tuscany, the national and local levels collaborate around the National Heatwave Health Effects Warning system. This cross-level collaboration aims to empower local communities through local adaptation strategies and active civil society involvement in planning and monitoring. This also connects climate change adaptation with disaster risk reduction. Tuscany has also been one of the coordinating regions in the Italian Board for Coastal Erosion, leading to the publication of the National Guidelines for Coastal Protection from Erosion and Climate Change Effects (2018).
- **Climate services:** The national adaptation plan²¹ sets up a new National Observatory for Adaptation to Climate Change to mainstream adaptation into planning at all levels and establish criteria for evaluating adaptation actions. According to the RRMM, monitoring activities are conducted by several regional institutions, while data management and accessibility remain fragmented.
- **Private financing:** In Regions4Climate, the region plans to create a consortium of private stakeholders to consolidate private funding for NbS coastal projects and establish a private-public partnership (PPP) model, which can be replicated in other regions²².

AREAS OF IMPROVEMENT

- **Multi-level and horizontal coordination:** Adaptation goals are integrated into various sectoral plans, but there is currently no regional adaptation law or mandatory framework assigning responsibilities at the regional and municipal levels or clarifying objectives and actions. The regional adaptation plan, which is being developed, will formalize coordination. According to the RRMM, the integration between regulatory instruments and planning frameworks and collaboration across sectors and administrative levels remains uneven.
- **Financial instruments:** Funding for adaptation is project-based and not continuous; financial instruments are limited and not fully focused on adaptation. The limited strategic approach to financing climate resilience is recognised by the RRMM. Some financial instruments, such as RepowerEU, are based on European mechanisms that are managed at the national level and difficult for regions to access. Additionally, the region lacks insurance-related mechanisms to manage residual climate risks that are prohibitively costly or technically unfeasible to mitigate.
- **Pilots and learning:** Although the region participates in collaborative projects and pilot initiatives, its policy documents^{19,20,21} do not explicitly institutionalise piloting as a structured governance

²⁰ Tuscany Region: Regional Development Programme 2021-2025

²¹ National Plan for Climate Change Adaptation (PNACC) (2023)

²² Thompson et al. 2026 (Regional Innovation Roadmaps (D6.2))

instrument for adaptation. Embedding experimentation and learning mechanisms within formal strategies could strengthen long-term innovation and scaling up of solutions.

- **Low awareness:** The lack of awareness among stakeholders and the public about climate change adaptation is identified as a major barrier to rapid implementation.

Synthesis

The governance and policy analysis for the Faster Adaptation Challenge Suite^{4,5,6} shows that the Azores, the Basque Country, South Aquitaine and Tuscany have established important foundations for **faster adaptation** (see Fig.1). Across the regions, coordination mechanisms, collaborative platforms, planning instruments, and stakeholder networks are helping to translate adaptation strategies into action. These include examples of multi-level cooperation, coastal risk management strategies, and the integration of adaptation into spatial and sectoral planning. These efforts are supported by strengths in **smarter adaptation**, particularly climate-risk knowledge, technical-scientific capacity, monitoring systems, and evidence-based tools. These knowledge systems provide an important basis for informed decision-making and help regions identify, prioritise, and implement adaptation measures.

At the same time, the analysis highlights that the extent to which these mechanisms are formalised and operationalised varies across the Challenge Suite. In some regions, clearer roles and responsibilities, stronger vertical and horizontal coordination, more systematic integration of adaptation into sectoral policies, and more continuous financing would help improve the speed and coherence of implementation. These same conditions also support progress towards **systemic adaptation**, by helping adaptation move beyond individual projects towards larger-scale impact and stronger cross-border value. Strengthening governance, knowledge and financing conditions can therefore help the regions move from promising strategies and good practices towards more sustained, coordinated and scalable action.

Governance and steering instrument recommendations

This section presents an **integrated set of recommendations** based on two sets of regional analyses: one focused on governance^{4,5} and one focused on policy and steering instruments². The recommendations below reflect elements relevant to local and regional governments in each of the regions but are not necessarily shared by all of the regions. More details related to a broader set of recommendations for each region can be found in the specific deliverables. In connection with the recommendations, we also present connected good practices from across Europe identified in the Regions4Climate Good Practice Leaflet.

Improve knowledge sharing and monitoring systems

- Consider expanding climate services, broaden climate risks assessment, and strengthen monitoring disaster losses for improved adaptation decision-making.
- Strengthen regional monitoring, evaluation, and data governance systems, including centralized or pooled access to climate information, to improve planning coherence and support policy adjustment.

- Leverage transboundary collaboration and stakeholder networks to address knowledge gaps and build cross-sectoral knowledge bases across the region.

Good practice for centralised climate data governance: Castilla y León. Since 2015, the region has operated a GIS-based geoportal providing georeferenced, real-time risk information on wildfires, floods, and other hazards to authorities and the public. The platform integrates open data from weather stations and wildfire reports, supporting coordinated disaster response and continuous updates to cartographic and risk data.

Mainstream climate adaptation into sectoral policies

- Explore potential synergies between local and regional climate adaptation and resilience, S3 strategies and regional development strategies.
- Institutionalise integration of adaptation and resilience-focused piloting into relevant sectoral strategies to foster learning and innovation around adaptation and cross-sectoral benefits, scale up adaptation actions for broader impact, and accelerate adaptation.
- Strengthen cross-sector collaboration and partnerships to scale up adaptation actions, including nature-based solutions, across sectors and ecosystems.
- Address remaining gaps in key sectors where adaptation is not yet fully integrated.

Good practice for cross-sector collaboration in climate adaptation: Nordic Archipelago. The Nordic Archipelago Inspirational Forum brings together decision-makers, stakeholders, and communities across borders to develop shared strategies on sustainable transport and renewable energy systems. This cross-sectoral network has grown into an independent entity, demonstrating how structured stakeholder engagement can generate lasting inter-regional collaboration beyond the lifespan of individual projects.

Align climate adaptation policies and governance across governance levels

- Clarify roles, mandates, and accountability mechanisms across governance levels, including monitoring responsibilities. Consider promoting regulatory frameworks that formalise alignment and clarify responsibilities.
- In cases where legally binding regional level steering instruments are not possible, explore the possibilities of adopting an informal regional adaptation framework to clarify and align regional goals across sectors and synergise local adaptation efforts.

Good practice addressing multi-level governance challenge: The Basque Country. The region launched Udalsarea 2030 in 2002, a cooperation network to promote sustainability across Basque municipalities through shared governance and technical support. It strengthens coordination between local and regional authorities and improves support for local sustainability policies.

Leverage participatory processes to make regional and local strategies more inclusive and just

- Integrate local and traditional knowledge to improve the evidence base for climate adaptation planning and decision-making.
- Strengthen the engagement with local communities and civil society to raise awareness of climate change, to better understand local priorities, provide ideas for local level solutions, and to ensure that adaptation strategies reflect diverse needs, priorities, and experiences.

Good practice for co-production of knowledge: South-Aquitaine. For over 15 years, the region has brought together academia, technology centres, and public authorities through two complementary initiatives (KOSTARISK and GIS Littoral Basque) to translate coastal research into practical tools and services. This long-term science-society collaboration has demonstrated that sustained institutional commitment and open stakeholder dialogue are key to producing actionable knowledge on climate and coastal risks.

Diversify, expand, and integrate financial instruments for climate resilience

- Develop comprehensive regional financing strategies for adaptation, beyond project-based funding. Consider new financial instruments like green and climate bonds, equity financing, public-private partnerships, as well as risk transfer and risk-sharing mechanisms, such as insurance and catastrophe funds to address residual climate risks.
- Introduce adaptation-specific financial incentives and secure resources for all stages of the policy cycle, including monitoring, evaluation, and revising.
- Mobilize private sector investment in climate resilience through financial incentives and partnerships.
- Improve accessibility of national and EU funding at regional and local levels, including administrative capacity support.



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