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FINAL REPORT ANNEX //

Territorialising Resilience: Transforming Europe for an Age of Crisis (TERRES)

Case studies

Annex I of the Final Report // July 2025



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Abbreviations

BADC	Budapest Agglomeration Development Council (BAFT)
CHEDZ	Central Hungarian Economic Development Zone
CNP	Complementary National Plan
ERP	Extraordinary Reconstruction Programme
FUA	Functional Urban Area
HCSO	Hungarian Central Statistical Office
NGEU	Next Generation EU
NRRP	National Recovery and Resilience Plan
PSR	Programmi Straordinari di Ricostruzione

1 Introduction

The six regions include: Upper Norrland (Sweden), Latgale (Latvia), Budapest metro-area, (Hungary), Central Italy, Catalonia and Teruel (Spain).

The primary objective of the case study task was to collect comprehensive evidence from the perspectives of policy actors and stakeholders concerning the ongoing trends impacting territorial resilience at global, European, national, regional, and local levels; territorial dynamics and the underlying factors influencing these trends; and various national, regional, and local initiatives implemented to address these trends and their effects. Additionally, the case studies served to develop a narrative about the shock/recovery processes that may not be captured by indicators and statistics alone, thereby providing valuable insights into the conceptual and thematic progress in other tasks. This approach has helped establish a common understanding of regional resilience within different territorial contexts, highlighting transferable lessons that could benefit similar areas.

The **Budapest Functional Urban Area** in Eastern Central Europe incorporates Hungary's capital and nearby settlements, forming its most populous and economically significant region. It boasts substantial human and social capital, major transport infrastructure, and key institutions. However, innovation and economic productivity lag behind similar metropolitan areas. Challenges include intense suburbanization, urban sprawl, and governance stresses that overburden infrastructure and public services. Fragmented governance, political divisions, centralisation, and insufficient multilevel cooperation weaken the region's ability to handle crises. Regulatory changes and a weak place-based approach further undermine strategic capacity. To address these issues, we propose a framework to enhance cooperation and commitment among governance actors.

Catalonia was selected as a case study as a representative example of a risk affected territory in the Mediterranean context, with a strong European forward-looking perspective to tackle existing Challenges. The Catalan case study is presented as a relevant story on how to translate European policies and European goals into local action strategies at regional and municipal levels. It is also a success story of increasing collaboration between different administrative bodies at different territorial levels, in a context of large institutional fragmentation.

The **Central Italy** Earthquake Crater serves as a crucial case study in territorial resilience, highlighting socio-economic, governance, and environmental challenges after the 2016-2017 earthquake. The natural catastrophe worsened the area's existing issues, such as economic decline, job loss, depopulation, ageing population, and poor infrastructure. Additionally, governance and risk management gaps were exposed. This case study highlights the need to shift from restoring pre-disaster conditions to integrating resilience into daily governance and planning. The earthquake revealed the limitations of emergency-driven responses and the importance of proactive, strategic, multi-level governance that promotes inter-municipal collaboration and long-term sustainability.

The **Latgalian** case highlights the impact of Russia's 2022 invasion of Ukraine and Lukashenko's 2021 migrant influx on EU/NATO border regions. Latgale, on Latvia's border, faces economic marginalisation, population decline, and inadequate institutional support, compounded by failed integration strategies. Despite these issues, Latgale shows resilience through informal networks and grassroots initiatives. Increased support from international donors and the national government offers new development opportunities. However, Latgale's complex identity, influenced by its multi-ethnic population and proximity to Russia and Belarus, poses ongoing political and security challenges.

Teruel, a sparsely populated region in Aragón, is emblematic of Spain's "Empty Rural" crisis. Mechanised farming, mine closures, and the 2008 crash have reduced jobs, services, and household purchasing power, while unemployment remains high. Shrinking schools and clinics drive outward migration, and poor infrastructure—no high-speed rail or complete A-40 motorway—keeps businesses away. Climate change, droughts, and wildfire risks threaten local forests and farms. The study shows Teruel faces deep-rooted issues: long-term depopulation, economic decline, and ageing population, all worsened by environmental challenges. Fragmented governance has led to short-term fixes instead of sustainable strategies, leaving public services, education, transportation, and digital access underdeveloped.

The **Upper Norrland** case study explores a region encompassing Norrbotten and Västerbotten counties, is distinguished by vast distances, sparse population distribution, and a demographic trend marked by aging and declining population. Upper Norrland is also characterized by its rich natural resources, including extensive forests, numerous rivers, and significant mineral deposits. Upper Norrland is undergoing a green industrial transition, where the region is witnessing substantial investments in sectors like green steel and lithium-ion batteries. These endeavors are anticipated to spur robust regional economic growth and population expansion, enhancing overall competitiveness. However, this transition presents significant challenges, including workforce development, skills supply, population attraction, infrastructure, and housing. Projections suggest a potential population surge of 100,000 individuals in Upper Norrland by 2035, a noteworthy increase considering the combined population of both counties currently hovers around half a million.

2 Methodology

Each partner within the consortium made their choices regarding the datasets examined and the methodology used. In general, the case studies were conducted by combining a desk study with interviews or other direct engagement. Information and views gained during the Future workshops have complemented the desk study sources and interviews that were conducted explicitly for the use of the case studies. Interviews and desk studies were conducted following a common template of questions which the partners formulated into their own interview questions following the specificities of each case.

The case studies sought answers following a set of preliminary questions that the members adapted as most fitting for the individual case studies. The questions were:

- How are regions affected by different types of shocks and stressors? How these different shocks and stressors condition regional development and multi-level governance processes?
- How are regions responding to shocks and stressors: Are there any coping mechanisms in place, and if so, at which level governance level?
- How is resilience conceptualised and understood in the case study areas, and what indicators are used to measure territorial resilience?
- What strategic and thematic policy recommendations can be discerned from the case studies on how to better integrate the concept of territorial resilience at various levels of governance and reinforce coordination between these levels? Are the cases demonstrating transferability or upscaling potentials to another context?

Below are more details of the data and methods utilised by case study.

2.1 Budapest case study

The interview selection of the Budapest case study reflects Hungary's complex governance system with many actors and the case study focus on governance issues, resulting in the fact that all interviewees are governance actors. There was a general aim to have as wide coverage on different levels as possible, as well as including experiences of municipalities from different parts of the region: inner and outer capital zones, and Western, Eastern and Southern areas of the commuting zone. Overall, the case study includes 13 interviews. They represent the following stakeholders: central governance represented by ministries responsible for spatial planning and regulation (2 interviews); intermediate level actors (3 interviews): Pest county, Budapest Agglomeration Development Council, Central-Hungary Economic Zone (the latter 2 are also part of central governance system, but they operate on intermediate level); local governments: the capital (Capital (1), inner districts (2), outer district (1)), and suburban towns (4). The interviews were complemented with relevant desk study material.

Table 1: Interviewees – Budapest case study

Institution	Representative	Relevance for case study	Role in the case studies	Participation in futures workshops?
Municipality of Budapest	Chief architect of Budapest Department of Urban Planning	Formulation of urban planning of Budapest	Interviewed together	FW1,2&3

Institution	Representative	Relevance for case study	Role in the case studies	Participation in futures workshops?
Municipality of Gödöllő	Mayor	Gödöllő is part of the suburban area of Budapest. Municipality is responsible for local governance, urban development, and public services.	Interviewed	No
	President of the Association of Hungarian Local Governments	This national organization seeks to promote collaboration among local government officials.		
Municipality of Gyál	Mayor	Gyál is a suburban municipality within the Budapest FUA, facing challenges related to rapid suburbanization. The municipality has financial resources to handle emergencies and urban challenges.	Interviewed	No
	President of the Metropolitan Agglomeration Municipal Association (FAÖT)	The fundamental aim of the Association is the joint representation of the municipalities concerned, the protection of their interests, joint thinking and the exchange of experience, as the municipalities directly connected to the capital are facing specific, similar challenges.		
Municipality of Gyömrő	Mayor Vice mayor	Gyömrő is part of the suburban area of Budapest. Municipality is responsible for local governance, urban development, and public services.	Interviewed	No
Municipality of Érd	Mayor	Érd is part of the suburban area of Budapest, one of the fastest growing. Municipality is responsible for local governance, urban development, and public services.	Interviewed	No
Budapest Agglomeration Development Council (BADC)	Professional director of Pro Regio Nonprofit Ltd	The BADC serves as a formal institution for creating a common development concept for the Budapest Agglomeration. This is one of the intermediate units of governance.	Interviewed	FW1&2

Institution	Representative	Relevance for case study	Role in the case studies	Participation in futures workshops?
Government Commissioner for the Complex Development of Central Hungary Economic Development Zone (Középmagyarországi Gazdaság-fejlesztési Zóna)		Coordinates the economic development of the Central Hungary NUTS1 region. It was established to address regional disparities and enhance economic competitiveness in the Budapest FUA. The Commissioner's office plays a role in shaping funding priorities and assisting municipalities with economic development	Interviewed	FW1,2&3
Municipality of Pest County	Senior adviser	Municipality of Pest County is responsible for intermediate level development planning, coordination of municipal initiatives, and overseeing county-wide infrastructure, environmental, and economic policies.	Interviewed	FW2&3
Ministry of Public Administration and Regional Development	Deputy Secretary of State for Regional Development	National government body responsible for formulating and overseeing spatial development policies, public administration organisation, managing EU funding for territorial development.	Interviewed	FW1, representatives on FW2&3
Ministry of Construction and Transport	Deputy State Secretary for Spatial Planning and Construction Administration	National government body responsible for construction regulations, building authority matters, spatial and urban planning, and architectural heritage protection. Develops and enforces zoning laws, land use regulations, and urban design guidelines, ensuring that planning frameworks align with national development goals. Also oversees policies for preserving urban aesthetics and protecting historical townscapes.	Interviewed	No

Institution	Representative	Relevance for case study	Role in the case studies	Participation in futures workshops?
Municipality of Józsefváros (District VIII. of Budapest)	Vice mayor	As an inner district of Budapest, the municipality has no direct connection with the municipalities of suburban settlements, although urban-suburban dynamics affect them as well. They have a great overview on the governance situation within the capital.	Interviewed	Representative on FW3
Municipality of District II. of Budapest	Mayor	The II. district experiences suburbanization dynamics more intensely than central districts, dealing with commuting pressures and changing demographics. It maintains stronger ties with suburban municipalities, participating in inter-municipal collaborations.	Interviewed	No
Municipality of Terézváros (District VI. of Budapest)	Vice mayor	As an inner district of Budapest, the municipality has no direct connection with the municipalities of suburban settlements, although urban-suburban dynamics affect them as well. They have a great overview on the governance situation within the capital.	Interviewed	No

2.2 Catalonia case study

The Catalanian case study conducted interviews with selected stakeholders dealing with risk management to define existing risks and local implications (AMB, PEMB, DIBA, DIPTA, selected municipalities, external academic experts). These data gathering activities included:

1. Expert debate and survey with municipalities, on the identification of local challenges and risks across Catalonia, and municipal implications of these risks. Risk impact, risk preparedness, risk mitigation. Activity carried out with the participation of 20 municipalities.
2. Collaboration with LIFE IP EcoADAPT project, and its network of public and private partners (25 partners). During the collaboration, a survey and dialogue on risks, future directions, governance and adaptive capacity in Catalonia, and in key economic sectors was carried out.
3. Organising an expert work table with Barcelona Provincial Council and Tarragona Provincial Council for the identification of insight into the actions being carried out at the regional level, and its linkage with European policies and programmes (18 participants).
4. Conducting interviews with selected stakeholders to improve and contrast our understanding of interterritorial coordination to strengthen Catalonia's resilience. This round of interviews was used for the validation of hypotheses.

Table 2: Interviewees – Catalonia case study

Consultation	Type of organisation	Typology of local actor
Workshop	25 small and medium sized municipalities (Catalonia)	
Interview	Water management	Sector expert
Interview	Energy efficiency	Sector expert
Interview	Tourism and resilience	Sector expert
Interview	Municipal resilience (2 experts)	Sector expert
Interview	Nature-based solutions	Sector expert
Interview	Municipal infrastructure services	Sector expert
Workshop	Barcelona Regional Council and Tarragona Regional Council	
Expert survey	Collaboration with LIFE IP eCOadapt	
Bilateral consultations	Private stakeholders from LIFE IP eCOadapt	

2.3 Central Italy case study

The case study on Central Italy was designed to integrate qualitative and quantitative approaches, combining in-depth engagement with local actors and a structured desk study. An iterative process guided the selection of interviewees and data sources, aiming to capture the complexity of territorial resilience in the Central Italy Earthquake Crater. A key step in the research process was identifying relevant local actors with expertise and direct involvement in the post-earthquake reconstruction and resilience-building efforts. This was facilitated through the established collaboration between the research team at Politecnico di Torino and the University of Camerino, which has been engaged in research on the Crater area for several years.

The first Future Workshop (FW) was conducted on 20 February 2024, bringing together a diverse group of 16 stakeholders, including institutional actors, economic and social sector representatives, and technical experts. These participants were subsequently invited to engage in the second and third Future Workshops to ensure continuity in discussions and the progressive refinement of research insights. Based on the contributions and interventions observed during these workshops, a subset of six local actors was selected for in-depth interviews. The selection criteria focused on ensuring diverse perspectives, capturing expertise relevant to Territorial Resilience, and prioritising local actors who strongly engaged with the research objectives. The final selection included: Three technical experts from different regions within the Crater: Marche (Camerino), Abruzzo (L'Aquila), and Lazio (Amatrice), two institutional representatives from Marche (Macerata and Ascoli Piceno), and one representative from the third sector, based in Camerino (Marche). These interviewees provided insights into governance structures, socio-economic dynamics, technical aspects of risk-management, and community-led resilience initiatives, offering a comprehensive understanding of the case study.

In addition to data gathered through workshops and interviews, a thorough desk study was conducted to support and validate the case study findings. The desk research focused on reviewing scientific literature on resilience, territorial governance, and post-disaster recovery strategies; policy documents and official reports discussed during the interviews and workshops, ensuring alignment with current institutional frameworks; and quantitative data from national statistical sources, particularly the Italian National Institute of Statistics (ISTAT), to analyse socio-economic and demographic trends in the Crater area. By integrating these diverse sources, the case study methodology ensured a robust and multi-faceted approach, capturing the structural challenges and opportunities for resilience-building in the Central Italy Earthquake Crater.

Table 3: Interviewees – Central Italy case study

Interview	Type of organisation	Region	Municipality	Typology of local actor
Interview 1	University Research Centre	Marche	Camerino	Technical
Interview 2	University Research Centre	Abruzzo	L'Aquila	Technical
Interview 3	Architectural Studio	Lazio	Amatrice	Technical
Interview 4	Municipal Administration	Marche	San Ginesio	Institutional
Interview 5	Civil Society Organization	Marche	Camerino	Economic/Social
Interview 6	Municipal Administration	Marche	Ascoli Piceno	Institutional

2.4 Latgale case study

The Latgalian case study had an overall focus on border areas, migration issues and related processes and institutions. The interviews were selected by following this initial focus and first following stakeholders that were most vocal in the process, such as NGOs and international institutions (UNCHR). As the topic of migration-related tensions is a sensitive one, it was ensured that the highest levels of confidentiality were considered throughout the interview process, and therefore these institutions are not explicitly mentioned. In addition, state institutions dealing with these issues were considered, including relevant ministries, local municipalities that have been most affected by the border developments, as well as institutions working in border control. In total, 6 interviews complemented by 5 personal communication consultations contributed to this case study.

Parallel processes focusing on Latgale region were extensively used, referring to stakeholders involved in Eastern Border Action Plan (title not precise) development and local stakeholder suggestions for that plan (Latgale planning region and other), as well as the CuRI initiative lead by WB and EC and their report on Latgale in particular. These actors had produced a draft on the outlook of the region which contributed extensively to this report.

Table 4: Interviewees – Latgale case study

Type	Description
Interview	represents a municipality from Latgale region
Interview	represents non-governmental sector
Interview	represents an institution in defence sector
Interview	represents non-governmental sector
Interview	represents a ministry
Interview	represents a ministry
Personal Communication	local resident of Latgale region, represents academic sector
Personal Communication	local resident of Latgale region, represents non-governmental sector
Personal Communication	represents a ministry

Type	Description
Personal Communication	local resident of Latgale region, represents academic sector
Personal Communication	represents non-governmental sector

2.5 Teruel case study

The desk study synthesised more than thirty documents and data sets. These included the following: 1. Official statistics: Instituto Nacional de Estadística (INE) population, labour-market and GDP series; Ministerio para la Transición Ecológica drought- and fire-risk atlases. 2. Regional and local plans: Comarca Comunidad de Teruel Strategic Plan 2023-27; Diputación Provincial subsidy strategy 2024-27. 3. Academic and policy literature on depopulation and rural resilience: Del Romero Renau & Escribano Pizarro (2013); García-Madurga et al. (2024); SSPA position papers. 4. EU and national recovery instruments: Spain’s “España Puede” Recovery, Transformation & Resilience Plan and the 100/30/30 digital-access programme.

In addition to written material, the case study benefitted from the interviews conducted in the context of the Future Workshops. The stakeholder were mapped and interviewees selected in the following manner. All interview and workshop participants were sourced and shortlisted by Jorge López Conde, an expert on territorial issues who works on the New European Bauhaus from a neighbouring province and who is deeply engaged in Aragonese and Teruel politics and European funding programmes. He was supported by the Arup case study team by validating the shortlist and handling the outreach. Thanks to this collaboration high-profile stakeholders were secured, including an MP representing Teruel Existe, as well as leading figures from key social, financial and academic institutions such as CITA, SUMA Teruel, the SSPA network and the University. After mapping the local “resilience ecosystem” (public sector, business/finance, knowledge institutions and civil society), individuals who sit at different governance levels (province, comarca, municipality, EU); represent the main thematic “capitals” of the case study (human, social, financial, natural, physical, political); and have practical experience with resilience or rural-revitalisation projects were prioritised.

Table 5: Interviewees – Teruel case study

Category	Affiliation
Policy and politics	Teruel Existe MP / Diputación Provincial
Policy and politics	European Parliament staff
Regional bodies and finance	Cátedra Despoblación
Regional bodies and finance	SUMA Teruel
Regional bodies and finance	SSPA network
Sector specialists	CITA
Sector specialists	Centro de Innovación Territorial
Academia and culture	University / writer
Academia and culture	Rural-development practitioner
Participants FW3	Teruel Existe
Participants FW3	SUMA Teruel
Participants FW3	Transición Justa
Participants FW3	CITA

Category	Affiliation
Participants FW3	Zaragoza University-online
Participants FW3	MALLATA
Participants FW3	Camara de Comercio

2.6 Upper Norrland case study

The Upper Norrland case study employed a qualitative research approach, utilising semi-structured interviews and a desk study through document analysis. The document analysis was conducted to gather comprehensive data and background information on various aspects, including the green industrial transition, demographic trends, and the industrial history of Västerbotten and Norrbotten, which together constitute Upper Norrland. A diverse range of sources was used for this analysis, including academic literature, grey literature, websites, and news articles.

An initial stakeholder mapping exercise was conducted to identify key actors in Upper Norrland concerning resilience. This mapping aimed to pinpoint participants for both the Future Workshops and the Case Studies. A diverse mix of stakeholders was identified, representing policy, public sector, and private sector from both Norrbotten and Västerbotten. In total, seven interviews were conducted. Prior to the interviews, an interview guide was developed to ensure that all relevant topics were covered. The interviewees included a mix of public sector employees, such as representatives from the Swedish Public Employment Services, a municipality association, the regional council of Norrbotten, Luleå municipality, and a representative from the Sami Council. These interviewees were carefully selected to provide their perspectives on the green industrial transitions and how these transitions affected various aspects such as employment, skills and workforce, regional development, land-use conflicts, reindeer herding, industrial development, and societal development. Specific societal issues discussed included housing, societal growth, and public services.

Table 6: Interviewees – Upper Norrland case study

Interviewee	Organization
1	Public employment Services
2	Association of Municipalities in Norrbotten
3	Region Norrbotten
4	EURES adviser
5	Region Norrbotten (civil servant from the region Norrbotten)
6	Mayor of Luleå Municipality and chairman of Luleå Business Region
7	Sami council

3 Budapest Functional Urban Area

3.1 Summary

The Budapest Functional Urban Area (FUA), located in the eastern part of Central Europe, encompasses the Hungarian capital and its surrounding settlements, forming the most populous and economically dominant region in Hungary. It concentrates further key national assets: strong human and social capital, major transport infrastructure and institutions. On the other side, innovation capacities and economic productivity remain below expectations compared to neighbouring similar metropolitan areas. Additionally, intense sub-urbanization and continuous governance stresses form oblivious challenges for the region.

Urban sprawl threatens natural assets, raises problems of liveability, and overburdens both physical infrastructure and public services. Parallely, systemic governance failures are a core source of vulnerability in the Budapest FUA, as they limit the capacity to address emerging crises. Fragmented, competitive, and politically divided governance, diverging functional and administrative boundaries, ongoing centralisation, and the insufficiency of multilevel governance are exacerbated by the lack of a common institutional framework for the FUA. Frequent regulatory changes and a weak place-based approach further undermine strategic capacity. In this challenging environment, systemic cooperation needed to develop for collective action, shared vision and trust between the numerous actors involved. Based on the issues explored, interviews conducted, and insights gained, we suggest a framework for strengthening the cooperation and commitment of different governance actors to bridge these acute gaps.

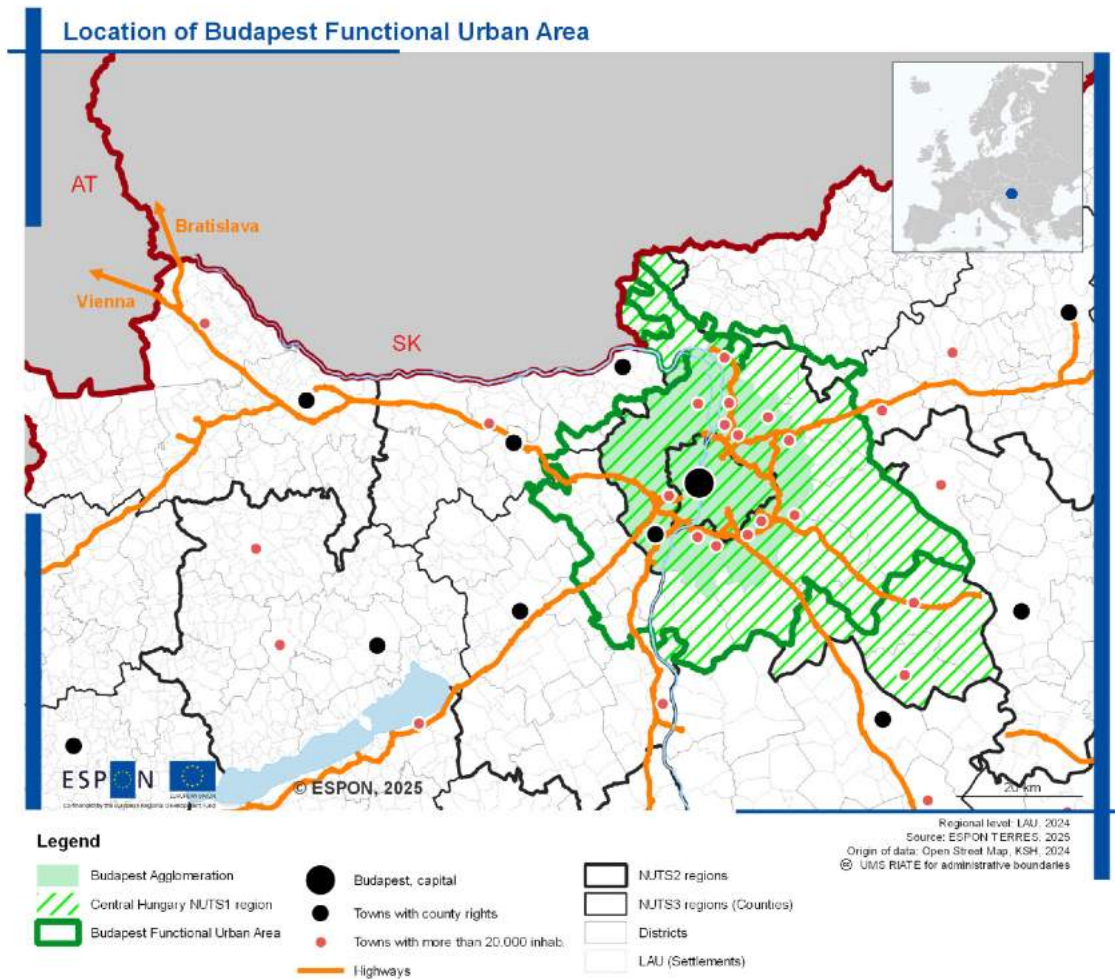
Our investigation further reveals valuable emerging initiatives, some promising forms of cooperation and a high added value of informal connections. The Budapest case highlights the role of proactive actors in resilience, and how learned inertia can be overcome in the face of crises. It is crucial to recognise that arising difficulties can pave the way for broader systemic adaptations, including the rethinking of local life and more flexible governance responses. In the Budapest FUA, several municipalities demonstrated coordination capacity, creativity, and the ability to act flexibly under pressure. In addition, hard governance tools, such as legislation, formulate an influential instrument that supports active responses to develop and enhance adaptive capacity through regulatory tools.

The Budapest FUA case study illustrates the urgent need for integrated metropolitan cooperation, sustainable planning frameworks, and enhanced coordination mechanisms. While informal networks and crisis-driven responses have played a role in resilience-building, long-term solutions require systematic reforms, regulatory and financing stability, and a commitment to balanced development. Strengthening the resilience of FUA-related governance is not only about administrative reform—it is a prerequisite for fostering liveability, equity, and sustainability in the region.

3.2 General description of the region

3.2.1 Location and spatial extent

The metropolitan area of Budapest is located in the eastern part of the Central European region, in the middle of the Carpathian Basin, along the Danube. It includes Budapest and its commuting zone, which, in addition to being the main political, population and economic centre of Hungary, is also can be considered as a European-level hub due to its role in organise economic relations in an East-Central-European context and in the international transport network: the trans-European transport routes linking Western and Northern Europe with the Balkans and the Middle East are connected in the region.

Map 1: Location of Budapest Functional Urban Area

Source: Authors' own elaboration. (The map is based on Act CXXXIX of 2018 on the Spatial Planning Plan of Hungary and Certain Priority Regions and Eurostat - Urban Audit (2022).)

The spatial framework of our case study is the Budapest Functional Urban Area (Budapest FUA), as it covers the most relevant municipalities to be treated together from a development perspective. This area concentrates 3 million inhabitants in approximately 7,626 square kilometres and consists of 199 settlements, including the capital Budapest, and 54 towns, one of which (Érd) is a town with county rights status representing a special category of settlements in the Hungarian territorial governance system. The boundaries of the Budapest FUA do not coincide with the NUTS 3 boundaries, nor do they match the boundaries of the Budapest Agglomeration, which is treated as a spatial development priority region in Hungary (consists of 81 settlements). Throughout this study we refer for the whole territory as Budapest FUA, while the suburban area or commuting zone covers the FUA excluding the capital. We indicate if a statement or institution covers different area by using Budapest agglomeration or metropolitan area when referring to the spatial development priority area, and Central Hungary in case of the NUTS 1 region covering Budapest and Pest NUTS 3 regions. Note that institutions exist on the Budapest agglomeration and NUTS 3 levels, but none for the FUA territory. In many cases, data are not available for the FUA or for the municipality level; in such cases, NUTS 1 (Central Hungary) and NUTS 3 (Budapest and Pest County) level data are used to characterise the region due to the significant spatial overlap.

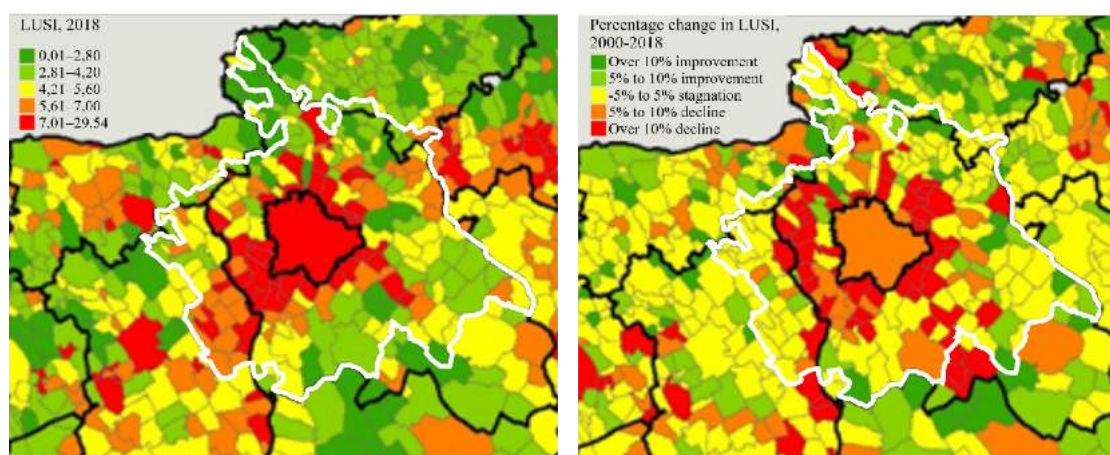
3.2.2 Natural assets and vulnerabilities

The Budapest functional urban area has a diverse and complex landscape and natural characteristics: landscapes with different morphologies, vegetation and soils meet in this area. The landscape is defined by

the Danube River, and also includes mountain ranges, hills and the flatlands of the Great Hungarian Plain, with forests, large, protected areas and many protected values, as well as significant thermal water resources. It has a transitional climate, characterised by moderately cool and moderately dry climatic features.

As in other European metropolitan areas, the socio-economic characteristics and the development-growth trajectory of the region are nowadays relatively less determined by natural conditions. The landscape of the Danube Bend and the mountainous area in the Western and Northern part of the region as well as the thermal waters are special natural assets for tourism, while the geographical location and the importance of the Danube as a waterway are also of particular importance in the economy and trade and transport links of the region. At the same time, the region is also facing a serious problem of loss of natural resources due to urbanisation and urban sprawl and growth. Urbanisation processes are leading to increased pressure on the landscape, the effective destruction and conversion of natural surfaces, the shrinking and threatening of forest areas, groundwater and drinking water supplies, and the growth of built-up areas and of land abandoned and taken out of cultivation for agriculture and forestry. The sustainability of land use is very poor and has also deteriorated significantly due to the growth of artificial surfaces (residential, industrial and commercial) in the capital and in the municipalities closest to it. In addition, the range of deteriorating areas has widened over the last half decade. The **scarcity of land suitable for new investment is also leading to increasing land-use conflicts**, with brownfield sites that have become underused or degraded difficult to exploit.

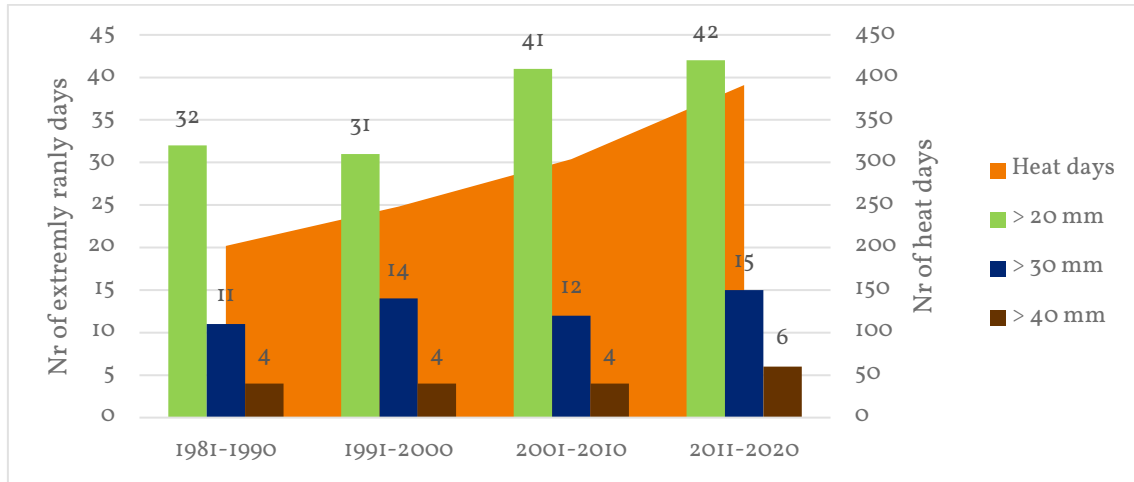
Map 2: Land Use Sustainability Index (2018) and its change 2000-2018, Central Hungary



Source: Hoyk et al 2021, p. 129 and 131.

It is a low-impact and low-vulnerability area compared to the urban areas of southern Europe, but the intensity of change in this urban area also clearly calls for the development of an adaptation strategy. Increasingly frequent and longer summer heat waves in areas with higher population density and more intensive built-up areas in the agglomeration have a greater impact and are becoming more difficult to bear. Urban heat island effect is becoming more frequent due to the increase in paved surfaces and built-up areas, which pose an increased health risk for residents in summer. Decreasing and more erratic annual rainfall makes agricultural activity more difficult, while the increasing frequency of heavy rainfall, thunderstorms and hailstorms is causing several damages. In built-up areas drainage systems are not prepared for the flash floods, while in hilly and lowland areas they lead to increased erosion, which poses a risk of serious environmental disasters, flooding and inland watering, as well as a reduction in soil load-bearing capacity and nutrient content due to rapidly and frequently changing groundwater levels.

Figure 1: Number of heat days and extremely rainy days (per decade) in Budapest, 1981-2020

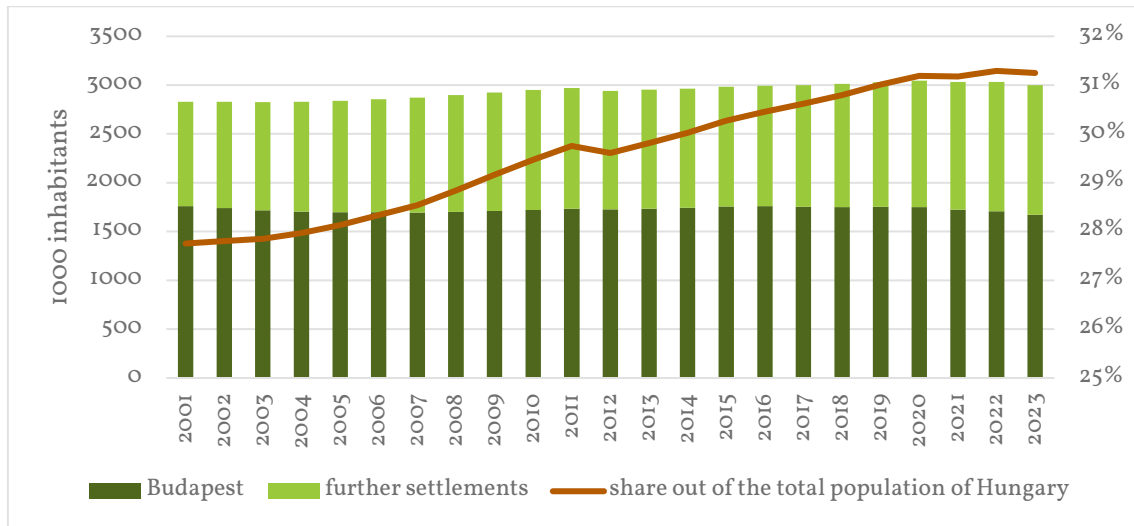


Source: Authors' own elaboration. (Data: *Heat days* - the number of days when the daily maximum temperature was 30 °C or higher, [HCSO Stadat Database](#); Extremely rainy days: The quantity of liquid or solid precipitation collected in the Oláh-Csomor type Hellmann rain gauge measured at 6:45 local time daily more than, [Hungaromet Meteorological Database](#))

3.2.3 Human capital and socioeconomic trends

The Budapest FUA is among the 20 most populous functional urban areas in the European Union. The total population of the region in 2022 was nearly 3 million, of which 1.67 million live in Budapest and 1.3 million in its commuting zone. The most important social characteristic of the Budapest FUA is the high concentration and slow but steady growth of human capital, together with an improvement in the quality of human resources.

Figure 2: Population of the Budapest functional urban area and its weight in Hungary, (2001-2023)



Source: Authors' own elaboration. (Data: HCSO, Dissemination Database)

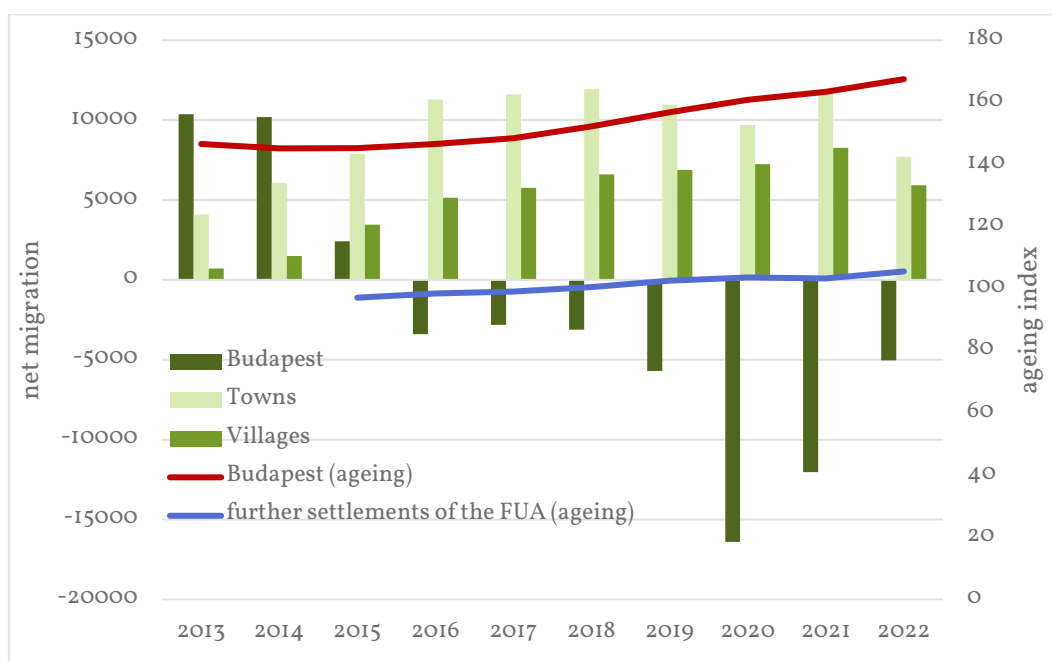
While the population of Hungary is rapidly declining, the population of the Budapest FUA has been growing for a decade, which mainly driven by internal migration. Although Budapest is the primary destination for international migration to the country and the share of foreign nationals is increasing (2011: 3.3%; 2020: 5.4%), the number of foreigners is not significant in international metropolitan context. However, stakeholders also mentioned the inflow of foreigners with different cultural attitudes as a potential risk. Population began to decline in 2022 and 2023, as the Covid pandemic and the government housing policy has

been increasing the attractiveness of more remote areas with rural character, but demographic trends have also contributed to this decline.

Budapest and its commuting zone are characterised by different population trends, which are well perceived by stakeholders. The population of the capital has been declining since 2016, while the population growth is occurring in the suburban area, affecting more and more settlements by increasing the population and the area of the commuting zone; the population of the commuting zone has increased by nearly 10 percentage points over the last decade. **Ageing is much more pronounced and is accelerating in Budapest city,** where the proportion of older people is high by national and EU standards, and immigration can no longer compensate for the natural decline. In addition, migration is not only from other parts of the country, but also from the capital towards the commuting area.

Over the last decade, and especially in the 2020s, **housing prices and cost of living in the capital** have increased significantly, while rural areas have become more attractive for both out-migrants and in-migrants from other parts of the country. Housing prices has also exploded in villages, boosted by government policies to support the construction and purchase of rural housing for young families with children, inherently aimed to prevent rural depopulation and increase the willingness to have children from 2016 onward. The in-migrant population is predominantly young and have young children, so the migration to urban areas will increase the share of the working-age population and mitigate ageing. **Overall, the amount of human capital available in the FUA is expanding, but at the same time the population of the capital is shrinking and ageing, and the number of young people is declining.**

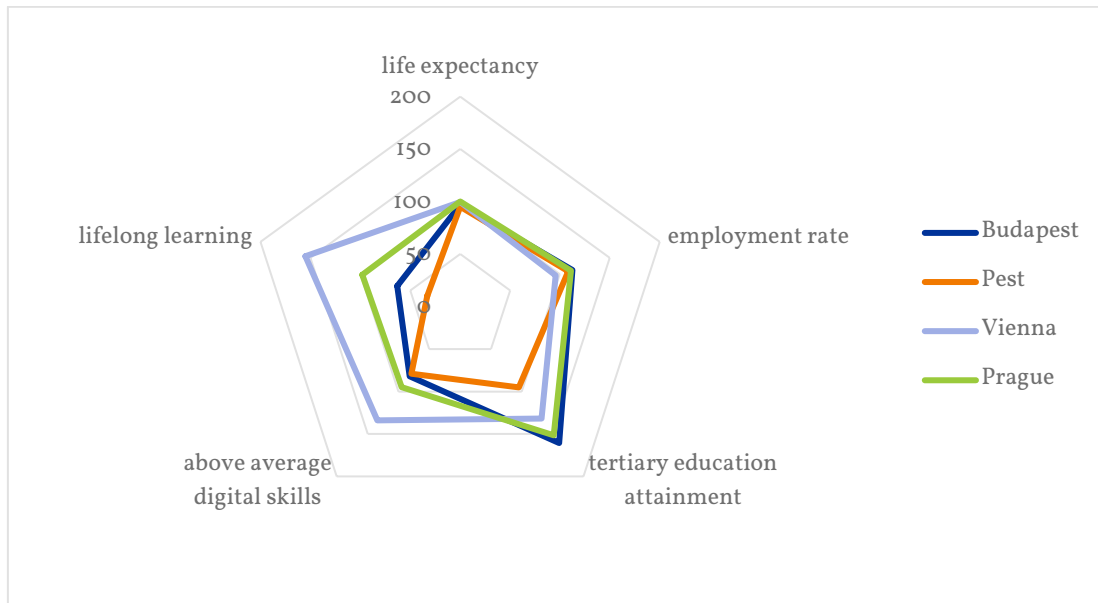
Figure 3: Migration balance and ageing in the Budapest Functional Urban Area, 2013-2022



Source: Authors' own elaboration. (Data: HCSO, Dissemination Database)

The quality of human capital in the Budapest FUA is outstandingly good and improving within Hungary, and also above-average in EU context. The accessibility and quality of higher and specialised elements of the health care system and educational infrastructure are excellent in the FUA, in comparison to other parts of Hungary. **Half of the country's intellectual labour force works in the FUA (2023: 54%).** These favourable conditions are further enhanced by the influx of a more skilled and younger labour force, which at the same time **represents a brain drain for rural regions.**

Figure 4: Quality of human capital in Budapest, Pest County, Vienna and Prague compared to EU-27 average (=100), 2022-2023



Source: Authors' own elaboration. (Data: [Regional Innovation Scoreboard](#), country profiles Note: Vienna: lifelong learning and digital skills approached with data released to Ostösterreich)

Vulnerabilities/sensitivities related to human capital can be captured in two approaches in the Budapest FUA, underpinned by stakeholders as well:

Budapest urban area lags other large cities in the macro-region in factors considered key to building resilience; forward-looking capacities to anticipate future conditions and trends are weak.

- **Skills problems.** There is little scope in public education to develop skills that provide a competitive advantage (creativity, collaboration, problem-solving). Participation in vocational/professional and lifelong learning is low, and digital competences lag well behind those of Vienna, Warsaw and Prague. Atypical employment is low, with low participation of under-24s, part-time workers and retired people.
- **Poor health status.** Life expectancy at birth is not high and mortality statistics are unfavourable by European standards, with particularly high cancer mortality rates. The quality of healthcare infrastructure unsatisfactory and its development is slow. The state of facilities, equipment, limits to the financing and shortage of specialists in primary care are also problems. Opinion polls highlight that the state of health care is one of the main problems identified by residents. Access to preventive and diagnostic health services is difficult and institutional support for home care is lacking.
- The capital is experiencing a **housing crisis** for several reasons. Among others, rent and house price growth is outpacing average wage growth, but there is no regulated rental housing market nor sufficient rental housing.

The regional average masks major regional and social differences:

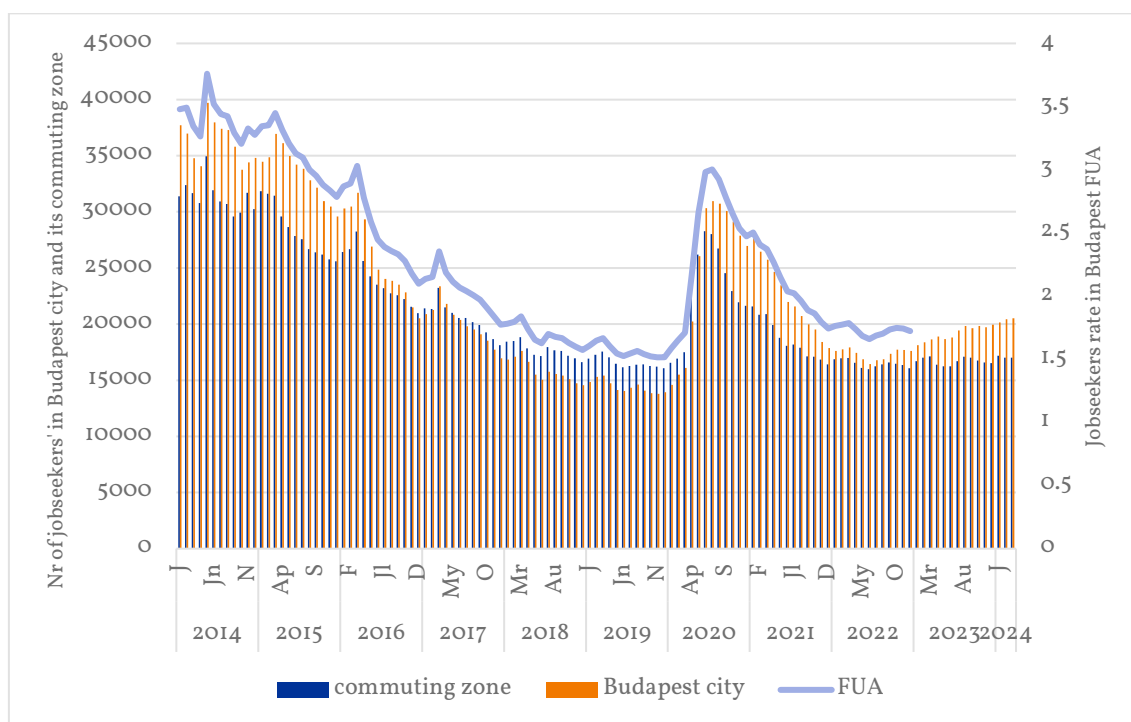
- **In the commuting zone, the quality of human capital remains well below the average for the FUA, although** indicators are improving in several areas.
- Overall access to education, health and social care is relatively good in the suburban area, but **there is a strong dependence on the capital for education and health care.** In fast growing municipalities, the increase in the availability of social, educational and health services locally or nearby is not always proportionate, which generates commuting for these services. The number and capacity of public education institutions outside the capital is low. While the suburban municipalities are facing a shortage of nursery and kindergarten capacity, in Budapest the closure of these institutions is causing tension, but as pupils grow older, capital institutions become increasingly attractive.

Nevertheless, stakeholders perceive that the quality of education also declines as distance from the capital area increases. As regards the health care, general practitioners have an above average patient flow in the commuting zone. Specialised health care is only available in the capital, and most higher education institutions are concentrated in Budapest; there are only two other towns with a lower-level hospital and only one has a university (Gödöllő). Vulnerability is mitigated, however, by the fact that sub-centres are becoming more functionally strong, which may reduce the centrality of the greater region in Budapest (Szabó - Igari - Kiss 2019., 13.).

- **Segregation and poverty.** Not only the middle class, but impoverished social groups are also being pushed further and further away from the capital to peripheral areas beyond the agglomeration, according to workshop stakeholders. The risk of poverty affected only less than 10% of the population in the capital, which is excellent in European comparison, but the ratio in Pest country is almost 12% (2023).

Employment is almost full (employment rate was 79% in 2023 and the trend is increasing); the unemployment rate and the proportion of job seekers are low and did not increase significantly during the COVID pandemic. The economic downturn triggered by the pandemic and the Russo-Ukrainian War has put a slight brake on employment growth, but unemployment increased only slightly for a few months, thanks to the financial reserves in businesses and their capacity for resilience.

Figure 5: Jobseekers in Budapest FUA, (2012-2023)



Source: Authors' own elaboration. (Data: National Regional Development and Spatial Planning Information System ("TEIR"))

Regarding the labour force, the problem is labour shortage. Job vacancy rate is especially high in Budapest (3,3% in 2022, while the EU average was 3%). In the suburban area, new investors are taking the labour force from one another. Interviewed stakeholders report that while the skilled labour force is growing in the commuting zone, limited workplace is available for them locally, and lack of space and infrastructure is a barrier to new businesses, further increasing commuting. In line with the international trend, there is a shortage of health workers, teachers, highly skilled and qualified workers, and in some places even of unskilled workers, throughout the FUA. Labour market slack and NEET rates are also very low by international standards. As in other metropolitan areas, the growth of teleworking is relatively rapid due to favourable infrastructure conditions and a high share of teleworkable sectors, especially in the commuting zone. However, **atypical forms of employment (e.g. part-time employment) are not widespread and were identified lacking by stakeholders.**

3.2.4 Social capital

The quality of social capital in and around Budapest differs according to the types of the capital and depends on whether it is compared to the European average or the Hungarian regions. **Overall, social awareness and knowledge is already seen by stakeholders as a valuable asset in many respects and is clearly improving.**

Even in the commuting zone **the willingness to participate is high relatively to other regions of Hungary.** Participation in parliamentary and municipal elections is relatively high, there is a more intense social activity and civil engagement in the FUA, and the number of people employed by "classic" NGOs and the size of their revenues have increased somewhat. Several community organization, local associations and NGOs play active roles in social, economic and cultural life. The high number of entrepreneurs also shows the dominance of contact and participatory capital compared to other Hungarian regions (Pálfi 2019, p. 153). On the other hand, **participation rates in EP elections and volunteering are remarkably low compared to the EU average.** Budapest lags all the Central-European FUAs in terms of EP participation rate, some of them by a large margin. Both Warsaw, Vienna, Prague and Bratislava have more volunteers than Budapest FUA. (More than 50% of the Warsaw FUA population volunteers, compared to only 10% in Budapest.) Local governments of the capital and the commuting zone have also recognised the **need to strengthen public participation in general** and to involve social organisations more actively in monitoring needs, developing and implementing policies. Furthermore, Integrated Urban Development Strategy of Budapest highlighted in 2021 that women are underrepresented in both political and both social and economic decision-making compared to what would be expected from their education and demographic profile. As stakeholders have reported, **there are good examples of participatory planning; social awareness and knowledge is an increasingly valuable basis for local decision-making.** Newcomers to the suburbs are often the driving force of the communities. They are better represented and also aware of local values and needs.

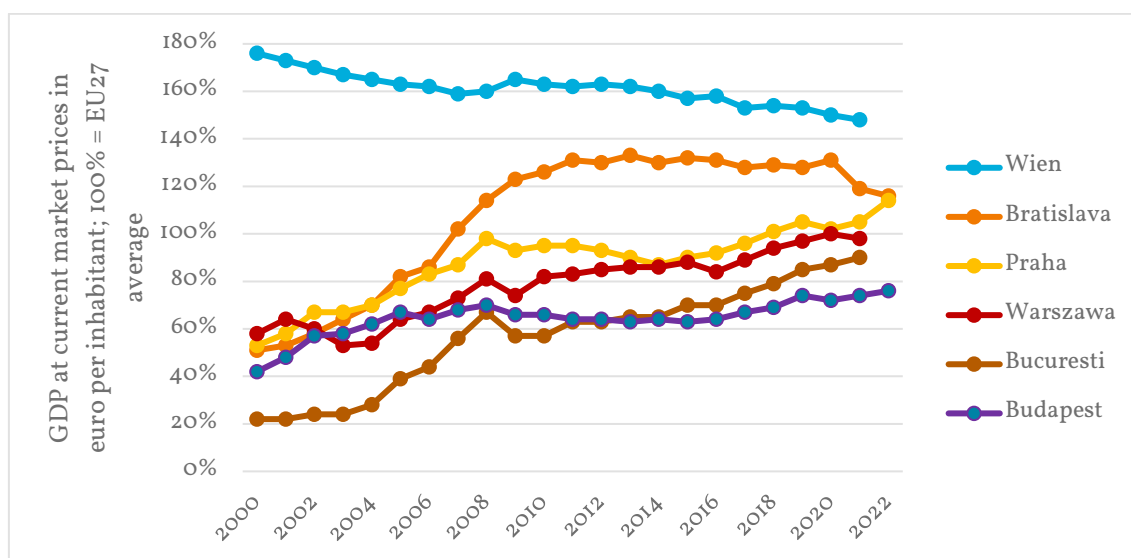
Regarding trust, which is an essential element of social capital, **interpersonal and institutional trust is relatively high within the region and above EU average.** According to Eurofound survey (Eurofound-ETF 2022) trust in people is slightly; trust in the European Union is much higher than the EU average or in the surrounding countries. Trust in national government is also higher than the average, although it is somewhat lower than in Czechia and Poland. During COVID pandemic trust in authorities, pharmaceutical companies and science were also slightly above European average. Regional data of the Eurobarometer surveys ([Eurobarometer 2022, 2024](#)) show, Central Hungary's trust in national governance authorities is in line with the EU average, at 56-58%. Compared to other Hungarian regions, the residents of Budapest and to some extent Pest County, are more distrustful of the national government and tend to trust more in European Union, which fits in with the general Eastern European picture. In 2015, Budapest had the 8th highest overall level of trust and the 8th highest level of trust in institutions among the 58 largest cities in the EU but was the 19th most corrupt city in terms of corruption (Weziak-Bialowolska – Dijkstra 2015). Also, the **corruption pillar of Quality of Governance index is relatively weak in the FUA**

In Hungary, relational capital is closely related to economic status: poorer people have less relational capital. **Lack of relational capital (relational poverty) is less common among Budapest residents** than national average (Albert-Hajdú 2016).

3.2.5 Financial capital

The Budapest FUA is not only the economic centre of Hungary and the wider macro-region, but also a Gateway Region, **one of the hubs of the global economy:** in terms of economic output (GDP) it is the 4th largest economic concentration in the region after Vienna, Warsaw and Prague. Despite economic growth rates above the EU average, in the 2010s it did not move ahead in the ranking of European metropolitan areas. Compared to its potential to enhance the country's macro-regional role, its actual contribution is low; and is struggling with the problem of development trap. In terms of economic performance (GDP per capita), Budapest metropolitan region (i.e. Central-Hungary) is in an **average, stagnating position compared with other European city-regions and regional competitors with similar endowments**, and is clearly behind the metropolitan regions of Vienna, Prague and Warsaw, and even Bucharest.

Figure 6: Economic performance in metropolitan regions of Budapest and neighbouring capitals, (2000-2022)



Source: Authors' own elaboration. (Data: Eurostat Regional Database, met_1or_3gdp table; last update:28/02/2024 23:00)

Within the country, looking at certain high value-added activities and qualitative factors of production (FDI, innovation capacities), concentration processes tend to prevail. While both output and productivity in Pest County (NUTS3 region overlapping with the commuting zone of the FUA), remain well below the national and EU averages, **the dividing line is now more between the metropolis area as a whole and the rest of the country than the capital and the countryside**, since growth taking place in the ever-wider suburban zone of the capital.

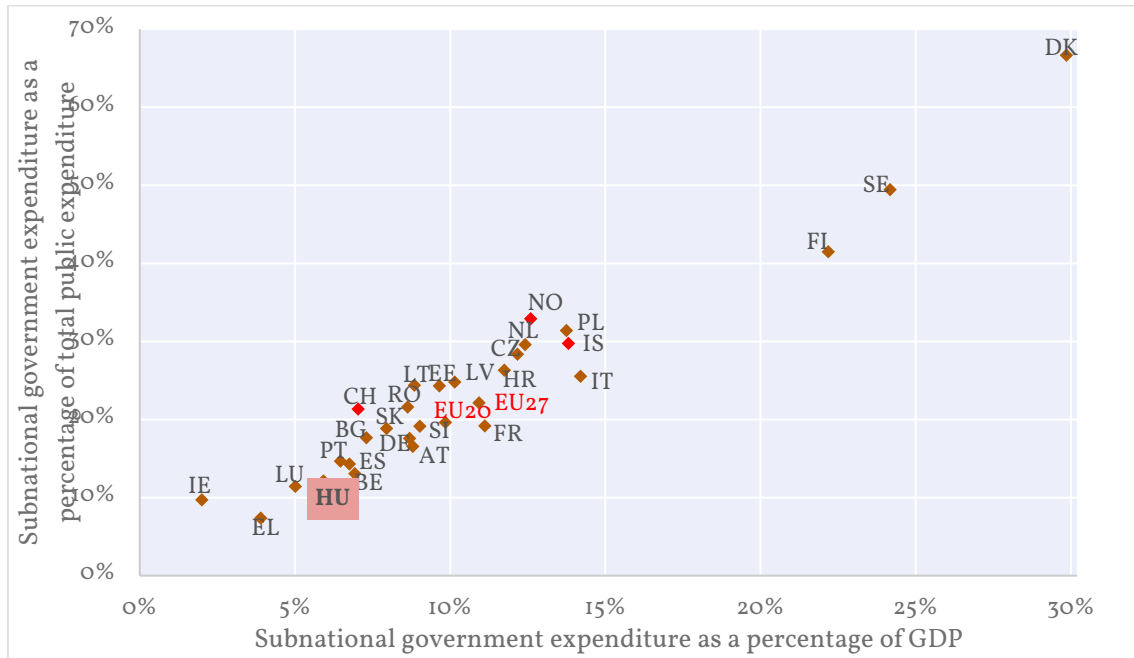
Overall, private sector resources are particularly abundant in the FUA compared to the public sector; social, economic and territorial processes are mainly driven by private capital. Not only FDI, but also domestic business capital and investment are highly concentrated in Budapest, including the innovation capacities of the business sector. Although Budapest is the primary destination, Pest County also benefits from these capacities at an above-average rate.

In terms of public financial resources, the Budapest FUA is on a rather tight budget:

- Although structural funds from the European Union play a significant role in Hungary, the **Central Hungary region benefited from these funds to a limited extent.** Firstly, as its GDP per capita values was above 75% of the EU average in NUTS 2 region of Central Hungary (which contained Budapest and Pest County), ERDF was not available. The central government has sought to alleviate the lack of resources by announcing a Compensation Programme for Pest County for the period 2014-2021 with HUF 90 billion of domestic funds, and by designating Pest County as a separate NUTS 2 region from 2016, so that the funds are in theory available once the county falls below the threshold. Secondly, the amount, thematic focus and aid intensity of EU support for direct economic development projects in the region is narrow and have decreased significantly in the period 2014-2020. Thirdly, significant part of EU sources (both Structural Funds 2021-2028 and RRF) are not, or only partly available due to the infringement procedure. The availability of these resources is still pending in August 2024.
- For long decades, the challenge of regional development in Hungary has been the excessive domination of Budapest, which the current **central government is trying to remedy by generating and prioritising development in rural areas**, outside of the Budapest FUA.
- However, it is important to put emphasis on the fact that **the room for manoeuvre of regional governments (both in the local municipalities and county governments) is narrow.** This is illustrated by the fact that expenditure-to-GDP of local governments are below the EU average, composing 6.5% of the total 51.6% general government expenditure, which is not only low compared to Scandinavian countries (20-30%) with a decentralised governance system, but to European average

(11%) and to neighbouring countries (9-14%) as well. **The central government transfers few resources to local levels**, and the amount of these resources is constantly being reduced, with the withdrawal of resources affecting wealthier local authorities, thus especially the capital and its sub-urban areas.

Figure 7: Subnational government expenditure as a percentage of GDP and total public expenditure in OECD countries, 2022



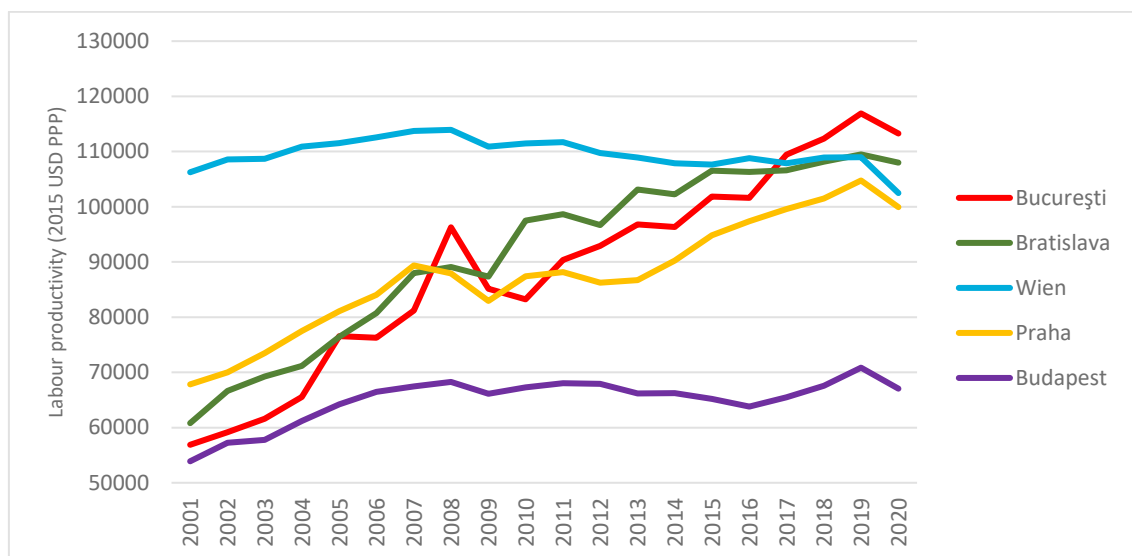
Source: Authors' own elaboration. (Based on [OECD Regions and Cities at a Glance 2020](#); updated with 2022 data according to Eurostat (GDP) and OECD (government expenditure) databases)

3.2.6 Economic structure

Budapest functional urban area has a **highly diversified economy**, which is dominated by the services sector. The region is also characterised by a significant share of financial and insurance activities, infocommunications, research and development, creative industries and start-ups; and the weight of trade, accommodation and food services is high and growing. Within industry, the food, machinery and chemicals sectors are the strongest, while the pharmaceuticals sector is also performing well internationally. In the commuting zone, the service sector is also dominant, with a higher share of logistics activities. In recent years, the manufacturing sector has been a driving force of the economy in parts of Pest County, with outstanding growth. A higher proportion of agricultural, construction and manufacturing enterprises is found in less developed areas further away from the capital, where business density is also lower.

Problems in the economic structure of the FUA are indicated by the lower-than-expected growth dynamics, stagnation in labour productivity and a lag in international competitiveness rankings. (All of this has been confirmed by interviewees and participants of the Future Workshops as well.) Based on the EU Regional Competitiveness Index 2022, Budapest and its commuting zone (Budapest and Pest County) is 93rd out of 234 regions, behind of the commuting zones of Vienna (33rd), Prague (46th) and Warsaw (35th).

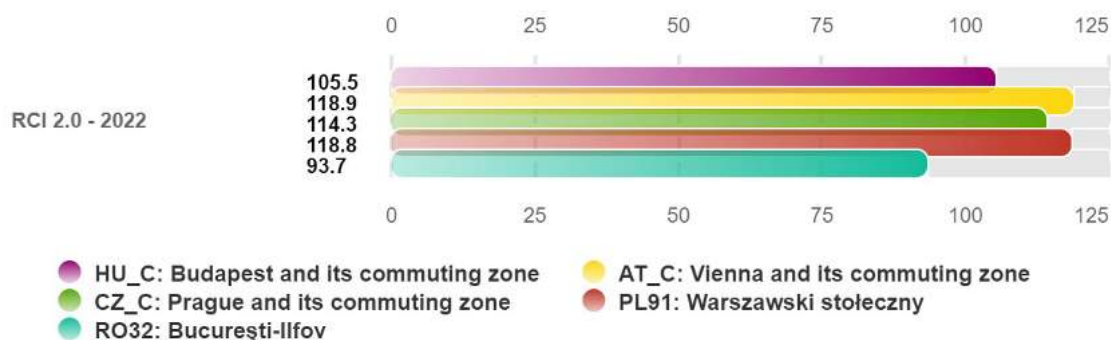
Figure 8: Trends in labour productivity* growth in functional urban areas of Budapest and neighbouring capitals, (2001-2020)



*Labour productivity is equal to the sum of Gross Value Added, expressed in USD at constant prices and PPP (base year 2015), divided by the sum of total employment in regions.

Source: Authors' own elaboration (Data: [OECD Atlas of Regions and Cities](#))

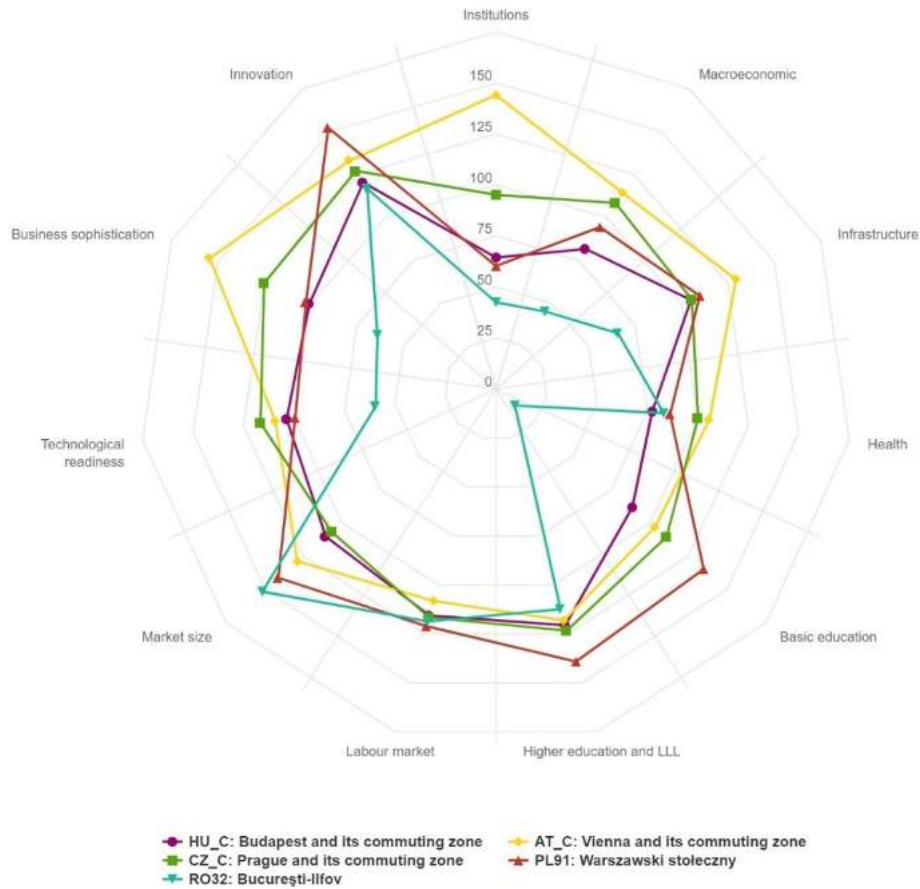
Figure 9: EU Regional Competitiveness Index 2.0 in regions of Budapest, Vienna, Prague, Warsaw and București, 2022



Source: [DG REGIO – DG JRC 2.0 - 2022](#)

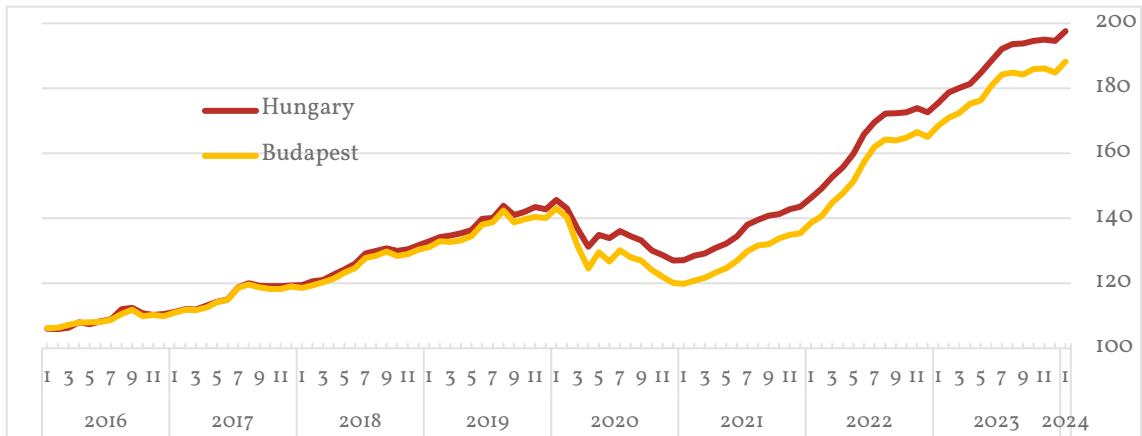
In addition to macroeconomic problems, the reasons for the lag include weak institutional conditions and innovation capacities. Although start-ups play a dominant role in Hungary, the SME sector in general is characterised by a lack of business innovation, low levels of digital technologies and a lack of collaboration, which leads to low productivity. **Wider take-up of digital tools is needed, for which, according to one of the workshop participants, it is essential to improve the digital absorption capacity of society.**

Figure 10: Component of Regional Competitiveness Index 2.0 in regions of Budapest, Vienna, Prague, Warsaw and Bucuresti, 2022



Source: [DG REGIO – DG JRC 2.0 - 2022](#)

In terms of expectations for the future and resilience, **tourism industry should be highlighted** as a dynamic sector with especially more room to grow, also in the more remotes part of the FUA, according to the intermediate level governance actors. Budapest accounts for nearly 60 percent of Hungary’s international tourist traffic and already ranks among the top 15 European tourist destinations; international travellers spent 8.2 million nights in commercial accommodation and 5.9 million nights in private accommodation rented online in 2023, which means that flat owners also have a particularly high share. But beyond the benefits of dynamic growth, **there are also negative effects: overtourism, gentrification and worsening housing crisis.**

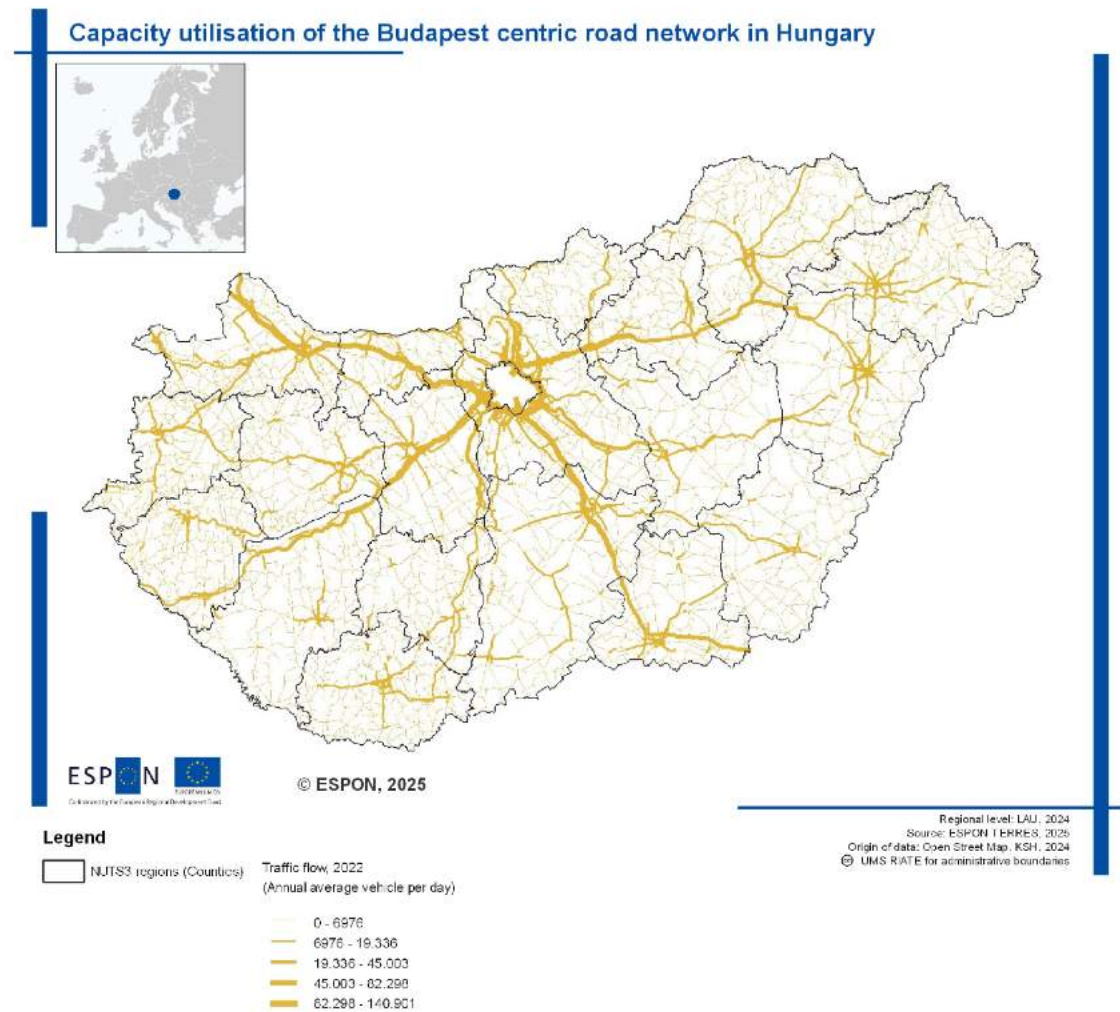
Figure 11: Nominal rent index in Budapest and Hungary, 2015=100%

Source: Authors' own elaboration. (Data: [HCSO](#))

3.2.7 Physical capital

Budapest area is an international transport and logistics hub linking Western Europe with the Balkans and Eastern Europe. The good functioning of the transport infrastructure is hampered by the capital-centricity of the network, its radial nature, which lacks spine axes. The geographical barrier of the Danube is a particular challenge, with Budapest being the only significant crossing point, furthermore the M0 motorway ring around the capital is not fully closed. It is the **bottleneck through which all transit traffic between the West and the Balkans passes.**

Map 3: Capacity utilisation of the Budapest centric road network in Hungary



Source: own elaboration

Transit traffic is also significant, the most acute capacity shortages concern suburban passenger transport. Suburban traffic accounts for 76% of passenger traffic arriving or departing in Budapest. A general problem highlighted also by stakeholders that **development of the transport network has lagged the rapid growth of the agglomeration, caused by commuting and transit through traffic.**

- Congestion is commonplace, the **quality of secondary roads is poor, and the heavy strain on motorway pavements results in high maintenance costs.** The increase in the number of vehicles is expected to continue. Parking is an increasingly critical issue; P+R capacity development is far behind demand.
- The development of the fundamentally **obsolete railway infrastructure** has been even more lagging behind. The condition of the tracks is critical in many places, the rolling stock is outdated, significant delays are commonplace, Hungarian Railways (MÁV) is facing organisational problems. Despite improvements, the throughput capacity is inadequate for the volume of transit traffic in many places and does not provide commuters with a suitable alternative to road transport. The integration of urban and suburban fixed rail networks - the development of non-stop connections - and the renovation and extension of the HÉV network are needed.
- The **public transport needs to be expanded and improved**, its insufficiency is creating further motorisation pressures. A further significant change in mobility needs is expected with the rise of teleworking on the one hand, and two-way commuting on the other. 59 percent of the Budapest people use public transport to go to work; 29% drive a car and 11% walk. 42 percent of the people of

Budapest use public transport day by day and 73% at least once a week. In terms of public transport, some settlements are well served, while others are completely lacking.

- The share of pedestrian and cyclist traffic is increasing, but there is a lack of redistribution of available public space to better and safer serve it.

Air transport is inherently concentrated to Budapest. Liszt Ferenc Airport has become a regional hub in recent years, although it is a sensitive industry. Making its accessibility, which is only possible by road in the absence of an airport railway, is a priority. Noise pollution under the air corridor and near the airport is high, which is a constant source of conflict. The importance of water transport and freight transport is low nationally, the largest port in the country (the free port of Csepel) is in the area, which is mainly important for the import of goods.

Climate change, urban sprawl and high population growth rate are also challenging for public utilities. The publicity in the media and stakeholders amplifies the importance of the **shortages in utility supply, drainage ditches and wastewater networks** need to be improved, and the **public water network is often outdated** in many municipalities of the commuting zone. Stakeholders see it as a problem, that the costs of amortisation and network upgrades are not covered by the income of the maintainers. In the absence of drainage ditches, rainwater from many houses is discharged into the street or the sewerage system, which means that it is not used as greywater and overloads the sewerage system during wet periods. The overall problem is the **lack of wastewater treatment in gardens of the outskirts' areas**, where several properties are residential despite the land is not zoned for residential use, and have a negative impact on the environment. Regulatory responses are the main response.

The sensitivity of the energy supply is relatively high because of centralised network, the dominance of fossil fuels, low share of renewables. Green transition can build on past progress but needs to accelerate, which will require more electricity supply from low-carbon sources. It emerged as a land use conflict that large-scale solar power plants installed mainly on arable land, and legislation prefers nuclear energy investments over renewables. For a long time, stakeholders have not considered enough investment in network development.

All in all, the improvement of road and rail infrastructure, and utility supply is still key element not only in local development policy but a hot topic also in public debate. Central government policy keeps costs low for residential users, and at the same time limiting service providers from making forward-looking improvements. **Development is capital-intensive and requires coordinated action by central government.**

3.2.8 Institutional, governance and policy frameworks

The governance system in Hungary is centralised, the main actions and interventions, policies are set basically by the central governance, and the largest part of local public authorities are deconcentrated units of the central governance. Sectoral policies controlled by central government are much relevant, and the importance of territorial development policy was decreasing till 2022. Typical, that in case of any shock or crises centralised control increases, such as happened during the pandemic, when decisions being taken above the municipal and county level.

Regarding subnational governance, there are two levels: (1) municipal or local governments, including villages, towns, districts of the capital and Budapest capital, have more importance; while (2) intermediate level counties (which means NUTS 3 level regions in Hungary) have more limited range of tasks compared to local municipalities. Counties are responsible for spatial and rural development, spatial planning and coordination in their territory, but the biggest towns (county seats) are not included. All in all, a consensus statement in the literature (e.g. Szegvári, 2022, Pálné Kovács 2024, Szabó 2023, Hegedűs Novoszát 2018), that there are **low levels of policy responsibility and tasks at sub-national levels**, the room for manoeuvre of both municipal and intermediate level governments is relatively narrow, which is often criticised by local stakeholders (as was the case during the conducted workshops and interviews).

The structure of subnational level governance system is not conducive to good governance in the Budapest FUA:

- Municipalities are the main beneficiaries of development policy. This **relatively stronger, local level of subnational governance** system is fragmented, since the density of settlements is very high. The resource allocation system tends to make the relatively strong municipalities competitive rather than cooperative. **Formalised (institutionalised) horizontal cooperation is more occasional and often superficial**, not only among municipalities and districts, but also between different counties, or the counties and Budapest. Moreover, urban-rural linkages are particularly problematic, e.g. counties do not include the biggest cities (towns with county level).
- **The intermediate level governance is relatively weak, so the spatial coordination is difficult and weak.** In the case of Budapest, the local government system of the capital is two-tiered, with the Municipality of the Capital and the municipalities of the districts operating in a juxtaposed relationship, which results in many problems in operational practice, due to differences of interests (e.g. Kardos 2018). The model based on the principles of "strong districts - weak capital". Furthermore, there is no subordination between the two subnational (municipal and county) level of governance; counties are becoming less and less important.
- Although stakeholders, experts and decision-makers agreed that functional urban area should be treated together, **Budapest FUA has nor common governance, neither any existing institution yet**, there is no careful "owner" of the region. Even Budapest capital and Pest County are separated at NUTS 2 level, furthermore Pest County doesn't fit to the commuting zone of Budapest, and several settlements of the FUA belongs to Nógrád, Fejér or Komárom-Esztergom counties.
- **For a longer or shorter period, some institutions with more or less importance try to coordinate developments in the Budapest agglomeration priority area**, but they either lack resources, authority or responsibility, or only coordinate sectoral (e.g. transport) developments. Their territorial coverage does not fit with the FUA, they do not provide a stable background for long-term and coherent development.

All things considered, there are **no sophisticated and well-functioning multi-level territorial governance structures** in the Budapest FUA; furthermore, cooperation of the municipalities with the deconcentrated institutions of central government can be enhanced. The weakness of the governance structure is emphasised in several studies (e.g. Szegvári, 2022, Pálné Kovács 2024, Szabó 2023, Hegedűs Novoszáth 2018).

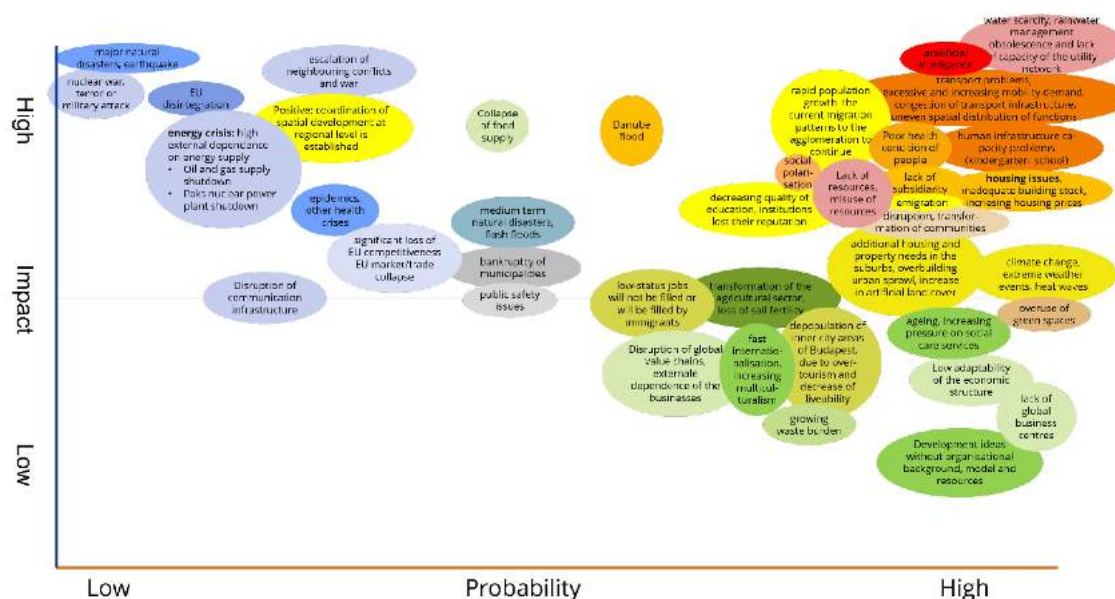
Informal vertical governance systems work relatively well. Local actors can negotiate with the constituency's member of parliament, who acts as a link between central government decision-makers and local government, in case participants are on a common political platform. Constituencies are not aligned with administrative boundaries. Municipalities do not usually coordinate here either, but the constituency chairpersons may ensure coordination between municipalities. However, these channels operate only partially and possibly intermittently, depending on the results of parliamentary and municipal elections, in case participants are on a common political platform. The cooperation and coordination in planning at regional level is considered by stakeholders as missing or weak characteristic of the FUA. Over the last decade, the vast majority of Budapest and its districts have been governed by the opposition, with their strategies and policy implementation not supported by central government, while the lobbying power of the agglomeration was stronger.

Another model of governance and development of the FUA by the central government is that a member of the central government has acquired the political capital to establish a government body or institution within the central government. However, the erosion of the personal political capital can result in the disappearance or reorganisation of the institution as well and can lead to governance shock.

3.3 Territorial shock/stressor/crisis

The Budapest Functional Urban Area has faced and will face (see riskmap indicating the perceived probability and impact of identified factors by workshop participants) many different types of crises and stresses due to its size, its embeddedness in the globalised world, its dominant role in Hungarian economy and society and its diverse socio-economic structure. Therefore, in the following, we will overview the stressors without claiming completeness, focusing on the phenomena that are most challenging to spatial resilience: urban sprawl and governance gaps.

Figure 12: Risk map of Budapest FUA



Source: own elaboration based on Future Workshop results held in Budapest FUA

3.3.1 Governance stressors

Governance failures make it difficult to cope, adapt or transform in the face of almost any crisis or stress, i.e. **governance itself is a pervasive stressor**. Not just scientific community, but experts and stakeholders operating on the ground, participants of Future Workshops and almost all interviewees representing different level of territorial governance structure and different parts of the FUA were agreed on the relevance of it. The table below provides an overview about sub-types of governance stressors, which are interrelated, and the effects of policy responses are complex and diverse.

Table 7: Sub-types of governance stressors in the Budapest FUA

Initial trigger	Impact of stressors	Policy response	Impact of the policy response
(1a) fragmented and competitive territorial government system since the change of regime	<ul style="list-style-type: none"> • conflicts among municipalities, districts and the municipality of Budapest city • lack of interest on horizontal cooperation among municipalities; weak urban-rural coordination • increasing inequalities, government failures in many municipalities (indebtedness) • juxtaposed relationship between the capital and its districts 	<ul style="list-style-type: none"> • encouraging territorial development as associations • local level cooperation along projects 	<ul style="list-style-type: none"> • limited or temporal impact in horizontal cooperation
		<ul style="list-style-type: none"> • assumption of municipal debt by central governance • centralisation (see as stressor 3) • redistribution of municipals' revenues at subnational level (see as stressor 4) 	<ul style="list-style-type: none"> • mitigating governance failures and inequalities • faster and operational decision-making • (negative impacts: see stressor 3 and 4)

Initial trigger	Impact of stressors	Policy response	Impact of the policy response
<p>(1b) strong political division (in parallel with centralized and informal governance structures)</p>	<ul style="list-style-type: none"> • weak horizontal cooperation and dialogue between decisionmakers among political affiliation; • vertical coordination of central governance in the FUA is incidental and not systematic • formal forums for reconciliation of interests are less relevant • poorly functioning multi-level governance • change in persons of political decision-makers can lead to governance shocks 	<ul style="list-style-type: none"> • informal channels in information flow • establishing institutions and governance bodies for central coordination in Budapest urban zone 	<p>professional coordination facilitating the planning and implementation of priority projects in the region</p>
<p>(2) no intermediate level governance for the Budapest large urban area (and generally weak intermediate level governance)</p>	<ul style="list-style-type: none"> • lack of strong institutional background for comprehensive development; • less efficient horizontal coordination between Budapest and its metropolitan area, among districts and municipalities; • poorly functioning multi-level governance 	<ul style="list-style-type: none"> • Budapest Agglomeration priority region (by law, 1996-) • Budapest Agglomeration Development Council (BAFT), (re)established in 2022 	<p>low impact so far (mainly planning and reconciliation)</p>
<p>(3) centralisation</p>	<ul style="list-style-type: none"> • less public financial sources for operation and development at local level; • further weakening intermediate and local level governance's responsibilities and competences, instability • poorly functioning multi-level governance 	<ul style="list-style-type: none"> • searching for different types of resource alternatives (PPP solution, applying for funds) at local level • raising awareness at local level • enhance information flow to central governance (Central Hungary Economic Development Zone) • deconcentration 	<p>temporary and limited effects</p>

Initial trigger	Impact of stressors	Policy response	Impact of the policy response
(4) redistribution of municipalities' revenues (diverting resources from local governments)	<ul style="list-style-type: none"> postponement developments and investments budget problems 	<ul style="list-style-type: none"> legal debates 	unique and sporadic success, (no overall impact)
(5) continuous change of municipal/governance regulations	<ul style="list-style-type: none"> fear of transformation, mistrust 	no response	-
(6) Budapest and Pest County formed one NUTS 2 regions until 2016	GDP per capita is over 75% of the EU average in Central-Hungary region, hence Pest County were no benefiting from ERDF resources	<ul style="list-style-type: none"> Pest County Compensation Programme 2016-2021; Pest County separated NUTS 2 region since 2016 	alleviating resource constraints
(7) decreasing importance of territorial development policy and space blindness of sectoral policies	<ul style="list-style-type: none"> weak coherence among different sectoral policies lack of stability of territorial development institutions 	<ul style="list-style-type: none"> renew the regional development approach and planning environment since 2022 spatial targeting in some sectoral policies 	working out is in progress; not implemented yet

Most of the government stressors listed in the table apply not only to the agglomeration but also to any other region in Hungary. However, **the impact of generic triggers**, of fragmented and competitive and politically divided governance structure (1), permanent centralisation and missing well-functioning multilevel governance (3-4), the continuous change in regulations (5) and the weakness of a space-specific approach **are magnified by missing institutional frame, representation of interest and management for the FUA space** (2). Furthermore, it is important to highlight, that **government stresses have a direct impact on physical space**.

(1a) The **fragmented and excessively competitive territorial government system** was formed at the change of regime (1989/90) when public functions were mainly assigned to the municipalities at the lowest territorial level. A highly decentralised system has emerged instead of the deconcentrated one, where actors had a wide range of autonomy, financial resources and competencies.

The fragmentation of local government leads to **vertical and horizontal conflicts**. Although relationship between big cities and their metropolitan areas is inevitably conflictual all over the world, the Hungarian territorial governance system is poorly able to solve this. The fragmentation and competitive dynamics of the local government system degrade territorial administration to the level of political victories instead of networked operation and development.

- One of the root causes of the conflict of interest is that the residents of suburban settlements in the Budapest FUA typically use public provided by the capital (or district) budgets, while the suburban municipalities of their residence do not contribute to this a pro rata share. Although in some sectors (e.g. water utilities, public transport) sort of agreement is reached, it is not systematic.

- In the case of the capital city, the two-tier structure of local governments with Municipality of Budapest and the municipalities of the districts in the capital discussed **in chapter 3.2.8** will lead to further conflicts of interest. The inclusion of district leaders in the assembly has also changed several times during political cycle changes, which fundamentally influences the form and extent of cooperation and how political deals influence development. As from 2024 the district mayors will no longer be members of the main decision-making body of the Municipality of the Capital, called into question what will be the arena for substantive consultation among them.

The municipal autonomy has overshadowed the importance of inter-municipal and horizontal cooperation (Szegevári, 2022), and results **weak urban-rural linkages**, both related to Budapest and its metropolitan area and among suburban urban centres and surrounding villages. There is no meaningful cooperation between the capital and the agglomeration. Although establishing bottom-up territorial development associations is encouraged by law (Spatial Development Act in 1996. XXI. and its reformed version 2023. CII.), they have been not effective so far. Microregional associations of local governments had more importance locally at a time when they were given extra resources to fulfil one or more specific tasks (e.g. water utilities, waste management). One of the country-wide associations of local governments has suburban section (MÖSZ) and one further association operates currently involving some municipalities neighbouring the capital (FAÖT), but based on political affiliation, with the importance of maintaining contacts and information flow. According to stakeholder interviews, there were also minor **collaborations and cooperation in decision-making along projects**, with links regardless of political affiliation.

The system has been fraught with territorial inequalities from the beginning, which have been exacerbated by the competitive pressure of globalisation; and there is a constant competition not just for private investments but also for public development resources. In this competition are in somewhat favourable position:

- The settlements with advantageous geographical location and offering area for green field investments, since business tax are important part of their free usable development sources, especially in the last decade.
- The more populous settlements with wealthier residents, as public resources were linked the number of residents and the tax paid by them.
- Furthermore, the districts of the capital and the bigger settlements, first towns with county rights, such as Érd in the FUA, as they have much more resource absorption capacity due to their human resources and development potential.

All in all, the **settlements were interested in population and industrial growth with the aim of maximising access to as many freely available resources as possible**, which led to urban sprawl with overcrowding, overwhelming public services and infrastructure, and degrading natural resources. Furthermore, the relatively high autonomy and a fierce fight for financial resources can lead to **spatial injustice and governance failures**. Mismanaged municipalities have fallen into debt, which became unmanageable after the 2008 economic crisis. After 2010, central government took over a big amount of municipal debt, which provided also a reason to reinforce centralisation. Central governance attempts to compensate for the spatial heterogeneity of economic activity through damping mechanisms in the system, introducing a solidarity tax on municipalities in 2021 which redistribute a part of the business tax collected by the municipalities. However, this measure is a stress for the more prosperous municipalities (see stressor 4).

(1b) Budapest FUA is markedly influenced by the **political divisions and vertical power imbalances** between the central government and the municipal subsystem, the party-political importance of the capital overshadows the policy discourse, which is most evident in the legal and fiscal actions of the dominant governing party (mainly opposition) that restrict local government. **Political party affiliation is also a major obstacle to cooperation between municipalities**. Communication between actors is mostly ad hoc and unsystematic, often ceasing when the political position holder is replaced (Szabó, 2023). In the capital's assembly, which were built up with the memberships of districts' mayors, the professional aspects were also shaped by political alliances, and it is difficult to go against the opinion of the allied districts. However, the district mayors are no longer members of the capital's assembly since 2024, so this formal forum for political bargaining may further lose its importance. Remains the questions whether there will be meaningful coordination between the capital and its districts.

The central government tried to intervene and **create management or coordination within the central governance** reorganising tasks into them. The State Secretariat for the Development of the Budapest Agglomeration worked 2018-2022 in Prime Minister's Office parallel with the Council of Metropolitan Public Development (FKT). One of the reasons for setting up these institutions was firstly to help the municipal mayors of the capital and other municipalities with pro-government leadership party and, in cooperation with the Lord Mayor, to coordinate the development directions of the state and the capital. 2019 the (pro-government) capital's mayor lost the municipal elections, but coordination was strengthened further: Budapest Development Centre (BFK) was created additionally by the central governance in 2020 to coordinate and plan governmental developments in Budapest and agglomeration. However, the increased coordination, the start of substantive professional work and the central government's commitment were still positively assessed by all the actors, since professional discussion was allowed to take place between the central governance and the opposition-led capital, and the development in the region was managed in a coherent way. 2022 there was a change of political direction within the central government, and the development of the metropolitan agglomeration was sidelined, and the existing agglomeration-specific institutions were abolished, re-structured to sectoral policies.

All in all, the **interrelated consequences of governance stresses have been handled with centralisation, which reduce some type of inequalities, mitigate governance failures at lower levels, allows faster and operational decision-making and more rational financing. However, the impacts of this policy response are ambiguous** (see the downsides at stressor 3).

(2) The fragmentation of the local government system in Budapest FUA and in Hungary is coupled with a **lack of meaningful intermediate-level territorial governance**: there is **no appropriate intermediate-level governance for the Budapest large urban area**, and, as a general stressor, **the intermediate level governance is weak**, as the county level development councils in general have only had a rather symbolic, consultative function, and have not yet been given a real coordinating role (Szabó, 2023)

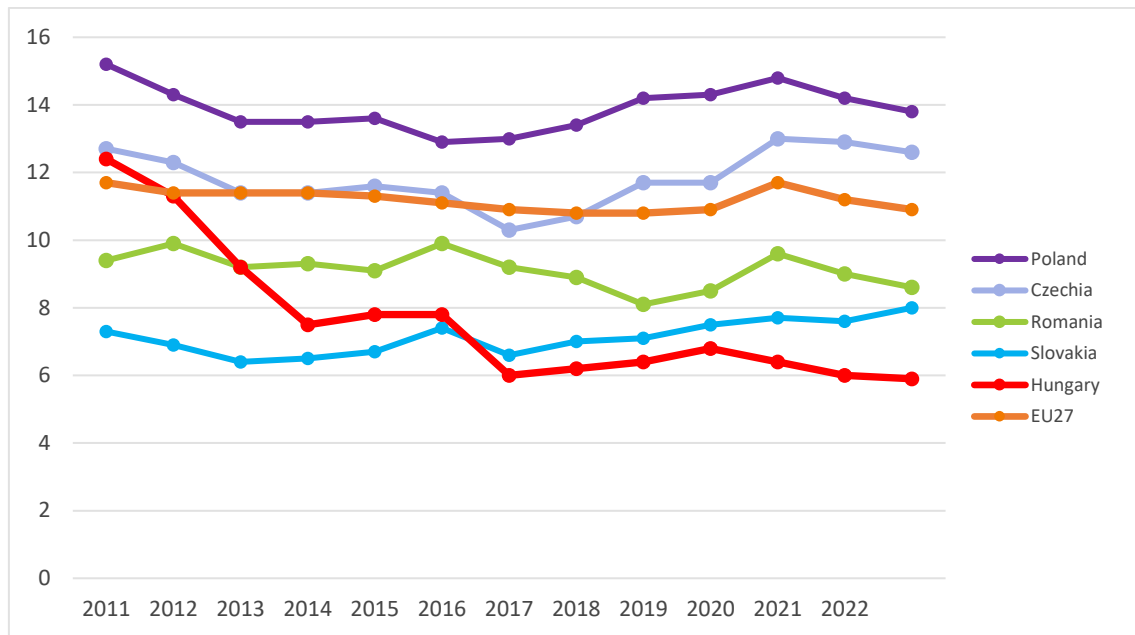
Local decision-makers consider that the county-level administrative division is not the optimal spatial framework for comprehensive governance of the metropolitan area. Their expectations would be best met by the delimitation of the FUA, but this is neither aligned with the county boundaries (see Map 1), nor has institutional background. The area is best covered by the sum of Budapest and Pest County in the administration, but they are operating separately, co-manage of the metropolitan area is neither forced nor encouraged. **Horizontal coordination between Budapest and its commuting zone, among districts of Budapest and among municipalities is missing**, and there is a **lack of strong institutional background for comprehensive development**. Overall, attempts to set up organisations for medium-level coordination have had minimal impact on the management and development of the urban area:

Budapest Agglomeration priority region was delaminated by law in 1996. Although the FUA is considered a functional unit by lot of interviewed stakeholders, the priority region only covers the much smaller metropolitan area (see Map 1). **Budapest Agglomeration Development Council, BADC** (BAFT) was established in this spatial frame with coordination role but have not been provided with meaningful impact and financial resources. In the 2005 it was re-established but has been given neither powers nor financial resources for activities; but comprehensive spatial development plans were outlined for the agglomeration. After a decade silence it was reestablished in 2022, again. So far, BADC has done more preparatory work, partnership and common planning starts now. At present, **there are some hopes** for the BADC on the part of local municipalities, particularly in the areas of urban construction and transport. But decision-making role is missing, it does not have the necessary political mandate and resources. In the future, however, it will not only be able to plan, but also to coordinate and manage the implementation of developments in the metropolitan area.

(3) **Centralisation** can be seen both as effective policy response to above mentioned governance stressors, but also as a sub-type of governance stressor. On the one hand, centralisation mitigates the negative externalities of the fragmented and competitive governance system competition, such as unfair distribution of resources and makes up for the lack of coordination at the local and intermediate levels of the governance and enables professionally based rational decisions. Furthermore, centralisation manages in some way the effects of political division which hinders professional decision-making and effective cooperation. **However, according to some local government leaders interviewed, centralisation causes a different kind of inequality in the distribution of resources among local authorities**. But on the other hand, **subnational governance actors are stressed with constant reducing of financial sources and competences**. As it is depicted in

subchapter 3.1.5, the room for manoeuvre of territorial governments is narrow and it were reduced during the last decades; the state took overpowers and resources from county and local level municipalities. Even during the COVID crisis were reduced their revenues. These measures lead to much less public financial sources, which means not just postponement developments but threatened also operating and daily work in all municipalities. Due to the overcentralisation adequate response to local needs and conditions cannot be provided. **Missing subsidiarity stressed also the central governance** as it is overwhelmed with competences and not getting all information (in time).

Figure 13: Expenditure-to-GDP of local governments in Hungary, Poland, Slovakia, Czechia and Romania, (2010-2022)



Source: Authors' own elaboration. (Data: Eurostat Regional Database, gov_10a_exp table; last update: 22/07/2024 11:00)

To mitigate the negative effects of centralisation, **central governance applied deconcentrating** to being able organise stable public services institutions in microregional spatial frame; **provided some additional resources** for the operation of local authorities, although it recreated spatial inequalities along political affiliation; **applied territorial targeting in some sectoral policies** (housing policy). 2022, to enhance information flow, the Minister for Regional development established five **Economic Development Zones** covering Hungary **responsible for collecting information relevant to higher (central) decision making but** provides information for local municipalities to “see more clearly on the track”. The agglomeration-specific Central Hungarian Economic Development Zone consists of Budapest and Pest County, headed by a government commissioner. However, it has no organisation of its own, operates with only 5 staff, and did not fulfil all the hopes of enhancing efficient decision-making, and not able to bridge the gap among political affiliations, only can show partial results in information gathering.

(4) Similarly, the **redistribution of municipals' revenues** which is designed to reduce spatial inequalities and injustices in the country, adversely affect the FUA. The “solidarity tax” **diverting resources from the FUA** to underdeveloped municipalities of Hungary: one part of business tax collected by local governments were redistributed. It leads to postponement developments and investments and budget problems of the municipalities within the most developed metropolitan part of Hungary, and mainly Budapest. To mitigate the effects of, local governments and the capital are searching for new types of resource alternatives (PPP solution, applying for funds). All in all, Budapest which can have relevant capacity for this activity seems to be able to attract new resources. However, business tax will be restructured from 2025 on, and a part of it will be spent at district/microregional level which can force local authorities to work together and encourage urban-rural coordination.

(5) The continuous change of competences, resource allocation and governance regulations create a high instability on local level.

(6) **Budapest and Pest County formed one NUTS 2 regions until 2016.** Consequently, the GDP per capita of the region exceeded 75% of the EU average, and the less-developed Pest County was not eligible for European Regional Development Fund funding. The lack of resources has increased the resentment of smaller municipalities towards the capital and has also worked against further cooperation. Due to the lack of funds, the government created a so-called Pest County Compensation Framework, which aimed to support the region's actors in the form of various territorial development projects. Budapest finally splits off from the region in 2016, which meant that in the 2021-2027 budget cycle, municipalities in Pest County will again be eligible for ERDF funding. (However, these resources are not coming, or only partially and late, due to the legal dispute between the Hungarian government and the Commission.)

(7) In addition to the above, the **devaluation of domestic spatial development policies** is a serious obstacle to the embedding of Hungarian territorial governance. Planning and development practice in Hungary is traditionally dominated by a sectoral approach, which is reflected in the resource-poor practices of territorial actors and the alternation of specialised, temporary institutions (Szegevári, 2022). Furthermore, territorial development, rural development and planning are separated at the level of ministries in the central governance, which does not help the cause and complex regional thinking. Since 2022, new ministries responsible for spatial development have been established within the central government, with the task of coordinating and cross-sectoral planning of national, regional and sub-national spatial policies (Act CII of 2023 on Spatial Development). However, these planning processes are still ongoing, so their future impact cannot be assessed at this stage.

3.3.2 Specific stressors with significant government implications

3.3.2.1 COVID-19 pandemic

The unexpected outbreak of the COVID-19 pandemic caused a significant shock worldwide, including in the Budapest FUA. The crisis exposed the vulnerabilities of unprepared governance structures, demonstrating that **the lack of preparedness severely hampers effective crisis management.** Initial responses were often overly strict, driven by fear, and inconsistent due to unclear distribution of responsibilities. The central government declared a state of emergency (which is a special legal regime in Hungary, that enables easier decision-making), established an operational task force to guide decision-making and inform citizens; and implemented nationwide lockdowns. Similarly, local governments formed crisis management teams, bringing together key health experts, local institutional leaders and municipal decision-makers to manage the situation.

As part of the response, **volunteer networks emerged, and several public services—including education, social care, public transport, and cultural institutions—were restructured to adapt to the crisis.** However, response efforts were hindered by inadequate communication and informational asymmetry between central authorities and municipalities.

Besides, several local actors criticized decisions that had a severe financial impact on local municipal budgets. After the outbreak of the pandemic, temporary measures have been introduced that challenged local authorities: the local business tax rate—which represents the primary flexible revenue source for FUA municipalities—was reduced, parking fees and tourism taxes were suspended. In addition, the vehicle tax – including the part previously received by municipalities – has been fully transferred to the central budget. As a result, municipalities, despite playing a critical coordinating and informational role in managing response, were forced to manage the **additional burdens of crisis management with significantly reduced financial resources.** At the same time, some municipalities received extraordinary central support to maintain their operations and manage critical challenges. These funds were primarily used to offset local business tax refunds, pay utility bills, and cover healthcare-related expenses.

The interviewed municipal decision-makers highlighted several **good practices** implemented during the crisis, including the establishment of crisis task forces, local activism, international partnerships, and informal information-sharing networks among municipalities. In Budapest, the capital and district governments jointly organized protective equipment procurement to ensure adequate supplies.

Furthermore, the COVID-19 pandemic also created **opportunities for strengthening local communities and enhancing liveability**. Suburban municipalities, traditionally functioning as dormitory towns, became more vibrant with local activity. This shift exposed the capacity limitations of utility infrastructure and the negative impacts of rapid population growth on these settlements. The lifestyle changes also encouraged municipalities to rethink unsustainable processes, such as urban sprawl and parking issues, which local leaders generally viewed as a positive development.

3.3.2.2 Urban sprawl

The challenges associated with suburbanization and urban sprawl in the Budapest FUA stem from multiple factors. However, **governmental incentives, regulatory constraints, and governance mechanisms have significantly contributed to placing the process on an unsustainable trajectory**.

Since the change of regime in 1989-1990, the population of the Budapest FUA has been steadily increasing, reaching nearly 1.5 times its former size by 2023. However, suburbanization had already been intensifying since the 1980s. **In the early years following the regime shift, local governments were financially incentivized to attract new residents** due to their entitlement to a share of personal income tax revenues.

Additionally, government subsidies and the vested interests of landowners who regained properties through privatization further accelerated suburban expansion. While **this process yielded short-term economic benefits, in the long run, it has resulted in uncontrolled urban sprawl and mounting infrastructural challenges**. Rapid urban development decisions and a booming real estate market have led to the designation of new residential areas, but municipalities have lacked the power to require investors to build supporting infrastructure. The 2008 financial crisis temporarily slowed suburban growth, but the subsequent economic recovery and state-sponsored housing incentives, particularly the CSOK¹ subsidy, once again stimulated residential construction. Previously undeveloped plots have been rapidly built up in recent years, while the negative consequences of past urban planning decisions have become increasingly severe. Shortages in kindergarten and school capacity, an overburdened utility network, and escalating traffic congestion now pose significant challenges for suburban municipalities (Marthi 2022). Simultaneously, Budapest's inner city has been experiencing depopulation.

Public utilities' capacity issues have been further constrained by government-imposed utility price caps. This policy restricts water utility companies from investing in network upgrades and even impedes the maintenance of existing infrastructure, despite the increasing demand for services due to population growth.

At the same time, **shifts in municipal financing mechanisms have significantly altered local priorities**, as municipalities are no longer financially incentivized to support population growth. With business tax revenues now serving as their primary discretionary funding source, local governments have increasingly redirected their focus toward economic development rather than accommodating further residential expansion. However, reversing previously designated residential zones is highly restricted, as legal constraints may lead to compensatory obligations for municipalities, limiting their ability to curb unsustainable growth. All in all, increasing economic, business and logistical land use is also a major contributor to the urban sprawl.

3.4 Recovery or resilience preparedness related initiatives: Overview

There is no joint planning framework at the Budapest Functional Urban Area (FUA) level yet (although one is currently under development). Unlike in some other European metropolitan regions, there is **no overarching resilience strategy** for the FUA (or other territorial levels in Hungary). (Indeed, according to FW participants, this may not be necessary.) However, specific aspects of resilience, such as climate adaptation and economic resilience, are present within the planning and development landscape. Since the COVID-19 pandemic,

¹ Family Housing Support Program: first, encouraged new housing construction without territorial distinction. Later, refinements appeared that offer more incentives at rural areas, compared to the Budapest Agglomeration area.

the term *resilience* has appeared more explicitly in policy discourse, reflecting a growing awareness of systemic vulnerabilities.

The planning approach within the Budapest FUA is characterized by a clear recognition of global and local trends affecting the region's resilience. Both planning documents and insights from Future Workshops and interviews indicate that **key stakeholders understand the challenges posed by climate change, demographic shifts, and urban sprawl**. Additionally, the **governance stressors identified as central concerns** in stakeholder discussions highlight systemic limitations in decision-making capacity, resource allocation, and institutional coordination.

Resilience **planning in the region remains largely reactive and problem-focused rather than visionary**. Addressing existing weaknesses takes precedence over developing long-term strategies for anticipating and mitigating future threats, stresses, and shocks. A forward-looking approach—one that emphasizes foresight, shared visioning, and transformative capacity-building—is largely missing from decision-making processes. However, even within these limitations, **several valuable initiatives have emerged**. **Several interviewees highlighted that the COVID-19 pandemic, despite its challenges, paved the way for broader systemic adaptations, including the rethinking of local life (such as reconsidering local parking and transport system to support usability of public spaces) and more flexible governance responses**. **Informal relationships and cooperation among municipalities and stakeholders have also proven to be a significant resilience asset, as well as the coordination capacity of local government**. **Besides, hard governance tools, specially building regulations formulate an important tool to cope with urban sprawl**.

3.4.1 Development strategies

An analysis of the **Pest county's development documents** reveals that their objectives are striving to enhance absorptive and adaptive capacities, through **maintaining and developing the existing systems**. Overall, the **main identified challenges are economic, demographic and climate issues**. The plans specifically address the lagging behind parts of Pest County aiming for convergence. This is envisaged through increasing the adaptability of the economy, the digital technological and general development of small and medium-sized enterprises, and the establishment of a polycentric urban network. Adaptation goals also focus on coping with population growth (especially in the fast-growing suburban areas) and climate change. Socio-economic efforts concentrate on economic development of the lagging areas, improvement of the social services sector, and community-building initiatives. Climate related initiatives include improving energy efficiency, reducing pollution, maintaining biodiversity and the natural environment, and enhancing water management. Besides these challenges, the plans reflect on some previously experienced crisis, such as floods, pollution caused by industrial accidents, economic crisis, and recovery from the COVID-19 pandemic. Generally, the plans focus on existing problems and bouncing-back and adaptive perspective. Innovative examples of the proposed measures include improving the navigability of the Danube and boosting river transport, reducing energy vulnerability with small-capacity hydropower plants, developing a cross-border crime prevention cooperation and a digital flood protection system.

The **Integrated Territorial Development Strategy of Budapest**, the capital shown a different perspective. This plan takes less emphasis on economic development (compared to the county-level policies) and has a more balanced structure, concentrating also on green infrastructure, health and social issues, such as safer, more affordable housing. In the strategy **innovative measures** like data-driven urban management, and accessible culture (for example through a card system/app that provide disadvantaged residents with discounted access to cultural institutions) have a more prominent role. Efficient use of resources is a key consideration, which is reflected in **the adoption of flexible planning** and the consideration of different scenarios based on resource availability.

Planners highlighted that even though local or county level planning documents did not directly used the term resilience before the Covid-19 pandemic, resilience is part of these strategies, as it is a necessary characteristic for long term development and stability.

A spatial plan for the agglomeration region is in force (a tool designated to tackle urban sprawl through land-use legislation, however, it is not fully exploiting the emerging opportunities). The Budapest Agglomeration Development Council is currently working on the **first-ever development concept for the Agglomeration**

area². Several background studies have already been completed, focusing on critical urban challenges such as transportation, utility networks, public services, and economic organization. As the case study phase progresses, the initiative is now entering the planning stage, with efforts underway to establish partnerships with municipalities across the region. While optimists hope that a meaningful common vision could eventually lead to implementation, significant scepticism was also expressed during interviews, with many doubting whether the process will translate into concrete results.

3.4.2 Cooperation in the Budapest FUA

Cooperation is a key factor in forming resilience; it enables efficient governance, encourages multi-level coordination, promotes public participation, and facilitates the integration of sectoral policies. Due to strong central competencies and the lack of mid-level coordination, the role or lack of cooperation becomes even more critical within the Budapest FUA.

The Budapest FUA represents a special functional territory, which makes the coordination of objectives and developments essential for territorial interest to prevail. Recognizing its unique position, the Budapest FUA has been designated as a priority area, yet this designation has not been accompanied by a well-functioning cooperation framework. While the coordination of objectives and developments is essential for aligning territorial interests, efforts to enhance inter-municipal communication have yielded limited results. Research and stakeholder interviews highlight that **informal relationships remain the most effective means of collaboration**, playing a crucial role in bridging gaps in governance. In addition, as several examples were shared, emergency councils / crisis management teams have been formed to facilitate effective shock response through collaboration among sectoral and territorial stakeholders.

- **Budapest Agglomeration Development Council (BADC)**: Reestablished in 2022 after multiple unsuccessful attempts, the BADC serves as a formal institution for creating a common development concept for the Budapest Agglomeration³. However, its impact and significance have so far remained limited, as the planning phase is still ongoing, and its future role remains unclear.
- **Central Hungary Economic Development Zone**: The economic significance of the region justifies its establishment⁴, however its role is controversial. It has minimal institutional capacity and primarily assists municipalities on a case-by-case basis (support information flow between local and central governance, attempts to bring attention to the possibilities for local governments). Efforts to assess local needs during the energy crisis were made, but some municipalities feel that the final allocation of financial support did not adequately address their actual needs.
- **Metropolitan Council for Public Development** (established in 2018): This council was designed to coordinate and facilitate discussions between the municipal government of Budapest and the national government regarding urban development projects. Initially, it was regarded as an effective consultation forum, but over time, its influence declined due to stalled developments and increasing political tensions.
- **Metropolitan Agglomeration Municipal Association (FAÖT)** (established in 2011): the fundamental aim of the Association is the joint representation of the municipalities concerned, the protection of their interests, joint thinking and the exchange of experience, as the municipalities directly connected to the capital are facing specific, similar challenges. It is a small-budget organization comprising 10–20 municipalities, primarily serving as a platform for dialogue and networking rather than a body with significant influence over regional coordination. While its direct impact on

² Note that the Budapest Agglomeration incorporates the capital and 80 suburban settlements, however the FUA covers almost 200 settlements, while real life relationships concern an even wider area.

³ Note that the Budapest Agglomeration incorporates the capital and 80 suburban settlements, however the FUA covers almost 200 settlements, while real life relationships concern an even wider area.

⁴ It covers the capital and Pest County (not aligned with functional urban area).

fostering structured cooperation remains limited, it has contributed to amplifying suburban municipalities' perspectives in key policy discussions, including issues such as public transport financing.

- **Association of Hungarian Local Governments (MÖSZ)** and the **National Association of Municipalities (TÖOSZ)**: These national organizations seek to promote collaboration among local government officials. They have limited practical relevance as their capacity to advocate for municipal concerns is constrained. Consequently, their primary function is to facilitate meeting opportunities for local authorities.
- **Local Government Associations**: These associations represent a relatively flexible model of task-sharing among municipalities with minimal regulatory constraints. While they generally fulfil their intended function, their influence has been undermined by increasing centralization and the withdrawal of financial incentives. Following the discontinuation of additional funding (which previously provided 20% more normative support for institutions maintained by multi-purpose subregional associations), many of these associations dissolved.
- **District development forum**: This is a planned cooperation platform set to take effect in 2025, aiming to institutionalize collaboration among municipalities on the district-level. According to the proposal, a portion of the local business tax revenue, which was previously collected and spent independently by municipalities, will be pooled and managed collectively. Wealthier municipalities with significant tax revenues perceive this as a restriction on their financial autonomy, as it limits their locally controlled resources. While the central government may allocate additional funds to support its operation, such supplementary funding is not expected to benefit more developed metropolitan areas. The initiative remains in an early stage, with mixed reception among stakeholders—some view it as a necessary step to strengthen subnational cooperation, while others see it as an encroachment on local autonomy.
- **Emergency Councils / Crisis management teams**: A key example of such councils was the national-level operational group established to manage the COVID-19 pandemic, which brought together key stakeholders (including government representatives, public health leaders, disaster management agencies, police, etc.). Similar crisis task forces were formed at municipal and metropolitan levels, involving institutional and local government leaders. This practice has since been adopted in response to other crises, such as the energy crisis and water supply challenges, significantly improving local response capabilities. These groups enhance information flow, enable quick action and effective coordination.
- **Informal vertical governance network**: local actors negotiate with the constituency's member of parliament, who acts as a link between central government decision-makers and local governments. Constituency chairpersons advocate local interest and may facilitate coordination and cooperation among municipalities; however, the extent of their involvement and effectiveness is often influenced by political affiliation.
- **Periodic joint representations of interests**: Municipalities occasionally collaborate to support or oppose specific developments. This is highly based on local interests, regardless of political sides. External pressures, such as the COVID-19 pandemic, have also triggered coordinated efforts, as seen in joint procurement initiatives for masks and testing supplies.
- **Informal networks, personal activity**: Informal relationships remain the most significant form of cooperation within the Budapest FUA. Active mayors with strong personal connections to local, regional, and national stakeholders can leverage these networks to access information, exchange best practices, resolve issues, or mobilize volunteers. However, this reliance on personal initiative also implies that in the absence of proactive leadership, cooperative ties are weak or non-existent.
- **Participatory planning**: This practice is becoming increasingly widespread, with most interviewed municipalities reporting positive experiences with community participation initiatives. While still evolving, participatory planning has contributed to more inclusive decision-making processes at the local level.

Despite numerous examples of cooperation, its overall effectiveness remains highly limited. A significant gap persists between local decision-makers and the central government, with no real coordination at

the metropolitan level and little inter-municipal planning or development. Genuine collaborations have primarily emerged between geographically proximate municipalities or where external factors, such as additional funding, have incentivized joint efforts. **In many cases, successful cooperation has relied heavily on personal initiative.** However, as political interests and key actors change, these partnerships often dissolve, highlighting the lack of institutionalized and durable mechanisms for regional coordination.

3.4.3 Initiatives, measures taken to prepare or manage

Overall, several initiatives have been identified to address the complex challenges facing the Budapest FUA. Nearly all interviewees emphasized **climate change** as a primary concern, highlighting ongoing adaptation measures such as green and blue infrastructure development and efforts to improve air quality.

Disaster preparedness is boosted (in the FUA and nationally) by effective disaster managing organizations, efficient flood protection **protocols, forecasting, mobilization strategies, and annual drills** for high-risk catastrophic events. These mechanisms and existing experience ensure coordinated response.

Management and preventative strategies developed to **address suburbanization and urban sprawl include the implementation and reinforcement of construction and land-use regulations.** Numerous agglomeration municipalities perceive the area as congested. They have enacted prohibitions on alterations, strengthened municipal regulations on building and zoning, restricted the construction of apartment complexes to preserve the suburban character of the area, and mitigate the strain on utility infrastructure. Simultaneously, penalties for illegal construction, including the refusal of utility connection permits, have been imposed. Additionally, there is **a designated tool for the area, the Budapest Agglomeration Spatial Plan**, which was specifically designed to control sprawl and to provide a unified planning framework for the (narrowly defined) metropolitan region. However, opinions on its effectiveness are divided among interviewees and Future Workshop participants. On the one hand, it complicates and partially constrains spatial planning, on the other hand, it does not impose enough stringent limitations, hence failing to fulfil its intended purpose efficiently.

Alongside more restrictive municipal steps, building regulations have also intensified. It is now required to perform comprehensive evaluations of the existing infrastructural capacity, including roads and utilities, when designating new residential zones. Moreover, the protection and integration of green spaces and existing vegetation have emerged as significant factors in the urban design regulations. To ensure consistency in development and prevent future infrastructural challenges, the regulatory framework gives consultation rights to key authorities and stakeholders (such as neighbouring municipalities, water management authorities, etc.). However, as this mechanism has often proven ineffective, the Ministry of Construction and Transport has delegated more supervision responsibility to state chief architects, who now have a pivotal role in regulatory enforcement.

It is worth highlighting that hard governance tools, building and land-use regulations alone cannot prevent unsustainable development that ignores the liveability and resilience of the area. **Intentional land use planning and a comprehensive shift in approach (from problem solving to a real territorial vision) are essential for advancement.** A notable tool in this regard is the **urban planning agreement**, which has been applied successfully in some cases. This contractual agreement is formed between the municipality and the investor, wherein the investor commits to develop other objectives linked to the planned construction, such as related public infrastructure, occasionally in exchange for privileges. As a voluntary tool, its application is not widespread and largely depends on the municipality's proactive approach in negotiating and enforcing such agreements.

An important finding from the interviews is that **the activities of local municipalities deeply shape and support local resilience.** Local governments can mobilize residents, bring together local institutions, and act effectively to emerging issues also by utilizing local information. Local knowledge, existing local embeddedness and connections with the community are essential assets for swift reaction. Besides, municipalities in the Budapest metropolitan area also have a significant role in community building and awareness raising initiatives. Multiple municipalities have recognized that community cohesion, trust among inhabitants, and local identity are vital for people to depend on one another during times of need. Thus, fostering a sense of community is a top concern. The municipal coordination and community support were especially successful

in some instances, as the volunteer networks established during the epidemic have persisted until the present day.

To improve access to EU ERDF funds, the former Central Hungary Region was divided into two NUTS2 regions: Budapest and Pest in 2016. This split enables Pest region to access ERDF resources. Also, before the restructuring, the government allocated significant financial resources to compensate the disadvantaged Pest Region and support its development. The municipality of Pest County also address the lagging behind part of the county (as there are high intra-regional inequalities) by supporting their planning processes and active coordination. However, governance centralization and the increasing dominance of rural development policies have progressively undermined the possibilities of local municipalities in the FUA. In response, municipalities have been actively exploring **alternative funding solutions**, including grant applications, public-private partnerships, and private sector investments.

Essential strategies for cooperation encompass participatory planning, informal networks, and crisis partnerships. Moreover, **mutual learning** is frequently recognized as a beneficial practice, especially via the sharing of best practices, implementation of preventative measures because of recognizing the problems faced by other settlements. Another tool contributing to improved decision-making is the use of monitoring solutions, data collection, and their integration into governance processes—although this remains sporadic rather than a widespread practice.

3.4.4 Understanding the conceptualisation of resilience in the Budapest FUA

The conceptualization of resilience in the Budapest Functional Urban Area is shaped by multiple perspectives, emphasizing the ability to respond effectively to challenges. Resilience is not explicitly defined in a holistic strategy but is integrated into various development plans as a necessary component of long-term stability and growth. **The primary focus is on addressing existing challenges** with an adaptive and bouncing-back approach, **prioritizing local well-being, climate actions, and community-building efforts**.

Resilience efforts remain fragmented due to differing local interests, with no comprehensive territorial vision. Nevertheless, municipalities seek to enhance local liveability. Intermediate-level cooperation is necessary to achieve well-functioning public infrastructure or services, thus jointly implemented FUA level flagship development projects seem to be a key facilitator for real cooperation. Strengthening collaboration at this level could provide a more coordinated approach to resilience, balancing local autonomy with regional stability.

The principle of **subsidiarity** is widely recognized as key to effective resilience, with local decision-making seen as essential for addressing challenges efficiently. However, in practice, increasing centralization limits the ability of municipalities to act autonomously, restricting their capacity to implement locally tailored solutions. A strong **regional perspective** is also emphasized, with **cooperation and networking among municipalities playing a fundamental role in resilience-building**. Informal relationships and partnerships enable knowledge-sharing and proactive measures, allowing some areas to anticipate and mitigate potential issues before they escalate. **Social cohesion and community engagement** further strengthen resilience, as residents increasingly demand sustainable urban development and service improvements. In some districts, crisis situations, such as the COVID-19 pandemic, have even been seen as opportunities to enhance local energy initiatives and promote community-based solutions.

Table 8: Overview of approaches and actions for territorial resilience in the Budapest FUA, based on stakeholder interviews and existing development policy documents

Overview of approaches and actions for territorial resilience in the Budapest FUA	
Overall resilience goals	<ul style="list-style-type: none"> no explicit and holistic resilience planning, however resilience is part of the development strategies, as it is a necessary characteristic for long term development and stability plans focus on existing problems and bouncing-back and adaptive perspective focal points: local well-being and liveability, climate actions, community building
Resilience (preparedness) process: Priority regions	<ul style="list-style-type: none"> climate change strategies disaster management (e.g. flood, heatwave) protocols, early warning systems strong local role, municipal coordination managing land-use conflicts, urban sprawl
Governance principles	<ul style="list-style-type: none"> mitigating the lack of resources of governance locality and subsidiarity (local roles are key, however continuously weakening due to centralisation and loss of functions) fast action local governments: cooperation, participation, empowerment knowledge, conscious planning central government: strong decision making, hard governance tools efficient use of resources
Approaches and actions to ensure territorial resilience	<ul style="list-style-type: none"> informal cooperation the implementation of development plans is mostly not achieved (no real FUA level cooperation, lack of resources hinders the process of for example infrastructure development) green and blue infrastructure development for climate adaptation building regulations foster community cohesion
Mid and long-term visions	<ul style="list-style-type: none"> local interests are fragmented, therefore no comprehensive overarching territorial vision, enhancing local liveability is a common point local municipalities want to preserve their roles strengthen intermediate-level cooperation, cooperation regarding flagship FUA developments

3.5 Territorial resilience in Budapest FUA: Lessons learned

3.5.1 Overview of challenges and opportunities

There are a lot of typical challenges are decision-makers facing when trying to create a more resilient territory connected to the governance. Below the identified challenges and opportunities are summarised by different type of actors. The summarizing table was primarily compiled based on interviews conducted in the area, but the opinions of the Future Workshop participants and the main are also channelled. The 13 interviewees represent key governance actors, which includes various stakeholders (mayors, deputy secreters in Ministerium)

and policymaker (professionals and advisers at governance institutions) across different territorial levels. Insights into the views of societal actors were obtained indirectly, partly from policymakers and decisionmakers.

Table 9: Overview of governance-focused challenges and opportunities emerged in Budapest FUA

Type of actor	Challenges	Opportunities (existing practices are italicised)
<p>Decision-makers (Who: The politicians defining the priorities)</p>	<ul style="list-style-type: none"> • diverging interests in decision-making • missing strong governance actor/decision making regarding the region (nor at central level neither in FUA/region-covered spatial frame) • lack of coordination among decision-makers in the region • inadequate division of tasks between the different levels of government • lack of a uniform regulations for the whole region in some key policies • decisions are made according to current needs; forward looking approach is untypical 	<ul style="list-style-type: none"> • altering governance structure: <ul style="list-style-type: none"> • creation of a stable governance institution responsible for the FUA in central governance or at intermediate level of territorial gov. • establishing/strengthen institution only to implement key pilot project • total restructuring • up-scaling regulations working well at local level • harmonisation substantial legislation in the region (e.g. building restrictions) • raising awareness of decision-makers toward vision sharing, forward-looking approach and resilience (put emphasis on OT parts of the SWOT analysis)

Type of actor	Challenges	Opportunities (existing practices are italicised)
<p>Policy makers (Who: Those who are defining the approaches and implementation of priorities)</p>	<ul style="list-style-type: none"> • inadequate division of tasks between the different levels of government • divergent interests in sectoral policies • lack of competence and resources in policy making at lower levels • strong sectoral policies in central governance are often space-blind • lack of an integrated/comprehensive territorial approach in coordination • lack of regularly operating and well-functioning knowledge-sharing platforms for policy makers 	<ul style="list-style-type: none"> • <i>emergence of an enhanced role for environmental considerations</i> • adequate division of responsibilities, competences and resources for territorial levels in each sectoral policy • <i>setting/redefining priorities for the region as a whole</i> • raise awareness of the spatially varying effects of sectoral policies • integrating as many sectoral actors as possible in priority projects • <i>urban planning agreements</i> • <i>strengthening and operating institutional conditions for knowledge transfer and exchange of experience</i> • incorporating resilience approach into education, professional training and legislation
<p>Societal actors implementing resilience plans (Who: Any actor involved in the implementation of plans)</p>	<ul style="list-style-type: none"> • partnership, social inclusion formal at system level 	<ul style="list-style-type: none"> • upscaling emerging good practices in community planning and social inclusion • mobilisation of societal actors both in planning and implementation and monitoring • participatory governance, where involvement is experiential and enjoyable

Type of actor	Challenges	Opportunities (existing practices are italicised)
Overall type of actors (Who: decisionmakers, policymakers and societal actors)	<ul style="list-style-type: none"> diverging interests among levels, type of actors and sectors over-centralised governance lack of information flow 	<ul style="list-style-type: none"> strengthen multilevel governance with adequate division of responsibilities, competences and resources. <i>establishing institution to inform central governance's decision-making in terms of the FUA</i> cooperation and collaboration between levels, sectors, actors strengthening and operating institutional conditions for knowledge transfer and exchange of experience raising awareness toward vision sharing, forward-looking approach and resilience development planning and implementation along priorities for the FUA

Note that the “region” used in the table and in the text can be any kind of territorial frame that adequately covers the metropolitan area: Budapest and Pest County together, the most wished FUA that spans NUTS 3 borders, also metropolitan area defined as priority region and covering fewer municipalities of the suburban zone than the previous two.

3.5.2 Challenges

Crucial challenges are presented for all actors in the whole region. In the metropolitan agglomeration, the size, number and complexity of the actors mean that **divergent interests** are coded, making bottom-up organisation very difficult to achieve and common interests difficult to find. Conflicts of interest are common between Budapest and its suburban zone, between the capital and the districts, between different policies and along political affiliations. **A strong and long-term existing governance actor or cooperation mechanism – that** would be responsible for decision making regarding the whole region and would be able to coordinate local actors – is missing. Consequently, the **integrated and comprehensive territorial approach is given little emphasis**. The current application ecosystem is **not conducive to complex development and meaningful coordination** as fund allocation do not specifically support complex, multi-actor projects. While the centralised governance structure provides stability, security and effective stress management solutions in many respects, most respondents consider that the **continued centralisation, inadequate division of tasks among local and central levels of governance** (poor multi-level governance and subsidiarity) are major obstacles to coping. In addition, the continuous change of competences, resource allocation and governance regulations create a high instability on local level. (The withdrawal of resources from local level governments in a crisis has further undermined their local capacity to act.) The **flow of information is poor and not organised** among many actors. (In central government, sectoral policies operate in silos, the various policies with a more holistic approach are also separated at the ministerial level and are not interoperable. Central decision-making is not properly informed about local and regional needs and interests, there is a gap between professionals and high-level decision-making. In addition, there are no established forums for dialogue, or a formal statutory consultation platform dedicated to the Budapest FUA, limiting opportunities for coordinated regional decision-making. While social inclusion mechanisms exist, they are often formalized rather than substantive, reducing their impact.) A **lack of information** further exacerbates the **lack of trust** among stakeholders, weakening collaboration and long-term planning efforts. Moreover, a **forward-**

looking approach is largely absent, as key actors tend to focus on **immediate needs** rather than developing **strategic, future-oriented solutions** for the region.

3.5.3 Opportunities and good practices

During times of stress and crisis, new initiatives and effective governance approaches have emerged, primarily at the local level, that could be scaled up for regional implementation or adapted by other actors. Additionally, stakeholders shared potential opportunities and visions that, if tested, could further contribute to the region's development.

Stakeholders broadly agree that achieving significant progress without central government involvement is highly challenging, **making top-down coordination a necessary factor**. However, some interviewees pointed out that crisis situations often create windows of opportunity for governance reform, making it imperative to rethink how metropolitan coordination should function. A key recurring idea was the **need for a strong governance actor or a decision-making body responsible for the entire region**.

- Some interviewees mentioned the **possibility of a full-scale reform of the municipal system**, restructuring governance frameworks to improve coordination. However, while all stakeholders recognize fundamental problems – such as governance fragmentation and the dual-tier municipal structure with juxtaposed relationship in Budapest – **local actors tend to prioritize stability** over large-scale structural changes. As a result, a complete overhaul of the system is rarely even mentioned as a feasible option.
- A more realistic approach would be the **operation of an institution equipped with financial resources, decision-making authority, and clear responsibilities**. Such an institution could be **centralized within the government** (as seen in previous state secretariats) but would require long-term commitment and meaningful cooperation with regional actors. The Budapest Agglomeration Development Council (BAFT) could serve also as a foundation for this role, first by producing credible strategic plans and functioning as an information hub, and later by being granted financial tools, political legitimacy, and implementation capacity.
- Local actors **view a more targeted approach as more feasible**, favouring **strong institutions focused on specific priority areas**. A key example is transportation and mobility, where the electrification of railway lines has been identified as one of the most innovative and impactful resilience-building initiatives of recent decades. However, competition within the government stalled its implementation. To succeed, such high-priority projects must integrate multiple stakeholders and policy sectors, include participatory planning, and ensure financial and human resources are properly allocated. However, priority projects should integrate as many *sectoral* actors as possible, and the application system must also be prepared to accommodate and enable multi-stakeholder complex development ideas.

Most local stakeholders see **project-specific empowerment** as the **optimal solution**, rather than large-scale structural reforms. Their experiences suggest that **major governance shifts often create negative consequences**, further centralisation and that frequent changes in institutional frameworks fail to deliver real progress in multi-level governance or everyday functional urban challenges. Many interviewees expressed that granting clear mandates and authority to key actors or projects within the existing framework—rather than constantly restructuring governance structures—could lay the foundation for more efficient day-to-day operations. **Long-term commitment alone could activate significant opportunities**.

A more **effective multi-level governance structure** would require decision-making responsibilities to be assigned at the appropriate regional level, based on the principle of **subsidiarity**. This means that governance should **identify the optimal spatial scale** for addressing specific challenges and coordinate decision-making and responsibilities accordingly. However, certain regulatory responsibilities currently sit at inefficient levels. For example, local-level urban planning and construction regulations are highly bureaucratic, involving multiple layers of oversight and approval without necessarily increasing efficiency. This has led to the introduction of state chief architects' approval for newly designated development areas as an attempt to streamline decision-making.

A **clear set of regional priorities** is crucial for enhancing the resilience of the Budapest FUA. All stakeholders should have the ability to align their strategies with these overarching goals. Currently, efforts are underway to redefine these priorities within the metropolitan area under BAFT's leadership. To establish a meaningful shared vision, it is essential to engage all levels of governance and regional actors in the process.

Encouraging cooperation and collaboration is a necessary step forward.

- A promising initiative is the Central Hungary Development Zone, designed to coordinate and balance development efforts between Budapest and Pest County. The initiative has the potential to facilitate institutional cooperation and improve information flow among local actors. However, so far, its implementation has shown little tangible progress. Additionally, trust in centrally controlled institutions remains low, particularly among opposition-affiliated and civil society actors.
- **Financial incentives for collaborative projects** – Several municipal and district-level partnerships have benefited from additional funding for joint projects, proving to be an effective tool for incentivizing cooperation.
- Good practice was **emergency councils**, the problem-focused crisis management bodies that bring together diverse stakeholders and policies to respond to specific challenges effectively. These have been successful at local levels but remain limited in scope.

Policymakers and societal actors are not only open but would explicitly require the strengthening and operating institutional conditions for knowledge transfer and exchange. There is a strong demand for a **coordinating body that could facilitate information-sharing**, initiate collaborative actions, and contribute to regional identity-building. This would also support **trust-building, knowledge dissemination, and the spread of innovative governance solutions** and could **raise awareness of actors toward vision sharing forward-looking** and resilience approach. An overall goal would be here to incorporate resilience approach into education, professional training and legislation as well. Furthermore, the attention of all actors should be shifted from current problems and needs to the future – with the terms of the SWOT analysis, to the Opportunities and the Threats.

There is great potential in **participatory governance and community engagement**. Local-level partnership-building efforts and community-based planning initiatives have demonstrated promising results. Encouraging experiential and engaging participatory processes, supported by dedicated offices, expert teams, and financial resources, could enhance local involvement. The role of civil society and local communities in bridging the gap between decision-making and implementation is crucial, as stronger community ties significantly improve long-term resilience.

Stricter regulations developed in a regional perspective are needed across the metropolitan region (FUA) for key policy areas, particularly in urban development and infrastructure planning. Although there is a valid land-use plan for the Budapest Agglomeration priority region, zoning do not solve the problems Harmonizing building restrictions and other regulatory measures would enhance regional coordination and prevent unsustainable development patterns. **Successful local-level measurements**, such as denying utility connections for unauthorized constructions, **could be scaled up** to strengthen enforcement. There are good practices for developing preventative strategies to address urban sprawl include the implementation and reinforcement of construction and local land-use regulations. Additionally, **urban planning agreements** provide a mechanism for ensuring that private investors contribute to public infrastructure development, sometimes in exchange for privileges. However, as a voluntary tool, their effectiveness depends on municipal initiative and enforcement capacity, highlighting the need for a more standardized and structured regulatory framework at the regional level. From a reverse perspective, **raise awareness of the spatially varying effects of sectoral policies at central level governance** would be useful as well, such as happened in the design of the housing support scheme, which initially significantly fuelled growth in agglomerations leading to further urban sprawl, but after realization of this unintended consequence, adjustment was made to mitigate the side-effects and target the measure better to rural areas.

3.6 Strategic policy and governance suggestions for the local and regional level

This section provides an overview of existing policies, strategic considerations and governance aspects that could be considered when drawing up territorial policy recommendations at the territorial/local level and help draw up recommendations for increased resilience in Budapest metropolitan area.

3.6.1 Strategic policy areas for the Budapest region

Due to its size, its embeddedness in the global world, its dominant role in Hungarian economy and society and its diverse socio-economic structure, **Budapest region/FUA should have a sophisticated and cross-sectoral strategic policy focus.** Below, an effort is made to identify the key policy areas that emerged during the preparation of the case study, but it is stressed that identifying and prioritising is a more ambitious task, as it requires the integration of many actors and perspectives. The identification and setting of priorities are currently underway for the Budapest Agglomeration priority region, under the responsibility of the reestablished BADC (BAFT), which is the minimum necessary spatial framework for thinking across district and county boundaries.

Based on interviews and future workshops, policy makers and decisionmakers at all territorial level are convinced that the **planning, development and operation of built infrastructure in a regional context have a fundamental impact on territorial resilience in Budapest Agglomeration.** Policy sectors that require common regional integrated planning beyond the county boundaries, so they have overall impact on resilience: mobility and transport (especially electric railway system); elements of public infrastructure (drinking water, wastewater utilities, stormwater drainage, waste management). Water management is one of the well-functioning policy areas. Although the land-use plan for the agglomeration provides a good basis, but it is not suited to address existing and future challenges in a flexible and precise way. However, forming and upscaling building regulations, and ensure effective enforcement of the regulations by state chief architects seems to work well.

Some smaller part of local stakeholders interviewed at subnational, mainly local levels have recognised the **relevance of social capital** in territorial resilience. Regarding this, significant gaps remain in the Budapest FUA, particularly in institutionalized participation and long-term trust-building. What works well locally: informal networks and crisis-driven collaborations among stakeholders have been effective in specific situations; community-driven initiatives such as energy communities and localized environmental projects are emerging as forms of active participation; some municipalities have implemented participatory budgeting and inclusive planning initiatives to involve citizens in decision-making through structured consultations and experiential engagement. These efforts provide platforms for collective action on pressing urban challenges but remains rather local. **Without sustained governance mechanisms and institutions for systematic knowledge-sharing** (open information-sharing platforms, best-practice exchange, agency) **resilience efforts risk being fragmented and reactive rather than strategic and forward-looking.**

According to desk research, the **innovation capacity** seems to be important in shaping the resilience, and the Budapest FUA lags other major urban centres in the macro-region (deficits in human capital, digitalisation, lifelong learning, business innovation in SME's sector. However, most decision-makers of the interviews place relatively little emphasis on strengthening innovation in an integrated way; instead, interviewee in central governance and its deconcentrated bodies rely primarily on market solutions. Some innovative solution emerged, particularly in the form of sector-specific policy experiments and innovative governance tools at local levels (experimentation: community-driven decision-making; trial-based transport planning; temporary street pedestrianization pilots). All in all, some stakeholders are conscious that building resilience is not just about addressing current weaknesses but building innovation capacity.

Policy recommendations for policy and decision-makers to increase local resilience through policy:

1. Empower a coordination body for **implementing specific projects in key policy areas**, regarding physical infrastructure, but with involvement as much policies as possible and **apply integrated planning and development.** Prepare the application system for the inclusion and enabling of complex multi-stakeholder development ideas.

2. **Formulate policy regulations from a regional perspective** to prevent the negative effects of urban sprawl and to enhance operation of physical infrastructure (by e.g removing legal obstacles to the reclassification of residential areas; abolishing utility price caps).
3. **Disseminate or scale up successful local policy solutions, regulations** (e.g. Urban Planning Agreements, energy community, grey water use, energy renovation of listed buildings, trial-based transport planning; temporary street pedestrianization pilots, denying utility connections for unauthorized construction; introduce building moratoriums).
4. **Raise awareness of policy actors toward preparation for uncertainty** in policy and the role of innovation capacities in it (forums, agencies for knowledge transfer). **Put emphasis on strengthening human capital and innovation capacities.**
5. **Experiment with new solutions on a smaller scale.**
6. **Raise awareness of sectoral policies toward the relevance of cross-sectoral policymaking and, in particular at central level, the relevance of spatial targeting.**

3.6.2 Strategic governance approaches for Budapest FUA

Governance weaknesses represent a critical strategic gap in strengthening territorial resilience in the Budapest Functional Urban Area (FUA). While some localized good practices exist, the region lacks a coherent and integrated governance framework that ensures stability, coordination, and resilience to future challenges.

The outcome of centralization is in doubt. Excessive centralization has been applied as the primary tool to address territorial fragmentation and spatial inequalities, often overlooking local needs and flexibility, and occurring competence and funding shortages at lower territorial levels: Municipalities and subregional governance actors struggle with insufficient resources and unstable financial frameworks, as frequent budgetary interventions by central authorities undermine their long-term planning capacity. Fragmentation and unfair redistribution of municipals' revenues remain unsolved.

Central government's involvement and then withdrawal from development of the agglomeration has had ambivalent or damaging results.

Unresolved horizontal and vertical coordination: Inter-municipal cooperation remains sporadic and fragmented, while multi-level governance mechanisms are weak, making it difficult to address cross-boundary challenges effectively.

Defining and delimitating priority region of Budapest agglomeration has partial results. Priority region is a spatial category in Hungarian territorial development to handle non-standard geographies, which could be a best practice for forming functional units across administrative boundaries. Although the area has only valid land-use plan (Budapest Agglomeration Spatial Plan, BATrT), development strategy is under development, and it is doubtful.

There are some **successful local governance solutions**, such as dedicated participatory office, participatory governance, Urban Planning Agreements, emergency councils.

Governance recommendations to policy – and decision makers to increase local resilience through improved governance structures:

1. **Establish and finance long-term agency for the region** (FUA or priority region) that has the professional knowledge in the different fields, builds trust with stakeholders, draws on local knowledge, initiates and coordinates participatory processes and knowledge transfer, activates, without doing any planning. Establish and finance formal knowledge-sharing networks in early agenda setting. It would be important to cover the whole of the functionally converging area.
2. **Establish stable institutions and governance bodies for top-down coordination in Budapest urban zone with stable responsibilities, competences and resources.** As minimal competence for integrated planning and for organising cooperation and coordination of interests across municipality and county borders, sectors and territorial levels, then with mandate and sources for implementation.
3. **Strength multilevel governance**

- with subsidiarity, in particular with emphasis on the adequate division of responsibilities, competences and resources for territorial levels in each sectoral policy;
- reinvolvement of central governance in FUA-specific decision-making;
- give more room (competence and resources) for manoeuvre for local municipalities but raise their awareness of their opportunities to active governance.

4. **Encourage cooperation and collaboration** in a systematic and ad-hoc way. (E.g. providing additional resources to municipals to plan in territorial cooperations)

Scale up successful local governance solutions (dedicated participatory office, participatory governance, Urban Planning Agreements, emergency councils)

Table 10: Governance of territorial resilience – experiences in Budapest FUA

	Governance of territorial resilience: What doesn't work in the case study area (Experiences)	Governance of territorial resilience: What works well in the case study area (Experiences)
Agenda-setting stage (policy recognition/framing)	<ul style="list-style-type: none"> • institutional foresight shared visioning; future orientation, preparedness for uncertainty (only sporadic) • providing knowledge platforms by economic development zones (lack of capacity, lack of trust) • rarely engage in coordinated agenda-setting • shift to business tax dependence, have forced local governments to prioritize economic development over social or infrastructure investments 	<ul style="list-style-type: none"> • establishment of emergency councils during COVID 19 pandemic • enhance information flow for central level decision making from local levels (CHEDZ during energy crisis) • experimentation locally (community-driven decision-making; trial-based transport planning; temporary street pedestrianization pilots) • informal knowledge-sharing networks in early agenda setting
Planning stage (policy formulation)	<ul style="list-style-type: none"> • defining priority region without establishing and operating coordinating institution with resources and competences to plan (only land-use plan is valid) • land use plan for the priority region is a starting point, but not enough to address the challenges • missing utility management competences from local level • central led planning no long-term effect due to political conflicts and short-term political cycles • missing space-specific/local knowledge in policymaking at central level (space blind policies) 	<ul style="list-style-type: none"> • defining "priority region" to handle non-standard geographies • preparation of a metropolitan-level strategic plan (BAFT) • participatory planning (locally) • providing additional resources to municipals to plan in territorial cooperations • using spatial targeting in sectoral policies

	Governance of territorial resilience: What doesn't work in the case study area (Experiences)	Governance of territorial resilience: What works well in the case study area (Experiences)
Implementation stage (policy implementation)	<ul style="list-style-type: none"> • (re)establishing Budapest Agglomeration Development Council (BADC) to define metropolitan-level policy priorities, but its ability to influence decision-making and implementation is limited • missing long-term engagement for implementation, lack of implementation of plans (stalled developments) 	<ul style="list-style-type: none"> • Urban Planning Agreements (voluntary agreements between municipalities and investors) • ppp constructions • social engagement (volunteering) • searching for alternative funding (in international application systems) • providing additional resources for municipals to operate utilities in territorial cooperations
Monitoring and evaluation stage (including monitoring systems)	<ul style="list-style-type: none"> • lack of stable and robust introduced monitoring system • ... 	<ul style="list-style-type: none"> • monitoring tools in some sectoral policies in some municipalities • establishing state chief architects' oversight with supervision responsibility
Policy reformulation stage	<ul style="list-style-type: none"> • foresight shared visioning; future orientation, preparedness for uncertainty • Frequent changes in urban planning regulations (land-use policies and zoning) • restructure intermediate level governance with centralisation • transformation capacities are missing 	<ul style="list-style-type: none"> • Learning from other suburban settlements: take actions before experiencing the same problems for example with the capacity of the public water utility network; adopt the regulation about denying utility connections for unauthorized construction; introduce building moratoriums) • Institutional adaptation: establishment of state chief architects' oversight in urban planning with initiative functions • upscaling successful local experiential solutions (dedicated participatory office)

3.7 Conclusion

The Budapest FUA case study illustrates the **urgent need for integrated metropolitan cooperation, sustainable planning frameworks, and enhanced coordination mechanisms**. While informal networks and crisis-driven responses have played a role in resilience-building, long-term solutions require systemic reforms, regulatory stability, and a commitment to balanced development emphasizing liveability and sustainability.

The Budapest FUA operates without a formal governance framework, leading to fragmented urban development policies and a lack of coordinated decision-making. There are no statutory consultation platforms or structured forums that would facilitate strategic dialogue between municipalities and the central government, which significantly limits regional cooperation. In the absence of institutionalized mechanisms, **informal networks and personal relationships among local leaders play a critical role in bridging**

governance gaps, particularly in crisis situations such as flood management. However, these ad hoc collaborations remain inconsistent, dependent on individual initiative, and lack long-term stability.

The most significant governance gap in the Budapest FUA is the **lack of vertical cooperation between different levels of government**. This deficiency was evident in the interviews, as interviewees rarely even considered vertical collaboration as a significant factor at present, highlighting its absence from both institutional structures and daily governance practices. Low levels of trust further hinder cooperation, which, in our view, could be improved through transparent communication and a genuine commitment to collaboration. This would require not only the creation of coordination platforms but also the allocation of resources, clear mandates, and the integration of sectoral expertise to ensure their effectiveness.

Many of the persistent governance challenges stem from the absence of a long-term strategic vision. Addressing this gap could help mitigate governance uncertainties and provide a more stable foundation for regional cooperation. Past policy decisions have repeatedly demonstrated that the operational framework of municipal governance shapes the motivations of local actors. Therefore, in our view, **incentivizing structured cooperation—through both governance mechanisms and financial frameworks—could gradually lead to the establishment of meaningful dialogue and long-term collaboration across the metropolitan region.**

There are ongoing initiatives and instruments aimed at addressing governance challenges in the Budapest FUA, though they have faced criticism regarding their effectiveness and implementation. BADC is currently working on the Budapest Agglomeration development concept, marking the first attempt to create a comprehensive vision for the metropolitan area. Additionally, a structured district-level cooperation framework is expected to be introduced in 2025 through the District Development Forum, which aims to institutionalize collaboration at the district level. The Budapest Agglomeration Spatial Plan (BATrT) provides a regulatory framework to manage urban expansion and infrastructure development. While these initiatives indicate a **direction toward stronger regional governance**, their success will ultimately depend on **how effectively they are supported with financial resources, clear mandates, and meaningful political commitment.**

During the case study research, we have discovered several good practices that have proven effective in addressing urban and governance challenges. These approaches, if further developed and systematically implemented, would contribute to enhanced resilience.

- **Establishing Crisis Management Teams** – The establishment of **local crisis management teams** has been a crucial tool in **coordinating emergency responses**, particularly during the **COVID-19 pandemic** and in managing other local crises such as **energy shortages or infrastructure failures**. These teams have enabled **rapid decision-making, cross-sectoral collaboration, and efficient resource allocation**.
- **The strong role of local governance in resilience** – **Municipalities have played a pivotal role** in ensuring local resilience, their ability to **mobilize resources, engage local stakeholders, and adapt to emerging challenges** demonstrates the importance of empowering local governance structures.
- **Community building and participatory planning**
- **Exploring alternative funding sources** – Given **financial constraints and shifting municipal revenue structures**, many local governments have sought **alternative funding mechanisms**, including **public-private partnerships, EU grants, and collaborative procurement initiatives**.
- **Hard governance tools to curb urban sprawl** – Several municipalities have implemented **regulatory measures** to limit unsustainable urban expansion, including **stricter zoning regulations, and restrictions on multi-unit residential construction**. These efforts aim to **prevent overburdening local infrastructure and protect suburban liveability**.
- **Urban planning agreements** – This contractual agreement is formed between the municipality and the investor, wherein the investor commits to develop other objectives linked to the planned construction, such as related public infrastructure, occasionally in exchange for privileges. As a voluntary tool, its application largely depends on the municipality's proactive approach.

Ultimately, it is crucial to recognize that **learned inertia or helplessness can often be overcome when external pressures create the necessity for action**. Many of the resilience-building efforts in the Budapest FUA have emerged not from long-term strategic planning, but as adaptive responses to crises and systemic constraints. This underscores the importance of fostering a culture of proactive governance rather than relying solely on external triggers for change. Empowering local actors to take initiative, engage in forward-thinking planning, and implement locally driven solutions presents a significant opportunity for the region. Strengthening collaborative governance, expanding participatory approaches, and institutionalizing adaptive mechanisms can ensure that resilience-building becomes an integrated and sustained effort, rather than a reaction to external shocks.

4 Catalonia

4.1 Overview & Case Selection

4.1.1 Case study overview

Administrative fragmentation poses significant challenges to addressing climate resilience in Spain, like in many other European regions. Our case study examines the evolution of governance arrangements in Catalonia, aiming to enhance the impact of resiliency policies within the territory. This involves understanding how various administrative bodies historically managed climate resilience efforts and the steps have taken to improve coordination and effectiveness.

Mitigation plans in Catalonia started in 2007, marking the beginning of structured efforts to tackle climate issues. These plans laid the groundwork for addressing the sources of climate change and reducing greenhouse gas emissions. However, it became evident that mitigation alone was insufficient, needing a more comprehensive approach that also includes adaptation measures to cope with the inevitable impacts of climate change.

Adaptation plans were introduced in 2015, reflecting a growing recognition of the need for a dual approach to climate resilience. Catalonia's participation in integrated EU programmes, such as the European Environment Agency (EEA) and LIFE, has been particularly prominent since the mid-2010s. These programmes have played a crucial role in supporting the region's climate change adaptation strategies, highlighting the importance of international cooperation and funding in enhancing local resilience initiatives. The evolution of these governance arrangements underscores Catalonia's commitment to improving its resilience to climate impacts through both local efforts and broader, integrated strategies.

4.1.2 Case selection

MCRIT has wide experience in the Catalan territory (+25 years) conducting resilience-related plans, including Sustainable Energy Action Plans (SEAPs) and Sustainable Energy and Climate Action Plans (SECAPs); Local Urban Agendas; Resiliency Plans, Climate Change Strategies; Sustainable Urban Mobility Plans (SUMPs); etc. MCRIT is acquainted with the policies, the representative stakeholders, and the lines of work lead by the region and with the regulatory and planning aspects linked to governance of resilience.

Catalonia is a representative example of a risk affected territory in the Mediterranean context, with a strong European forward-looking perspective to tackle existing Challenges. The Catalan case study is presented as a relevant story on how to translate European policies and European goals into local action strategies at regional and municipal levels. It is also a success story of increasing collaboration between different administrative bodies at different territorial levels, in a context of large institutional fragmentation.

4.2 General description of the region

4.2.1 Location

Catalonia is the northeastern Spanish NUTS2 region (ES51), bordered by France and Andorra to the north, the Mediterranean Sea to the east, and the Spanish regions of Aragon and Valencia to the west and south, respectively. The region covers an area of approximately **32.095 square kilometres**, making it the sixth bigger autonomous community in Spain (out of seventeen without counting Spanish African Possessions). It features a diverse landscape that includes the Pyrenees mountains in the north, a central plateau, and a coastal plain along the Mediterranean. Catalonia is subject to climatic risks, mostly extreme drought, heavy rain and flash floods, coastal erosion, heat waves and wildfires. Catalonia is the second largest NUTS2 in population in Spain with **8.016.606 inhabitants** in 2024.

Map 4: Catalonia Case Study Area



Source: Authors' own elaboration.

4.2.2 Natural Assets and Vulnerabilities

According to the Catalan Forest Observatory (OFC), the forested area covers the 64,5% of the territory, crop land represents 20%, 6% are urban areas and 0,5% continental waters.⁵

Catalonia is an eminently forested territory; forest surface has increased over the last 50 years as agriculture has been abandoned in rural areas across the region. Properly managing the green infrastructure is a cornerstone of public policies to prevent summer wildfires.

Urban land is concentrated in the coastal areas. Many areas are occupying land at risk, in areas where coastal erosion and sea level rise may affect buildings and infrastructures, or along intermittent river streams subject to flash floods.

Many urbanized areas occupy spaces within forested areas, having a strong risk subject to wildfires.

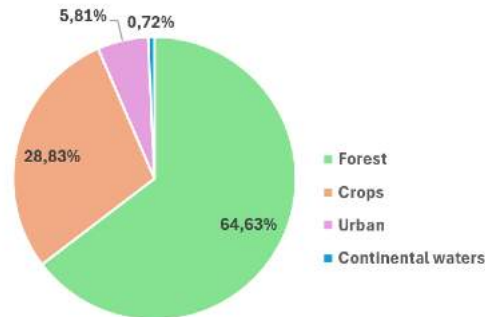
Drinking water to the Barcelona metropolitan region is obtained from water reservoirs in internal basins, a system of short rivers (<200km) running from the Pyrenees to the Mediterranean. Water networks are fed

⁵ Observatori Forestal de Catalunya. Available at <https://www.observatoriforestal.cat/resum-del-sector/>

from river reservoirs, and more recently, through desalination facilities. Water scarcity is a recurrent risk in the region.

As population is increasingly old, soon to reach >25% of population over 65 years, heat waves are an increasing concern in Catalonia, and greening policies are being applied to facilitate fresher city ecosystems.

Figure 14: Catalan territory coverage



Source: OFC

Forest areas

Forest Expansion. Between 1990 and 2005, Spain experienced a 32.9% increase in forest cover, adding approximately 4,436,000 hectares.⁶ In Catalonia, forests expanded by 17% between 1990 and 2002, primarily due to the abandonment of agricultural lands and subsequent natural reforestation.⁷ This growth brings in significant challenges that need to be addressed.

Forest fires. The accumulation of biomass due to forest expansion, combined with the lack of active land management, has significantly increased the risk of wildfires. Many of these new forests are dense and lack natural firebreaks, allowing fires to spread more rapidly. To mitigate this risk, controlled burns are carried out in strategic areas, and silvopastoralism—grazing livestock in forests—is promoted as a method to reduce undergrowth and limit the spread of potential fires.

Droughts. The expansion of forests also affects water availability, as a larger number of trees increases water consumption from the soil. This heightened demand leads to greater competition for resources, making trees more vulnerable to prolonged dry periods. As a result, many forests experience increased stress, which weakens trees and makes them more susceptible to pests and diseases, further endangering their stability.

Water resources. One of the most significant consequences of forest expansion is the reduction of water reaching rivers and other ecosystems. As tree cover increases, more groundwater is absorbed, altering the overall water balance. This shift impacts both natural ecosystems and human water supply needs.

Water availability

In recent years, Catalonia has experienced significant variations in water availability, influenced by both climatic conditions and human activities. This Mediterranean region, known for its diverse climate zones, has faced challenges in managing its water resources due to fluctuating rainfall patterns and increasing demand from agricultural, industrial, and domestic sectors.

Climatic Influences. Catalonia's climate is characterized by hot, dry summers and mild, wet winters. However, in recent years, the region has witnessed a notable decrease in annual rainfall. According to data from

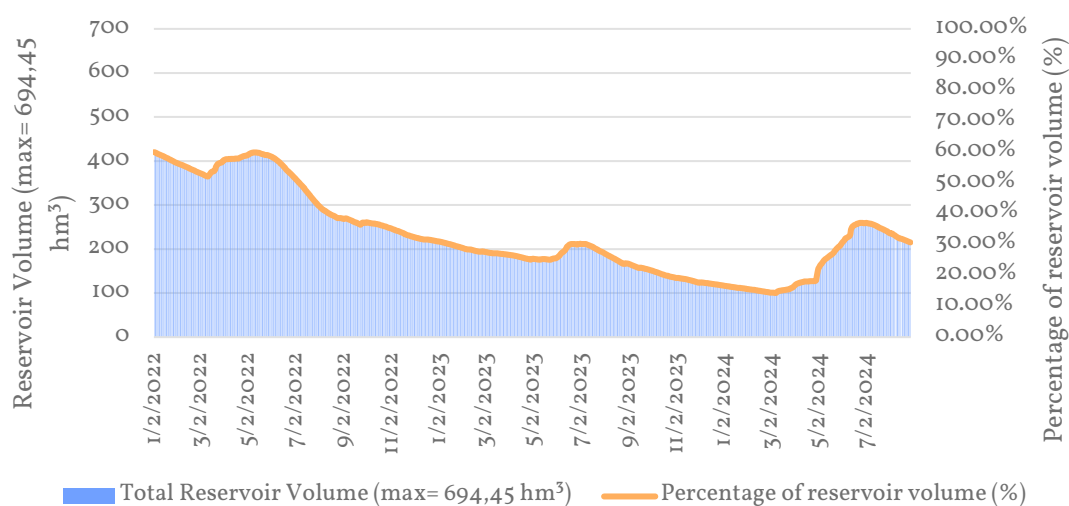
⁶ World Rainforests. (n.d.). *Forest Information Archive: Spain*. Retrieved from <https://worldrainforests.com/deforestation/forest-information-archive/Spain.htm>

⁷ Centre de Ciència i Tecnologia Forestal de Catalunya (CTFC). (2006). *Canvis en la cobertura forestal i els seus impactes a Catalunya*. Retrieved from https://ags.ctfc.cat/wp-content/uploads/Saura_Pique_2006.pdf

the Meteorological Service of Catalonia (Meteocat), there has been an average reduction of 20% in precipitation over the past decade compared to historical averages. This reduction has led to lower river flows and decreased reservoir levels, exacerbating water scarcity during peak summer months.

Reservoir Levels. The reservoirs in Catalonia, crucial for water storage and supply, have been significantly impacted. For instance, the Ter-Llobregat system, which supplies water to a large part of the population, has seen its capacity drop to alarming levels during dry periods. In 2022, the combined reservoir levels were reported to be at only 35% of their full capacity, a stark contrast to the usual 60-70% levels observed in the previous decade (Catalan Water Agency, ACA). Moreover, the levels kept falling until spring of 2024, reaching a 14,4% of their full capacity.⁸

Figure 15: Evolution of the reservoirs of the internal basins of Catalonia from January 2022 to August 2024



Source: Authors' own elaboration. (Based on ACA data)

Human Impact and Water Management. The growing population and economic activities have increased water demand, putting additional strain on the already limited resources. Agricultural activities, which account for about 70% of water usage in Catalonia, have been particularly affected. Measures such as more efficient irrigation techniques and crop selection have been implemented to mitigate this impact.

Policy and Conservation Efforts. The Catalan government, through the ACA, has initiated various water management policies aimed at improving water efficiency and conservation. These include promoting the use of reclaimed water, implementing stricter regulations on water usage, and investing in infrastructure to reduce leaks and losses in the distribution system. Additionally, public awareness campaigns have been launched to encourage water-saving behaviours among residents.

Future Outlook. Looking ahead, the sustainability of water resources in Catalonia remains a critical concern. Climate change projections indicate a potential further decrease in precipitation and an increase in temperatures, which could exacerbate water scarcity issues. Ongoing efforts to enhance water management practices and the adoption of innovative technologies will be vital in ensuring the long-term availability of water in the region.

⁸ For more information on this topic, consult the Open Data from the Catalan Government: https://analisi.transparencia-catalunya.cat/en/Medi-Ambient/Quantitat-d-aigua-als-embassaments-de-les-Conques-/gn9e-3qhr/about_data

Agriculture

Catalonia's climatic diversity significantly supports a wide range of agricultural activities due to its varied topography and geographical location. The region benefits from a mix of Mediterranean, continental, and mountain climates, each contributing to the cultivation of different crops.

In the **coastal areas**, the Mediterranean climate with mild winters and hot, dry summers is ideal for growing olives, grapes, and citrus fruits.

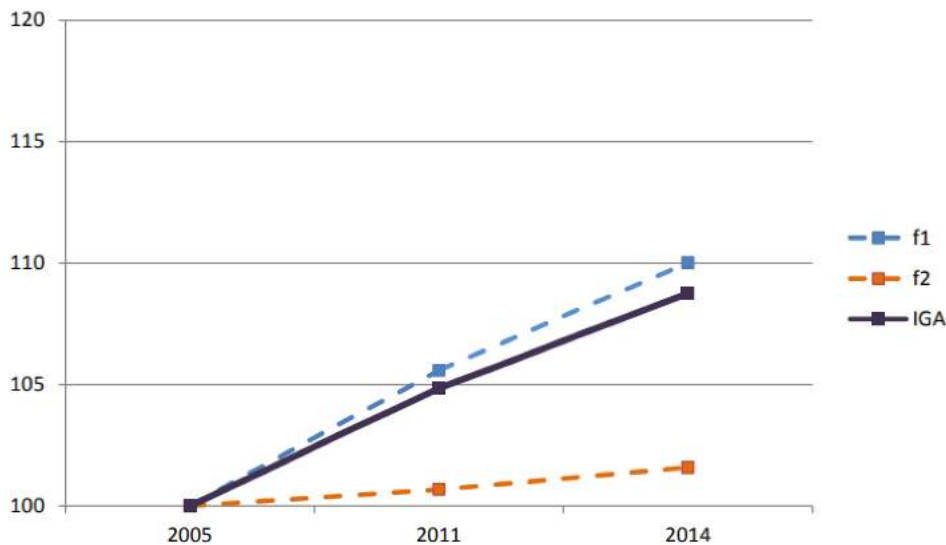
Inland areas experience a more continental climate, with greater temperature fluctuations between seasons. There, cereals such as wheat and barley dominate the landscape, alongside legumes and sunflowers. The plains of Lleida, known for their irrigation infrastructure, are particularly suitable for growing fruits like apples, pears, and peaches, making it a significant fruit-producing area.

The **mountainous regions**, including the Pyrenees, provide a different agricultural environment due to cooler temperatures and higher precipitation. These conditions support livestock farming, especially sheep and cattle, and the production of high-altitude crops like potatoes and certain types of herbs.

Monitoring Vulnerabilities

Relevant documents and tools. Documents such as Catalonia's climate change strategy and their respective follow-up reports, the global adaptation indicator or the (economic) anti-fraud matrix have been drawn up. The OCCC (Climate Change Catalan Office) prepares documents such as the *Assessment Of The Vulnerability Of Catalonia's Transport Infrastructures To The Impacts Of Climate Change* in view of the need to increase climate resilience in several areas, in this case, mobility.

Figure 16: Evolution of the Global Adaptation Indicator for Catalonia. It shows how adaptation is increasing in the region



Source: OCCC, 2021.

Need for resilience. These challenges require comprehensive management strategies to mitigate risks and ensure the sustainable use of natural resources. Efforts to combat climate change and protect the environment are increasingly important for maintaining Catalonia's natural assets.

4.2.3 Human and Social Capital

Catalonia ranks among the leading Spanish regions in human and social capital indicators. Key aspects such as human development, education, employment, and entrepreneurship reflect a dynamic and highly developed society.

Human Development and Life Expectancy

Catalonia had a **Human Development Index (HDI) of 0.916 in 2021**, the fourth highest in Spain (national mean: 0.905). The **Life Expectancy in 2022 was 83.49 years**, also placing it fourth among Spanish regions (national mean: 82.75).

Education and Employment

Education levels in Catalonia show both strengths and challenges. In **2022, the early dropout rate was 17%**, the third highest in Spain. However, the **higher education attainment rate for ages 25-34 was 50% for men and 60% for women**, ranking fifth in the country.

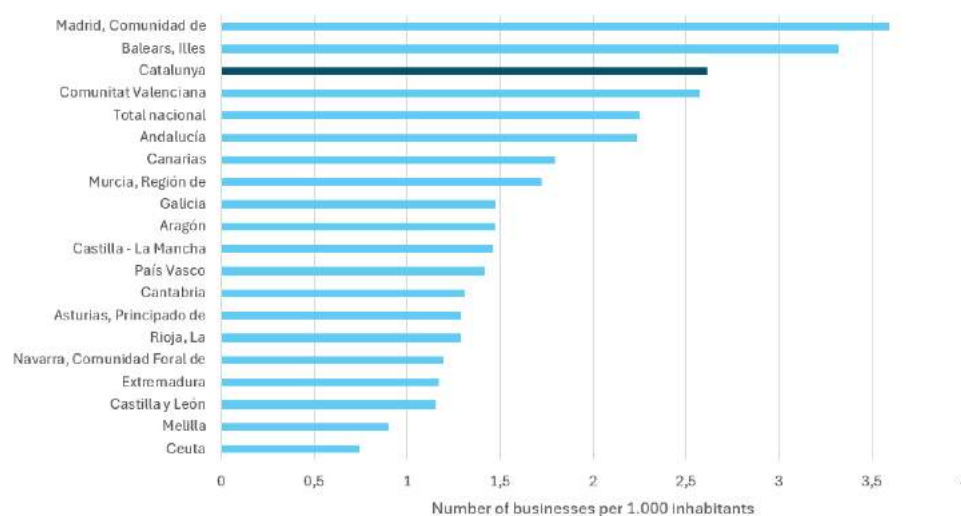
The region is home to **prestigious universities**, such as the **University of Barcelona and Pompeu Fabra University**, along with a strong vocational training network. **Employment rates for university graduates in Catalonia (2019) were among the highest in Spain: 90.8% for Bachelor's and 91.1% for Master's graduates**, compared to **86.1% and 87.3% nationally**.

Entrepreneurship and Business Creation

Catalonia has a **thriving entrepreneurial ecosystem** with numerous incubators, accelerators, and innovation hubs. In **2023, 20,646 new limited companies** were created, making it the **second highest region in Spain**, after Madrid.

In relative terms, Catalonia remains among the top regions for entrepreneurship, with **2.61 companies per 1,000 inhabitants**, ranking **third in Spain**, after the **Balearic Islands (3.32) and Madrid (3.59)**, while the national average is **2.25**.

Figure 17: Businesses creation in Spain per Autonomous Communities



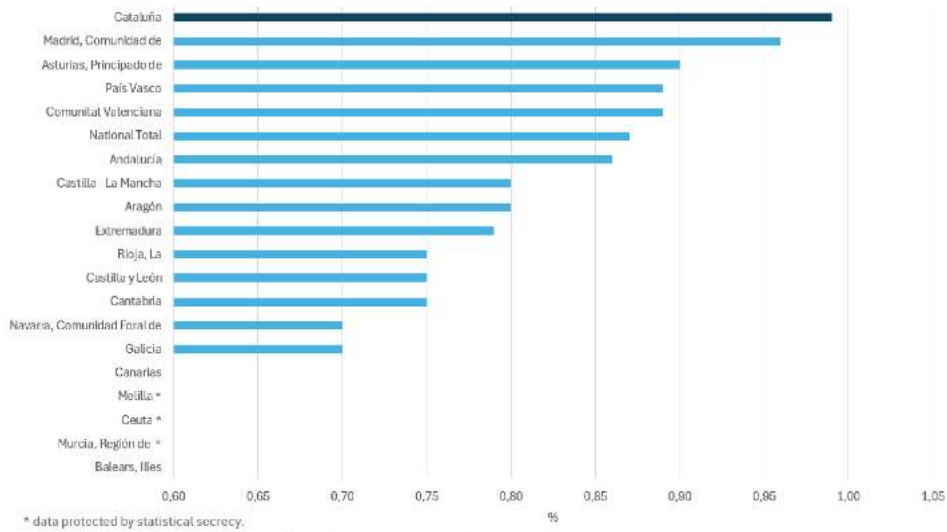
Source: Authors' own elaboration. (Based on INE data)

Educational Disparities in Catalonia

Educational attainment varies between urban and rural areas in Spain. In **2022, the national Parity Index for the population aged 15 to 64 in academic or vocational training was 0.87**, indicating a gap in access.

In contrast, **Catalonia's Parity Index was 0.99**, showing **no significant disparities** between rural and urban areas in the region.

Figure 18: Education attainment. Balance between rural and urban population in Spanish NUT3, 2022. Values close to 1 indicate low inequalities.

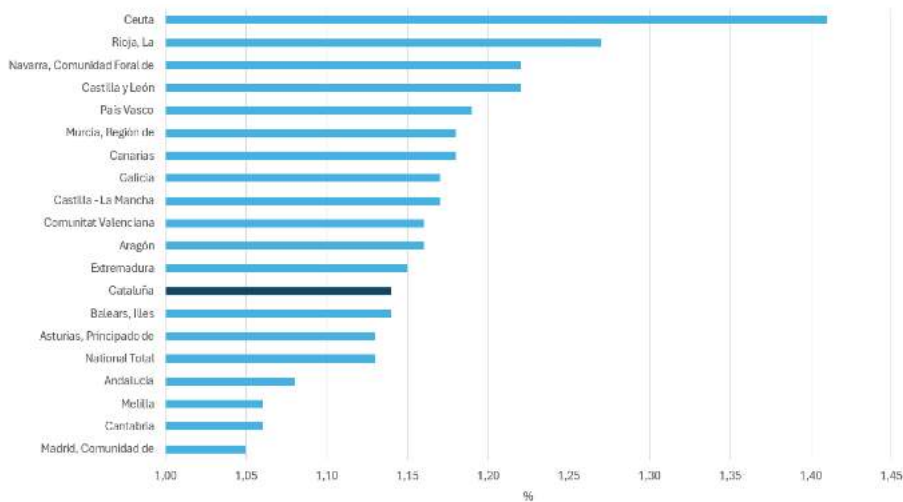


Source: Authors' own elaboration. (Data: INE 2022)

However, **gender disparities persist**. The **Parity Index between women and men** in education was **1.14 for Spain and 1.13 for Catalonia**, meaning that **women are more likely to pursue education than men**.

However, challenges remain, such as youth unemployment. According to the data from the INE, **Catalonia during the first quarter of 2024 had a 9,48% unemployment rate**, while for Spain it's 12,29%. The biggest problem comes when we look at the youth unemployment rate (people from 16 to 24 years old), which is a structural problem both for the region and for the country. **In Catalonia, the youth unemployment rate is at 23,16%** and it is the third region with less percentage, while the mean for Spain is at 27,70%.

Figure 19: Education attainment. Balance between women and men in Spanish NUT3, 2022. Values close to 1 indicate low inequalities



Source: Authors' own elaboration. (Data: INE 2022)

However, challenges remain, such as youth unemployment. According to the data from the INE, **Catalonia during the first quarter of 2024 had a 9,48% unemployment rate**, while for Spain it's 12,29%. The biggest problem comes when we look at the youth unemployment rate (people from 16 to 24 years old), which is a structural problem both for the region and for the country. **In Catalonia, the youth unemployment rate is at 23,16%** and it is the third region with less percentage, while the mean for Spain is at 27,70%.

Community and social cohesion are important aspects of Catalan society. The region has a strong tradition of civic engagement and community organization, with numerous local associations and NGOs playing active roles in social and cultural life. According to the Survey of disability, personal autonomy and situations of dependency (2020) from the INE, the **9,58% of Catalan respondents belongs to or collaborates with an NGO**, even though the mean in Spain is higher, with an 11,48%.

Participation in the general elections of Spain in July 2023 was 66.59% at state level, according to the electoral map offered by the Ministry of the Interior. **In Catalonia, the participation was 62,68% to these general elections.** For the regional Catalan elections of May 2024, it was only at 57,94%, but it was the fourth with less participation due to some political, since there is a certain uprooting and weariness with politics due to continuous political tensions regarding Catalonia's status within Spain, that have at times strained social cohesion.

4.2.4 Socio-Economic Trends

Catalonia plays a significant role in Spain's economy and faces demographic challenges that shape its future development.

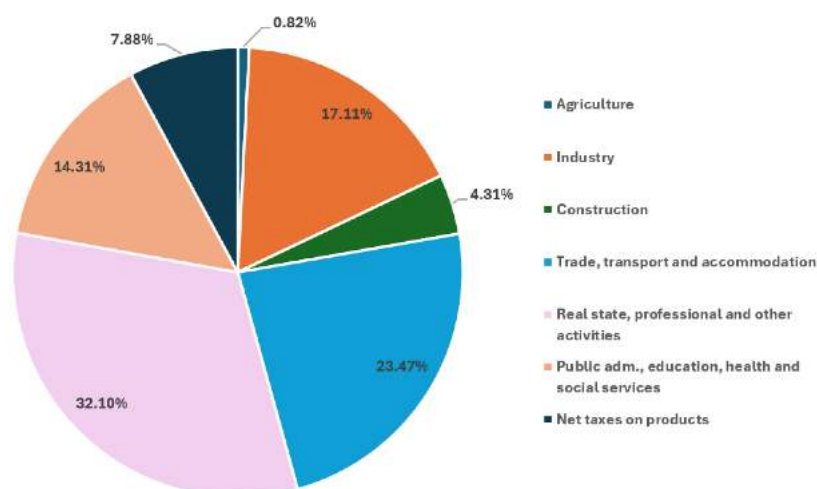
Economic Structure and GDP

In 2023, Catalonia's GDP was approximately 292.47 billion euros, contributing nearly 20% of Spain's total GDP while representing 16% of the country's population (IDESCAT).

The region's economy is **highly diversified**:

- **Services:** 69.9% of GDP
 - Real estate, professional, and other activities (32.1%)
 - Trade, transport, and accommodation (23.5%)
 - Public administration, education, health, and social services (14.3%)
- **Industry:** 17.1%
- **Net taxes on products:** 7.9%
- **Construction:** 4.3%
- **Agriculture:** 0.8%

Figure 20: Catalan GDP, sectors share, 2023



Source: Authors' own elaboration. (Based on IDESCAT data)

Demographic Trends and Aging Population

Catalonia's **population exceeded 8 million in 2023**, driven partly by immigration, contributing to **cultural diversity** and posing **challenges for integration and social cohesion**.

The **aging population is increasing**, with **1,529,164 people over 64 years old** (19.35% of the total population). The **aging index** (ratio of population over 64 to population under 15) was **136.5** in 2023, lower than the **Eurozone (145.3) and Spain (148.2)**.

The **elderly dependency ratio** (population over 64/population aged 16-64) was **29.1% in Catalonia**, compared to **30.4% in Spain, 33.7% in the Eurozone, and 33.0% in the EU-27**.

This demographic shift presents **challenges for the labor market and social services**, requiring **adaptations in policies** to ensure **sustainable urban development and enhanced social welfare programs**.

Catalonia's population has grown by **25% over the past 20 years**, primarily due to the arrival of new residents, as birth rates remain below the replacement level. As of 2024, **nearly 2 million people** living in Catalonia were born outside Spain, while **around 2.8 million** were born outside the region. This demographic shift has contributed to **greater cultural diversity**, with residents from **over 170 nationalities**, shaping the region's social and economic landscape.

4.2.5 Financial Capital and Economic Structures

Catalonia's **budget was €45,359,2M** in 2023, 7.56% more than in 2022. A 27% of it was allocated to health, a 15% to education and another 15% to non-departmental funds that go, for instance, to react to natural disasters.

It is the community with higher budgets. The second would be Andalusia, with €36M (2023), followed by the Valencian Community, with €28M, in fourth place the Community of Madrid with €26M and in fifth place the Basque Country with €13M. Even so, if we analyse the budgets per capita, Catalonia would drop to sixth position, with €5,645 per person, while Extremadura, the first, would have €7,849 per person, although its total budget is €5M. Catalonia is the region that collects the most taxes. In 2022 it collected €4.6M, being the second Madrid and with a collection of €2.6M.

Industrial, Service Sectors, Innovation and R&D. The region has a robust industrial base, particularly in automotive, chemicals, and pharmaceuticals. Barcelona, Catalonia's capital, is also a major hub for finance, trade, and logistics. Catalonia has a strong emphasis on innovation and research, hosting several research centres and universities that drive technological advancements and attract investment.

Business Development. Catalonia offers various financial instruments for business development, including grants, loans, and tax incentives. The regional government and local institutions support entrepreneurship and innovation through initiatives like ACCIÓ, the agency for business competitiveness.

Infrastructure Investment. Significant investments have been made in infrastructure, including transport (roads, ports, and airports), energy, and telecommunications. Projects like the expansion of the Port of Barcelona and improvements in rail connectivity enhance the region's logistical capabilities.

Housing. While housing affordability is a concern, particularly in urban areas like Barcelona, there are policies and programs aimed at providing social housing and supporting residential development. Financial instruments like mortgages and housing loans are accessible through local and international banks operating in the region.

Emergency Financing. Catalonia has mechanisms in place for financial emergencies, including budgetary provisions and access to national and European Union funds. The regional government can issue bonds and has done so in the past to raise funds for various needs.

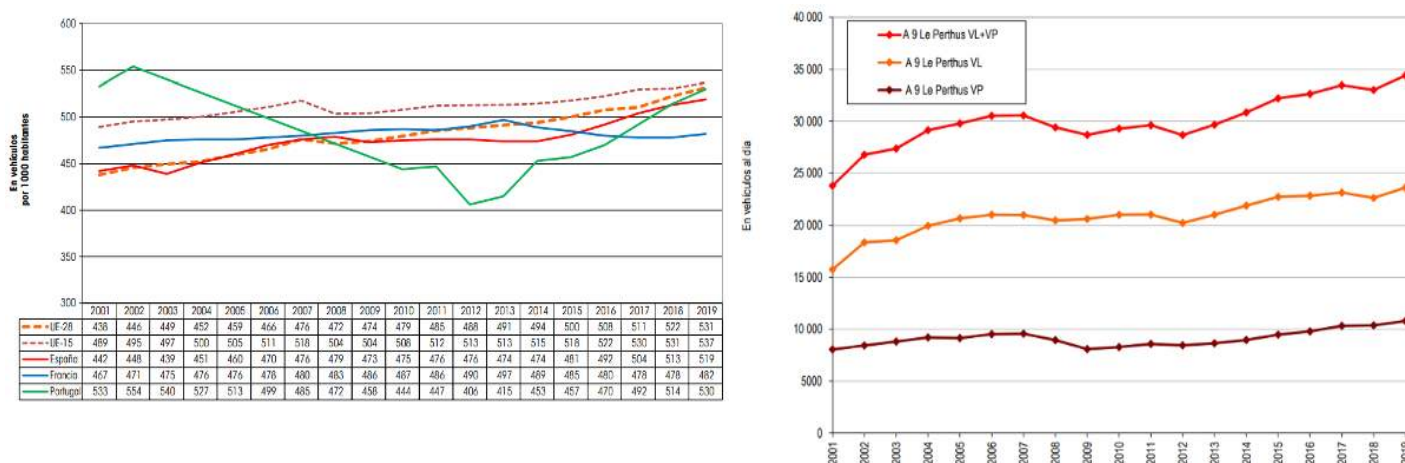
Public Debt. Catalonia has a high level of public debt, which has been a concern. The debt level impacts the region's ability to finance new projects and can lead to higher borrowing costs.

4.2.6 Physical Capital

The long-distance road corridors of this region comprise essentially the Mediterranean axis along the coast (integrated by two parallel motorways) and three axes linking the coast to Zaragoza (from Barcelona, Tarragona and Valencia). All these axes are served by motorways, and some of them are tolled. Road capacity in these corridors has already difficulties in fulfilling demand needs in many sections, notably around the metropolitan area. Particularly during peak tourism seasons some motorway and trunk road sections reach congestion levels that are unacceptable.

Cross-border exchanges between Spain and France have increased by 80%, reflecting a significant rise in mobility for both passengers and freight. The motorization rate has been steadily increasing, with Spain surpassing 500 vehicles per 1,000 inhabitants in recent years, aligning with the European trend. Cross-border exchanges between Spain and France have also intensified, with the A9 Le Perthus corridor experiencing a continuous rise in traffic. Both light vehicles and heavy goods transport have seen notable increases, reinforcing the importance of these strategic corridors. This growth highlights the ongoing demand for infrastructure expansion and mobility management to address congestion and sustainability challenges.

Figure 21: Increasing Motorization and Cross-Border Traffic Growth Between Spain and France



Source: Spanish Ministry of Transport, Mobility and Urban Agenda

Air traffic in Catalonia has experienced significant growth in recent decades, driven primarily by leisure and business tourism. In 2023, the region handled 58.2 million passengers, with Barcelona-El Prat Airport accounting for the vast majority at 50 million passengers. This makes it the principal gateway for both international and domestic air travel. Girona-Costa Brava Airport, which has historically depended on low-cost carriers, managed 2 million passengers, while Reus Airport, primarily catering to seasonal tourism, handled 1.2 million passengers. The rise of budget airlines has played a crucial role in expanding air traffic across the region, although smaller airports like Girona and Reus remain highly sensitive to airline strategy changes. Despite fluctuations in demand, the current capacity of Catalonia's airport system, including planned expansions, is expected to be adequate to meet short- and medium-term needs.

Catalonia also boasts a robust telecommunications infrastructure, critical for its economic and social development. The region has extensive fibre optic coverage, ensuring high-speed internet access in both urban and rural areas. Barcelona, a key tech hub, is at the forefront of adopting 5G technology, fostering digital

9 Ministerio de Transportes, Movilidad y Agenda Urbana. (2023). *Observatorio hispano-francés de tráfico en los Pirineos No. 10*. Retrieved from https://www.transportes.gob.es/recursos_mfom/observatorio_hispano-frances_de_trafico_en_los_pirineos_no_10_diciembre_2023.pdf

innovation. Public and private investments have strengthened mobile networks and digital services, supporting a rapidly expanding digital economy. Catalonia's strategic location, combined with its advanced data centres, makes it a crucial connectivity point in Southern Europe.

The region's **energy infrastructure**, however, presents challenges. Catalonia's **renewable energy share** remains lower than that of regions like Castilla y León, Galicia, Andalusia, and Castilla-La Mancha, which collectively account for more than half of Spain's installed renewable capacity. While wind, solar, and hydroelectric power contribute to sustainability goals, reliance on non-renewable sources remains significant. The electrical grid is well-developed, ensuring reliable distribution, and strategic projects such as smart grids and energy storage are enhancing efficiency. However, increased investments in renewable energy and energy efficiency policies are needed to accelerate the transition to a sustainable energy system.

4.3 Territorial shock/stressor/crisis

Catalonia is vulnerable to a wide range of natural disasters. Climate change poses additional risks, including increased temperatures, sea-level rise, and more frequent extreme weather events. The following figure suggests an alarming pattern of increasing climate extremes, including heatwaves, wildfires, droughts, and extreme rainfall events. The headlines highlight the growing frequency and intensity of climate-related disasters in recent years, painting a picture of escalating environmental crises with no clear signs of improvement.

Figure 22: Escalating Climate Crisis: A Cycle of Heat, Fire, Floods, and Drought in Catalonia



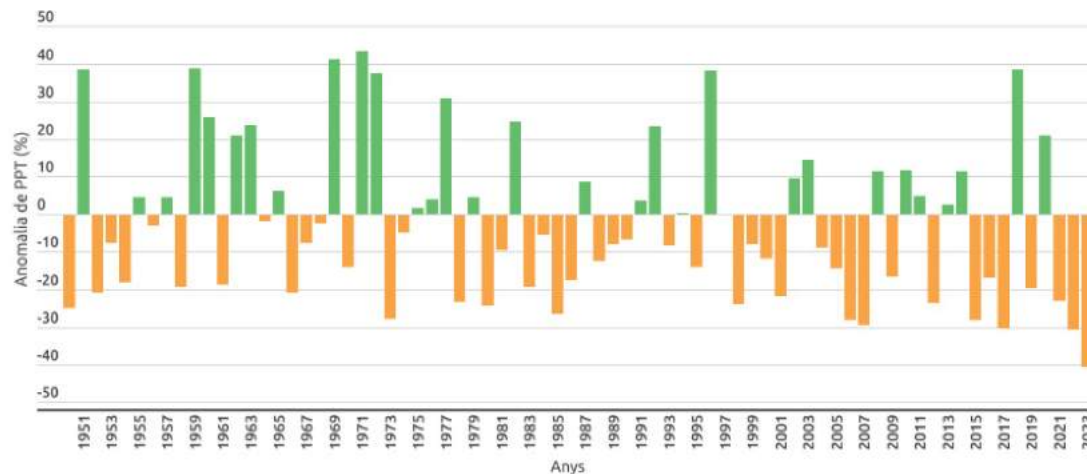
Source: Various Catalan and Spanish journals

4.3.1 Prolonged periods of drought

Prolonged periods of drought in Catalonia have posed significant threats to both the environment and the region's economy. Recent experiences highlight the severe impact on agriculture, where water scarcity has reduced crop yields and livestock productivity, exacerbating economic hardships for farmers. Tourism was also impacted as non-drinking uses became increasingly restricted (e.g. swimming pools, watering public green spaces). As reservoirs of the internal basins reached a minimum in March 2024, 14% from its maximum capacity, drinking water availability for citizens also became a threat.

The following graph, from the Meteorological Service of Catalonia (METEOCAT) shows the **annual accumulated precipitation, expressed as an anomaly in percentage (%) relative to the reference period 1961-1990**. The orange columns indicate years with a negative anomaly (or dry years), and the green ones indicate years with a positive anomaly (or wet years). A trend towards more dry years can be observed in recent decades, especially since the 2000s. Negative values are more frequent and intense in more recent years, indicating a decrease in precipitation and possibly a greater recurrence of droughts. The year 2023 stands out as one of the driest in the period analysed, which also came from two other dry years creating a relevant drought period in the region. This trend could be related to the effects of climate change and the reduction in water availability in the region.

Figure 23: Catalonia - Annual Accumulated Precipitation Anomaly, 2023



Source: METEOCAT

Different studies of the ACA state that a rise in the average temperature of the order of 2°C can lead to an increase in domestic uses between 5% and 12%. The population demands more showers, more air conditioning time, etc. Periods of drought are estimated to translate into reductions of GDP of a municipality between 5% to 8%, according to the Catalan Water Agency or ACA).

According to a recent survey among 100 municipalities in Catalonia to assess **benefits of modernizing water supply and sewerage networks in Catalonia**, by the Barcelona Regional Council, identified:

- 45% of the municipalities surveyed showed water losses in the water supply networks above 30% (3 out of 10 litters dripped in the network are lost before achieving consumers).
- Only 18% of municipalities showed a performance of at least 85% (water losses <15%), the target value at which it is considered that it should be located with a tendency to improve.
- Daily water consumption per inhabitant is on average 117,7 litres per day in the region (ranges per municipality go from 80 to 170 litres). WHO establishes a reasonable level of water consumption per inhabitant and day situated at the threshold of 100 litres.
- 20% of the municipalities surveyed had had water restrictions in the last 5 years due to shortage in water availability; and 14% due to problems with water quality.
- 97% reported supply cuts due to network failures lasting at least 1 hour in the last 5 years. Of these, 60%, more than 10 cuts.
- More than half of the municipalities surveyed invest less than 0.4% of the municipal budget in improving the supply network.
- Municipalities are not aware of the poor condition of the supply network. Of all municipalities that declared having a supply network in good condition, only 20% had water losses below 15%.
- Smallest municipalities are those with the lowest yields, some may have yields of less than 30%.

The regional **Special Drought Plan (PES)** is a supramunicipal plan managed by the Government of Catalonia through the Catalan Water Agency (ACA). It applies to the entire NUTS2 region, particularly the internal river basins, and establishes measures to manage drought in different phases: normality, pre-alert, alert, exceptional, and emergency. This plan defines restrictions and actions based on drought levels and serves as a framework for municipal emergency plans, which adapt measures to local conditions. Some key proposals from the PES are:

- **Reduction of urban consumption:** Limits on water use for irrigation and cleaning during alert and emergency phases.
- **Control of extractions:** Restrictions on well withdrawals and regulation of concessions.
- **Management of alternative resources:** Promotion of reclaimed water reuse and desalination.
- **Awareness campaigns:** Encouraging responsible water use by citizens and businesses.
- **Municipal coordination:** Adaptation of local measures based on the drought level declared by the ACA.

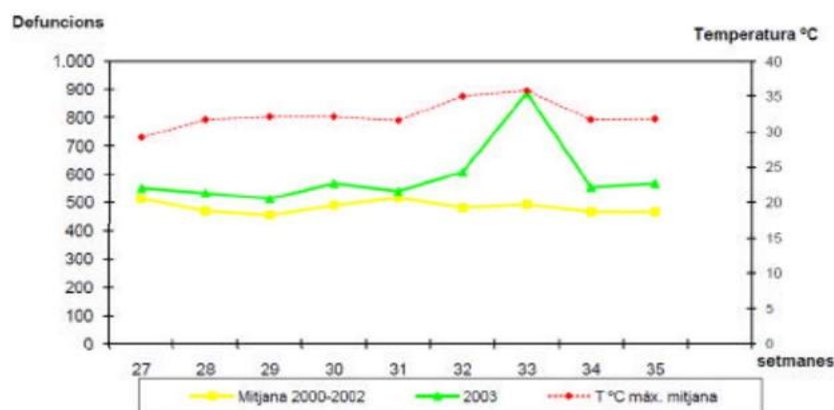
4.3.2 Heat waves

According to the conclusions of the IPCC 2012 - SREX, **heat waves in the Mediterranean area will be repeated every two years towards the end of the century**. According to the Catalan strategy for adaptation to climate change (2013-2020) in Barcelona **the mortality risk associated with an increase of 1°C, above 30.5°C, is 6%, 7% and 5% after 1, 2, and 3 days of peak temperatures**. In consequence, vulnerable population like the elderly or people with cardiovascular diseases, will suffer higher health risks.

A 6% of the territory is urbanized. According to the CREAL - Center for Research in Environmental Epidemiology, **in Catalonia three consecutive days of heat increase daily mortality by 19% reaching 35% when the period extends to seven continuous days of heat**, and the greater increases in mortality due to the effects of heat will occur in those affected by cardiovascular (22%), respiratory (21%) and diabetes (19%) diseases.

Mortality increased by up to 40% during the 2003 heat wave in seven municipalities of Catalonia. The following graph shows weekly deaths in July and August 2003 (green) compared to the 2000-2002 average (yellow). A peak in week 33 coincides with the highest recorded temperatures (red dashed line). Emergency admissions rose by 11.2% (Hospital Clínic de Barcelona, 2003). The data confirm the direct health impact of extreme heat (O. Trejo et al., 2005).

Figure 24: Mortality Increase During the 2003 Heat Wave in Catalonia



Source: Hospital Clínic de Barcelona (O. Trejo et al., 2005)

According to IDESCAT's projected population data for Catalonia, in 2021 the total population of Catalonia is 7.767.190, and by 2040, it is expected to grow to 8.408.136. **The number of people aged 64 and over in 2021 is 1,5 million (19%), and by 2040, this is projected to rise to 2,2 million (26%)** Older adults are at higher risk of heat-related illnesses, including dehydration, heatstroke, and cardiovascular issues, making the impacts of heat waves a critical concern for public health in the coming decades. As the elderly population grows,

strategies to address these risks, such as heat action plans and improved healthcare services, will become increasingly important.

Table 11: Projected Population of Catalonia in 2021 and 2040, with Focus on the Population Aged 64 and Over

	2021	2040	Increase
Total Catalan Population	7.767.190	8.408.136	8%
Catalan population >64	1.478.671	2.198.364	49%

Source: Authors' own elaboration. (Based on data from IDESCAT)

According to the Public Health Agency of Catalonia (ASPCAT), **the population or groups vulnerable to dangerous weather situations are:**

- People over 75 years of age.
- People with certain social circumstances (living alone, poverty, among others).
- People with physical or mental disabilities and mobility or self-care limitations.
- Babies and children under 4 years old
- People with high blood pressure, diabetes, cardiovascular diseases, respiratory diseases (COPD, bronchitis), kidney diseases, Parkinson's, Alzheimer's, obesity or other chronic diseases.
- People who take medication that acts on the central nervous system (tranquilizers, antidepressants, psychotropics) or diuretics.
- People with mental and behavioural problems due to the use of psychoactive substances or alcohol.
- People who have intense physical activity.
- People who must stay or practice physical activity outdoors (including work activities).

Catalonia is implementing "**Operational Plan to Prevent the Effects of Heat on Health**" (POCS)¹⁰, coordinated by the ASPCAT and the Catalan Health Service. The Plan is activated annually from June 1 to September 30. POCS aims to predict hazardous meteorological conditions, minimize adverse health effects from heat waves, and coordinate resources across more than fifteen participating entities. Its strategies include disseminating meteorological data, monitoring mortality rates, issuing public health recommendations, and providing targeted interventions for vulnerable populations.

The "**Civil Protection Plan of Catalonia**" (PROCICAT)¹¹ is activated in cases of extreme heat when the Meteorological Service of Catalonia (Meteocat) forecasts dangerously high temperatures. This plan ensures coordination between different governmental bodies, facilitates emergency responses, and reinforces public communication strategies to protect at-risk populations. PROCICAT works in conjunction with POCS and other local initiatives to strengthen Catalonia's preparedness against heat waves.

Most municipalities are building up "**Local Climate Plans**", that address in particular events of extreme temperature. The concept of "**climate shelters**" is that of a public space (outdoors or indoors) offering fresh environment, either by providing shaded areas to reduce heat exposure, with a goal of ensuring a climate shelter is within a five-minute walk of every residence by 2030, or by allowing access into refrigerated public facilities (air-conditioned schools, libraries ...).

¹⁰ POCS. https://salutpublica.gencat.cat/web/.content/minisite/aspcat/vigilancia_salut_publica/POCS/2022/Pla-dactuacio-POCS-2022.pdf

¹¹ PROCICAT. https://interior.gencat.cat/web/.content/home/o3o_arees_dactuacio/proteccio_civil/plans_de_proteccio_civil/plans_de_proteccio_civil_a_catalunya/01-plans-territorials/procicat/territorial-procicat/procicat.pdf

The **Green and Biodiversity Charter**¹² in Barcelona city is an innovative document that outlines strategies to protect and expand urban greenery: increase permeable surfaces by at least 30% and double the density of green infrastructure across three height levels: shrubs, low trees, and tall trees. The **Barcelona Pavement Guide**¹³ establishes criteria for sustainable, permeable and fresh surfaces that reduce heat accumulation (using light chromatic materials) and improve water infiltration. The **Green Corridors Guide** focuses puts everything together to define a new model of sustainable and resilient street for new projects in the city of Barcelona.

4.3.3 Sea level rise

According to the IPCC, **sea level rise is currently at 0,5cm per year**. The southern coasts of Catalonia will be most critically affected, because in this case, according to the new Centre for Climate Resilience (CRC), the sea level could flood up to 70% of the surface of the Ebre Delta at the end of this century.

Sea level rise is **particularly relevant during sea storm events**, as it leads to more important wave impacts on coastal infrastructure and coastal buildings. In 2020, storm “Gloria” caused damage with an estimated cost of more than 75 million euros in repairs to ports, beaches and promenades alone (Roca et al., 2020). The impacts of climate change on the coast (rise in sea levels, more destructive sea storms, more torrential rainfall, etc.) will affect transport, energy, sanitation, communications, ports and protection works. Many of them are located in flood-prone areas or vulnerable to climate change, like R1 commuter rail line, for which studies (CEDEX, 2018) indicated the need to move it in the medium term to the interior of the municipalities.

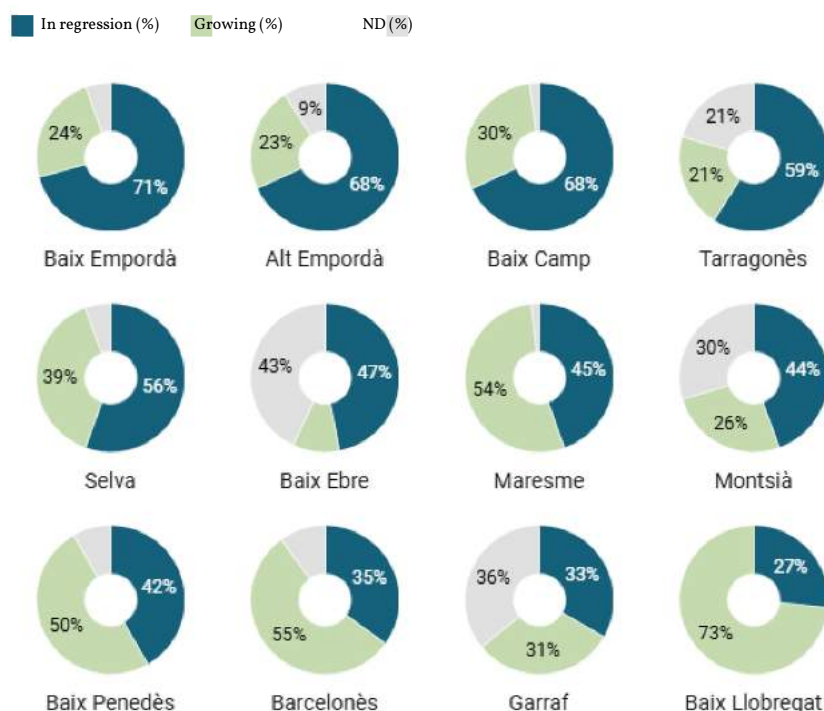
According to the Catalan Department of Territory, Housing and Ecological Transition (DTES), **70% of the species and 50% of the habitats of the coastal and marine systems are in a poor state of conservation** and only 17% of the habitats are in a favorable state. More than 28% of the 133 saline, coastal and marine habitats that exist in Catalonia are threatened.

The Catalan coast has a length of 580 km, which is divided into 208 km of cliffs; 52 km of low coast; 280 km of beaches; and 40 km of ports and maritime works, according to the Ministry of Territory. According to the Cartographic and Geological Institute of Catalonia (ICGC), **65% of Catalan beaches have suffered regression between 1956 and 2019**, that is, 319 of the 489 for which data is available. Conversely, 35% (170 beaches) have grown in the same period.

The counties (LAU5) with the most beaches affected by the retreat have been Baix Empordà and Alt Empordà, in the northern coasts of the territory, with 70% of them, while most of those in the metropolitan area of Barcelona have extended their stretch of coastline, specially the Baix Llobregat county. Catalonia faces heightened risks of **coastal erosion, inundation of urban areas, and saltwater intrusion into freshwater sources**.

¹² Green and Biodiversity Charter. <https://ajuntament.barcelona.cat/premsa/wp-content/uploads/2022/06/1bfadaf-541e-48c1-8fb2-7aded00c488c-1.pdf>

¹³ Barcelona pavement guide. https://ajuntament.barcelona.cat/ecologiaurbana/sites/default/files/Annex_C_Guia_de_Paviments.pdf

Figure 25: Evolution of Catalan beaches, (1956-2019)

Source: ICGC

The Generalitat de Catalunya¹⁴ warns that congestion, shoreline artificialization, and sediment retention, are **degrading and reducing coastal habitats**. In response, it proposes:

- **Restoration of coastal dynamics**, including sediment transport and habitat recovery.
- **Promotion of de-rigidification** and urban adaptation to climate change.
- **Tourism reform** to reduce environmental pressure and improve resilience.
- **Expansion of marine conservation** through protected areas.
- **Support for sustainable fishing practices**.

Strengthening waste management to reduce plastic pollution and promote a circular economy.

4.3.4 Floods due to fluvial courses and heavy rains

The metropolitan area of Barcelona has been affected by **97 episodes of flooding between 1981 and 2010**, which cost the **lives of 11 people** and multiple consequences in terms of **material damage**.

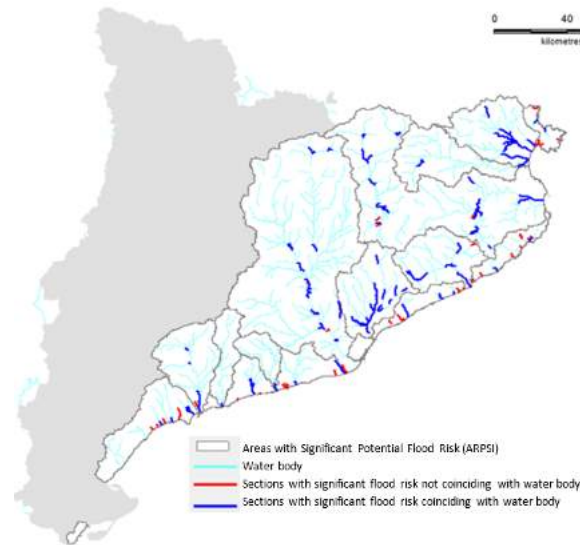
According to the Third report on climate change in Catalonia, it is expected an **increase in the frequency of daily precipitation above 200 mm/24 h**, although **values above 500 mm/24 h could be reached during the XXI century**. However, for the 2011-2040 horizon, a large part of the country experiences an increase of more than 25% in the duration of dry spells, especially in spring and summer, which extends spatially and temporally for in later stages.

¹⁴ A Coastal on the Limit. https://cads.gencat.cat/web/.content/Documents/Informes/2021/Litoral_al_limit_resum_executi_u.pdf

According to several studies of the ACA (Catalan Water Agency), **a reduction in the number of rainy days is expected, but a greater intensity of precipitation.** So, it will rain less, but when it does, it will rain harder. This leads to an increase in the probability of fluvial avenues, cutting the return periods in half, for example, from T500 to T250; from T100 to T50 or from T10 to T5, meaning that a flood with X impacts that was expected to happen every 100 years, will now happen in 50 years. Around **15% of urban or developable land in Catalonia is in flood-prone areas** due to poor drainage or river proximity.

Catalonia has implemented several plans to prevent and manage floods, addressing the growing impact of climate change. The Flood Risk Management Plan (PGRI) 2022-2027¹⁵ includes measures such as **river restoration, improvements in urban drainage, and reinforcement of infrastructure** in flood-prone areas (only for Catalan internal basins).

Map 5: Significant risk of flooding identified as a body of water (internal basins) in Catalonia



Source: PGRI

The INUNCAT¹⁶ Plan (Special Emergency Plan for Floods in Catalonia) is the official framework for managing flood risks. It is being updated with improvements such as **new warning thresholds for heavy rainfall, enhanced real-time alert systems, and improved coordination** between emergency services and local authorities. The plan establishes **protocols for emergency response and post-flood recovery** to minimize damage and ensure a swift reaction to flood events. INUNCAT include measures from 4 different categories:

1. **Prevention:** Land-use planning to limit construction in flood-prone areas, maintenance of hydraulic domains, and adaptation of structures to reduce flood impacts.
2. **Preparedness:** Early warning systems, improved emergency planning, and public awareness campaigns for self-protection.
3. **Response:** Coordination of civil protection plans, deployment of emergency resources, and prioritization of critical flood areas.
4. **Recovery:** Infrastructure rehabilitation, financial aid, and post-flood evaluations to improve future responses.

¹⁵ PGRI Executive summary. https://aca.gencat.cat/web/.content/30_Plans_i_programes/20_Gestio_del_risc_inundacions/2n-cicle-de-planificacio/PGRI-resum-executiu-2cicle.pdf

¹⁶ INUNCAT. https://interior.gencat.cat/web/.content/home/030_areas_dactuacio/proteccio_civil/plans_de_proteccio_civil/plans_de_proteccio_civil_a_catalunya/02-plans-especials/inuncat/document-pla-inuncat.pdf

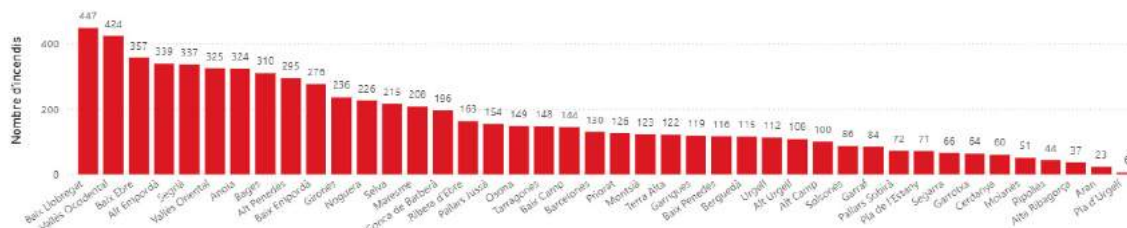
The most promoted measures are **prevention strategies**. Some proposed examples include the creation of green spaces, the use of permeable pavements, and wetland restoration to enhance water infiltration and reduce flood risks. High-permeability soils improve drainage by allowing greater water absorption, whereas low-permeability soils, such as clay or compacted urban areas, increase water accumulation and overflow risks. Urbanization has significantly expanded impermeable surfaces like asphalt and concrete, particularly in metropolitan areas, reducing natural drainage capacity and exacerbating flood hazards.

4.3.5 Forest fires

The increase in temperatures and periods of drought can lead to more frequent and more intense forest fires. There will be an increase in the flammability of forest vegetation due to droughts. Large forest fires, at the same time, pose a risk to health and compromise air quality. The risk depends on its frequency and magnitude, but projections indicate that the risk will increase with the increase in the number of fires.

More than a 90% of the Catalan territory surface, belonging to forest area and crop land, is exposed to this thread. According to the Ministry of Home Affairs of the Government of Catalonia, in its territory there are **1,430 housing estates near the forest, 730 of which are not regularized**, and many still do not comply with the regulations on self-protection measures. According to the open data from the Catalan Ministry of Climate Action, Food and Rural Agenda, **between 2011 and 2023 there were 7.108 wildfires, meaning more than 47.000 HA burned in the Catalan territory during this period.**

Figure 26: Number of forest fires from 2011 to 2023 in Catalonia per county



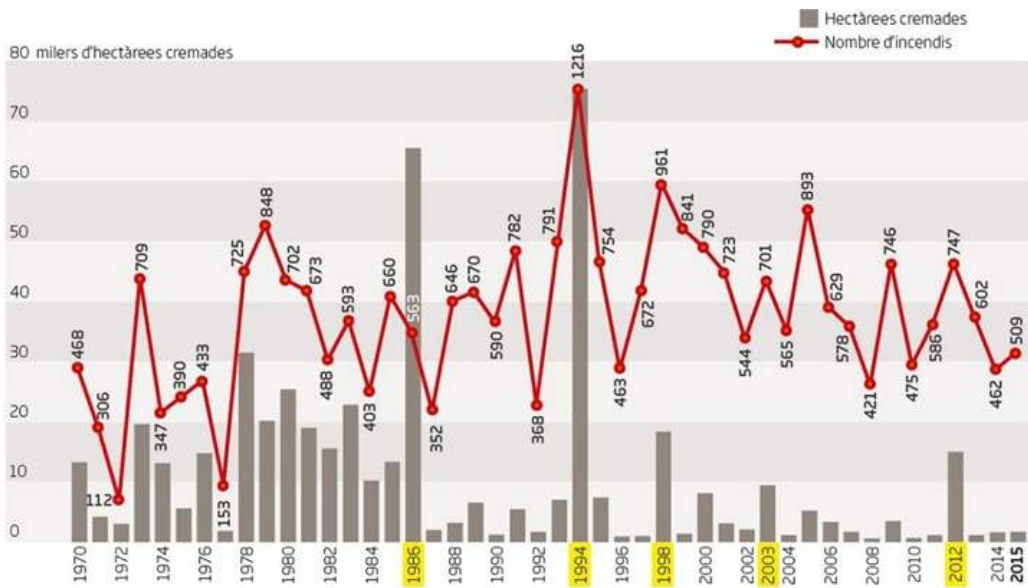
Source: Catalan Department of Agriculture, Livestock, Fisheries and Food

Figure 27: Number of hectares burned from 2011 to 2023 in Catalonia per county



Source: Catalan Department of Agriculture, Livestock, Fisheries and Food

Wildfires in Catalonia have been frequent and severe, with peaks in 1986, 1994, and 1998 when tens of thousands of hectares burned. The worst year was **1994, with over 70.000 hectares affected and 2,216 fires** recorded. Although the number of fires remained high in the 2000s, the burned area varied, with significant events in 2005 and 2012. While prevention efforts have helped reduce the most extreme impacts, fire activity remains a major concern, especially during hot and dry summers.

Figure 28: Evolution of Wildfires in Catalonia (1970-2015)

Source: Catalan Department of Agriculture, Livestock, Fisheries and Food

Catalan government has increased cooperation with French civil protection services to address wildfires in the Pyrenees border region. The EU funded INTERREG **COOPEREM**¹⁷ and **ALBERAPASTUR**¹⁸ initiatives were developed as cross-border projects to improve fire prevention and land management. These projects were supported by the **Government of Catalonia (Generalitat), the European Union, and other French and Spanish institutions**, funded under the **Interreg POCTEFA 2014-2020 program**. Their main objective was to enhance the region's resilience against wildfires through international collaboration and active landscape management. **COOPEREM** (2018-2021) focused on strengthening cooperation between Catalan and French firefighters, including strategic land clearing, such as the removal of vegetation from 19 hectares at Mas de la Comtesa to reduce fire spread risk. **ALBERAPASTUR** (2018-2021) promoted sustainable land management through traditional grazing (silvopastoral systems), helping to control vegetation growth and lower the likelihood of wildfires.

¹⁷ COOPEREM Interreg POCTEFA (2018-2021). https://interior.gencat.cat/ca/el_departament/accio_exterior_i_ue/proyectos_europeus/bombers/proyectos_finalitzats/cooperem-2018-2021/index.html

¹⁸ ALBERAPASTUR Interreg POCTEFA (2018-2021). <https://alberapastur.eu/ca/homepage-extended/>

4.3.6 Overview of shocks, impacts and policy responses

Table 12: Overview of shocks, impacts and policy responses in Catalonia

Type of shock	Initial trigger	Impact of shock	Policy response	Impact of the policy response
Environmental. Drought	Reduction of the number of rainy days (to highlight droughts April 2007 – May 2008; July 2020 – September 2024)	Reduction of water reserves; water restrictions; crop loss; impact on wildlife; soil erosion	Emergency plans; desalination; re-use systems; reservoir management; drought contingency plans; public awareness campaigns; agricultural adaptation; and investment in infrastructure	Improved water efficiency, reduced consumption, enhanced resilience, mitigated economic losses, ensured supply stability, supported ecosystems
Environmental. Heat	Increase in temperatures (to highlight heat waves from August 2003; June 2019; August 2003)	Increase in mortality; saturation of health centres; agricultural impacts	Activation of POCS and PRO-CICAT plans; Green solutions for heat mitigation; Bioclimatic Design for Thermal Comfort	Better preparation for managing heat wave episodes; reduction of the heat island effect
Environmental. Sea level rise	Sea level rise (to highlight accelerated rise since 2000, with projections indicating a 70% flooding of the Ebre Delta by 2100)	Coastal erosion; loss of beaches; saltwater intrusion into freshwater sources; flooding of urban areas; damage to infrastructure; emergence of the need to move trunk infrastructure (R1 train line); loss of biodiversity	Creation of the Conservatori del Litoral; strategic coastal adaptation plans; sediment transport restoration; de-rigidification of the shoreline; urban retreat and adaptation measures; expansion of marine protected areas; sustainable tourism reforms	Improved coastal resilience; better adaptation to climate change; reduced infrastructure vulnerability; enhanced biodiversity protection; mitigated economic losses in tourism and fisheries

Type of shock	Initial trigger	Impact of shock	Policy response	Impact of the policy response
Environmental Flash floods	Increase in heavy rainfall events and fluvial flooding (notable episodes: September 1994, October 2000, June 2002, July 2006, October 2018, September 2019, January 2020)	Increased flood risk; higher surface runoff; reduced natural infiltration; damage to infrastructure and property; disruption of transportation and essential services; loss of lives; soil erosion and habitat degradation	Implementation of the Flood Risk Management Plan (PGRI) 2022-2027; updates to the INUNCAT emergency plan; land-use planning restrictions; urban drainage improvements; river restoration; enhancement of meteorological and hydrological warning systems; promotion of green infrastructure and permeable surfaces	Improved flood resilience; reduced property and infrastructure damage; better emergency preparedness and response; enhanced public awareness and self-protection strategies; improved post-flood recovery mechanisms; increased soil infiltration capacity in urban areas
Environmental Forest Fires	Increase in temperatures and drought periods (notable wildfires: July 2012 in La Jonquera, Alt Empordà, 14,000 ha; June 2019 in La Torre de l'Espanyol, Ribera d'Ebre, 5,000 ha), exacerbated by strong winds, high fuel loads, lack of forest management	Increased wildfire frequency and intensity; destruction of forest and agricultural land; threat to human lives and property, especially in unregulated housing estates; deterioration of air quality due to PM10 and PM2.5 emissions; biodiversity loss; soil degradation	Implementation of wildfire prevention plans; strengthening self-protection measures in urban-forest interfaces; cross-border cooperation initiatives (COOP-EREM, ALBERA-PASTUR); promotion of silvopastoral systems and strategic grazing; improved forest management and fuel reduction programs; enhanced fire response coordination	Reduced wildfire spread risk; improved land resilience; enhanced cross-border cooperation for fire prevention; better integration of sustainable land management practices; increased awareness and preparedness in high-risk areas

4.4 Recovery or resilience preparedness related initiatives

4.4.1 Catalan Intraterritorial Coordination as the Main Resilience Initiative

From Fragmentation to Coordination: The Evolution of a Resilient Strategy

At the beginning of the 21st century, Catalonia lacked a cohesive territorial strategy for climate resilience. Local municipalities acted independently, often implementing mitigation plans with little coordination or long-term vision. Despite the growing climate challenges, there was no structured mechanism to unify efforts or share resources effectively across territories. This fragmentation limited the effectiveness of climate initiatives and made it difficult to scale successful projects beyond individual localities.

A turning point occurred when the **Diputació de Barcelona (DIBA)** began to act as a facilitator, channeling European Union funds and its own financial resources to support local initiatives. By doing so, it established a model of **bottom-up governance**, empowering municipalities to design tailored climate action plans while ensuring alignment with broader regional and EU frameworks. This initiative proved instrumental in developing the **Provincial Adaptation Strategy**, which integrated local governance efforts into a cohesive resilience agenda.

Scaling Up: Provincial Councils as Key Actors in Territorial Coordination

The success of DIBA's approach prompted other provincial councils, such as the **Diputació de Tarragona (DIPTA)**, the **Diputació de Lleida (DLL)**, and the **Diputació de Girona (DDGI)**, to adopt similar strategies. These councils began coordinating at a supra-municipal level, sharing best practices and pooling resources to ensure that no territory was left behind in climate adaptation efforts. This led to an expanded network of projects, allowing for greater synergy between the public and private sectors.

As part of this process, provincial councils assumed an essential role in promoting **inter-municipal cooperation**, providing municipalities with the technical and financial support necessary to implement large-scale adaptation measures. This structure ensured that smaller and less-resourced localities had access to the same opportunities as larger municipalities, reinforcing **territorial cohesion** and strengthening Catalonia's overall resilience.

The provincial councils, and particularly the Diputació de Barcelona (DIBA), have a long tradition of engagement at the European level. For over 25 years, DIBA has been highly active in translating pioneering European environmental policies into the context of the province of Barcelona. This has allowed it to secure European funds and financing for transformative initiatives in the field of climate resilience. Additionally, DIBA participates in interterritorial cooperation projects with other European regions within the framework of various programs, such as Interreg Europe or the Intelligent Energy Program.

In practice, the state provides a significant channel for directly implementing European strategies, resources, and policy objectives from the EU to the municipalities of the province of Barcelona, particularly benefiting the smaller municipalities.

European Union as a Strategic Partner in Climate Adaptation

Catalonia's resilience-building efforts are deeply embedded in European policies and funding mechanisms. The region has leveraged **EU structural funds**, such as the **European Regional Development Fund (ERDF)** and the **European Social Fund (ESF)**, to finance climate initiatives. These funds have facilitated the development of comprehensive adaptation plans at both local and regional levels, aligning with EU climate objectives such as the **Green Deal** and the **EU Strategy on Adaptation to Climate Change**.

The Generalitat de Catalunya has played a proactive role in lobbying for EU funding and advocating for policies that support Catalonia's specific climate adaptation needs. By engaging with EU institutions, regional authorities have ensured that their strategic plans align with broader European sustainability goals while maintaining local flexibility in implementation.

EURONET 50/50 was a European initiative launched in 2009 and implemented until 2016, aimed at improving **energy efficiency in schools and public buildings** through behavioral change and financial incentives. The program operated on a **shared savings model**, where schools and institutions actively worked to **reduce**

energy consumption, and the resulting financial savings were **split 50/50** between the institution and the local government. While the original project has ended, its methodology has continued to influence energy-saving initiatives in various municipalities.

The **Diputació de Barcelona (DIBA)** played a key role in implementing and expanding EURONET 50/50 beyond the province of Barcelona. Through collaboration with other **NUTS3 regions in Spain, such as Huelva**, and additional European partners also responsible to work with NUTS3, DIBA helped **scale up the methodology and best practices** to different territorial contexts. This transregional cooperation allowed for the exchange of knowledge on **energy-saving strategies**, funding mechanisms, and participatory approaches, ensuring that local administrations across various European regions could **effectively adapt and implement the model**. By fostering these strategic alliances, DIBA reinforced its commitment to European cooperation, demonstrating how local institutions can lead in integrating EU policies into **real, impactful territorial actions**.

The Evolution of Climate Action Plans

The development of climate action plans in Catalonia has followed a progressive trajectory:

1. **Mitigation Plans (2007 Onwards)**: These were the first structured efforts to address climate change, primarily focusing on reducing greenhouse gas emissions. However, they were often developed in isolation by individual municipalities, limiting their overall impact.
2. **Adaptation Plans (2015 Onwards)**: Recognizing the need for a dual approach, adaptation strategies were introduced, integrating local efforts into regional and EU-funded programs.
3. **SECAP Plans (2015-2020)**: These plans connected mitigation and adaptation into a comprehensive framework, incorporating energy transition strategies and aligning with the **Pact of Mayors** initiative. Municipalities that previously had only mitigation plans were encouraged to adopt SECAPs, ensuring a holistic response to climate challenges. The **DIBA** has assisted Barcelona's **311 municipalities**, where over **280** have done the same (**90%**). The **DIPTA** has supported Tarragona's **183 municipalities**, with more than **150** having approved their SECAPs (**82%**). The **DIGI** has played a key role in Girona's **221 municipalities**, with **210** having joined the Covenant of Mayors (**95%**). Meanwhile, the **DLL** has supported Lleida's **229 municipalities**, where **135** have adhered to the Covenant (**58.95%**), reflecting a growing commitment to climate action.

Deepening Resilience Through Participation in European Projects

The next stage in strengthening climate resilience at the provincial level involved actively engaging in large-scale European programs. The Diputació de Barcelona (DIBA) began participating in significant initiatives such as the **Intelligent Energy Efficiency** program and the **Euronet 50/50** initiative, which promoted energy efficiency in schools and environmental education. These projects were developed in collaboration with 13 European partners, marking a pivotal step in integrating European policies into local governance.

Building on the success of these initial efforts, DIBA pursued even more ambitious projects, securing funding and fostering deeper cooperation across European networks. This phase saw a shift from simply implementing isolated projects within the province to actively **applying for and leading European programs** that had a direct impact on local schools and communities. The accumulated experience allowed DIBA to take a more strategic approach, scaling up successful pilot initiatives and embedding them within broader European cooperation frameworks.

Territorial Cooperation and Multisectoral Approaches with Other NUTS3 Regions in Catalonia

As the scope of European project participation expanded, a key realization emerged: rather than focusing exclusively on municipal resilience strategies or implementing provincial-scale European programs, it would be more effective to **coordinate efforts across all four Catalan provinces (NUTS2 region ES-51)**.

This shift marked a significant evolution in DIBA's role—from supporting individual municipalities to **facilitating interprovincial collaboration** on climate adaptation and resilience. The approach broadened beyond traditional urban resilience planning to encompass entire economic sectors, including **tourism, forestry, fisheries, and agri-livestock industries**. Engagement with **trade unions, labor organizations, and**

other relevant stakeholders also became a core aspect of the strategy, ensuring a **multi-sectoral and participatory** approach to resilience.

One of the most notable outcomes of this shift was the **LIFE CLINOMICS** project, which introduced a new perspective on resilience planning. Instead of focusing solely on municipal-level adaptation, the project developed **climate adaptation strategies tailored to specific sectors and natural territories** (e.g., rural areas and landscape units).

This represented an **innovative breakthrough** in climate action, as it emphasized **coordinated climate change adaptation strategies in rural environments**, moving beyond the conventional municipal-based approach. The initiative demonstrated how resilience policies could be effectively **scaled across larger territories and economic sectors**, ensuring broader and more sustainable impact across Catalonia.

LIFE Clinomics: Laying the Foundations for Territorial Resilience

A major step towards cohesive regional planning came with the **LIFE Clinomics project** (2016-2020). The initiative established **Territorial Climate Change Adaptation Tables (MeTACC)**, collaborative spaces where public authorities, social actors, and business associations could define climate adaptation priorities and action plans.

The project was implemented in three pilot regions:

- **Terres de l'Ebre:** managing morphological changes in the Ebre Delta and addressing coastal erosion.
- **Montseny:** Promoted sustainable agricultural practices to enhance climate resilience.
- **Alt Penedès:** Developed water resource management strategies for viticulture and agriculture.

LIFE Clinomics was instrumental in shifting Catalonia towards a participatory governance model, fostering cross-sectoral collaboration and ensuring that climate adaptation strategies were grounded in local realities. The project also introduced a **multi-criteria vulnerability assessment methodology**, helping identify specific risks and develop tailored adaptation measures.

Figure 29: LIFE Clinomics work on 3 territories

Source: LIFE Clinomics

From LIFE Clinomics to LIFE IP eCOadapt50

The **LIFE IP eCOadapt50** is a large-scale **Integrated Project** under the LIFE program, designed not just as a standalone strategy but as an ongoing implementation mechanism for climate adaptation projects. Unlike previous initiatives such as LIFE CLINOMICS, which functioned as a structured plan for climate resilience, LIFE IP eCOadapt50 operates as a full-scale program that channels European funds into tangible, locally executed projects. It establishes clear **criteria for funding allocation**, allowing resources to be distributed to stakeholders willing to **develop and test adaptation solutions** in real-world contexts. This approach encourages experimentation, enabling local actors to implement innovative resilience strategies and assess their effectiveness in practice.

A key feature of the program is its **structured decision-making process**, managed through local funding mechanisms and participatory governance. The initiative relies on **working groups** to identify and prioritize relevant projects, ensuring that funding is directed towards the most impactful and scalable solutions. This participatory model fosters **collaboration between municipalities, businesses, and civil society**, supporting a bottom-up approach to climate adaptation. By acting as both a **financial enabler and a knowledge-sharing platform**, LIFE IP eCOadapt50 enhances regional resilience through coordinated, multisectoral action, ensuring that climate adaptation strategies are not just designed but effectively implemented on the ground.

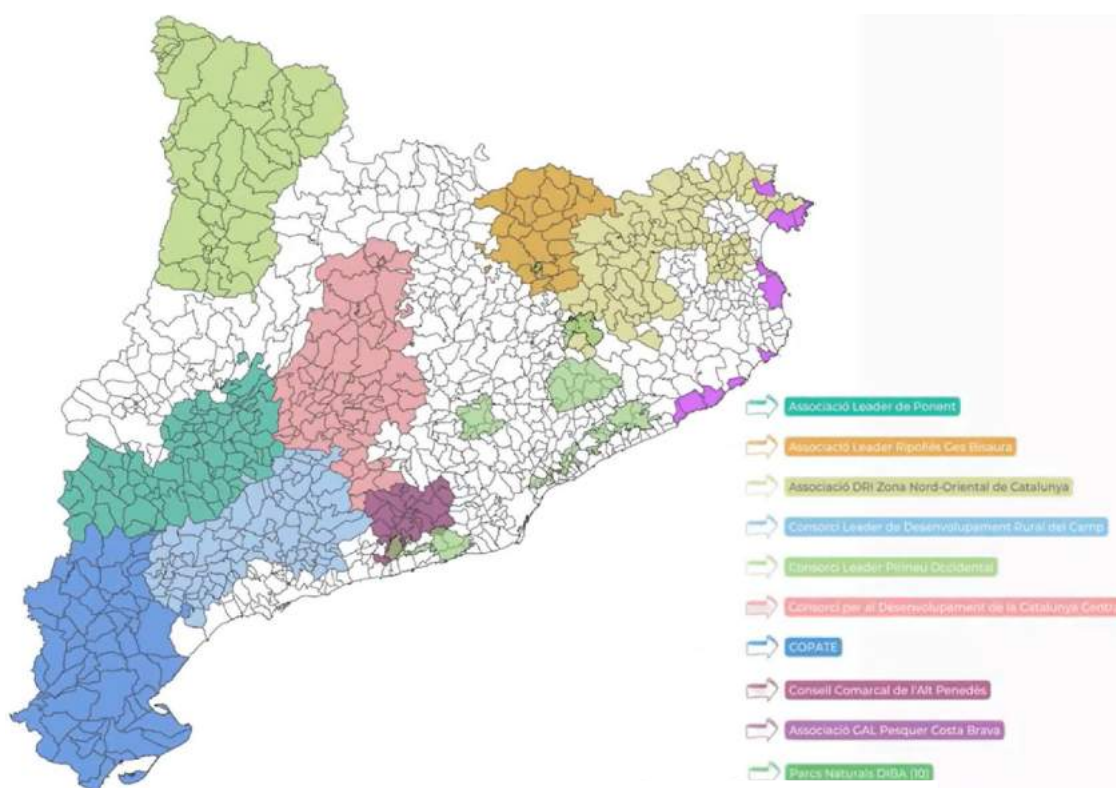
LIFE eCOadapt50: Expanding and Institutionalizing Climate Resilience

Building on the success of LIFE Clinomics, **LIFE eCOadapt50 (2022-2030)** was launched as a large-scale initiative to institutionalize climate adaptation across Catalonia. The project aims to extend adaptation efforts to **19 territories** covering **60% of Catalonia's land area**, integrating adaptation strategies into local governance structures and economic sectors.

Key objectives of LIFE eCOadapt50 include:

- **Enhancing regional cooperation:** Coordinating efforts between DIBA, DIPTA, DLL, and DDGI to ensure territorial cohesion.
- **Sectoral adaptation:** Implementing climate resilience strategies in agriculture, forestry, fishing, and tourism.
- **Establishing stable governance:** Creating **Local Climate Adaptation Governance Bodies (LL4CC)** to oversee long-term adaptation efforts.
- **Integrating financial and insurance mechanisms:** Aligning farm insurance policies with climate adaptation goals and fostering partnerships with financial entities.
- **Expanding EU-wide influence:** LIFE eCOadapt50 aims to establish the **Western Mediterranean Network for Climate Adaptation**, exporting Catalonia's model of governance and resilience-building to other European regions.

Map 6: LIFE eCOadapt50 work on 19 territories, that represent the 60% of Catalonia's surface



Source: LIFE eCOadapt50

Top-Down Initiatives for Climate Resilience

In recent years, the need for improved coordination between administrations and emergency response teams has become evident, particularly in wildfire prevention and response. Events such as the Horta de Sant Joan fire, which claimed the lives of firefighters, underscored the necessity of better-prepared emergency services, enhanced mapping tools, and more efficient inter-agency communication. As a response, **protocols have been refined to improve cooperation among firefighting units, law enforcement, and local administrations**, ensuring a faster and more effective reaction to environmental hazards.

Beyond emergency preparedness, **cross-border collaboration with France has fostered joint fire prevention strategies**, leveraging shared expertise and resources. Innovative forestry management techniques, such as **silvopastoralism and controlled burns**, are now being implemented to reduce wildfire risks while promoting sustainable land use. Additionally, top-down policies are driving advancements in **water cycle**

management, incorporating solutions like **Sustainable Urban Drainage Systems (SUDs)**, **river renaturation**, and **underground water retention systems**. These measures aim to mitigate drought impacts and increase resilience in urban and rural environments.

Diversification of water sources is another key priority. **Infrastructure improvements** have been introduced to minimize water loss, alongside efforts to promote **awareness campaigns and the use of reclaimed water from treatment plants**. The province is working towards a future where water is managed sustainably, ensuring long-term availability despite increasing climate challenges.

Rethinking Coastal Development Through Degrowth Strategies

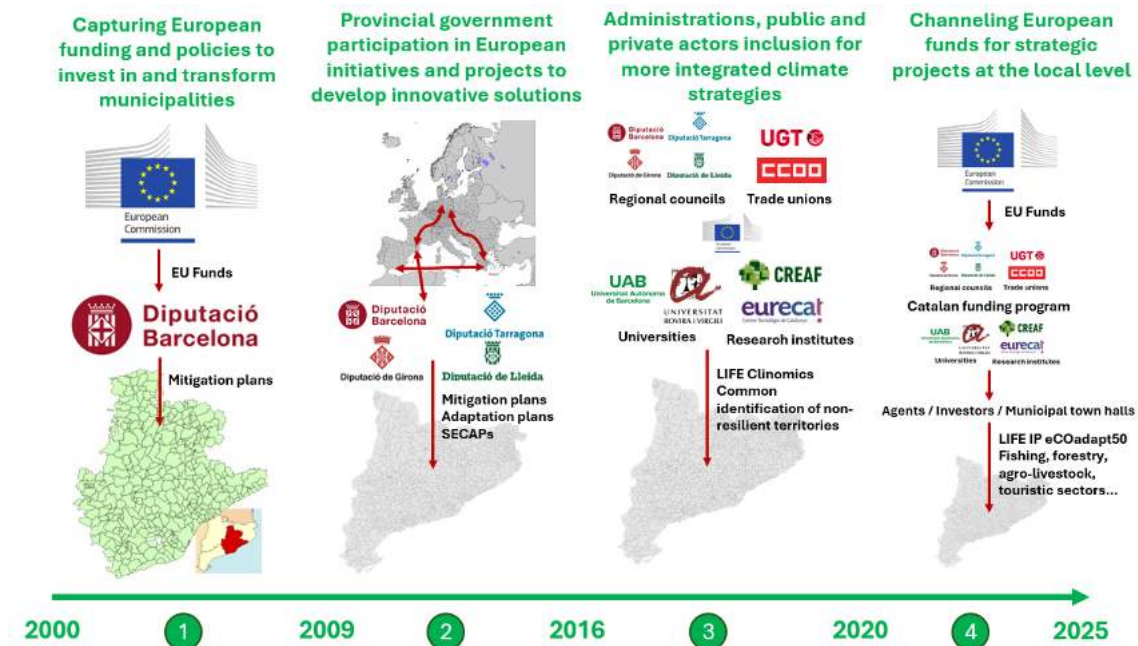
The **Diputació de Tarragona is particularly committed to rethinking urban and coastal development**, advocating for more sustainable land use policies. One of the most significant shifts in this regard has been the gradual **removal of seafront promenades in areas like Calafell**, recognizing their contribution to coastal erosion and the disruption of natural shoreline dynamics.

Similarly, **the reorganization of beachside commercial activities**, such as **reducing the number of beach bars**, aims to strike a balance between economic activity and environmental preservation. This approach reflects a broader degrowth strategy, where **reducing human intervention on the coastline allows for natural processes to restore equilibrium**.

Catalan Intraterritorial Coordination evolution process

The following scheme synthesises the storyline and the different steps of the Catalan Intraterritorial Coordination evolution process.

Figure 30: Catalan Intraterritorial Coordination evolution process



Source: own elaboration

4.4.2 Challenges and Future Perspectives for Climate Resilience in Catalonia

Emerging Trends and External Factors Affecting Resilience

Catalonia faces a rapidly evolving climate context marked by global and local stressors. Increasing temperatures and extreme weather events pose challenges. Locally, recurrent droughts, rising temperatures, and wildfire risks are exacerbated by land-use changes and demographic pressures.

A key challenge is the increasing frequency of compound crises, where climate events overlap with economic or social stressors. Prolonged droughts intensify water scarcity, affecting agriculture and resource

distribution. Depopulation of rural areas reduces the availability of local actors to implement resilience measures, making small municipalities more vulnerable.

Disaster Preparedness and Planning Instruments. Top-down approach

While progress has been made in climate adaptation, challenges remain in disaster preparedness. Catalonia has developed sector-specific adaptation plans, but a fully integrated disaster preparedness framework is still evolving. Current approaches include:

- **Catalan Civil Protection Plan (PROCICAT)**, which outlines emergency response strategies for natural hazards.
- **Drought and Water Resource Management Plans**, increasingly relevant due to worsening drought conditions.
- **Catalan Strategy for Climate Change Adaptation (ESCACC 2021-2030)**, setting long-term priorities for resilience but requiring further alignment with emergency response mechanisms.

Governance and Adaptive Capacity for Long-Term Resilience

Effective governance structures contribute significantly to translating climate strategies into tangible actions that enhance resilience across Catalonia. Initiatives led by the Catalan Regional Councils and supported by EU funding highlight the benefits of multi-level governance. However, several challenges remain:

- **Adaptive Policy Design:** Policies must be dynamic and responsive, allowing for adjustments based on new climate data, evolving risk factors, and socioeconomic changes. They should incorporate scenario-based planning, periodic reassessments, and mechanisms for integrating innovative solutions while ensuring long-term stability in climate adaptation strategies.
- **Stakeholder Participation:** Greater engagement with local communities, private sector actors, and civil society is needed.
- **Territorial Specificity:** Addressing the diverse vulnerabilities of different Catalan territories, from coastal areas to inland regions.

Institutionalizing **Local Climate Adaptation Governance Bodies (LL4CC)**, as proposed in LIFE eCOadapt50, would ensure long-term coordination of adaptation actions. This would also reinforce the **bottom-up approach** that the DIBA initially promoted by allowing localities to fine-tune their local plans.

Future Directions: Strengthening Catalonia's Resilience Strategy

Significant priorities include:

- **Enhancing financial resilience:** Exploring green bonds and resilience-based insurance models.
- **Scaling up nature-based solutions:** Expanding reforestation, wetland restoration, and sustainable land management.
- **Improving data-driven decision-making:** Leveraging geospatial analysis and risk mapping to refine adaptation strategies.

Strengthening cross-border collaboration: Engaging with Mediterranean and European partners to align resilience policies with broader EU frameworks.

4.4.3 Overview of approaches and actions for territorial resilience in Catalonia

Table 13: Overview of approaches and actions for territorial resilience in Catalonia

<p>Overall resilience goals</p>	<ul style="list-style-type: none"> • Territorial resilience: Coordination between municipalities and administrations to ensure a unified response to climate challenges. • Climate resilience: Adaptation to rising temperatures, recurrent droughts, wildfires, and coastal erosion. • Territorial cohesion: Reducing municipal fragmentation in the implementation of adaptation and mitigation strategies. • Economic sustainability: Integration of financial mechanisms (EU funds, insurance policies, partnerships with private entities) to ensure long-term resilience actions.
<p>Resilience (preparedness) process: Priority areas</p>	<ul style="list-style-type: none"> • Interterritorial coordination: Provincial councils (Diputació de Barcelona, Tarragona, Lleida, and Girona) as facilitators to harmonize climate adaptation actions. • Participatory governance: Establishment of Territorial Climate Change Adaptation Tables (MeTACC) as discussion platforms between local authorities, businesses, and social actors. • Integration of mitigation and adaptation: Transition from isolated climate mitigation plans (2007 onwards) to comprehensive SECAPs (2015-2020) combining adaptation, mitigation, and energy transition. • Disaster preparedness and planning: Development of sectoral adaptation plans, although a fully integrated disaster preparedness framework is still evolving.
<p>Governance principles</p>	<ul style="list-style-type: none"> • Multi-level governance: Ensuring alignment between local, provincial, and regional levels. • Bottom-up approach: Empowering municipalities to design tailored climate action plans while aligning with broader EU and regional frameworks. • Inter-municipal cooperation: Facilitating shared resources and knowledge exchange to ensure all territories benefit from adaptation efforts. • Stakeholder engagement: Collaboration with private sector actors, civil society, and financial institutions to ensure long-term resilience measures. • EU integration: Aligning local strategies with European policies and funding mechanisms (e.g., LIFE programs).

<p>Approaches and actions to ensure territorial resilience</p>	<ul style="list-style-type: none"> • Institutionalizing climate adaptation: Creation of Local Climate Adaptation Governance Bodies (LL4CC) to oversee long-term adaptation efforts. • Scaling regional cooperation: Strengthening coordination between provincial councils to ensure no territory is left behind. • Sectoral adaptation strategies: Focus on agriculture, forestry, fisheries, and tourism as priority economic sectors for adaptation. • Financial resilience mechanisms: Alignment of insurance policies with climate adaptation goals and development of resilience-based financial instruments. • EU-wide influence: Establishment of the Western Mediterranean Network for Climate Adaptation to share Catalonia's governance model with other regions.
<p>Mid and long-term visions</p>	<ul style="list-style-type: none"> • Strengthening financial resilience: Exploring green bonds and resilience-based insurance models to finance climate adaptation. • Scaling nature-based solutions: Expanding reforestation, wetland restoration, and sustainable land management. • Improving data-driven decision-making: Utilizing geospatial analysis and risk mapping to refine adaptation strategies. • Enhancing cross-border collaboration: Strengthening partnerships with Mediterranean and European stakeholders to align resilience policies with broader EU frameworks.

4.5 Territorial resilience in Catalonia: Lessons learned

4.5.1 Identified Challenges and Opportunities in Territorial Resilience

Catalonia, as a case study, has experienced multiple climate and territorial shocks that have tested its resilience capacity. This section analyses the main challenges and opportunities identified after these impacts, as well as the transferability of best practices to other European regions.

Main Challenges in Territorial Resilience

The main challenges affecting Catalonia's territorial resilience can be divided into five:

- **Climate change impact:** Phenomena such as prolonged droughts, heat waves, floods, rising sea levels, and forest fires have increased the territory's vulnerability.
- **Fragmented administration:** The lack of an initially coordinated strategy among municipalities and supra-municipal entities has complicated the implementation of resilience policies.
- **Dependence on vulnerable infrastructure:** The location of major critical infrastructures in risk areas (e.g., the RI railway line along the coast) poses an economic and logistical threat.
- **Financial limitations:** Despite European funding support, there are still difficulties in ensuring long-term sustainable investments.
- **Social acceptance and awareness:** The implementation of adaptation measures has often faced resistance from certain economic sectors and the public.

Opportunities Derived from Resilience Efforts

Efforts to strengthen territorial resilience have generated new opportunities for governance, socio-economic development, and innovation in adaptation policies:

- **Implementation of regional strategies:** Projects like LIFE Clinomics and LIFE eCOadapt50 have contributed to institutionalizing resilience at the territorial and sectoral levels.
- **Coordinated governance:** The strategy of the Provincial Councils, such as Barcelona's (DIBA), has improved cooperation among municipalities and supra-municipal actors, ensuring an integrated response.
- **Innovation in public policies:** The adoption of SECAP plans has been promoted, integrating mitigation, adaptation, and energy transition strategies.
- **Development of financial mechanisms:** The exploration of instruments such as green bonds and resilience-based insurance.

Knowledge transfer and best practices: The Catalan experience can be replicated in other Mediterranean regions with similar challenges.

4.5.2 Transferability of Best Practices to Other European Territories

The resilience approach adopted in Catalonia can be extrapolated to other European regions, particularly in **Mediterranean contexts** with similar characteristics. The most transferable elements include:

- **Multi-level governance structure:** Strong bottom-up governance, led by municipalities and provincial councils, ensures local adaptability and citizen proximity, complemented by top-down coordination from the Generalitat and the EU.
- **Nature-based adaptation:** Projects such as the restoration of coastal dynamics in the Ebro Delta can be applied to other regions affected by rising sea levels.
- **Integrated adaptation and mitigation strategies:** SECAP plans can serve as a model for other territories, especially considering that the covenant of mayors is at a European level and beyond.
- **Participatory and co-designed policies:** The creation of Territorial Climate Adaptation Tables (MeTACC) has enabled better integration of economic sectors in resilience planning.

The Catalan experience has also learned from other regions, such as the Netherlands (coastal risk management) and regions in southern France (integrated forest and fire management), demonstrating an exchange of knowledge in European climate governance.

4.5.3 Lessons learned from stakeholder experiences

A wide range of actors have contributed to resilience-building efforts across multiple sectors. These include:

- **Local and Regional Governments:** Diputació de Barcelona, Diputació de Tarragona, Diputació de Girona, and various municipal councils, coordinating adaptation actions across different administrative levels.
- **Research and Academic Institutions:** Observatori de l'Ebre and other universities engaged in climate impact monitoring and adaptation research.
- **Sectoral Organizations:** Unió de Pagesos de Catalunya (UPCAT) representing agricultural interests, Federació Catalana d'Associacions de Propietaris Forestals (BOSCAT) for forestry, and fisheries cooperatives from the Ebro Delta and Costa Brava working on climate-resilient strategies for coastal and marine environments.
- **Labor and Environmental Groups:** CCOO Catalunya and UGT Catalunya, advocating for climate adaptation in labour policies and workforce training.

According to insights gathered from local stakeholders, the main lessons learned focusing on the **tourism, agropastoral, forestry, and fisheries** sectors include:

- **Tourism and Sea Level Rise:** Coastal municipalities such as Calafell have implemented nature-based solutions to mitigate beach erosion. By dismantling parts of their promenades and renaturalizing coastal areas, they have improved the capacity of beaches to naturally buffer against storm

surges and sea level rise. Similarly, the transformation of the Mar Bella promenade in Barcelona integrates permeable pavement and green spaces, enhancing resilience while maintaining touristic appeal.

- **Tourism and Heat Waves:** Hotels in Barcelona have launched water conservation campaigns targeting tourists, raising awareness of resource scarcity. Additionally, the development of climate shelters in green urban areas has provided tourists and residents with cooling spaces during extreme heat events.
- **Forestry and Wildfires:** The implementation of biomass-based heating networks, such as the *Xarxa de Calor de Proximitat* project in Horta de Sant Joan, showcases how sustainable forest management can simultaneously reduce wildfire risk and promote renewable energy sources. Controlled undergrowth burning, as tested in Solsonès, has also proven effective in reducing fuel loads and enhancing forest resilience.
- **Agropastoral Sector and Drought:** Adaptation measures such as precision irrigation systems and rotational grazing strategies have helped optimize water use in agriculture. Projects like *Life Medacc* have demonstrated how selective tree thinning can improve groundwater recharge and reduce drought stress on farmlands.
- **Agropastoral Sector and Fluvial Flooding:** Flooding from intense rainfall can destroy crops, erode fertile soils, and cause livestock losses, making agriculture one of the most vulnerable sectors. Adaptive strategies such as flood-adapted crop rotation, agroforestry systems, and water retention infrastructure have been implemented to mitigate flood risks. Some precision irrigation systems also help manage excess water post-flooding, ensuring productivity in flood-prone agricultural zones.
- **Fisheries and temperatures rising:** In the Costa Brava, initiatives such as mussel farming and biodiversity restoration projects have been implemented to diversify income sources for fishermen facing declining fish stocks due to rising sea temperatures. The introduction of artificial reefs has also contributed to ecosystem regeneration and coastal protection.

Fisheries and Fluvial Flooding. River flooding affects fisheries by altering fish habitats, increasing sedimentation, and introducing pollutants from upstream agricultural and urban areas. Some adaptation measures include restoring riparian forests to stabilize riverbanks and deploying artificial reefs to enhance biodiversity and protect coastal ecosystems.

4.5.4 Overview of the Catalan Challenges and Opportunities

Table 14: Overview of the Catalan Challenges and Opportunities

Agents	Challenges	Opportunities
Decision-makers (Politicians defining priorities)	<ul style="list-style-type: none"> • Lack of initial coordination between government levels. • Economic and social pressure to prioritize other policies. • Need to justify resilience investments to the public. 	<ul style="list-style-type: none"> • Integration of SECAP plans as a political tool. • Increased access to European funds. • Promotion of legislation adapted to climate reality.

Agents	Challenges	Opportunities
Policy makers (Defining and implementing priorities)	<ul style="list-style-type: none"> • Lack of precise data for long-term planning. • Fragmentation in policy implementation. • Difficulty in harmonizing regional regulations with EU directives. 	<ul style="list-style-type: none"> • Implementation of monitoring and geoinformation systems to improve planning. • Opportunity to establish synergies between departments and administrative levels. • Adoption of innovative approaches in mitigation and adaptation.
Societal actors implementing resilience plans	<ul style="list-style-type: none"> • Implementation difficulties due to financial and technical constraints. • Uneven acceptance of resilience measures. • Impact on vulnerable economic sectors such as agriculture and tourism. 	<ul style="list-style-type: none"> • Creation of collaborative working groups (MeTACC). • Possibility to adapt productive sectors to new climate conditions. • Increased public awareness and preparedness for climate risks.

4.6 Strategic policy and governance suggestions for the local and regional level

4.6.1 Strategic Policy Areas for Catalonia

The governance of territorial resilience in Catalonia is shaped by multiple policy domains that influence adaptation and mitigation strategies. Based on stakeholder input and analysis of existing initiatives, several key policy areas have been identified:

Existing Policy Areas Impacting Territorial Resilience:

- **Climate Adaptation and Risk Management:** The integration of climate adaptation into territorial planning has improved, particularly through initiatives such as LIFE Clinomics and LIFE eCOadapt50. However, sectoral integration remains fragmented, limiting holistic resilience approaches.
- **Water Resource Management:** Drought contingency plans and investments in desalination and reclaimed water are positive steps, but inconsistencies in municipal-level policies hinder effective water governance.
- **Forestry and Wildfire Prevention:** The expansion of forest management programs and silvopastoral strategies has reduced fire risk in key areas. However, the persistence of unmanaged rural lands continues to exacerbate vulnerabilities.
- **Urban Resilience and Land-Use Planning:** Efforts to integrate nature-based solutions into urban planning, such as green corridors and climate shelters, are advancing. Yet, regulatory inconsistencies across municipalities delay large-scale implementation.

Underdeveloped Policy Areas with Potential Impact:

- **Economic Resilience through Green Transition:** Enhancing resilience-based economic diversification is crucial, particularly in rural and climate-vulnerable communities. A clearer understanding of climate investment needs and their social and environmental benefits would help communicate policy impacts more effectively. The link between climate adaptation investments and improved quality of life is underdeveloped. Climate action is often framed as a global necessity rather than a

present-day benefit. Highlighting how these investments create safer, healthier, and more attractive environments can foster broader public support.

- **Quality of Life as a Climate Action Driver:** Resilience strategies should emphasize immediate benefits. Forest management reduces fire risks but also makes outdoor spaces safer. Urban greenery enhances environmental resilience while improving public spaces. Green roofs and shaded areas contribute to urban comfort and livability. Investing in climate adaptation isn't just about environmental protection—it directly improves people's everyday lives.
- **Framing Climate Policy for Broader Engagement:** People must see climate investments as tools for better living conditions, not just ecological responsibility. Stronger messaging should focus on tangible benefits, like cleaner streets, safer parks, and reduced heat stress. Explaining these advantages is key to public engagement. **Resilience dashboards**, for example, align closely with **quality-of-life indicators**, reinforcing the direct impact of climate policies.
- **Cross-border Cooperation on Resilience Strategies:** Shared environmental risks call for stronger transnational collaboration. While some initiatives exist, they remain limited in scope. Expanding partnerships would enhance resilience planning and resource efficiency. Cross-border efforts should extend beyond local levels (NUTS 3) to regional (NUTS 2) and national (NUTS 1) coordination. Regions like Tarragona and Lleida, or Catalonia and Valencia, could improve joint climate strategies.
- **Enhancing Coordination Across Governance Levels:** Climate challenges require cooperation beyond administrative boundaries. Many regional governments work in isolation, missing opportunities for synergy in adaptation and mitigation efforts. More structured collaboration between regions facing similar risks—such as coastal management—would strengthen overall resilience. Existing pilot projects should scale up to broader, long-term initiatives.

4.6.2 Policy Recommendations

To enhance territorial resilience in Catalonia, the following policy measures are recommended:

1. **Strengthen Multi-Sectoral Climate Adaptation Frameworks** – Establish interdepartmental working groups to ensure that sectoral policies align with resilience objectives.
2. **Enhance Territorial Cooperation within NUTS 3 and NUTS 2** – Foster collaboration between neighboring regions to improve coordinated climate action and resource sharing.
3. **Recover and Build Upon Existing Initiatives** – Leverage previous resilience strategies and best practices to strengthen ongoing adaptation efforts.

Ensure Continuity of the Resilience Index Defined by the OCCC – Maintain and develop the resilience index as a key tool for monitoring and improving territorial adaptation policies.

4.6.3 Strategic Governance Approaches for Catalonia

What Works Well:

- Strong provincial coordination, particularly through Diputacions such as DIBA and DIPTA, which facilitate funding and technical assistance.
- Effective stakeholder engagement through participatory governance models, including MeTACC forums and local adaptation tables.
- Integration of EU funding mechanisms, such as LIFE and Horizon programs, to support long-term resilience investments.

Areas for Improvement:

- Need for enhanced data-sharing platforms to streamline decision-making and resilience monitoring across administrative levels.
- Inconsistent policy implementation across municipalities, leading to uneven resilience capacities.

- Limited private-sector engagement in resilience-building, despite available incentives and investment opportunities.

4.6.4 Overview of Governance of Territorial Resilience in Catalonia

Table 15: Overview of Governance of Territorial Resilience in Catalonia

Governance Stage	What Doesn't Work	What Works Well
Agenda-setting	<ul style="list-style-type: none"> • Fragmentation in defining priorities across municipalities. • Limited coordination between urban and rural adaptation needs. 	<ul style="list-style-type: none"> • Strong institutional frameworks, such as the Diputacions' leadership in regional strategies. • Active participation in EU adaptation programs.
Planning	<ul style="list-style-type: none"> • Slow regulatory adaptation to emerging climate risks. - Lack of integration between economic and resilience planning. 	<ul style="list-style-type: none"> • Participatory approaches through stakeholder engagement mechanisms (MeTACC, LIFE projects). • Municipal climate plans incorporating sectoral adaptation measures.
Implementation	<ul style="list-style-type: none"> • Uneven enforcement of resilience policies at the local level. - Insufficient financial support for small municipalities. 	<ul style="list-style-type: none"> • Effective funding mechanisms through Diputacions and EU programs. • Expansion of nature-based solutions in urban planning.
Monitoring & Evaluation	<ul style="list-style-type: none"> • Inconsistent data collection and reporting standards across municipalities. • Limited public transparency on resilience progress. 	<ul style="list-style-type: none"> • Advancements in climate risk mapping and vulnerability assessments. • Integration of adaptive management frameworks in resilience planning.
Policy Reformulation	<ul style="list-style-type: none"> • Resistance to policy adjustments due to administrative inertia. • Difficulty in mainstreaming resilience into economic and industrial strategies. 	<ul style="list-style-type: none"> • Evidence-based policy adjustments informed by ongoing climate impact assessments. • Policy learning through international knowledge-sharing networks.

4.7 Conclusions

Society organizes itself to be more resilient. Initially, the Barcelona Provincial Council identified shortcomings in territorial coordination, particularly in addressing climate resilience challenges at the municipal level. To address this, it has provided technical and financial support to small municipalities within its province, enabling the development of local resilience plans and facilitating access to European funding opportunities. This approach has not only strengthened local capacity but has also allowed for the dissemination of best practices to other regions, fostering replication and scalability of successful resilience strategies.

Catalonia case study origin. Through initiatives such as **LIFE Clinomics** and **LIFE eCOadapt50**, along with the active involvement of regional institutions like the **Barcelona Provincial Council and the Diputació de Tarragona**, significant progress has been made in enhancing intraterritorial coordination. This integrated

approach ensures that territorial management is more cohesive and strategic, recognizing that natural risks do not adhere to administrative boundaries and must be addressed at a supra-municipal scale. The Catalonia case study provides valuable insights into how this process has been successfully implemented, highlighting the key outcomes and lessons learned from this comprehensive resilience-building effort.

Multi-level governance as a key factor. The Catalan experience demonstrates that robust governance structures are essential to bridging the gap between local initiatives and regional or European strategies. The coordination between provincial councils, regional authorities, and municipal governments has played a crucial role in aligning adaptation and mitigation efforts, ensuring that resilience policies are both comprehensive and actionable.

Integration of adaptation and mitigation strategies. Over time, Catalonia has evolved from a primarily mitigation-focused climate strategy to a dual approach that integrates adaptation measures. The widespread adoption of **Sustainable Energy and Climate Action Plans (SECAPs)** across municipalities exemplifies this shift, ensuring that both emission reductions and climate adaptation are pursued in parallel.

Scaling up through European cooperation. The participation of Catalan institutions in European funding programs and cross-regional projects has provided critical financial and technical resources for advancing climate resilience. The successful implementation of **LIFE eCOadapt50**, supported by entities such as the **Diputació de Tarragona**, highlights how leveraging EU partnerships can enhance local climate governance, providing long-term sustainability for resilience initiatives.

Future challenges and opportunities. While significant progress has been made, challenges remain in ensuring sustained financial investment, strengthening private-sector engagement, and addressing sectoral vulnerabilities, particularly in agriculture, forestry, tourism, and fisheries. The Catalan model of resilience, based on multi-level governance, integrated planning, and European cooperation, offers valuable lessons for other regions seeking to enhance their territorial resilience in the face of climate change.

5 Central Italy Earthquake Crater

5.1 Summary

The Central Italy Earthquake Crater was selected as a case study for the ESPON TERRES project because it represents a critical example of Territorial Resilience due to its complex socio-economic, governance, and environmental challenges in the aftermath of the 2016–2017 earthquake. Indeed, the earthquake exacerbated the existing socio-economic situation of the Crater territory, which almost entirely consists of the inner areas of the Central Apennines. These areas are characterised by persistent territorial marginalisation, which manifests as economic decline, reduced employment, depopulation, ageing population, and infrastructural deficiencies. Furthermore, this territory reveals gaps in governance and risk management.

For this reason, this case study provides valuable insights into the necessity of transitioning from a "bouncing back" approach—focused on restoring pre-disaster conditions—to a "bouncing forward" paradigm that integrates resilience into everyday governance and planning. The earthquake highlighted the shortcomings of emergency-driven interventions and underlined the importance of proactive, strategic and multi-level governance models that facilitate inter-municipal collaboration and long-term sustainability.

Key lessons learned from this case include the need for a functional approach to spatial planning that transcends administrative boundaries, leveraging local assets such as cultural heritage and environmental resources to drive socio-economic revitalisation. The study also highlights the role of research, innovation and knowledge transfer in bridging the gap between theoretical advances and practical implementation of hazard mitigation and spatial governance. Furthermore, it highlights the critical importance of community involvement and participatory governance in promoting inclusive and adaptive resilience strategies.

Ultimately, the case study of the earthquake crater in central Italy demonstrates that resilience is about reconstruction and reimagining territorial governance to ensure sustainability, adaptability and preparedness for future crises. By integrating long-term resilience considerations into mainstream planning processes, promoting institutional collaboration and strengthening local capacities, this case provides a model for other marginalised and disaster-stricken territories in Europe seeking to build more robust and future-proof governance frameworks.

5.2 Case Study methodology

POLITO's case study methodology was designed to integrate qualitative and quantitative approaches, combining in-depth engagement with local actors and a structured desk study. An iterative process guided the selection of interviewees and data sources, aiming to capture the complexity of territorial resilience in the Central Italy Earthquake Crater.

A key step in the research process was **identifying relevant local actors with expertise and direct involvement in the post-earthquake reconstruction and resilience-building efforts**. This was facilitated through the established collaboration between the research team at Politecnico di Torino and the University of Camerino, which has been engaged in research on the Crater area for several years.

The **first Future Workshop (FW)** was conducted on 20 February 2024, bringing together **a diverse group of 16 stakeholders**, including **institutional actors, economic and social sector representatives, and technical experts**. **These participants were subsequently invited to engage in the second and third Future Workshops to ensure continuity in discussions and the progressive refinement of research insights**. **Based on the contributions and interventions observed during these workshops, a subset of six local actors was selected for in-depth interviews**. The selection criteria focused on **ensuring diverse perspectives, capturing expertise relevant to Territorial Resilience, and prioritising local actors who strongly engaged with the research objectives**.

The final selection included:

- **Three technical experts** from different regions within the Crater: Marche (Camerino), Abruzzo (L'Aquila), and Lazio (Amatrice).

- **Two institutional representatives** from Marche (Macerata and Ascoli Piceno).
- **One representative from the third sector**, based in Camerino (Marche).

These interviewees provided insights into governance structures, socio-economic dynamics, technical aspects of risk-management, and community-led resilience initiatives, offering a comprehensive understanding of the case study.

5.2.1 Interview Protocol

The interviews followed a **semi-structured format** to ensure a **balance between guided discussion and open-ended responses**. The interview protocol was designed to address three main thematic areas:

1. **Pre-earthquake territorial dynamics** – Understanding the socio-economic conditions, governance structures, and risk prevention measures in place before the 2016-2017 earthquake.
 - What were the key development objectives and challenges facing the territory?
 - What role did risk prevention and planning play in local governance?
 - What were the predominant social and economic dynamics of the area?
2. **Impact and response to the earthquake** – Investigating the immediate and long-term effects of the disaster on local communities and institutions.
 - What aspects of the territory were most compromised by the earthquake?
 - How was the emergency managed, and what roles did formal and informal actors play?
 - What actions were undertaken to support affected populations?
3. **Post-earthquake reconstruction and resilience** – Assessing the effectiveness of reconstruction efforts and identifying strategies for future resilience.
 - How are reconstruction efforts perceived today?
 - What are the main challenges for territorial planning in rebuilding with a resilience perspective?
 - What role does community involvement play in shaping reconstruction policies?
 - How has the earthquake influenced territorial development and multi-level governance?
 - What policies and decisions could enhance resilience against future crises?

The data gathered through these interviews provided critical insights into the governance challenges and opportunities for resilience-building in the Central Italy Earthquake Crater, contributing to ESPON TERRES's broader objectives.

5.2.2 Desk study and data sources

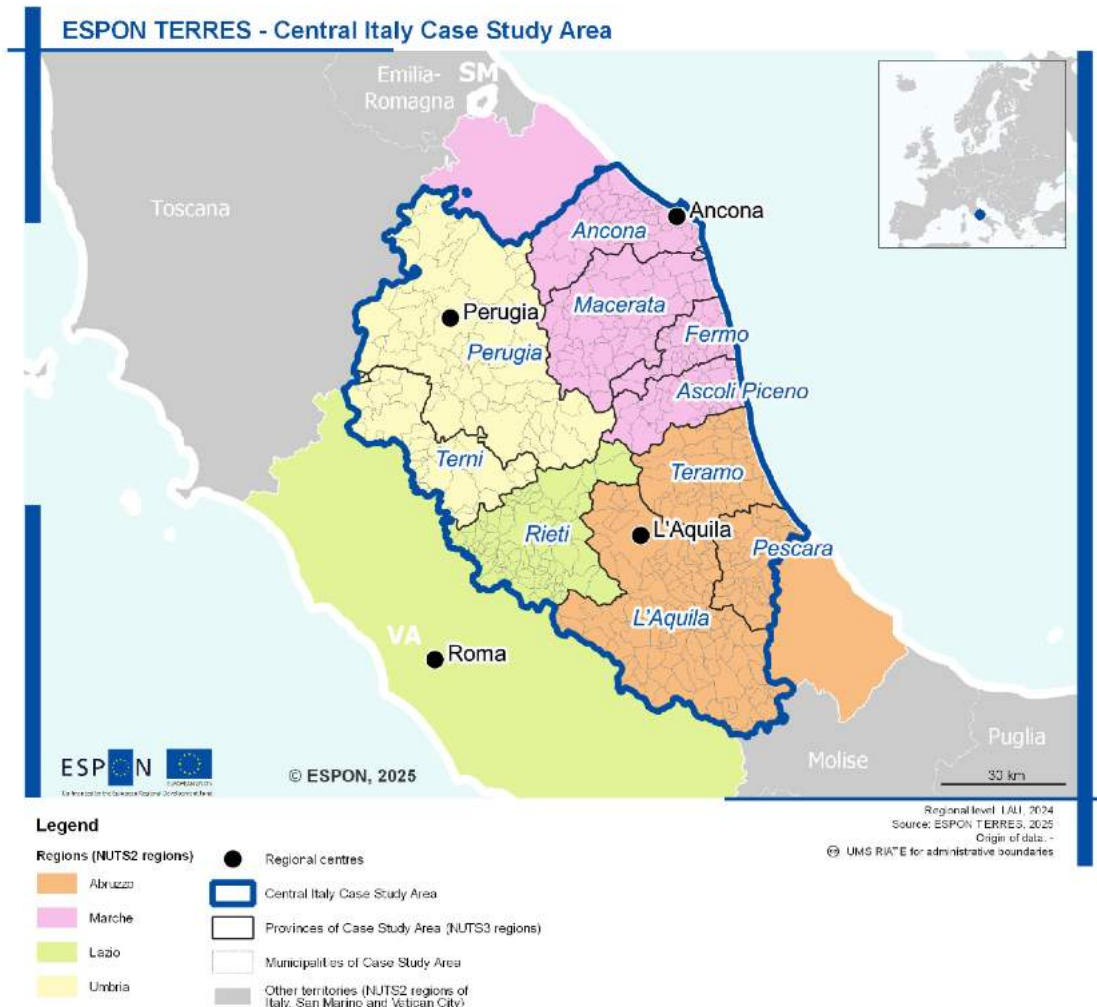
In addition to data gathered through workshops and interviews, a thorough **desk study was conducted to support and validate the case study findings**. The desk research focused on reviewing scientific literature on resilience, territorial governance, and post-disaster recovery strategies; policy documents and official reports discussed during the interviews and workshops, ensuring alignment with current institutional frameworks; and quantitative data from national statistical sources, particularly the Italian National Institute of Statistics (ISTAT), to analyse socio-economic and demographic trends in the Crater area. By integrating these diverse sources, the case study methodology ensured a robust and multi-faceted approach, capturing the structural challenges and opportunities for resilience-building in the Central Italy Earthquake Crater.

5.3 General description of the region: the Earthquake Crater area

The perimeter of the study area coincides with the Earthquake Crater (in Italian, *Cratere del sisma*), a **large area of central Italy, aligning with the central portion of the Apennines**. The term "Crater" was introduced by Decree-Law No. 189 of 17 October 2016 to define the epicentral area most severely damaged by the earthquake sequence that affected this region in 2016-2017. The Crater includes **138 municipalities, 10 provinces and 4 regions** (see Map 7): 85 in Marche (44 in the province of Macerata, 22 in the province of Ascoli Piceno, 17 in

the province of Fermo and 2 in the province of Ancona); 23 in Abruzzo (16 in the province of Teramo, 6 in the province of L'Aquila and 1 in the province of Pescara); 15 in Lazio (all in the province of Rieti); 15 in Umbria (11 in the province of Perugia and 4 in the province of Terni) (Sargolini et al., 2022).

Map 7: Central Italy analysis, regions and provinces affected by the earthquakes



Source: Authors' own elaboration.

5.3.1 A territory highly vulnerable to seismic activity

The 2016-2017 earthquake sequence followed the significant 1997 Umbria and Marche earthquakes and the 2009 earthquake in L'Aquila (Abruzzo), highlighting the considerable seismic hazards faced by this territory and its increased vulnerabilities. The interview with the local experts highlighted that the return period of earthquakes in this region is approximately twenty years:

“Nineteen years is our return time, nineteen very precise years. Let's hope that this time he takes a misstep and makes a wrong turn because with prevention, we are not there yet.”

From a geomorphological point of view, the shaping of the landscape of the earthquake crater in central Italy began approximately between 5 and 1.65 million years ago, during the Pliocene. A subsequent tectonic phase, active from the Lower to Middle Pleistocene to the present, is characterised by direct dip-slip and oblique faults accompanied by substantial uplift. These geological processes transformed the landscape, developing tectonic depressions that define the entire Apennine region (Sargolini et al., 2022). The region is mainly influenced by active extensional tectonics resulting from the subduction of the Adriatic plate under the Eurasian

plate. This tectonic interaction has created a belt of folds and thrusts, with normal faults predominating along the ridges of the mountain range. As a result, the area has witnessed significant seismic events.

In 1997, Umbria and Marche earthquake: On 26 September 1997, two significant seismic events struck central Italy. The first occurred at 2:33 AM with a magnitude of 5.7, followed by a stronger quake at 11:40 AM registering a magnitude of 6.0. These earthquakes primarily affected the regions of Umbria and Marche. In Umbria, notable damage was recorded in the towns of Assisi, Gubbio, Foligno, Norcia, Valfabbrica, Gualdo Tadino, Nocera Umbra, and Sellano. In Marche, the towns of Serravalle del Chienti, Camerino, Fiordimonte, and Castelsantangelo sul Nera were significantly impacted. The earthquakes resulted in 11 fatalities and caused extensive damage to the cultural and architectural heritage of the affected regions, including the collapse of the vault in the Basilica of San Francesco in Assisi (Dipartimento della Protezione Civile, s.d.a).

In 2009, L'Aquila earthquake: At 3:32 AM on 6 April 2009, a powerful earthquake with a moment magnitude of 6.3 struck the Abruzzo region, with its epicentre near L'Aquila. This devastating event led to 309 deaths and over 1,500 injuries, predominantly in L'Aquila and the nearby village of Onna. The earthquake severely damaged residential buildings and cultural landmarks, rendering approximately 65,000 individuals homeless. The economic impact was substantial, with damage estimates reaching approximately €10.212 billion (Dipartimento della Protezione Civile, s.d.b)

In 2016–2017, Central Italy earthquake sequence: Beginning on 24 August 2016 at 3:36 AM, a series of earthquakes struck central Italy, affecting the regions of Abruzzo, Lazio, Marche, and Umbria. The initial quake had a magnitude of 6.0 and resulted in 299 fatalities, numerous injuries, and widespread destruction across the affected areas. Subsequent significant tremors occurred on 26 and 30 October 2016, with the latter registering a magnitude of 6.5—the strongest in Italy in three decades. While this event caused extensive structural damage and increased the number of displaced individuals, it did not result in additional fatalities. In January 2017, the region faced further challenges due to severe weather conditions, including heavy snowfall, which compounded the difficulties in the earthquake-affected zones. On 18 January 2017, four additional quakes with magnitudes exceeding 5.0 struck the area, notably impacting the Lazio and Abruzzo regions. Tragically, these events led to 34 more deaths (Dipartimento della Protezione Civile, s.d.c).

In terms of spatial impact, it is important to note that the affected areas vary across the four regions (Table 16). Specifically, Marche and Lazio are more significant in population and economic-productive systems than Abruzzo and Umbria. As a result, the earthquake had a different impact on these regional systems. Although Lazio is a large Italian region, it was affected only partially, impacting 15 municipalities in the province of Rieti. For these reasons, Marche is the region that experienced the most severe consequences from the 2016–2017 earthquakes, particularly concerning its production system.

Table 16: Affected regions, affected municipalities, magnitude (Richter) and total affected population in Central Italy

Year	Affected Regions	Affected Municipalities	Magnitude (Richter)	Total Affected
1997	Umbria/Marche	48 municipalities, including Assisi, Gubbio, Foligno, Norcia, Valfabbrica, Gualdo Tadino, Nocera Umbra, and Sellano (in Umbria); Serravalle del Chienti, Camerino, Fiordimonte, and Castelsantangelo sul Nera (in Marche).	5,7	<ul style="list-style-type: none"> • Fatalities: 11 people • Injured: Hundreds • Displaced Families: Thousands
2009	Abruzzo	Aquila, Villa Sant'Angelo, Borgo di Castelnuovo Onna, Poggio Picenze, Tormintarte, Totani, Poggio di Roio, Massa d'Albe, Tempera, Paganica, Fossa towns (L'Aquila Province)	6,3	72000

Year	Affected Regions	Affected Municipalities	Magnitude (Richter)	Total Affected
2016	Lazio/Marche	Amatrice, Accumoli, Pescara del Tronto, Arquataa, Posta (Rieti and Ascoli Piceno provinces)	6,2	4854
2016	Marche	Visso, Ussita (Macerata district)	6,1	3027
2016	Umbria	Norcia (Perugia district)	6,5	22292
2017	Abruzzo/Marche	Avezzano, Campotosto, Montereale, Capitignano, Ortolano di Campo-posto, Mopolino (L'Aquila); Castel Castagna, Castiglione Messer Raimondo, Prati di Tivo (Teramo); Abruzzo (Pescara), Lazio (Rieti), Marche (Ascoli Piceno, Macerata, Fermo, Ancona)	5,3	11

Source: Authors' own elaboration. (Based on the International Disaster Database (2023) for 2009, 2016 and 2017 earthquake data and Dipartimento della Protezione Civile (n.d.) for 1997 earthquake data.)

5.3.2 Socio-economic characteristics of the area

The first part of the interviews with local actors aimed to understand the area's socio-economic situation before the 2016-2017 earthquake. Interestingly and consistently, all the interviews reveal that the Crater area almost entirely coincides with the inner areas of the Central Apennines. Indeed, these areas, as described by Lucatelli (2015), are characterised by marked territorial heterogeneity, polycentric spatial organisation, widespread seismic risk, and persistent territorial marginalisation, which manifests as economic decline, reduced employment, and limited utilisation of territorial capital.

The interview 1 reveal:

*“As for social dynamics and, above all, population dynamics, you can understand that **the entire mountainous area of the Marche region has been suffering for years from a phenomenon of depopulation and ageing. Therefore, the earthquake affected a population that was already predominantly elderly and, to a large extent, one that was already inclined to move away from this situation.**”*

The interview 4:

*“**This dramatic event has shone a spotlight on an area that was experiencing depopulation, abandonment, and severe marginalisation.** Despite the tragedy, it has, for a moment, reminded everyone of what was happening in these areas. [...] There is almost **an overlap, let's say quite precise, between the marginalisation of these areas and the Crater.**”*

Despite being a densely populated area, 26% of the approximately 560,000 residents are aged 65 or older, and the percentage of young people is lower than the national average (Table 17). For at least 20 years, the area has been characterised by significant migration towards the north of Italy. Interviews reveal that all regions are losing population, particularly among the youth. The old age index is rising (i.e., the resident population over 65), with some municipalities reaching 200%. The Earthquake Crater has witnessed an increase in the rate of ageing alongside progressive and widespread impoverishment. Furthermore, the average annual population growth rate from 1995 to 2019 indicates that the regions affected by the 2016 earthquake have an overall positive value, attributed to a positive migration growth rate that can counterbalance a negative natural growth rate. However, this figure masks the ongoing depopulation of numerous municipalities in the hinterland, which exacerbates both a negative natural dynamic and an equally adverse migratory dynamic. Consequently, socioeconomic conditions are likely to deteriorate in the future.

Even the interviews emphasise that it is solely the older segment of the population that remains, while the younger individuals depart from these areas, deserting them. Indeed, the interview 5 reveals:

“My wife and I live here; both of our children have graduated and are working. Both are employed outside the city [...]” *If back then, there was even a glimmer of hope that one of my children might stay here. Today, my children are well where they are—one in Piombino and one in Lecco—and they will never return. I regret to say this, but they will never come back to Camerino.*

The question arises regarding the future of these areas: how will they be repopulated? This presents the most significant challenge for the Crater.

Table 17: Population analysis in the provinces affected by the Earthquakes

Region	Province	Population		% pop variation	% pop aged 65 and over	Ageing index
		2011	2023			
Abruzzo	L'Aquila	298.343	287.806	-3,53	0,26	226,5
Abruzzo	Teramo	306.349	299.071	-2,38	0,245	205
Abruzzo	Pescara	314.661	313.110	-0,49	0,245	196,5
Marche	Ascoli Piceno	210.407	201.462	-4,25	0,266	235,2
Marche	Macerata	319.607	303.828	-4,94	0,262	218,3
Marche	Fermo	174.857	167.824	-4,02	0,265	230,8
Marche	Ancona	473.865	461.655	-2,58	0,259	217,3
Lazio	Rieti	155.164	150.457	-3,03	0,268	251,3
Umbria	Perugia	655.844	639.224	-2,53	0,261	218,4
Umbria	Terni	228.424	217.183		0,28	267,3
Italy		59.433.744	58.997.201	-0,73	0,24	193,1

Source: Authors' own elaboration. (Based on ISTAT data, 2024)

The interviews highlight that these areas previously relied on fragile economies and tourism. However, following the earthquakes, their already vulnerable economic systems have been further undermined. The interview 6:

“Even before the earthquake, the area was rather isolated and faced similar issues to those seen today, which have since been exacerbated. The central Apennine regions were already experiencing depopulation in 2016, with an increasingly ageing population and limited economic development opportunities, aside from the enhancement of certain local resources. In 2016, the city of Ascoli was in a positive phase, with a steady tourism sector and a well-established, albeit not particularly dynamic, productive fabric. However, **the 2016 earthquake abruptly disrupted this growth, halting the positive trend and causing a total collapse of tourist flows.”**

From an economic perspective, the case study is characterised by the presence of numerous activities related to agriculture, including approximately 25,000 farms—four for every 100 inhabitants, compared to a national average of 2.7 farms per 100 inhabitants—and by a growing tourism sector with small and medium-sized accommodation facilities. This growth is supported by a significant share of Protected Areas and Natural Parks

and widespread landscape quality. Additionally, most companies in the study area are small, employing fewer than nine people. However, in the industrial districts, some companies have total employee numbers ranging from 33 to 11,000. **In 2016, the earthquake triggered a significant decline in production and sales**, with more pronounced effects in the core area of the Central Italy Earthquake Crater, **particularly impacting small businesses as well as the agricultural and tertiary sectors**, which are more reliant on demand from residents and tourists. By 2017, the overall effects had lessened, but the variability in the spread of impacts had increased. In the outermost belt of the Central Italy Earthquake Crater, where the main companies in the affected area are situated, the signs of negative effects have disappeared; conversely, in the core area, these effects remain more evident (Brunetta & Caldarice, 2022).

5.3.3 A rich historical and natural heritage

Most urban and rural centres are characterised by urban layouts and **cultural heritages that remain recognisable**, mainly from the late medieval period, aside from more recent expansions. Indeed, many municipalities of the Central Italy Earthquake Crater are **historically and culturally significant villages** with substantial identity value and character. At the morphological-settlement level, the Central Italy Earthquake Crater shows a low incidence of urbanised surface area (despite a general increase in land consumed from 2012 to 2019) compared to the **significance of wooded and agricultural territories**. Nearly one-third of the area is designated as part of the European ecological network, containing 2000 natural sites that comprise the region's natural heritage.

5.4 Territorial shock/stressor/crisis

The 2016 earthquake that struck Central Italy exacerbated pre-existing socio-economic vulnerabilities and territorial fragilities rather than being an isolated shock (Figure 30). The Crater area, characterised by a rich historical and architectural heritage, was already confronting systemic challenges related to depopulation, economic marginalisation, and infrastructural deficiencies. As local actors in the ESPON TERRES Future Workshops and interviews emphasised, **the earthquake was both a rupture and a catalyst for renewed discussions on territorial governance, resilience, and strategic planning**. Before the earthquake, the region faced a significant population decline, with the proportion of abandoned buildings in the Crater area (11%) exceeding the national average (5%). The seismic hazards further accelerated migration trends, particularly among younger generations, resulting in a socio-economic landscape characterised by ageing populations and increasingly prevalent abandoned settlements.

The earthquake exposed fundamental weaknesses in the region's governance and planning systems. The lack of proactive seismic risk mitigation and adaptation measures and the inability to integrate territorial vulnerabilities and prevention into pre-disaster planning contributed to the prolonged and fragmented post-earthquake reconstruction process. Interviews with local stakeholders emphasised that, despite previous earthquakes, prevention policies have been largely neglected, without significant investment in earthquake infrastructure, civil protection training or community engagement in risk management. Specifically interview 6 reveals:

"Prevention was practically non-existent. Although Ascoli had already experienced seismic events, there was no adequate planning for risk prevention."

Interview 4:

"(In Marche region) we had already forgotten about the 1997 earthquake."

Furthermore, interview 5:

*"After the 1997 earthquake, I say this too—no one expected a second earthquake, even stronger and worse than the one we had seen and experienced. Talking about risk planning seems completely out of place. Also, after the 1997 earthquake, a careful administration secured funding to strengthen the city walls, an important heritage. A heritage of knowledge and culture that could have also helped the economic recovery after the earthquake. However, this funding was later used for other things. **The city walls are still in the same condition as in 1996.**"*

The governance framework at the time of the earthquake was marked by **institutional fragmentation**, a **lack of coordination and collaboration among local authorities**, and, consequently, a **lack of a long-term strategic vision for the territory**.

From the interview 4 emerge:

"Stopping at the administrative boundary is the biggest mistake we can make, in the truest sense. I firmly believe this in any field, from any perspective—whether professional, administrative, or managerial. Limiting ourselves to the administrative or territorial framework is our biggest mistake. It really means closing the circle in the same way we started, reinforcing the idea that attention has only been drawn to a territory that was already homogeneous in terms of its challenges."

This framework complicates the reconstruction efforts, making efforts disorganised and ineffective, especially concerning the use of funds. **The absence of a well-structured multiscale and multilevel governance body initially created a sense of institutional detachment from the affected communities.** Only later, the establishment of the Extraordinary Commissioner for Reconstruction attempted to streamline processes and accelerate post-disaster recovery. However, while introducing an additional layer of coordination, **this governance model failed to foster effective inter-municipal collaboration**, particularly in smaller municipalities, where reconstruction efforts remained highly fragmented and inconsistent.

Indeed, despite the substantial financial resources available through the PNRR and the PNC, interviewees expressed concerns over the lack of a clear strategic vision for resource allocation.

Interview 1 highlights that there was no strategic vision at the beginning of the reconstruction:

"Unfortunately, a decision was made to rebuild everything just as before, and now we are simply constructing houses. If you come to Camerino, I will show you newly rebuilt houses practically uninhabited."

Funding mechanisms were often deployed on a municipal basis rather than through an integrated, inter-municipal strategy, resulting in **inefficiencies and the construction of redundant infrastructure in areas with declining populations.** The **inability to coordinate and plan effectively at a supra-municipal scale was seen as one of the most significant impediments to resilience-building efforts, with many municipalities failing to leverage funds for long-term strategic development.** This was further compounded by administrative inefficiencies, technical capacity gaps, and a pervasive mistrust in public institutions, which hindered efforts to move beyond a reactive, emergency-driven approach to territorial governance. From the interview 4 emerge:

"Many projects and actions could have been carried out together. There was a need for more workforce and better coordination—perhaps even between municipalities. Public administration suffers from issues like lack of training and, at times, meritocracy. However, more than that, it struggles to channel certain efforts properly. Things would have gone better if there had been greater efficiency and a stronger workforce."

The earthquake not only damaged infrastructure but also had profound socio-cultural implications. The loss of historic and religious buildings, which had served as focal points for **community identity and social cohesion**, further weakened local resilience. In areas where all churches became uninhabitable, the elderly population, which relied on these spaces for social interaction and emotional support, was particularly affected. Additionally, the relocation of populations to coastal areas or urban centres led to the irreversible dispersal of communities, significantly reducing the likelihood of long-term return and contributing to a sense of territorial abandonment. This dispersal also disrupted economic activities, particularly those linked to agriculture and local craftsmanship, which require proximity to the territory to remain viable.

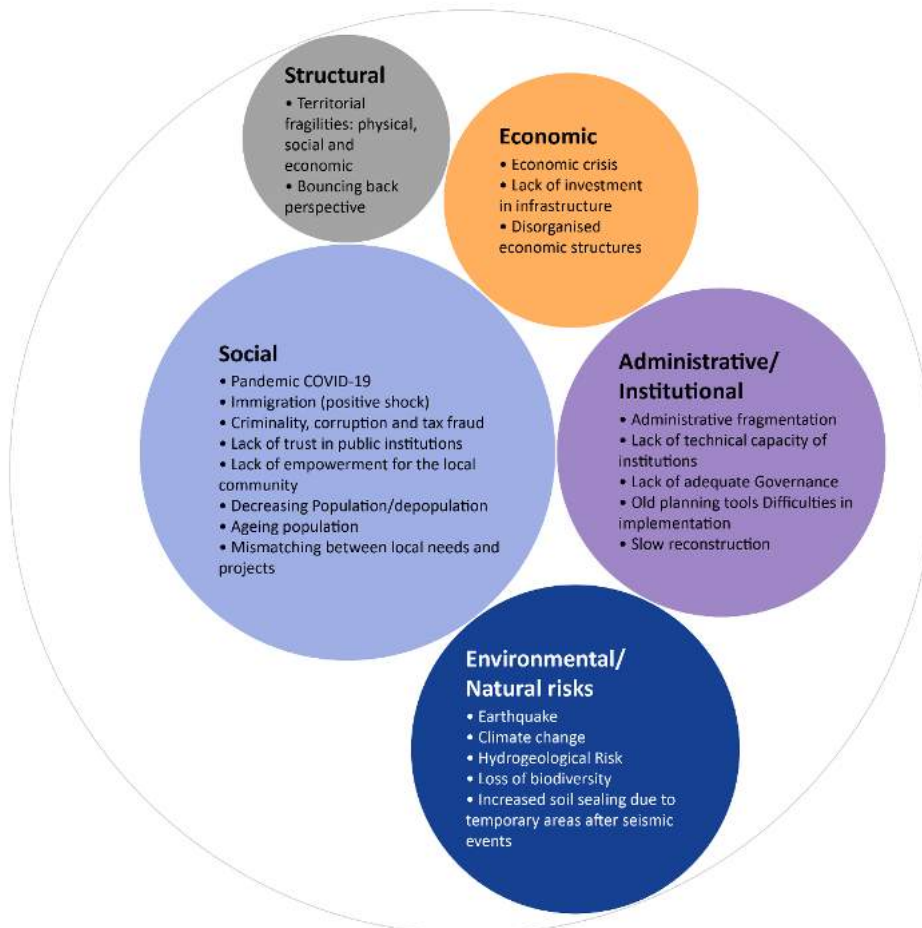
The interview 3 reveal:

"Young families who were relocated to the coast now have their children starting school in a different place—you won't be able to bring them back."

However, the post-earthquake context also highlighted **the potential for a transformative territorial planning and governance approach.** While the event underscored governance failures, it also revealed the region's significant social capital. **Community-led initiatives, associations, and third-sector organisations** (such as **Concentrico** - historical centre association of Camerino, the cultural association **RipartiAmo** and the **Iononcrolo** association) played a **crucial role in providing immediate support to affected populations**, often compensating for institutional shortcomings. Nonetheless, **these responses' spontaneous and uncoordinated nature sometimes led to inefficiencies**, such as surplus donations of unnecessary goods, illustrating **the need for more structured, participatory governance models that integrate bottom-up community action with top-down policy frameworks.** From the interview 4 emerge:

*"The third sector ended up replacing someone else. However, in my opinion, it was not really their role. **They stepped in in a disorganised way, and while they could have been 100% effective, operating without proper coordination reduced their efficiency—maybe to 80% or even 70%.** For example, donations of surplus items were not properly managed. I remember in 2017, people were saying, "Enough with the toothpaste donations, please!" Thousands of toothbrushes and tubes of toothpaste arrived, or ten refrigerators that then just sat there unused. **I think about how much of that energy was wasted when, with better coordination, something more useful could have been done. This is not a criticism of the third sector, which did an incredible job. The real issue lies with those they had to replace.**"*

Figure 31: Categories of territorial risks and stresses of the case study area in Central Italy.



Source: Authors' own elaboration.

5.5 Recovery or resilience preparedness-related initiatives: Overview

5.5.1 The relevance of the case study: an example and reference of Territorial Resilience

This case study constitutes an exemplary model for the conceptualisation and operationalisation of Territorial Resilience. Its **multidimensional challenges** and **governance complexities** provide valuable insights for informing policy recommendations applicable to other disaster-affected, marginal, and rural European territories. The Crater area has played a pivotal role in advancing the understanding of the three core capacities of territorial resilience—absorption, adaptation, and transformation—identified as a fundamental criterion within the ESPON TERRES framework. Empirical analysis, underpinned by extensive engagement with local actors through interviews and future workshops, has yielded critical insights into the factors that

facilitate or constrain resilience in this context. Following the earthquakes, **the region exhibited a notable capacity for absorption underpinned by a strong sense of community, a rich natural and cultural heritage, support from the third sector, and funding from the PNRR and PNC. However, these efforts remain fragmented and lack coordination, undermining their overall efficacy. Moreover, socio-economic vulnerabilities, fragmented governance structures, insufficient collaboration among local municipalities, and a coherent long-term political vision have significantly constrained the region's ability to adapt and undergo transformative change.**

The primary challenge facing the Crater area is reconstruction—not only the physical rebuilding following seismic events but also the restoration of the social and economic fabric that has characterised these territories since before the earthquakes. However, the true challenge for these areas, and indeed for Italy as a whole, is **the repopulation of these territories while ensuring that the entire territorial system becomes resilient to future hazards.** Findings from interviews with local stakeholders indicate the region's need to enhance its adaptive and transformative capacities in response to shocks, particularly considering its persistent territorial marginalisation. This marginalisation manifests in various forms, including economic decline, reduced employment opportunities, underutilisation of territorial capital, an ageing population, and demographic decline—ultimately leading to depopulation. Addressing these challenges requires a shift from a bouncing-back to a bouncing-forward approach, which prioritises long-term adaptation and transformation rather than mere restoration to pre-disaster conditions. Municipalities must reorganise governance structures beyond traditional models to overcome the administrative fragmentation typical of these small local authorities, which often lack both demographic weight and technical capacity. **The region must develop a shared, supra-municipal territorial vision, fostering inter-municipal cooperation that transcends administrative boundaries and is instead shaped by the place-based needs and challenges of the territory.** Indeed, these challenges and needs should inform policy design and guide territorial planning and programming (Faludi, 2018).

Furthermore, interview findings highlight **the need for effective coordination across all levels of government—local, regional, and national—as well as between the third sector (NGOs) and the private territorial actors.** Such coordination is essential to ensure that physical and socio-economic reconstruction proceeds efficiently through a multi-level governance approach that **integrates both soft and hard governance measures.** The third sector should align with local government policies and administrative measures in a coordinated and strategic manner. Emergency-driven interventions must no longer serve as the dominant mode of action; instead, **a shift towards anticipatory governance is required,** constructing long-term territorial development strategies that will guide future emergency measures coherently and effectively.

5.5.2 Overcoming administrative fragmentation

The findings from the FWs and interviews underscore the disconnect between spatial planning and post-earthquake reconstruction as a fundamental issue, contributing to significant delays in urban and territorial redevelopment. While initial strategies aimed to align reconstruction efforts with established planning frameworks, the process has instead relied heavily on emergency-driven measures prioritising procedural expediency over integrated, long-term planning. This fragmented approach has led to inefficiencies, resource dispersion, and a lack of strategic vision, ultimately prolonging the region's recovery.

The current governance structure includes the Extraordinary Commissioner for the 2016 Earthquake, a supra-regional authority established under Legislative Decree 189/2016 to coordinate reconstruction across Abruzzo, Lazio, Marche, and Umbria. However, its mandate remains predominantly emergency-focused, lacking a broader perspective on territorial development. Local actors' discussions highlighted that despite the availability of substantial financial resources, local governments face administrative and governance constraints that hinder their ability to translate funding into practical, sustainable reconstruction projects. A key obstacle is the reluctance of municipalities to engage in inter-municipal cooperation, exacerbating governance inefficiencies. **Interviews with local actors, especially interview 4 and interview 6, reveal that municipalities often prioritise securing individual funding streams rather than pursuing coordinated planning efforts, leading to inefficient resource allocation.** A striking example of this dysfunction is the approach to educational infrastructure: municipalities frequently plan new school buildings independently, even in areas experiencing declining student populations, resulting in redundant investments and underutilised facilities.

These governance inefficiencies highlight **the urgent need to adopt a functional area approach to reconstruction and territorial governance**. As defined by EU policy frameworks, functional areas are not constrained by administrative boundaries but instead reflect spatial, economic, and infrastructural interdependencies (Fioretti & Pertoldi, 2020; World Bank & European Commission, 2024). This perspective enables more effective governance by **fostering collaboration among municipalities**, optimising resource allocation, and ensuring that reconstruction efforts contribute to broader regional resilience rather than being fragmented and short-term.

However, the interviews also emphasise that the territory, and particularly the local administrations, are **beginning to realise the need to cooperate and jointly build visions of territorial development that go beyond administrative borders**. From the interview 4 emerge:

*"Concerning the funds allocated for the earthquake, efforts have been made to promote collaboration. This process has led to discussions on coordination between municipalities on these issues. So, **should the Commissioner be in charge of this? I don't know. Perhaps there should be dedicated bodies for this purpose**, but I would not say that the provinces are the answer. In my opinion, that would be a failure. Firstly, it would be another failure because they have a different territorial extension, which means reapplying the same logic of borders on a larger scale. Secondly, **these administrative borders do not necessarily reflect the real dynamics.**"*

The interview 5 also reveal some cases where people are starting to think about supra-local development strategies that involve collaboration between multiple municipalities, such as the **Sinclinale Camerte**:

*"If you look at their page, **this project highlights the cities they want to be involved in and their number of inhabitants**. For example, suppose I bring these people together with Fabriano and the surrounding areas. In that case, **we are talking about a community of around 100,000 people—one that carries significant weight in terms of resources.**"*

The "Sinclinale Camerte" is a geological formation situated in the Marche region, stretching from the Potenza River valley to the Esino River valley. This area features hills that delineate alluvial plains and possesses a unique continental microclimate influenced by its geographic configuration. These characteristics have favoured the development of a wine-growing landscape dedicated to the cultivation of Verdicchio di Matelica. Since 2022, the **Luglio '67 Study Centre** has initiated a project to nominate the "**Verdicchio di Matelica wine-growing landscape in the Sinclinale Camerte**" as a UNESCO World Heritage Site. This project seeks to enhance and preserve the region's cultural, historical, and natural heritage while promoting the territory's economic and tourist development. It also aims to actively involve citizens in promoting and protecting the area. A thorough understanding of the routes, itineraries, and cultural and historical aspects of the Sinclinale Camerte is essential. Informed citizens are best equipped to represent the site to visitors, helping to provide a cohesive and informed image of the community. This collective commitment encompasses safeguarding and caring for the landscape while respecting the natural and historical heritage entrusted to us. The functional approach utilised in this territory can be characterised as functional cultural areas—incorporating regions with complex cultural heritage or multifunctional landscapes (following the CEMAT 2017 definition)—facilitating the redevelopment of rural buildings and architecture while prioritising sustainability and utilising renewable energy sources. This strategy also promotes environmental protection, landscape conservation, and biodiversity preservation. Furthermore, it contributes to the region's socio-economic development by creating new employment opportunities, enhancing the territorial image, and fostering a stronger sense of community belonging.

5.5.3 Formal and informal roles in crisis and reconstruction

Following the seismic events of 2016-2017, the reconstruction process was initially delayed and has since progressed slowly. Numerous municipalities continue to grapple with visible remnants of destruction, particularly in their historic centres. **In the initial reconstruction phase, governance was managed independently by the affected regions**. However, to expedite the process, **the role of the Extraordinary Government Commissioner for the Repair and Reconstruction of the 2016 Earthquake was introduced**, first occupied by Legnini and currently held by Castelli. This structural change in governance has centralised oversight of the reconstruction process, as stipulated in Decree 189 of 2016, Article 2.

The Extraordinary Commissioner

The Extraordinary Commissioner holds primary responsibility for overseeing all activities related to reconstruction in the affected areas. The key functions include:

1. Coordinating closely with the Head of the Civil Protection Department to align reconstruction efforts with emergency response measures and ensure continuity between emergency relief and long-term reconstruction.
2. Overseeing the repair and reconstruction of both private and public buildings.
3. Conducting damage assessments and financial estimates, in collaboration with the Regions and the Ministry of Cultural Heritage and Activities and Tourism, to programme necessary resources.
4. Supervising measures aimed at supporting local businesses and restoring the socio-economic fabric of the affected communities.

In addition to these responsibilities, the Commissioner's mandate was expanded through Legislative Decree D.L. 06/05/2021, n. 59, Article 2, letter B, to include the management of measures under the National Supplementary Plan (CNP). A total of €1.78 billion has been allocated to areas affected by the 2009 and 2016 earthquakes, distributed over a six-year period (2021-2026).

Regions

The four regions—Abruzzo, Lazio, Marche, and Umbria—play a critical role in the reconstruction process, primarily by managing the allocation and implementation of resources at the local level. Each regional administration is responsible for coordinating reconstruction efforts within its jurisdiction, ensuring that policies align with both national directives and local needs. The regions collaborate with the Extraordinary Commissioner, municipalities, and technical bodies to develop strategic plans, oversee funding distribution, and monitor progress. However, challenges arise from administrative fragmentation and the varying capacities of regional institutions to manage complex reconstruction programmes effectively. Differences in regulatory frameworks and bureaucratic procedures among the four regions often lead to delays, inconsistencies, and difficulties in implementing inter-municipal projects. Strengthening interregional cooperation and harmonising administrative procedures remain key priorities in improving the overall efficiency of the reconstruction process.

Municipalities

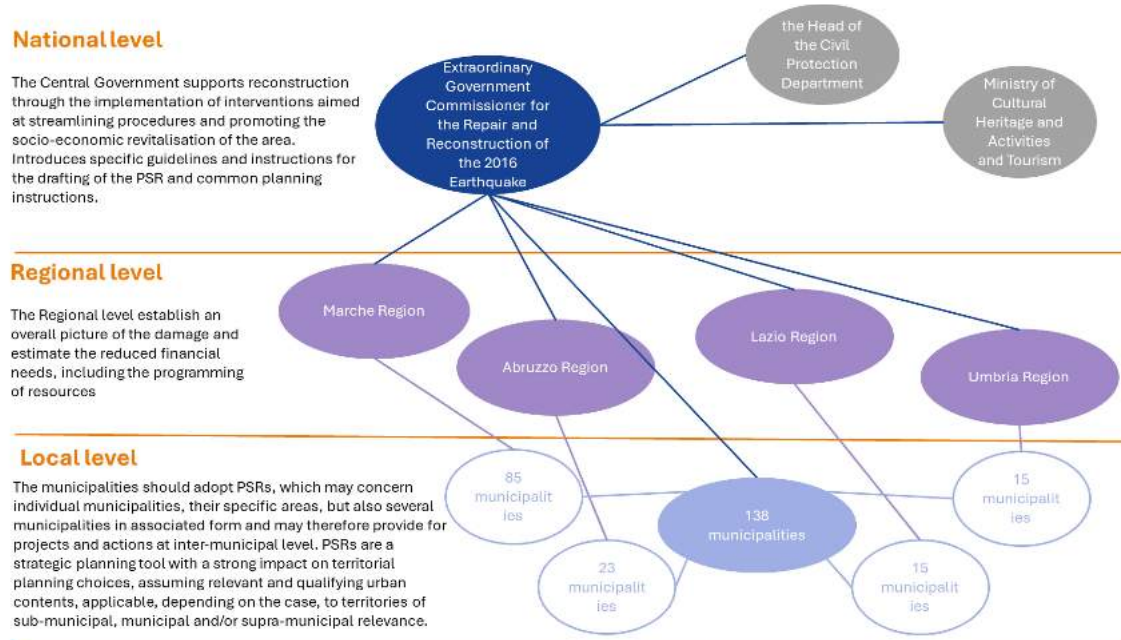
Municipalities play a crucial role in the reconstruction process, serving as the primary interface between local communities and the overarching governance structure. They are responsible for implementing reconstruction projects, granting permits, and ensuring that local planning aligns with regional and national strategies. Municipalities also coordinate with residents, businesses, and civil society organisations to identify needs and prioritise interventions.

However, many municipalities, especially smaller ones, face significant challenges due to limited technical and administrative capacity. The complexity of reconstruction processes and bureaucratic inefficiencies often result in delays and inconsistencies in project implementation. Additionally, inter-municipal cooperation, which was envisioned as a key feature of the *Programmi Straordinari di Ricostruzione*¹⁹ (PSR), has not materialised as expected. Municipalities focus on their jurisdictions rather than collaborate on shared infrastructure and services, leading to fragmented efforts and suboptimal resource allocation.

¹⁹ Commissioner Legnini introduced the *Programmi Straordinari di Ricostruzione* (PSR) under Article 3-bis of Legislative Decree no. 123/2019 to accelerate urban planning interventions. Although programmatic, PSRs may include regulatory provisions and planning adjustments applicable at municipal and inter-municipal levels. This framework simplifies procedures and expedites reconstruction for immediate interventions. PSRs are strategic instruments that significantly influence urban development, with Decree No. 107 highlighting their inter-municipal role in innovative cross-municipal planning.

To address these challenges, strengthening municipal capacity through targeted technical support, training, and incentives for collaboration is essential. Encouraging municipalities to engage in joint planning and resource-sharing initiatives can enhance efficiency and effectiveness in the reconstruction process.

Figure 32: Case study's multilevel governance framework



Source: Authors' own elaboration.

Community and third sector

Unlike the response to the 2009 L'Aquila earthquake, the 2016-2017 seismic events witnessed extensive grassroots mobilisation. Several key organisations played a significant role in supporting recovery efforts:

- **Comitato Sisma Centro Italia**, a joint initiative of Confindustria, CGIL, CISL, and UIL, was established to support the recovery of areas affected by the earthquake. This committee has funded multiple projects across the four regions, including an initiative at the University of Camerino, where a new research laboratory dedicated to advanced materials was created. This facility focuses on solutions for gas storage, energy production, and self-cleaning materials, promoting innovation and economic recovery in the area.
- **Territori Aperti**, an interdisciplinary centre for documentation, training, and research, was established through collaboration between the Municipality of L'Aquila and the University of L'Aquila. The centre focuses on disaster prevention, reconstruction, and regional development, fostering an international network of expertise to share data, analytical methods, and best practices. Through the Open Science approach, it encourages citizen participation in decision-making and offers training programmes, including a specialised master's degree for local government employees and researchers on post-disaster governance and technical-administrative management.
- **Comitato Concentrico**, officially known as *Concentrico – Associazione Centro Storico Camerino*, is dedicated to the preservation and reconstruction of Camerino's historic centre in the Marche region. The committee actively monitors post-earthquake construction, facilitates dialogue between citizens and municipal authorities, and advocates for effective urban planning and traffic management during the rebuilding process. By fostering cooperation between local stakeholders and institutions, the committee ensures that reconstruction efforts respect the city's historical heritage while integrating long-term resilience strategies.

Grassroots efforts have shown remarkable resilience and solidarity; however, interviews suggest that a lack of structured coordination has limited their impact. For example, instances of surplus donations—such as excessive supplies of non-essential goods—highlight inefficiencies in ad hoc aid distribution. This points to

the need for multilevel governance mechanisms that can implement long-term territorial strategies. To maximize the effectiveness of third-sector contributions in future disaster recovery efforts, improving collaboration among community organizations, municipalities, and regional authorities is crucial.

The governance of post-earthquake reconstruction in the Central Apennines has undergone significant restructuring, mainly introducing the Extraordinary Commissioner and the PSR framework. However, challenges persist in achieving effective inter-municipal coordination and ensuring the strategic allocation of resources. While the governance model has introduced mechanisms for streamlining and accelerating the reconstruction process, its success is ultimately contingent upon the capacity and willingness of local administrations to collaborate beyond their municipal boundaries. Without a shift towards genuine inter-municipal planning, the reconstruction risks remain fragmented and suboptimal in addressing the long-term recovery needs of the affected communities.

5.6 Territorial resilience in Central Italy: Lessons learned

5.6.1 Main Challenges and Opportunities

The primary challenge addressed in this case study is the territorial **marginalisation** experienced by the area. Even before the earthquake, the region was experiencing economic decline, fewer employment opportunities, underutilisation of local resources, an ageing population, and demographic decline, ultimately resulting in depopulation. Families who relocated to the coast or other urban areas were less likely to return, leading to further erosion of the local community fabric. **Addressing this challenge requires strategic investments and incentives to attract young families and professionals to the area, ensuring sustainable economic revitalisation.**

Although the seismic events of 2016-2017 heightened this socio-economic vulnerability, they also shifted focus to these regions and the inner areas of the Central Apennines, as noted by local actors interviewed. Notably, the territory of the Crater largely coincides with these areas.

One of the key issues that emerged after the earthquake was the **perceived distance between institutions and the affected communities**. In the immediate aftermath, disconnection prevailed due to the initial absence of structured institutional responses and bureaucratic delays. This created frustration among the local population, who felt left behind. **However, this challenge presents an opportunity to enhance participatory governance, fostering more substantial community involvement in decision-making processes to rebuild trust and improve responsiveness.**

A critical gap exposed by the earthquake was **the lack of adequate disaster prevention measures**. While the region had experienced previous seismic events, preparedness and risk mitigation strategies remained inadequate. The absence of a unified legal framework for emergency management and planning led to uncoordinated responses, hampering recovery efforts. This issue highlights the **need for a comprehensive regulatory approach that ensures timely interventions and improved resilience against future disasters.**

The emergency response efforts immediately following the earthquake were often disorganised. Donations and aid were not systematically managed, leading to inefficiencies and resource waste. Although civil society played a crucial role in filling institutional gaps, the lack of structured coordination limited the effectiveness of relief efforts. **Establishing coordinated emergency response plans could better manage future crises.**

The destruction of key social spaces, such as churches, schools, and public gathering areas, further deepened the crisis. These spaces were essential for maintaining a sense of community and normalcy, particularly for vulnerable groups like the elderly and children. **The reconstruction process should prioritise the development of multifunctional public spaces that serve both practical and social functions, reinforcing community cohesion and resilience.**

The earthquake's economic impact was particularly severe in sectors such as agriculture and tourism, which are highly dependent on local landscapes and infrastructure. Many businesses struggled to recover due to reduced accessibility and shifting economic priorities. **Promoting sustainable tourism and local agricultural production can provide a pathway for economic recovery while preserving the region's cultural and environmental heritage.**

Economic speculation in reconstruction efforts has emerged as a significant risk. The prioritisation of profit over long-term sustainability has led to uncoordinated rebuilding efforts, sometimes at the expense of community needs. **Implementing regulatory safeguards to ensure fair and sustainable reconstruction policies is essential to prevent opportunistic practices and ensure rebuilding efforts truly benefit the affected communities.**

Another institutional challenge is the **lack of municipal coordination and fragmented governance.** Competition between municipalities for funding and resources has hindered a cohesive approach to regional recovery. **Encouraging inter-municipal cooperation, inspired by successful models like those in Emilia-Romagna, could optimise resource allocation and enhance governance efficiency.** Table 18 summarises the challenges and opportunities discussed with the interviewees.

Table 18: Challenges and opportunities in Central Italy

Challenges	Opportunities
Institutional distance after the earthquake	Enhancing participatory governance and community involvement
Marginalisation and demographic decline	Revitalising the area through strategic investments and incentives for young families
Lack of adequate disaster prevention measures	Developing a unified legal framework for emergency management
Disorganised emergency response efforts	Creating coordinated emergency response plans
Destruction of social spaces (e.g., churches, schools)	Rebuilding with a focus on multifunctional public spaces
Economic disruption, particularly in agriculture and tourism	Promoting sustainable tourism and local agricultural production
Lack of municipal coordination and fragmented governance	Encouraging inter-municipal cooperation for more effective governance
Economic speculation in reconstruction efforts	Implementing regulatory safeguards to ensure fair and sustainable reconstruction

Source: Authors' own elaboration.

5.6.2 Good practices

The interviews with local actors showed that the post-earthquake reconstruction efforts in the Crater area resulted in implementing several good practices, representing the starting points for building Territorial Resilience. The good practices identified were grouped into four main categories: (i) institutional coordination and governance, (ii) research and innovation for resilience, (iii) community participation, and (iv) a territorial approach by functional areas. See Table 19.

Table 19: Selection good practices in Central Italy

	Good practices
Institutional coordination and governance	<p>The governance of the reconstruction process is structured through a multi-level approach, ensuring coordination between national, regional, and local authorities. A key player in this framework is the extraordinary commissioner for reconstruction, who oversees and manages all reconstruction activities. This role includes coordinating emergency responses, allocating financial resources, and managing funds such as the €1.78 billion allocated under the National Supplementary Plan.</p> <p>At the regional and municipal levels, the multi-level governance approach ensures that local needs align with national reconstruction strategies. The four affected regions—Abruzzo, Lazio, Marche, and Umbria—are responsible for distributing resources and overseeing local implementation. At the same time, municipalities play a critical role in engaging communities and ensuring reconstruction efforts meet the specific needs of their territories. To accelerate urban planning interventions, the <i>Programmi Straordinari di Ricostruzione</i> (PSR) were introduced under Legislative Decree no. 123/2019. These programs simplify bureaucratic procedures, promote inter-municipal cooperation, and facilitate the integration of planning adjustments to expedite the rebuilding process.</p>
Research and innovation for resilience	<p>Scientific research and technological innovation are crucial in the post-earthquake recovery process. The University of Camerino's advanced materials research laboratory, funded by the <i>Comitato Sisma Centro Italia</i>, is a significant initiative aimed at fostering economic and technological renewal in the region. The laboratory develops advanced materials for energy production, gas storage, and self-cleaning surfaces, contributing to long-term resilience and economic revitalisation.</p> <p>Similarly, the <i>Territori Aperti</i> initiative, a collaboration between the municipality and the University of L'Aquila, serves as an interdisciplinary centre for disaster prevention, post-disaster governance, and reconstruction strategies. An open science approach encourages citizen participation in decision-making processes while offering training programs, including a specialised master's degree on governance and administrative management in post-disaster contexts.</p>
Community participation (dialogue between residents and municipal authorities)	<p>Community participation has been instrumental in shaping the reconstruction efforts, particularly in preserving historical urban areas. The <i>Comitato Concentrico (Associazione Centro Storico Camerino)</i> is a key example of a citizen-led organisation actively monitoring the rebuilding of Camerino's historic centre. The committee facilitates dialogue between residents and municipal authorities, advocating for sustainable urban planning and traffic management while ensuring that heritage preservation remains a priority.</p> <p>Beyond formal organisations, a strong community identity and local participation have emerged as essential elements of the recovery process. The active engagement of local populations in decision-making and cultural preservation initiatives has reinforced social cohesion and facilitated more effective reconstruction efforts.</p>

	Good practices
<p>Territorial functional area approach</p>	<p>The Sinclinale Camerte functional area vision implements a strategic approach to territorial planning and economic recovery. This initiative integrates environmental conservation, rural development, and economic sustainability by promoting territorial development beyond traditional administrative boundaries and inter-municipal collaboration. The approach supports the adaptive reuse of rural buildings, sustainable land management, and natural and cultural heritage protection.</p> <p>A key component of this vision is the Verdicchio di Matelica wine-growing landscape and UNESCO nomination, an initiative led by the Luglio '67 Study Centre. By seeking UNESCO recognition, the project aims to highlight the cultural and economic significance of the Verdicchio di Matelica wine-growing region, enhancing its potential for tourism, sustainability, and biodiversity preservation.</p>

Source: Authors' own elaboration.

5.7 Strategic policy and governance suggestions for the local and regional level

Based on interviews and literature, the reconstruction and resilience-building process following the 2016-2017 earthquake in Central Italy has provided valuable insights into strategic policy and governance measures. One significant finding is the change in perception of these areas; they are shifting from being viewed as problematic to being recognised as places of opportunity. This new perspective is supported by social, cultural, and strategic economic reasons, highlighting that these regions can serve as fertile ground for new initiatives and economic development (De Rossi, 2018). In this context, it is essential to acknowledge that repopulation is vital to enhancing territorial resilience. To effectively tackle this challenge, the territory must adopt a holistic and forward-thinking approach to strategic policy and governance.

Enhancing disaster preparedness and risk management

A fundamental shift in disaster preparedness and risk management is required in the Central Italy Earthquake Crater. The region must move from a reactive "bouncing back" approach that aims to restore pre-disaster conditions to a "bouncing forward" paradigm that integrates resilience-building into everyday planning practices. The Extraordinary Commissioner for the 2016 Earthquake, a supra-regional authority established under Legislative Decree 189/2016, has primarily focused on emergency response rather than broader territorial development. This disconnect has contributed to urban and territorial redevelopment delays, underscoring the need for a reconfigured approach. Initial strategies were intended to align reconstruction with established planning frameworks; however, reliance on emergency-driven measures has led to a fragmented approach prioritising expediency over integrated, long-term planning.

Moreover, prevention measures must be integrated into ordinary planning processes, anticipating potential risks and facilitating recovery. By prioritising anticipatory governance, the region can establish coherent long-term territorial development strategies that guide future emergency measures effectively, ensuring that emergency-driven interventions do not dominate the programming and planning vision of the Crater area.

Strengthening multi-level governance, favouring vertical and horizontal coordination and integration, and fostering institutionalisation of participatory governance

A multilevel governance framework is crucial for fostering both vertical and horizontal coordination. The initial lack of a well-structured multilevel governance body created a disconnect between institutions and affected communities. The later establishment of the Extraordinary Commissioner for Reconstruction aimed to streamline processes and accelerate recovery; however, it failed to promote effective inter-municipal coordination.

A key takeaway from the post-earthquake context is the necessity of institutionalising participatory governance. Community-led and third-sector initiatives, such as those spearheaded by associations like Concentrico, have provided crucial support in immediate post-disaster response. While these grassroots efforts compensate for institutional shortcomings, their spontaneous and uncoordinated nature can lead to inefficiencies, such as misallocating resources and surplus donations. Structured participatory governance mechanisms should integrate bottom-up community action with top-down policy frameworks to optimise resource allocation and coordination among municipalities, regional authorities, and non-governmental actors. It is essential to align third-sector initiatives with local government policies and administrative measures in a coordinated, strategic manner that facilitates efficient socio-economic and physical reconstruction.

Straightness a new territorialism: a functional understanding of spatial systems

A functional understanding of territory is crucial in enhancing local coordination beyond traditional administrative borders. Findings from interviews and focus groups reveal significant disconnects between spatial planning processes and post-earthquake reconstruction efforts. Addressing the inefficiencies of existing operational frameworks, such as the underperformance of the Programmi Straordinari di Ricostruzione (PSR) at the local level, is essential to enhance Territorial Resilience. Indeed, one of the critical obstacles to resilience-building is the inefficacy of PSR at the local level. While intended to expedite post-disaster reconstruction, the PSR framework has not successfully facilitated supra-municipal cooperation, resulting in piecemeal and uncoordinated interventions. Furthermore, despite having access to substantial financial resources, local governments face administrative constraints that hinder their ability to translate funding into effective, sustainable projects. Municipalities' reluctance to engage in inter-municipal cooperation is a significant obstacle to governance efficiency, exacerbating governance fragmentation. This has resulted in resource dispersion and inefficiencies that jeopardise effective recovery.

To address these challenges, it is vital to cultivate a more integrated approach that recognises the functional spatial systems at play. Governance structures should embrace flexibility, facilitating collaboration across municipal boundaries and optimising resource allocation. The case of the Sinclinale Camerte demonstrates the effectiveness of adopting a functional area perspective, particularly in revitalising local economies through place-based initiatives such as the Verdicchio di Matelica wine-growing landscape and UNESCO nomination. By fostering integrated planning considering the complexities of territorial challenges and needs, the region can enhance its responsiveness to future challenges while promoting sustainable development.

These three policy and governance paradigm shifts, essential for achieving Territorial Resilience in the Crater area, are profoundly interconnected. Each shift supports and reinforces the others, creating a cohesive framework that enhances the territory's overall resilience.

5.8 Conclusion

The case study of the 2016 earthquake in Central Italy underscores the **necessity of transitioning from a "bouncing back" recovery model—centred on restoring pre-disaster conditions—to a "bouncing forward" approach that embeds resilience into everyday governance and territorial planning.** The earthquake exposed not only infrastructural fragilities but also governance failures, including administrative fragmentation, lack of risk prevention strategies and of long-term planning. However, the case study analyses also highlighted the latent potential for transformation through increased institutional cooperation, strategic vision and an integrated governance framework that transcends municipal boundaries. A fundamental challenge remains the governance model, which, while evolving to include a supra-regional coordinating body, still faces administrative limitations and the reluctance of local actors to engage in inter-municipal collaboration. Dependence on emergency interventions has led to inefficiencies in resource allocation, with reconstruction efforts often not aligned with broader socio-economic and environmental changes. Again, **it is important to emphasise the urgency of moving to a macro-regional, multi-level governance model that prioritises long-term strategic planning and preventive governance over short-term reactive measures.**

The case study's outputs also **highlight the critical role of research, innovation, and knowledge transfer in resilience-building.** Despite well-established universities and research centres, a significant gap persists between theoretical advancements and practical implementation, particularly in risk mitigation and

territorial planning. Bridging this gap requires closer collaboration between academia, public institutions and local communities, fostering a culture of innovation-oriented policy development and capacity building at all levels of governance.

Moreover, the case study reveals that **resilience is intrinsically linked to the socio-economic rebirth of these territories**. The Crater area, characterised by an ageing population and prolonged demographic decline, requires targeted policies integrating reconstruction with sustainable economic development. This entails leveraging territorial assets—such as cultural heritage, natural landscapes, and emerging economic sectors—to create employment opportunities and attract younger generations back to these territories.

Ultimately, the lessons drawn from the Central Italy earthquake case study emphasise that **strength participatory governance is essential in fostering resilience**. Civil society, grassroots organisations, and the third sector's engagement in post-earthquake reconstruction has played a pivotal role in bridging institutional gaps. However, these efforts must be integrated into **formal governance structures through mechanisms that ensure structured collaboration between local authorities and community actors to maximise their impact**. Enhancing transparency, streamlining bureaucratic processes, and institutionalising participatory governance frameworks will ensure that resilience-building is inclusive and responsive to local needs.

5.8.1 Long-term considerations for Territorial Resilience

Despite substantial post-disaster financial allocations, the interviews reveal persistent concerns regarding the sustainability of reconstruction efforts. **Reconstruction should not solely focus on restoring pre-earthquake conditions but should integrate long-term resilience considerations, ensuring the territory is better prepared for future crises.**

Ensuring long-term territorial resilience requires an integrated and dynamic approach that goes beyond immediate post-disaster recovery and incorporates adaptive strategies capable of addressing multi-crisis trajectories. The case of the Crater area highlights the necessity of moving from a "bouncing back" to a "bouncing forward" perspective, where reconstruction efforts are not limited to restoring pre-existing conditions but rather fostering structural, economic, and social transformation.

A key consideration for long-term resilience is integrating territorial vulnerabilities and prevention measures into planning frameworks as a generative component rather than an emergency-driven approach. Current institutional and technical barriers often hinder proactive reconstruction efforts, leading to inconsistencies between planned interventions and long-term development needs.

The future of Territorial Resilience depends on the ability to integrate systemic risk management within ordinary planning processes. Learning from past disasters, institutionalising resilience-oriented policies, and fostering community engagement are pivotal to ensuring that territories can recover from shocks and are better positioned to anticipate and adapt to future crises.

6 Latgale

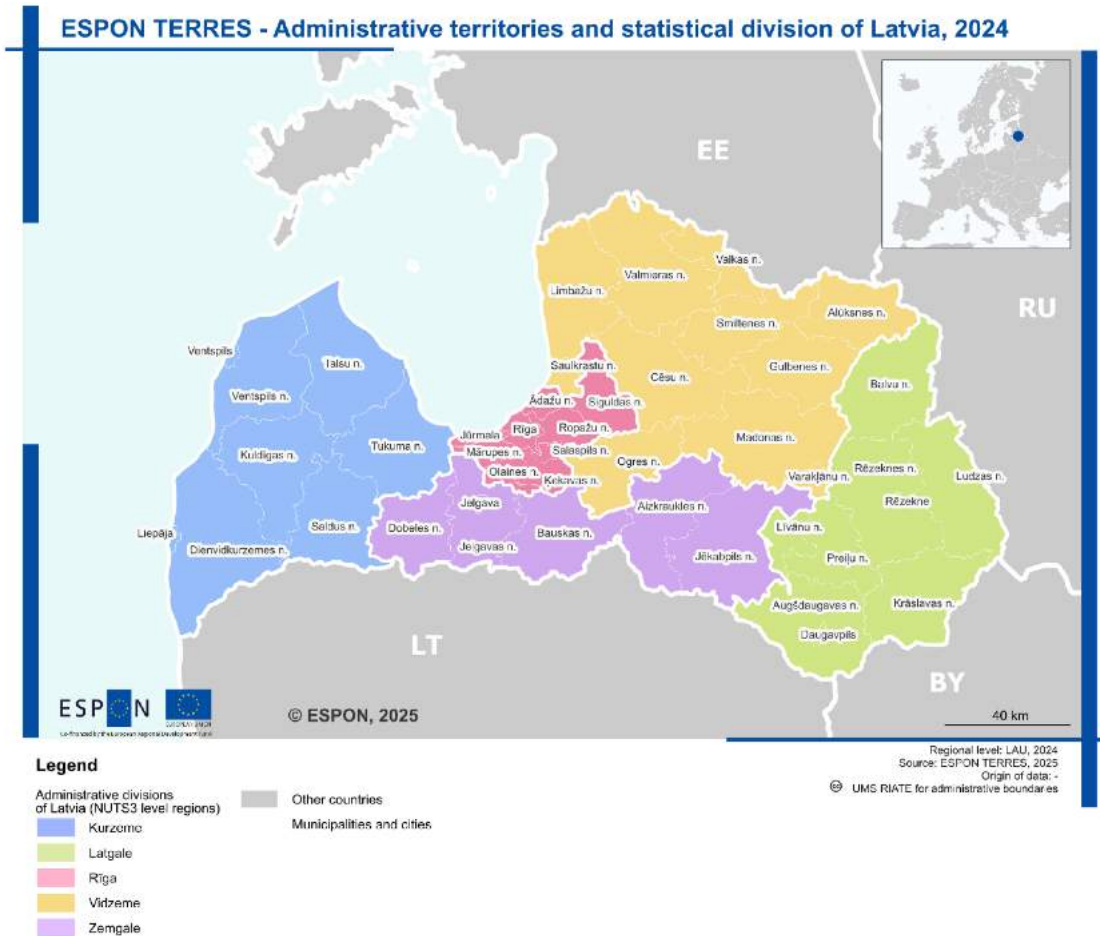
6.1 Abstract

The geopolitical crisis caused by Russia's full-scale invasion of Ukraine since 2022 and the irregular migrant influx initiated by Lukashenko since 2021 on the EU-Belarus border has had a significant impact on all EU/NATO bordering regions. In Latgale, situated on the border of Latvia, the crisis has served to exacerbate the region's existing challenges, including economic marginalisation, population decline, and limited institutional support, as well as failed integration strategies. Notwithstanding these challenges, Latgale has demonstrated considerable resilience, largely through the operation of informal networks and the implementation of grassroots community care initiatives. The increased involvement of international donors and the national government has created new opportunities for the region to shift its narrative from one of being "left behind" to one focused on the resilience-led development of the Latgale region. However, the region's complex identity, shaped by its multi-ethnic population and proximity to Russia and Belarus, continues to present significant political and security challenges. The region's evolving role highlights the importance of tailored, community-centred solutions that address both socio-economic and security concerns, while recognising that while security and security threats are perceived differently by different population groups in Latgale, there is consensus in relation to enhanced socio-economic development. These solutions must advocate for a redefined future(s) of Latgale region that balances local resilience with broader national and international priorities.

6.2 General description of the Latgale region

Located in the south-east of the Republic of Latvia, Latgale region occupies 22.52% of the country's territory with an area of 1,309,528 hectares, of which 46% is agricultural land and 39% is forest. With **18 persons/km²**, Latgale Region is home to **16% of Latvia's population** or 247,220 people (*Living in Regions*, n.d., "Vispārīga informācija," n.d.; "Latgale | Invest in Latvia," n.d.; *Density*, n.d.) and is one of four historical regions in Latvia besides Vidzeme, Zemgale and Kurzeme. The region comprises seven county municipalities – Balvi, Augšdaugava, Krāslava, Līvāni, Ludza, Preiļi and Rēzekne – and two city municipalities – Daugavpils and Rēzekne (see Map 8). Daugavpils is Latvia's second largest city (about seven times smaller than the capital, Rīga), and Rēzekne is Latvia's seventh largest city, with 60% of the region's total population living in these two urban centres (*Living in Regions*, n.d.). Latgale region is bordered by the Russian Federation to the east, the Republic of Belarus to the south-east and the Republic of Lithuania to the south. The city of Daugavpils is situated 225 km from the capital, Rīga, and 30 km from the border of the Republic of Belarus. The city of Rēzekne is located 238 km from Rīga and approximately 50 km from the border with the Russian Federation.

Map 8: Administrative territories and statistical division of Latvia, 2024



Source: elaboration of the project team

Institutionally, the Latgale Region is represented by the Latgale Planning Region with the Latgale Planning Region Development Council (LPRDC) as the highest decision-making body representing the interests and positions of local governments in Latgale (Latgale Planning Region Home Page, n.d.). In order to address regional development, according to the Law on Regional Development of 1 August 2006, five planning regions were established in Latvia: Latgale, Kurzeme, Vidzeme, Zemgale and Rīga planning regions.

The NGO sector in Latgale plays a vital yet underdeveloped role in regional civic life. According to the study "The NGO Sector in Latgale: How Large? How Strong? How Crisis-Ready?" (Providus, 2023), Latvia has over 17,000 active NGOs, but only 2,142 (7%) are based in Latgale, out of which just 125 NGOs hold Public Benefit status, with the highest concentration in Daugavpils and the lowest in Līvāni. Many NGOs lack a defined activity type and are often linked to sports or hunting, reflecting limited diversification. Administrative capacity is low: only 8% of Latgale's NGOs employ staff, often non-permanently. Funding sources are poorly documented, and in real numbers those are only 797 NGOs report any income, and only 163 have paid employees. Municipalities provide support, primarily to religious organizations, which play a significant regional role. However, structured collaboration between municipalities and NGOs is minimal, and **only 41 Latgale-based NGOs participate in municipal consultative frameworks**, highlighting weak integration with local governance (Providus, 2023). These figures highlight the sector's limited capacity, underscoring the challenges Latgale's civil society faces and are essential to understanding the region's social fabric (Personal Communication 2).

Poetically referred to as "**the land of blue lakes**", Latgale is rich in resources and minerals such as peat, dolomite, sand, gravel, clay, sapropel, freshwater and lime. Latgale has considerable geological diversity, but only a fraction of its natural resources is actively exploited, as **many areas are protected and part of nature**

reserves (Latgales plānošanas reģions, 2021). There are more than 1,000 lakes in Latgale, including the largest lake in Latvia - Rāzna. The largest river in Latvia - Daugava flows through the region. **Flooding and droughts** are identified as a high-probability, high-risk threat in municipal civil protection plans, along with **forest and peatland fires** (Sarauskiene et al., 2015; "Latgales plūdi," n.d.; *Civil Protection Plans by Local Governments*, n.d.). The Climate Portal has been developed by the Latvian Environment, Geology and Meteorology Centre (LVĢMC). Municipal climate profiles are based on four risk factors: heatwaves, cold spells, snow cover and precipitation (*Climate Portal*, 2025). These factors will also play a significant role in municipal adaptation strategies (Personal Communication 2). The Climate Portal indicates that Latgale faces an elevated risk classification for **heatwaves** as well as **higher precipitation risk** (*Climate Portal*, 2025). Agricultural production in Latgale is **dominated by small-scale farming** (Šūmane et al., 2018). It is the Latvian region with the highest proportion of small farms, but also the region with the lowest use of pesticides in Latvia, and therefore currently **the cleanest environment** (*Study Shows Pesticides Used Widely in Latvia*, n.d.).

From the perspective of Latgale, the economic landscape of Latvia is characterised by significant regional disparities and (somewhat unproductive) efforts to overcome them. Today Latgale stands out as having the **lowest income level in the Baltics** (Krasnopjorovs, 2023). The region has grappled with numerous challenges, including economic transitions, depopulation, and economic downturns (Chmielewski, 2023), leading to underperformance and loss of competitiveness (Gulbis, 2018). The economic growth rate in the region is below the Latvian average, with no cities experiencing accelerated development. Alarming demographic trends coupled with high unemployment and skills mismatch have further cemented the economy into stagnation and limited its future economic potential (Krisjane et al., 2023). Additionally, there is **a lack of private and foreign direct investment**, and fewer active businesses (Krasnopjorovs, 2023), as well as somewhat complex relations with the capital, Riga. Another major challenge in the eastern border region is the **high share of the shadow economy or informal economy - 22.7% in 2023**, according to a study by the Stockholm School of Economics in Riga, Shadow Economy Index in the Baltic States 2009-2023 (*Action Plan*, 2025).

Concurrently, the strategic significance of the pivotal economic hubs of Lithuania and Estonia, situated in closer proximity to the region than the capital Riga, has been largely overlooked in the discourse surrounding Latgale's development. Indeed, the more substantial cities of the neighbouring Baltic states, such as Tartu and Vilnius, are currently linked only by underdeveloped roadways. Also **the region itself is poorly interconnected**: while the biggest cities in the region – Daugavpils and Rēzekne are connected to Riga by rail, the train schedule frequency is low, and the trains are slow, and take more than 3 hours to connect the region to the capital, and inhabitants frequently rely on informal communication and informal mobility groups (these are informal, social media-based platforms for sharing rides) to get around (*"Fellow Travelers" Network*, 2025). However, there are notable positive changes in frequency and connectivity: from mid-December 2025 there are already seven daily departures from Daugavpils to Riga (Personal Communication 1, 2025), and the Daugavpils-Vilnius (Lithuania) railway line is due to open in 2025, making the Daugavpils-Vilnius route more convenient and faster than the Daugavpils-Riga route (Ozola, 2024).

While two of the five Special Economic Zones (SEZs) in Latvia - the Rēzekne SEZ and the Latgale SEZ - are situated in Latgale Region, established with the objective of promoting entrepreneurial activities within the regions, mainly processing industries, i.e., wood, metal, food and manufacturing (Special Economic Zones | Invest in Latvia, n.d.), they have performed most poorly of all economic zones in Latvia (Gulbis, 2018). Despite these challenges, **Latgale region hosts several high-tech companies** specializing in the production of optical fibres, and manufacturing of a range of medical solutions (Overview of the Latgale - Latgale for Business, n.d.). The **creative industry** also plays an important role in identity building and economy development of Latgale region. There are several artists, art groups, and craftsmen of folk arts. Some of the main attractions include the Daugavpils Fortress, the Mark Rotko Museum a multifunctional acoustic concert hall in GORS in Rēzekne, the East Latvian creative services centre "Zeimuļš", and the Aglona Basilica, which is one of the largest centres of Catholicism in the Baltics.

Latgale has an important multicultural tradition being at the intersection between several cultures, countries, religions and languages. It has its own distinct dialect, **Latgalian**, and 1.2% of total Latvia's population and 8.8% of Latgale's population communicate in Latgalian at home (Results of the Survey "Adult Education," 2022). This contributes to the **strong sense of regional identity** that is characteristic of the region (Scoping Report Draft by WB and EC, 2024). The region is currently the subject of intense debate in relation to its multiculturalism, ethnic diversity, identity and status within the country. In fact, while **Latvia as a whole has**

62.6% of ethnic Latvians, the ethnic composition of Latgale region includes **46.4% Latvians**, **35.1% Russians**, 6.1% Poles, 4.7% Belarusians, 1.9% Ukrainians, 0.5% Lithuanians and 4.9% from other ethnicities. In Daugavpils only **21.2 % are ethnic Latvians** while **46.6% are ethnic Russians** and **12.7% Poles** (CSP, 2024). However, the **prevalence of the Polish language**, the information consumption and habits of the Polish-speaking community is under-researched. It is possible that the knowledge of the Polish language in Latgale is much greater than statistical data might suggest (*Information Flows in Daugavpils and Latgale*, 2023), particularly considering its frequent use in Catholic church services, where it functions as a liturgical language (Personal Communication 1). Nevertheless, a considerable share of the regional population in Latgale use Russian as their primary language and mainly access information from media in the Russian language.

Map 9: Latgale Case Study Area



Source: elaboration of the project team

6.2.1 Historical context and critical path dependencies

The importance of understanding history and path dependencies are increasingly recognised in regional development studies (Balland & Boschma, 2024) and is key to understanding the sensitive situation in Latgale region. The convoluted past in combination with failing measures for integration in Latgale (e.g. divided education in Latvian and Russian until recently, also relatively recent access to Russian propaganda TV channels) make the **region vulnerable to divisive sentiments particularly fuelled by the influence of Russian propaganda** (Dodonov & Aleksandrova, 2020; *Information Flows in Daugavpils and Latgale*, 2023). **The roots of this issue stem back long in the history.**

Latvia was an independent republic from 1918 to 1940. During World War II, the country experienced significant population shifts due to emigration, deportation, and casualties of ethnic Latvians, with a parallel influx of settlers from other Soviet republics (*Scoping Report Draft by WB and EC, 2024*). In just over 40 years of post-WWII **the proportion of Latvians, in what was then Soviet Latvia, dropped from roughly three-fourths to little more than one-half**, while there was a significant increase in the number of Russian nationals residing in the country, with the new state administration centre being in Moscow in Soviet Russia. Therefore, the Russian language dominated both public and private life (*Latvia - Soviet Occupation, Incorporation, Independence | Britannica, n.d.*).

Soviet modernization in the post-World War II period entailed implementing collectivisation and modernising efforts in agriculture and urbanising rural communities. This involved the construction of apartment complexes in rural areas, the paving of roads, the enhancement of social and educational opportunities, and the requirement for urban-educated professionals to work in rural settings for two years, often leading to marriage and settlement in those areas (Dzenovska, 2020). Despite those efforts, during the post-war period 1946-1990, Latvia experienced a **decline in economic development due to a colonial policy implemented by the Soviet Union**, when significant financial resources were diverted from the region and spent outside the territory of Latvia (Krūmiņš, 2023).

After restoration of Independence in 1991, Latvia's population declined by 28 %, due to low birth rates and significant out-migration, including approximately 160,000 Russian-speaking residents who moved to Russia between 1989 and 1999 (Dzenovska, 2020). The nationalist movements in Latvia worked towards reestablishing the Latvian as the only official state language and imposed tight **restrictions on nationalization** demanding Russian-speakers to learn Latvian before they could acquire their citizenship. Those who did not comply were stranded in a limbo, they did not receive a citizenship nor were displaced, but instead were handed the document called "Non-citizen's passport" issued to former USSR citizens living in Latvia who were registered in the Natural Persons Register and were neither citizens of the Republic of Latvia nor had been citizens of another country (*Non-citizens' passport, 2024*).

Only in 2004 with the accession to the EU, Latvia liberalized its civil policy and simplified the rules for obtaining citizenship for the Russian-speaking population (Dodonov & Aleksandrova, 2020). Since then, **the proportion of 'non-citizens' has significantly dropped. In 2000, 27%** of the population in Daugavpils were non-citizens, whereas the current figure stands at **8%** (Cheskin, 2013; *Information Flows in Daugavpils and Latgale, 2023*). However, this figure must be contextualised in relation to the **socio-economic advantages associated with non-citizenship**. A significant proportion of non-citizens opted to maintain their status, primarily due to the benefits accruing from accessing both the EU and Russian resources, rights, markets and systems. For instance, prior to the abolition of conscription in 2007 in Latvia, a considerable number of males in their twenties exhibited a strong inclination to retain their non-citizen status (Personal Communication 1). Non-citizens were also eligible to receive pensions from Russia. While the amount of these pensions did not necessarily exceed those granted by the Latvian government, the key motivation for this arrangement was the significantly lower retirement age in Russia. This allowed recipients to receive the Russian pension and continue working in Latvia for a further ten or even fifteen years, thus enabling them to receive two stable sources of income (Personal Communication 1). This meant also better opportunities for cross-border travel (e.g. visiting the family members) without the need for an expensive visa. Therefore, many people in border areas were not inclined to become the citizens of Latvia.

The Latvian government's efforts at social integration over the past 30 years have been only partially successful. **Little has been achieved in terms of media consumption, political integration or citizenship applications among non-citizens**. Although there have been no reports of significant tensions between Latvians and other ethnic groups in recent years, ethnic differences persist. This is partly due to the government's passive approach to integration. Meanwhile, **Russia has become much more active in trying to win the hearts and minds of Russophones abroad** (Pupcenoks et al., 2024). As of today there are 37,9 thousand Russian citizens in Latvia (half of the number in Estonia) (*Šķelšanās - YouTube, n.d.*). In three major cities – **Daugavpils, Liepāja and Rēzekne – the number of citizens of the Russian Federation reaches 5% of the total population**, while in Jūrmala and the capital Riga, 3% of the total population are Russian passport-holders, according to the data of the Central Statistics Office (*Russian Citizens in Latvia, 2023*).

The Russian language remains crucial to the identity of the Russian-speaking population, who view integration with different eyes from Latvians and are reluctant to abandoning the Russian language in public spheres.

However, the main challenge for the integration question and historically established divisions between ethnic Latvians and Russians is and remains the **different historical interpretations that create antagonism between Latvians and Russians** (Cheskin, 2013; *Information Flows in Daugavpils and Latgale*, 2023). As a result, **the way threat to security is perceived in Latvia differs significantly between those living in different Latvian and Russian media spaces**. Since the mid-1990s, the Latvian government has consistently emphasized external threats while maintaining a staunchly pro-NATO and pro-EU stance. However, public opinion on these issues has been sharply divided, predominantly along ethnic lines (Pupcenoks et al., 2024). Latvian speakers often see Russia as a security threat due to historical experiences and geopolitical concerns, although the presence of NATO has eased some fears. In contrast, Russian speakers are less likely to see Russia as a threat and tend to view Latvia's EU and NATO membership less favourably (Pupcenoks et al., 2024). This division has further contributed to a growing disconnection from a European identity. Part of Latvia's society perceived Europe as a distant concept rather than as something with which they are personally involved. **People here thought Europe was somewhere else – that they did not live in it** (Personal Communication 1).

After joining the EU and NATO in 2004, Latvia along with the other “Baltic Tigers” (a term used to refer to the three Baltic states after their independence due to their extensive economic growth) experienced almost double-digit GDP growth in early 2000s (Norkus, 2023). Full year GDP Growth in Latvia averaged 3.64 percent from 1996 until 2023, reaching an **all-time high of 12.00 percent in 2006** and a **record low of -14.20 percent in 2009** (*Latvia Full Year GDP Growth*, n.d.). The EU membership also granted the freedom of movement of labour, which resulted in a significant migration of the population from Latvia, primarily westward to other EU countries (at that time). **“The great departure”**, as it came to be known, was then further accelerated with the **2008 financial crisis** (Dzenovska, 2013). In response to the 2008–2010 financial crisis, Latvia adopted a strategy that was subsequently described by Prime Minister Valdis Dombrovskis as **“Latvia's success story”**. Although Latvia had implemented rapid fiscal consolidation and structural reforms, critics argued that Latvia's recovery model was unsustainable or even **“disastrous”** for its social costs, such as high unemployment, income inequality, and emigration (Austers, 2014; Higgins, 2013; *Premjera Dombrovskas Veiksmes Stāsta Ēnas Pusēs*, 2014). The departure from communism and transition to the neo-liberal economy was implemented in a ruthless way, lacking what might be described as a ‘human face’, including the care for disparities in regions, which were developing at an increasingly different speed, leading to a widening of the gap between the Latgale region and the capital city and other regions in Latvia.

6.3 Territorial shocks/stressors/crises

Despite the precedent of Russia's seizure of the Crimea in 2014, **Russia's full-scale invasion of Ukraine in 2022 came as a major shock to the world**. However, the impact and consequences were felt more acutely in some countries and regions than in others. Aside from Ukraine itself, the shock particularly raised alarms in Latvia and other countries bordering Russia, about their potential fate - should Russian imperialist ambitions extend elsewhere. The retaliatory measures imposed on Russia and Belarus by much of the Western world, including sanctions on banks, trade and key exports, led to an energy crisis in Europe and **high inflation**, with Latvia, along with other **Baltic countries, having one of the highest inflation rates**, exceeding the EU-27 average of 9.2% and reaching an average of 18.5% in 2022 (respectively 17.2% in Latvia, 19.4% in Estonia and 18.9% in Lithuania) (*Scoping Report Draft by WB and EC*, 2024).

Furthermore, Russia's war has not been limited to Ukraine but has spread in more indirect and hidden ways into other countries via so-called ‘hybrid warfare’. A hybrid war applies a variety of different tools from disinformation and cyber-attacks, sabotage and interference in electoral processes, to more direct use of force, yet operating mostly in ‘grey zones’ – thus avoiding direct confrontation and responsibility (Bilal, 2024). One of the tactics of hybrid warfare that are claimed to be applied in the borders of Europe is the ‘instrumentalization of migration’, which involves turning asylum seekers and other migrants into tools of destabilization (Praks, 2024). Furthermore, it is evident that **Russia has not been the sole perpetrator of hybrid warfare. Its ally, Belarus, has consistently demonstrated its complicity** through the utilisation of analogous hybrid warfare tactics. According to (Praks, 2024), “Belarus has been using instrumentalized migration against Latvia, Lithuania and Poland on a large scale since 2021”. This tactic began in 2021, when the Lukashenko regime in Belarus was grappling with mass protests rejecting the 2020 electoral results and calling for the president's resignation. To defend itself from a claimed international boycott, the Lukashenko regime strategically directed migrants towards the borders of the EU outer Eastern border.

This “cruel form of hybrid threat” and “weaponisation” of migration prompted a regional response at EU level. In response, **EU countries on its eastern border implemented somewhat similar strategies of securitisation politics, including declaring a state of emergency**, allowing for (often violent) migrant push-backs and restricting the flow of information to the public, NGOs and activists working with human rights and refugees. Since then, EU neighbours to Belarus have built up fences and set up other measures for border protection against irregular crossing attempts (Praks, 2024). Nevertheless, this has not been conducive to the development of adequate and proportionate responses in terms of human rights. It is imperative that greater efforts are made to avoid hypocrisy and address the root causes of the instrumentalisation of migration (Rasche, 2022). The new Pact on Migration and Asylum (2024) establishes a set of novel regulations for the governance of migration, as well as a unified EU asylum system (*Pact on Migration and Asylum: EC*, 2024). It introduces a stricter set of rules that may lead to a deterioration in the conditions of migrants and asylum seekers. At the same time, it facilitates the use of crisis and force majeure provisions for states facing such challenges, ultimately contributing to a broader worsening of Europe's overall approach to migration (*Inta Mierina Keynote*, 2025).

As evidenced in the report “No Safe Passage: The report Migrants' Deaths at the European Union-Belarusian Border”, the migration route from Belarus to Latvia is a highly controversial topic in Latvian society. Since irregular migration began in summer 2021, **migrants have been dehumanised in official and public discourse**. They have been portrayed as “illegal migrants” and threats to national security and framed as tools in hybrid warfare. This narrative has dominated Latvian media, largely reflecting the government's perspective without critical assessment. State officials' public responses to the allegations of violence and other human rights violations against irregular migrants have been negative and dismissive. For example, reacting to the Amnesty International report Latvia: Return home or never leave the woods” on violent push backs published in October 2022 (Return Home or Never Leave the Woods, 2022), President of Latvia Edgars Rinkēvičs, who previously served as Minister of foreign affairs, used the term “**bogus accusations**” (“No Safe Passage Report,” 2024).

As a response to irregular migrants, in Latvia, **the state of emergency was extended several times**. On 10 August 2021, the Cabinet of Latvia adopted Cabinet Order No. 518, “On Declaring an Emergency Situation,” which was implemented in four regions (in Latgale region): the affected areas were Ludza municipality, Krāslava municipality, Augšdaugava municipality, and Daugavpils city. This aligned Latvia's response with that of neighbouring Lithuania and had three main consequences: 1) The State Border Guards of Latvia was instructed to prevent unlawful border crossings with the support of the National Armed Forces and State Police, using the necessary means, including physical force; 2) Access to asylum procedures at the Latvian-Belarusian border was initially denied until amendments in April 2023 permitted applications at official border points and a detention centre in Daugavpils; 3) The option of humanitarian admission for those crossing the border was introduced (“No Safe Passage Report,” 2024). After being extended seven times, the state of emergency in the border areas was lifted on August 10, 2023, and **replaced by a robust border protection regime** under Government Order No. 514 despite objections from the Council of Europe's Commissioner for Human Rights, the UNHCR, and Latvia's ombudsman (Kugel, 2023). This regime requires the National Armed Forces and State Police to assist the State Border Guard in preventing unlawful border crossings. Additionally, the State Border Guard is responsible for providing food, essential items, and medical assistance to individuals attempting to cross the border irregularly (“No Safe Passage Report,” 2024).

According to the State Boarder Guards of Latvia, in 2021, a total of 4,045 people were deterred from crossing the border, and 94 were allowed to enter on humanitarian grounds. In 2022, 5,286 people were deterred, with 217 admitted on humanitarian grounds. In 2023, the numbers were 13,863 and 428 people (see the Table 21 below). It is important to understand the context behind these figures. Firstly, **the number of people deterred may not accurately reflect the actual number of individuals at the border**. This figure may include multiple attempts by the same individuals to cross the border on the same day. Secondly, pushbacks could occur outside the designated border area when individuals are caught in vehicles, particularly the so-called 'taxis' operated by smugglers. Initially, Poland reported the highest numbers of pushbacks, however, numbers of Latvia and Lithuania gradually rose, while in Poland decreased due to border protection measures taken at border area (“No Safe Passage Report,” 2024).

Table 20: Irregular migrants' statistics on border according to Latvia State Boarder Guard

Year	Deterred from crossing	Admitted on humanitarian grounds
2021	4,045	94
2022	5,286	217
2023	13,863	428

Source: "No Safe Passage Report," 2024

Overall, the magnitude of the crisis related to the hybrid war by Belarus remains to some extent undisclosed. Despite the limited media coverage in Latvia, the Russian independent media outlet Novaya Gazeta has reported **over two dozen unconfirmed deaths** (2021-2023) on Belarus border (Kugel, 2023), and there have been documented cases of severe frostbite resulting in amputation. Yet, the Latvian Public Broadcaster (LSM) has highlighted the lack of comprehensive data on these issues. **According to officially confirmed information, seven people on the move died** in the Latvian territory between August 1, 2021 and March 1, 2024. Until the end of 2022, there was no official information about any migrant deaths in the border areas area ("No Safe Passage Report," 2024).

In clear contrast to the response to 'forced migration', the reception of Ukrainian refugees arriving in Latvia via Russia has been radically different. Despite "*more than 300,000 Ukrainians passed through Latvia exhausted and hungry - with babies and animals*" *overwhelming Latvia's capacity to respond, efforts were quickly mobilised to support the collective effort* (Interview 4). As one informant recalls, "*the NGO Tavi Draugi attracted local volunteers, they brought food, they worked in shifts, and they helped refugees*" (Interview 4). Tavi Draugi was also in close contact with the NGO Rubikus - on the Russian side - which was keen on helping out and sharing information such as the numbers of people that they should expect to arrive (ibid.). As a result the processes behind Latvia's help to Ukraine led to "unprecedented consolidation of society that has fixed some things that Latvia was not able to fix last 20 years with integration policies" (Interview 5). The NGO Rubikus operates a transit hub in Daugavpils, with a local volunteer group providing assistance to Ukrainian migrants with regard to transit logistics (Personal Communication 1). Yet what remains strikingly clear is that **two distinct refugee assistance mechanisms emerged**, with the assistance provided to Ukrainian refugees being markedly different to that provided to those who were forcibly displaced towards Latvia via Belarus.

It is interesting to note that another dichotomy of refugee perception was illustrated in the analysis of attitudes towards refugees that was observed during the **refugee crisis in 2015**, when Europe faced the arrival of over 1.25 million refugees fleeing from war-affected countries. The prevailing public awareness of this issue was primarily facilitated by domestic media sources (Greussing & Boomgaarden, 2017). In 2015, attitudes towards refugees in Latvia were influenced by the media consumption habits of the Russian-speaking population who consumed **media content created for the Russian audience**, which framed the refugee crisis as an external phenomenon. This led to a perception that the **refugee crisis was irrelevant** to Russians (in Russia) (Vadims Murašovs, 2017). Another study shows that while **Latvians are generally cautious about immigration, attitudes vary according to cultural proximity and economic contribution**. In particular, refugees from Ukraine receive significantly more sympathy and support than migrants from more distant regions, reflecting historical ties and geopolitical considerations. In contrast, asylum seekers from non-European countries face stronger opposition, with concerns about cultural integration and labour market competition shaping public opinion (Kaprāns et al., 2021).

The first monitoring by the European Commission against Racism and Intolerance ("ECRI") in Latvia was conducted in 1998, **and upon entering "Europe," Latvia had to openly confess its problems with racism. These were not necessarily seen as problems or even racism from an inside perspective**. This led to "racial innocence" as a form of racism in Latvia (Putniņa, 2024). Twenty years later after the first monitoring, only 20% of people in Latvia had no prejudice towards people with a different ethnicity or origin. More than half of the respondents wished to distance themselves from Syrians, Afghans and people from Africa (*Survey on Attitudes*, 2019). Using Latvian (e)migration literature as a proxy to measuring racism, Laura Laurušaite

discovers quite inflexible attitudes towards otherness among Latvians and Lithuanians who remain ideologically secluded and hardly open to the variety of experiences and identities. In most cases, they rejected the Other (black, Muslim, homosexual) as unfamiliar and strange, even without reflecting on the reasons for that hostility (LAURUŠAITĒ, 2019). A forthcoming study funded by the European Research Centre (ERC) Consolidator grant will examine this phenomenon by means of an investigation into the impact and importance of historical memory, collective trauma, a common enemy and fears about security, and racism as factors that shaped attitudes towards refugees in different ways. This investigation will be conducted by Latvian researcher Professor Inta Mierīņa (*Latvian Researcher Receives Europe's Premier Research Grant*, 2024).

While in the case of the first - the Lukashenko regime enabling irregular migrant flows - there was a general consensus in the country overall, creating a sense of unity and common struggle against the 'hybrid war' imposed by Lukashenko, there were country-level differences in how the incoming migrants from Ukraine were perceived. Latgale region was not as welcoming to Ukrainian refugees as the rest of the country, as various Russian-language media argued against mobilising support for Ukrainian refugees arriving in Latvia, claiming that Latgale region and Latvia could not sustain high spending on Ukraine while neglecting its own citizens, and that Ukrainians did not need help either because they were wealthy or because they should have stayed to fight. (*Information Flows in Daugavpils and Latgale*, 2023). Thus, while Latvia as a whole demonstrated a welcoming attitude towards Ukrainian refugees, attitudes towards the conflict in Ukraine and the role of Russia differed across the country. The Latgale region and the **Russian-speaking population in Latvia were questioning Russia's responsibility for the war in Ukraine** (Andžāns, 2024), while the majority of Latvia's inhabitants, including the government, expressed univocal support to Ukraine, and strictly condemned Russia's aggression unlike several local government leaders in Latgale.

6.4 Vulnerabilities of Latgale region

The geopolitical crisis – the 'hybrid war' executed by Belarus since 2021, and Russia's full scale invasion in Ukraine in 2022, has brought to light a number of underlying long-term stressors and (perceived) vulnerabilities of Latgale Region, that lead to **multiple views on what long-term stressors and crises, and consequently territorial resilience of the region means**. At least two distinct perceptions of challenges to territorial resilience are formed by the national government and Latgale region itself. Seen from the national government's perspective, Latgale's main resilience challenge is its **proximity to Russia and Belarus** and major focus on the future developments are security driven and dictated by geopolitical turbulences. Seen from the regional perspective, Latgale's resilience is challenged by **the distance to the economic centres** as the peripheral positioning of the region necessitates the utilisation of extended distances and an increased expenditure on the part of both residents and entrepreneurs to access major urban centres and the essential amenities required for development and a satisfactory quality of life. These vulnerabilities are further discussed, focusing on long-term stressors and more recent crisis that Latgale region has been going through.

6.4.1 Proximity to Russia and Belarus

Social tensions and a growing divide between Latgale Region and Latvia's capital Riga have been a defining feature of the state of art for a considerable period of time. The sense of stagnation became normalized, with a metaphorical agreement that "the patient is pale, but alive" (Austers, 2014). However, there has recently been an awakening to the fact that a patient who has lived for a long time in a structural trap, separated from economic development and thus at risk of falling prey to populism, became **a matter of national security** and the political and social integrity of the state. Here with proximity to Russia and Belarus, we can notice both long-term, as well as short-term factors, described in following chapters, and those reflect the perspective of the 'centre' towards Latgale region.

6.4.1.1 Long-term stressor: the question of Russian speaking population integration

The region of Latgale came to the attention of the wider public in terms of matters of national security during the controversial **2012 referendum** on the question of granting the Russian language co-official status with the Latvian language. Even though 74.8% of voters opposed the proposal, Latgale was the only region where a majority (55.6%) expressed support for the designation of **Russian as a second state language**. There was a notable increase in interest in Latgale's security following Russia's invasion of eastern Ukraine in 2014 and annexation of Crimea. This was because events in Donbass (region in east Ukraine) fuelled fears that a similar

scenario could unfold in regions bordering Russia, following pro-Russia activists' proposed establishment of **the 'Latgale People's Republic'** (Andžāns, 2024). It is, however, important to note that separatism in Latgale has been extensively researched and is considered a marginal phenomenon. A 2016 study by the National Security Academy concluded that only **10% of Latgale's residents** exhibited a positive attitude towards an independent 'Latgale People's Republic' (Hiršs & Bērziņa, 2016; *Information Flows in Daugavpils and Latgale*, 2023).

The study on societal destabilisation (Hiršs & Bērziņa, 2016) revealed a striking adherence to Russian narratives in Latgale, particularly in Daugavpils, where over half of the respondents espoused narratives of fascism's resurgence in Latvia and discrimination against Russian speakers, with one-third expressing a sense of belonging to Russia. While the overall adherence to these narratives was lower in regions outside of Daugavpils, it remained higher than in the rest of Latvia. Furthermore, the findings revealed a notable prevalence of Soviet nostalgia in Latgale, with 34.5% of respondents expressing nostalgia in 2022, followed by 34.7% in 2023 and 31.2% in 2024 (Andžāns, 2024). This trend highlights the intricate relationship between **historical interpretations and the influence of memories and contemporary narratives in Russia**.

Due to Russia's full-scale invasion in Ukraine in 2022, amendments to the Immigration Law came into force that required that those Russian citizens who were former Latvian citizens or non-citizens and had obtained permanent residence permits before acquiring Russian citizenship had to pass the **Latvian language exam** (*Citizens of the Russian Federation Who Have Not Passed the Latvian Language Test for Justifiable Reasons May Apply for a Residence Permit / Pilsonības Un Migrācijas Lietu Pārvalde*, n.d.), meaning that 24,5 thousands had to take the language exam (Šķelšanās - YouTube, n.d.). **Daugavpils had the second largest number of affected citizens** after the capital city Rīga. In conclusion, these developments have resulted in heightened ethnic and political tensions at the regional and national levels, with Latgale becoming a focal point at the national level due to the increasing scale and scope of its involvement in the context of geopolitical, territorial shocks, stressors and crises.

6.4.1.2 Short-term stressor: securitisation of Latvia's policies in border area

Securitisation of politics as an aftermath of Lukashenko's regime that increased the number of irregular migrants at Belarus border, can be regarded as a comparatively short-term stressor that created fear, distrust and polarisation in society, also silenced the mass media reporting of the issue or created a major discourse in the public arena that dehumanised the migrants at the border.

Interviewed NGOs in Latvia claim that this securitisation approach has **lacked transparency and a democratic discussion** (Interview 2). In the words of one informant:

"Transparency is almost non-existent. It's a security regime. It's all wrapped up in this mysterious security threat that is unquestioned. Of course there is a security threat, there are risks and all that, but they are not explained. The explanations come in the form of slogans, undeniable, unquestionable". (Interview 2)

However, NGOs claimed that **securitisation**, silencing, and non-questioning the state's modus-operandi only contributes to enhancing the problem. Avoiding a transparent approach over the underlying tensions and sensitive issues generated mistrust **instilling fear** in certain groups of the population potentially turning them away from democratic practices such as participating in public discussions, dialogue and any arenas meant for consensus-building. Moreover, several voices from civil society organisations argued that the securitisation policy was not limited to ensuring hermetism of the actions taken by the border authorities but has also actively obstructed the work of humanitarian organizations. NGOs such as "I Want to Help Refugees", were targeted with criminal proceedings against their representatives, hampering their ability to provide assistance and raising concerns about the **criminalisation of humanitarian activities** (*Latvian Activist Charged for Aiding Migrants*, 2024).

Moreover, most of the civil society response comes from national and international organisations rather than NGOs based in Latgale. In fact, the majority of the civil society organisations in the region are dedicated to sports and hunting activities, and not to humanitarian issues, with the exception of the Red Cross in Balvi, which is the only one that was included in civil defense efforts so far (*NGOs as Catalysts for Societal Resilience: What Can We Learn from the Latgale Example?*, 2024). As one informant concludes: "No one else from the Latgale region was involved except the Red Cross" (Interview 4). **The limited capacity of civil society to act in this crisis** coincides with the way locals perceive the general capacity of Latgale region to cope with other threats and crises.

The threat of Latgale separatism, such as the establishment of a "Latgale People's Republic", has been assessed as low. Previous academic research and local actors have confirmed this assessment: during the futures workshops held in Daugavpils in 2024, this risk was considered highly unlikely. However, Latgale was identified as a region of national security concern due to several factors. These include strong support for political parties that deviate from the national discourse on Russia's war in Ukraine, **active consumption of Russian propaganda media, and widespread disillusionment with national government policies**. In addition, mainstream nationalist political narratives often portray Latvia's Russian-speaking population as 'occupiers' and enemies of the nation-state, contributing to tensions in the region.

In terms of transferability of practices to other EU regions, Latvia, and Latgale in particular, showed a similar **cohesion and unity** in the way the crisis was perceived and managed. Initially, the responses along the border with Belarus were similar to those observed in Poland and Lithuania. Consequently, in the Latgale region there has been minimal variation in the way EU and NATO neighbouring countries deal with irregular migrants at the border. This is **perceived as a hybrid war, in which migrants are seen as weapons**, resulting in the introduction of a state of emergency, the implementation of push-backs and the construction of a fence. Thus, there was no controversy in Latgale over the issue of irregular migrants crossing the border from Belarus, and there was a surprising degree of agreement with the approaches adopted by the national government, leading to an **unprecedented level of cohesion** in terms of how the situation of irregular migrants was viewed and resolved at national and regional level in Latgale that **has remained conspicuously silent**, providing minimal insight or commitment to addressing the slowly growing number of anonymous graves - solemn reminders of the tragic deaths of irregular migrants who have perished in their attempts to cross the border.

6.4.1.3 Conclusion

In conclusion, the crises triggered by Russia's invasion of Ukraine and Belarus' hybrid warfare have had a significant impact on Latvia, and the Latgale region in particular, **bringing Latgale out of its almost 'eternal shadow'** of political discourses at national level. Apart from the national government, fear of Russia is not as pronounced in Latgale, where frequent people-to-people contacts help maintain a sense of connection and understanding across borders (Pupcenoks et al., 2024). While national policies focused on security and border protection have been crucial in responding to what the national government in Latvia (but also Lithuania and Poland) has called geopolitical threats, the whole situation has also **highlighted Latgale's unique vulnerabilities**, particularly its economic struggles, depopulation and recurrent marginalisation by the national government.

6.4.2 Distance to economic centres and relations with the government

In order to understand what it means to Latgale be distant from economic centres, one needs to consider not only physical distance but all components related to being distant from the key economic centre of the capital city of Latvia – Riga that hosts almost half of the country's population, and has concentrated the economic power of the country since its independence and since it regained independence from the Soviet Union. As Dace Dzenovska writes in her research about Latgale's countryside: **post-Soviet capitalism produced** a palpable change that can be termed as "**emptiness**", where fear, and then realisation, of school closures and the cancellation of transport routes has produced a general sense that "**everything is deteriorating**" (Dzenovska, 2020). The sense that everything is deteriorating in combination with people leaving, has contributed to most profound long-term stressors seen from the region's perspective itself.

6.4.2.1 Long-term stressors: people, infrastructure, emptiness

Latgale's long-term stressors are best summarized by the Baltics Catching-up Regions Initiative (CuRI), Phase I: Scoping Report Draft (*Scoping Report Draft by WB and EC, 2024*) dated 27 September 2024, that states that:

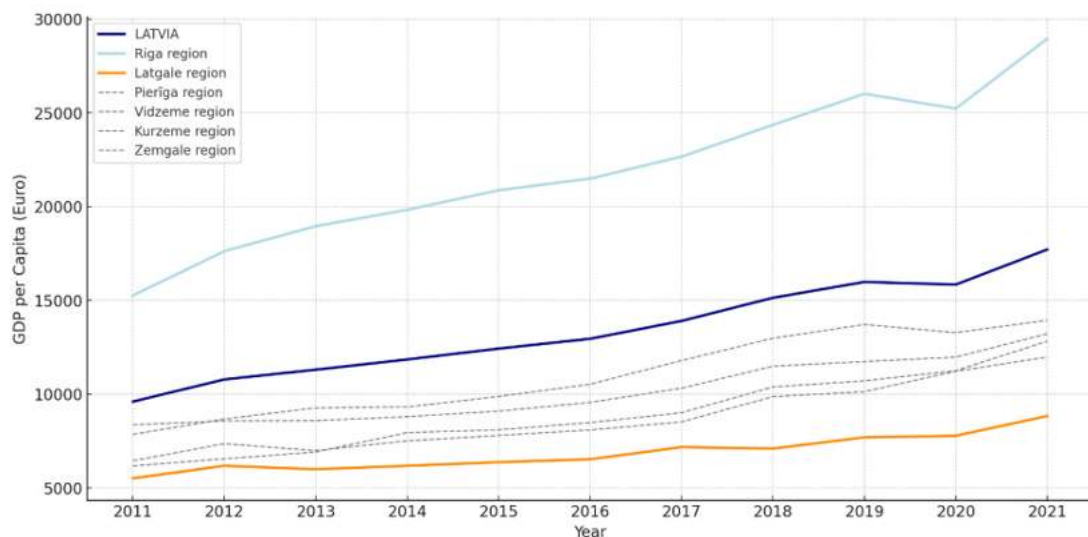
- The **population of Latgale has been in decline due to outward migration and demographic trends**. Since Latvia joined the EU in 2004, Latgale has lost nearly 100,000 inhabitants, with a total population of 260,226 in 2019;
- **Despite significant investments** in social, educational, sports, and infrastructure sectors, **population decline remains a critical issue**, with a continued projected decline over coming decades;

- The labour market in Latgale is characterized by **high unemployment and limited opportunities**;
- The economic structure of Latgale is diverse but dominated by **low-value-added activities**;
- The region contributes 7% to the national GDP, with **GDP per capita significantly lower** than the national average (*Scoping Report Draft by WB and EC, 2024*).

While public investments, particularly from EU funds, have attempted to fill these gaps, the existing financial mechanisms may have disincentivized local economic development: if money is given for backwardness and taken away for development (the mechanism by which the municipal financial equalization fund operates, and partially how EU fund distribution works), **municipalities may lack the motivation to promote economic development** (Krasnopjorovs, 2023). This has been echoed also within the Baltics Catching-up Regions Initiative (CuRI), Phase I: Scoping Report Draft, stating that based on discussions with local stakeholders concludes that “there is a strong focus on the attraction of new companies into planned business parks or as part of the Latgale and Rēzekne SEZs, with a feeling that this should benefit the region. However, there is a recognized need to better support existing entrepreneurs, not just focus on attracting large investors” (*Scoping Report Draft by WB and EC, 2024*). As a result, the **Latgale region lacks tailor-made support programmes for development**, rather than simply compensatory mechanisms for its underdevelopment.

Thus, the distance to the economic centres can be also measured in distance of region’s GDP per capita, which in Latgale’s case as illustrated in Figure 32, is the largest if compared to the capital – Riga region and also when compared to all the other regions in Latvia.

Figure 33: Gross domestic product per capita, euro – Territorial unit and Time period



Source: Scoping Report Draft by WB and EC, 2024

Many of the long-term stressors in terms of deteriorating infrastructure can be observed throughout the planning documents of various municipalities in Latgale region, where the **municipal development plans** overall “**look like long lists of infrastructure maintenance plans**” (Dzenovska, 2020) instead of being visionary documents for setting the municipalities in a broader picture of development, success and achievements.

Distance to economic centres in terms of depopulation, deteriorating infrastructure and emptiness, as well as the sense of ‘being left behind’ implies also distance to planning, strategic investment and development as “**managing emptiness [as in depopulated areas] is a new and—foremost—unfamiliar logic of governance**”, and such questions, for instance, what to do with roads that lead nowhere or what to do with the communal buildings, such as schools that have to be repurposed, while there is little demand for alternative use (Dzenovska, 2020), have remained without answers for a very long time in the Latgale region.

The precarious situation has brewed a general discontent which has provided the perfect grounds for nurturing populism. Divisive politicians have popularised dichotomous narratives of ‘us versus them’, “Daugavpils versus Riga”, and “Russians versus Latvians”. However, the latest shocking events bringing back war to Europe

has raised awareness that simply covering discontent with a lid will merely prolong the problem and as a ticking bomb it is just a matter of time until it bursts. It has become evident that the state has failed to unify civic values between the majority and minority ethnic groups (*Information Flows in Daugavpils and Latgale*, 2023). However, it is unclear to what extent this realisation is leading to effective measures to address discontent or whether the state is doing 'more of the same', as the same old tools that have had limited success in building unity.

Taking into account that **amplifying discontent with the national government, and increasing the sense of polarisation** has been growing in Latgale's society, it has been utilised as a strategic (and until now successful) approach by local mayors via local opinion leaders and local press (within the context of little independent journalism in the region), deliberately strengthening a feeling of resentment that "Riga" has forgotten about Latgale, supporting also narratives about Latvia as a failed, Russophobic state (*Information Flows in Daugavpils and Latgale*, 2023) and continues miscommunication, misunderstanding and **mutual distrust between the capital Riga and the region**.

6.4.2.2 Short-term stressors: delays in support and communication

Taking into account the developments of the previously described geopolitical crisis, the impact on the local population of Latgale region resulting from the influx of irregular migrants from Belarus can be summarized by in following way:

"This problem mainly affected the residents living near the Latvian-Belarusian border. Residents no longer felt safe in their homes and properties, as there were many cases of illegal migrants entering the homes and properties of local residents. Sometimes this even resulted in material losses for local residents. The situation also highlighted a number of problems in our border security and urged the relevant authorities to address them immediately. At the end of 2023, it was noted that the number of attempts to illegally cross our country's borders had significantly decreased as a result of the preventive measures taken." (Interview 1)

In addition to fear, **other inconveniences** were discussed - such as the **ban on hunting, gathering and foraging activities in the border area** - and these activities were often used by local politicians in public narratives to discuss and criticise the inconveniences and losses caused to local communities by the national government in implementing various restrictive measures in the border area.

Latvian media reports from border residents reveal **strong connections with Belarus, a desire for peaceful relations**, confusion over worsening ties, and dissatisfaction with the impact on daily life and the economy (*Information Flows in Daugavpils and Latgale*, 2023). Historically, Latgale has had active cross-border ties with Belarus and Russia. Residents of the region frequently crossed the border to access cheaper goods (Andžāns, 2024). The intensified border protection measures have led to a notable decline both in legal and illegal cross-border activities, reducing such illicit trade activities as cigarette and alcohol smuggling, in particular (*Information Flows in Daugavpils and Latgale*, 2023).

Despite anti-mobility activities on border area and a continuously renewed emergency state situation in border area carried out by the national government in Latvia, cooperation with Latvia's eastern and southern neighbours in Latgale region has played an important role and **local municipalities have maintained close foreign contacts enhancing economic cooperation with Belarus**, amongst other countries. As a consequence, the development priorities set by the national government have not always gone hand in hand with the visions of local authorities. In many cases, the relatively strong position of local government officials translates into **distrust between the centre and the regions**, especially when a local government party is engaged in a political dispute with the national government (Chmielewski, 2023). Thus, in the first half of 2023, approximately 42,000 Latvian citizens travelled to Belarus. Most people went there to visit relatives, shop, or as tourists. Buses from Daugavpils to Minsk run several times a week (*Information Flows in Daugavpils and Latgale*, 2023).

The Latgale question has been elevated to a higher level of governmental concern, with a more expeditious response. It remains a question to what extent the crisis will change the way the Latvian government communicates with the Latgale Region, as up till now government representatives rarely visit Latgale and infrequently meet with residents whose primary language is Russian, which leads to relatively high support for Russia-friendly political populist parties that can be attributed to the region's economic situation, Russia's information influence operations, **and the government's lack of strategic communication on key issues**

such as the shift to Latvian-language instruction, and changes to immigration laws (Information Flows in Daugavpils and Latgale, 2023).

Overall, the sentiment of Latgale region being left behind or left alone in the crisis was strengthened with this short-term stressor, lacking clear instructions from the national government how to act and prepare better for the 'hybrid war' at the Belarusian border, as well as lacking any compensatory mechanisms for stopping activities at the border – building anti-mobility infrastructure and banning the locals from their mushrooming and berry picking places. This leads to conclusion that **both communication and compensatory mechanisms have been lacking** since the beginning of the 'hybrid war' that Belarus carries out on its border since 2021, as well as since Russia's full scale invasion in Ukraine in 2022.

6.4.2.3 Conclusion

In conclusion, **the absence of a comprehensive strategy to address Latvia's socio-economic division, coupled with the decline in quality of life** – largely driven by deteriorating public services and limited economic prospects – has contributed to a self-perpetuating cycle of negative impacts. These interlinked stressors intensify one another, resulting in a further decline in population, a reduction in the quality of public services, and widespread dissatisfaction. This, in turn, provides an environment conducive to the proliferation of populist sentiments, social unrest, and vulnerability to disinformation, whether originating from domestic or foreign sources. However, recent events have underscored the critical necessity to address these deeply entrenched structural challenges. There has been a growing awareness of the importance of fostering cohesion, enhancing governance (including improving communication across institutional silos), and addressing issues of depopulation, economic opportunity, and infrastructure. In this context, the longstanding underdevelopment of Latgale has become a focal point for policy initiatives.

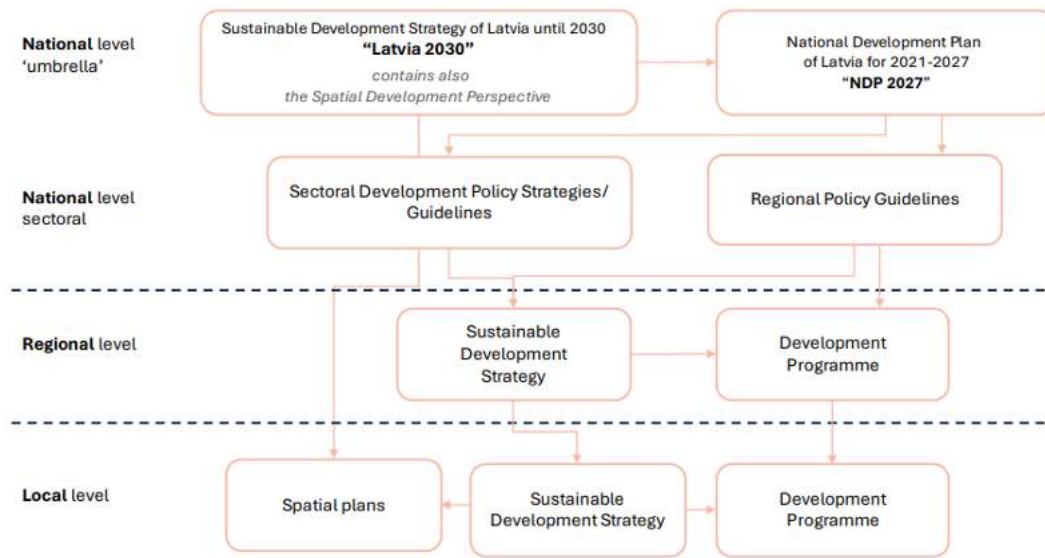
6.5 Recovery or resilience preparedness related initiatives: overview

The comparatively recent geopolitical crisis has **changed the speed, scale and scope** of how the territorial crisis in the Latgale Region is being addressed. The current territorial shock, which is perceived as a more concrete and external phenomenon of geopolitical outcome by Belarus and Russia, is more straightforward for the national government to address than the underlying long-term stressors of social and economic tensions. As a result, the responses at the national level to this crisis are formulated with greater alacrity, leading to a new type of regional-centre interaction dynamics. In addition, **a new wave of investments** has been derived from various international donors, who have promoted a broader understanding of the territorial resilience in Latgale Region by introducing additional variables to the equation, such as human development, economic growth and entrepreneurship development, and media literacy. The European Commission, in cooperation with the World Bank, has launched the *Baltic States Catching-up Regions Initiative: Strengthening Border Regions for Resilience and Growth*. DG REGIO has signed an agreement with the World Bank to strengthen the resilience of regions in Lithuania, Latvia and Estonia bordering Russia and Belarus. Also the Organisation for Economic Co-operation and Development (hereinafter - OECD), in co-operation with the European Commission, is implementing the project "*Rethinking Regional Attractiveness for Green and Inclusive Globalisation*", which includes Latgale as an eastern border region. (Action Plan, 2025).

In addition, the newly launched Action Plan for Economic Growth and Security Strengthening of Latvia's Eastern Border Region for the period 2025-2027 also provides for the expansion of the **EU cross-border cooperation programme in cooperation with Poland and regions in Finland** to compensate for the closed cooperation with Russia and Belarus (Action Plan, 2025). As noted in the ESPON CHANEBO report (ESPON CHANEBO, 2024), the closure of EU cross-border cooperation programmes with Russia and Belarus due to Russia's aggression against Ukraine has diverted €257 million from border regions without alternatives (Action Plan, 2025).

However, in order to place the new policy developments in the context, an overview of existing policies is outlined in next figure and below.

Figure 34: Strategic planning documents in Latvia relevant to targeting regional development



Source: Scoping Report Draft by WB and EC, 2024

In a nutshell, the following policy framework operates at national, regional and local levels:

- Latvia 2030 is central to the country's long-term planning, outlining seven key priorities such as cultural space development, human capital investment, and an innovative, eco-efficient economy
- Local governments and the planning regions elaborate various planning documents to guide their development
- The Latgale Strategy 2030 is a comprehensive development plan, setting the long-term objectives in alignment with Latvia 2030
- The Latgale Programme 2021-2027 outlines the framework for accelerating economic development, setting medium-term objectives, in alignment with the Latgale Strategy 2030 (*Scoping Report Draft by WB and EC, 2024*).

In addition, Civil Protection Plans (CPPs) are developed in each of the municipalities. The Civil Protection Plans (CPP) of various municipalities in Latgale Region, including Daugavpils and Augšdaugava county, Rēzekne and its county, Krāslava, Ludza, Balvi, Līvāni, and Preiļi, are primarily **concerned with addressing local threats** such as infrastructure failures, natural disasters, and climate change impacts (*Civil Protection Plans by Local Governments, 2024*). A notable focus is placed on the preparation for mainly potential building collapses, water supply disruptions, heating and sewage system failures, as well as forest and peatland fires, which are expected to increase in frequency due to climate change.

It is evident that the Latvian government has historically adopted a **centralised approach to governance**, which is reflected in the characteristics of local planning documents. In 2014, the State Audit Office assessed both the fulfilment of assigned tasks and the adequacy of ministerial supervision, legislation and support for regional development. The audit found that **tasks are being carried out** in Latvia's planning regions, **but goals are not being achieved**. The Latgale Planning Region has performed better than others in several aspects, such as updating its development programme or specifying planned sources and amounts of funding and performance indicators. **Municipalities in the region have shown little interest in the planning regions**, with 83% unwilling to provide financial support and most others offering minimal contributions. This reluctance, together with shortcomings in the work of the Ministry of Environmental Protection and Regional Development (VARAM) and the Ministry of Transport (SM), has affected the effectiveness of the planning regions, according to the State Audit Office (State Audit Office, 2014), and frequently planning regions are referred to as **'institutions without teeth'**. However, this situation may change in the near future. In the Action Plan for the economic growth and security strengthening of Latvia's Eastern border region for the 2025–

2027 period, the Latgale Planning Region has been allocated the largest budget of all the regions (*Action Plan, 2025*).

In the given context of policy planning documents, as an immediate response to the military occupation of Ukraine and the potential threats this represented to Latvia itself, the Latvian Cabinet of Ministers approved a **military fortification and counter-mobility plan** for the eastern border, **allocating 303 million euros** over the next five years. This plan forms part of the **Baltic Defence Line** initiative, which is aimed at strengthening defence along the borders with Russia and Belarus (*Border Investments, n.d.*).

There is an understanding that the Ministry of Defence (MoD's) activities in the region will increase, creating new needs for both human resources and innovation in the region. Subsequently, in May 2024, the Thematic Committee on Socio-economic Development and Security Strengthening of the Eastern Border developed an **Action Plan for the economic growth and security strengthening of Latvia's Eastern border region for the period 2025–2027 (hereinafter Action Plan)**. This Action Plan is not limited to the Latgale region; it also encompasses Alūksne county. Alūksne county is part of the Vidzeme Planning Region and is located in the north-east of Latvia. This document emphasised the imperative to address security concerns following Russia's full scale invasion in Ukraine, and **to foster economic growth in Latvia's eastern borderlands** through cohesive regional planning and inter-sectoral collaboration during the period 2025-2027 (*Eastern Border Committee, n.d.; VARAM, n.d.*).

The Action Plan emerged from **the Eastern Border Economic Growth Plan for Latgale**, a strategic initiative aimed at addressing socio-economic challenges and enhancing security. Despite Latgale's significant strategic importance, the Action Plan, **initially proposed in 2022** and subsequently **renamed in 2023**, remained **unimplemented in 2024**, with its objectives yet to be fully realised. **The Action Plan was officially launched on 14 January 2025** (*lvportals.lv, 2025*), encompassing both its procedural and content-related development, which included the following aspects:

- The plan includes measures and activities that complement/expand existing actions and interventions outlined in other national-level planning documents, which are being implemented either exclusively in the Eastern border region or in Latgale, or, among other areas, also in the Eastern border region or Latgale. These actions are to be funded either from the resources available to the responsible sector ministry or from external sources, **with a total budget of EUR 644,598,937 allocated for 58 of the measures** (*Action Plan, 2025*). This funding consists of €269.6 million from the national budget and €375 million from EU and foreign sources (*lvportals.lv, 2025*).
- The following key measures have been outlined in the plan: **Security** will be strengthened through the construction of 11 disaster management centres, the establishment of 6 military bases, the creation of anti-mobility material parks, and the enhancement of border infrastructure. **Economic development** will be supported through the creation of at least 1,800 new jobs, the development of industrial parks in Daugavpils and Augšdaugava, the provision of loans for exporting businesses, and the support of farm competitiveness and rural entrepreneurship. **Human resources** development will be improved through the enhancement of synergies between businesses and higher education institutions, the continuation of the operation of Daugavpils University and the integration of Rēzekne Technology Academy with the Riga Technical University ecosystem. The plan also focuses on expanding healthcare services, enhancing local infrastructure, and **supporting Latgalian language** (*lvportals.lv, 2025*).
- Key measures in the Action Plan for the Ministry of Defence include the creation of 25 anti-mobility material parks to enhance the deployment capacity of military equipment and provide over 100 jobs for local residents. Military bases will also be upgraded, with plans for new warehouses and vehicle storage facilities. Additionally, **a branch of the Latvian War Museum will be established in Latgale to strengthen civic patriotism**, and **a military-oriented vocational school will be set up to foster youth patriotism**. The plan also includes mapping companies with dual-use production potential to improve crisis preparedness and business opportunities in the region. The defence sector will continue to enhance the information space through collaboration with local authorities, regional media, and NGOs (*Action Plan for MoD, 2025*).

The draft of the Action Plan has been developed with input from various stakeholders, including sectoral ministries, and has been reviewed by the Saeima's (Latvia's Parliament's) Latgale Subcommittee and the Thematic

Committee of the Cabinet of Ministers on the socio-economic development and security strengthening of the Eastern border region. A series of recommendations was made by local institutions in Latgale to be included in this Action Plan. These institutions included the Latgale Planning Region Development Council, the Latgale Regional Council of the Latvian Chamber of Commerce and Industry, and the Council for the Implementation of the Decisions of the Latgale Congress, as well as the NGO "Cita Daugavpils" (Another Daugavpils). The recommendations focused on promotion of the **Latgalian language and the region's unique identity, strengthening of local communities through support in engaging in decision-making and additional funding for local NGOs** to enhance social security in border regions, the **investment in environmental protection and the implementation of measures to mitigate and adapt to climate change, and the enhancement of capacity for the implementation of the EU's Green Deal** (Personal Communication 2 and Personal Communication 4). If contextualised internationally, the Action Plan takes into account the experience of Estonia and Finland, which have implemented special support programmes for their eastern border regions. As in Finland, the plan includes measures to strengthen security, promote entrepreneurship, create jobs and reduce depopulation. It also emphasises shifting economic cooperation away from aggressor states. Like in Finland, the plan includes initiatives in education, research and territorial accessibility. It shares common goals with Estonia, such as business development, improving living conditions and strengthening civil society. **In contrast to Latvia, the support framework in Estonia encompasses** not only environmental and green technologies, but **also renewable energy, the utilisation of natural resources** (particularly for the extraction of new technologies and critical metals), **the promotion of a circular economy, hydrogen production, and the tourism** sector for the Eastern border region (*Action Plan, 2025*).

Recognizing that the eastern border region of Latvia faces significant challenges related to demography, employment, and availability of skilled labour, new regulations were approved on 15 June 2023 to allow the **Human Capital Development Council** to lead an interdepartmental cooperation in the planning, development, implementation, and monitoring of **labour market reforms** (Oxford Research Baltics, 2024). Current planning documents call for **improved strategic communication with inhabitants** of the frontier in Latgale and Vidzeme, as well as improving counterintelligence and military defence in the frontier (Andžāns, 2024). Overall, it remains to be seen whether the policy efforts stemming from this council will be effective in supporting economic growth and human capital development in the Latgale Region in the medium and long term.

6.6 Territorial resilience in Latgale: lessons learned

The next chapter reflects our own interpretation and analysis based on desk research, interviews and Futures Workshops held in Latgale region during 2024. An important disclaimer is the fact that the information gathered through interviews and discussions during the Futures Workshops was collected in Latvian and/or English, thus excluding those Latgale residents who speak and understand only Russian.

The main challenge to the resilience of Latgale, and by extension Latvia, is the slowness with which sensitive problems are solved, or more precisely, not solved, or solved in a highly suboptimal manner. While geopolitical crises have never been absent from the Latgale region due to its geographical location, little strategic investment has been channelled in the direction of Latgale's development, where the main development for the region since its increased failure in the post-2008 financial crisis has been its steadily declining population. Latgale region has been delinked from narratives of progress and from attempts to incorporate people and places as resources and beneficiaries into circuits of global financial and economic flows, and nobody is promising better futures to those living there (Dzenovska, 2020) leaving the region in increasingly **growing emptiness, silence and fear**.

This has created a situation where **most important issues are not discussed openly and respectfully. This lack of a common space for discussion**, where sensitive issues in the Latgale region could be discussed, was also signalled during the Futures Workshops, which revealed a fear in society of repression in the event of an alternative opinion from those in power at regional level. The region has become accustomed to not questioning the official position. This lack of space for discussion was also confirmed by the absence of participants from local government during the Futures Workshops - very few participants represented local government in discussions throughout the data collection process, despite being invited to do so.

Due to the lack of this space for discussion and the fear-based silencing of sensitive issues that should be discussed, we can conclude that **democratic practices in the Latgale region could be substantially improved**, because currently, instead of democratic debates, Latgale has fallen into the trap of populist politics,

both from its local governments, which often reinforce their (Russian-speaking) victim position, and from the national government, which sees Latgale and its Russian-speaking population as a threat, not as part of the society that has the capacity and will to build a sovereign Latvia, independent of its former occupier - Soviet Russia.

The greatest challenge to the transformative growth of the Latgale region lies in the **unchecked and rapid normalisation of several controversial practices, many of which are discriminatory** and, moreover, rarely questioned and openly discussed. Some of the practices we have observed are listed below along with the recommendations to overcome them.

Economic practices:

- It has been normalised that Latgale residents are excluded from basic financial services, such as the availability of mortgages for housing, insurance in case of floods or other natural disasters, and even basic access to cash withdrawals²⁰, but these discriminatory aspects should be corrected.
- The general consensus is that "either you innovate and become an entrepreneur" or you leave the region because there are few or no jobs; at the same time, there are **no specific entrepreneurial support programmes for the region that would focus on necessity-based entrepreneurship support** instead of the more general opportunity-based entrepreneurship support promoted at national level. More targeted needs-based entrepreneurship support policies should be implemented regionally, enabling local people to create jobs for themselves through micro-enterprises, self-employment and other formats. The ability and willingness of residents to engage in need-based entrepreneurship activities is indicated by the recent Global Economic Monitor (GEM) Latgale regional study and the Baltic International Centre for Economic Policy Studies report, which indicate that residents of the Latgale region are, on average, more willing to take risks to start their own business than the country as a whole (Latgale GEM, 2024).
- **A financial distribution mechanism that prioritises lower performing municipalities** for state grants or loans, effectively 'penalising' better performing municipalities while 'rewarding' less efficient ones with additional funds (as seen in the recent case of the bankruptcy of Rēzekne followed by a state loan of EUR 5 million (*Government lends to Rēzekne*, 2024)). This approach may discourage sound financial management, while financial mechanisms may be used in ways that deviate from their intended purpose.
- A critical shortcoming is the **inability to link economic development efforts with strategies to attract people to live in the region, either temporarily or permanently**. Instead, resources are often directed towards infrastructure projects such as swimming pools, spas and sports stadiums, which, while potentially beneficial in some contexts, lack a coherent strategic vision. Without a clear plan to integrate these investments into broader regional growth and population attraction strategies, such projects fail to deliver long-term benefits.
- In addition, **the allocation of funds tends to follow a 'one size fits all' approach**, neglecting the specific needs and circumstances of individual regions. This misalignment leads to inefficient use of resources and missed opportunities for sustainable development in the Latgale region and, ultimately, the country as a whole.
- **A vicious circle is created** as more people leave the region, leading to fewer opportunities and prompting the state to close schools and other services, which in turn drives even more residents away. While **these policies** are intended to address declining demand, they **become counterproductive by accelerating depopulation**. Instead, efforts should focus on creating incentives for people to stay, such as improving local opportunities, maintaining essential services and investing in initiatives that strengthen community ties and regional attractiveness.

²⁰ see the ATM map in Latvia: <https://www.bank.lv/pakalpojumi/bankomatu-karte>

- **Latgale's 'inward-looking' approach to development** has hindered the region's ability to position itself not only in relation to the capital Riga, but also within the wider EU region, including Lithuania, Estonia and Poland. As a result, the region has failed to define its role in emerging supply chains and has not fully exploited its unique comparative advantages in relation to other regions. This **limited external orientation has prevented Latgale from taking advantage of new opportunities for economic integration** and growth, and has led to stagnation rather than diversification away from the economic ties established in the past with Russia and Belarus.

Political practices:

- Instead of facilitating integration through measures such as free Latvian language courses, the national government has focused on sudden mandatory language tests in response to the growing geopolitical crisis, and the **ongoing debate over whether to continue funding Russian-language media on the national public broadcaster**. This continues to perpetuate divisive social structures and indicates a preference for maintaining separation rather than promoting genuine cohesion.
- **The Latgale region's continuous process of polarisation** and splitting away from national government's discourse is being **driven by local Latgale municipal leaders who are seeking to build their own political capital**. Their actions reinforce the dichotomy between Riga and the Latgale region, and they appear to be interested in maintaining a state of perpetual conflict rather than co-operation.
- **Ethnic voting in Latvia reinforces segregation**, with political parties predominantly appealing to either the Latvian or Russian-speaking population. This strategy risks creating a fragmented political environment. A shift towards policies that address the collective needs of the entire population - regardless of ethnicity - could foster greater cohesion and a more unified approach to national challenges.
- Extremes in society reinforce each other, driven by heightened emotions and the strategic use of these emotions, particularly through **social media and disinformation**. This creates a **cycle of polarisation that prevents productive democratic dialogue**. To address this, it is essential to promote **critical thinking and media literacy**, and to encourage individuals to critically evaluate the narratives they encounter. While it is impossible to dictate how people should feel, it is important to recognise that seemingly counterproductive policies - such as the growing support for independent Russian-language media by international donors - can still offer opportunities. If carefully managed and framed, such initiatives can be used to bridge divides, promote mutual understanding and encourage more inclusive dialogue between communities. Promoting informed engagement and empathy is key to reducing emotional and ideological escalation.
- There is a **lack of independent media outlets in the region**, which is a consequence of the close ties between the local media and municipal leaders. This lack of independent media outlets means that there is no free press to report on the malpractice of local political leaders.
- **Open dialogue is also alarmingly rare in mainstream media and academia**, where dominant narratives often overshadow dissenting views. The media prioritises a narrow range of perspectives, while institutional pressures in academia can discourage challenging accepted norms. This limits critical discourse and creates a climate of fear in which society is reluctant to engage in sensitive discussions. As a result, both local and national debates become superficial and based on narrow discourses, avoiding difficult but necessary conversations that could drive societal progress.
- **The national government's approach to irregular migrants** at the border has framed them as instruments in Lukashenko's hybrid war, rather than recognising them as individuals with human rights. In addition, the legal action taken against a Latvian human rights activist points to a worrying trend towards **the criminalisation of human rights work**. This has occurred with little social backlash, and public media have largely remained silent, with few outlets promoting discussion. To prevent further silencing, it's crucial to **address fear, mistrust and hierarchical control** at both community and government levels. By **opening spaces for genuine dialogue**, for example through localised, actionable policies such as neighbourhood initiatives, it's possible to create environments where trust can be built and the public can begin to engage meaningfully **without fear of repression**.

Social and governance practices:

- Latgale's (and Latvia's) governance is characterised by a **high degree of centralisation and control**, which has resulted in resources being allocated primarily through a redistribution mechanism to address regional underdevelopment. However, this approach fails to integrate a social perspective into socio-economic infrastructure planning, limiting its potential to promote sustainable development as perceived by local residents. While changing culture is a difficult task (though easy to propose), integrating regional cultural factors into the region's development strategies could help improve its long-term resilience. At present, **much local vibrant development remains at an informal level**, largely due to control, centralisation and fear of confronting dominant power discourses.
- The Latgale region faces significant cultural and linguistic marginalisation, also with regard to the Latgalian language, which remains underrepresented in the education system, national media and public life. This institutional neglect perpetuates negative stereotypes and discrimination, isolating the region both culturally and spatially. People from other parts of Latvia visit Latgale relatively rarely, leading to a lack of understanding of its challenges. This further reinforces region's isolation. To address these issues, **Latgale's cultural assets, including the Latgalian language, should be recognised as enablers of regional resilience**. By viewing cultural diversity as a strength rather than an obstacle, the region can foster greater inclusion and integration, building a stronger sense of identity and connection both locally and nationally.

While there has been a process of normalisation of those practices, the current geopolitical crisis has had a destabilising effect on the basis of recurrent practices. This has resulted in a number of disruptive developments, which are listed below:

- **The rise of the non-governmental sector** has seen the emergence of a number of organisations, including those focused on culture and art, as well as community associations and NGOs specialising in preparedness and resilience. These organisations have played a key role in fostering collaboration between national-level stakeholders, including ministries, defence forces and international donors, through joint events and activities;
- **The Latgale region is receiving and has received increased visibility from a number of actors**, starting with the government and ending with international donors such as the World Bank, OECD and multiple others. These activities have created new spaces for discussion where the needs and fears of the region are addressed through the process of engagement, dialogue and hearing the voices of the local stakeholders of Latgale region;
- **The Latgale region is moving away from its traditional role as an "eternal underdog" or "perpetual outsider."** It is now forming new visions and engaging in an ongoing exercise to redefine its identity and what it has to offer beyond its historical associations with fear and proximity to Russia and Belarus. The region's potential comparative advantage remains to be seen, but the fact that these discussions are taking place is a positive step forward.

6.7 Strategic policy and governance suggestions for the local and regional level

The case study findings indicate that the **Latgale region is an illustrative example of the unresolved challenges currently faced by the country as a whole**. These include poverty, depopulation, as well as the significant division between Russian-speaking and Latvian-speaking populations. The region's largest city, Daugavpils, serves as a cultural and linguistic enclave where the Russian-speaking population feels most at home. It should be repeatedly noted that our interviews and futures workshops did not engage with the segment of the population that communicates exclusively in Russian, however, this group constitutes a significant proportion of Latgale's inhabitants. However, basing on existing academic research which highlights divergent threat perceptions between Latvian and Russian-speaking populations (Pupcenoks et al., 2024), we may assume that there are also **different perceptions of what resilience means at societal level in Latgale region**. We can also further assume that in the current geopolitical context, however, neither group feels entirely secure. This shared sense of vulnerability and fear has fostered a general consensus that change leading to a more resilient region is necessary. The critical question is whether such change will promote societal

cohesion or exacerbate existing polarisation in an already divided society. As one informant noted, "**resilience is a process**" (Personal Communication 5), thus, exercising resilience may be seen as an objective in itself. The Latgale region along with the national government is actively navigating this process, and the following section provides an overview of key aspects to consider when formulating policy recommendations for enhanced territorial resilience in Latgale region.

Resilience as an Ongoing Exercise

Significant progress has been made in Latvia with regard to the strengthening of territorial resilience at national level. This has been achieved by a rethinking of the approach to critical infrastructure and the decentralisation of civil defence responsibilities. Traditionally, resilience was viewed through the lens of securing physical and cyber assets. However, recent shifts have emphasised **critical infrastructure as interconnected systems and services** that are vital for the functioning of society during crises. This approach has been supplemented by efforts to involve **private sector actors, NGOs, and local municipalities** in resilience planning (Interview 6). Much of the success of this approach depends on the ability of the interlinked actors to take on new roles and responsibilities within the given financial and governance constraints.

The process of disseminating national approaches to territorial resilience has been more straightforward in some regions than in others. Latgale, however, has been a notable exception, exhibiting greater difficulty in this regard. The personalities and political orientations of local government leaders have had a significant impact on the extent to which local governments can engage with the national government. Thus, the concept of **municipal preparedness has emerged as a further key component of the resilience framework** that has been developed in Latvia. The transfer of responsibility for civil defence from the Ministry of the Interior to the municipalities has entailed a shift in expectations. The municipalities are now required to plan resources and responses in cooperation with the armed forces. The aforementioned **decentralization has resulted in the implementation of targeted exercises** designed to assess the efficacy of coordination between **municipalities, emergency services and the military**. The exercises conducted throughout Latvia since 2020 have demonstrated that human factors, including leadership, trust, and the capacity to collaborate across sectors, are pivotal for effective crisis management (Interview 6).

Conversely, an analysis of the **Civil Preparedness Plans (CPP)** reveals that they are largely formal documents, potentially outsourced to the same company that developed similar, **formal plans without the involvement of local stakeholders** in the planning and discussion process (Personal Communication 5). As a result, the CPPs has remained largely a formality, a mere requirement, while the actual aspects of resilience have been largely shaped by informal networks, including activists and civil society organisations that emerged during the crisis, shifting their traditional roles. For instance, Latvia has over 50,000 hunters, and the Hunters' Unions constitute a significant part of Latgale's modest NGO sector. Previously focused solely on their core activities, these organisations now collaborate with the state to enhance territorial resilience in border areas, including Latgale, under a cooperation contract established through mutual agreement (Interview 6).

Therefore, currently resilience as an ongoing exercise is intertwined between formal and non-engaging practices by some institutions, and new roles and activism from other: thus, we can conclude that the **process is uneven and unbalanced but it is ongoing**, and with more iterations for resilience it is likely to advance in terms of equity and redefinition of roles during the crisis.

Integration as a Framework for Resilience

The case study of the Latgale region demonstrates that **the policy for its resilience is essentially the policy of integration** of the Russian- and Latvian-speaking populations. Notwithstanding these advances, Latvia continues to confront challenges in regions such as Latgale, where the integration of the Russian-speaking population has been more gradual and less efficacious. The absence of a targeted strategic communication strategy has resulted in deficiencies in national defence engagement with these communities. The Latvian-speaking population perceives Russia as a threat, a perception linked to Russophobia. In contrast, the Russian-speaking population is sceptical about NATO as a security provider in the region and does not view Russia as a threat to their security (Pupcenoks et al., 2024). It is imperative to consider the differences that have existed since 1991, when Latvia regained its independence. Otherwise, resilience will be a one-sided endeavour that fails to engage the broader society and expands the divide. **Consequently, the state's strategic**

communication on resilience is currently a double-edged sword. The more effectively it is developed, the greater the divide it creates between Latvian- and Russian-speaking communities. These groups require different strategic communication messages. However, what is needed above all is strategically using integration policies for resilience that has not been done until now.

Democracy, Decentralisation, Development

The link between democracy, decentralisation and development is crucial to building a resilient and prosperous Latgale, a region in Latvia that has historically faced economic and social challenges. Strengthening civil society networks is key to promoting democratic principles. Empowering communities to actively shape decisions through local councils, community organisations, churches, hunting clubs and informal networks of activists builds mutual trust and promotes inclusive governance. Often overlooked, these communities are the **backbone of social cohesion** and have a **profound impact on regional identity and stability**. By engaging grassroots networks - both formal and informal - and empowering them through democratic and decentralised development processes, Latgale may succeed in population retention in the region.

Assessing the national government's efforts to develop Latgale is also crucial. While there are plans in place, such as a defence-related and socio-economic development programme, their slow implementation highlights the need for greater urgency. This suggests that national government needs to rethink its approach to managing and promoting resilience: not only the urgency, but also the interaction frequency with the region.

During this transition, **investment in independent media is essential.** Independent outlets provide critical, objective perspectives and foster informed public debate. The media can also provide platforms for debate, strengthening democratic engagement. Discussions about cutting state funding to Russian-language media could harm the media landscape in Latgale. Instead, Russian-language media could be restructured, with Latvian translations as a complementary resource for Russian speakers interested in improving their Latvian language skills.

Policy recommendations

The following policy recommendations stem out from the previous analysis:

- **Enhancing participatory budgeting** in the Latgale region is essential to strengthen the non-governmental sector and civil society. According to the annual municipal budget requirements for 2025, at least 0.1 per cent of the municipality's average actual annual income from personal income tax and real estate tax must be allocated to participatory budgeting. This mechanism allows residents to influence how part of the municipal budget is used for territorial development by submitting project proposals and voting on their implementation, with the municipality then implementing the approved projects (lvportals.lv, 2024). However, given Latgale's financial constraints, it is necessary to consider adjusting the proportion of participatory budgeting through compensatory payment mechanisms from national government. Without such adjustments, Latgale's low income tax and property tax revenues will not generate the critical mass needed to meaningfully engage society in the participatory budgeting process. However, as the previous analysis shows, there is a strong need for increased democratic processes and participatory exercises, and therefore support for these processes is crucial to promoting change in Latgale.
- **Linking Latgale's socio-economic development plans with knowledge of its real needs.** While the Action Plan for Economic Growth in Latvia's Eastern Border Region 2024-2026 (*Rīcības Plāns Latvijas Austrumu Pierobežas Ekonomiskajai Izaugsmei 2024.-2026.Gadam*, n.d.), with its recently completed public consultation process, is late in improving the situation in Latgale, the situation in Latgale is scarcely researched, with a few exceptions in terms of the security-related surveys mentioned earlier in the study. There will be a forthcoming report by the Baltic International Centre for Economic Policy Studies, following the methodology of the Global Economic Monitoring Report, which will say something about the entrepreneurial capacity of the region, and there is the Scoping Report Draft by the World Bank and European Commission that indicates that the local inhabitants of Latgale would require more tailored approaches to support the existing small scale businesses instead of just building new policies of attracting large investments to the region (*Scoping Report Draft by WB and EC*, 2024). Otherwise, there is little information on the specific needs of Latgale. During our study, which

involved local stakeholders, we identified the need to focus on supporting necessity-based entrepreneurship and invites to target support programs to existing small-scale entrepreneurial activities in the region.

- Understanding the importance of integration in the process of socio-economic development of Latgale and **linking integration policies to socio-economic development policies**. It should be noted that only a fraction of society participates in shaping national-level policies for the Latgale region due to a lack of Latvian language skills, trust and capacity. While the Social Integration Fund has opened a one-stop agency in Latgale, this institutional island, where communication is possible in different languages, could take on additional roles in disseminating information about support for entrepreneurship and other socio-economic development opportunities in the region. Linking socio-economic endeavours with the wider society, which is usually excluded (and also self-excluding), could lead to more interaction, iteration of capacity building activities and thus to a more integrated and homogeneous region.
- **Intensifying resilience and security related exercises**. While Latgale region could be a difficult region to collaborate with due to dichotomy of local government leaders against the national government, iteration of security and resilience related exercises is important. Through people to people contacts, joint exercises lead by the Ministry of Defence, are important to build trust and decrease the politician enhanced divide between Latgale and Rīga. It is also vital that the institutions of national government organise various visits, events and other happenings in the Latgale region. This will allow them to interact with local communities and learn from place-based resilience practices.

6.8 Conclusion

The process of describing the territorial crisis and resilience in Latgale has been both valuable and difficult due to the **historical path-dependent nature of the crisis**, which is deeply rooted in the country's history. There are two key moments that illustrate this: Latvia regained its independence in 1991, which marked the beginning of the renewal of the nation state, but also the beginning of an increasingly divided society in terms of ethnic background and language spoken. One of the most notable and potentially damaging events was the financial crisis of 2008, which led to a sharp decline in development and an exodus of the population, impacting Latgale most of all regions in Latvia. More recent geopolitical crises - Russia's invasion of Ukraine in 2022 and Lukashenko's regime in Belarus' instrumentalisation of irregular migrants in the EU's eastern border regions since 2021 - have highlighted Latgale's vulnerability and placed the region in the spotlight of national and international concern.

In the face of persistent socio-economic challenges, Latgale has developed its own coping mechanisms. While the list of opportunities for Latgale's resilience, might seem short, we must bear in mind that **much of Latgale's success has remained at an informal, undocumented level**, and that the region has so far demonstrated its ability to survive even in a very harsh context of weak institutions and isolation from global capital and financial flows. The region's modus operandi, which can be described as "retired nurses taking care of elderly neighbours, while elderly neighbours take care of lonely alcoholics" (Dzenovska, 2020) may seem brutal, but these are the resilience exercises of humanity in which the region has proved successful.

The question is whether Latgale will be able to transform itself into **a region that can not only survive but thrive**. Latgale has the potential to do so, but its success will largely depend on its ability to retain and attract people to the region. Inclusive growth in Latgale is as important for Latgale as it is for Latvia as a whole. This can only be achieved through mutual understanding and collective efforts to heal the wounds of the past while building a shared vision for the future - not through formal planning documents, but through real participation and new responsibilities and roles for civil society in the region.

7 Teruel

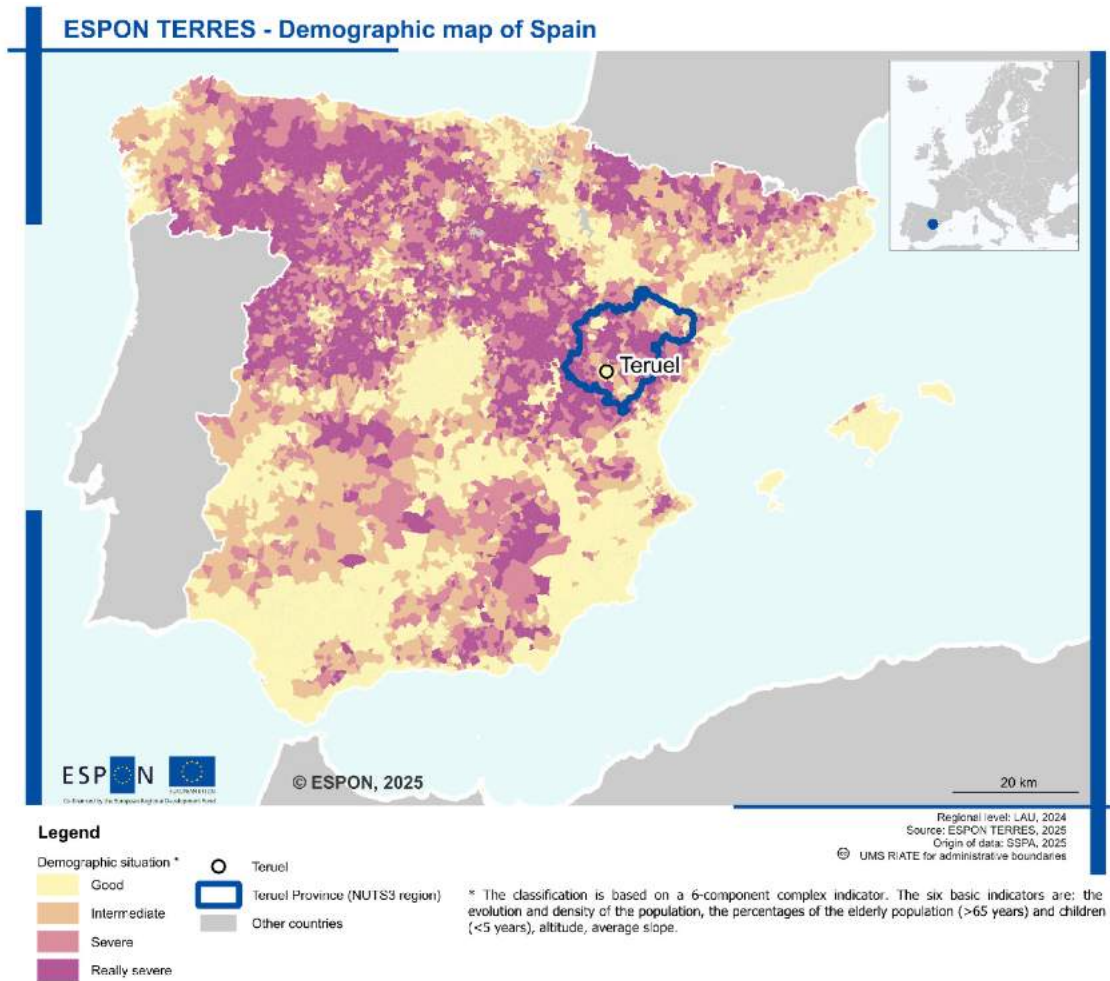
7.1 General description of the region

7.1.1 Location

The province of Teruel, situated in the Autonomous Community of Aragon, occupies a central-northeastern position on the Iberian Peninsula. It is strategically located within a three-hour drive from Madrid and approximately four hours from Barcelona. Teruel is renowned for its diverse geography, which includes the rugged mountainous landscapes of the Iberian System, expansive river valleys, and broad plateaus. Its natural beauty is exemplified by the Sierra de Albarracín (Del Romero Renau & Pizarro, 2013) and the Natural Park of Pinares de Rodeno, areas celebrated for their rich ecosystems and striking scenery. In addition to its natural assets, Teruel boasts a remarkable historical and architectural heritage, particularly in the city of Teruel itself, which is famous for its Mudéjar art. This unique blend of Islamic and Christian artistic styles has earned the city recognition as a UNESCO World Heritage Site.

7.1.2 Natural assets and vulnerabilities

The province of Teruel is distinguished by its wealth of natural resources, diverse landscapes, and a variety of industries that have evolved in response to both its geographical features and historical development. Teruel's forests, particularly those found in the mountainous regions such as the Sierra de Albarracín and Montes Universales, are among its most valuable assets. These forests are composed of a diverse mix of tree species, including pine, oak, and beech, forming an ecosystem that supports a wide variety of wildlife. In addition to their ecological importance, these forests are integral to the local economy, supporting the timber industry and sustainable forestry practices that aim to balance resource extraction with conservation (Comarca Comunidad de Teruel, 2010).

Map 10: Demographic map of Spain

Source: data from Grupo de Estudios en Ordenación del Territorio (GEOT). Universidad de Zaragoza. Red de Áreas Escasamente Pobladas del Sur de Europa (SSPA). Calculation: Reques Velasco, P. (2011): Geodemografía: Fundamentos conceptuales y metodológicos. Santander, Universidad de Cantabria (2ªEd.)

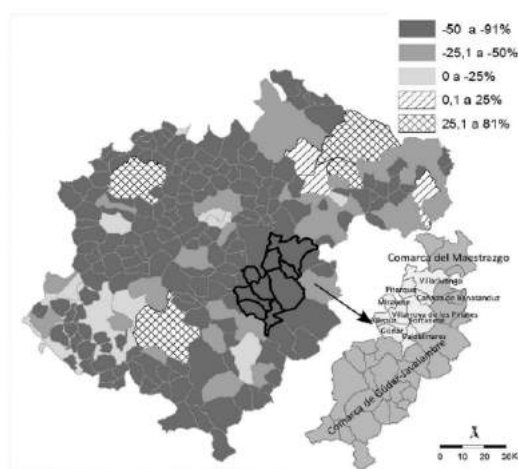
Mining has also been a defining feature of Teruel's economic history. The province was historically a centre for coal mining, with numerous sites scattered across the region. These operations were crucial to the economic development of the province throughout the 19th and early 20th centuries. However, as mining declined, particularly with the closure of many coal mines in the late 20th century, entire communities were affected. Villages near former mining hubs in areas such as the Sierra de Gúdar, Sierra de Javalambre, and Maestrazgo faced significant depopulation, contributing to the socio-economic challenges that persist today, including a shrinking workforce and reduced investment in infrastructure (Del Romero Renau & Pizarro, 2013).

Agriculture has long been a cornerstone of Teruel's economy, with a range of crops and livestock adapted to the varying altitudes and climates of the province. In the lower valleys, particularly around the Jiloca and Turia rivers, cereal production dominates, with wheat and barley being the most commonly grown crops. In higher-altitude regions, almond groves, olive trees, and vineyards thrive, benefiting from the area's well-drained soils and more temperate conditions. The Matarranya region, bordering Catalonia, is particularly renowned for its high-quality olive oil and wine production, with these industries benefiting from a slightly milder and more stable climate than other parts of Teruel (ASAJA, 2023; Comarca Comunidad de Teruel, 2022) Livestock farming, especially sheep, plays a crucial role in both the agricultural output and cultural identity of the region, with traditional methods of production often intertwined with sustainable land management practices.

Teruel's climate is defined by its continental characteristics, with long, harsh winters and hot, dry summers. This is particularly true in the high-altitude areas, where temperatures can become extreme. The province also experiences significant variation in precipitation, with the central plains being notably arid. Water scarcity is a growing concern, as rainfall patterns become increasingly erratic due to climate change (Del Romero Renau & Lozano, 2015). This variability poses a substantial challenge for the agricultural sector, which depends heavily on consistent water supplies for crop irrigation and livestock management.

In some areas, such as the "La Rebollosa" forest, there has been a noticeable decline in tree populations, with species particularly vulnerable to prolonged droughts and rising temperatures. Other parts of the province are increasingly experiencing water shortages and longer periods of drought, as shown in Map 12, which threaten not only agriculture but also the delicate balance of ecosystems. These environmental stresses exacerbate existing vulnerabilities, such as soil erosion and desertification, particularly in the province's more marginal lands (Ministerio para la Transición Ecológica y el Reto Demográfico, (n.d.)).

Map 11: Demographic dynamic in Teruel Province



Source: Del Romero Renau, L. (2013)

Map 12: Areas of prolonged drought in Spain



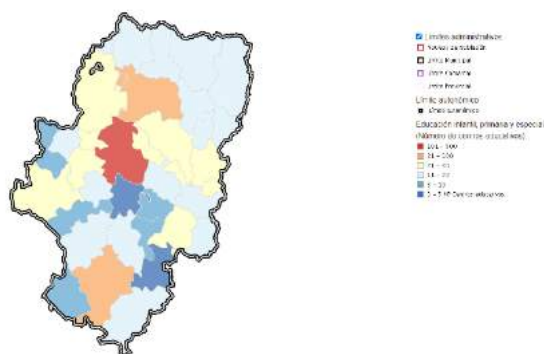
Source: Ministerio para la Transición Ecológica y el Reto Demográfico (2023)

7.1.3 Human capital including human capital vulnerabilities found in the region

Research on the educational attainment of Teruel's population reveals that there are no significant differences between Teruel and the national average of Spain in terms of primary and secondary education levels. However, Teruel lags behind other provinces and the national average in terms of the proportion of the population with university-level education. This disparity is largely due to the absence of universities in the province and the limited availability of vocational training. Currently, Teruel has only five vocational schools, two of which focus on specialised areas such as the arts and culinary training.

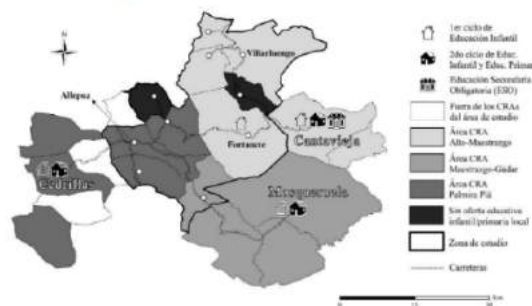
A major challenge for education in Teruel is the shortage of schools in rural areas, which is exacerbated by low child populations in these regions. Over 100 municipalities in the province do not have a primary or secondary school, forcing many parents to drive their children to schools in neighbouring towns. This situation makes rural areas less attractive to young families, further contributing to the depopulation and socio-economic decline of these communities (Comarca Comunidad de Teruel, 2022).

Map 13: Educational centres in Aragón



Source: Gobierno de Aragón, icearagon (2024)

Map 14: Educational centres in Maestrazgo rural area



Source: Del Romero Renau, L. (2015)

As illustrated in the previous map, educational centres in Teruel are concentrated in larger cities and more densely populated areas, leaving vast portions of the province underserved. In some regions, there are as few as 10 to 20 educational centres, while two rural areas are in an extreme situation, with only 0 to 5 centres available. One such region is Maestrazgo (see Map 14), which has just five educational centres. Several municipalities within Maestrazgo lack local primary or early childhood education facilities, forcing families to travel to nearby towns in search of educational opportunities for their children.

The Maestrazgo mountain range is among the areas most affected by this scarcity of educational infrastructure (Del Romero Renau & Pizarro, 2013). Access to education has been identified as a key factor influencing depopulation (Yuste Blasco, 2020). This issue creates a self-perpetuating cycle: with fewer educational services, fewer young families remain or move to these areas, leading to further reductions in demand for such services and exacerbating the decline. The diminishing access to education services accelerates rural depopulation, worsening the socio-economic challenges faced by these regions.

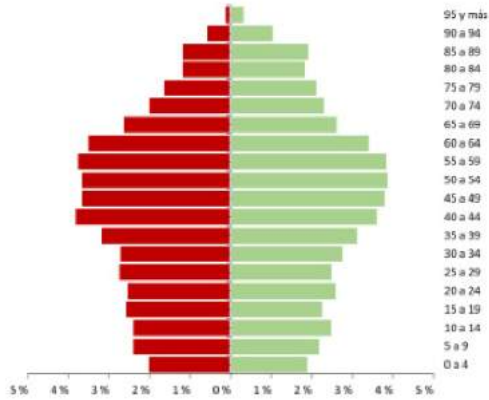
7.1.4 Socio-economic trends

One of the most pressing challenges in the region is its ageing population, a pervasive issue evident across Teruel. Population pyramids reveal a clear trend towards an increasingly older demographic throughout the province (Comarca Comunidad de Teruel, 2022). However, when the analysis is divided into two pyramids—one representing the entire province and another focusing on rural areas—it becomes apparent that the ageing population is even more concentrated in rural zones.

In these rural areas, the population pyramid indicates a significantly higher proportion of individuals aged between 50 and 85 compared to the city of Teruel. Additionally, there is a marked gender disparity: there are more men aged between 40 and 60 than women, while in the 75 to 90 age range, women outnumber men.

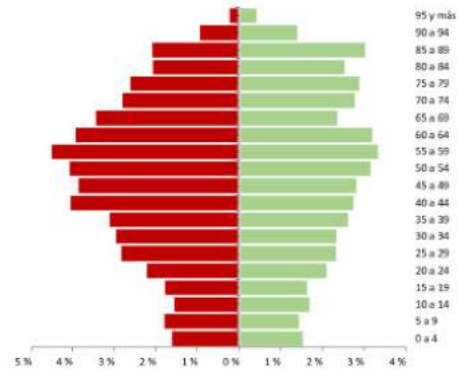
This demographic imbalance results in a negative vegetative balance, where the number of births is insufficient to offset the number of deaths. As a consequence, the region is experiencing a progressive depopulation, with fewer young people staying in or moving to these areas, further exacerbating the population decline (García Marín & Espejo Marín, 2019). This reduction in inhabitants impacts the sustainability of essential services and the local economy, creating a vicious cycle that reinforces the issues of ageing and depopulation.

Figure 35: Educational centres in Aragón



Source: Comarca Comunidad de Teruel (2022)

Figure 36: Educational centres in Maestrazgo rural area



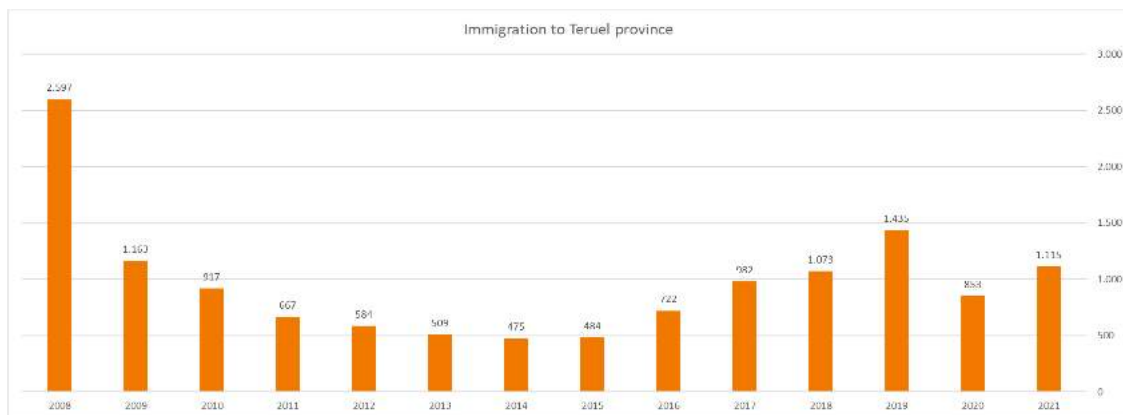
Source: Comarca Comunidad de Teruel (2022)

The severity of this situation underscores the need for urgent interventions to revitalise these communities and halt the downward spiral of demographic decline. Comprehensive policies aimed at improving living conditions, promoting economic opportunities, and enhancing essential services are critical to reversing this trend and ensuring the long-term sustainability of rural Teruel.

The percentage of foreign people is around 10% across all the regions in the province (Comarca Comunidad de Teruel, 2022). Immigrants could have been the solution to the demography problem in Teruel, but they stopped arriving at high pace because of the financial crisis of 2008 and other ones who lived here went to other places, keeping the rate of immigrants in Teruel stable for the last 15 years.

To explain this, we refer to a study conducted for the Faculty of Economics and Business at the University of Zaragoza by Coral Fabana (Fabana Portolés, 2019), which analyses the main factors that influence the decision for or against immigration to the province of Teruel. The main favourable factor is the GDP difference between Teruel and the countries of origin, while the high unemployment rate in the destination (Teruel) is the main factor against immigration. Therefore, the high unemployment in 2008 and subsequent years leads to a decrease in immigration, and the continued high unemployment rates are a major problem for the province.

Figure 37: Immigration to Teruel



Source: Authors' own elaboration. Based on INE data.

7.1.5 Social capital

The challenges faced by Teruel have led to the emergence of numerous organisations and associations dedicated to tackling the region's socio-economic issues. Among the most prominent are SSPA, Teruel Existe, and ASAJA (España Vacía, (n.d.); Teruel Existe, (n.d.); Southern Sparsely Populated Areas Network, 2023) each playing a crucial role in advocating for the province and contributing to its development. Below is a brief overview of these key organisations.

SSPA (Southern Sparsely Populated Areas)

The SSPA (Southern Sparsely Populated Areas) network focuses on the challenges and opportunities facing sparsely populated regions in southern Europe, with Teruel being one of its key areas of concern. Although not exclusively based in Teruel, the network addresses critical issues affecting the province, such as depopulation and an ageing population. SSPA's mission is to advocate for sustainable development, foster economic opportunities, and push for improved infrastructure and services in these underpopulated regions.

Operating at a European level, SSPA works to raise awareness and influence policies that support the long-term development and sustainability of sparsely populated areas. The network collaborates with a broad range of stakeholders, including public authorities, private entities, and other organisations, to advance initiatives aimed at revitalising these regions and reversing negative demographic trends (Southern Sparsely Populated Areas Network, 2023).

Teruel Existe

As previously mentioned, *Teruel Existe* is a grassroots movement that emerged to advocate for the development and needs of the province of Teruel. It arose in response to perceived neglect by both regional and national governments, particularly regarding infrastructure, public services, and economic opportunities in the region.

The movement has been highly effective in mobilising public opinion, organising protests, and engaging in political advocacy to secure investments and policy commitments for Teruel. In recent years, *Teruel Existe* has also gained national recognition by participating in Spanish general elections, where it successfully secured representation in the Spanish Parliament. This presence has provided the movement with a national platform to further its cause, advocating for the province at the highest levels of government and ensuring that Teruel's concerns are addressed on a national scale (Teruel Existe, 2019).

ASAJA (Asociación Agraria de Jóvenes Agricultores)

ASAJA (Asociación Agraria Jóvenes Agricultores) is one of Spain's largest organisations representing farmers and agricultural interests, including those in Teruel. It advocates on behalf of the agricultural sector, addressing key issues such as agricultural policies, rural development, and the rights and livelihoods of farmers.

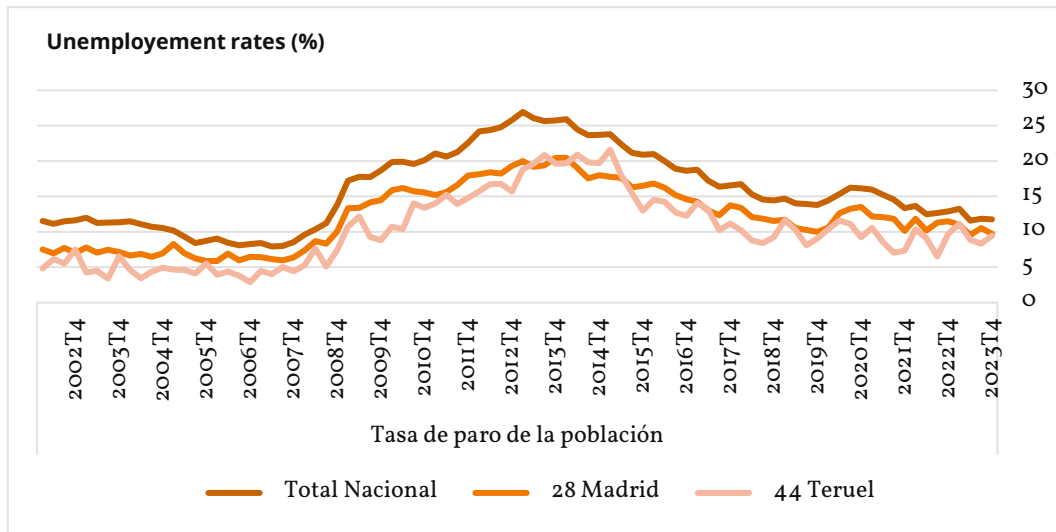
In Teruel, ASAJA plays a vital role in supporting the farming community by providing advisory services, training, and lobbying for policies that benefit the agricultural sector. The organisation is committed to promoting sustainable farming practices, improving the quality of life in rural areas, and contributing to the broader economic development of the region (ASAJA, 2023).

7.1.6 Financial capital

Unemployment rates in Teruel have been compared with other provinces and the national average in Spain, revealing no significant deviation from the national figures. However, several key conclusions emerge from this analysis. The unemployment rate in Teruel is slightly below the national average, largely due to some Spanish provinces experiencing exceptionally high unemployment. This suggests that unemployment is a widespread issue across Spain, though more pronounced in certain regions. Nonetheless, unemployment in Teruel remains relatively high, especially when compared to other countries in the European Union, where rates are generally much lower.

The 2008 financial crisis severely impacted Teruel, driving its unemployment rate above 20%, with Spain's national rate exceeding 25%. Although these rates have gradually declined since the crisis, they began to stabilise around 2017. The major concern is that, even after the recovery, unemployment rates have stabilised at levels higher than those seen before the crisis. In Teruel, the unemployment rate has remained around 10%, double the figures recorded in the early 2000s (Instituto Nacional de Estadística (INE), (n.d.)). This highlights the ongoing challenge of reducing unemployment to pre-crisis levels and underscores the need for sustained efforts to generate long-term, sustainable employment opportunities in the region.

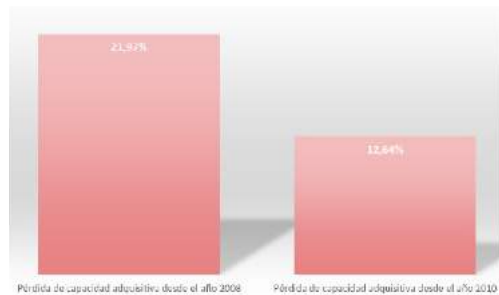
Figure 38: Unemployment rates evolution



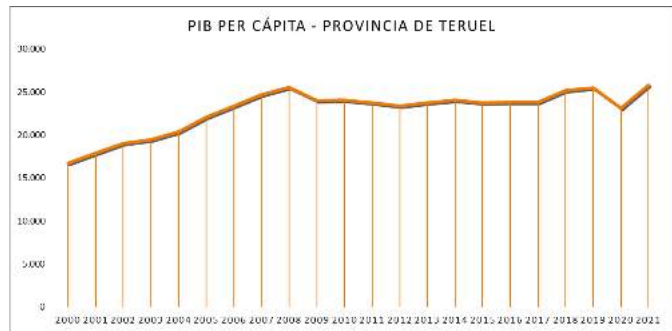
Source: Authors' own elaboration. Based on INE data.

Although the economic indicators of the province of Teruel are close to the national average, it is important to highlight that purchasing power in the province has declined by 20% over the past 15 years. This decrease becomes evident when comparing GDP per capita data with inflation rates provided by the National Institute of Statistics (Instituto Nacional de Estadística (INE), (n.d.)). This reduction in purchasing power underscores the economic challenges faced by the region, despite its apparent alignment with broader national economic trends.

Figure 39: Loss of purchasing power in Teruel since 2008 and 2010 **Figure 40: GDP per capita**



Source: Authors' own elaboration. Based on INE data.



Source: Authors' own elaboration. Based on INE data.

The economic stagnation reflected in Figure 39 and Figure 40 calls for a more nuanced policy approach beyond aligning with national averages. Addressing these challenges requires long-term, place-based strategies tailored to Teruel's specific context. While the graph shows that GDP per capita has remained stable since 2010, with average household income around 30,000 euros, the decline in purchasing power highlights the need for interventions that improve both economic output and living standards.

7.1.7 Economic structure

In 2019, economic activities in the Community of Teruel generated a Gross Value Added (GVA) of 1.338 billion euros. By sector, public administration, education, and health accounted for over 37% of total GVA. Adding the contributions from commerce, hospitality, transport, and other tertiary activities, the services sector emerged as the most dominant, as seen across the country.

Following far behind were manufacturing and construction, each contributing 6.7%, while extractive and energy activities made up 3.2%, as shown in Figure 41. Primary activities, primarily agriculture and livestock, accounted for just 2.8% of total GVA (Comarca Comunidad de Teruel, 2022). These sector contributions shift

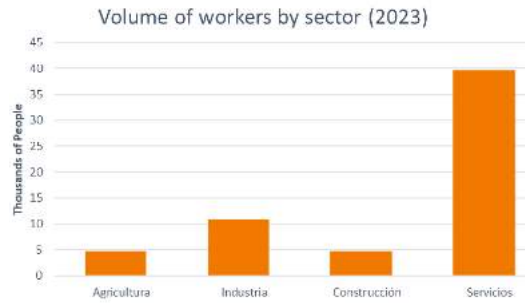
in rural areas, where agriculture represents 11% of GVA (Comarca Comunidad de Teruel, 2022), construction 18%, and services 60%. This indicates a lesser reliance on services in rural areas, which could be seen posi-

Figure 41: Economic activities by sectors



Source: Authors' own elaboration. Comarca Comunidad de Teruel (2022)

Figure 42: Number of workers



Source: Authors' own elaboration. Based on INE data.

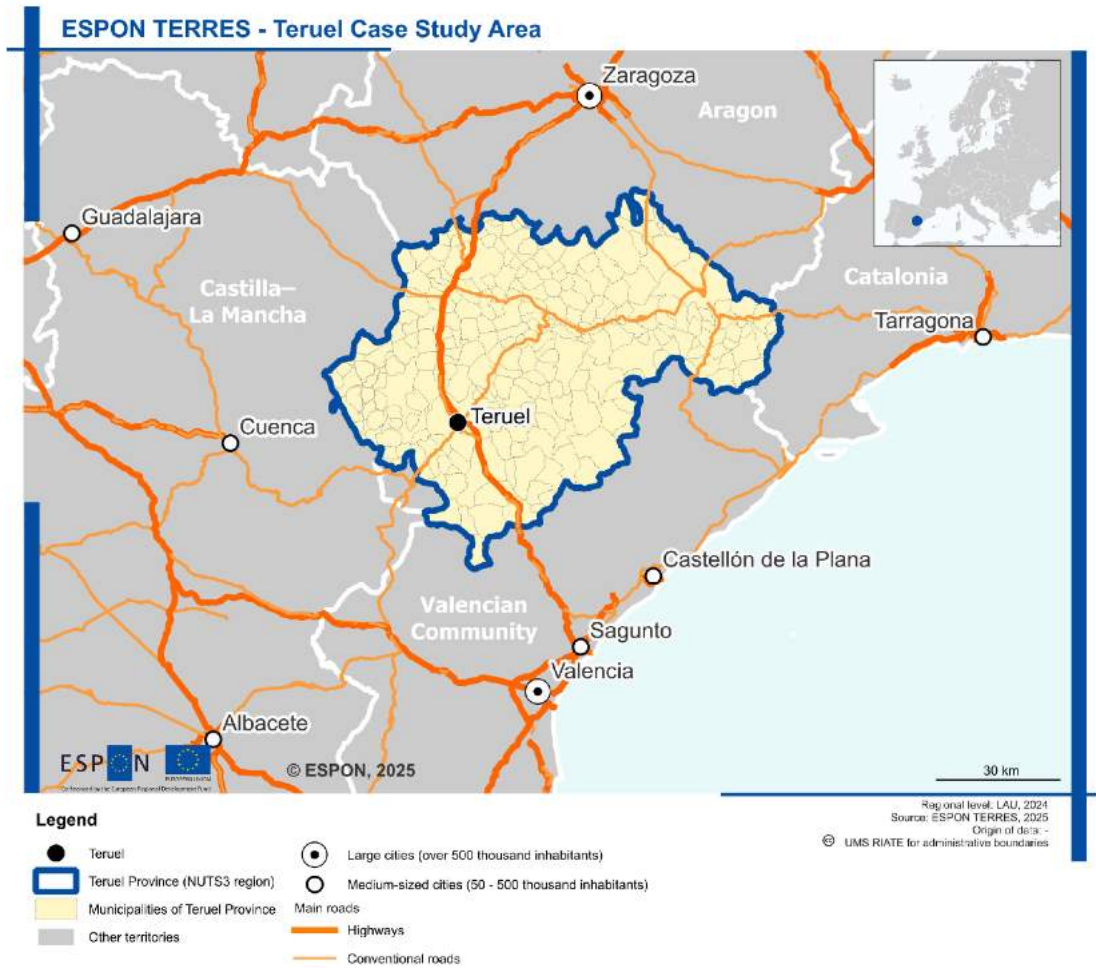
tively, though it largely reflects lower economic activity in these regions.

Regarding the business structure, the province of Teruel has a total of 7,719 companies, with 6,363 located in the capital and 1,356 in rural areas. The service sector is the most dominant, accounting for the majority of businesses (5,995), with a significant concentration in the capital (5,195). Construction is another relevant sector, comprising 968 companies, while industry and energy include 500 businesses. In rural areas, agriculture remains significant, with 154 companies in the primary sector. These figures highlight an economy predominantly oriented towards services, with a lower presence of industrial and productive activities compared to other sectors.

7.1.8 Physical capital

The province lacks direct highway connections to any major city (Teruel Existe, 2019), as shown in Map 16, which creates significant challenges for attracting new businesses and hinders its economic development and appeal to external investors. Additionally, Teruel is isolated from Spain's high-speed rail network, further limiting its accessibility and connectivity to other important regions of the country.

Map 15: Teruel Case Study Area



Source: elaboration of the project team

A proposed highway between Teruel and Cuenca, deemed essential for improving the province’s connectivity, has been under government consideration for over 20 years but remains unbuilt. Despite a 305 million euro allocation for the project in 2002, progress has been limited to preliminary studies, with no concrete steps toward construction. Despite these limitations, Teruel does benefit from a robust road network and some freight railway infrastructure (Teruel Existe, 2019).

Map 16: Highways isolation of Teruel

Source: Teruel Existe (2020)

Map 17: Highways proposal in Teruel

Source: Teruel Existe (2019)

Analyses have highlighted the availability of industrial land to attract companies. However, upon reviewing the data in the "Strategic Plan 23-27 Teruel" (Comarca Comunidad de Teruel, 2022), it becomes clear that some of these sites lack essential services. Many are not fully urbanized, with inadequate electricity and water supply (Comarca Comunidad de Teruel, 2022), and a few even lack internet access. Additionally, terrestrial connections to these industrial estates are suboptimal, making alternative locations outside the province of Teruel more appealing to businesses.

Nevertheless, Teruel's proximity to Madrid, Castellón (port), and Barcelona offers a strategic advantage. If motorways connected Teruel to these cities, the region could become an attractive hub for logistics companies seeking affordable land. This presents a significant opportunity, but it will require substantial investment in infrastructure.

7.1.9 Institutional, governance and policy frameworks, including any vulnerabilities

The governance of Teruel, like other provinces in Spain, operates within a multi-level framework that encompasses local, regional, national, and European Union levels (Comarca Comunidad de Teruel, 2022). Each level plays a distinct role in the administration, policymaking, and development of the territory, with a blend of both vertical and horizontal coordination mechanisms.

Local governance is focused on municipal services and infrastructure, while the regional level of Aragon has competencies in education, health, and economic development (Diputación Provincial de Teruel, (n.d.)). The national government retains control over key areas like fiscal policy and defence, with overarching influence. The European Union contributes through structural funds and policies aimed at promoting regional development and cohesion.

The effectiveness of Teruel's governance system relies on both vertical coordination across these different levels and horizontal collaboration within the province, with the political capacities for strategy and policy implementation being influenced by access to resources, expertise, and intergovernmental cooperation.

7.1.10 Political framework

Teruel is one of Europe's most sparsely populated regions, which has catalysed political movements and responses at both the local and European levels. The most notable of these is "Teruel Existe", a citizens' platform that emerged in the early 2000s as a protest against the lack of investment and attention from national authorities. Over time, it gained significant traction and secured parliamentary representation in Spain's Congress, raising the profile of Teruel's demographic and economic challenges on the national stage. This movement has played a pivotal role in highlighting issues such as depopulation, economic underdevelopment, and inadequate infrastructure, forcing both national and regional governments to focus on the region.

As a result, Teruel has been the subject of various studies, and resources have been allocated to address its persistent depopulation (Teruel Existe, (n.d.)). The Spanish National Strategy Against Depopulation, which

aims to tackle rural decline, specifically includes Teruel as a priority area. However, despite increased funding and policy attention, such as financial incentives for businesses and improved access to public services, the effectiveness of these measures has been limited. Teruel continues to face significant structural disadvantages, including poor infrastructure, limited access to markets, and a declining workforce.

At the European level, Teruel is a target of EU cohesion policy aimed at reducing regional disparities. EU structural and investment funds, specifically earmarked for rural development and combating depopulation, have directed resources towards Teruel. The province has been a beneficiary of programmes like the European Agricultural Fund for Rural Development (EAFRD) and European Regional Development Fund (ERDF), which aim to foster sustainable development and infrastructure improvements. Additionally, the EU's Next Generation EU recovery funds, established in response to the COVID-19 pandemic, provide opportunities for further investment in underdeveloped regions like Teruel. However, Teruel's isolated geographic location and limited connectivity continue to hinder the effective utilisation of these funds.

Despite these efforts, the region's political influence remains constrained due to its small population and limited representation at higher levels of government. Regional and local authorities have expressed frustration with the slow pace of reforms and the bureaucratic hurdles involved in accessing national and EU funds. Furthermore, the political dynamics of Teruel are shaped by its rural nature and the dominance of agriculture, forestry, and mining industries, which require specific policies tailored to the unique socio-economic fabric of the area.

7.2 Territorial shocks, stressors and crises

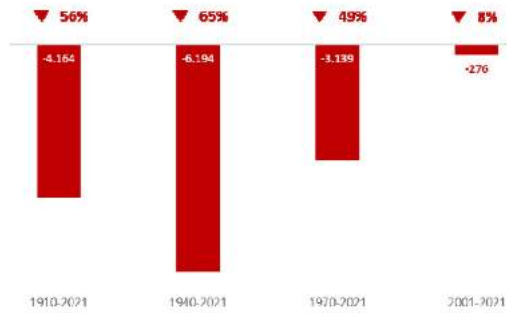
7.2.1 Background

Over the past 50 years, more than half of the rural population in the province of Teruel has disappeared, leaving a population density of 4.36 inhabitants per km²—comparable to sparsely populated regions like Australia or Libya. Teruel is one of the most affected regions by depopulation in Europe.

This long-term issue is clearly illustrated in Figure 43, showing the steady population decline in rural areas of Teruel since 1910 (Comarca Comunidad de Teruel, 2022). Although the rate of depopulation has slowed over the last 20 years, this is largely due to the already diminished population. Currently, only two municipalities in Teruel, aside from the capital, have populations exceeding 1,000 residents. Many villages have fewer than 100 inhabitants, and 17 are classified as 'terminal nodes' (Yuste 2020), characterised by their remoteness, low tourism, depopulation, and poor housing conditions.

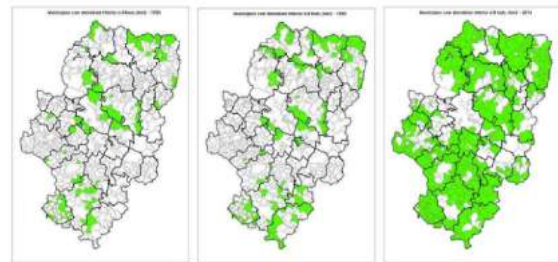
These factors have left more than 25 regions within Teruel facing severe demographic challenges, as shown in Figure 43 (Comarca Comunidad de Teruel, 2022; Southern Sparsely Populated Areas (SSPA), 2021). The maps in Map 18 highlight the extremely low population density of some municipalities, with several falling below 3 inhabitants per km². To further illustrate the severity of the issue, the "Informe de Sostenibilidad Ambiental" details the areas with population densities below 8 inhabitants per km² in 1900, 1950, and 2016 (Comarca Comunidad de Teruel, 2010). In addition to the outmigration that has contributed to rural depopulation, the last 30 years have seen another issue: declining birth rates. The population is aging, and the younger generations are not having enough children to maintain population levels, resulting in a negative natural population balance in Teruel, as shown in Map 19 (Comarca Comunidad de Teruel, 2022).

Figure 43: Descend of population since 1910 in Teruel



Source: Comarca Comunidad de Teruel (2022)

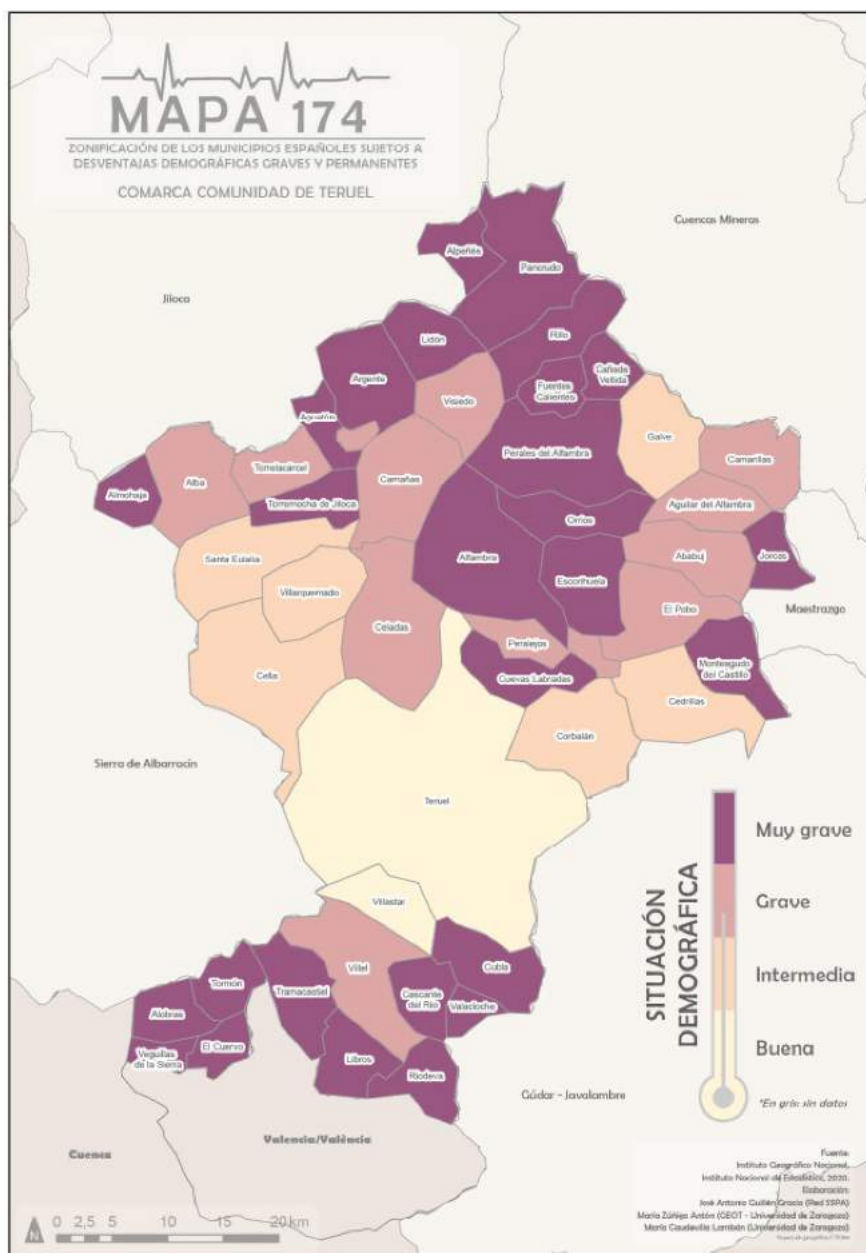
Map 18: Population density lower than 8 inhabitants per sq km in 1900, 1950, and 2018



Mapa 42. Densidad de población <-> 8 hab/km², años 1900, 1950 y 2018

Source: Comarca Comunidad de Teruel (2010)

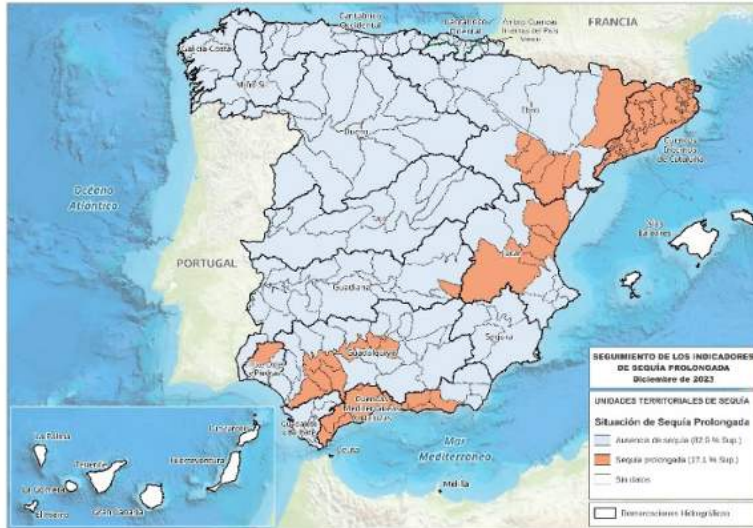
Map 19: Zoning classification of Spanish municipalities facing severe and permanent demographic disadvantages



7.2.2 Relation to grand societal and global challenges

Climate change poses a significant risk to Teruel, with droughts already impacting its agriculture and forests. Certain regions of Teruel are classified under prolonged drought conditions, as shown in Map 20. These droughts contribute to forest loss and increase the likelihood of wildfires, representing a major threat to the province.

Map 20: Indicators of prolonged drought in Spain



Source: Ministerio para la Transición Ecológica y el reto Demográfico (2020)

However, the 2023 MITECO Scarcity Indicators map shows that while parts of Teruel are affected, the situation is more severe in regions like Andalusia and Catalonia (Ministerio para la Transición Ecológica y el Reto Demográfico, (n.d.)). This disparity may be due to the fact that heavily drought-affected areas are not primarily used for agriculture. It is important to note that the maps divide regions by hydrographic basins rather than provinces.

Map 21: Indicators of water scarcity in Spain



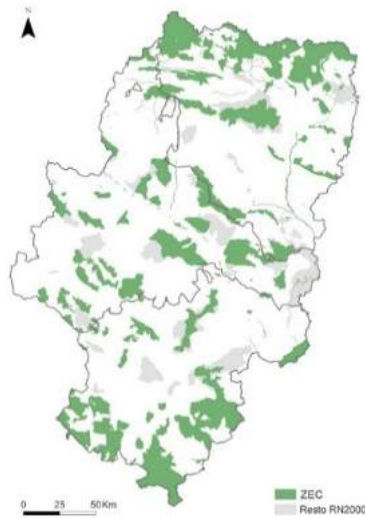
Source: Ministerio para la Transición Ecológica y el reto Demográfico (2020)

Map 22: Emergency status of fires in Spain

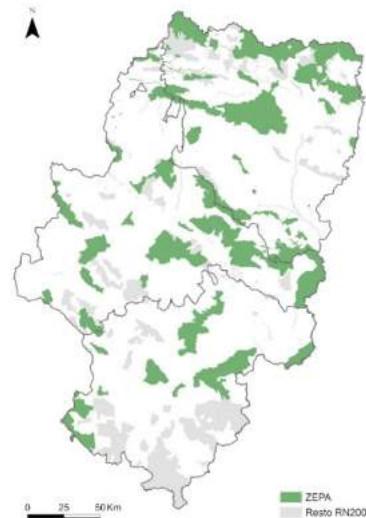


Source: Ministerio para la Transición Ecológica y el reto Demográfico (2020)

Older maps, such as the one from December 2017, indicated that parts of Teruel were in a state of emergency and drought alert. Teruel is also home to several areas in the Natura 2000 Network (Comisión Europea, (n.d.)), which could be severely affected by prolonged droughts, leading to forest loss that supports these protected areas. In particular, ZEC and ZEPA zones are vulnerable to these environmental changes.

Map 23: Special areas of conservation in Aragón

Source: Gobierno de Aragón (2024)

Map 24: Special protection area for birds in Aragón

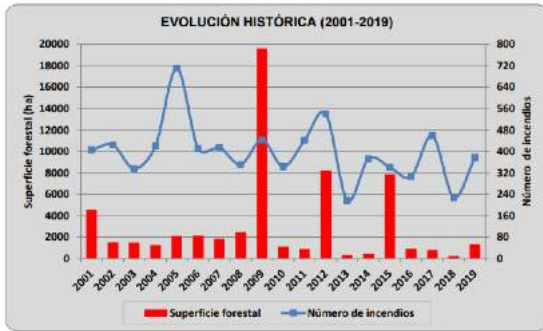
Source: Gobierno de Aragón (2024)

Teruel includes several protected areas within the Natura 2000 Network, classified as Special Areas of Conservation (ZEC) (Map 23) and Special Protection Areas for Birds (ZEPA) (Map 24). These zones play a crucial role in preserving biodiversity and maintaining ecological balance. However, they are highly vulnerable to environmental changes, particularly prolonged droughts and rising temperatures, which can lead to habitat degradation and loss of key species. Given their importance, it is essential to consider these protected areas when assessing the impact of climate change and developing conservation strategies.

Rural depopulation exacerbates the risk of wildfires, as fewer people are available to maintain forested areas, contributing to the abandonment of agricultural land. The combination of drought and depopulation significantly increases fire risks in the province. The AECD (Asociación Española Contra Despoblación) has noted an increase in wildfires linked to depopulation. However, while the number of fire outbreaks has shown a slight upward trend over the past 20 years, the overall progression of fires in Aragón does not indicate a clear rise in frequency as shown in Figure 45 (Ministerio para la Transición Ecológica y el Reto Demográfico, (n.d.)).

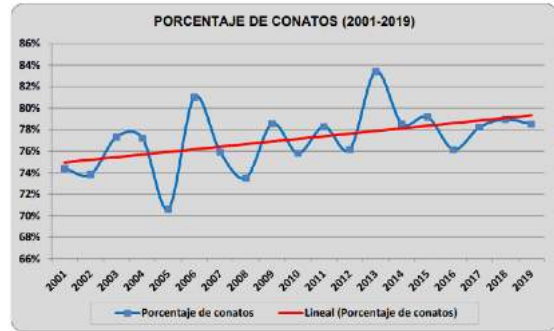
The province's vulnerability is driven by a combination of factors, including climate change, prolonged droughts, and rural depopulation. The abandonment of rural areas reduces efforts to manage forests and prevent fires, while the spread of drought increases the potential for wildfires. Together, these factors place Teruel at heightened risk, requiring urgent policy and infrastructure responses to mitigate future crises.

Figure 44: Historical evolution of fires, (2001-2019) in Teruel



Source: Gobierno de Aragón (2024)

Figure 45: Percentage of fire outbreaks, (2001-2019) in Teruel



Source: Gobierno de Aragón (2024)

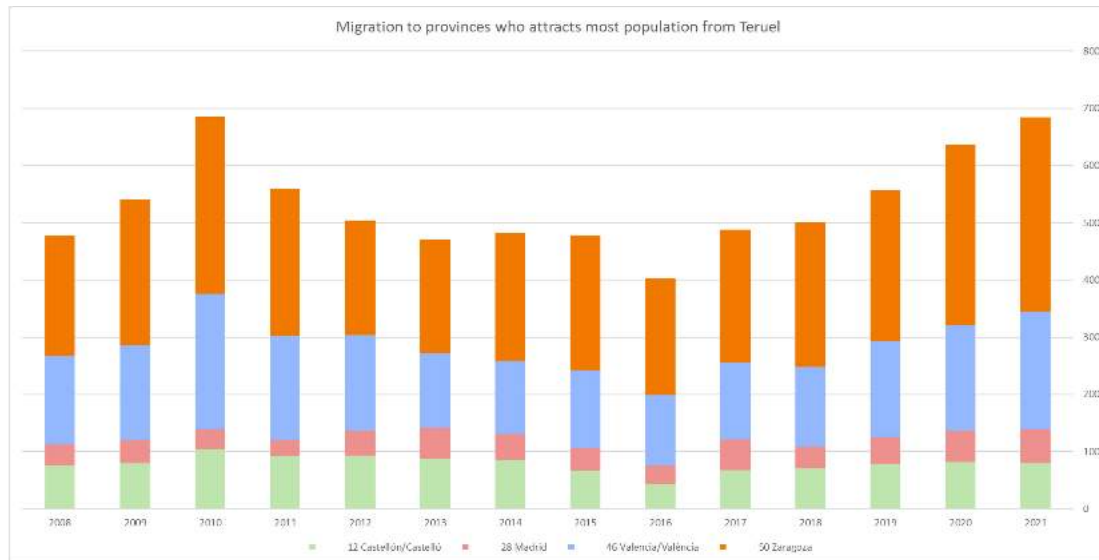
7.2.3 Causes, regional impact and triggers

The primary long-term factor behind the depopulation of Teruel is national migration. In the short term, however, as highlighted in the document *"Análisis de factores determinantes de despoblación en la provincia de Teruel"* (Yuste Blasco, 2020), the key drivers have been an aging rural population and a declining birth rate.

A comprehensive analysis of migration patterns in Teruel over the past 20 years, using INE data, shows that the province loses approximately 3,000 people each year due to migration to other provinces. Most of these losses come from rural areas, while the capital of Teruel has seen a slight population increase over time.

Migration to Zaragoza province is a consistent trend, with just under 1,000 people moving there annually, except during the COVID-19 pandemic. Zaragoza continues to be the primary destination for migrants from Teruel, significantly more so than Valencia.

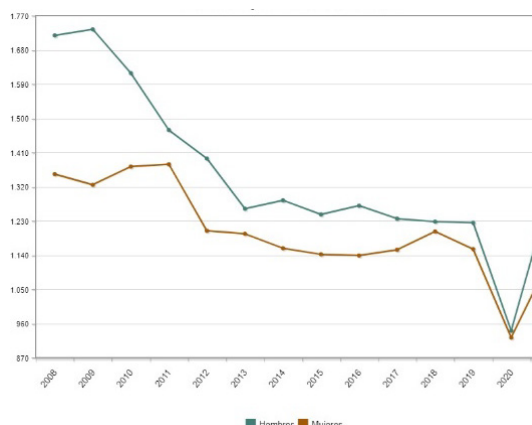
Figure 46: Migration to various provinces from Teruel



Source: Own elaboration from INE data

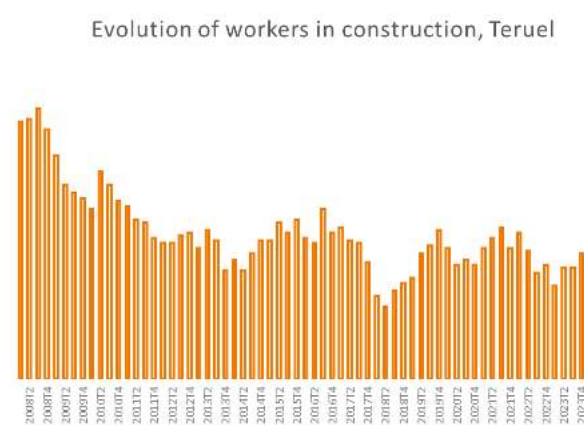
The difference in migration rates between men and women is not significant (Figure 47), although in 2008 there was a greater loss of male population. This can be explained by the decline in construction activity following the financial crisis. In earlier years, the region experienced an increase in male population due to a construction boom.

Figure 47: Evolution of males and females loss in Teruel



Source: Authors own elaboration from INE data.

Figure 48: Workers in construction in Teruel



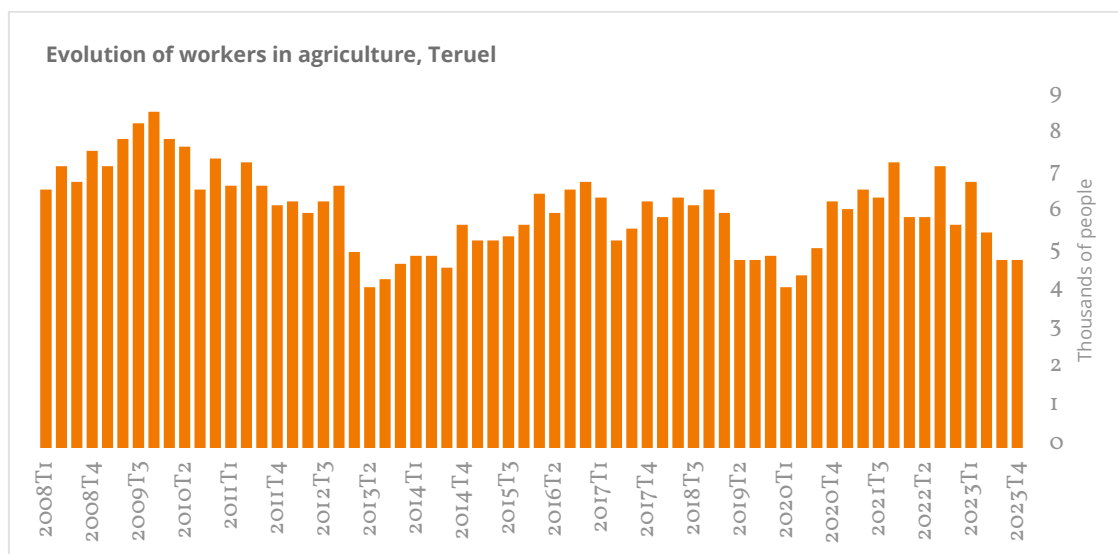
Source: Authors own elaboration from INE data.

One of the key reasons behind the exodus to larger cities is related to agriculture and its modernisation. The depopulation of rural areas in Teruel, as in other parts of Spain, has been accelerated by technological advancements in agriculture, which have significantly reduced the need for manual labour. Mechanisation and modernisation of the agricultural sector have enabled large farms to operate with fewer workers, displacing traditional farming practices and small family farms. This shift has led to a rural exodus, with inhabitants seeking opportunities outside their communities.

At the same time, cities offer better employment opportunities beyond the agricultural sector, access to higher education, and more advanced healthcare services, making them particularly attractive to younger generations. This migration is driven by the desire for a better quality of life and greater economic and social opportunities, contrasting with the limited prospects often found in rural areas.

This movement from rural areas to cities has been reinforced by changing aspirations, especially among younger generations, who increasingly prefer urban lifestyles and the opportunities they offer (García Marín & Espejo Marín, 2019). Urbanisation and globalization have reshaped life goals, making work in agriculture and life in rural communities less appealing for many. Despite this, the number of people working in agriculture in Teruel has remained relatively stable over the past 20 years.

Figure 49: Workers in agriculture in Teruel



Source: Authors own elaboration from INE data.

Another specific factor contributing to migration from rural areas to cities in Teruel over the past decades has been the closure of coal mines in the Maestrazgo region (Del Romero Renau & Pizarro, 2013). This has left the area with a population density of around 3 inhabitants per sq km, one of the lowest rates in the province.

As outlined previously the problem of depopulation has persisted for nearly 100 years. The most significant population decline in the province began in the 1940s, initially driven by the modernisation of agriculture, which reduced the demand for labour in rural areas. This trend was further exacerbated by a sharp drop in birth rates, accelerating the depopulation process. Over time, many families relocated to urban areas in search of better economic opportunities, leaving large parts of the region sparsely populated.

Since 1940, the region has lost over 65% of its population. Although the decline in the last 20 years has been smaller (around 10%) this figure remains concerning, especially given the already small and ageing population (Comarca Comunidad de Teruel, 2022). The remaining population struggles to maintain essential services such as schools, healthcare, and infrastructure, creating a cycle that further diminishes the ability to retain or attract new residents.

In conclusion, while the population decline was most severe in earlier decades, the process has now become more gradual. Nevertheless, despite the slower rate of decline, the ongoing loss of residents, coupled with an already reduced and ageing population, continues to present significant challenges to the region's future sustainability.

7.2.4 Underlying conditions exacerbating the shock/stressor/crisis

The underlying conditions exacerbating the depopulation crisis in the region of Teruel include several political, economic, social, and environmental factors:

- **Inadequate infrastructure:** the region faces significant deficiencies in high-capacity roads and rail connections, which hinder the establishment of new businesses and the attraction of investment (Comarca Comunidad de Teruel, 2010; Teruel Existe, 2019). This issue was highlighted during workshops and confirmed through research findings.
- **Limited economic diversification:** the local economy remains heavily reliant on traditional sectors such as agriculture and seasonal tourism. This lack of diversification restricts employment opportunities and increases the region's vulnerability to economic downturns (García Marín & Espejo Marín, 2019).
- **Ageing population and low birth rates:** the population is predominantly elderly, with birth rates insufficient to replace the number of deaths, further exacerbating the depopulation challenge (García Marín & Espejo Marín, 2019; Comarca Comunidad de Teruel, 2022).
- **Internal migration:** a continuous outflow of young people to cities like Zaragoza and neighbouring provinces in search of better employment opportunities has intensified the depopulation issue.
- **Adverse environmental conditions:** Prolonged droughts and the abandonment of agricultural land have increased the risk of wildfires, further threatening the sustainability of rural areas.

7.2.5 Impact of the shock or crisis

The depopulation crisis in Teruel has had profound and far-reaching effects across several dimensions.

Economically, the crisis has led to a significant decline in local economies. The shrinking workforce, combined with a lack of new business development, has severely limited economic activity. Agriculture, once a cornerstone of the region, and tourism—though it holds potential—remain largely seasonal and have struggled to thrive in this environment. The inadequate infrastructure, particularly the absence of high-capacity roads and utilities, has further discouraged industrial investment (García Marín & Espejo Marín, 2019).

Socially, the impacts have been equally devastating. Teruel's population is now predominantly elderly, with some towns seeing over 40% of their residents aged 65 or older (García-Madurga et al., 2024). This demographic imbalance not only undermines the sustainability of the workforce but also threatens the vitality of local communities. The ongoing migration of younger generations to larger cities like Zaragoza has further weakened the social fabric, leaving many towns sparsely populated and lacking the dynamism needed to reverse the trend.

Environmentally, the abandonment of agricultural land has increased the risk of wildfires, particularly as prolonged droughts become more frequent. With fewer people to manage and maintain the land, vast areas are left vulnerable to environmental degradation, adding an ecological crisis to the region's already serious demographic challenges.

The consequences of this crisis are wide-ranging. Despite the availability of industrial land, much of it remains underutilised due to poor infrastructure and a lack of essential utilities. This underutilisation represents a significant missed opportunity for economic development in the region. Moreover, the shrinking population has made it increasingly difficult to sustain essential services such as healthcare, education (Comarca Comunidad de Teruel, 2022), and public transportation, further accelerating the depopulation cycle as residents leave in search of better access to these services.

7.2.6 Affected individuals by shocks and stressors

- **Elderly residents:** A significant portion of the remaining population is over 65, leading to challenges in sustaining the workforce and accessing essential services like healthcare (Del Romero Renau & Lozano, 2015).
- **Younger generations:** Many younger individuals have left the region, migrating to bigger cities and other provinces. The ones who stay in Teruel have less opportunities and difficulties to find specific jobs.
- **Young families:** Families with young children have it difficult to find schools for their kids if they live in rural areas, or they have to travel some distance every day by car to leave the kids at school.
- **Local businesses and farmers:** The economic impact has been severe (ESPON EGTC., 2018), particularly in agriculture, tourism, and small businesses, which struggle due to the reduced population and lack of infrastructure (Gobierno de España, 2005). The crisis has led to a diminished access to services, an ageing and shrinking population, and a weakened local economy across the affected rural areas.

7.2.7 Stakeholders involved in the immediate response after the crisis and emerging roles

In response to the depopulation crisis in Teruel, both formal and informal roles emerged, with various organisations and individuals stepping beyond their traditional mandates to address the issue. One of the most notable examples is “**Teruel Existe**”, which began as a grassroots movement advocating for the region’s rights and infrastructure improvements. “Teruel Existe” was founded in 1999 but it did not gain much popularity until 2018 – 2019, when it evolved into a formal political force, representing the province at the national level. Teruel Existe played a critical role in lobbying for long-delayed infrastructure projects, such as the Teruel-Cuenca highway, and worked to ensure that the region’s challenges, particularly related to depopulation, were recognised by the central government (Teruel Existe, 2019).

During that period, “**SSPA (Southern Sparsely Populated Areas Network)**”, a coalition focused on addressing issues in sparsely populated regions, made significant contributions through research and advocacy. The SSPA conducted studies on the fiscal and social conditions in Teruel, pushing for differentiated fiscal policies to support local development. Their work highlighted the structural weaknesses in Teruel’s economy and infrastructure, making them a key player in proposing long-term solutions (Southern Sparsely Populated Areas Network, 2023).

In addition, organisations like “**Cátedra de la Despoblación**” and “**Centro de Innovación Territorial**” took on more active roles during the crisis. Initially focused on academic and research activities, these groups began facilitating workshops and acting as intermediaries between local communities and policymakers (Centro de Innovación Territorial, (n.d.)). Their research into local economic resilience and innovative approaches in sectors such as education and agriculture were essential in shaping strategies to address the ongoing depopulation.

SUMA Teruel, a local financial institution, also expanded beyond its formal role, becoming a vital source of funding for small businesses and local development projects. In a region where larger financial institutions

had minimal presence, SUMA Teruel filled a crucial gap, supporting the local economy through targeted financial programmes, as a finding from the Future Workshops.

7.2.8 Additional aspects relevant in a local context

Table 21: Overview of shocks/crisis, impacts and policy responses in Teruel

Type of shock/crisis	Initial trigger (Why did it happen, what caused it?)	Impact of shock/crisis	Policy response	Impact of the policy response (if any)
Economic decline	Long-term economic decline due to lack of infrastructure, modernisation of agriculture, and limited economic diversification.	Economic, Social: Reduced job opportunities, shrinking local economy, out-migration.	Local policies aimed at attracting businesses and infrastructure improvements.	No success; businesses still favour neighbouring provinces.
Depopulation	Rural depopulation driven by migration to urban centres and low birth rates.	Social, Economic: Ageing population, reduced social services, school closures.	Tax incentives for families, housing programs, support for local businesses.	Limited impact; migration trends continue. Families leave after the housing program ends.
Unemployment	Unemployment rates worsened post-2008 crisis, compounded by lack of industry diversification.	Economic, Social: Economic insecurity, out-migration, regional disparities.	Employment and vocational training programs.	Moderate effect; unemployment rates remain above pre-crisis levels.
Housing accessibility	Misperceptions about housing availability despite many vacant properties.	Social, Economic: Low housing transactions, housing vacancy.	Efforts to rehabilitate and promote housing for new residents.	Mixed success; vacancy rates remain high
Drought and Environmental Degradation	Long-term drought could affect agriculture and increased risk of forest fires.	Environmental, Economic and Biodiversity loss.	Promotion of sustainable agricultural practices and conservation measures.	Partial success; wildfires mitigated, but drought persists.
Lack of Infrastructure	Poor connectivity (roads, rail) and underdeveloped industrial areas.	Economic, Social: Hindered economic growth, limited employment, out-migration.	Advocacy for road and rail development, proposals for new highways.	No impact; major projects remain delayed.

Type of shock/crisis	Initial trigger (Why did it happen, what caused it?)	Impact of shock/crisis	Policy response	Impact of the policy response (if any)
Industrial challenges	Underdeveloped industrial plots with limited utilities (e.g., gas, electricity).	Economic: Hindered industrial growth, limited job creation.	Infrastructure development plans targeting industrial areas.	Limited progress due to lack of utilities and slow project implementation.
Migration	Continuous out-migration, particularly to larger cities	Social, Economic: Population decline, economic stagnation in rural areas.	Initiatives to retain local talent and attract new residents.	Limited success; out-migration persists. Attraction to rural areas unsuccessful yet
Loss of purchasing power	Inflation and stagnant wages over the past 15 years.	Economic: Reduced local spending power, economic stagnation.	No political response	Purchasing power continues to decline. National problem
Educational gaps	Lack or difficulty of access to primary and secondary education in many rural areas.	Social: reduced opportunities.	Policies aimed at improving rural education infrastructure.	Limited success; rural schools remain underfunded and understaffed.
Tourism seasonality	Seasonal fluctuations in tourism, with little year-round activity.	Economic, Social: Limited economic benefits, seasonal employment.	Promotion of year-round tourism initiatives and cultural programs.	High success; tourism increased specially to rural areas, but mostly because of new patterns after COVID.
Aging population	High proportion of elderly residents, low replacement rates from younger generations.	Social, Economic: Reduced workforce, increased need for social services.	Policies aimed at attracting younger families, financial support for elderly care.	Limited impact; Some families were attracted due to financial support and leave after.
Fiscal limitations	Insufficient differentiated fiscal policies to stimulate local economies.	Economic, Social	Advocacy for fiscal reforms and differentiated tax policies.	No policy changes; fiscal challenges persist.
Administrative challenges	Bureaucratic hurdles, slow policy implementation, resistance to governance changes.	Political, Social, Economic: Ineffective governance, delays in infrastructure projects.	Proposals for decentralisation and local governance reforms.	Moderate improvements in governance but with slow progress on infrastructure projects.

Type of shock/crisis	Initial trigger (Why did it happen, what caused it?)	Impact of shock/crisis	Policy response	Impact of the policy response (if any)
Climate change	Increased frequency of extreme weather events affecting agriculture and infrastructure.	Environmental, Economic: Damage to agriculture, increased risk of natural disasters.	Promotion of climate adaptation strategies and renewable energy projects.	Some success in climate adaptation, but risks remain high.
Energy dependency	Reliance on non-local energy providers, limiting local economic benefits.	Economic, Environmental: Limited local control over energy resources, loss of economic benefits from renewables.	Support for local renewable energy projects.	Mixed results; energy dependency remains an issue.
Public services access	Limited access to healthcare, education, and other essential services in rural areas.	Social: Reduced quality of life	Policies aimed at improving access to rural healthcare and education.	Limited impact; rural services remain inadequate.
Cultural and social isolation	Geographic and infrastructural barriers contributing to social isolation.	Social: Decreased community cohesion, limited access to cultural activities.	Efforts to enhance local cultural activities and improve transportation links.	Partial success; isolation remains an issue.
Innovation gaps	Resistance to adopting new agricultural and economic practices.	Economic, Environmental: Slow adoption of innovative technologies, reduced economic competitiveness.	Promotion of innovation in agriculture and local industries.	Limited adoption of new practices due to resistance and lack of support.
Economic concentration	Over-reliance on a few economic sectors, such as agriculture and tourism.	Economic: Economic vulnerability, limited diversification.	Efforts to diversify local economies through support for new industries.	Diversification efforts are slow.

7.3 Recovery or resilience preparedness related initiatives: Overview

7.3.1 Global and local trends impacting regional resilience: recovery or ongoing crises?

During the workshops, participants identified several global and local risks and stressors that continue to challenge Teruel's resilience. These were classified *into wild cards, minor shocks, major shocks, and slow/long-term stressors*, each of which affects the region's ability to recover from crises and adapt to ongoing pressures.

Wild Cards are unexpected events that, while low in probability, have high impact. Examples include:

- **Pandemics**, such as COVID-19, which have disrupted social and economic activities, strained healthcare systems, and altered population dynamics in the region.
- **Technological disruptions**, including the rapid adoption of artificial intelligence or potential cyber-attacks, could significantly impact local governance and economies (Centro de Innovación Territorial, (n.d.)).
- **Political instability** or unexpected changes in national or regional policies, which can alter funding and development opportunities.
- **Natural resource depletion**, particularly concerning water and arable land, poses a risk if overuse or environmental changes accelerate.
- **Sudden regulatory changes**, particularly in environmental or trade policies at the national or EU level (ESPON, (n.d.)), could adversely affect local economies.

Minor Shocks are short-term disruptions that can generally be managed with existing resources. These include:

- **Seasonal weather variations**, which temporarily affect agriculture and tourism (ASAJA, 2023).
- **Local infrastructure failures**, such as road closures or power outages, that disrupt daily life but are generally resolved quickly.
- **Market fluctuations**, impacting commodity prices or local product demand, and supply chain disruptions, particularly in agriculture and local industries.
- **Short-term labor shortages**, often due to seasonal migration or sudden demand surges for workers.

Major Shocks are significant events that require substantial resources to manage. In Teruel, these include:

- **Economic crises**, which have led to unemployment, reduced public spending, and economic instability in the region (Instituto Nacional de Estadística (INE), (n.d.)).
- **Natural disasters**, such as severe droughts (ASAJA, 2023), floods, or wildfires, which can cause extensive damage to both infrastructure and the local economy.
- **Population decline**, which continues to be a critical issue, with out-migration weakening community viability and local economies.
- **Loss of major employers**, resulting in economic and social disruptions, alongside severe weather events, such as heavy snowstorms or prolonged heatwaves, disrupting life and work.

Slow/Long-term Stressors are ongoing issues that gradually erode resilience over time:

- **Depopulation**, a long-term trend in Teruel, continues to diminish local economies, reduce services, and create ageing populations that lack rejuvenation.
- **Climate change** is gradually altering agriculture, water availability (Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), (n.d.)), and increasing the frequency and severity of natural disasters.

- **Economic decline** is persistent, driven by the lack of industrial development and limited job opportunities.
- **Infrastructure deficiencies**, such as chronic underinvestment in roads, railways, and utilities (Comarca Comunidad de Teruel, 2010), limit connectivity and economic growth.
- **Educational and healthcare gaps** persist, reducing community well-being and making the region less attractive to newcomers.
- **Aging infrastructure**, such as deteriorating roads and utilities, further restricts economic development.
- **Brain drain** remains a major issue, with young, educated individuals continuing to migrate for better opportunities (Instituto Nacional de Estadística (INE), (n.d.)), leaving behind a shrinking, less-skilled workforce.
- **Low fertility rates** also exacerbate the ageing population problem (Comarca Comunidad de Teruel, 2010), shrinking the workforce further.
- **The digital divide**, with limited access to high-speed internet, hinders both economic development and educational opportunities.
- **Environmental degradation**, including loss of forests due to the increase in droughts, continues to negatively impact agricultural productivity and quality of life.
- Finally, **healthcare accessibility** remains a challenge, with difficulties in accessing quality healthcare services reducing overall well-being in the region (Del Romero Renau & Pizarro, 2013).

Teruel is grappling with multiple, simultaneous crises and long-term stressors. While there are ongoing efforts to address these challenges—such as initiatives to improve infrastructure, promote economic diversification, and enhance governance—the region continues to face significant obstacles. The combination of depopulation, economic stagnation, environmental degradation, and infrastructure deficiencies creates a complex environment where recovery is slow and difficult.

Despite these struggles, there are opportunities for recovery through targeted resilience efforts, particularly in areas such as sustainable development, local financial support, and enhanced community engagement. However, the region is still contending with the cumulative effects of these ongoing trends, which continue to challenge its overall resilience and long-term sustainability.

7.3.2 Existing plans on how to deal with resilience issues before the shock/crisis struck and current recovery plans or initiatives

Before the depopulation crisis in Teruel fully unfolded, in the second half of the 20th century, particularly around 1980s and the following decades there were only limited and fragmented plans in place to address the region's resilience (Gobierno de España, 2005). Initial efforts were largely focused on rural development, infrastructure improvements, and providing fiscal incentives to attract businesses. However, these were not comprehensive resilience strategies. Over the years, long-term stressors such as rural depopulation, economic stagnation, and infrastructure deficiencies persisted, yet were not systematically addressed before the crisis escalated.

Various slow, long-term stressors—including depopulation and economic decline—were already affecting the region. Although local governments implemented some measures, such as housing programmes and fiscal policies aimed at encouraging families to remain in the area, these efforts proved insufficient in preventing the crisis from worsening. The absence of a cohesive, large-scale resilience plan left Teruel ill-prepared when the crisis deepened.

7.3.2.1 Current recovery plans and initiatives

More structured recovery plans are now in place, initiated at both regional and national levels. Spain's Recovery, Transformation, and Resilience Plan (*España Puede*) (Gobierno de España, 2022) includes specific measures to combat rural depopulation and stimulate local economies. One of its key pillars is dedicated to

rural and urban resilience, allocating a significant portion of EU recovery funds to addressing challenges such as infrastructure, green mobility, and sustainable development in depopulated regions like Teruel.

At the local level, Teruel has also benefited from regional initiatives aimed at supporting small businesses, developing local industries, and improving digital connectivity. These efforts are part of broader strategies to diversify the economy and address both immediate recovery needs and long-term resilience-building.

7.3.3 Key players involved in elaborating the plans

In the development of recovery and resilience plans for Teruel, a range of actors were involved, from local organisations to national and European institutions. These stakeholders played key roles in shaping the response to depopulation, economic decline, and infrastructure challenges in the region. Here's a breakdown of the main participants:

7.3.3.1 European Union

The European Union has been a significant player in financing and providing strategic direction through its Next Generation EU funds, specifically through *Spain's Recovery, Transformation, and Resilience Plan*. The EU's involvement ensured that funds were directed toward sustainable development and rural revitalisation projects aimed at reversing depopulation trends (ESPON EGTC., 2018; ESPON, (n.d.); European Union, (n.d.)).

7.3.3.2 Spanish Government

The Spanish Government took the lead in formulating national strategies, including the "España Puede" plan, which allocated substantial funding to rural development, green energy, and infrastructure improvements. The government collaborated closely with regional authorities to ensure that Teruel, among other regions, benefited from the resilience strategies (Gobierno de España, 2022).

7.3.3.3 Cátedra Despoblación (Regional institution)

This academic organisation has been instrumental in researching the causes of depopulation and proposing tailored solutions for the region. It was actively involved in workshops and stakeholder meetings, providing crucial insights into the socio-economic challenges facing Teruel (Cátedra Despoblación, (n.d.)).

7.3.3.4 Centro de Innovación Territorial (Regional institution)

The Centro de Innovación Territorial contributed by promoting innovative solutions to the region's challenges. It facilitated discussions on how new technologies and digital transformation could improve local infrastructure and support local economies, particularly in agriculture (Centro de Innovación Territorial, (n.d.)).

7.3.3.5 CITA (Centro de Investigación y Tecnología Agroalimentaria) (Regional institution)

CITA focused on enhancing agricultural practices and researching sustainable methods to boost the region's food production. Given that agriculture is a key sector in Teruel, CITA's involvement ensured that recovery plans included strategies for increasing resilience against environmental challenges, such as drought (Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), (n.d.)).

7.3.3.6 Diputación Provincial de Teruel (Regional institution)

The Diputación Provincial played a central coordinating role at the local level, working with both regional and national governments to implement recovery plans. It also advocated for infrastructure improvements and policies aimed at attracting businesses and improving the quality of life in rural areas (Diputación Provincial de Teruel, (n.d.)).

7.3.3.7 SSPA (Southern Sparsely Populated Areas Network) (National institution)

SSPA was crucial in advocating for differentiated fiscal policies and specialised support for sparsely populated areas. This organisation collaborated with other stakeholders to highlight Teruel's specific needs, ensuring

that they were addressed in both national and EU-level plans (Southern Sparsely Populated Areas Network, 2023).

7.3.3.8 SUMA Teruel (Regional institution)

As a local financial institution, SUMA Teruel provided much-needed economic support to local businesses and entrepreneurs. It played an essential role in funding small-scale projects and ensuring that financial resources were available to drive local recovery and resilience initiatives.

7.3.4 (Resilience) Planning priorities: what have been the resilience priorities of the region and why these priorities?

7.3.4.1 Immediate reactions and priorities

In the immediate aftermath of the depopulation crisis in Teruel, efforts were focused on stabilising local economies, addressing infrastructure deficiencies, and mitigating the rapid out-migration. Local governments prioritised attracting businesses, improving connectivity, and offering fiscal incentives to stimulate economic activity (Gobierno de España, 2005).

7.3.4.2 Mid-term and long-term priorities

In the mid-term, priorities shifted towards ensuring sustainable economic growth through industry diversification, promoting tourism, and enhancing digital access. Long-term strategies include addressing climate change, modernising infrastructure, and reversing the ageing population trend by improving education and healthcare services (Comarca Comunidad de Teruel, 2010; Comarca Comunidad de Teruel, 2022; ESPON EGTC., 2018; ESPON, (n.d.)).

7.3.4.3 Territorial level, priorities and approaches

At the local level, the **Diputación Provincial de Teruel** and organisations like **Cátedra de la Despoblación** and **Centro de Innovación Territorial** manage infrastructure and community initiatives. Meanwhile, national and EU-level plans, such as *Spain's Recovery, Transformation, and Resilience Plan* (Gobierno de España, 2022), provide funding and strategic frameworks. Collaboration between local, national, and EU bodies has improved, helping to align priorities, although some coordination challenges persist due to Spain's decentralised governance structure.

7.3.5 Preparedness for disaster: planning approaches, process and instruments

In Teruel, disaster preparedness prior to the deepening of the depopulation crisis has been notably inadequate. There was no comprehensive, forward-thinking plan to proactively address the underlying structural issues undermining the region's resilience, such as economic stagnation, an ageing population, and decaying infrastructure. Instead, most responses were reactive, implemented only after the crisis had already begun, rather than being pre-emptive strategies.

7.3.5.1 Preparedness approaches before the crisis

Before the crisis escalated, local and regional efforts were fragmented and insufficient. While some initiatives existed, such as local policies to attract businesses or promote rural tourism, these were far too limited to address the broader, systemic challenges of depopulation and economic decline.

There was also a lack of coordinated efforts at the national or EU level to comprehensively address the long-term trends of rural exodus, infrastructure underdevelopment, or the region's climate-related vulnerabilities. As a result, when these issues escalated into a full-blown crisis, Teruel was left highly vulnerable and unprepared.

7.3.5.2 Reactive measures introduced post-crisis

As the crisis deepened, local governments and organisations implemented a range of initiatives aimed at mitigating its impacts. One example on housing incentives is the following:

In the town of Griegos (ThinkSpain, 2017; ThinkSpain, 2021), authorities launched a campaign offering free or heavily subsidised housing along with job opportunities to attract young families. The primary aim was to prevent the closure of local schools and revitalise the community. While this measure provided short-term relief, it was a reactive response rather than a pre-planned solution to the region's deeper demographic challenges.

7.3.5.3 “España Vacía”

Led by “Teruel Existe” (Teruel Existe, (n.d.)), his movement sought to bring national attention to the depopulation crisis affecting Spain's rural areas, including Teruel. The movement successfully advocated for differentiated fiscal policies, improved infrastructure, and enhanced access to public services in rural communities. However, this initiative also emerged after the crisis had already begun, responding to the worsening challenges rather than anticipating them.

7.3.5.4 100/30/30 Plan

The *100/30/30 Plan* is a national initiative aimed at enhancing the resilience of rural areas by ensuring that all regions in Spain have access to high-speed internet, education, and healthcare services within 30 minutes of any residence (España Vacía, 2021). While this initiative forms a key part of Spain's broader *Recovery, Transformation, and Resilience Plan*, it was developed in response to the ongoing depopulation crisis, rather than as a proactive preparedness strategy.

7.3.5.5 Why it didn't work in Teruel

The absence of a pre-established preparedness plan in Teruel meant that, when the crisis hit, local authorities were forced to implement quick fixes that focused primarily on the immediate consequences rather than addressing the underlying causes. The lack of long-term strategic planning—particularly concerning rural economic revitalization and demographic challenges—led to a reliance on emergency measures which, while useful in the short term, have not been sufficient to reverse the crisis.

Additionally, the failure to effectively coordinate responses between different levels of government exacerbated the problem. For example, while the Diputación Provincial de Teruel worked on small-scale initiatives (Diputación Provincial de Teruel, (n.d.)), the lack of timely support from the national government delayed critical infrastructure projects needed to attract businesses and stabilize population levels.

Efforts to modernize and digitize the local economy were similarly hindered by bureaucratic inefficiencies and slow project execution (CaixaBank Research, 2023), further limiting the effectiveness of the recovery measures.

7.3.6 Governance principles guiding the development of resilience and preparedness initiatives: insights from interviews and desk research

7.3.6.1 Co-ordinating actions of actors and institutions

While coordination between local and national actors has improved over time, early efforts were marked by gaps in communication and strategic alignment. Initiatives like **Teruel Existe** have played a crucial role in linking local issues to national policy agendas. However, coordination across governance levels has often been fragmented, hindering a unified response.

7.3.6.2 Integrating policy sectors

Various sectors, such as housing, healthcare, education, and infrastructure, have been integrated into Teruel's recovery plans. For example, the **100/30/30 Plan** combines digital infrastructure, healthcare, and education to ensure accessibility in rural areas (España Vacía, 2021). However, prior to the crisis, policy sector integration was limited.

This cross-sectoral approach has been essential in addressing the region's multifaceted challenges, recognising that resilience-building requires collaboration across different sectors.

7.3.6.3 Mobilising stakeholder participation

Movements such as “España Vacía” (España Vacía, (n.d.)) have been instrumental in mobilising grassroots support and involving stakeholders across the region. Workshops and local consultations have also helped engage local actors in shaping recovery efforts. However, participation has often been reactive rather than proactive, with stakeholders becoming more engaged only after the crisis reached a critical point.

7.3.6.4 Being adaptive to changing contexts

Teruel’s recovery initiatives, particularly in response to depopulation and economic decline, have demonstrated some adaptability. Measures like housing incentives (The Olive Press, 2021) and efforts to improve digital access reflect a willingness to adjust to changing demographic and technological circumstances. However, the initial responses lacked flexibility, limiting the region’s ability to address emerging challenges proactively.

7.3.6.5 Realising place-based/territorial specificities and impacts

While Teruel Existe and local authorities have a deep understanding of the region’s unique challenges, such as geographic isolation, an ageing population, and infrastructure deficits, national and European-level plans have often treated Teruel as just another example of rural depopulation. This generalised approach has resulted in policies that were not sufficiently tailored to Teruel’s specific needs. Had the national government recognised these distinct challenges earlier, more targeted and effective measures could have been implemented to mitigate the crisis from the outset.

7.3.7 Understanding the conceptualisation of resilience in Teruel

7.3.7.1 Conceptual understanding of resilience in this region, specifically following the crisis/shock

In Teruel, the understanding of resilience is shaped by multiple actors, each with distinct perspectives. Local authorities and organisations such as Teruel Existe have emphasised resilience as the ability to tackle structural challenges (Teruel Existe, 2019), including limited access to essential services like healthcare and education, and the lack of critical infrastructure, such as highways and high-speed rail. This has been reinforced through both research and discussions in the workshops.

While it is difficult to define a precise understanding of resilience from the population’s perspective, the electoral success of Teruel Existe indicates a strong alignment between the movement’s goals and the concerns of the local community. In essence, resilience in this region is largely viewed through the lens of restoring access to basic services, achieving economic recovery, and reversing depopulation.

At a broader level, resilience is also understood as the region’s capacity to adapt to external shocks, such as economic crises and environmental changes, while striving for long-term sustainability. The policies proposed by local governments and grassroots movements aim to strengthen the region by improving essential services, modernising infrastructure, and promoting economic diversification.

This concept of resilience is closely tied to enhancing the quality of life for current residents and making the area more attractive to new families, businesses, and younger generations, thereby stabilising and revitalising the local economy.

7.3.7.2 Which shocks and crises do the policies and instruments target?

The policies and instruments implemented in Teruel target a variety of economic, social, and environmental shocks and crises, as identified in the case study. These include both short-term shocks and long-term stressors. Crossing the targets with the final table, this is the result:

- **Infrastructure deficiencies:** Infrastructure improvements are a top priority, particularly the push for better transport connections, such as highways and high-speed rail (AVE) (Teruel Existe, 2019).

- **Loss of basic services:** A big target is the provision of healthcare and education services (Del Romero Renau & Pizarro, 2013), aiming to ensure that essential services are accessible to residents within 30 minutes, regardless of their location.
- **Depopulation:** Local and national governments, along with movements like Teruel Existe, have advocated for housing incentives, tax breaks, and initiatives like the Griegos housing project to attract new residents (The Olive Press, 2021). Additionally, investments in basic services (education, healthcare) are central to retaining and attracting population.
- **Environmental degradation:** From the government and EU perspective, policies aimed at addressing environmental issues focus on sustainable agriculture, forest management (ESPON EGTC., 2018). There is also a growing emphasis on climate resilience through better resource management.

Economic decline / Unemployment: Economic recovery initiatives have focused on attracting businesses, promoting local tourism, and encouraging small-scale industrial growth. These policies aim to mitigate the long-term economic stagnation and the dependence on agriculture and services sector that has driven out-migration and caused high levels of unemployment.

7.3.7.3 Measuring resilience

Based on the documents studied and all available information we can conclude that there is no formal or systematic measurement of resilience specifically implemented across the region of Teruel. While various initiatives and policies have been introduced to address depopulation, infrastructure issues, and economic challenges, these efforts have not been consistently tied to measurable resilience indicators.

The only two studies found that directly address resilience in Teruel are:

- **The RESITER project**, which focuses on the resilience of aquifers of Teruel to climate change and prolonged droughts, with the aim of supporting irrigation systems and the population's water needs. This study examines environmental resilience, particularly the ability of aquifers to sustain the local agricultural economy in the face of climate-related challenges.
- **The Next Generation EU projects** in Aragon, which include some initiatives related to infrastructure and sustainability that indirectly impact the resilience of rural areas like Teruel, but do not explicitly focus on resilience measurement.

In conclusion, while there are efforts to address key issues affecting resilience there is no formal system in place to **measure** resilience comprehensively.

Table 22: Overview of approaches and actions for territorial resilience in Teruel

Overall resilience goals	<ul style="list-style-type: none"> • As discerned from both the analysis and the workshops, resilience in Teruel means improving access to basic services (Healthcare, education) and infrastructure (roads, high-speed rail) • Resilience towards demographic decline (depopulation) and economic stagnation • Ensuring sustainable development and adaptation to external shocks like economic crises and environmental changes
Resilience process: Priority areas	<ul style="list-style-type: none"> • Addressing depopulation: Housing incentives, retaining population through improved services • Infrastructure improvement: Enhancing transport links and communication networks (highways, digital access) • Economic diversification: Promoting local tourism and small industries to reduce dependence on agriculture. • Environmental resilience: Sustainable agricultural practices, water resource management.

Overall resilience goals	<ul style="list-style-type: none"> • As discerned from both the analysis and the workshops, resilience in Teruel means improving access to basic services (Healthcare, education) and infrastructure (roads, high-speed rail) • Resilience towards demographic decline (depopulation) and economic stagnation • Ensuring sustainable development and adaptation to external shocks like economic crises and environmental changes
Governance principles	<ul style="list-style-type: none"> • Local participation and Bottom-up Governance: Approach via local communities and movements like “Teruel Existe” • Key Stakeholders: Governance principles in Teruel’s resilience need a multi-level approach with local, national and EU level actors to provide strategic direction. • Coordination Gaps: Put a solution to delays in implementing the initiatives or fragmented coordination across governance levels. • Integration of regional resources: Focus on leveraging local resources like agriculture or tourism with integrated rural development efforts.
Approaches and actions to ensure territorial resilience	<ul style="list-style-type: none"> • Housing initiatives like Griegos project to attract families • National and EU level projects • Local campaigns and infrastructure advocacy • Agricultural initiatives. Projects like RESITER to manage water resources
Mid and long-term visions	<ul style="list-style-type: none"> • Building resilient communities: Attracting new residents while ensuring current inhabitants benefit from improved services. Attracting people in a long-term perspective instead of a short term as previously done • Climate change adaptation: Long-term vision to secure environmental sustainability through better water and land management. • Sustainable economic growth through diversification

7.4 Territorial resilience in Teruel: Lessons learned

7.4.1 What were the main challenges with regards to resilience in the area?

As a conclusion of the workshops, this is the list of main challenges of Teruel:

- **Economic Decline:** over the past decade, Teruel has experienced a long-term economic decline, exacerbated by the cycles of depopulation (Instituto Nacional de Estadística (INE), (n.d.)). This decline affects employment opportunities, industry, and infrastructure development, particularly with challenges related to underdeveloped industrial plots, inadequate high-capacity roads, and a lack of high-speed rail connectivity.
- **Severe Rural Depopulation:** Teruel is one of the most sparsely populated areas in Europe, with many municipalities having fewer than 100 inhabitants (Southern Sparsely Populated Areas Network, 2023). This depopulation leads to reduced demand for services and infrastructure, creating a vicious cycle that further fuels out-migration and economic decline.
- **Social Challenges:** the region suffers from a lack of essential services, such as education and healthcare, especially in rural areas (García Marín & Espejo Marín, 2019). This contributes to social isolation and diminishes the quality of life, making it difficult to retain or attract new residents.
- **Environmental Stressors:** long-term droughts and environmental degradation, particularly in forestry and agriculture, present significant risks. These environmental challenges are compounded by climate change, which increases the frequency and severity of extreme weather events (Trassiera Villa et al., 2023).
- **Governance and Policy Issues:** there are significant bureaucratic hurdles and a need for innovative governance solutions to address the unique challenges of the region (Fundación Cotec & Political

Watch, 2023). The existing policies have often been insufficient to support resilience, and there is a general mistrust of top-down initiatives, particularly those from the EU, which have historically failed to deliver the expected results.

Infrastructure Deficiencies: poor connectivity with high-capacity roads and railways limits economic opportunities and isolates the region from neighbouring areas (Teruel Existe, 2019), hindering economic growth and integration.

7.4.2 Main opportunities following the shock/crisis/stressor, or following the resilience efforts

The following opportunities have been identified from the literature review and the future workshops.

7.4.2.1 Economic opportunities

- **Available land on industrial parks:** With industrial land available (Comarca Comunidad de Teruel, 2022) at lower costs in rural areas, Teruel has the opportunity to attract logistics and distribution centres. Businesses seeking to cut costs on warehousing and distribution could find Teruel's industrial estate in rural zones ideal, especially with improvements in transport infrastructure (Del Romero Renau & Lozano, 2015).
- **Renewable energy development:** Wind and solar farms can be established given Teruel's abundant space, lower land prices, and ideal environmental conditions (Comarca Comunidad de Teruel, 2022; Southern Sparsely Populated Areas (SSPA), 2021). Partnering with national and European green initiatives could bring significant investments into renewable energy projects. Additionally, offering incentives for battery storage solutions tied to these projects can position Teruel as a renewable energy hub.
- **Expansion of agro-industries:** Teruel can promote itself as a centre for agro-industrial development. By modernizing agriculture (Comarca Comunidad de Teruel, 2022) and adding processing plants for local products (like olive oil, almonds, or ecological farming products), the region can capture more value from its agricultural production.
- **Logistics hub development:** Given its strategic location between key urban centres (Madrid, Barcelona, Valencia), Teruel can become a logistics hub. Improvements in rail and road infrastructure (Comarca Comunidad de Teruel, 2010) could facilitate the creation of logistics parks, taking advantage of its proximity to large markets.
- **ICT and remote work zones:** Capitalizing on the remote working trend, Teruel can set up co-working spaces in rural towns that cater to digital nomads and remote workers. Offering high-speed internet, affordable housing, and access to nature could attract a growing sector of remote professionals.

7.4.2.2 Social opportunities

- **Teleworking and rural living:** The demand for peaceful, affordable places to live while teleworking has grown after COVID. Marketing rural areas as telework-friendly and investing in digital infrastructure (Next Generation EU, (n.d.)) could attract young families and professionals seeking a better quality of life (Ministerio para la Transición Ecológica y el Reto Demográfico, 2021).
- **Affordable housing renovation plans:** With many vacant properties in rural villages (García-Madurga et al., 2024), government-backed renovation plans offering grants or low-interest loans could stimulate local construction while attracting new residents.
- **Attracting international talent:** Teruel could implement programs to attract international remote workers by offering visa incentives, tax breaks, and settlement packages (Southern Sparsely Populated Areas Network, 2023). Marketing the region as a peaceful yet well-connected alternative to urban life could attract skilled workers.
- **Health and wellbeing tourism:** As people become more focused on health and well-being, Teruel can establish itself as a centre for well-being retreats and rural health tourism (Del Romero Renau &

Lozano, 2015), attracting visitors looking for stress relief and mental health escapes in a natural, peaceful setting.

7.4.2.3 Environmental Opportunities

- **Expansion of organic and ecological agriculture:** With growing demand for organic produce in Spain, there is a significant opportunity for Teruel to position itself as a leader in ecological farming revitalizing agriculture. Collaborating with certification bodies and export markets, the region can benefit from eco-conscious consumers both locally and internationally.
- **Forest management and fire prevention:** Due to the increase in risk of forest fires linked to abandoned agricultural lands and prolonged droughts (ASAJA, 2023; Ministerio para la Transición Ecológica y el Reto Demográfico, (n.d.)), a forest management initiative focusing on fire prevention and sustainable logging could serve as both an environmental protection effort and a job-creation scheme.
- **Nature reserves and eco-tourism:** Teruel's protected areas under Red Natura 2000 could be further developed into eco-tourism destinations, constructing and restoring nature trails that would attract both domestic and international tourists (Comisión Europea, (n.d.)). These projects can be low-impact developments that enhance the local economy while focusing on preserving the environment.
- **Sustainable water management:** Given Teruel's vulnerability to droughts (Ministerio para la Transición Ecológica y el Reto Demográfico, (n.d.)), there is an opportunity to implement projects such as advanced irrigation systems (Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), (n.d.)) or planning new dams. This can enhance the region's agricultural productivity and make it more resilient to climate change.
- **Fighting climate change:** Today, the idea of considering regions like Teruel beneficial for surrounding areas and the rest of the country due to their low pollution levels and carbon balance is beginning to take shape. Cuenca, Soria, and Teruel are close to achieving carbon neutrality (Southern Sparsely Populated Areas (SSPA), 2021) thanks to their ability to act as carbon sinks, making them crucial players in the fight against climate change.
- **Carbon offset programs:** The region's vast natural landscapes (Comarca Comunidad de Teruel, 2010) could be leveraged for carbon sequestration programs, where businesses and governments invest in Teruel's forests and agricultural lands to offset their carbon emissions. Carbon storage of the province doubles Madrid or Barcelona's storage (Southern Sparsely Populated Areas (SSPA), 2021).

7.4.3 Transferability of good practices to other territorial contexts within Europe, that could contribute to policy analyses and strategy formulation

Many of the practices and approaches implemented in Teruel can be adapted and transferred to other rural regions across Europe facing similar challenges, particularly depopulation and economic decline. These strategies align with the broader rural exodus seen across Europe, driven by a lack of opportunities and services in rural areas, making them applicable to regions with comparable contexts.

One of the most transferable measures is the **promotion of rural areas to remote workers** seeking a better quality of life. Teruel has capitalised on its peaceful environment and affordability to attract teleworkers, a strategy particularly relevant in the post-COVID context, where more people are working remotely and looking to escape the congestion and high costs of urban life. This approach could be easily adopted by other European regions experiencing rural depopulation, as remote work becomes more common and individuals prioritise living in quieter, less crowded areas. Many European countries, including France, Italy, and Spain, have vast rural regions that could benefit from similar promotional campaigns targeting teleworkers.

Another highly transferable initiative from Teruel is the **provision of grants or low-interest loans to renovate vacant or deteriorating rural homes**. Many rural areas across Europe, particularly in Southern and Eastern Europe, face the issue of unused housing stock due to depopulation. Programmes that offer financial support for renovating these homes not only make rural living more attractive to new residents but also stimulate the local economy by boosting the construction and services sectors. This approach could be particularly

impactful in regions with an abundance of affordable but neglected housing in rural communities, offering a solution to both housing affordability and rural revitalisation.

Teruel's efforts to **attract businesses by promoting the availability of low-cost land** are also highly replicable. Many rural areas in Europe offer affordable land compared to urban centres, but these opportunities are often under-promoted. By positioning rural regions as attractive locations for businesses, whether for factories, warehouses, or offices, and offering incentives such as tax breaks or simplified regulations, other European regions could boost local employment and stimulate economic growth. This strategy would be particularly beneficial in regions where high land costs in urban areas drive businesses to seek more affordable alternatives.

Promoting tourism by highlighting local cultural and natural heritage is another approach with strong potential for transferability. Teruel has successfully marketed its rural and cultural assets to attract year-round tourism, a strategy that could be easily adapted in other parts of Europe. Rural regions with untapped tourism potential could similarly promote themselves as destinations for eco-tourism or cultural tourism, using creative campaigns to attract visitors while preserving local traditions and landscapes. This strategy could be particularly effective in countries like Portugal, the Baltic states, or Romania, where rural areas boast rich cultural histories and stunning landscapes often overlooked by mainstream tourism.

However, some opportunities in Teruel are more specific to the region's intrinsic characteristics and therefore less transferable. Teruel's particular challenges—such as the depopulation of former mining areas, its geographic location relative to cities like Madrid, Barcelona, and Valencia, and its unique natural environments coupled with the growing risk of drought—are specific to its context. While the strategies developed to address these issues can serve as useful examples, they may not be directly applicable to other regions without adaptation to local conditions. Environmental and geographical factors play a crucial role in determining the ease with which certain practices can be transferred.

Table 23: Challenges and opportunities in Teruel

	Challenges	Opportunities
Decision-makers		
European Union	<ul style="list-style-type: none"> • Inefficient coordination with local bodies and Countries Governments. Funds Available but often not applied (CaixaBank Research, 2023). • Lack of specificity in policies: EU-level policies are typically too general, treating all rural areas as homogeneous, which doesn't always fit the unique needs of regions like Teruel. 	<ul style="list-style-type: none"> • Funding opportunities: The European Union offers significant funding options for projects focused on sustainable development and infrastructure improvement (22. European Union, (n.d.)). • Support for green transition: The EU's green agenda, including funding for renewable energy initiatives, presents a great opportunity for Teruel such as solar and wind energy projects.

	Challenges	Opportunities
Spanish Government	<ul style="list-style-type: none"> • Limited national focus: National rural development policies have typically prioritized larger regions, leaving provinces like Teruel underrepresented and without sufficient attention. • Lack of long-term planning: Due to frequent government changes every four years, there is often a focus on short-term plans that provide temporary relief but fail to address the root causes of the problem. 	<ul style="list-style-type: none"> • Emergence of new movements supporting depopulated areas: There is growing social awareness around the issue, which is now reflected in votes and parliamentary support, making it easier to develop policies aimed at combating depopulation. • Collaboration and implemented initiatives: Thanks to initiatives proposed by the SSPA, the Spanish government has begun offering tax incentives for those relocating to rural areas like Teruel. Continued collaboration in this area can further enhance these efforts.
Diputación Provincial de Teruel	<ul style="list-style-type: none"> • Lack of authority or resources: As a provincial authority, there are many policies they cannot implement or lack the funding to carry out effectively (Diputación Provincial de Teruel, 2024). • Logistical challenges: Providing public services like education and healthcare to small villages is difficult to manage efficiently. You can't establish centres for very few people, yet you must ensure everyone has access to these essential services. 	<ul style="list-style-type: none"> • Support from the government and the European Union with financial resources: There are funds available to address the issue, but careful planning and proper application of these funds are essential. • New opportunities in tourism and agriculture: The provincial government can help promote new initiatives in sustainable tourism, sustainable agriculture, and any emerging opportunities.
Policy-makers		
Teruel Existe	<ul style="list-style-type: none"> • Coordination with national policy: While Teruel Existe has political influence, coordinating with national bodies to address local needs is complex. • Limited resources: Despite their efforts, Teruel Existe has limited resources to enact large-scale infrastructure projects. 	<ul style="list-style-type: none"> • Political influence: As a movement that now holds representation in parliament, Teruel Existe can push for more regionally specific policies, such as targeted funding for infrastructure and digitalization.
Cátedra Despoblación (Research)	<ul style="list-style-type: none"> • Lack of immediate impact: Academic insights often take time to shape policy decisions, and many recommendations may not be immediately feasible for local governments to act on (El Periódico de Aragón, 2021). • Policy gaps: Many research findings end up being too vague or theoretical, making it difficult to translate them into practical, actionable policies that can address real issues effectively. 	<ul style="list-style-type: none"> • Few local organizations researching depopulation from within: Being one of the few available actors makes their insights highly valuable to decision-makers. • Research can be turned into clear, actionable strategies: The findings have the potential to be developed into concrete strategies that can be implemented in real-life situations.

	Challenges	Opportunities
<p>CIT de Teruel: Centro de Innovación Territorial de Teruel</p>	<ul style="list-style-type: none"> • Lack of clear objectives: From the outside, it's difficult to know their specific goals and how they plan to achieve them, as well as understand their structure, who they collaborate with, and how many people are working towards what ends. • Difficulty accessing funds for innovation: It's challenging to secure funding to implement measures that are innovative and haven't been tested before. 	<ul style="list-style-type: none"> • Closer to the people: They are the organization best positioned to connect with the local population and coordinate solutions based on their needs (Diario de Teruel, 2023). • Promoting digital innovation: There are specific funds available for digitalizing regions, which can help attract younger people. They can provide solutions in this area. • Supporting agricultural innovation: Agriculture is one of the key areas in need of innovation, so this should be one of their main focus areas for study and development (Gobierno de Aragón, 2023).
<p>Societal actors</p>		

	Challenges	Opportunities
Local Communities and Entrepreneurs	<ul style="list-style-type: none"> • Limited capacity to implement solutions: Local communities may lack the resources, skills, or organizational structures needed to effectively address depopulation issues on their own (ThinkSpain, 2021). • Difficulty in coordinating efforts: Bringing together different stakeholders (residents, local businesses, government) to work towards common goals can be challenging due to differing priorities or lack of communication (ThinkSpain, 2021). • Dependency on external funding: Local communities often rely heavily on external funding (government or EU), making it difficult to sustain projects once that support ends (ThinkSpain, 2021). • Resistance to change: There can be cultural or generational resistance within communities to adopting new practices or embracing innovation, which can hinder progress. • Lack of local infrastructure: Poor infrastructure, such as unreliable internet connections or limited transportation networks, can be a major barrier to establishing and growing businesses in Teruel (García-Madurga et al., 2024). • Limited market demand: With a small and aging local population, entrepreneurs may struggle to find sufficient demand for their products or services, requiring them to seek markets outside the region. 	<ul style="list-style-type: none"> • Revitalizing abandoned assets: There is potential to repurpose abandoned buildings or land for new community-focused projects • Community-led initiatives: Empowering residents to take charge of local development projects, such as cooperatives or local businesses, can help strengthen community ties and drive local economic growth. • Government incentives: Entrepreneurs can benefit from tax breaks and other financial incentives provided by the Spanish government and the EU to stimulate business in rural areas. • Digital transformation: The push for digitalization in rural areas offers entrepreneurs the chance to create or expand digital services, improving access to online markets and attracting younger talent or remote workers to the region. • Remote work and coworking spaces: With the rise of remote work, entrepreneurs can develop coworking spaces or services to attract digital nomads and remote workers, creating a new local economy around this trend.

	Challenges	Opportunities
Agricultural Associations (Such as ASAJA Teruel, UAGA Aragón, Cereales Teruel Sociedad Cooperativa...)	<ul style="list-style-type: none"> • Difficulty in attracting younger members: Agricultural cooperatives may struggle to attract younger generations, who are often drawn to urban areas or other industries, limiting workforce renewal. • Fragmentation within the sector: It can be challenging to achieve consensus among cooperative members on new initiatives or strategies, as it is an atomized sector. 	<ul style="list-style-type: none"> • Sustainable agriculture practices: Cooperatives can adopt and promote sustainable practices (e.g., organic farming, regenerative agriculture) to meet growing consumer demand for eco-friendly products and access premium markets. • Promote a denomination or brand associated with Teruel: Agricultural associations have the opportunity to create and promote a regional brand or denomination of origin for products unique to Teruel. This would not only enhance the visibility and value of local products but also foster a sense of identity and pride among local producers.

7.5 Strategic policy and governance suggestions for the local and regional level

The Future Workshop 3, held on January 30th at the Teruel Region Headquarters, brought together 10 key stakeholders from political, economic, and research sectors to discuss territorial imbalances, economic development, governance, sustainability, and rural innovation. Participants, including representatives from the Spanish Congress, the Aragonese Courts, and local development organizations, contributed over 200 ideas and proposals, which have been structured into thematic blocks to align with European and national policy frameworks.

Discussions built on insights from previous workshops and were organized into four key categories: (A) Innovation and Economic Competitiveness, (B) Governance and Citizen Participation, (C) Sustainability and Environment, and (D) Social Cohesion and Quality of Life. The outputs of the session, including detailed policy recommendations and proposed initiatives, have been compiled into another document for further consideration and integration into strategic planning efforts.

7.5.1 Main suggestions for Teruel region development

7.5.1.1 A. Innovation and Economic Competitiveness

Priority Issues

Teruel's industrial base remains narrowly focused, with population decline making it increasingly difficult to attract or retain innovative businesses. Rural pockets also suffer from underdeveloped digital infrastructure that undermines telework, AI-based analytics, and online marketing—key drivers of modern enterprise. In parallel, local entrepreneurs typically lack the streamlined advisory services, accessible financing options, and well-coordinated knowledge hubs required to scale their ventures.

Key Recommendations

A pivotal measure is creating **Rural Innovation Hubs**, “sandbox” environments where small businesses, startups, and cooperatives can experiment with bioeconomy solutions, renewable energy projects, and emerging digital tools. Beyond providing testing grounds under supportive conditions, these hubs should curate **local success stories** in a best-practices repository, giving visibility to rural-based innovation that can inspire further initiatives.

A **common set of indicators** (e.g., job creation, environmental impact, digital adoption) should be integrated into policy evaluation to standardize how progress is tracked over time. Clear inter-level communication

mechanisms, including a “one-stop-shop” model, can reduce duplication by unifying funding, advisory, and training resources for rural SMEs. In turn, **capacity-building** programs can better equip institutional staff to guide entrepreneurs efficiently.

On the **reindustrialization** front, strategic use of local resources can revitalize rural areas. Efforts might involve developing bio-based manufacturing (e.g., cross-laminated timber from sustainably managed forests) or extracting higher value from by-products (truffle residues, wool, biomass), drawing on dedicated tax benefits or grants. Simultaneously, expanding broadband and 5G coverage in isolated villages would bring down the digital barriers that limit e-commerce, remote work, and AI-supported solutions.

Finally, **Artificial Intelligence (AI)** can elevate territorial analysis for risk assessment, resource planning, and enhanced operational efficiency—but only if robust data-collection systems and specialized training are introduced. Local pilot programs, aligned with broader networks, would demonstrate AI’s applicability across areas like forest health monitoring or precision agriculture, integrating cutting-edge technology even in the smallest municipalities.

7.5.1.2 B. Governance and Citizen Participation

Priority Issues

Multiple administrative levels—local, provincial, regional, and national—commonly result in overlapping or disjointed programs, leaving rural stakeholders feeling sidelined or overwhelmed by red tape. Moreover, younger generations often lack concrete avenues to influence decisions in their hometowns, and citizen involvement remains limited due to sparse population density and logistical hurdles.

Key Recommendations

Establishing **permanent, multi-level coordinating bodies** is vital. Roundtables or advisory councils should include municipalities, higher-level governments, NGOs, industry associations, and citizens, ensuring that local priorities effectively guide policymaking. Complementing these bodies with **digital participation platforms**, whether mobile apps or web portals, can keep residents informed and engaged in real-time.

Governance must also incorporate **youth** and adapt to local realities. Coworking spaces for trades (e.g., specialized crafts) and vocational schools that address local needs help cultivate practical skills, sustain traditional know-how, and encourage younger residents to stay. **Rural Observatories**, composed of community leaders and experts, could systematically evaluate policies using a “rural proofing” lens, pinpointing gaps or duplications. In parallel, **capacity-building** for public servants fosters administrative agility and synergy. By streamlining grant procedures and resources, such coordination amplifies the real impact of national or EU subsidies, for instance, ensuring that renewable energy initiatives or social services truly benefit rural communities.

7.5.1.3 C. Sustainability and Environment

Priority Issues

Climate change is exacerbating wildfires, droughts, and biodiversity loss, hitting Teruel’s rural ecosystems especially hard. While the region hosts renewable energy projects (e.g., solar, wind), local populations often see limited direct benefit if external entities manage production. Meanwhile, significant circular-economy potential in agricultural and forestry residues remains untapped, and ecosystem services, such as carbon capture, are seldom converted into tangible income streams.

Key Recommendations

Introducing **payments for ecosystem services (PES)** can incentivize landowners to conserve water sources, forests, and habitats, thus protecting biodiversity while diversifying income. Encouraging **non-extractive renewable energy**, for instance, requiring local ownership shares or revenue-sharing agreements, ensures that communities reap direct financial gains and have a say in how green projects evolve.

Additionally, **circular economy** ventures that transform wool, truffle by-products, and other residues can stimulate rural innovation. Cooperative-based or public-private models offer proven ways to finance and coordinate these projects. Meanwhile, **climate adaptation planning** must link short-term strategies, like

preventive infrastructure for wildfires, with the long-term restoration of degraded ecosystems. Together with improved connectivity (transport and digital), these measures foster balanced growth, preserve valuable natural habitats, and mitigate the mounting pressures of climate change.

7.5.1.4 D. Social Cohesion and Quality of Life

Priority Issues

Depopulation, an aging demographic, and insufficient basic services (healthcare, education, childcare) are gradually eroding social cohesion in many parts of rural Teruel. Families struggle to choose between remaining local, where resources may be limited, or relocating to better-served urban areas. Deteriorating or empty housing stock perpetuates out-migration, and patchy broadband further disincentivizes professionals from settling in more remote localities.

Key Recommendations

A **housing strategy** that identifies vacant or run-down properties for targeted rehabilitation grants, tax incentives, or low-interest loans can boost in-migration, including attracting key professionals (like doctors, teachers, and emergency personnel). Municipalities might also consider **conciliatory measures** (e.g., childcare support, flexible scheduling) to ease daily life for families in towns under 500 residents, helping them balance work and personal needs.

Expanding **community-based social services**, multi-service centres that combine local shops, cafés, and social programs, can anchor intergenerational bonds, integrate senior citizens as mentors, and foster a sense of community. Telemedicine access and robust health teams across all local health zones would reduce healthcare disparities, particularly in distant locations. Concurrently, **youth engagement** through scholarship opportunities, entrepreneurial grants, and supportive networks can draw younger people into local projects.

Finally, **vocational education** aligned with the region's agricultural, forest-based, and tourism sectors helps connect trained graduates to real-world opportunities. By bridging skill gaps, reinforcing social infrastructure, and offering a welcoming environment for professionals, rural Teruel stands to revitalize its social fabric, ensure equitable access to services, and safeguard quality of life for future generations.

Table 24: Recommended actions in Teruel

Actions	Scope	Timeframe	Policy Implementation
A. Innovation and economic competitiveness			
A.1. Implementation of shared indicators to evaluate policy impact	Prevention	Short, Mid	<ul style="list-style-type: none"> • EU Policy: Long-Term Vision for Rural Areas (2021), CAP Strategic Plans Regulation (EU) 2021/2115. • Spain Policy: Law 45/2007 for Sustainable Rural Development, Law 21/2013 on Environmental Evaluation. • Proposed modifications: Incorporate a unified system of indicators for assessing rural initiatives across Europe and national policies.
A.2. Promotion of rural innovation as a reference model.	Transformation, adaptation	Short, Mid	<ul style="list-style-type: none"> • EU Policy: LEADER Program, AEI-Agri Initiative. • Spain Policy: Law 45/2007, Royal Decree 116/2024 on SCIA Coordination. • Proposed Modifications: Strengthen communication channels and create a European platform for rural innovation success stories.

Actions	Scope	Timeframe	Policy Implementation
A.3. Strategic reindustrialization based on bioeconomic resources.	Mitigation, transformation	Mid, Long	<ul style="list-style-type: none"> • EU Policy: CAP and Rural Development Policies, EU Bioeconomy Strategy. • Spain Policy: Law 45/2007, New Industrial Law. • Proposed modifications: Establish financial incentives for industries using local natural resources sustainably.
A.4. Expansion of broadband and 5G networks in low-density areas.	Prevention, mitigation	Short, Mid	<ul style="list-style-type: none"> • EU Policy: Digital Europe Program, Connecting Europe Facility. • Spain Policy: Plan for Digital Connectivity 2025, UNICO 5G Networks Program. • Proposed modifications: Provide financial incentives for operators to deploy networks in rural areas.
A.5. Improved rural mobility and transport networks.	Mitigation, Adaptation	Mid, Long	<ul style="list-style-type: none"> • EU Policy: EU Sustainable Mobility Policy. • Spain Policy: Law on Sustainable Mobility. • Proposed modifications: Fund public transport solutions adapted to rural needs.
B. Governance and Institutional Coordination			
C.1. Strengthening institutional coordination for governance efficiency	Mitigation, Adaptation	Short, Mid	<ul style="list-style-type: none"> • EU Policy: Cohesion Policy, Territorial Cooperation Programs. • Spain Policy: Law on Territorial Organization. • Proposed modifications: Establish rural advisory councils to improve inter-institutional coordination.
C.2. Implementation of Rural Proofing in policymaking.	Transformational	Mid, Long	<ul style="list-style-type: none"> • EU Policy: Rural Development Framework. • Spain Policy: Law 45/2007. • Proposed modifications: Require impact assessments for rural effects in all legislation.
C. Sustainability and Energy Transition			
D.1. Local renewable energy communities and sustainable energy integration.	Mitigation, Adaptation	Mid, Long	<ul style="list-style-type: none"> • EU Policy: Renewable Energy Directive, Green Deal. • Spain Policy: Climate Change Law, National Energy Strategy. • Proposed modifications: Implement fiscal incentives for rural renewable energy projects.
D.2. Retribution for ecosystem services, such as CO₂ capture.	Adaptation, transformational	Mid, Long	<ul style="list-style-type: none"> • EU Policy: Nature Restoration Law, EU Biodiversity Strategy. • Spain Policy: Law on Natural Heritage and Biodiversity. • Proposed modifications: Create a financial mechanism for compensating rural territories for ecosystem services.

Actions	Scope	Timeframe	Policy Implementation
D. Social Services and Quality of Life			
E.1. Attraction of professionals to rural areas through housing incentives.	Adaptation, Transformational	Mid, Long	<ul style="list-style-type: none"> • EU Policy: Long-Term Vision for Rural Areas. • Spain Policy: Housing Plan for Rural Areas. • Proposed modifications: Provide subsidized housing for key rural professionals (teachers, doctors, firefighters).
E.2. Expansion of telemedicine and health infrastructure.	Prevention, Mitigation	Short, Mid	<ul style="list-style-type: none"> • EU Policy: Digital Europe Program, Horizon Europe. • Spain Policy: National Health Strategy. • Proposed modifications: Increase funding for telemedicine in low-density territories.

7.6 Conclusions

The analysis of Teruel reveals a region confronting a deeply entrenched and multifaceted crisis. At its core, Teruel's challenges stem from long-term depopulation, economic decline, and infrastructural deficits—all exacerbated by an ageing population and environmental stressors such as prolonged droughts and increasing wildfire risks. These issues are not isolated; rather, they intertwine with broader national and global challenges including climate change, shifting economic paradigms, and evolving societal expectations.

Despite decades of reactive measures, the report highlights the absence of a comprehensive, pre-emptive resilience strategy tailored to Teruel's unique context. Fragmented governance across local, regional, national, and European levels has often resulted in short-term fixes rather than sustainable, integrated solutions. This disjointed approach has left key sectors—ranging from public services and education to transportation and digital connectivity—underdeveloped, further fuelling the cycle of depopulation and economic stagnation.

However, the report also identifies significant opportunities for a turnaround. Teruel possesses valuable natural and cultural assets that, if effectively harnessed, can drive economic diversification. Initiatives in renewable energy, agro-industrial expansion, digital transformation, and eco-tourism offer promising avenues to stimulate local growth and attract new residents. The establishment of Rural Innovation Hubs and improved coordination among stakeholders could transform these opportunities into tangible benefits, while tailored fiscal incentives and infrastructural investments would help bridge existing gaps.

In essence, building territorial resilience in Teruel calls for a long-term place-based strategy that integrates:

- **Economic revitalization:** diversifying the economy through innovation, renewable energy, and agro-industrial initiatives.
- **Social renewal:** enhancing access to education, healthcare, and housing to improve quality of life and counteract demographic decline.
- **Infrastructural upgrades:** addressing connectivity issues and modernizing essential services to better link Teruel with major urban centres.
- **Coordinated governance:** fostering multi-level collaboration and stakeholder engagement to ensure that policies are responsive to the region's specific needs.

Ultimately, reversing Teruel's current trajectory will require not only a strategic reorientation of policies but also a sustained commitment to innovation and community-driven initiatives. By leveraging its unique strengths and addressing its vulnerabilities in a coordinated manner, Teruel can lay the groundwork for a more resilient, dynamic, and sustainable future.

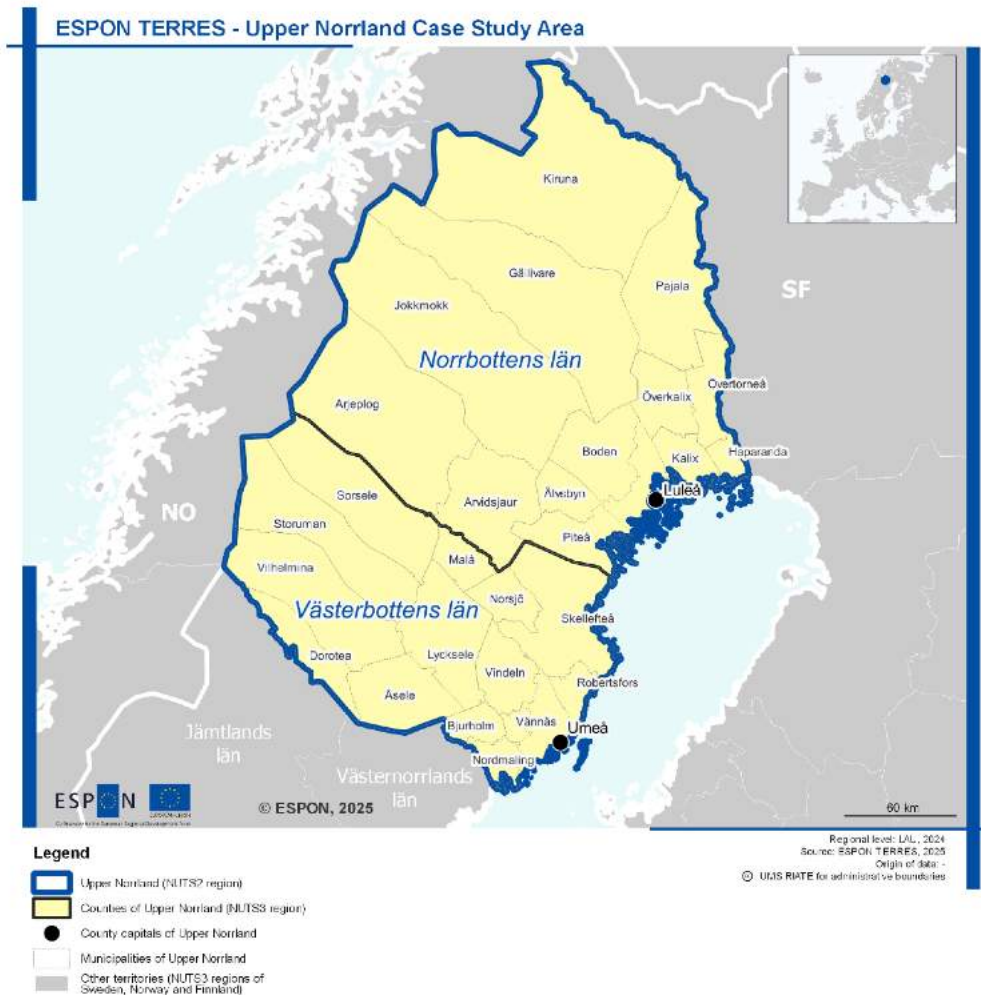
8 Upper Norrland

8.1 General description of the region

8.1.1 Geographical setting

Upper Norrland²¹ is the northernmost region of Sweden, bordering to Finland to the east and Norway to the west. It comprises the two counties of Norrbotten and Västerbotten, together forming the largest region by area in Sweden (Tillväxtverket, n.d.a). Norrbotten County is the northernmost and largest county of Sweden, covering 98,911 km², accounting for almost a quarter of the total area of Sweden. Norrbotten County includes 14 municipalities, with Luleå as its capital (Map 26) (Regionfakta, n.d.a). Västerbotten County is the second largest county by land area, covering 54,665 km², and is divided into 15 municipalities, with Umeå serving as its capital (Map 27) (Regionfakta, n.d.b).

Map 25: Upper Norrland Case Study Area



²¹ Upper Norrland has no jurisdictional or administrative role but is a common name that gathers Norrbotten and Västerbotten, the two northernmost counties in Sweden.

Source: elaboration of the project team

The climate in Upper Norrland is characterised by its subarctic nature, with cold winters and relatively mild summers. Upper Norrland is a vast region, known for its unspoilt nature, encompassing mountains areas, expansive forests, numerous rivers and lakes, and wilderness areas. The area is home to Sweden's highest mountain, Kebnekaise, and the Laponia World Heritage Site, which includes several national parks and nature reserves.

Energy is a cornerstone of Upper Norrland's physical capital, with a focus on sustainable practices. The region is recognised for its hydropower potential, harnessing the energy from its numerous lakes and rivers. This provides a clean and reliable source of electricity for the region but also supports Sweden's broader commitment to renewable energy (North Sweden, n.d.). Norrbotten accounts for about 11% of the total electricity production in the country (Regionfakta, n.d.c.) whereas Västerbotten County accounts for 20% of the country's total hydropower production and about 10% of the country's total electricity production (Regionfakta, n.d.d). Upper Norrland has a high energy consumption due to the region's climate, the long transport distances, and the industry's focus on energy-intensive processing (OECD, 2021).

8.1.2 Economic structure

Upper Norrland has a long history of industrial activities linked to natural resources, such as energy, mining and forestry. With the advent of the 1900s, the great industrialisation started with the development of mines and hydropower. Overall, the economic structure of Upper Norrland is characterised by a diverse mix of industries, with natural resource extraction, forestry, and energy production serving as traditional economic drivers alongside emerging sectors such as technology and tourism. Tourism is an important sector in Upper Norrland; the natural beauty and wilderness of the region attract tourists, offering opportunities for outdoor activities such as hiking, skiing, fishing, and wildlife watching. Cities like Luleå and Umeå serve as gateways to the region's landscapes, cultural attractions, and adventure tourism opportunities (Tillväxtverket, 2022).

The public sector plays a crucial role in Upper Norrland's economy, providing a significant source of employment and services to the local population. Municipal and regional governments are major employers, operating schools, hospitals, and various public institutions. Universities and research institutions in cities like Umeå and Luleå play a vital role in driving innovation and knowledge-based economic development. One of the key pillars of Upper Norrland's economy is its abundance of natural resources. Wood and paper, chemicals, minerals, and steel and metals are industries that are mainly located in Upper Norrland, and these are major exports for Sweden and important for the country's economy. The region's rivers and waterfalls offer opportunities for hydroelectric power generation, while its coastal areas have potential for wind power development. Investments in renewable energy projects contribute to both local and national energy production (OECD, 2021).

Mining has historically been a major economic activity in Upper Norrland, particularly in Norrbotten, as the county boasts rich deposits of iron ore, copper, and other minerals. Cities like Kiruna and Gällivare are known for their iron ore mines, which have been vital to Sweden's industrial development. The mining sector contributes significantly to the regional economy through employment and export revenues (Länsstyrelsen Norrbotten, n.d.). Forestry plays a crucial role in Upper Norrland's economy, especially in Västerbotten. The county's extensive forests support a thriving timber industry, with companies involved in logging, wood processing, and timber exports (OECD, 2021).

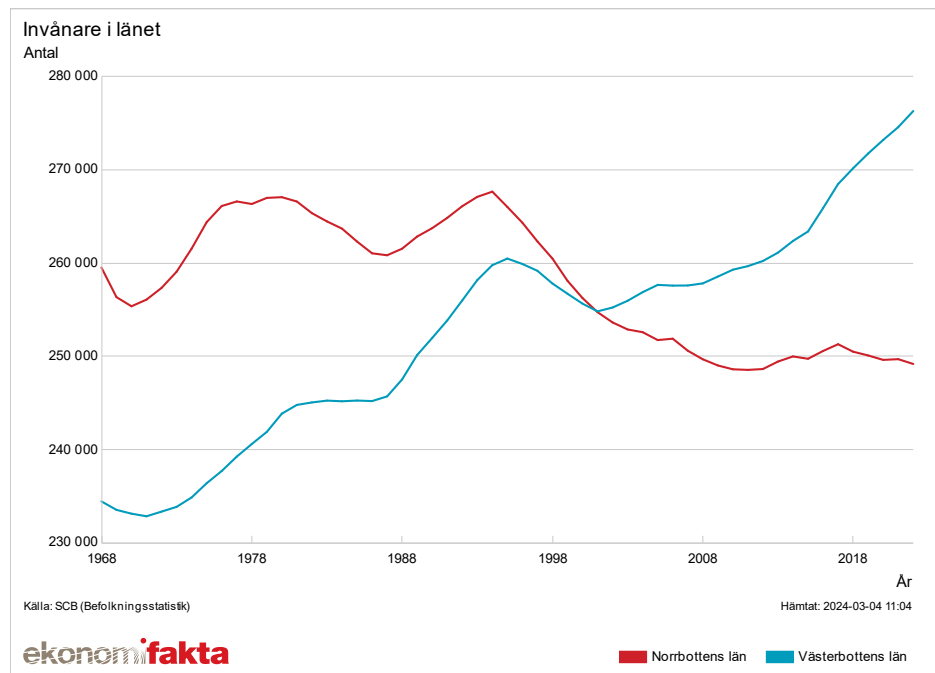
8.1.3 Population development and structure

Upper Norrland encompasses vast areas, and the region has the largest land area and lowest population density in Sweden. Norrbotten county has a total population of around 249,000 (in 2023), which corresponds to about 2.4% of Sweden's population, and a population density of 2.52 inhabitants/km². Most inhabitants are in the larger municipalities, such as Luleå (79,400), Piteå (42,400), Boden (30,000) and Kiruna (22,400), whereas the inland parts are more sparsely populated. Västerbotten is also quite sparsely inhabited, with a total population of 278,000 (in 2023) and a population density of 5.02 inhabitants/km². Similarly, most inhabitants are in the larger municipalities along the coast, such as Umeå (133,000) and Skellefteå (76,000) (SCB, 2023).

Since 1970, Sweden's population has increased by 29%. However, this growth has not been equal across the country. In Upper Norrland, there's been a modest 7% increase in population over the same period. Figure 50 shows the total population development from 1968-2022 for Norrbotten and Västerbotten. Specifically, Norrbotten experienced a 2% decrease, while Västerbotten saw an 18% increase. Disparities are evident not only between the counties but also within them (as shown in Map 28 and Map 29). For instance, rural areas witnessed a significant decline of 32% in population, whereas urban areas in Upper Norrland observed a substantial 23% increase since 1970. During this timeframe, only seven out of 29 municipalities in Upper Norrland saw population growth (Ekonomifakta, n.d.a).

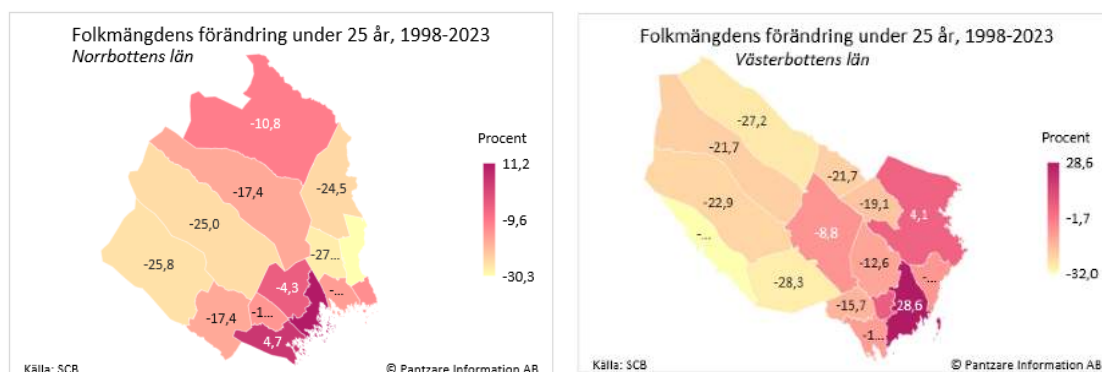
Population trends in Upper Norrland have broadly mirrored those of Sweden overall, albeit with a slower rate of increase or occasional declines when national growth has been low. Notably, Upper Norrland experienced a decline in population primarily during the late 1990s and early 2000s. Since 2002, there has been an upward trend in population in Västerbotten, whereas Norrbotten has predominantly witnessed continued decline (however, in 2021, there was a population increase in Norrbotten, which was partly due to a historically large domestic migration). The decline is primarily fuelled by a high rate of outmigration, particularly among young women. While international migration has somewhat offset the population decline, the region still requires an acceleration in the intake of foreign residents (Sweco, 2023).

Figure 50: The change in inhabitants in Norrbotten and Västerbotten counties, 1968-2022



Source: Ekonomifakta, n.d.a

Map 26: The change in population for Norrbotten's and Västerbotten's municipalities, 1998-2023

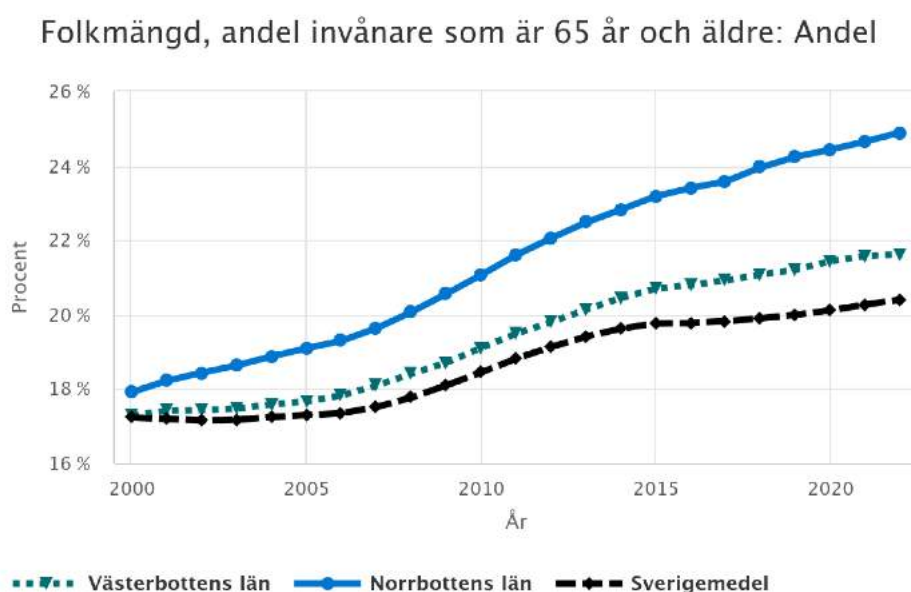


Source: *Regionfakta, n.d.g*

In addition to outmigration, the elderly dependency ratio in Upper Norrland (36.6% in 2019) has surged at nearly double the pace compared to Sweden overall (9.2 percentage points versus 5.2 percentage points between 2001-2019), surpassing the national average (31.9%). Norrbotten exhibits higher rates of population aging (shown in figure below) and outmigration compared to Västerbotten. Both Norrbotten and Västerbotten faces challenges related to low fertility rates. On average across almost all municipalities in Upper Norrland, there is a higher proportion of men compared to women. The exception is Umeå, where the gender gap is almost non-existent (OECD, 2021).

In Upper Norrland, a significant outflow of people to other regions in Sweden has been observed, primarily comprising individuals under the age of 30. The shrinking of the proportion of young population has been especially severe in Norrbotten. For youths (under 25-year-olds), a small positive balance between inward-outward migration can be seen in Västerbotten, whereas Norrbotten experiences an outmigration (in 2018). Västerbotten's more diverse economy and university centres offer environments that are more prosperous for youths, making the county more attractive. Overall, there is a trend where rural municipalities (e.g. mining municipalities) in Upper Norrland have witnessed a more rapid decrease in the population of young and working-age individuals, contrasting with the demographic trends observed in urban municipalities (OECD, 2021).

Figure 51: Proportion of inhabitants aged 65 and over, showing the 2000-2022 development for Västerbotten, Norrbotten and the Swedish average

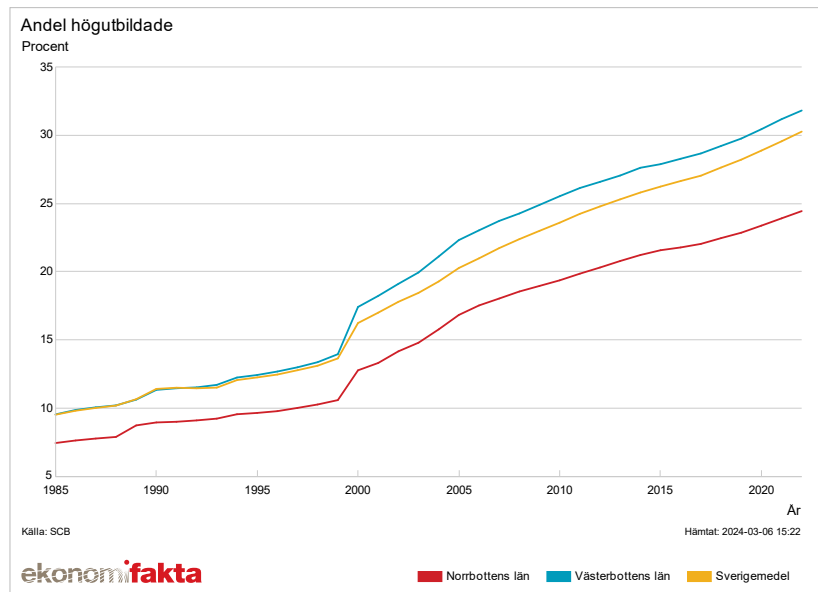


Source: Regionfakta, n.d.g.

8.1.4 Education, employment and workforce development

As Figure 52 illustrates, the people in Västerbotten have a high level of education compared to other counties. In 2022, 32% of the population had a post-secondary education. The level of education in the county is the third highest in the country. The situation in Norrbotten is somewhat different, with 24.4% of the population with a post-secondary education, it is below both Västerbotten and the Swedish average (30%) (Tillväxtverket, n.d.c). Umeå municipality (in Västerbotten) is home to Umeå University, Sweden's sixth largest university, measured by the number of students. Luleå University of Technology is the largest university in Norrbotten.

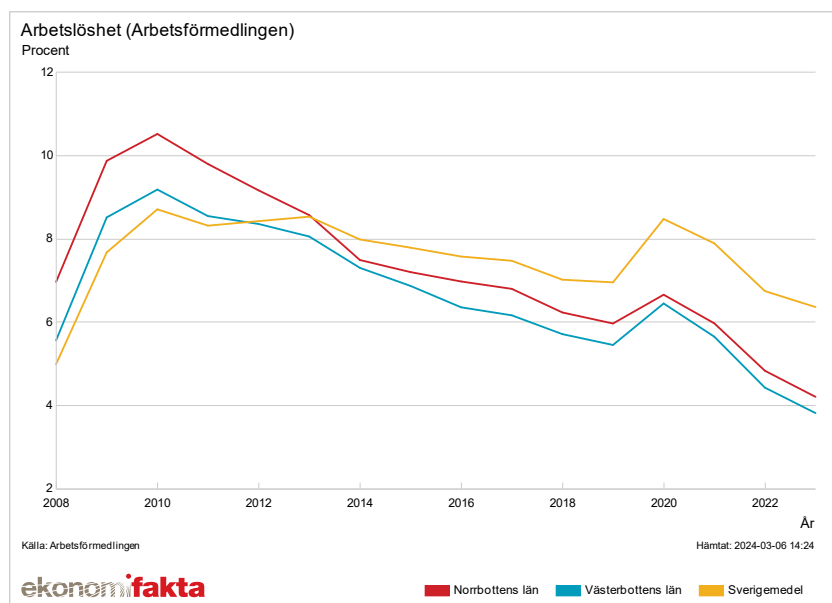
Figure 52: Proportion of population aged 25-64 with post-secondary education of 3 years or more, showing the 1985-2022 development for Norrbotten, Västerbotten and the Swedish average



Source: Ekonomifakta, n.d.c.

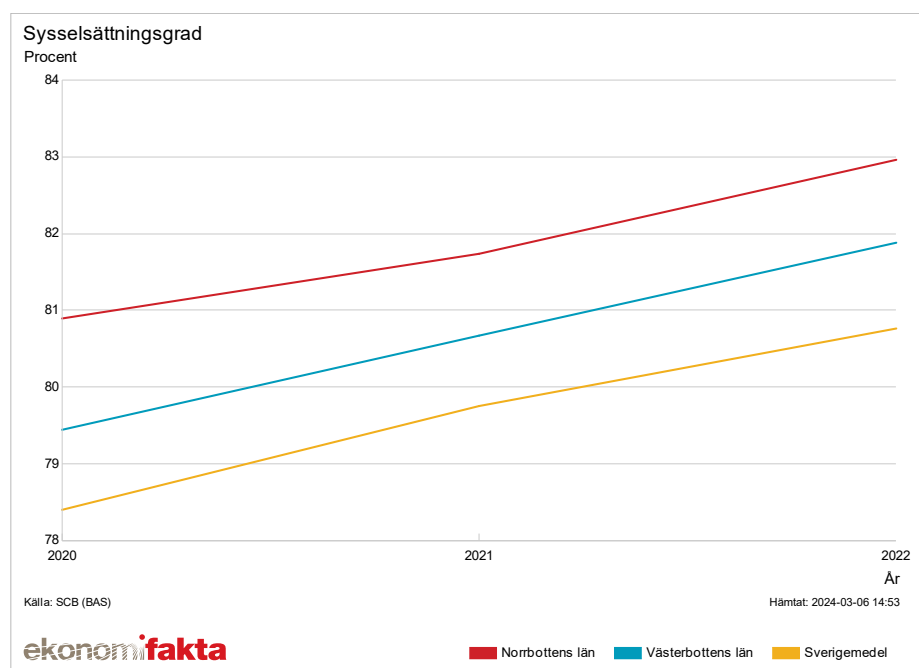
The unemployment rate in Upper Norrland is the lowest in the country, Norrbotten with 4.2% and Västerbotten with 3.8% in 2023, both of which are below the national average of 6.4% (Figure 53). Unemployment in Sweden rose relatively sharply in connection with the financial crisis in 2008-2009 and then fell gradually. In connection with the COVID-19 pandemic in 2020, unemployment rose again and then fell in 2021 and 2022 (Ekonomifakta, n.d.c.). In 2022, the employment rate in Norrbotten is the fourth highest in the country at 83%, whereas in Västerbotten the employment rate is 81.9%, which is close to the average in Sweden at 80.8% (Figure 54) (Ekonomifakta, n.d.d.).

Figure 53: Unemployment rate, showing the 2008-2023 development for Norrbotten, Västerbotten and the Swedish average



Source: Ekonomifakta, n.d.d.

Figure 54: Employment rate, showing the 2000-2022 development for Norrbotten, Västerbotten and the Swedish average



Source: Ekonomifakta, n.d.e.

Despite experiencing rapid economic growth, Upper Norrland has grappled with a significant decline in its workforce, dropping from 64.2% of the total population in 2001 to 61% in 2019. As noted, the decline in population in Upper Norrland is attributed to both outmigration and the structural aging of its population, leading to a shrinking workforce over time (OECD, 2021).

The issue of skills supply is a significant challenge in Upper Norrland. The supply of skills in northern Sweden differs from other parts of Sweden as there is a shortage of labour from the outset as unemployment is

significantly lower. The skills-need of the public sector have not received the same attention as the needs of industry either (Näringsdepartementet, 2022). The skills shortages primarily result from a long boom in the economy, high levels of current and anticipated retirements, and negative net migration in some municipalities (Tillväxtverket, n.d.a).

8.1.5 Physical capital

Norrbottnen and Västerbotten are both vast counties, hence their transport and logistics infrastructure play a pivotal role in connecting people and places. Norrbotten and Västerbotten each have five airports with regular services. Norrbotten with Luleå Airport and Västerbotten with Umeå Airport as the largest airports, serve as vital hubs for both domestic and international travel, ensuring connectivity with the rest of Sweden and beyond. The region is crossed by the national trunk road network (*stamvägnät*²²) with international links to Norway and Finland. The port of Luleå is Sweden's leading bulk cargo port, and Västerbotten has several important harbours. Malmbanan between Luleå and Narvik in northern Norway is one of the country's most important freight routes. The rail connections are essential for transporting bulk commodities, especially from the mining industry (Regionfakta, n.d.e; Regionfakta, n.d.f.).

There is currently no railway link connecting the northern coast between Umeå and Luleå. The lack of a railway link between Umeå and Luleå was seen as a significant bottleneck in the European core railway network. Thus, work to create a railway link started in 2018 with the North Bothnia Line (*Norrbotniabanan*). The North Bothnia Line will connect the cities along the northern coast with 270 km of railway (Figure 55). It is constructed for both freight and passenger traffic, with the aim to increase trade and industry competitiveness and secure the transportation of Sweden's raw material (Norrbotniabanan, n.d.).

Figure 55: The North Bothnia Line and its connection to important railway networks



Source: Norrbotniabanan, n.d.b.

There is a need for substantial investments in housing, schools, kindergartens, roads, and other infrastructure to accommodate the expected population growth in the area. Lack of housing is one of the main obstacles to recruiting more people to the companies and municipalities in Upper Norrland. Housing shortages are especially present in the municipalities in which green industries are established or expanded, such as Skellefteå. An increased volume is central to coping with an increased influx of people. At the same time, well-executed

²² "Stamvägnät" is a term for Sweden's most important roads.

urban development with attractive housing is part of creating greater attractiveness so that more people want to move to the settlement. Entire cities are also affected by the developments, where for example the ore field municipalities of Kiruna and Gällivare are in the midst of a major transformation in which large parts of buildings, services and business activities are moving from one place to another (Näringsdepartementet, 2022).

In Upper Norrland, there is a need to improve the digital infrastructure. For example, Norrbotten has the lowest level of mobile coverage in the whole country. Many other counties have close to 100% mobile coverage, while Norrbotten only has 71.6%. Among other things, areas with a sparse population structure and very long distances lack access to broadband. Access to fast broadband is variable among households and businesses in the area (Tillväxtverket, 2022).

8.1.6 Political framework

Upper Norrland operates within a multi-level governance system encompassing local, regional, national, and EU levels. The institutional system is characterized by a balance of power among these levels, each playing distinct roles. At the local level, municipalities in Västerbotten and Norrbotten are responsible for services such as education, social services, and infrastructure. These municipalities enjoy significant autonomy and are governed by elected municipal councils (OECD, 2021).

At the regional level, the counties have regional councils that focus on healthcare, regional development, and public transport. These councils are also elected and work to implement national policies at the regional level. Nationally, the Swedish government sets overarching policies and regulations that guide regional and local governance. The County Administrative Boards ensure that national policies are effectively implemented at the regional level (OECD, 2021).

EU policies, particularly those related to the green transition and CO₂ emissions, play a crucial role in shaping regional strategies. The European Climate Law and the European Green Deal set ambitious targets for reducing greenhouse gas emissions and achieving climate neutrality by 2050 (European Commission, n.d.). EU policies were pinpointed as crucial for the development of the green transition, such as EU regulations and legislation on CO₂ emission (Interviewee 6).

8.2 Territorial shock/stressor/crisis

8.2.1 The green industrial transition – a positive shock with potential negative impacts?

Upper Norrland is undergoing a green industrial transition, where the region is witnessing substantial investments in sectors like green steel and lithium-ion batteries. The green industrial transition in Norrbotten and Västerbotten consists of many different projects that include both new production facilities and remodelling and expansion of existing facilities (see Map 30 for examples). It is currently estimated that more than SEK 1000 billion will be invested in the coming years in both new production facilities for fossil-free production and remodelling and expansion of existing facilities (Vårt Luleå, 2022). A couple of major players account for the lion's share of the planned investments. Some of the largest ones have been Northvolt in Skellefteå (producing lithium-ion batteries for cars and for storing electricity, however, on 12 March 2025, Northvolt filed for bankruptcy), Hybrit in Gällivare (fossil-free steel) and H2 Green Steel in Boden (fossil-free steel) (Almega, 2023).

Map 27: Green industry establishments in Upper Norrland



Source: Vårt Luleå, 2022

The green transition can be seen **as a positive shock**, creating potential regional development opportunities. These endeavours are anticipated to spur robust regional economic growth and population expansion, enhancing overall competitiveness (Sweco, 2023). The emergence of sustainable industries in Upper Norrland holds the potential for Sweden to assume a pivotal global role in addressing the grand societal and global challenge climate change. While industries are essential for economic growth and development, making them greener is crucial for tackling climate change. By leveraging the sustainable industries in Upper Norrland, Sweden can lead by example, demonstrating how economic growth and environmental stewardship can co-exist. However, this transition presents significant challenges, including workforce development, skills supply, population attraction, infrastructure, and housing. Effective collaboration across national, regional, and local levels is imperative given the involvement of numerous stakeholders (Näringsdepartementet, 2022).

8.2.2 Triggers and underlying conditions

The reason why so many green industrial transition investments are happening in Upper Norrland is largely due to the ideal conditions for green industries. The region has abundant renewable energy resources, including hydropower and wind energy, which provide a stable and sustainable energy supply. The region also boasts a highly skilled workforce and strong research institutions, such as Luleå University of Technology, which support innovation and development in green technologies. Additionally, Upper Norrland's existing industrial infrastructure, with many established industries located in the region, and its proximity to key European markets make it a strategic location for sustainable industrial growth. The region is already a key player in environmentally sustainable mining. With its vast mineral reserves, Upper Norrland supplies 90% of the iron ore in the European Union. The region's competitive advantages include a stable green energy supply and a highly skilled labour force (OECD, 2021).

The influx of new industry investments signals a demand for approximately 20,000 additional jobs just for the industrial companies. Consequently, this stimulates various societal needs such as increased subcontractors, expanded public services, the establishment of new enterprises across different sectors, and other cascading effects. Projections suggest a potential population surge of 100,000 individuals in Upper Norrland by 2035, a noteworthy increase considering the combined population of both counties currently hovers around half a million (Näringsdepartementet, 2022). One interviewee stresses this challenge, arguing that *“This is already a region with an elderly population, and large discrepancies between the municipalities. This industrial transition is occurring in a region with 29 municipalities, but the industries are only located in five of them. We have 500,000 people living from cradle to grave right now, but we need to attract 100,000 people aged 18 to 64. Balancing these demographic challenges is crucial for the region’s future”* (Interviewee 1).

Additionally, as noted above, Upper Norrland is distinguished by vast distances, sparse population distribution, and a demographic trend marked by an ageing and declining population. The region is considered one of the most sparsely populated regions in the EU and the area corresponds to about 40% of Sweden's surface area but is populated by only about half a million people, which is 4% of Sweden's population (Tillväxtverket, 2021).

Hence, the challenges and stressors in Upper Norrland, such as an ageing population and difficulties in attracting new people, have been present for several decades and were known when the plans for the green industries were established. Yet, as one interviewee noted, *“In theory, everyone knew about the green industrial transition. But the fact is, nobody knew how fast it would happen. It was like everyone was planning and planning, but nobody knew exactly when everything needed to be done. I can almost pinpoint the month when everything flipped. Over just a few months, we went from having an unemployment rate to having twice as many vacant jobs as unemployed people. It happened overnight, in a sense. Nobody could predict how much and how fast it would be”* (Interviewee 1).

The green industrial transition demands a major increase in the labour force, a labour force that is not currently in place. The rather fast changes in the labour force needed for the industries are putting pressure on the already strained system, and the underlying conditions of an ageing population and large outmigration trends exacerbate this challenge. One interviewee discussed the industrial transition and noted that *“I would describe it as a societal transformation because that is what it is. It's not just a green transition. It is a phenomenon that we haven't seen before, where society must grow in all aspects simultaneously. Usually, there are sequences of things happening, but when society is growing like it is now, then everything must grow in parallel. And it happens in a place where there just aren't enough people”* (Interviewee 1).

Hence, there are challenges and stressors for the region. Upper Norrland has undergone an industrial transition previously, but the positive effects were not spread out evenly and could not be sustained. What is to say that this time will be different, and if the positive effects will be sustained and lead to just regional development?

8.2.3 The impacts

As noted above, the green transition is argued to be a positive shock, but if not managed correctly, it can have negative impacts on the region and its population. These negative impacts are seen in themes such as housing and infrastructure, land use conflict, workforce and competition for workers in the private and public sector, tax system, and discrepancies within the region.

8.2.3.1 Housing and Infrastructure

The green industrial transition, with its many industry investments and establishments, has significantly affected housing and infrastructure needs in the region. The influx of people (and especially the projected influx of people) has led to increased demand for housing infrastructure and higher housing prices, which will most likely only increase as more and more people relocate to the region. However, municipalities struggle to invest in necessary infrastructure due to a lack of funds, ranging from infrastructure such as housing, roads, and railways (Interviewees 3, 5). This financial strain is exacerbated by the fact that tax revenues are only generated from people permanently living in the area, not from transient workers or the industries themselves (if they do not have their headquarters in the same municipality). The interviewees mention efforts to make the region more attractive for permanent residents to address this issue. One interviewee discussed the complexity of the situation, noting that *“Everything has to happen simultaneously. You can't build houses if nobody's ready to live in them, because you need the rent income to build the houses. You can't move if there isn't a house, and you can't move if the job isn't ready if the factory you're supposed to work in isn't there yet. So, everything has to happen simultaneously, and that is an obstacle”* (Interviewee 1).

8.2.3.2 Land use conflict

The green transition has also led to land use conflicts, some new and some that have existed in the area for decades but are now exacerbating. The development of renewable energy projects, such as wind power, has resulted in less available nature and increased competition for land. This land use conflict concerns the tourism industry, the Sami, especially their reindeer herding, industry establishments, electricity production such as wind power, infrastructure such as railways and roads, and natural preservation issues (Interviewee

3). One interviewee discussed the land use conflict and stated that *“If I were looking into the coming five or ten years in northern Sweden, that would be the big conflict, because there will be more companies wanting to open mines here and more companies wanting the minerals. The people who live there will not be pleased because it's where they go hiking. It's where they have their reindeers. It's where they live. So, that is a conflict, and it will be growing”* (Interviewee 6). At the same time, there is also a misperception that there is a lot of land left in Upper Norrland, but in reality, most of the land either belongs to the Sami, to the military, or is under nature regulation, and thus cannot be used for industry establishments (Interviewee 5).

Local communities are concerned about the environmental impact and the loss of natural spaces. Several interviewees mention that people might be more willing to accept such projects if they see tangible benefits for their communities, as seen in examples from neighbouring regions in Finland and Norway (Interviewees 5). There is a fear that, if not managed properly, the green industrial transition can make the region be seen as a resource colony. This was explained as a place where you just take the natural resources from one place to another, and then you get the benefits in another place, not in the municipality where it is taken from (Interviewees 5, 6).

One land use conflict that is recurrently a topic on the agenda is land use and the Sami. The Sami people, with their lands and value of the natural environment, are particularly affected by these land use changes, such as reindeer herding. Wind power is a practical example of the need for green energy, which requires space in forests where reindeer graze. However, these arguments are not new and are not only related to the green industrial transition but have been ongoing for decades (Interviewee 1). It is argued that Sweden has not fully addressed its colonial past, leading to a colonial present where the same structures used to take land in Sápmi are still in place. This has resulted in significant land appropriation, with new industrial waves pushing the boundaries of what is acceptable. The interviewee also points out the challenges faced by the Sami in adapting to climate change while also dealing with external climate actions that exacerbate their situation. The lack of targeted measures for reindeer herding adaptation and the insufficient involvement of Sami representatives in planning processes are emphasised as major issues. The critique of the current consultation law, which does not require actual agreement, underscores the need for more inclusive and meaningful participation of the Sami people (Interviewee 7).

8.2.3.3 Work force competition

The influx of new projects and industries has increased the demand for skilled and unskilled labour, leading to competition for workers. This competition can strain local resources and create challenges for municipalities trying to attract and retain workers. This competition can especially affect the welfare/public sector, which may not be able to compete with the higher salaries and benefits that the private sector can offer (Interviewees 3, 5).

The interviewees imply that the current system does not adequately support the local workforce, as profits from new industries often go abroad, and there is a lack of investment in local communities. They highlight the need for more permanent residents to support local services, such as healthcare, which is underfunded due to the region's large size and sparse population. One interviewee discussed the underlying conditions and how the green transition exacerbates this issue, noting that *“Actually, we see that it's starting to create problems for social and healthcare services. The unemployment rate is so low in our region, and it's not easy to find people to work. This is a very difficult situation we are entering. We have a very high average age, and even before this industrial transition, it was challenging to fulfil all the workforce needs. If we don't change how we organise work, it will remain a big challenge. The industrial transition adds another layer of difficulty for us”* (Interviewee 3).

8.2.3.4 Tax system

The Swedish tax system is a central theme among interviewees. The current system only generates tax revenues from people permanently living in the area, which poses a challenge for municipalities that need to invest in infrastructure and services. The interviewees argue that the tax system is outdated and needs to be reformed to ensure that local communities benefit from the green transition (Interviewees 5). It is discussed that the region fears it will become a “fly-in, fly-out” place, where the workforce is flown in and therefore the tax revenues from them do not stay in the municipality with the industries and the resource extraction (Interviewees 3, 5). One interviewee noted that *“Just living in the northern parts of Sweden, regardless of the green*

transition or not, you pay much higher taxes than you do in Stockholm. And it has been like that for a long, long time” (Interviewee 1).

Here, the concept of economic resilience was discussed, where one interviewee noted that *“It's the opposite of building resilience when one partner takes a huge financial risk, built around possible gains from one or two industries. If someone decides not to proceed, the municipalities are left with all the risk, loans, and nothing to gain. This is the opposite of building resilience. The fear is reaching a new tipping point where society has enormous debts and a much poorer reality. For example, with LKAB in Kiruna, revenues go to the state level. But with private companies, society doesn't benefit; the national level gets some tax money, but all benefits go to private owners if they succeed. If they don't, society pays”* (Interviewee 5).

Some local communities or groups within communities may be negatively affected by some form of natural resource extraction in a specific area or by some form of infrastructure developments (e.g. factory, roads etc.), yet they see few benefits from these extractions or developments in their own region/municipality. If not addressed, this may lead to a sense of injustice and frustration among local communities, who feel that they are not benefiting from the industrial development (Interviewee 4). The interviewees call for regional reallocations to address this and ensure a more equitable distribution of resources. They also mention the challenges faced by municipalities in terms of land availability for development due to natural regulations and military use (Interviewees 3, 5).

8.2.3.5 Discrepancies within the region

There are significant discrepancies within the region, particularly between municipalities that host large industries and those that do not. In Norrbotten, some municipalities may wish to adopt a broader perspective focused on societal transition rather than solely on industrial changes. While certain municipalities lack industrial establishments, they are actively seeking ways to benefit from the county's development. For instance, they may position themselves as residential areas, providing housing for workers whose employment is located in other parts of the region (Interviewee 2).

8.2.4 Ongoing global and local trends

The region is currently navigating the complexities of a green transition, which is influenced by both global and local trends. Globally, there is a significant push towards sustainability and reducing carbon emissions. Locally, the region faces unique challenges due to its reliance on heavy industry and natural resources, such as forestry and mining. These sectors are crucial for the region's economy, but they also pose risks if not diversified. The demographic imbalance, with a higher proportion of men due to the nature of the industries, and the ageing population could lead to social challenges if not addressed. Additionally, the region's sparse population and long distances make infrastructure development expensive and challenging.

The region's resilience is still affected by the impacts of the green industrial transition. The issues that the region is facing are, to a large extent, the same as those from a couple of years ago. The long-term stressors, such as an ageing population, declining workforce, challenges with attracting enough people, and the poor financial situation for many of the municipalities, are still present. These stressors and their consequences are exacerbated by the green industrial transition, but they were present before all the establishments (Interviewees 1, 3). One rather new resilience factor that Sweden and Upper Norrland must deal with is the military presence and processes. Sweden joined NATO in 2024, and it was explained that many yet have to fully comprehend how the military will take priority and what this will mean for the region (Interviewee 3).

The situation with Northvolt has shown that some of these industrial establishments may not be successful. In just a few months, Northvolt transformed from a symbol of the green industrial transition to one of the biggest economic crises in Sweden in a long time. Northvolt is one of the establishments that were almost up and running, with a factory that was completed and workers who had already moved there (SVT Nyheter, 2024). However, the plans collapsed, employees were laid off, they ran out of money and are now in large debt and trying to accomplish a reconstruction (as of March 2025) (Kärman, 2025).

The region is heavily dependent on the extraction of natural resources, such as forestry and mining. While these sectors are crucial for the region's economy, there is a need to diversify to ensure long-term sustainability. Interviewees also noted the need for long-term planning for how to deal with the mines and their finite resources (Interviewee 2). Upper Norrland is seeing the impacts of climate change, where especially the Sami

people, who live in close connection to nature, can see the changes in, for example, the seasons and the amount of snow (Interviewee 7).

The region is also heavily dependent on favourable EU policies and incentives. In February 2025, the European Commission announced their “Clean Industrial Deal”, a plan for EU competitiveness and decarbonisation (European Commission, 2025). The Green Deal, promoting a climate-neutral Europe by 2050, is also noteworthy in this context (European Commission, n.d.a).

The EU Cohesion Policy is another significant factor, as it aims to strengthen economic, social, and territorial cohesion by reducing disparities between regions. This policy supports the green and digital transitions, which are crucial for the sustainable development of regions like Upper Norrland. The Cohesion Policy for 2021-2027 includes substantial funding and flexible programming to address emerging challenges and support local development strategies (European Commission, n.d.b). This policy is highlighted as important for Upper Norrland to build capacity (Interviewee 1, 2 5)

8.3 Recovery or resilience preparedness related initiatives: Overview

8.3.1 Response and actors

The response to the green transition in Northern Sweden has been multifaceted, involving various actors at different levels of governance and society.

In 2020, the Swedish Government commissioned a coordinator to continue to promote, on behalf of the Government, the coordination of work on initiatives of significance to the sustainable transition of the business sector and the transformation of society in Norrbotten and Västerbotten counties, with a focus on large business establishments and business expansions. The purpose of the assignment is to make it easier for the municipalities affected by the transition to plan, build, and manage sustainable and growing communities (Regeringskansliet, 2020). The assignment ran from 2020 to 2024, when the final report with recommendations was published. Several recommendations were proposed, and it argues that the government needs to take more responsibility for the transformation of society in Northern Sweden (Regeringskansliet, 2024).

The Swedish Ministry of Labour decided in 2022 that something needed to happen to address the developments in Northern Sweden with its huge needs for a labour force due to the green transition. It was not only seen as a question of skills but also a question of moving people and geographical mobility. A special branch office within the Public Employment Services was established to meet the needs in Northern Sweden. This branch focuses on the skills needed within the green transition and the societal transformation taking place alongside the green transition in Northern Sweden (Interviewee 1).

However, there is a perception that the national level has not taken sufficient responsibility, leaving much of the burden on local and regional entities (Interviewees 2, 3, 5). At the national level, the response has been criticised for being hands-off, with a lack of comprehensive support for new establishments. While there have been some initiatives, such as improving permitting processes, there is a need for more substantial state involvement to support the green transition in Northern Sweden. There have been discussions on developing a national strategy for Northern Sweden, gathering all different aspects of the industrial and societal transition (Interviewees 1, 3). In June 2024²³, the “Strategy for Reindustrialisation and Societal Transformation in the Counties of Norrbotten and Västerbotten” was released, including seven target areas that the government considers particularly important for the development of northern Sweden: (1) High pace through innovative working methods, (2) More efficient environmental permit processes, (3) Secured energy supply, (4) Enhanced transport infrastructure, (5) Developed population and housing provision, (6) Increased capacity and flexibility in education as well as better skills provision, and (7) Strengthened conditions for municipal capacity (Klimat- och näringslivsdepartementet, 2024).

²³ Please note that this strategy was published after the majority of the interviews had been conducted. Consequently, the interviewees did not reflect on it, and their insights do not cover the strategy.

At the regional level, the response has been largely driven by local and regional authorities, with a notable lack of direct national intervention. This decentralised approach has led to a variety of measures and efforts being implemented at the regional level to mitigate the impacts of the green transition. When discussing the responses from the regional and municipal level, one interviewee noted that *“There are so many actions in different formats and with various focuses—some on attracting people, some on retaining them, some on housing, and others on innovation. There are so many parts and projects that it's almost impossible to keep track of them all at the moment. Most of the work is happening at the regional and municipal levels, but there are a few governmental parts involved, as well as private organisations and industries. There isn't a lack of engagement; there's just a lack of knowing what to do with all the engagements”* (Interviewee 1).

The regional development strategy plays a significant role in coordinating efforts and securing funding from both national and EU sources. This strategy involves extensive collaboration with municipalities and other regions, ensuring that the regional needs and challenges are addressed. Although not specifically focusing on the green industrial transition, it covers several similar topics. However, there is a need for more specific planning instruments focused on the green transition to ensure a just and equitable process (Interviewees 3, 5).

Nonprofit organisations have played a crucial role, particularly in integrating new residents from various countries. These organisations have grown significantly, providing support and building an understanding of the local society for newcomers. Formal structures like welcome houses have also been established by municipalities to assist new residents in navigating their environment (Interviewee 1).

The political response at the municipal level has focused on ensuring that the green transition benefits citizens and is implemented in a timely and organised manner. This includes addressing issues such as crime within the workplace and the challenges posed by a complex delivery chain during the construction phase. Municipalities have been advocating for more national support to address these issues, highlighting the need for infrastructure that serves both industrial and civilian purposes (Interviewees 2, 6).

Hence, there are several different types of actors that have been involved in the responses to the green industrial transition. What several interviewees mentioned as a challenge was the lack of overall coordination of this process. No one has a full overview of the developments, the impacts, and how to deal with them. Additionally, some of the questions that cut across governance layers can only be managed by a different kind of actor. For example, it is the regions that are responsible for regional development and healthcare, it is the County Administrative Board that is responsible for questions regarding social aspects, environmental and economic aspects. It is the national level that is responsible for overall policies and strategies. And it is the municipalities who should implement everything. This was seen as an issue, as the municipalities may not have the capacity to do everything they should do, with no support. The regional level does not have much room to act on this (Interviewee 2).

Interestingly enough, interviewees discussed that Sweden has a good structure for dealing with crises and economic downturns but lacks a structure for the opposite – a positive shock with major economic potential (Interviewees 1, 2, 3, 5, 6). As one interviewee explained it, *“Sweden has a structure for how we, as a country, should act if we have a huge layoff or if a large industry shuts down. We have a checklist and a clear allocation of roles and responsibilities for this situation; what the government is supposed to do; what the region is supposed to do; what the municipalities are supposed to do; what the employer is supposed to do and such. We need the same kind of structure for the opposite situation, for a positive shock with large industrial establishments. But we don't have it, so we don't know how to act, we don't have a clear allocation of responsibility”* (Interviewee 1).

8.3.2 Plans on resilience issues (pre-crisis) & actors elaborating the new plans

Before the current challenges, the region did not have specific plans or planning instruments for dealing with a green industrial transition. However, there were broader development strategies in place, which are currently being updated. It is important to note that Region Västerbotten and Region Norrbotten have two different regional development strategies, as they are two different counties and all counties in Sweden are required to have their own regional development strategies. The new regional development strategy in Norrbotten is being developed with input from various stakeholders, including municipalities and interest groups (Interviewees 3, 5). This indicates a proactive approach to planning, although the region was not fully prepared for the specific demands of a green industrial transition. In addition to the regional development strategies, the regions also have plans for energy, climate, and so on. These are more specific plans, but they all

affect and are affected by the green industrial transition. As noted above, a national-level strategy for the green transition and societal transformation was published in June 2024, identifying areas to address for the green industrial transition (Klimat- och näringslivsdepartementet, 2024).

The planning process involves a wide range of stakeholders, including local municipalities, interest groups, and regional authorities. Interviewees highlight the importance of cross-border cooperation, although they also point out that this cooperation has diminished over time (Interviewee 4). Many interviewees expressed that the involvement of national authorities and the influence of national policies are insufficient. There is a sense of disconnect between national decisions and local needs (Interviewees 1, 2, 3, 5; Regeringskansliet, 2024).

The region is trying to engage stakeholders through dialogues and online platforms, but there are challenges in reaching people who are far from the decision-making centres. For example, residents in Norrbotten can provide insights and feedback to the new regional development strategies that are being developed (Interviewees 3, 5).

8.3.3 Resilience and planning priorities

The region's resilience priorities include attracting more people to the workforce and accommodating them, increasing workforce mobility, supporting industrial development and diversification, and ensuring a fair green industrial transition for the local communities. Immediate reactions have focused on lobbying for support at national and EU levels. Mid-term and long-term priorities involve updating the regional development strategy and enhancing cross-border cooperation. The interviewees suggest that different governance levels interact, but there is room for improvement in coordination and proactive engagement (Interviewees 3, 4, 5).

For Upper Norrland, the focus can be said to be mostly on economic and societal resilience; how a society can manage a large influx of industrial establishments and investments, a larger workforce, and the accompanying societal changes this entails. Hence, the priorities have focused on how to increase economic resilience, such as improving the economic situation for municipalities and diversifying the economy. Regarding societal resilience, the focus has been on attracting and accommodating the needed new people, with all the infrastructure requirements this entails (Interviewees 2, 6). *“Our priority is to increase the workforce in Northern Sweden. We see that it is almost easier to recruit people internationally than it is within Sweden. We need to find ways for people to move more easily and understand that a person moving for a job also needs to be incorporated into the society to actually want to stay there. Mobility is key and a priority for the green industrial transition,”* as one interviewee argued (Interviewee 1). Then, housing is a key priority. This includes different types of accommodation: apartments, villas, but also student accommodation and such (Interviewee 3).

8.3.4 Preparedness: planning approaches/process instruments

The region's preparedness approaches include strategic planning and cross-border cooperation. However, the effectiveness of these approaches is mixed. The interviewees indicate that while there are plans in place, coordination of these plans has been lacking (Interviewees 1, 2). The region's sparse population and long distances pose additional challenges to effective preparedness.

Dealing with this kind of large societal and industrial transition has not been done before, at least not in Upper Norrland. As mentioned before, interviewees argued that there are no tools, instruments, investment schemes, or overall structure or guidelines for handling a positive crisis when a society needs to grow really quickly. Interviewees note that new frameworks and tools are needed to steer the development to be both just, inclusive, and green (Interviewees 1, 3). In addition, mechanisms to ensure transparency and accountability in such a situation are also needed, to ensure that, even if things need to happen quickly, they are done correctly (Interviewee 3). Hence, there is a need for better coordination and faster decision-making processes to address the unique challenges of the region.

In Luleå municipality, they work a lot with citizen dialogue, trying to communicate to the residents what is happening, and the residents can provide their thoughts and fears (Interviewee 6). A representative from Luleå municipality explained that *“We must handle a lot of conflicts, and we need help from our government to handle all these conflicts. The only thing I know is that you have to talk to the people who are affected. It is important to talk to people before you have a solution or an answer to the problem. Invite them, so you can come up with the solution together. This way,*

it should be more anchored in society" (Interviewee 6). Even though not all conflicts can be solved where everyone is happy about it, this approach showcases inclusiveness in the process at least.

Additionally, another example that was brought up in this context was Skellefteå and how the municipality has worked a lot with citizen dialogues to explain what is happening but also with creating a place brand. One interviewee explained that *"Skellefteå started quite early on with their place brand work. This was to kind of try and formalise a place brand that everybody could stand behind, to unite people in the municipality and get them onboard the transition and the changes that will come. I think this falls into resilience"* (Interviewee 1).

8.3.5 Wanted plans and strategies to increase resilience

As noted, interviewees imply that there is a lack of plans and strategies for the green industrial transition from the national level, and on the local and regional level, better coordination is needed. The interviewees also discussed what kind of plans and strategies they believe are needed to steer the development in the right direction.

8.3.5.1 Return system

Many interviewees argued for the need for better local economic resilience for the municipalities. Interviewees proposed a return/giving back system for affected municipalities with industries, mines, hydropower, and windmills, with the belief that this would both increase acceptance of, e.g., windmills among locals and ease the financial burden many of these municipalities have. Similar systems can be found in both Norway and Finland, where municipalities with, e.g., windmills or hydropower get some kind of funds or property tax from the developments. So, to increase the economic resilience of the municipalities and the local acceptance, interviewees propose that a similar system is investigated and hopefully put into place (Interviewees 2, 4, 6).

As one interviewee explained, *"I think that there's logic to a return system (reciprocity); so, if you are allowed to invest and build on a municipality's land, you should also give back to the community. This would only be logical because I think that's probably one of the issues, that people up here feel that 'everyone's coming up here and they're opening mines and putting up their windmills and they're doing this and that'. And it has repercussions on the fishing and forestry as well. So, because of this, the locals get restrictions on what they can do but still don't get a refund or a return from it. So, if there could be some sort of balance in that, I think that people would not resist as much"* (Interviewee 4).

8.3.5.2 Flexible governance

Interviewees emphasize the need for flexible governance during the critical period of the green transition. Given the extraordinary situation, there is a call for an extraordinary approach to governance, which includes shortening the time required for regulatory changes and allowing for experimental trials. The idea is to test new approaches locally to see if they work under extreme conditions, with the possibility of applying successful methods more broadly. While traditional governance processes are designed to be thorough and deliberate to avoid rash decisions, the urgency of the current situation necessitates bending the rules to expedite decision-making and implementation. This is not to say that governance should be overlooked and there should not be transparency or accountability, but there is a need for new ways of working (Interviewees 1, 2). As one interviewee explained, *"If you look at governance or how a government is supposed to run, whether it's on the national or regional or an international level, the processes and the investigations and everything are supposed to be long to ensure that you don't make rash decisions that aren't beneficial in the long run. So, I mean there's a thought behind that, regulations need to take time to change, for example. But right now, we're in the predicament that we don't have time, so we need to bend the rule"* (Interviewee 1).

8.3.5.3 Fair involvement of Sami

Interviewees also noted the need for better plans, strategies, and systems to involve the Sami people in the developments. One interviewee explained the issue, noting that *"We need to make sure that they have the possibility and capabilities to be a part of the process. In some Sami villages, they may not be lawyers or land experts, but reindeer herders. We need to make sure that they can work with someone who knows about the laws and the legal systems. Otherwise, we are putting too much pressure on them to fix it themselves. They must be able to give their opinions and have a real possibility to give good alternatives on how to solve things"* (Interviewee 6). There is a need for a better system where Sami people are consulted at the very beginning of a development plan or process; otherwise, they are not given a fair

chance of participating (Interviewees 3, 7). Additionally, interviewees note that participation fatigue is present among the Sami as well, with too many uncoordinated consultation processes simultaneously (Interviewee 7).

8.3.6 Governance principles

The resilience and preparedness initiatives in the region are based on several governance principles:

- **Co-ordinating actions of actors and institutions:** There is an effort to involve various stakeholders in the planning process on the municipal and local level, although coordination could be improved. Interviewees also mention the need for better coordination between different levels of government and agencies on the national level.
- **Integrating policy sectors:** The region attempts to integrate different policy sectors. Interviewees highlight the need for a more integrated approach to policy-making that considers the specific needs of the region.
- **Mobilising stakeholder participation:** Stakeholder participation is a key aspect of the planning process, with input from municipalities and interest groups. The region is trying to engage stakeholders through dialogues and online platforms, but there are challenges in reaching people who are far from the decision-making centres.
- **Being adaptive to changing contexts:** The region is working on updating its development strategy to adapt to new challenges. The interviewees mention the need for flexibility and the ability to test new approaches to address the unique challenges of the region.
- **Realising place-based/territorial specificities and impacts:** The region recognises its unique challenges, such as sparse population and long distances, and tries to address them in its planning. It is highlighted that it is important to consider the specific circumstances of the region in the planning process.

8.3.7 Understanding the conceptualisation of resilience in Upper Norrland

8.3.7.1 Conceptual understanding of resilience in Upper Norrland

From the case study research, there is no single definition or joint understanding of what the conceptual understanding of resilience in Upper Norrland is. However, there are similar discussions on what is needed to steer the green industrial transition in a way that strengthens the local communities in Norrbotten and Västerbotten. As such, from the interviews, one could interpret resilience in this context as two folded:

- 1) the ability of regional and municipal actors to adapt and respond to the multifaceted challenges of the green industrial transition. This involves a high level of engagement and collaboration among various stakeholders, including governmental bodies, nonprofit organisations, and industries, despite the complexity and sometimes unsure nature of their efforts. Resilience here is characterised by the capacity to navigate and manage numerous projects and initiatives, ensuring that the societal and infrastructural needs of the region are met, even in the face of limited national support and the inherent uncertainties of such a large-scale transformation.
- 2) the ability to adapt governance and regulatory processes to meet the urgent demands of the green transition. This involves being flexible and innovative in decision-making, allowing for experimental trials, and shortening the time required for regulatory changes. Resilience here means not only responding to immediate challenges but also creating a framework that can be tested and potentially applied more broadly if successful. It highlights the importance of balancing thorough, long-term planning with the need for swift action in extraordinary circumstances.

8.3.7.2 Policies and instruments targeting shock and crises

As noted above, the case study research indicated that there have been a lack of targeted policies or instruments regarding the green industrial transition in Upper Norrland from the national level. There are some sector specific policies, such as energy, mining, climate and such. Interviewees called for a national strategy

for the green industrial transition, one that encompasses housing, energy needs, mobility issues, land use and such. The “Strategy for Reindustrialisation and Societal Transformation in the Counties of Norrbotten and Västerbotten” that was published in June 2024 by the national level, address many of these aspects.

There are many ways that Upper Norrland is preparing for the impacts of the green industrial transition, such as:

- **Economic factors:** The need for diversification is emphasised to build resilience against economic fluctuations. The region is preparing for economic downturns and the potential negative impacts of relying heavily on specific industries. Planners promote smaller industries that are owned by reliable actors and have a long-term plan for establishment. Planners also promote the established industries that are working on becoming green. These are already rooted in society and often have a long-term plan for how they want to fit into the community. The saying “do not put all of the eggs in the same basket” rings true for Upper Norrland.
- **Demographic challenges:** The region is dealing with demographic imbalances, such as an aging population and a lack of young people to fill existing roles. Initiatives aim to attract and retain a diverse workforce to ensure long-term sustainability.
- **Infrastructure and development issues:** The region faces challenges related to infrastructure development, particularly in sparsely populated areas with long distances. There is a need for improved housing and transportation infrastructure, among other things, to support the green transition, economic growth and the society. Here, actors advocate to the national level that more funds are needed to support the affected municipalities, so that they do not have to bear all the risks and costs themselves, for industries and establishments that are said to benefit Sweden.

8.3.7.3 Measuring resilience

From the case study research, no measurements for resilience have been identified. This does not mean that there are not any, but that the information did not disclose any.

Table 25: Overview of approaches and actions for territorial resilience in Upper Norrland

<p>Overall resilience goals (if any)</p>	<ul style="list-style-type: none"> • Resilience towards geopolitical and security threats: The region aims to address the impacts of NATO membership, increased military presence, and geopolitical changes such as the Ukraine/Russia conflict • Economic and financial resilience: The focus is on reforming the tax system, sharing investment risks, and ensuring fair conditions for residents affected by industrial projects • Environmental resilience: The region aims to adapt to changing climatic conditions, such as floods, and promote sustainable practices • Labour market resilience: Addressing the aging population, labour shortages, and promoting digitalization and AI to compensate for the lack of human resource
<p>Resilience (preparedness) process: Priority areas</p>	<ul style="list-style-type: none"> • Collaboration between local actors: Emphasis on public-private partnerships and cross-sector collaboration to manage labour competition and develop innovative solutions • Faster communication between local actors: Establishing clear communication channels and task forces to handle crises effectively • Developing contingency plans and redundant infrastructures: Creating comprehensive plans to prevent disturbances and enhance community resilience • Training programs and upskilling the workforce: Collaborating with local universities and technical schools to develop training programs in emerging technologies

Governance principles	<ul style="list-style-type: none"> • Implementation at the lowest level: Regions should be allocated the necessary mandate and tools for regional planning. • Participation and intersectoral collaboration: Encouraging cross-sector collaboration and stakeholder engagement in planning processes. • Political engagement: Reforming the governance system to define clear action scales for different agencies and improve coordination. • Transparency and stakeholder engagement: Promoting transparency in planning efforts and engaging stakeholders in the decision-making process
Approaches and actions to ensure territorial resilience	<ul style="list-style-type: none"> • Policy and regulatory resilience: Mandating collaboration among state-owned companies and authorities, creating a national planning authority, and increasing flexibility for policy experimentation. • Geopolitical and security resilience: Clarifying the impacts of NATO membership, assessing military presence effects, and developing strategic regional planning practices. • Economic and financial resilience: Reforming the tax system, establishing a risk-sharing system for large investments, and developing public-private partnerships. • Environmental resilience: Investing in adaptation and mitigation measures for infrastructure adjustment and incorporating climate resilience into urban planning
Mid and long-term visions	<ul style="list-style-type: none"> • Mid-term goals: Enhancing system flexibility for policy experimentation, developing regional training centres, and promoting inter-regional collaboration. • Long-term goals: Structural transformations such as developing green technologies, sustainable practices, and fostering a culture of continuous improvement and adaptability. • Sustainable infrastructure: Long-term planning and investment in sustainable infrastructure and innovative technologies to drive economic growth and environmental sustainability. • Attracting new population groups: Promoting the region as a destination for climate tourists and creating support systems for climate refugee.

8.4 Territorial resilience in Upper Norrland: Lessons learned

8.4.1 Main challenges regarding resilience in Upper Norrland

There are several challenges regarding the economic and societal resilience of Upper Norrland. Upper Norrland is experiencing a green industrial transition with substantial investments. This transition, while described as a positive shock, presents several challenges in terms of resilience. Opportunities from the positive shock are also present but need to be managed to be sustained.

One of the primary issues is the demographic shift, as the region faces an ageing population and negative net migration, particularly among young adults. This demographic imbalance strains local economies and reduces the availability of professional labour. Additionally, the rapid industrial growth demands a significant increase in the labour force, which is not currently available. This puts pressure on the existing workforce and exacerbates challenges related to skills supply and population attraction.

The influx of new industries and workers has led to increased demand for housing and infrastructure. However, municipalities struggle to invest in necessary infrastructure due to financial constraints, and there is a lack of investment support from the national level. This leaves the municipalities to bear all risks and costs.

The development of renewable energy projects has also led to conflicts over land use, particularly with the Sami people and their reindeer herding practices. There are also concerns about the environmental impact and the loss of natural spaces, nature for tourism and recreational purposes versus land needed for industries or other establishments.

Workforce competition is another significant challenge. The transition has created a competitive environment for workers in both the private and public sectors. The influx of new projects and industries has increased the demand for skilled labour, leading to competition for workers. This competition can strain local resources and create challenges for municipalities trying to attract and retain workers. This competition can especially affect the welfare/public sector, which may not be able to compete with the higher salaries and benefits that the private sector can offer.

The tax system is a central theme in the case study. The current system only generates tax revenues from people permanently living in the area, which poses a challenge for municipalities that need to invest in infrastructure and services. Some municipalities struggle with maintaining economic stability as the shrinking tax base limits resources for public services and infrastructure. The interviewees argue that the tax system is outdated and needs to be reformed to ensure that local communities benefit from the green transition. There is a fear that the region will become a “fly-in, fly-out” place, where the workforce is flown in, and therefore the tax revenues from them do not stay in the municipality with the industries and the resource extraction.

There are also discrepancies within the region, particularly between municipalities that host large industries and those that do not. This creates a sense of injustice and frustration among local communities, who feel that they are not benefiting from the resources and industries in their area.

Overall, the case study reveals that one of the main challenges is the lack of coordination and support from the national level. Interviewees underline that Upper Norrland is at the forefront of the green shift in industries, paving the way for the transition. However, according to the case study research, adequate support and coordination from the government is needed to uphold this.

8.4.2 The main opportunities

Despite these challenges, the green industrial transition presents several opportunities. The transition is expected to spur robust regional economic growth and population expansion, enhancing overall competitiveness. Investments in green industries are anticipated to create new jobs and attract a younger workforce. Upper Norrland's commitment to renewable energy and sustainable practices (e.g., regarding innovative green steel developments) positions it as a leader in the global green transition. By leveraging sustainable industries, Upper Norrland has the potential to play a pivotal role in addressing global challenges like climate change by making traditional industries greener. The investments and establishments put Upper Norrland on the map and can potentially make it easier to be recognised by the EU and their initiatives, such as the Industry and Green Deal.

The region's competitive advantages include a stable green energy supply and a highly skilled labour force. The region has abundant renewable energy resources, including hydropower and wind energy, which provide a stable and sustainable energy supply. The region also boasts a highly skilled workforce and strong research institutions, such as Luleå University of Technology and Umeå University, which support innovation and development in green technologies. Additionally, Upper Norrland's existing industrial infrastructure, with many established industries located in the region, and proximity to key European markets make it a strategic location for sustainable industrial growth.

If handled correctly, the influx of people, investments and industries can lead to higher tax base, improved infrastructure, services and overall quality of life for residents, making the region more attractive to new inhabitants. The green industrial transition can foster an environment favorable to innovation and entrepreneurship, attracting local and international entrepreneurs who are driving ground-breaking solutions in clean energy, circular economy, and sustainable transportation. By promoting smaller industries and supporting established ones in becoming greener, the region can diversify its economy, reducing reliance on specific sectors and enhancing economic resilience. Enhanced cooperation with neighbouring regions and countries can lead to shared resources, knowledge, and strategies, further strengthening the region's resilience and growth.

8.4.3 Transferability of good practices

The response to the green transition in Northern Sweden has been multifaceted, involving various actors at different levels of governance and society. The Swedish Ministry of Labour established a special branch office within the Public Employment Services, focusing on the skills needed within the green transition and the societal transformation taking place alongside the green transition in Northern Sweden. The Swedish Government commissioned a coordinator to promote the coordination of work on initiatives of significance to the sustainable transition of the business sector and the transformation of society in Norrbotten and Västerbotten counties. These practices were seen as beneficial, where the first one examined the needs of the region and gave recommendations (although it is not a policy or strategic document, more of a report exploring the status quo). The second one is seen as beneficial as it solely focuses on the employment needs of Upper Norrland and looks not only at how to attract people but also how to make them want to stay there and integrate into society. In June 2024, an overall strategy for the green transition and accompanied societal transformation for Upper Norrland was published, covering seven target areas that the government considers particularly important for the development of the region. However, although these are seen as good practices, there is a perception that the national level can take more responsibility, to lessen the burden on local and regional entities.

At the regional level, the response has been largely driven by local and regional authorities. This decentralised approach has led to a variety of measures and efforts being implemented at the regional level to mitigate the impacts of the green transition. Nonprofit organisations have played a crucial role, particularly in integrating new residents from various countries. The political response at the municipal level has focused on ensuring that the green transition benefits citizens and is implemented in a timely and organised manner.

The planning process involves a wide range of stakeholders, including local municipalities, interest groups, and regional authorities. The region is trying to engage stakeholders through dialogues and online platforms. The citizen dialogue and place brand work were highlighted as good practices, to unite the local community and get them on board with the changes, and these can be transferred to other contexts.

Overall, some of the good practices developed in Upper Norrland have the potential to be transferred to other territorial contexts within Europe. The region's approach to integrating green growth with industrial redevelopment can serve as inspiration for other areas, leading the way in the green industrial transition. The emphasis on renewable energy and sustainable industrial practices aligns with broader EU goals. Additionally, the region's call for flexible governance during the green transition, including experimental trials and faster regulatory changes, can be applied to other regions facing rapid industrial growth. This approach balances thorough, long-term planning with the need for swift action in extraordinary circumstances. Another example is the focus on citizen dialogue and involvement, creating channels for and taking time to listen to the local communities, their fears and hopes. The regional development strategies are developed by consulting local communities and giving them the chance to provide input. The initiatives to attract and retain people, understanding that it is key to making them want to stay long-term, are also seen as good practices that can be transferred to other contexts.

Table 26: Challenges and opportunities in Upper Norrland

	Challenges	Opportunities
Decision-makers (Who: The politicians defining the priorities)	<ul style="list-style-type: none"> • Lack of cooperation and clear delineation of responsibilities among national authorities. • Insufficient mandate and tools for regional planning • Rigid policy system hindering flexibility and experimentation. • Overwhelming public consultation processes. • Geopolitical changes and increased military presence. • Economic and financial resilience compromised by the tax system. • Significant labour shortage and aging population. 	<ul style="list-style-type: none"> • Mandate collaboration among state-owned companies and authorities. • Create a national planning authority to improve cooperation. • Allocate mandate and tools for regional planning. • Increase flexibility for policy experimentation. • Streamline and aggregate public consultation processes. • Clarify NATO membership impacts and assess military presence effects. • Reform the tax system to benefit local municipalities. • Establish public private partnerships and develop training programs.
Policy makers (Who: Those who are defining the approaches and implementation of priorities)	<ul style="list-style-type: none"> • Fragmented and uncoordinated actions due to misalignment of territorial boundaries. • Lack of focus on preparedness and contingency plans. • Insufficient coordination between the army and Airforce. • High risks with large investments for municipalities. • Reliance on key industries vulnerable to market fluctuations. 	<ul style="list-style-type: none"> • Define clear responsibilities and create a national planning authority. • Develop comprehensive contingency plans and redundant infrastructures. • Promote multilevel governance and strengthen cybersecurity. • Establish a risk sharing system for large investments. • Use crises as learning experiences to improve coordination.
Societal actors implementing resilience plans (Who: Any actor involved in the implementation of plans)	<ul style="list-style-type: none"> • Overwhelmed by numerous consultation requests. • Lack of fair conditions and benefits from industrial projects. • Insufficient preparation for changing climatic conditions. • Competition for labour between actors; municipalities, companies, industries and military. 	<ul style="list-style-type: none"> • Aggregate public consultation processes to reduce fatigue. • Ensure transparent communication and provide compensation for affected residents. • Invest in adaptation and mitigation measures for infrastructure. • Form public-private partnerships to manage labour competition.

8.5 Strategic policy and governance suggestions for the local and regional level

8.5.1 Policy

The green industrial transition in Upper Norrland has had a significant impact on territorial resilience, with various policy areas playing crucial roles. Economic policies have been instrumental in driving regional economic growth and development. The substantial investments in green steel and other industries have created numerous opportunities for the region. However, the rapid industrial shift has also highlighted challenges in workforce development, skills supply, and population attraction. The region's ageing population and difficulties in attracting new residents have exacerbated the demand for a larger labor force, indicating that while economic policies have spurred growth, they have not fully addressed the associated demographic challenges.

Environmental policies have also played a significant role in supporting the green industrial transition. The region's abundant renewable energy resources, including hydropower and wind energy, have been pivotal in promoting environmental sustainability. However, these policies have not adequately managed land use conflicts, particularly with the Sami people and their reindeer herding practices. The development of renewable energy projects has led to competition for land and environmental concerns, suggesting that while environmental policies have supported the green transition, they have not fully addressed the social and cultural implications.

Social policies aimed at improving social cohesion and community engagement have been effective in fostering a sense of community. However, there is a lack of comprehensive strategies to support vulnerable populations during crises. The influx of new industries and workers has increased demand for housing and infrastructure, which municipalities struggle to provide due to financial constraints. This indicates that while social policies have promoted community engagement, they have not fully addressed the infrastructural and financial challenges associated with rapid industrial growth.

The following recommendations are made for policy and decision-makers to increase local resilience through policy:

1. **Green industrial transition policy:** Formulate policies that coordinate and promote the green industrial transition, gathering all aspect of the industrial and societal transition in one steering document. Ensure that this address workforce development, skills supply, population attraction, housing and such.
2. **Climate change adaptation:** Invest in adaptation and mitigation measures for infrastructure adjustment. Incorporate climate resilience into urban planning
3. **Economic resilience policy:** Develop policies that support economic diversification and provide targeted assistance to small and medium-sized enterprises (SMEs) to decrease the region's development of specific industries, to enhance the region's resilience.
4. **Tax system:** Reform the tax system to ensure that local communities benefit from the green transition. This could include implementing a return system where municipalities with industries, mines, hydropower, and windmills receive funds or property tax from the developments, which could improve economic resilience and local acceptance of industrial projects.

8.5.2 Governance

8.5.2.1 Strategic governance approaches for Upper Norrland

Overall, the case study research indicated that overall governance of the green industrial transition can be improved, as there are gaps in allocation of responsibilities and coordination efforts, which is impacting the territorial resilience. Overall, both sectoral policy efforts, multi-level governance efforts and central government efforts are needed to improve governance in this region and strengthen its resilience. However, the case study shows a need for more efforts from central government.

Strategic governance suggestions for the territorial level include:

- Clearer allocation of responsibilities as there is a need for better cooperation and clear delineation of responsibilities among authorities. An institution that would be clearly responsible for improvement of cooperation across authorities involved in planning national interests is recommended.
- Strengthening coordination and collaboration between local, regional, and national governments has been identified as a key area for improvement. Effective collaboration can ensure that policies are aligned, and resources are efficiently utilized.
- Emphasising multilevel governance efforts can enhance territorial resilience by integrating local, regional, and national strategies and interests. This includes involving various stakeholders in the planning process and ensuring that their needs and challenges are addressed.
- Mandate and tools for regional planning could be improved by allocating regions with the necessary mandate and tools for effective regional planning. This includes providing training and support to regional planners.
- Increase flexibility for policy experimentation and institutional innovation. This involves piloting new policies in select regions and encouraging cross-sector collaboration
- Streamlining and aggregate public consultation processes to reduce participant fatigue and improve stakeholder engagement. Encouraging community participation in decision-making processes can lead to more resilient and adaptive policies. This includes engaging local communities through dialogues and online platforms to gather their insights and feedback.

The following recommendations are made for policy and decision-makers to increase local resilience through improved governance structure:

1. **Governance structure for handling a positive structure:** Establish a governance framework that can effectively manage positive crises, such as sudden economic boosts, ensuring that growth is sustainable, and benefits are widely distributed. This includes creating mechanisms for better coordination, checklists, and allocation of responsibilities.
2. **Flexible governance structure:** Develop a flexible governance structure capable of adapting to rapidly changing contexts and making quick decisions when necessary. This includes shortening the time required for regulatory changes and allowing for experimental trials to address the unique challenges of the green industrial transition. Developing new frameworks and tools to steer development in a just, inclusive, and green manner, while ensuring transparency and accountability, could significantly enhance the region's resilience.
3. **National coordination:** Address the main challenge of lack of coordination and support from the national level by creating mechanisms for better communication and collaboration between different levels of government

There are certain geopolitical and security resilience factors that were addressed in the case of Upper-Norrland:

1. **NATO membership impacts:** NATO membership brings significant changes to governance structures, land-use conditions, and strategic planning. It necessitates the facilitation of dialogue between interest groups to manage conflicts of interest effectively. Additionally, it requires the development of comprehensive contingency plans and the construction of redundant infrastructures to ensure preparedness. Establishing community response teams and creating an informal task force can enhance cooperation and planning.
2. **Preparedness:** To ensure readiness, it is crucial to develop comprehensive contingency plans and build redundant infrastructures. Establishing community response teams and creating an informal task force will enhance cooperation and planning efforts.
3. **Cybersecurity and infrastructure:** Conducting vulnerability assessments and developing rapid response protocols are essential steps to strengthen cybersecurity and infrastructure resilience. These measures will help protect against potential threats and ensure the robustness of critical systems.

Strengthening economic and financial resilience in Upper Norrland involves several key recommendations:

1. **Tax system reform:** Revising the tax system is essential to ensure that the costs and benefits from resource extraction and process industries remain within the region. This will help maintain economic stability and support local development.
2. **Investment risk sharing:** Establishing a risk-sharing system where the state shares the risk of large investments made by municipalities can encourage more significant investments and reduce the financial burden on local governments.
3. **Public-private partnerships:** Developing public-private partnerships is crucial for financing large infrastructure projects and managing labour competition. These partnerships can leverage private sector expertise and resources to achieve public goals.
4. **Workforce training:** Collaborating with local universities and technical schools to develop training programs that upskill the workforce in emerging technologies is vital. This will ensure that the local labour force is equipped with the necessary skills to meet the demands of a rapidly changing job market.

8.6 Conclusion

The case study of Upper Norrland provides valuable insights into the region's resilience and adaptability in the face of significant industrial and demographic changes. Upper Norrland, comprising Norrbotten and Västerbotten counties, is undergoing a green industrial transition characterised by substantial investments in green industries such as green steel and lithium-ion batteries. This transition, while presenting numerous opportunities for economic growth and development, also poses significant challenges, particularly in terms of workforce development, infrastructure, and social cohesion. The green industrial transition is seen as a positive crisis, but the case study research shows that Sweden does not have governance systems in place for such a crisis.

One of the main learnings from the case study is the critical importance of coordinated and flexible governance. The rapid pace of industrial change has highlighted the need for a governance framework that can adapt quickly to new demands and ensure that growth is sustainable and inclusive. The study underscores the necessity for better coordination between local, regional, and national levels of government, as well as the involvement of various stakeholders, including local communities, industries, and nonprofit organisations. This multi-level and multi-stakeholder approach is essential for addressing the complex challenges associated with the transition.

The case study also reveals the demographic challenges facing Upper Norrland, including an aging population and significant outmigration, particularly among young people. These demographic trends exacerbate the region's difficulties in attracting and retaining a skilled workforce, which is crucial for supporting new industries. The study suggests that targeted policies and initiatives are needed to attract new residents and ensure that they are integrated into the local communities. This includes not only providing employment opportunities but also addressing housing, infrastructure, and social services to make the region more attractive to potential newcomers.

Another key learning is the importance of addressing land use conflicts and ensuring that the benefits of the green transition are equitably distributed. The development of renewable energy projects and new industrial facilities has led to competition for land, impacting local communities, including the Sami people and their traditional reindeer herding practices. The study highlights the need for inclusive planning processes that involve all affected parties and ensure that their voices are heard, and their needs are addressed.

In conclusion, the case study of Upper Norrland demonstrates that while the green industrial transition offers significant opportunities for economic growth and sustainability, it also requires careful management and coordination to address the associated challenges. The region can learn from this investigation by adopting a more integrated and flexible governance approach, developing targeted policies to attract and retain a skilled workforce, and ensuring that the benefits of the transition are shared equitably among all stakeholders. By doing so, Upper Norrland can enhance its resilience and ensure a sustainable and inclusive future.

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