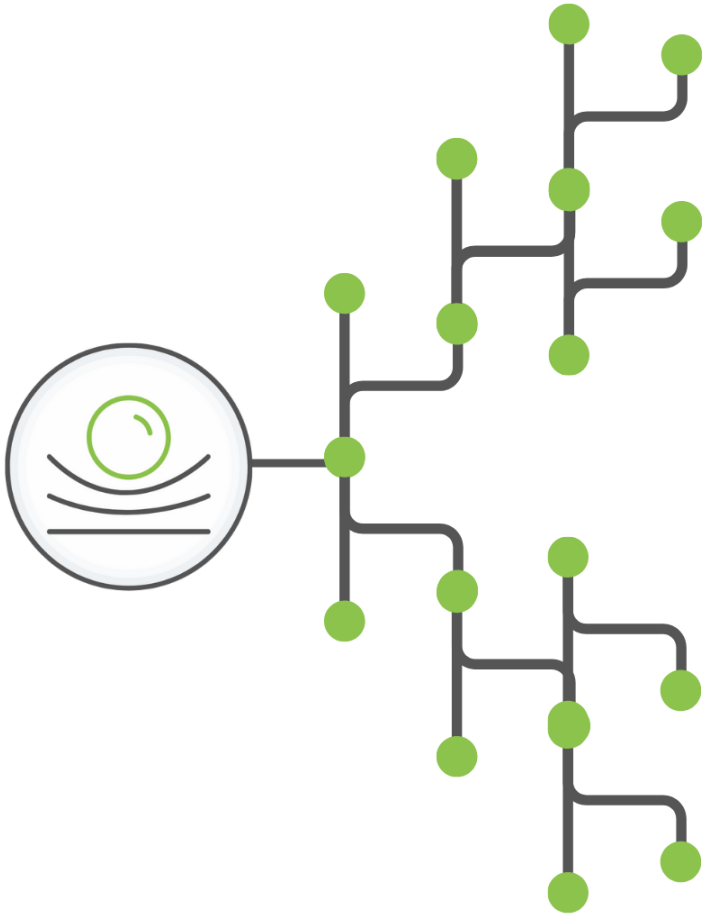
REGILIENCE

Regional Pathways to Climate Resilience



D1.1 Resilience planning & development needs of regional authorities and stakeholders

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About

REGILIENCE aims to foster the adoption and wide dissemination of regional climate resilience pathways, following a demand-driven approach and bearing in mind the expertise and knowledge acquired, as well as the solutions available from Innovation Package projects (from now on referred as Innovation Packages) and other sources. The project aims to support the Green Deal targets and communication by implementing Innovation Packages that will address key community systems and comprises the adaptation solutions and pathways deemed essential for climate and social resilience in the specific regional contexts and the set timeline. The REGILIENCE project aims to facilitate the replication of Innovation Packages in 10 highly vulnerable and low-capacity regions, additional to those targeted by the Innovation Packages, after a selection process and the signature of a work plan agreement. This ambition is aligned with the Horizon Europe's proposed Mission "Prepare Europe for climate disruptions and accelerate the transformation to a climate-resilient and just Europe by 2030". It implements the LC-GD-1-3-2020 RIA project results from the Innovation Packages and addressing a wider range of regions, cities and communities.

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036560.

Project partners

IEECP – Institute for European Energy and Climate Policy

ICLEI – Local Governments for Sustainability EUROPE

FEDARENE

F6S

REGEA

FCiências.ID – Associação para a Investigação e Desenvolvimento de Ciências

adelphi

Fresh Thoughts Consulting – where science meets policy

Resilient Cities Network

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Abbreviations

CSA	Coordination and Support Action
CSOs	Civil Society Organisations
Dx.x	Deliverable x.x
GA	Grant Agreement
H2020	Horizon 2020 programme
KPIs	Key Performance Indicators
Tx.x	Task x.x
WP	Work Package

Executive Summary

This report aims at providing an overview of the needs of European regions to adapt to a changing climate. The document does this by analysing and presenting the outcomes of two main activities developed within the REGILIENCE project: an online survey, broadly distributed among European regions and communities, and a series of individual interviews developed with key actors identified from the survey's results. The identification of relevant areas to be included in this process had already started at the proposal stage, when the consortium partners mapped the regions most impacted by climate change in Europe. The typology of stakeholders involved varies from local and regional authorities to research centres, from citizens to the business sector.

Deliverable 1.1 represents a key document for the development of upcoming activities of the REGILIENCE project, but also an outstanding research piece for further European projects and researchers to build on. In the specific context of the many upcoming opportunities for regions and communities to increase their resilience under the *Mission for Adaptation to Climate Change and Societal Transformation*, this document offers an overview of key needs to tackle, and identifies strategic highly vulnerable and low-capacity European regions that are willing to take action and receive support. In this sense, it stands as an important preliminary document to kick-start the Mission's activities and aims to support researchers, companies and international organisations engaged in the implementation of the Mission.

The report highlights priorities of climate action, such as water and coastal management, nature-based solutions and biodiversity protection. At the same time, it also points out the main strengths and weaknesses of regional transformation towards resilience and adaptation to climate change from an institutional, financial, socio-cultural and knowledge gaps perspective. While underlining the need for increased horizontal and vertical cooperation, awareness raising and human capacity, the document points at the overall availability of funds - particularly at the European level – dedicated to urban resilience and climate adaptation.

This deliverable provides information to select up to 10 target, highly vulnerable and low-capacity regions in Europe that will receive tailored support from the project, gaining access to exclusive activities and opportunities.

1 Introduction

1.1 Purpose of the report

REGILIENCE, as a Coordination & Support Action (CSA) project, funded by the European Commission under the subtopic (2) "Support the design, testing and upscale of Innovation Packages" of the topic LC-GD-1-3-2020 "Climate-resilient Innovation Packages for EU regions" – aims to foster the adoption and wide dissemination of regional climate resilience pathways and has among its task to support the 3 Innovation Actions – Innovation Package projects (from now on referred as 'Innovation Packages') funded under the subtopic (1) "Innovation Packages for transformational adaptation of European regions and communities" of the same topic: ARSINOE, IMPETUS and TransformAr[1].

REGILIENCE's approach aims to effectively coordinate and support the Innovation Package projects, with a special emphasis on communication and dissemination across networks, EU regions and their communities. The innovation packages will address key community systems and collectively comprise the adaptation solutions and pathways deemed essential for climate and social resilience in the specific regional contexts and the set timeline. The CSA will ensure coordination and support for the adaptation and replication of Innovation Packages and other existing solutions, with a priority for those regions not addressed by the subtopic 1 actions, and special support to local leaders and those regions and cities which might be highly vulnerable, most affected by climate change and showing limited capacity for integrated climate action.

REGILIENCE consortium partners recognise that climate change impacts can be more severe in certain areas of Europe - and may be intensified when in conjunction with other social/economic/environmental challenges. Therefore, the project will target efforts to support up to 10 European regions most impacted and highly interested in taking action (see further details on this process in Section 3.1).

To reach this goal, REGILIENCE, through WP1, will develop a broad set of key communication and dissemination activities, including collecting relevant information and the early engagement of regions and stakeholders as part of *T1.1 Collecting bottom-up baseline information and needs from regions.* Related tasks that will strictly benefit from the outcomes of this report **D1.1 Resilience planning & development needs of regional authorities and stakeholders** consist of: educational and training activities across relevant sectors and for citizens (T1.4 and 1.5); target regions and communities to benefit from the Innovation Packages by (adapted) replication (T1.3 and 1.4) and provide support to regions and communities (T1.3 and 1.4) for identifying and possibly overcoming institutional, regulatory and financial barriers preventing the implementation of Innovation Packages solutions (4.2); the development of an indicator set to measure impact and progress (T3.1); maximising funding and financing opportunities (T2.3) and including the testing of innovative public-private partnerships (T1.4), prioritizing greater citizen involvement throughout the process (T1.5).

T1.1 Collecting bottom-up baseline information and needs from regions aims at fostering the involvement of and benefits for target regions and communities from the Innovation Packages (subtopic 1), by better understanding their resilience challenges, needs and opportunities. ICLEI, as task leader, is in charge of engaging with key actors in the regions to collect

[1] https://climate-impetus.eu/
https://arsinoe-project.eu/
https://transformar.eu/

necessary baseline information: up-to-date policies, information on hazards and risks, challenges and resilience options, barriers to transformation and opportunities, knowledge gaps and ongoing and planned initiatives, political and societal opportunities and more. This assessment, collected in a detailed database and for which the main outcomes can be found in this report, has been carried out for:

- Regions being targeted by Innovation Packages
- REGILIENCE prioritized highly vulnerable and most impacted regions - having limited resources and/or low adaptive capacity - among the ones not being targeted by Innovation Packages

The methodological approach was based on literature review, analysis of information gathered from the Innovation Packages, about **30 interviews** and a **survey**. The survey included questions to better identify and quantify to some extent the needs and resources our stakeholders require to actively participate in the engagement process for adopting the innovation packages in their regions. It considered political implications, when identifying relevant and appropriate stakeholders and when following up on communication for resilience-building activities (T1.2). Information gathering involved all Innovation Packages to refine interviews and surveys, avoid duplications and share results beyond the REGILIENCE consortium.

The collected information ensures that the activities in REGILIENCE will reach the expected impacts, by acknowledging the genuine diversity of perspectives, interests and preferences from regional authorities towards the various options in related investments required that can fulfil their ambition of the resilience plans.

The related impact targets are listed below:

- Up to 10 regions (or provinces, counties or equivalent) will co-design climate resilience pathways, supported by REGILIENCE in addition to the regions targeted by the Innovation Packages, as a previous step to sign a climate resilience contract.
- Up to 10 successful regional climate resilience pathways will be used as inspiring examples by other regions.

Furthermore, the aimed impacts will all be followed and quantified with project-internal Key Performance Indicators (KPIs) developed, as listed in the Grant Agreement (GA). The associated KPIs are the following:

- 290 individual support activities have been provided to prioritized regions on climate resilience pathways, including 8 major events, 50 workshops/webinars, 30 twinning and 200 helpdesk activities.
- 20 past or ongoing climate resilience pathway experiences have been assessed.

1.2 Structure of the report

This document aims at highlighting the needs of European regions on resilience and adaptation to climate change. To this end, it provides information about the strategy developed in the framework of the REGILIENCE project to identify and analyse regional needs, while also presenting the main outcomes of this process.

To this end, the report is divided into 5 main sections and corresponding chapters:

- Following this introduction (Chapter 1), Chapter 2 provides background on the relevance to address resilience and climate adaptation at regional level, especially in relation to the essential role these areas can play in driving the transition that is required – and supported by key policy instruments at European Union level.
- Chapter 3 illustrates the methodology used to develop the needs assessment included in this document.
- Chapter 4 presents the main results, as well as information to prompt consortium partners to agree on how to make these insights operational in their own activities.
- Chapter 5 reflects on the main needs highlighted in the assessment, and details how they will inform and support the way forward in the project.

1.3 Gender statement

The need for gender mainstreaming arises from persistent inequalities in power distribution and access to services and opportunities between people of different sex and/or gender identities. As demonstrated by literature[2] and advocated in the European and international arena[3], this influences the understanding and perception of climate change dynamics and effects. Women and men, but also people in the LGBTQI+ community, are differently affected by the accelerated change of climate. Only by taking into consideration their diverse visions can scientific research reach meaningful and universal conclusions that properly inform climate action.

For these reasons, the REGILIENCE consortium is committed to including gender and intersectionality as a transversal aspect in the project's activities. In line with EU guidelines and objectives, all partners – including the authors of this deliverable – recognise the importance of advancing gender analysis and sex-disaggregated data collection in the development of scientific research. Therefore, they commit to paying particular attention to including, monitoring and periodically evaluating the participation of different genders in all activities developed within the project, including workshops, webinars and events but also surveys, interviews and research, in general. While applying a non-binary approach to data collection and promoting the participation of all genders in the activities, the partners will periodically reflect and inform about the limitations of their approach. Through an iterative learning process, they commit to plan and implement strategies that maximise the inclusion of more and more intersectional perspectives in their activities.

Within this deliverable, in particular, the authors have mapped and presented survey and interview responses by gender, to make visible the diversity of needs and opinions considered.

[2] Senja, O. (2021). Gender and Climate Change: Challenges and Opportunities. HAPSc Policy Briefs Series, 2(2)
Pearse, R. (2017), Gender and climate change. WIREs Clim Change, 8
Ed. By Irene Dankelman (2010), Gender and Climate Change: an introduction.
Valerie Nelson, Kate Meadows, Terry Cannon, John Morton & Adrienne Martin (2002), Uncertain predictions, invisible impacts, and the need to mainstream gender in climate change adaptations, Gender & Development, 10:2

[3] European Committee of the Regions (2021), Gender equality and Climate change: towards mainstreaming the gender perspective in the European Green Deal
European Commission (2020), A Union of Equality: Gender Equality Strategy 2020-2025
UN Women (2022), Explainer: How gender inequality and climate change are interconnected
UNFCCC (2022), Gender & Climate Change: an important connection

2 Background: Why is regional resilience relevant nowadays?

Heatwaves, floods, droughts, glacier melt, landslides and other direct effects of climate change are already being experienced in Europe, and the most accepted scenarios indicate that our continent will be more frequently and intensively affected in different ways. As shown in the latest *Global Drought Observatory - Analytical Report*[4], August 2022 was one of the most disruptive examples of a significant, sustained drought that has brought serious ripple effects, from energy shortages to severe food insecurity, worsening existing social inequalities and threatening cultural heritage. Many places now suffering from severe heat and drought do not necessarily have the infrastructure and resources to deal with such weather extremes. As another example, we can already witness how, when the rain eventually fell, it caused intense flooding, resulting in increased fatalities, disturbances of life quality and of important services as well as economic losses. Droughts, heatwaves and dry spells in the Mediterranean region have already increased the length and severity of the fire season, and fostered desertification.

The need to adapt to the impacts of climate change has only recently and partly attracted the necessary political attention. The Mission on Adaptation to Climate Change and Societal Transformation[5] of Europe- which will support[6] -, and will enable local actors to take evidence-based decisions, by bringing research and its solutions closer to the citizens. The emphasis lies on specific areas where such change can be driven actively, namely on the important responsibility of regions to accompany and assist their communities and economies in adapting to climate change.

Impacts of climate change are increasingly felt at the regional level, but the type and intensity differ according to the local and regional conditions, as well as the capacity to adapt and address cross-sectoral challenges. This may lead to the deepening of existing imbalances and hamper territorial cohesion[7], with a risk of leaving certain regions behind. A comparison of different regions´ vulnerability assessments shows that most of the highly vulnerable regions in need of systemic change, lack the experience and capacity to drive such change. Particularly worrying are innovation gaps in regions where multisector losses are projected to be high, and which often require complex inter-sector strategies and governance. In practice, many regions fail in addressing long-term and cross-sectoral adaptation solutions. Some of the key challenges include:

[4] Toreti, A., Bavera, D., Acosta Navarro, J., Cammalleri, C., de Jager, A., Di Ciollo, C., Hrast Essenfelder, A., Maetens, W., Magni, D., Masante, D., Mazzeschi, M., Niemeyer, S., Spinoni, J., Drought in Europe August 2022, Publications Office of the European Union, Luxembourg, 2022, doi:10.2760/264241, JRC130493.

[5] https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/adaptation-climate-change_en

[6] https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

[7] https://www.espon.eu/sites/default/files/attachments/ESPON_MoM_190112.pdf

- Confusing **(over)abundance** of general strategies, online tools, solutions, guidelines, etc. on adaptation and building resilience, but rarely specific and practical (action-oriented and enabling) information tailored to the specific needs of the individual regions;
- Limited access to **financial and human resources**, even among the most ambitious regions;
- Lack of **awareness** among key stakeholders, limited support from the population, a low political will to adapt and unclear responsibilities;
- Need for **holistic approaches**, while the level of cooperation and coordination within and between sectors, governance levels and administrations, is often low. The challenges for the integration of adaptation and mitigation policies and practices, are characterized by synergies but also trade-offs and conflicts that need to be analysed and overcome for integrated climate change planning[8];
- Conciliation of **trade-offs** to combine **coherent** short-term (as regarding COVID-19) and long-term strategies in integrated action plans.

Inspiring and successful regional experiences need to be looked into; relevant stakeholders are here approached to share their lessons learned. Especially those engaged in successful projects and activities will be called to elaborate on how they daily address key components such as political steering and decision-making at the highest level. They will also share how they handle trade-offs, cross-sector conflict and synergy assessment, and active engagement, not only of concerned authorities and key stakeholders, but also of citizens, and the implementation and monitoring of transformation processes.

[8] Grafakos, S., Pacteau, C., Delgado, M., Landauer, M., Lucon, O., and Driscoll, P. (2018). Integrating mitigation and adaptation: Opportunities and challenges. In Rosenzweig, C., W. Solecki, P. Romero-Lankao, S. Mehrotra, S. Dhakal, and S. Ali Ibrahim (eds.), Climate Change and Cities: Second Assessment Report of the Urban Climate Change Research Network. Cambridge University Press. New York. 101–138

3 Methodology

The research methodology to collect baseline information and needs from regions, main outcome of deliverable 1.1, consisted of the following consecutive stages:

- Identification of stakeholders and key target audience in the preliminary prioritized regions (initiated at the proposal stage);
- Data collection through the development of an online survey and 30 personalized interviews (March – August 2022);
- Quantitative and qualitative analysis of the results and information gathered (August – September 2022).

3.1 Key target audience

As climate impacts and adaptive capacities differ greatly across regions, tailor-made responses and measures, at the regional or local level, are required. To this end, REGILIENCE targets regions including supra-municipal, county, provincial or district stakeholders with the following characteristics:

- Hold important competencies in key sectors and community systems, such as health; primary production including agriculture, forestry, fisheries and aquaculture; water; environment, including biodiversity; and infrastructure including clean energy and transport;
- Manage significant EU regional development funds;
- Have an agenda-setting capacity, including political leadership.

A prioritised focus on highly vulnerable regions and target audiences is necessary for an effective and efficient demand-based portfolio of solutions, by collecting necessary baseline information: current policies, hazards and risks, challenges and resilience options, barriers to transformation and opportunities, information and knowledge gaps, key actors and stakeholders, and ongoing and planned initiatives, political and societal opportunities and more.

At the stage of the proposal, the new NUTS 2021 classification listed 283 regions at NUTS 2 and 1,345 regions at NUTS 3 level[9]. Though all these regions can benefit from REGILIENCE, there will be a special focus on up to 10 prioritised and targeted regions, to develop specific and agreed engagement and support actions with them. On a preliminary basis in the project proposal stage, **51 vulnerable regions** have received specific attention (See Table 1 and Figure 1). This includes **9 European Union Outermost Regions**[10] and **23 Just Transition Regions** (See Annex I for further information on the prioritisation).

[9] EUROSTAT, 2020

[10] EEA (2017): Climate change, impacts and vulnerability in Europe 2016. https://www.eea.europa.eu/publications/climate-change-impacts-and-vulnerability-2016

In addition to this group, the assessment was meant to include all regions targeted under the subtopic 1 Innovation Packages, to ensure coordination and avoid duplication of work in collecting relevant needs and information, and ensure they benefit from these promoting early multi-stakeholder dialogue and citizens engagement and surveys.

MS	Region	Vulnerability (negative impacts)	Multi-sectoral hotspot 'losers'	Innovation	GDP by region (Million€)	GDP (€/inhabitant)	Just transition region (coal mines/coal power plants)*[3]
Spain	Andalucía	highest	up to 4/5	moderate	160622	19 100	yes
	Extremadura	highest/medium	up to 4/5	modest	20028	18 800	
	Región de Murcia	highest	up to 3	moderate	31458	21 300	
	Comunidad Valenciana	highest	up to 3	moderate	110979	22 400	
	Illes Balears	highest/low	2	moderate	32542	27 700	
	Principado de Asturias	highest	1	moderate	23341	22 800	yes/yes
	Galicia	highest/medium	up to 2	moderate	62570	23 200	yes
	Castilla-La Mancha	medium	3-4	modest	41345	20 400	yes
	Aragón	medium	2-3	moderate	37038	28 200	yes/yes
	Castilla y León	highest/medium/low	up to 3	moderate	57926	24 000	yes/yes
	Canarias	highest*[1]	no data	modest	45720	20 900	
Portugal	Algarve	highest*[1]	up to 3	moderate	9672	22 000	
	Alentejo	highest/medium	up to 4	moderate	13102	18 500	yes
	Região Autónoma dos Açores (PT)	highest*[1]	no data	moderate	4262	17 500	
	Região Autónoma da Madeira (PT)	highest*[1]	no data	moderate	4891	19 200	
France	Saint-Martin	highest*[1]	no data	no data	582	16 527	
	Guyane	highest*[1]	no data	moderate	4499	16 000	
	Guadeloupe	highest*[1]	no data	moderate	10250	24 400	
	La Réunion	highest*[1]	no data	moderate	20331	23 600	
	Martinique	highest*[1]	no data	moderate	9508	25 900	
	Mayotte	highest*[1]	no data	moderate	2661	10 000	
Italy	Sardegna	highest/medium/low	up to 3	moderate	34926	21 200	yes/yes
	Sicilia	highest/medium	up to 3	moderate	89189	17 800	
	Calabria	highest to no/marginal	2	moderate	33300	17 100	
	Basilicata	highest/medium	up to 2	moderate	12577	22 300	
	Puglia	highest/medium	up to 2	moderate	76649	19 000	yes
	Molise	highest	2	moderate	6463	21 000	
	Campania	highest/medium/low	up to 3	moderate	107854	18 500	
	Abruzzo	highest/medium	up to 3	moderate	33863	25 800	
	Umbria	medium	2-3	moderate	22483	25 500	yes
	Lazio	highest/medium/low	up to 3	moderate	197660	33 600	yes
	Veneto	highest/medium/low	up to 2	moderate	163304	33 300	yes
	Provincia Autonoma di Bolzano/Bozen	highest	1	moderate	24848	46 900	
	Provincia Autonoma di Trento	highest	up to 2	moderate	20489	37 900	
Slovenia	Zahodna Slovenija	highest/medium	1	moderate	25936	26 500	yes
Hungary	Észak-Magyarország	highest/medium/low	1	moderate	10674	9 400	yes/yes
Romania	Vest	medium	1-2	modest	19 207	10 800	yes/yes
	Sud-Est	highest/medium	0-1	modest	20949	8 700	
	Sud-Vest Oltenia	highest/medium	1-2	modest	15269	7 900	yes/yes
	Centru	highest/medium/low	1	modest	23018	9 900	
Bulgaria	Yugozapaden	medium	up to 2	moderate	27192	12 900	yes/yes
	Yuzhen tsentralen	highest/medium	up to 2	modest	7943	5 600	yes
	Yugoiztochen	highest/medium	1-2	modest	6772	6 500	yes/yes
	Severen tsentralen	highest/medium/low	up to 3	modest	4301	5 400	yes
	Severozapaden	highest/medium	up to 2	modest	3924	5 200	
Greece	Peloponnisos	highest/medium/low	up to 2	moderate	8245	14 300	yes/yes
	Dytiki Ellada	highest/medium	0-1	moderate	8322	12 700	
	Dytiki Makedonia	highest/medium	1-2	moderate	3963	14 800	yes/yes
	Kentriki Makedonia	highest/low	up to 2	moderate	25558	13 600	
Croatia	Jadranska Hrvatska	highest/medium*[2]	1-2	modest	16735	12 200	yes
	Kontinentalna Hrvatska	highest/medium*[2]	2	moderate	34890	12 800	

Table 1. Preliminarily prioritized targeted regions of REGILIENCE

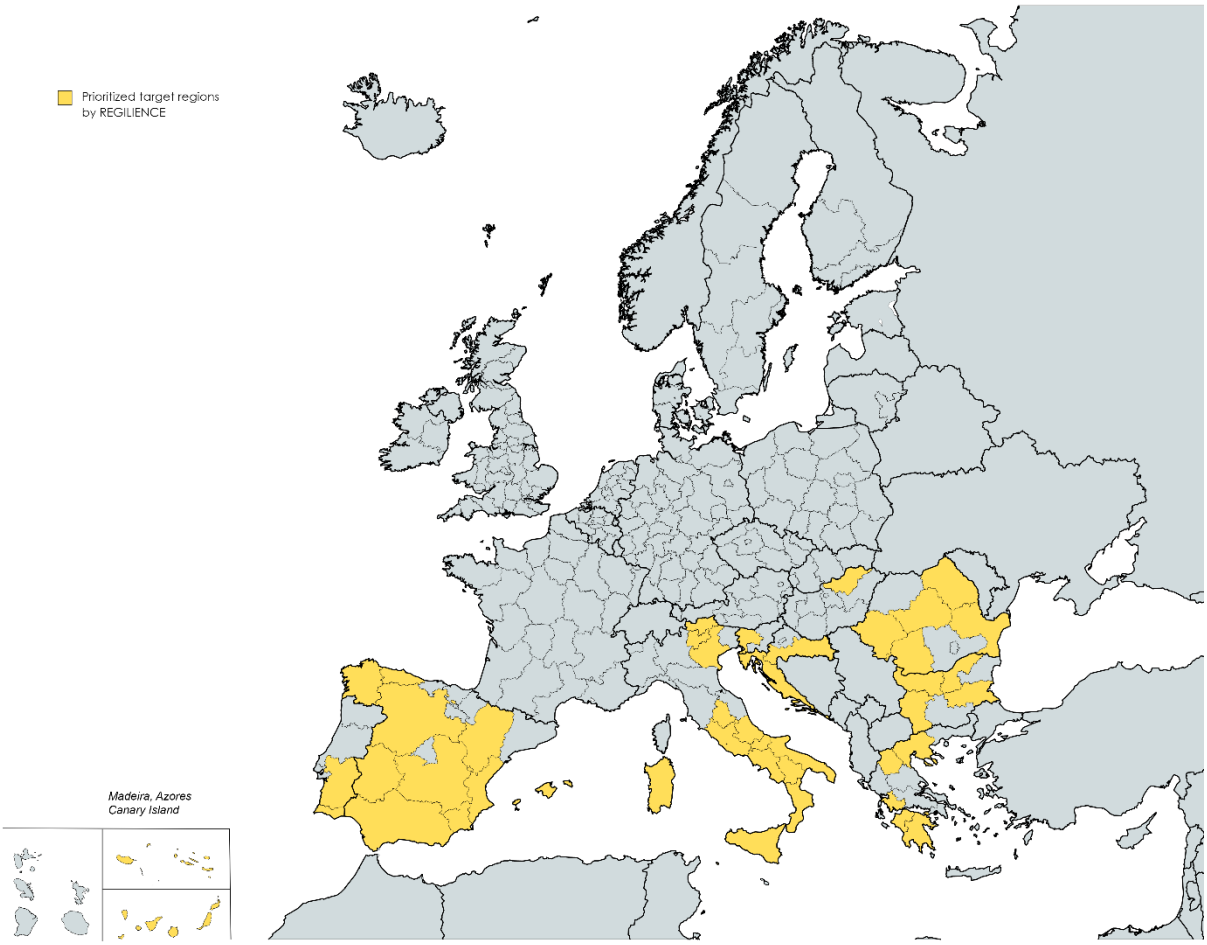

Figure 1. Map of preliminarily prioritized targeted regions of REGILIENCE (Created with mapchart.net)

The early engagement of stakeholders and key actors in those regions focused on the following groups:

- **Decision-makers and political representatives**: head of units, local and regional administration, regional inter-sectorial decision-makers, planners and local authorities, e.g., prime ministers and their supporting (cabinet) teams, regional and local associations and networks and finally energy, climate and development agencies;
- **Citizens / NGOs**: and related associations, civil society organizations (with focused policy and awareness activities on climate adaptation, such as on community building, the environment, consumer advice and the evaluation and transparency of public policies), citizen groups, urban and regional planners, observatories (CSOs);
- **Businesses and private sector**: ESR or sustainability managers, various industries – buildings, farming and all addressed particularly by the Innovation Packages and their sector organizations (e.g., irrigators, fishermen, etc.), climate adaptation-related technology or services offering SMEs;
- **Universities and research centers**: on climate adaptation, on institutional governance and change, related think tanks, initiatives and projects, etc. – professors and students as future researchers.

3.2 Data collection

The approach to collect the necessary baseline information was based on a semi-qualitative method including a literature review[11] that served to inform the development of an online survey and 30 interviews. Both the survey and the round of interviews included questions to better identify and quantify to some extent the needs and resources that the identified stakeholders require to actively participate in the engagement process, for adopting the innovation packages in their regions.

During this process, relevant actors engaged had the opportunity to raise important climate-related challenges that they encounter in their daily work or life, providing unique perspectives to incorporate into the upcoming activities of the project. The data gathered will contribute to refining the selection of up to 10 highly vulnerable European regions that will confirm to be interested and actively committed to a work plan with REGILIENCE, and that will receive tailored support by the project (e.g. region-specific workshops, helpdesk, peer-to-peer mentorship, testing of innovative public-private partnerships, and more). With this research, the goal is to also offer an overview of the highly vulnerable, most impacted and low-capacity regions that should receive further support opportunities within the upcoming European projects in the framework of the Mission for Adaptation to Climate Change and Societal Transformation, recently adopted by the European Commission.

Both survey and interviews responders were asked to sign an informed consent form[12], according to the General Data Protection Regulation (GDPR), including:

- A brief description of the project objectives and main activities;
- The purpose of the data collection: identify factors of success and failure that favor or hinder the uptake of resilience pathways in the targeted regions;
- How the data has been handled, and how information provided remains confidential and has been processed for the development of this report.

3.2.1 Online Survey

The first phase of the research entailed the development and dissemination of an online survey[13] to gather experiences from highly vulnerable regions in different parts of Europe, to understand common needs and challenges to adapt to climate change impacts.

The survey consisted of 5 sections, with the objective of collecting information on:

1. Responders' profile and expertise, as well as their interest to be furthered involved in the project activities;
2. Current policies in place, understanding their scope and thematic focus;

[11] See Literature resources for the development of the assessment materials

[12] See Annex II - Informed consent form for the use of data

[13] See

Annex III – Survey

3. Level of coordination and cooperation between different levels of government, sectors and departments;
4. Implementation challenges faced from an institutional, financial and socio-cultural perspective;
5. Relevant stakeholders' groups working on the ground to be further engaged in the next steps.

The survey, hosted on the EUSurvey[14] platform, was made available with translations in all EU languages. This increased the chances to reach as many stakeholders as possible, that could easily access the questionnaire and provide input in their mother tongue.

Dissemination was carried out by personal invitation among ICLEI members, while FEDARENE and Resilient Cities Network supported leveraging their respective networks of regional agencies and cities. In addition, the survey was circulated through ICLEI's Urban Resilience newsletter and relevant social media (i.e. ICLEI Europe, REGILIENCE, and Innovation Packages Twitter and LinkedIn accounts), as well as by all other project partners. Information gathering involved all Innovation Actions and valuable cooperation was also achieved to refine the survey, avoid duplications and share results.

3.2.2 Individual interviews

As a second step, a round of personalized interviews was organized to get a deeper understanding of the regional needs in some targeted contexts. The questions tackled a number of concepts and dimensions not addressed by the survey. On one hand, the objective was also to expand and clarify some information provided within the survey answers that required additional remarks. On the other hand, in some cases, when conducting the interviews, it was decided to leave certain questions (i.e. on potential implementation challenges) rather open, compared to the approach used for the survey - where stakeholders had a list of proposed challenges to choose from, inside each specific category (i.e. institutional, socio-cultural, financial). Lastly, this second round of engagement represented the opportunity to hear from key actors in certain regions, where no responses were collected in the first round of dissemination of the online survey.

The interviews, with a semi-structured format[15] to ensure that the interviewers from different project partners did have a comparable level of detail, include guiding questions on the following aspects:

- A deeper understanding of the main focus areas for the region/community and already identified priorities: from general sectors to more specific actions (in relation to challenges the region faces).
- Looking at the implementation process of specific measures, the interviewees were called to elaborate on:

[14] https://ec.europa.eu/eusurvey/

[15] See Annex IV– Interview guidelines

- The methodology of measures implementation (I.e. through a systemic approach or as ad-hoc/reactive solutions);
- The drivers for the measures implementation (political support, support of the local communities, availability of EU or national funds…) and the obstacles faced (lack of political consensus, low prioritization of climate actions from the local community, resistance from certain sectors…)
- Stakeholder engagement processes, to collectively tackle the priorities identified.

Following the interviews, the responders received additional information on planned upcoming activities within the REGILIENCE project, to explore and confirm their potential interest in being further engaged.

3.3 Results analysis

With regard to the survey, it was officially launched in February 2022 and results have been collected until July 2022. The data have been imported and analysed by using the Microsoft Excel software to present the main outcomes with graphics. Given the total number of respondents and the typology of the questions, it was not necessary to use other tools for the analysis.

The total number of respondents was 50. Among these, 32 belong to the list of preliminarily "Targeted Regions" by REGILIENCE, while 18 are part of "Other Regions". Section 2 ("Pathways towards resilience - beyond scale and sectors") and Section 4 ("Engaging stakeholders for regional resilience") of the survey were considered more general sections, therefore the report presents the overall results emerged from the analysis of the 50 respondents. On the contrary, the analysis of Section 3 (Pathways towards resilience – barriers and opportunities) focuses specifically on the target regions. This allowed to gain more precise insights from these regions to be discussed during the round of interviews. Moreover, the results of the survey will be used for the selection of the up to 10 highly vulnerable, most impacted and low capacity regions which will have access to tailored REGILIENCE activities.

The interviews results were collected by the interviewers by using a Google Form, where they would have the opportunity to re-organise the answers of each respondent to each question, to ensure consistency in the information transferred. All the submitted forms would then automatically go into an Excel sheet, which could be exported to have an overview of all the results in a practical database to be further analysed. The extensive amount of information gathered during the interviews represents a key resource to confirm, further elaborate and better clarify trends already identified from the survey results. These have been thoroughly scanned and synthetized in a way that could be informative but easily accessible to the readers, at the same time. Key quotes from the respondents are reported throughout the text in Chapter 4, to share direct reflections and consideration made by the stakeholders, in relation to their local contexts.

3.4 Limitations

Both the survey and the interviews are inevitably based on a restricted sample of regions. Among the 242 NUTS 2 in Europe, REGILIENCE pre-selected 51 prioritized targeted regions, received 50 respondents to the survey, and carried out 30 interviews. Hence, this analysis represents a partial attempt of a longer and deeper process of understanding European regions' needs in resilience planning and development. Within the framework of the EU Mission for Climate Adaptation, other projects and initiatives will engage additional regions and provide a more consolidated overview over the next years.

At the same time, it is also important to consider that respondents provided answers based on their job description within regional authorities and their experience. Despite REGILIENCE carefully selecting the contact points in each of the prioritized regions, it is not excluded that different figures within the same region might provide different interpretations. This is particularly true for the qualitative research carried on through the semi-structured interviews. The regular engagement of some of these regions in REGILIENCE activities could also help in validating and reinforcing the outcomes of this assessment.

Finally, it must be acknowledged that while the proportion of women and men involved in the research is quite balanced, the analysis does not proportionally include perspectives from other genders, which may be differently affected by climate change impacts. Only one of the people involved identifies themselves as a non-binary/other person. This limitation is recognised as structural in contemporary society.

4 European regions' resilience challenges, needs and opportunities: main insights

Results of the assessment show significant heterogeneity in adaptation and resilience planning that is related to their context-specific nature (differences in resources, values, needs, and perceptions among and within societies). This heterogeneity additionally results from different approaches among countries, multilateral development agencies, and international organizations that promote and fund adaptation, and from differences in knowledge, information, and awareness of adaptation alternatives across communities.

This chapter presents the main outcomes of the survey and round of interviews, by unpacking the results and diverse perspectives collected, to give an overview of:

- the regional reach and characterization of the stakeholders' profiles engaged (gender, institution, expertise and level of interest in the topic opportunities to be further involved);
- the heterogeneity of the main priorities and current policies in place to mainstream adaptation and resilience;
- the institutional capacities and implementation challenges faced at the regional level, taking into account drivers for transformation and potential barriers;
- Stakeholder engagement opportunities within each region and beyond.

4.1 Regional reach and response

As stated in the previous chapter, REGILIENCE engaged 32 regional stakeholders with the survey, among the target group of regions which have been pre-selected and prioritized. Out of the 30 interviews, 28 were developed with stakeholders from the focus group (included in the list of regions in Figure 1) while 2 were representative from the Innovation Actions regions (South West County, UK and Tromms and Finnmark County, Norway).

For what concerns the information and the profile of the survey respondents, as shown in Figure 2**Error! Reference source not found.**, more than half (54%) belonged to "Public actors and decision makers". This category includes authorities in various government levels and sectors, regional and municipal departments, as well as different agencies (such as energy, climate, and development). 26% of the respondents indicated being part of "Knowledge actors", such as universities, experts, scientists and applied researchers, urban planners, consultants, educational organizations. 18% of the respondents stated "Civil Society" (including citizens, communities, general public, social organizations, NGOs, etc.).

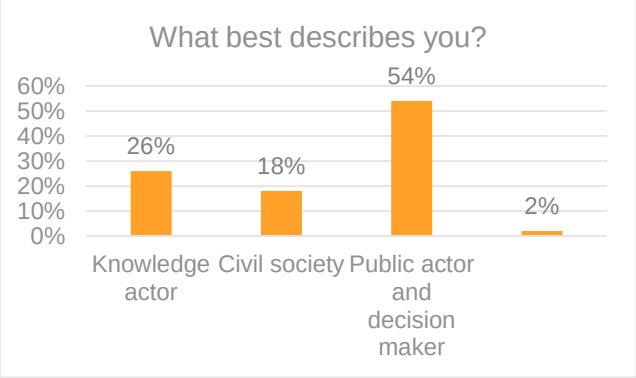

Figure 2. Stakeholder characterization

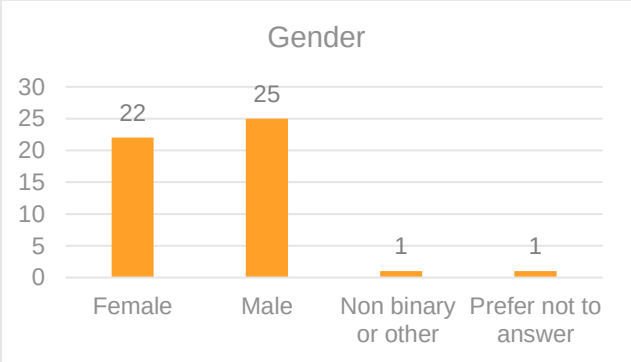

Figure 3. Gender profile

The survey also included a question about gender (Figure 3), to include and monitor the participation of different genders in all REGILIENCE's activities. One person indicated "Non binary or other", 22 respondents stated female, 25 male, while one person preferred to not answer.

Moving to the countries represented (Figure 4), the survey was open to all the European regions and it counts 19 different countries. The most represented are Spain (8), Italy (7), Greece and Croatia (6). Despite a good representation and geographical distribution, there is a clear stronger presence in Southern and Mediterranean Europe (Spain, Greece, Italy, Croatia, Bulgaria, Romania, France and Portugal). Moreover, REGILIENCE partners have been active in sharing and disseminating the survey through their networks.

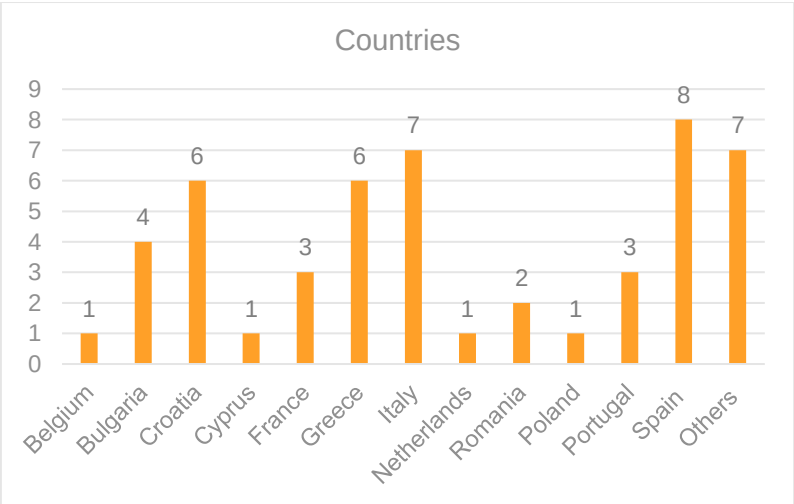

Figure 4. Geographical coverage - Countries

Below, there is a list of countries and regions engaged for the interviews (Table 2):

Country	Region
Bulgaria	Yuzhen tsentralen
Croatia	Jadranska Hrvatska
France	Guadeloupe
	La Reunión
Greece	Central Macedonia
Italy	Lazio
	Molise
	Provincia autonoma di Trento
	Puglia
	Veneto
Spain	Aragón
	Canarias
	Comunitat Valenciana
	Extremadura
	Galicia
	Murcia
Portugal	Madeira
	Azores
Norway	Troms & Finnmark County
UK	South West

Table 2. List of regions represented in the interviews

And a map (Figure 5) to offer an overview of the regions represented by the survey, interviews, and the ones that engaged in both:

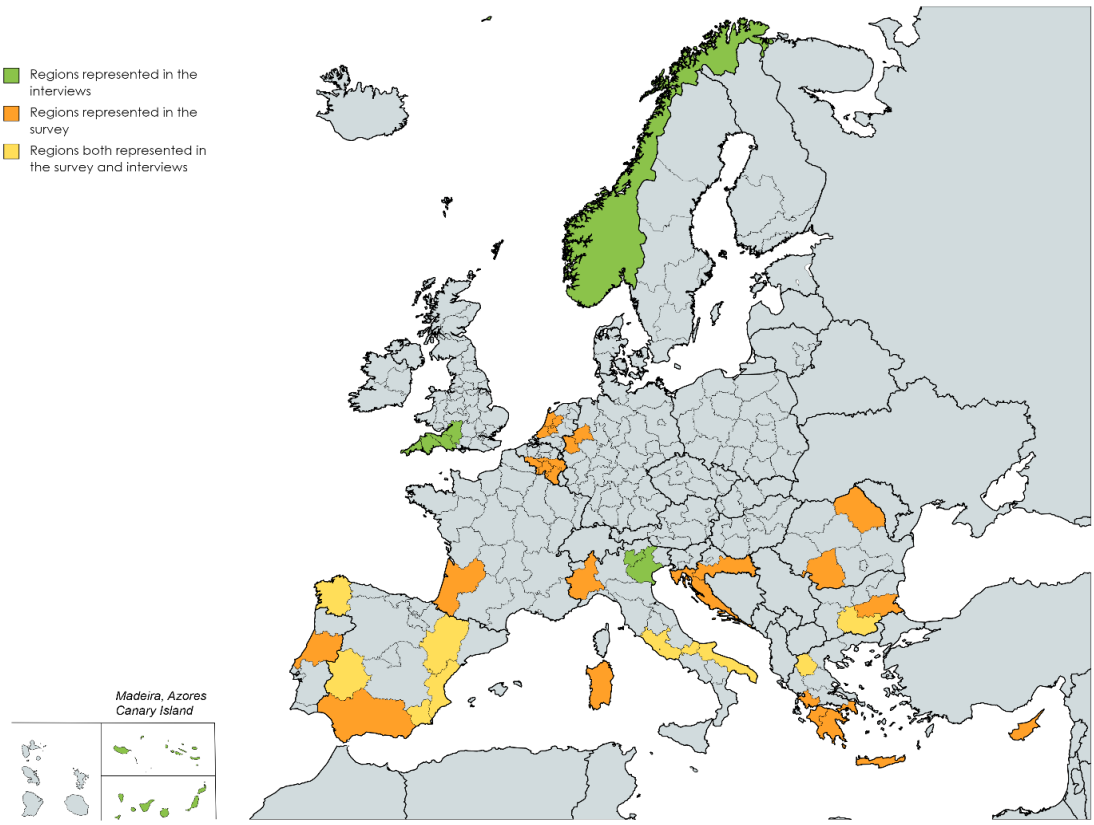

Figure 5. Map of the regions represented (Created with mapchart.net)

4.2 Current policies and main priorities

The survey included a series of questions to deepen and understand the institutional contexts in which regions operate when it comes to climate resilience and adaptation. In particular, section 2 of the survey provided questions related to different sectors and government scales.

Question 2.1 investigated at which level of government clear guidelines and institutional instruments could be found, mentioning as examples action plans, strategies, standards and regulations for the adaptation to climate change impacts. According to the respondents (Figure 6), the overall result is that all regions present a relatively balanced distribution of guidelines and instruments at different levels, especially national (68%), regional (60%) and municipal (52%). The adoption of guidelines and existing instruments at the inter-municipal level is significantly lower (26%), but this might simply relate to the fact that not all countries have as many inter-municipal bodies included in their administrative and governance arrangements. Moreover, there are cases where the responsibilities of inter-municipal bodies are partially overlapping or not clearly defined. Around 15% of the respondents were not able to answer the questions, because of a lack of knowledge or uncertainty about this distribution.

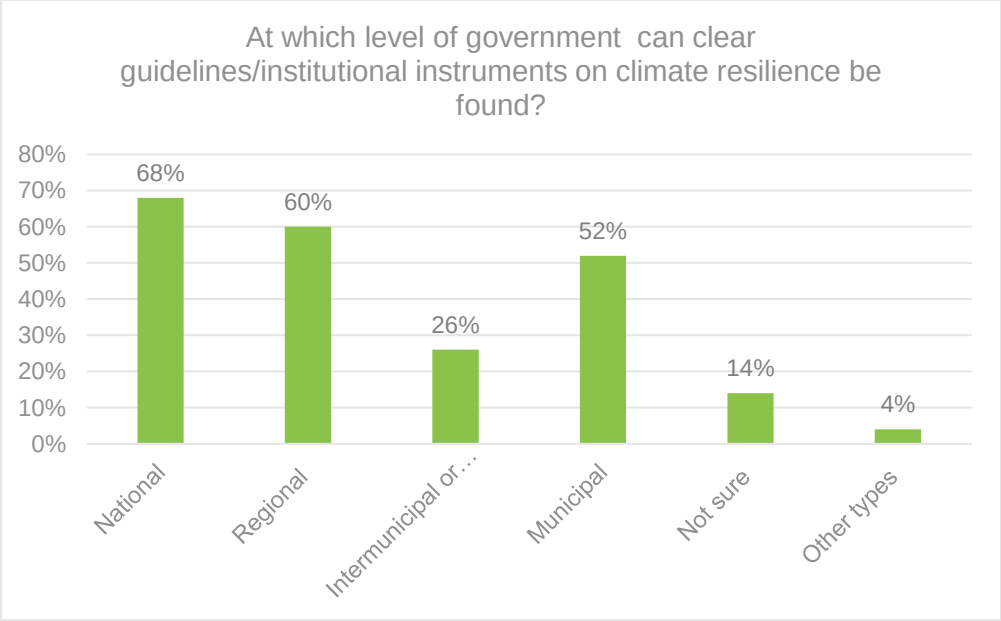

Figure 6. Level of government with key policy instruments on climate resilience

However, the presence of guidelines and institutional instruments at different levels does not reflect a qualitative indication of their effective or successful implementation. The sub-question 2.1.1 investigated which aspects are considered within the existing guidelines and instruments (Figure 7). 90% of the respondents indicated Climate and Environment, followed by Infrastructure (66%) and Socio-economic development (64%). The score is lower for public health (42%) and even lower for post-COVID recovery (22%).

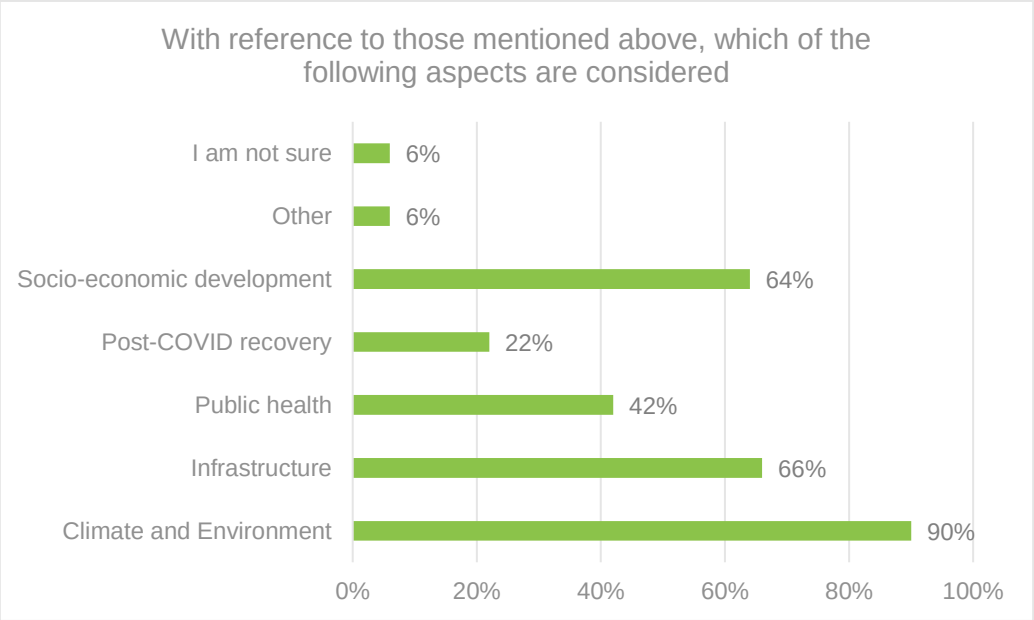

Figure 7. Thematic focus of the existing key policy instruments

The follow-up question 2.1.2 focused on the presence of monitoring and evaluating systems of these guidelines and instruments (Figure 8). Only 36% of the respondents mentioned the presence of monitoring and evaluation systems, while 26% of the respondents stated that only a few included monitoring systems. Interestingly, almost 30% indicated “I am not sure”, probably implying that they are not making use of these systems even if they exist.

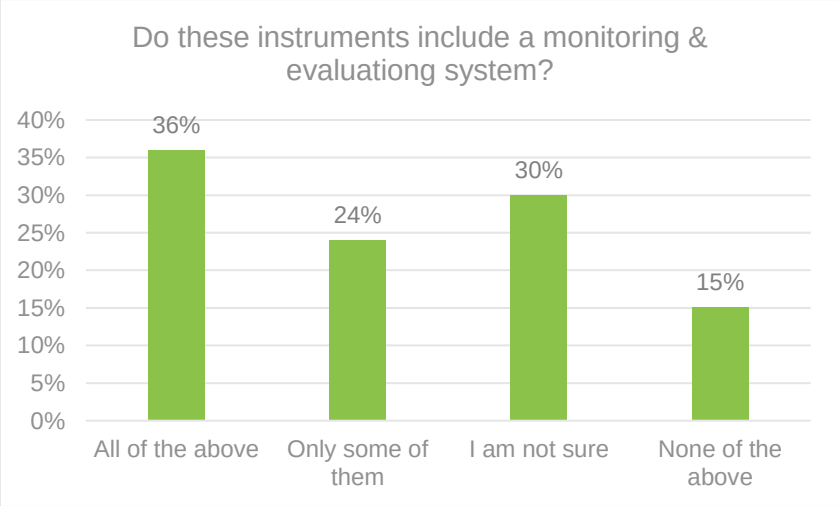

Figure 8. Monitoring and evaluation systems

Question 2.1.3 asked to name the specific plans/strategies/standards/regulations, etc. the respondents were referring to. A complete list is available in Annex VAnnex .

To gather more information about the implementation and effectiveness of these policy tools, the interviews asked stakeholders to identify which were the 3 main priorities for the region in the short-medium term within the next 5 years. After selecting them, they were asked to elaborate on the local context and main reasons, as well as identify which actions were planned

or already implemented to tackle the above-mentioned priorities. Interviews results illustrate the main dimensions identified, highlighting how often these priorities are strictly interconnected and thus required to manage potential trade-offs among risks and sectors. For instance:

Water management related impacts were the highest priority for more than half of the regions interviewed. Stakeholders especially stressed how increased temperature and droughts are the key climatic challenges that will primarily affect water resources. Some of the regions also addressed how water management is also linked to tourism (i.e. for artificial snow-making) and energy:

> *"Water desalination has to increase with the increased water demand faced, due to raising temperatures (e.g. through reverse osmosis). Water preparation entails a high energy demand, which will even raise further (today 10% of energy consumption is related to water preparation and pumping)"* **– Canarias, Spain**

And, in most cases, how the infrastructure systems are usually not prepared for expected impacts:

> *"The Istrian peninsula has a very intense touristic trend, and the local infrastructure is not prepared to support that. This leads to traffic congestion and increased water and energy expenditure"* - **Jadranska Hrvatska, Croatia**

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> *"Snow avalanches always affected small roads in an Arctic region used for seafood transportation. However, due to climate change, the amount of avalanches has increased significantly in the last 10-15 years, since snow is more concentrated and the temperature variability has risen. Therefore, building resilience on transport infrastructure is on top of the agenda for the region."* **– Troms & Finnmark County, Norway**

A related issue was how **coastal management** generally falls into the national level jurisdiction, and for the region may be difficult to tackle since potential solutions (designing more integrated strategies, coastal erosion containments, geo-morphological analysis, etc.) should be conceived at very large scale along the coastlines. A way of overcoming this implementation and coordination challenge, especially with regards to impacts on marine ecosystems and fisheries, was presented by regions like Galicia (Spain), where the preferred measures to start with are related to "observation systems" (monitoring of critical parameters evolution, as cold-water springs in coastal areas that could dampen general warming, and could have a brutal impact on fisheries). Nature-based solutions are also a key source of resilience for coastal erosion and, among others, Guadeloupe shared how they are currently working on a project that aims to find local species contributing to revert erosion and measure how these can help with supporting soil stability.

When exploring **"disaster risk reduction"** strategies, in most cases regions referred to **flooding**, hailstorms, and **wildfires**. Many interviewed practitioners highlighted this focus on flooding, mentioning that:

> *"The Ebro River is a very important reality in the region, connecting to other neighbouring areas in Spain and to the mountains. The river often floods causing disasters. In addition, the glaciers in the Pyrenees are disappearing*

and action must be taken now." **- Aragón, Spain**

In the Comunitat Valenciana (Spain), two existing territorial plans address mainly flooding, developing guidelines on land-use planning for prioritized floodable areas. In the Provincia Autonoma di Trento (northern Italy) too, a new "*Piano di Gestione del Rischio di Alluvioni*" (Flood Risk Management Plan) for the Adige River basin has been recently approved. The region aims to focus on how to combine both approaches of DRR and Climate Change Adaptation within their multi-hazards planning tool. While in Molise (southern Italy) the Civil Protection Department is focusing mainly on real-time monitoring of intense events, since the interview with them confirm the well-known recent shifting trends of precipitation along the whole Mediterranean basin:

"The latest data show how the annual quantity of rain is the same as the 30-year baseline, but the problem is now the distribution of precipitation. Before we used to have more events along the year, now fewer but more intense events" **– Molise, Italy**

On the other hand, speaking of the increasing wildfires in the European South and their prevention, the main measures planned in regions like Molise (Italy) and Murcia (Spain) are related to observatories, general infrastructure and contingency plans for fire detention, management of trails and forests, and maximization of the use of satellite information systems (still not used in all the regions, and especially in the most impacted). Other key strategies mentioned were the maintenance of the road network (to reach the sites), or develop local fire prevention plans (which all municipalities should have to impede fires from reaching urban areas).

Among the policies and priorities, sustainable **agriculture** was mentioned more than once. This happened especially for islands, where the economy is based on monoculture, but also related to the generalized need to train farmers to move toward a more sustainable use of land and water, speeding-up an ecological transition ensuring crops diversification (contributing to biodiversity and that helps managing river floods).

Biodiversity protection and the important linkages with coastal areas, fisheries and marine environment, and tourism, was a linked widely recognised area of policy action. La Reunión (France) and Molise (Italy) both have important natural parks and a large part of their territories are protected, and in need to be preserved. Yuzhen tsentralen region (Bulgaria) commented on the relevant impacts of climate change on the loss of animal species

"Climate change effects on air pollution force species to migrate. Additionally, increased natural disasters and the presence of magnetic fields (caused by significant internet lines) harms animals. Waste treatment influences animals in cities as well (e.g. stray cats, pigeons, seagulls). Sadly, there are no urban nature protection plans."
- Yuzhen tsentralen, Bulgaria

In Puglia (Italy), great efforts are in place to strengthen the network of protected areas in terrestrial, coastal and marine environments, through the important action of the Regional Observatory for Biodiversity and the Euro-Mediterranean Center on Climate Change (CMCC).

Jumping from topics and priorities to something mentioned by all of the interviewees, the **energy** sector was a main source of concerns but also actions. Most of the time, concerns were related not to energy transition but how the **building** stock - the most energy-intensive one, generating most emissions caused by irrational use of fossils and other energy sources -

needs to be renovated. Main actions in this regard included building retrofitting and the decentralization of energy supply infrastructure (in order to be more resilient to disruptions from extreme weather events). The decentralization of the energy network is a necessary transition shaped at transnational and national levels (suffering from the same management, planning and implementation challenges of the water and coastal management mentioned above, because of the national competency of infrastructures planning), which is key for regions and local administrations as a source of empowerment and self-sufficiency, as La Reunión emphasized:

> *"La Réunion is very dependent on fossil fuels (mainly coal and petrol) and the objective is to reach 100 % energy independence by 2030 (electricity production)."* **– La Reunión, France**

Thus, the double challenge of the energy sector is both on production and consumption, and nested within a huge complexity of addressing building stock retrofitting in Europe, where most of the cities are dense and already built.

4.3 Institutional capacities and implementation challenges

Adaptation planning and implementation processes illustrate diversity in the approaches across different countries, due to the contextual nature of governance structures - that has implications for institutional arrangements, resources, and stakeholders' involvement. Understanding how these approaches work deserves special attention and it is the reason why a focus on implementation challenges has been posed in this assessment.

REGILIENCE recognises the need to acknowledge political dimensions in planning and implementation, due to the fact that many politicians may have not yet recognized climate adaptation as being politically urgent enough to elevate on the policy agenda, and they may often prioritize other political concerns. This has implications for the availability of resources and financial means in the form of staff and time[16]. Adapting to the impacts of climate change also requires the mobilization of a significant amount of funding for adaptation measures in a wide range of sectors.

Even smaller local governments and administrations often consist of different professional silos with their own internal norms, values, and priorities and that the institutional rigidity of existing administrative and political sectors creates unfortunate compartmentalization where climate adaptation is seen as the isolated task of a singular sector that may hinder mainstreaming and horizontal coordination across sectors and departments[17]. How cross-sectoral coordination is achieved in practice remains one of the major challenges in transitioning from planning to implementation.

Similar fragmented approaches for adaptation planning and implementation hinder a dynamic and diverse participation of other stakeholders in these processes.

[16] Tribbia and Moser, 2008

[17] Mickwitz et al., 2009; Burch, 2010; Roberts, 2010; Storbjörk, 2010; Runhaar et al., 2012; Vammen Larsen et al., 2012; van den Berg and Coenen, 2012; Wilby and Keenan, 2012

The following sections report the engaged respondents' perspectives on how institutional, socio-cultural, financial and knowledge dimensions limit or enable adaptation planning and implementation and what lessons can be learned from these experiences.

4.3.1 Opportunities for transformation and key drivers

When asked which were the main motivations and key drivers behind the implementation of the key actions and measures identified, about half (17/30) of the respondents mentioned that they have been implemented as part of a systemic plan. In Azores, actions were implemented following the Regional Program for Climate Change of the Azores, in order to comply with climate change mitigation and adaptation measures as included in that plan. The key drivers were the need to overcome the already identified problems related to occasional flooding, coastal erosion and strand movements in the Azores Region, whenever extreme climate events happen, on heavy rain episodes, and with the action of the sea. Besides, some episodes of drought occur during the summer time in some areas of the islands.

8/30 interviewees mentioned that the measures were implemented after a climate disaster, as for the case of the Murcia region and the torrential rainfall event in 2019, and South West, UK and the acute flooding in 2004. Only 5/30 recognised bottom-up pressure and civic movement had pushed for action, as in Guadeloupe, where more hurricanes are happening, almost every 2 years: as a reaction to the extreme food insecurity, due to the impossibility of planes to reach the island during the emergency, the community called for a need to stop monoculture and to develop their self-sufficiency.

4.3.2 Implementation challenges

4.3.2.1 Institutional barriers

Section 3 of the survey investigated the most relevant institutional barriers when implementing climate adaptation and resilience measures. Based on the analysis of the results (Figure 9), the major barriers are the lack of regulations, institutional frameworks and procedures (34%), institutional fragmentation and difficult cooperation (31%), and lack of experience and knowledge in municipal departments (31%). Other relevant barriers refer to the lack of coordination and synergies between institutional bodies and stakeholders, as well as lengthy and time-consuming bureaucratic processes.

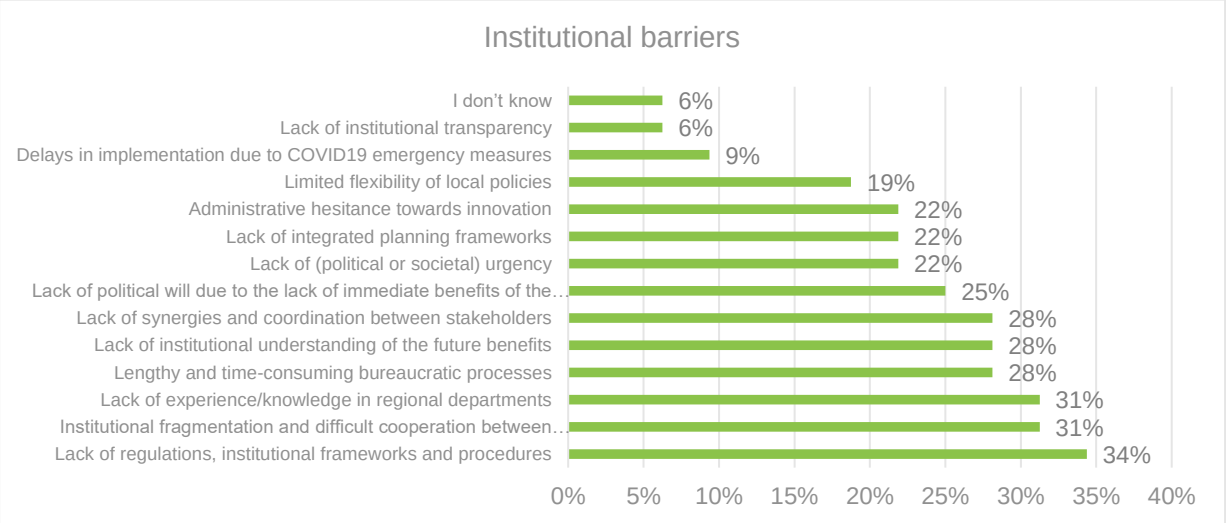

Figure 9. Institutional barriers to the implementation of adaptation

The main insights from the survey results were widely confirmed by the interview conversations, where most interviewees especially called for the need to have systemic coordination at regional level, which is often hindered by a lack of interest in climate related challenges, a topic that scores a low priority for the regional government, but that would instead require to jump at the top of the political agenda. Half of the interviewees highlighted the lack of proper transposition of national and regional guidelines to make municipalities aware of existing tools and future scenarios. General lack of skills and expertise on the topic was another point particularly stressed, connected to the call for more training for technicians in the different municipal and regional departments.

As already emerged in the survey, most of the respondents recognised the institutional fragmentation and difficult cooperation, intensified by issues of overlapping competencies in most of the cases that impede to design more integrated policies.

Looking more closely into the quality of cooperation between different levels of government, both horizontally and vertically, Question 2.2 analysed the cooperation and coordination between regional and national levels of government or administration. As shown in Figure 10, only 2% of the respondents stated that it is “Very good”, while the majority of the respondents graded it as “Good” (30%), followed by “Acceptable” (24%). It is noteworthy that more than 30% of the respondents graded this cooperation as “Poor” or “Very Poor” (respectively 28% and 6%).

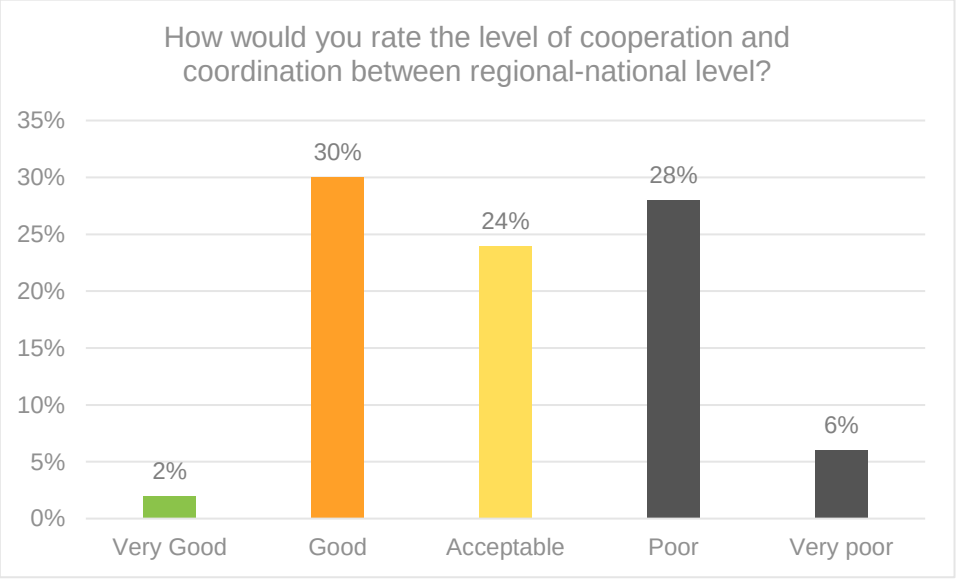

Figure 10. Cooperation and coordination between regional-national levels

In the survey, the respondents had the opportunity to explain the rate they have given in the next question. Some of the recurring reasons that were cited include the lack of communication, the overlapping of competences, and poor links or articulation at the local level. In general, it appears there is significant room for improvement in the coordination between the national and the regional level.

The same question was asked to investigate the level of coordination and cooperation between the regional level and the sub-regional bodies (Figure 11), such as metropolitan areas and/or municipalities. Based on the survey analysis, it seems that this level of coordination works

slightly better than the coordination between national and regional government. In fact, 2% of the respondents stated “Very Good”, more than half indicated “Good” or “Acceptable”, while nobody rated it as “Very poor”. Nevertheless, also in this case there is room for improvement, given that 26% of the respondents still consider this coordination and cooperation as “Poor”. A possible explanation provided by some of the respondents is about bureaucracy and outdated regulations, even in regional context where the professional competences within the municipal administration are considered generally good.

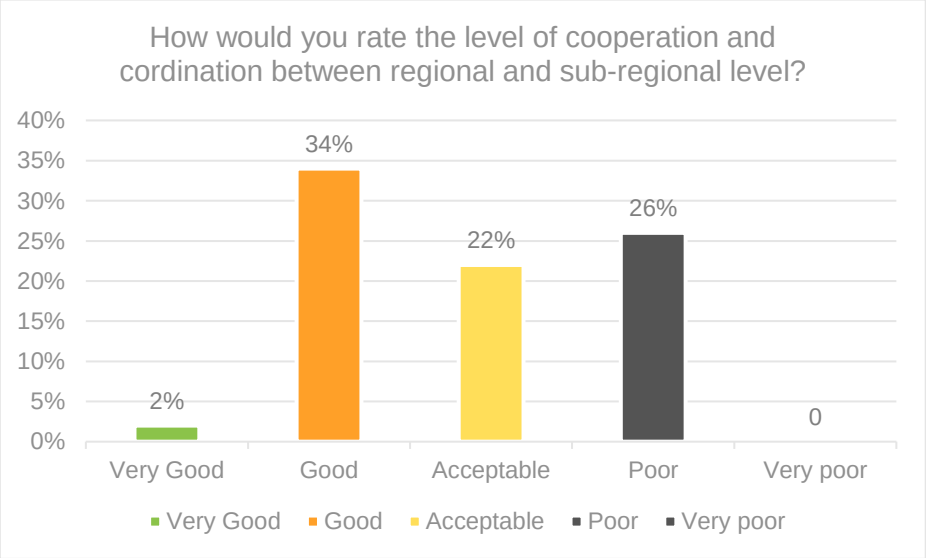

Figure 11. Cooperation and coordination between regional and sub-regional level

Moving to the horizontal cooperation and collaboration across different municipal departments (such as transportation, health, planning, etc.), 4% indicated “Very Good”, 34% “Good”, 20% Acceptable, 26% Poor, and 2% as “Very Poor” (Figure 12). The collaboration between municipal departments is often used as example to discuss the governance problem of “silos”. Some of the reasons provided by the respondents include a general lack of collaboration, poor knowledge, and non-transversal working methodologies.

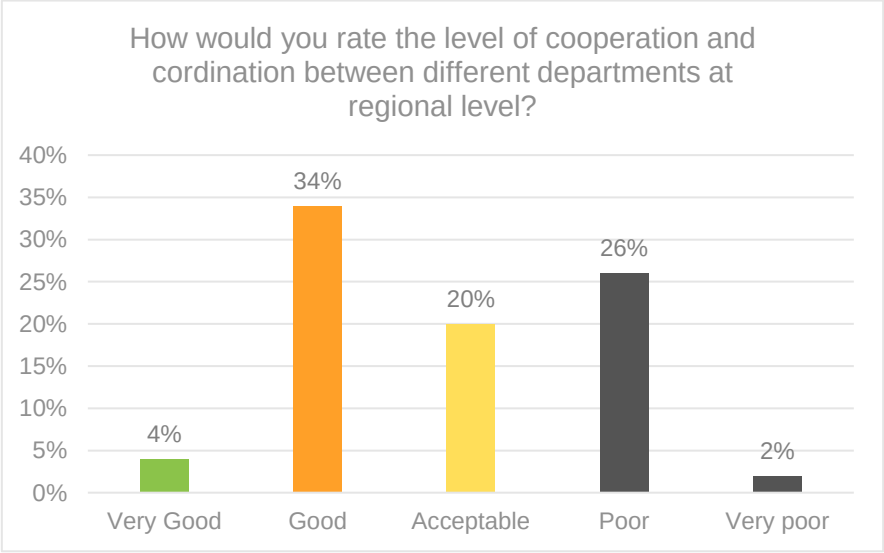

Figure 12. Cooperation and coordination between different departments

Summing up the results of the survey on this topic, it seems there are no relevant differences between vertical and horizontal coordination, as well as there is no specific area which requires critical intervention or urgent change. However, regions tend to rate the coordination between national-regional level as more poor compared to regional-subregional and across departments.

Drawing from the interviews' results, a couple of successful cooperation experience come the Murcia region, in Spain:

> *"The regional technical department of architecture, urbanism and territory, coordinates 45 municipalities, to encourage and support them to carry out the work, by providing directives and guiding policies. Within the strategy for architecture and sustainable construction, it promotes the use of nature-based solutions (NBS) in urban public space, decentralised water management and sustainable drainage systems to deal with flooding."* **– Comunidad Autónoma de Murcia, Spain**

From the Provincia Autonoma of Trento, in Italy:

> *"Trentino Clima 2021-2023 is the working plan for the development of the strategy, approved in 2021 by the Provincia's council. Coordinating the Province's "Tavolo provinciale di Coordinamento e Azione sui Cambiamenti Climatici" (Roundtable for Coordination and Action on CC), technical working group involving all the sectoral departments."* **– Provincia Autonoma di Trento, Italy**

And the Azores islands in Portugal (Direção Regional do Ambiente e Alterações Climáticas (DRAAC) – Regional Directorate for Environment and Climate Change):

> *"We work together with other sectors of the Regional Government of the Azores, such as the Regional Directorate for the Forestry Resources, the Regional Directorate for Energy, the Regional Directorate for Marine Affairs, among others, and also with other entities such as the municipalities, private companies in the transportation and energy sectors. We are now implementing the Climate Neutrality Roadmap (Roteiro para a Neutralidade Climática), which will improve the integrated knowledge and network capacity between these stakeholders."* **- Azores, Portugal**

From Lazio (Italy)**,** the representative from the metropolitan area of Rome, shared some insights on the peculiar governance structure and consequent challenges:

> *"Lazio region has 6 million inhabitants, and 4 of these reside only in the Metropolitan Area of Rome. On one hand, overlapping competencies among different jurisdictions (regional, metropolitan, and so on...) represent one of the main issues faced in the area, especially in relation to water management. On the other hand, a number of administrative and governance challenges also emerge due to the centralisation of most of the competencies (i.e. waste management, security and maintenance, etc.) under one single municipal administration, so called Roma Capitale, which is in control of a way too large and complex territory."* **– Lazio, Italy**

4.3.2.2 Socio-cultural barriers

In Figure 13, the most relevant socio-cultural barriers are listed. According to the results, one out of two respondents indicated “Lack of role-models and good practice” as the main barrier, followed by “Lack of long-term commitment of communities involved in projects” (44%) and “Low social acceptance of the importance of climate change adaptation” (41%). The lowest barrier indicated is mistrust in local/regional governments (28%). Compared to institutional or financial barriers, the analysis of the socio-cultural barriers does not highlight a specific challenge to be addressed more urgently than others. Rather, it shows how socio-cultural barriers are more difficult to analyse and tackle separately.

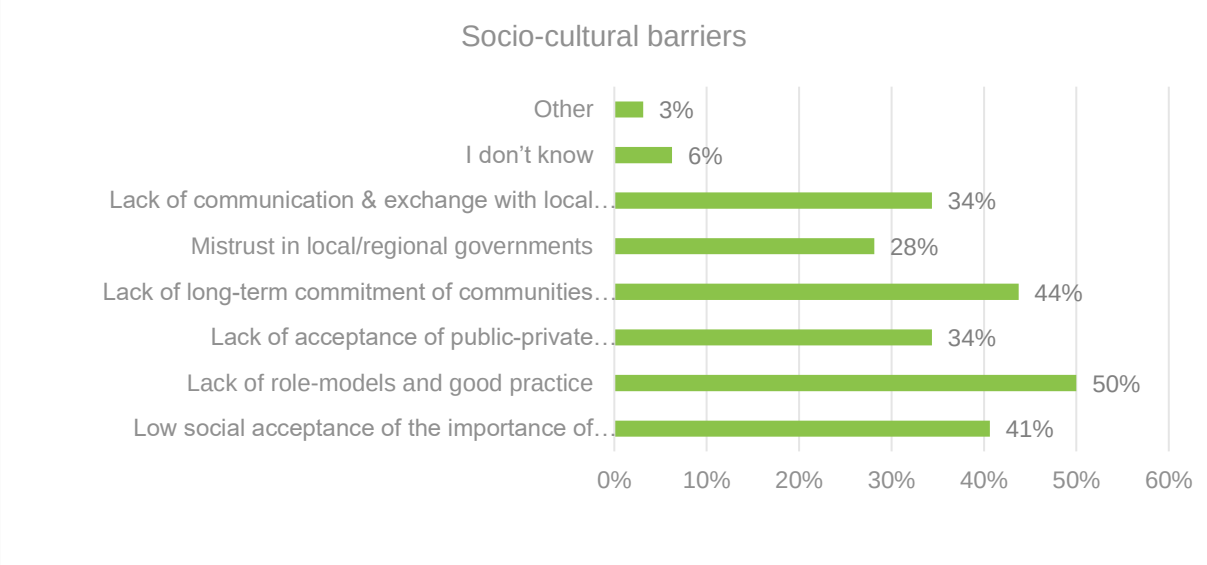

Figure 13. Socio-cultural barriers

When generically enquired on challenges and obstacles faced in the implementation of measures, the socio-cultural ones were the least mentioned. In only a few regions, the most identified challenges relate to the lack of awareness in the community. In regions with a particular touristic vocation, such as island or peninsular areas as Jadranska Hrvatska (Croatia), Azores (Portugal) and Guadeloupe (France), the need to raise awareness especially among tourists and visitors.

4.3.2.3 Financial barriers

The analysis of financial barriers in the survey (Figure 14) indicates that the lack of funding from the national government is a problem according to 50% of the respondents. Other relevant barriers are the lack of attractiveness for potential investors (47%) and the lack of market-oriented adaptation strategies (44%). Lack of international public funding (e.g. EU funding) and budget constraints or cuts due to the COVID-19 pandemic are not seen as significant barriers. The lack of national funding is a barrier probably related to the “more structural” difficult coordination and cooperation between the national and regional levels, as emerged from Section 2 of the survey. This is also reflected in the respondents’ limited interest in engaging representatives from the national government in upcoming REGILIENCE activities (Figure 20).

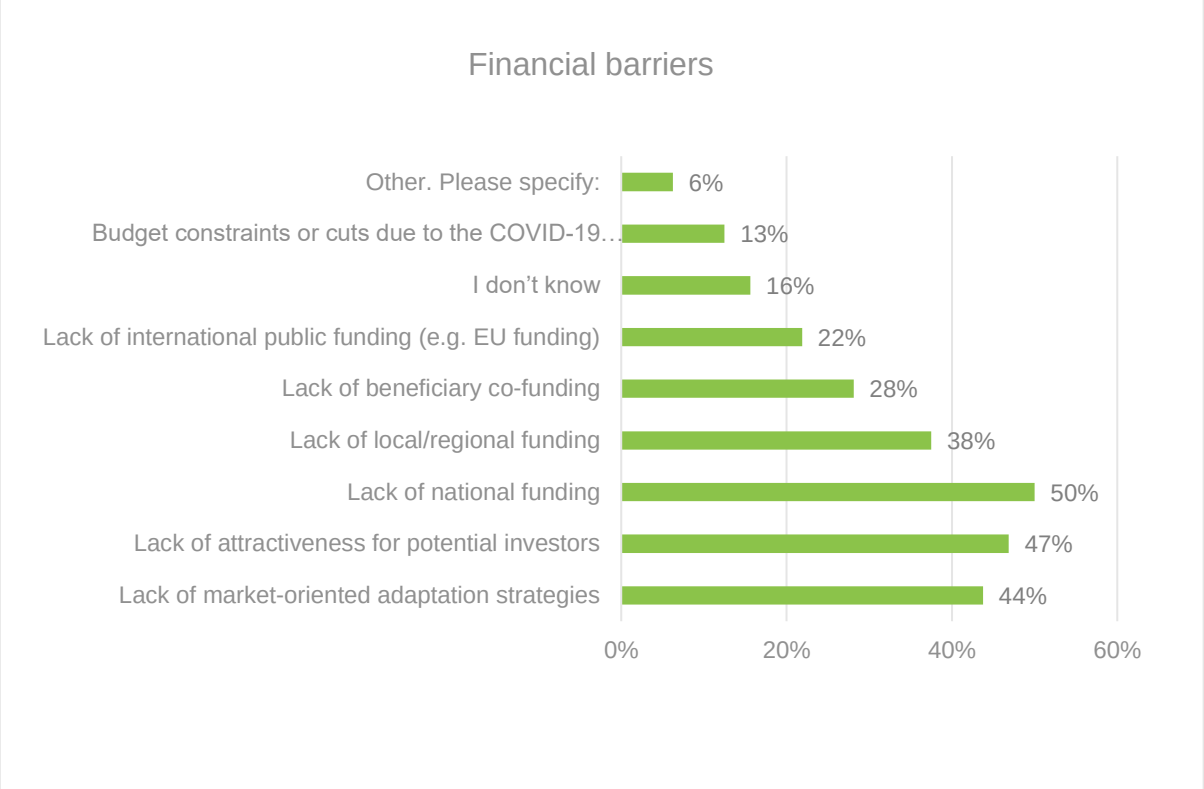

Figure 14. Financial barriers

The general lack of funding and financial capability to overcome crucial and strategic needs, and to dedicate especially to human resources and necessary equipment, was also the most relevant challenge recognised by the interviewees. Most regions recognised the availability of a great number of resources coming from the Recovery and Resilience Facility, but at the same time a lack of personnel to implement the needed measures.

Guadeloupe region highlighted an important financial gap due to the island being considered part of a developed country, as a French region, even if very similar to the rest of Caribbean islands that belong to developing countries, and therefore have access to international recovery funds:

> *"For this status, when a hurricane hits, our neighbour islands are able to recover faster than us. As a French region, we can access AFD loans, but these mainly focus on mitigation policies, as for now, while what we urgently need is to implement effective adaptation strategies, and we need it now."* **– Guadeloupe, France**

Among other important considerations, we can find how often funding very limited in time do not foster continuity of implementation, while rather only allowing for punctual and isolated actions.

> *"The irregularity of the flow of resources is one of the main obstacles. Many of the activities, that regions such as Puglia manage to carry out, are tied to the availability of EU funds, with pathways and cycles that do not allow for effective and continuous organic action over time*" **– Puglia, Italy**

The structure of the funding, which often also comes in silos, naturally leads to siloed approaches, when dealing, for example, with flooding, water pollution and drought. There is

growing awareness of the need for ecosystem-based, institutional, and social measures, although engineered and technological adaptation options are the most common adaptive responses. The urgent need for effective mechanisms to ensure more continuous resources and funding opportunities to promote more integrated approaches has been acknowledged widely among stakeholders.

> *"Everyone would like to invest in NBS, but the funding formula does not allow for it. This leads to prefer engineer solutions that are much "easier" to implement and receive funding for."* – **South West County, UK**

As a more cross-cutting reflection, which can be related to institutional capacities and stakeholder engagement challenges, refers to the low level of knowledge of how to use existing financial opportunities and how to put in place financial models that could also incentivize the private sector to step in.

In this regard, Section 3 of the survey included questions to get a deeper overview of which specific sectors are considered to lack adequate funding. In particular, question 3.2 (Figure 15) investigated if there was a climate adaptation and resilient sector which currently lacks funding in the regions. 44% of the respondents stated that there is currently a lack of funding, while only 6% indicated "No". However, the results suggest uncertainties about the topic, given that half of the respondents was not sure or was not able to reply. This could be related to lack of information or limited overview of different sectors. Based on the result of this question, lack of funding seem to be an issue, but further investigation and better understanding is needed.

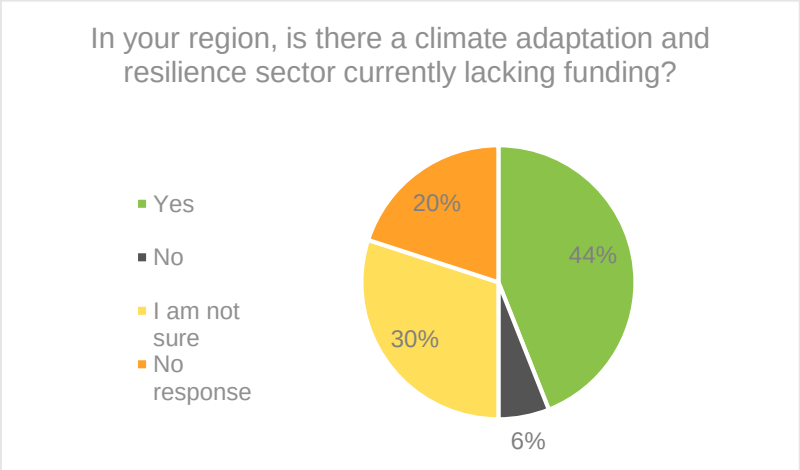

Figure 15. Lack of funding

The follow-up questions explored more in detail which sectors are currently considered to lack adequate funding. As an overall result (Figure 16), it does not appear that there is a sector which specifically needs more funding, although transport seems to be considered a key area of intervention (44%). Other sectors that currently lack funding include energy, water management, ecosystem restoration, and forestry (38%), followed by buildings and agriculture (34%), coastal areas, marine and fisheries, and biodiversity protection (31%).

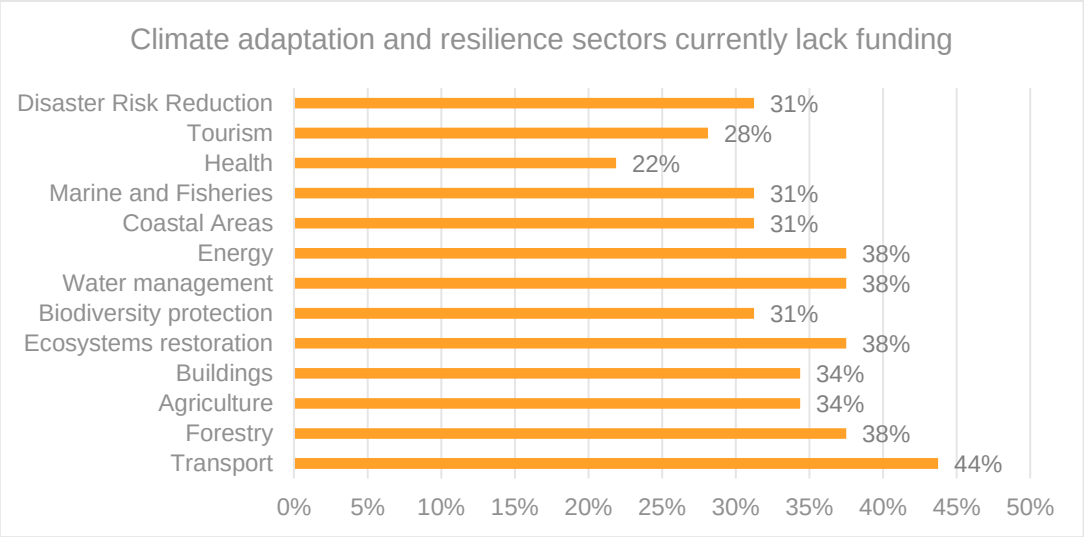

Figure 16. Sectors lacking funding

Another element to consider is the priorities on the local authorities' agenda. It is likely to think that there are more initiatives in the sector of public transport (and therefore more demand for funding), rather than in the marine and fisheries sector. Moreover, the geographical characteristics of the regions considered might also affect the results: for example, regions with an economic base strongly dependent on tourism might require more funding than others; regions which do not overlook the sea might not see fisheries as a priority.

More in detail, it is interesting to reflect on some specific data. The energy sector scored 31%, and it is likely to become more and more strategic in the upcoming months, given the current energy crisis in Europe. Moving to the sector of health, the score is relatively low (the 13th out of the 14 considered sectors), and different interpretations are possible. On the one hand, this is a sector that has been receiving a lot of funding lately, especially after the Covid-19 pandemic (at least if compared to other sectors); on the other hand, this result could mean that the links between climate resilience, health and well-being are still under exploration in some of the regions.

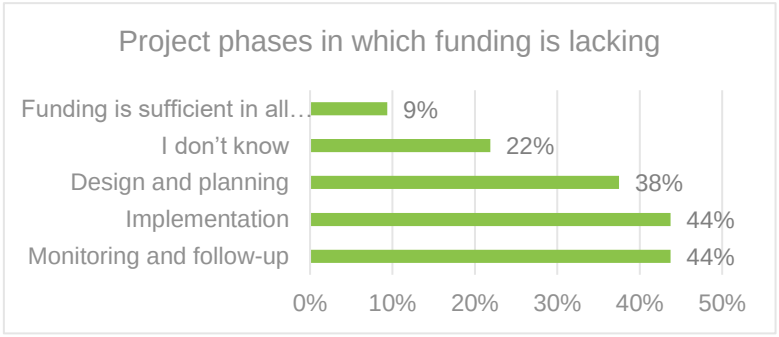

Figure 17. Project phase lacking funding

Continuing the analysis about the lack of funding, the question 3.3 investigated if funding is lacking in a specific phase of the project (Figure 17). Almost 45% of the respondents think that the lack of funding is more critical in the phases of implementation and monitoring, followed by the design phase (38%). Only 9% believe that funding is enough. As a result, it is difficult to conclude that there is one specific phase of the project that lacks more funding than the others.

4.3.2.4 Knowledge and information gaps

According to the survey analysis of the knowledge gap that might hinder decision making processes (Figure 18) 53% of the respondents indicated “Lack of a methodological approach to apply the available knowledge” as main barrier, followed by “Lack of reliable data” at 50%. Other barriers emerged are “Limited access to data and scientific information” and “Lack of appropriate software to use scientific/climate information and analyse data” (both barriers were rated at 41%). Also in this case, the results do not show a specific main barrier to address, but rather a combination of issues which regional authorities face. It suggests the importance of improving overall regional authorities’ capacities, especially access to data, tools and the capacity to use these. Yet, this does not cover all the emerged knowledge gaps. In this sense, it could be useful to share knowledge, tools, experience, and best practices through events, webinars and regional workshops.

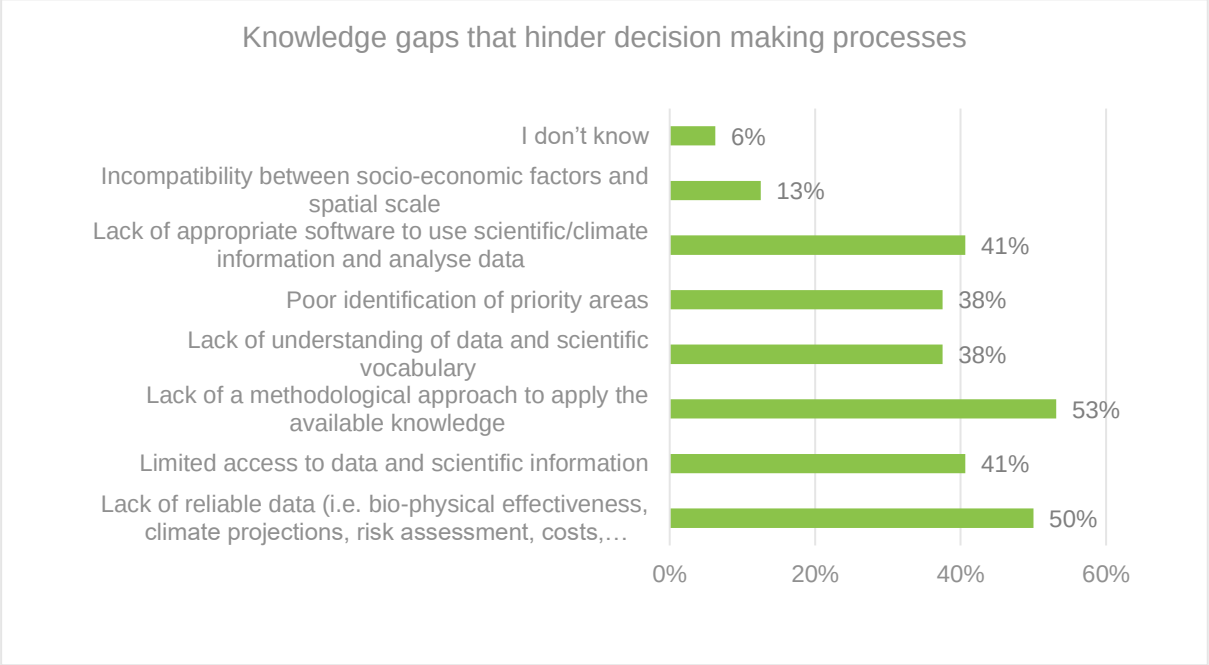

Figure 18. Knowledge gaps that hinder decision making processes

From the interviews, the major obstacles are related to the lack of regionalized climate data, and in particular, Madeira, autonomous region of Portugal, stressed this point:

> *“Mandatory data collection and reporting is fundamental at a regional level, as often the national authorities fail to consider islands in fundamental climate and energy domains. It is necessary to encourage as much as possible the training of technicians and the involvement of politicians, to incorporate climate change adaptation in day-to-day decision-making processes.”* **– Madeira, Portugal**

4.3.3 Stakeholder engagement

Section 4 of the survey was dedicated to stakeholder engagement, with the objectives of understanding which particular stakeholders should be involved in the REGILIENCE project. A first question was directly related to understanding which stakeholders affected by climate adaptation and resilience solutions should be involved in future capacity-building activities (Figure 19). 90% of the respondents indicated “Technical representatives from local and regional governments”, showing that the technical representatives are highly critical in implementing resilient and adaptation solutions and should be involved in the stakeholder group of REGILIENCE activities. At the same time, more than 80% of the respondents pointed out “Political representatives from local and regional government” (86%), and Academia and research institutes (82%). Following in order, the respondents indicated “Representatives from private companies”, “Energy, Climate and Development agencies”, “Citizens”, “Non-Governmental Organizations (NGOs)”, “Community-Based Organizations (CBOs)”, and “Representatives from the national government”. It is interesting to point out that the involvement of citizens and communities is not considered very high, potentially hampering or reducing the space for bottom-up initiatives. At the same time, the involvement of representatives from the national government is considered the least relevant among the category of stakeholders. This outcome could be linked to the general performance of horizontal and vertical coordination highlighted in Section 2, where the cooperation between regional and sub-regional bodies is seen as more effective than the cooperation between national and regional levels.

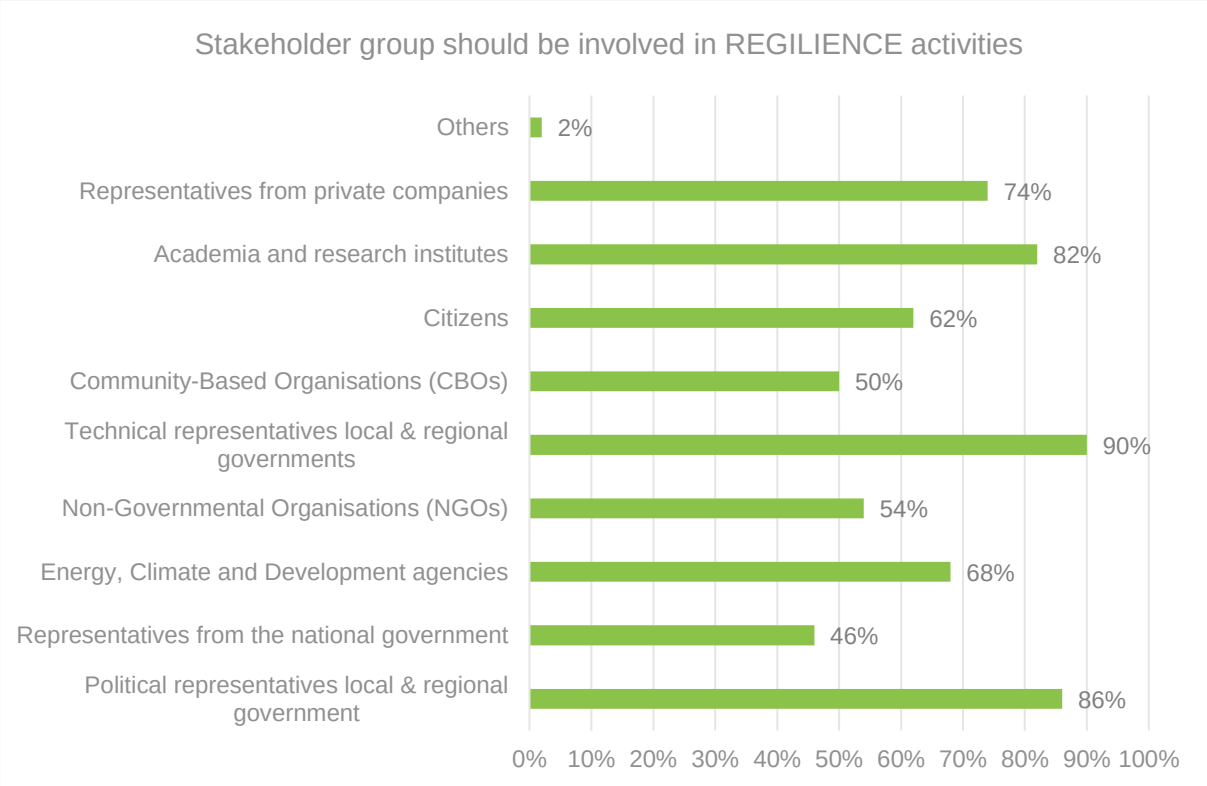

Figure 19. Stakeholder groups

A follow up question aimed to understand in which specific activities the respondents from regions would be more interested in participating as part of the REGILIENCE project (Figure 20). The largest interest is for region-specific webinars and workshops (76%), followed by large events such as conferences and forums (70%). Other activities which proved to be interesting are general online webinars and workshops and the involvement in innovative public-private partnerships. On the contrary, peer-to-peer mentorship and helpdesk/individual support scored as the least interesting activities. A partial explanation, confirmed during the round of interviews, is the lack of details in describing these activities, making it more difficult for the respondents to fully understand the benefits of these activities.

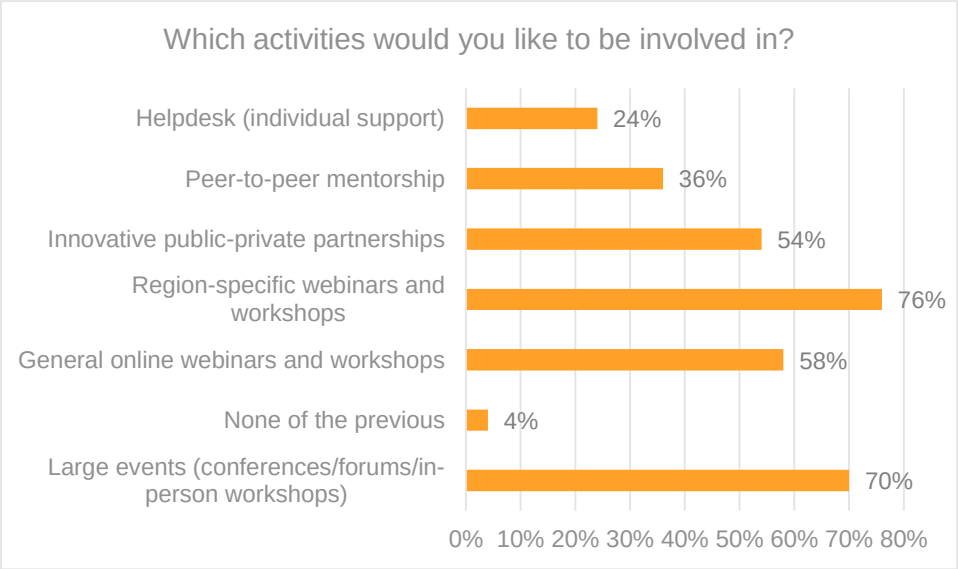

Figure 20. Interest in the activities to be further engaged in

In the interviews, the set of questions related to stakeholder engagement, aimed at understanding the state of the art in the regions, regarding stakeholder mapping and the success factor (or shortcomings) of potential participatory processes initiated.

More than half of the interviewees highlighted that stakeholders from the majority of the relevant sectors are identified and some engagement processes have already been kick-started. In most of the regions, participation took place only in the diagnostic and planning phase, in order to collect proposals and define courses of action. These processes were generally considered to be very successful, but for all the interviewees, it was clear how the regions are still very far from involving stakeholders – especially the private sector - to commit to the implementation of measures, and no process in this sense is envisioned yet.

Examples of successful participatory processes in the strategy definition phase can be found in the city of Thessaloniki (Central Macedonia, Greece):

> *"The city Thessaloniki has initiated the stakeholder engagement in developing the Sustainable Urban Mobility Plan and the Resilience Strategy. This process has been successful as it has brought the local authority and the stakeholders closer in discussing pressing matters of the city and building a vision together. The city aims to further develop the participatory processes including more vulnerable and underrepresented groups."* – **Central Macedonia, Greece**

And from the Provincia Autonoma di Trento (Italy) in relation to the development of the Trentino Clima 2021-2023, previously mentioned in section 4.3.2.1:

> *"We are coordinating a scientific committee (not formalised but in practice operating since a year and a half), to which almost all scientific actors of the Provincia participate (Trento University, Mach Foundation, Bruno Kessler Foundation, MUSE - Science Museum of Trento, HIT - Trentino Innovation Hub) to support the Strategy's development. Coordinating also with another important actor, the Provincial Forum for Climate Change, doing information and education on CC and comprising institutional and non-institutional actors, including NGOs and civil society actors."* **– Provincia Autonoma di Trento, Italy**

5 Conclusions

The analysis developed within REGILIENCE task 1.1 – i.e. through the survey and individual interviews - has provided relevant information for the project partners to:

- highlight needs in Europe to accelerate transformative pathways towards regional resilience
- define criteria to identify the target regions in Europe that should access tailored REGILIENCE activities

This chapter provides a summary of the main needs highlighted by the regions engaged. Based on them, in the next few months, the REGILIENCE consortium - guided by ICLEI - will select up to 10 regions that will gain access to tailored-made services and activities in the framework of the project.

Regional needs for urban resilience and climate adaptation

From the analysis of the results presented in the previous chapters, it is clear that Europe urges to accelerate climate adaptation action to increase its resilience at the regional scale. The results have shown the main issues to be considered in order to support regions in their transformational pathways. In particular, different layers of complexity have been studied, considering institutional, socio-cultural, financial and knowledge aspects of resilience. The study has demonstrated that all these aspects are strictly connected and should be analysed with a cross-cutting perspective.

Interestingly enough, by analysing financial needs, this document has highlighted that **economic resources are not a major concern for European regions**, which have seen in the last few years a considerable increase in the financial opportunities to fight climate change. What regions still need are augmented human resources to work on the topic and cooperation and coordination to distribute and manage available funds. **Central needs that emerge from the collected data are therefore cooperation and coordination**. Regional authorities recognise the urgency of taking action to reduce the risk of – more and more frequent – disasters. However, this is not possible without a coordinated strategy that involves authorities from the local to the national level while considering the ideas, needs and challenges of different stakeholders for each of these levels. Particularly, regional representatives criticise the interface with national governments, which are key actors to fund resilience-building processes. Time and spaces for this cooperation must be enabled and supranational support could be needed in this respect.

Awareness raising is also an important element to make sure that a resilient transition is socially accepted and sustained. Regions ask for role models to look at to develop a just and resilient transition at the same time. More specifically, the most tourist-intensive regions show a need to articulate complex awareness-raising action that involves visitors, who may result particularly vulnerable to extreme climate events.

In this respect, the accessibility of data is a key enabler to inform multilevel strategies to build regional resilience. Together with data, institutions must find solutions to **increase capacity** of administrative staff to apply the available knowledge and take climate action.

From a content perspective, water management is certainly the main concern for regional authorities dealing with climate disasters. From flooding to droughts, coastal erosion and wildfire management, water has a central role in disaster risk reduction. Regional governments must be supported to learn quickly how to deal with this limited resource.

To summarise, the financial resources dedicated to tackling climate change in Europe need to be supported by a more consolidated approach on horizontal and vertical cooperation and coordination between and within any relevant public department and other stakeholders. In particular, public authorities should increase human capacity and promote training that enable quicker and strengthened climate action. Citizens must play a key role in this process that will succeed only if communities are aware of climate risks and interested in fighting for a more resilient future. REGILIENCE aims at accelerating this process and providing support to the regions that mostly need it and are committed to take action.

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Annex

Annex I

Prioritization of the 51 targeted regions at the proposal phase

A prioritised focus on most impacted regions and target audiences is necessary for an effective and efficient demand-based portfolio of solutions. Regional climate resilience pathways shall be fostered based on the Innovation Packages and other existing experiences and solutions, available in various platforms.

The criteria for this preliminary selection are the following:

- Climate risk: Climate vulnerability including high projected multi-sector losses, see Figure A centre and right
- Experience: Modest or moderate innovation performance, see Figure A left
- Capacity: Scarcity of resources, in terms of regional and individual GDP, see Figure B
- Just transition: regions with important coal mines and/or coal-based power plants, see Figure B

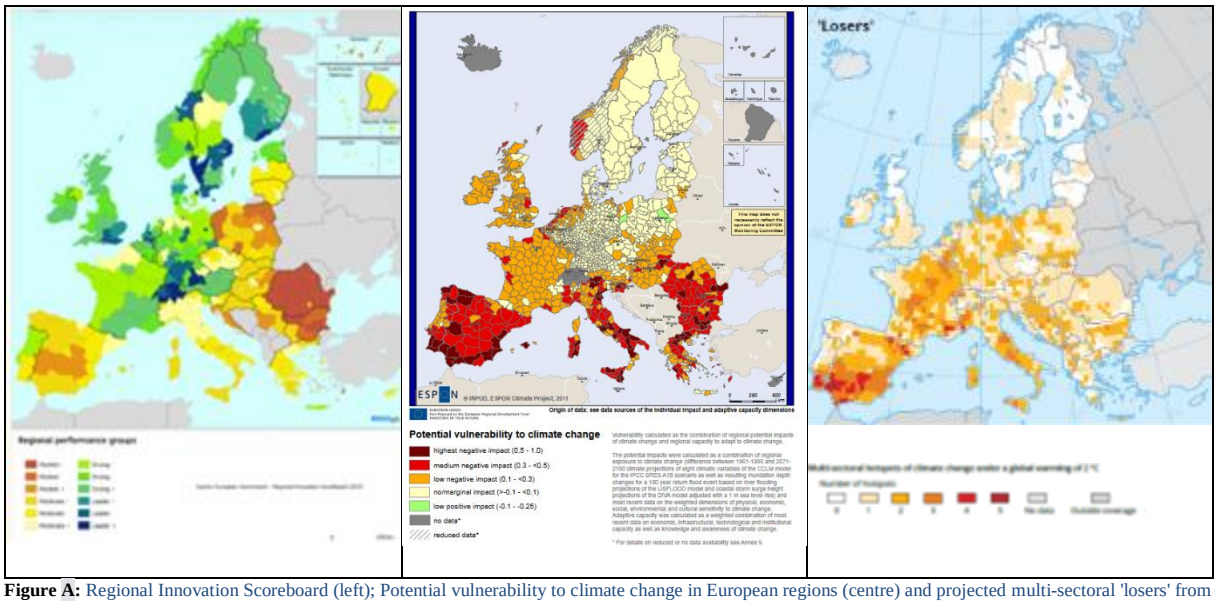

Figure A: Regional Innovation Scoreboard (left); Potential vulnerability to climate change in European regions (centre) and projected multi-sectoral 'losers' from climate change (right)

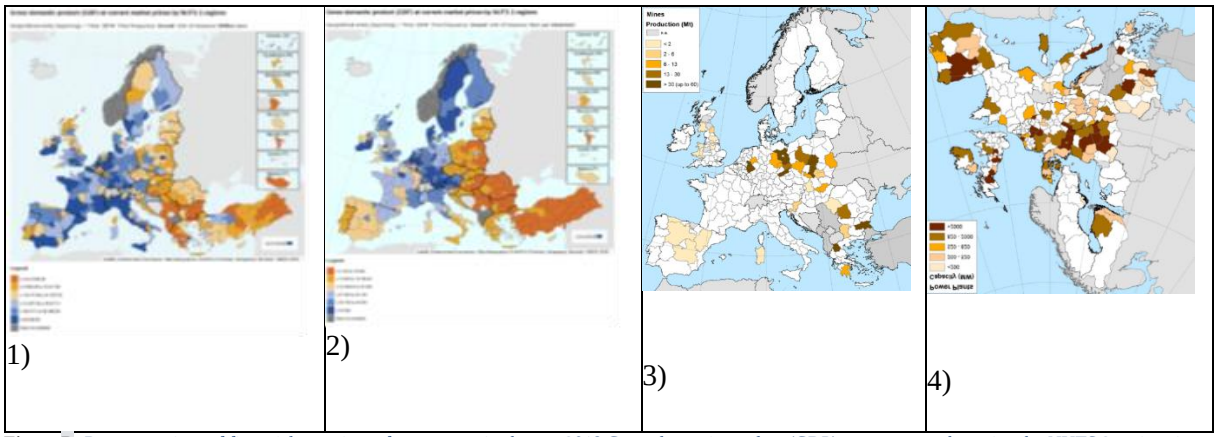

Figure B: Representations of financial capacity to foster systemic change: 2018 Gross domestic product (GDP) at current market prices by NUTS 2 regions in Million € (1) & 2018 Gross domestic product (GDP) at current market prices by NUTS 2 regions in €/inhabitant (2), Just transition: Annual production of coal mines, aggregated at NUTS-2 level (3) and installed capacity of coal-fired power plants, aggregated at NUTS-2 level (4)

Annex II

Informed consent form for the use of data

We would like to invite you to take part in an activity being carried out by REGILIENCE, a 4-year project funded by the European Union within the framework of the H2020 Research and Innovation programme. Before you decide to take part in our project's activity, please take some time to carefully read this information sheet and ask questions about anything you do not understand.

1. About REGILIENCE

REGILIENCE, a project funded by the Horizon 2020 programme, will support cities and regions in their efforts towards building climate resilient pathways, facilitating the process by identifying and upscaling the most promising solutions. The project will communicate them through various channels and actions, inspiring policymakers, organisations and individuals to become part of the change and accelerating the necessary transitions in European communities and regions.

To make this support effective, REGILIENCE will implement almost 700 activities (events, trainings, peer to peer mentorship, helpdesks, informational and communication material, etc.) to share experiences, learn from failure, provide guidance and disseminate knowledge and tools.

The project will be implemented over 48 months by 9 partners, led by IEECP and Fresh Thoughts with the engagement of networks (FEDARENE, ICLEI, R-CITIES, F6S) ad knowledge holders from science and practice (FD.ID, adelphi, REGEA).

In parallel, REGILIENCE will work closely with 3 sister projects to amplify the reach and impact of results, coordinate actions and maximise benefits for communities impacted by climate change, with a research and innovation budget of €45 million. By identifying common goals, challenges and work areas, IMPETUS, REGILIENCE, ARSINOE and TransformAr will achieve the best possible outcomes for communities and regions impacted by climate change, with a holistic approach (including sectors such as water, energy production, health, agriculture, fisheries and more). This work is led by the Coordination Support Action team within the REGILIENCE project, who will replicate the Innovation Packages in 10 vulnerable and low-capacity regions.

2. Your participation is voluntary

Your participation is entirely **voluntary**. If you decide to participate in a REGILIENCE activity, we will ask you to **sign a REGILIENCE Informed Consent Form** (provided in the next section) to collect and process your data. The project will last for 48 months but your involvement would only be for as long as you wish.

3. Purpose of data collection

Note: *In this section the specific project activity and its purpose should be briefly explained. The following paragraph serves as an example.*

We would like to learn more about your perceptions around development of the regional resilience pathways. Your feedback will help us identify factors of success and failure that favour or hinder the uptake of resilience pathways in your regional/local area.

To effectively conduct this, we need to process some of your personal data:

- Your contact details;
- Your professional info (organisation, job position, field of expertise);
- Your opinions on the subject matter.

4. Use of data

The information you provide will be **confidential**. Your data will be only shared with REGILIENCE project partners that are involved in the data analysis and reporting process. Once the data is analysed, a report of the findings may be submitted for publication. The project's deliverables that will be derived from this activity will not include your personal data or any other information that could identify you. The results of this project activity may be also shared with European Union representatives (e.g., the Project Officer evaluating the project's progress, auditing EU agencies). Only broad trends will be reported, and **it will not be possible to identify any individuals**.

5. Access, deletion of information or consent withdrawal

According to the General Data Protection Regulation (GDPR), you have the right to ask us to: (i) give you a copy of your data, (ii) correct your data, if you think they are not accurate, (iii) erase your data, (iv) limit or stop processing applied to your data, or (v) give you your data in an appropriate format and to transfer them to another organisation. You may also withdraw your consent and, therefore, your participation at any time without consequences. Anonymous data already collected will be used because we cannot trace the information back to you. No further data would be collected, or any other procedure would be carried out in relation to your information.

In case you wish to verify the personal data that we store, have it modified, corrected, deleted or request a consent withdrawal, you may communicate with the responsible partner listed below and ask a copy of the **REGILIENCE Data Subject Consent Withdrawal Form.** Please fill in the form, explicitly describing your request, and forward it back to the partner conducting the project activity or our project contact info@regilience.eu.

6. Contacts

REGILIENCE partner conducting the project activity		**REGILIENCE project coordinator**	
Partner name:	Please include contact details of partner conducting the activity	**Partner name:**	IEECP
Contact person:	--//--	**Contact person:**	Jen Heemann
Phone:	--//--	**Phone:**	+31 6 8448 20 84
Email:	--//--	**Email:**	jen@ieecp.org
Website	--//--	**Website**	https://ieecp.org/

7. Consent

I, the undersigned, confirm that (please tick box as appropriate):	YES	NO
I voluntarily agree to participate in this project.	☐	☐
The procedures regarding confidentiality have been clearly explained (e.g. use of names, anonymisation of data, etc.) to me.	☐	☐
The use of the data in sharing, archiving, dissemination, and publications has been explained to me.	☐	☐
I agree to having my email address and details saved for future communication, in line with GDPR (General Data Protection Regulation in the EU)	☐	☐
I agree to appear in pictures/videos that may be taken during the activity as evidence of the activity itself and as possible promotional material for the REGILIENCE project. I understand that these pictures will not be provided to any organisations for commercial purposes. However, they may be processed by third parties as a consequence of their dissemination at international level through the project's social media and website. I understand that the consortium has no control on the images after dissemination.	☐	☐
I agree that REGILIENCE project partners contact me in the future to invite for further activities of this project or in future studies of a similar nature.	☐	☐
I agree that project researchers of the other Innovation Action projects which closely collaborate with REGILIENCE, namely TransformAr, IMPETUS, and ARSINOE, contact me in the future to invite for their projects' activities.	☐	☐

8. Participant

Name, Surname of participant:
.....

Gender: ☐ Male ☐ Female ☐ Other ☐ Prefer not to say

E-mail (optional):
.....

Date: .....

Signature: .....

Annex III

Introduction to the Survey for participants

We would like to invite you to take part in a research study, part of the European project REGILIENCE - funded by the European Union's Horizon 2020 programme - which aims to foster the adoption and wide dissemination of regional climate resilience pathways, following a demand-driven approach.

What is the purpose of the study?

This survey aims to gather experiences from vulnerable regions in different parts of Europe, in order to understand common needs and challenges to adapt to climate change impacts.

What are the benefits of taking part in the study?

By completing this survey, you have the opportunity to raise important challenges that you encounter in your daily work or life and make us incorporate your needs in the activities of our project. This may provide you with new helpful tools to build regional resilience. Through this questionnaire we aim to select the 10 most vulnerable regions in Europe that will receive our tailored support and that will benefit from the participation in our next activities. With this research we also want to offer an overview of the vulnerable regions that should receive further support opportunity within the upcoming European projects in the framework of the Mission for Climate Adaptation and Societal Transformation, recently adopted by the European Commission. Finally, your region/entity will gain visibility as a contributor to the study in our publication and through the project communication channels.

Why have I been invited to participate?

You have been invited to participate in this study because the area where you live, work or commute has been identified as one of the 50 most vulnerable regions to the impacts of climate change in Europe. As a representative of a local or regional authority, the civil society, a scientific body or the business sector, you can provide a unique perspective that is highly valuable in planning our activities.

What will happen if I take part in the study?

We ask you to respond to a questionnaire that will take only about XX minutes of your time. It will include questions to understand your perception of and experience with resilience to climate change. Your personal information will inform our statistics and will allow us to contact you in case we have any questions or if you explicitly indicate that you wish to further collaborate with us and benefit from our work. Your personal information will be treated confidentially and will not be shared outside of the project consortium, in compliance with the EU General Data Protection Regulation (GDPR). All data collected will be deleted at the completion of the project (November 2025).

What will happen to the results of the research study?

The results of the study will inform the project publication "Resilience planning & development needs of regional authorities and stakeholders". This document will be shared with all individuals participating in this survey. No personal information of respondents will be shared in the document or any other public channel. Regular updates on the project can be found on the REGILIENCE website and social media (Twitter and LinkedIn).

Further information and contact details

ICLEI European Secretariat, as one of the project partners, will lead the development of the survey and analysis of its results. If you have a concern or question about any aspect of this study, you can contact Luca Arbau at luca.arbau@iclei.org. You are free to withdraw from the study at any time by sending a request to ICLEI.

If you are dissatisfied and wish to make a formal complaint or request the destruction of your personal data you may contact ICLEI European Secretariat in Freiburg (Germany): +49 761 36 89 2-0; iclei-europe@iclei.org.

You can edit your responses until the survey is closed on **Thursday 31 March, 2022**. Questions marked with an asterisk (*) are required.

We are looking forward to your input and to learning more from your experience! Please, before starting the survey, give us your consent to the use of data by checking the box below.

Thank you very much for supporting us,

The REGILIENCE project team

A - (*) Consent to data use

Please give us your consent to process the information you provide with this survey:

I voluntarily agree to participate in this research. I also allow the organisers to analyse, publish and distribute the given information royalty-free, in all forms and in all media. The consent is given without a temporal or spatial limit and can only be withdrawn on a solid ground. I confirm that I read and accept the REGILIENCE Privacy Policy available here.

Legend:

A - For all participants in the survey

G - For local/regional governments

CS - For civil society / NGOs

P - For private sector

R - For academia / research sector

(*) An answer is required

Section 1. Personal information

A - 1.1 (*) What best describes you:

Participant ticks the one that applies and will be redirected to the specific set of questions

- **Public actor and decision maker**
  authorities in various government levels and sectors, regional/municipal departments, energy/climate and development agencies etc.
- **Private actor and business sector**
  companies, industries, developers, SMEs, investors, financial, energy suppliers, etc.
- **Knowledge actor**
  universities, experts, scientists and applied researchers, urban planners, consultants, educational organizations, etc.
- **Civil Society**
  citizens, communities, general public, social organizations, NGOs, etc.
- **Other.** Please specify:

A - 1.2 Please provide the following information:

(*) Region (please select from the list below)

If your institution is working across different regions, please tick all that apply.

Spain

- Andalucia
- Extremadura
- Región de Murcia
- Illes Balears
- Principado de Asturias
- Castilla-La Mancha
- Aragón
- Castilla y León

Portugal

- Algarve
- Alentejo
- Região Autónoma dos Açores (PT)
- Região Autónoma da Madeira (PT)

France

- Saint-Martin
- Guyane
- La Réunion
- Martinique
- Mayotte

Italy

- Sicilia
- Calabra
- Basilicata
- Puglia
- Molise
- Campania
- Abruzzo
- Umbria
- Lazio
- Veneto
- Provincia Autonoma di Bolzano/Bozen

Slovenia

- Zahodna Slovenija

Hungary

- Észak-Magyarország

Romania

- Vest
- Sud-Vest Oltenia
- Centru

Bulgaria

- Yugozapaden
- Yuzhen tsentralen
- Yugoiztochen
- Severen tsentralen
- Severozapaden

Greece

- Peloponnisos
- Dytiki Ellada
- Kentriki Makedonia

Croatia

- Jadranska Hrvatska
- Kontinentalna Hrvatska

Other

Please specify (Region, Country):

(*) Name and job title of the person responding to the questionnaire:

Open answer

(*) Gender:

- Male
- Female
- Non binary or other
- Prefer not to answer

(*) Name of your Institution of affiliation:

Address, Post Code, City, Country:

(*) E-mail:

G - 1.3 Is your institution a member of an international network?

- FEDARENE
- Assembly of European Regions (AER)
- Association of European Border Regions (AEBR)
- ICLEI - Local Governments for Sustainability
- Resilient Cities Network
- Making Cities Resilient 2030
- Other. Please specify:

A - 1.4 (*) How would you rate your level of expertise in the following areas?

- Urban Resilience
  On a scale from 1 to 5 (1= very low, 5= very high)

- Climate Change Adaptation
  On a scale from 1 to 5 (1= very low, 5= very high)

- Sustainability
  On a scale from 1 to 5 (1= very low, 5= very high)

- Regional Development
  On a scale from 1 to 5 (1= very low, 5= very high)

Section 2. Pathways towards resilience – beyond scales and sectors

A - 2.1 (*) At which level of government can clear guidelines/institutional instruments (i.e. **action plan, strategy, standards, regulations**, etc.) on resilience and climate adaptation be found in your region? (Tick all that apply)

- National
- Regional
- Intermunicipal or Metropolitan
- Municipal
- Other types. Please specify:
- I am not sure

A- 2.1.1 (*) With reference to those mentioned above, which of the following aspects are considered? (Tick all that apply)

- Climate and Environment
- Infrastructure
- Socio-economic development
- Public Health
- Post-COVID recovery

- Other. Please specify:
- I am not sure

A - 2.1.2 (*) Do they include a monitoring and evaluation system?

- All of the above
- Only some of them. Please specify: _____
- None of the above
- I am not sure

G / P / R - 2.2 (*) When dealing with climate change adaptation, how would you rate the level of cooperation and coordination between the regional and the national levels of government?

- Very Good
- Good
- Acceptable
- Poor
- Very Poor

G / P / R - 2.2.1 (*) If rated acceptable or lower, which are the main challenges you are facing with regards to the lack of cooperation/coordination and why is this happening?

Open answer

G / P / R – 2.3 (*) When dealing with climate change adaptation, how would you rate the level of cooperation and coordination between the regional level and the sub-regional bodies (metropolitan areas/municipalities)?

- Very Good
- Good
- Acceptable
- Poor
- Very Poor

G / P / R - 2.3.1 (*) If rated acceptable or lower, which are the main challenges you are facing with regards to the lack of cooperation/coordination and why is this happening?

Open answer

G / R - 2.4 (*) How would you rate the level of cooperation and coordination between the different departments (i.e. environment, transports, planning, health etc.) at regional level?

- Good
- Acceptable

- Poor
- Very Poor

G - 2.4.1 If rated acceptable or lower, which are the main challenges you are facing with regards to the lack of cooperation/coordination and why is this happening?

Open answer

R - 2.4.1 If rated acceptable or lower, why?

Open answer

A - 2.5 (*) Are you using an online platform to identify climate adaptation and resilience solutions and/or funding opportunities?

- Yes
- No

A - 2.5.1 (*) If yes, which one/ones?

Open answer

Section 3. Pathways towards resilience – barriers and opportunities

A - 3.1 (*) Have you ever participated in and/or contributed to climate adaptation projects?

- Yes
- No
- I would if I was invited

P - 3.1.1 If no, which are the main barriers that impede you from participating in climate adaptation projects (more than one answer is possible)?

- This is not a priority for my company
- I have never been invited to participate
- Adaptation is not economically attractive
- Data and information on the benefits are missing
- Lack of economic resources to participate in this type of project
- Lack of human capacity to participate in this type of project
- Other. Please specify:

CS - 3.1.1 If no, which are the main barriers that impede you from participating in climate adaptation projects (more than one answer is possible)?

- I have never been invited to participate
- Missing information about the benefits of my involvement
- Mistrust in institutions
- Mistrust in public-private investment/partnership projects
- Other. Please specify:

G / R 3.1.1 (*) Which are the main challenges your region is facing when implementing climate change adaptation (more than one answer is possible)?:

3.1.2 Institutional

- Lack of regulations, institutional frameworks and procedures
- Lack of institutional understanding of the future benefits
- Lengthy and time-consuming bureaucratic processes
- Delays in implementation due to COVID19 emergency measures
- Institutional fragmentation and difficult cooperation between departments
- Limited flexibility of local policies
- Lack of experience/knowledge in regional departments
- Lack of integrated planning frameworks
- Administrative hesitance towards innovation
- Lack of coordination of institutional bodies with external partners and incapacity to find synergies with local and regional stakeholders
- Lack of political will due to the lack of immediate benefits of the project
- Lack of institutional transparency
- Lack of (political or societal) urgency
- Other. Please specify:
- The region is not implementing any policy on climate change adaptation
- I don’t know

3.1.3 Socio-cultural

- Lack of communication and exchange with local communities
- Mistrust in local/regional governments
- Low social acceptance of the importance of climate change adaptation
- Lack of long-term commitment of communities involved in projects
- Lack of acceptance of public-private investment/partnership projects
- Lack of role-models and good practice
- Other. Please specify:
- I don’t know

3.1.4 Financial

- Lack of local/regional funding

- Lack of market-oriented adaptation strategies
- Lack of national funding
- Lack of attractiveness for potential investors
- Budget constraints or cuts due to the COVID-19 pandemic
- Lack of international public funding (e.g. EU funding)
- Lack of beneficiary co-funding
- Other. Please specify:
- I don’t know

G / R - 3.1.5 (*) Can you name knowledge gaps that hinder decision making processes?

- Lack of reliable data
- Limited access to data and scientific information
- Incompatibility between socio-economic factors and spatial scale
- Lack of appropriate software to use scientific/climate information and analyse data
- Lack of understanding of data and scientific vocabulary
- Lack of a methodological approach to apply the available knowledge
- Poor identification of priority areas
- Other. Please specify:
- I don’t know

G / R - 3.2 (*) In your region, is there a climate adaptation sector currently lacking funding?

- Yes
- No
- I’m not sure

G / R - 3.2.1 (*) If yes, which one/ones?

- Biodiversity protection
- Buildings
- Coastal Areas
- Disaster Risk Reduction
- Ecosystem
- Energy
- Forestry
- Health
- Marine and Fisheries
- Transport
- Tourism
- Water management
- Other (Please specify):
- I don’t know

P - 3.2 (*) Which climate adaptation sectors are the most attractive financially (more than one answer is possible)?

- Biodiversity protection
- Buildings
- Coastal Areas
- Disaster Risk Reduction
- Ecosystem based approaches
- Energy
- Forestry
- Health
- Marine and Fisheries
- Transport
- Tourism
- Water management
- Other (Please specify):
- I don’t know

CS - 3.2 (*) Which climate adaptation sectors are most relevant to you (more than one answer is possible)?

- Biodiversity protection
- Buildings
- Coastal Areas
- Disaster Risk Reduction
- Ecosystem based approaches
- Energy
- Forestry
- Health
- Marine and Fisheries
- Transport
- Tourism
- Water management
- Other (Please specify):
- I don’t know

P - 3.3 (*) Which climate adaptation sectors are the least attractive financially (more than one answer is possible)?

- Biodiversity protection
- Buildings
- Coastal Areas
- Disaster Risk Reduction
- Ecosystems
- Energy

- Forestry
- Health
- Marine and Fisheries
- Transport
- Tourism
- Water management
- Other (Please specify):
- I don’t know

G / R - 3.3 (*) Is funding lacking in a specific phase of the project (more than one answer is possible)?

- Design and planning
- Implementation
- Monitoring and follow-up
- Funding is sufficient in all phases
- I don’t know

G / R - 3.5 (*) Has the region ever received EU funding for adaptation to climate change?

- Yes
- No
- I’m not sure

G / R - 3.5.1 If yes, could you please name which projects and specify the period of funding?

Open answer

G / R - 3.5.2 If yes, did any barriers emerge? If not, why?

Open answer

CS / P 3.5 (*) Do you know any EU projects for adaptation to climate change in the region?

- Yes
- No
- I’m not sure

CS / P - 3.5.1 If yes, could you please name which projects?

Open answer

A – 3.6 (*) Do you consider gender as a relevant dimension to be mainstreamed within climate adaptation strategies?

- Yes
- No
- I'm not sure

If yes, would you be interested in specific training on gender mainstreaming in climate adaptation?

- Yes
- No
- I'm not sure

Section 4. Engaging stakeholders for regional resilience

A - 4.1 (*) Which stakeholders/groups do you think should be involved in the support, training and capacity building activities conducted by REGILIENCE (more than one answer is possible)?

Comment to question: the activities to be developed include webinars, workshops, peer-to-peer mentorship, conferences, and similar.

- Political representatives from local and regional governments
- Technical representatives from local and regional governments
- Representatives from the national government
- Energy, Climate and Development agencies
- Non-Governmental Organisations (NGOs)
- Community-Based Organisations (CBOs)
- Citizens
- Academia and research institutes
- Representatives from private companies
- Other (please specify)
- REGILIENCE shouldn't involve any stakeholders

A - 4.1.1 If you indicated that NGOs should be involved, could you name at least one that may contribute to our project?

Open answer

A - 4.1.2 If you indicated that academia and research institutes should be involved, could you name at least one that may contribute to our project?

Open answer

A - 4.1.3 If you indicated that representatives from private companies should be involved,

could you name at least one that may contribute to our project?

Open answer

A - 4.2 (*) Which activities would you like to be involved in?

- Large events (conferences / forums / in-person workshops)
- General online webinars and workshops
- Region-specific webinars and workshops
- Helpdesk (individual support)
- Peer-to-peer mentorship
- Innovative public-private partnerships
- Other (please specify)
- None of the previous

Section 5. Would you like to contribute more?

A - 5.1 (*) Would you like to be further involved in co-designing the REGILIENCE engagement activities?

- Yes
- No
- I'm not sure

A - 5.2 How much time would you like to spend, after this survey, to design with us the REGILIENCE engagement activities?

- max 30min
- between 30min and 1h
- between 1h and 2h
- between 2h and 3h
- Up to 5h

A - 5.3 (*) Would you like to provide feedback and be engaged in the designing of the REGILIENCE financing tool?

- Yes
- No
- I'm not sure

A - 5.4 How much time would you like to spend, after this survey, to provide feedback and be engaged in the designing of the REGILIENCE financing tool?

- max 30min
- between 30min and 1h
- between 1h and 2h

- between 2h and 3h
- Up to 5h

A - 5.5 (*) Would you like to provide feedback and be engaged in the designing of the REGILIENCE knowledge management online platform?

- Yes
- No
- I'm not sure

A - 5.6 How much time would you like to spend, after this survey, to provide feedback and be engaged in the designing of the REGILIENCE knowledge management online platform?

- max 30min
- between 30min and 1h
- between 1h and 2h
- between 2h and 3h
- Up to 5h

A - 5.7 Would you like to share something else? Or would you like to be engaged in another way?

Open answer

A - 5.8 Do you have any final questions?

Open answer

Annex IV

Invitation to interviewees

Dear Ms./Mr,

With this email I am contacting you on behalf of the consortium of the European Union funded project REGILIENCE. The project kick-started in November 2021 and aims to support cities and regions in their efforts towards building climate-resilient pathways. The reason of my contact is to better understand your region's needs and how the project can be of any support.

I would like to thank you for already participating in the REGILIENCE survey. Your input was very useful and allowed us to collect valuable information to better understand your regional climate adaptation needs.

We are now ready for the next step and we would like to invite you to a short online interview (45 minutes top) to get a deeper understanding of your region's challenges, but also better explain how we would like to further engage with you and which opportunities may be there for your region.

Why should you take part in the interview?

1. Through the interview we aim to collect additional information in order to identify the 10 most vulnerable regions to climate change in Europe. Only the selected regions will have access to REGILIENCE's tailored engagement and support actions (e.g. region-specific workshops, helpdesk, peer-to-peer mentorship, testing of innovative public-private partnerships, ...).
2. Together with the survey, the interview aims to identify European regions that should be engaged in future replication projects in the framework of the Mission Climate Adaptation and Societal Transformation, an opportunity that may be of interest to you.
3. The results from your answers will provide a deeper understanding of your needs that will be included in the design of future activities and tools within our project.

Hoping that this will be of interest to you, we would like to set up a date for the interview, which will be conducted online in English.

Please let us know if any of the following slots could work for you:

- Option a
- Option b

In case none of the above suits your schedule, could you kindly let us know a better time to connect?

In case you don't have the capacity to participate in the interview but you still think that it would be interesting for your region to get involved, please share this invitation with your colleagues.

We look forward to continuing collaborating with you.

Interview script

*The timing is planned for an interview of 30mins, but can be extended up to 45 mins.

~5 mins: 1. Personal background

Start asking them to briefly introduce themselves:

- In which capacity are you replying to this interview (representing which institutions)?
- How is your work related to the key topics of sustainability, climate adaptation and resilience?
- When and how did your involvement in your region (or community) start?

~10 mins: 2. Climate adaptation and resilience priorities

With this set of questions we would like to go deeper into which are the main focus areas for their region/community and if they have already identified priorities: from general sectors to more specific actions (in relation to challenges their region is facing). Questions can be open, let them talk but try to keep them on track to describe as much as in detail as possible what they are working on.

- Thinking about the following sectors, which are the three short-term priorities in terms of climate adaptation for your region for the next five years - and why do you think so?

  Biodiversity protection
  Buildings
  Coastal Areas
  Disaster Risk Reduction
  Ecosystems
  Energy
  Forestry
  Health
  Marine and Fisheries
  Transport
  Tourism
  Water management
  Other (Please specify):

- What actions have you taken or are planning to take in order to tackle these priorities?

Priority	Jurisdiction (national, regional, municipal)	Actions taken	Actions planned

~7/10 mins: 3. Climate adaptation and resilience implementation

With the first question we want to understand the background of the implementation process and the drivers and barriers behind it. Depending on the elapsed time, the question can be focused on one action (preferably one that has been implemented) or multiple. We would like to know if the measures are being implemented as part of a systemic approach or are they ad-hoc/reactive solutions. Additionally, we'd like to learn in short what were the drivers for the measures implementation (political support, support of the local communities, availability of EU or national funds…) and what obstacles have they faced (lack of political consensus, low prioritization of climate actions from the local community, resistance from certain sectors…).

- With regards to actions taken, what were the reasoning and key drivers behind their implementation?
    - They have been implemented as a reaction to a climate disaster
    - They have been implemented as part of a systemic plan
    - They have been implemented as part of a bottom-up action resulting from a civil movement
    - Other (please explain)

- Have they been implemented as a reaction to a climate disaster, as part of a systemic plan, a bottom-up action resulting from a civil movement or have there been other reasons. What were the key drivers for the measures implementation and what obstacles have you faced along the way?

With this first question we would like to gain some more insights on the challenges they experience in implementing climate adaptation and resilience action. Being a fairly open question, we hope to go a bit more in depth compared to the survey.

- What obstacles have you faced along the way and where do you see a lack of resources/capacities for which you would need more support?

In terms of stakeholder engagement, let them give you exact answers, in which stage of the process they are in. With the second question try to have a more open answer, and let them expand, if they want, a bit more on the challenges they are facing in the process.

- Have you already identified actors that can work collectively to tackle these priorities?
    - Stakeholders still need to be identified and mapped

- Stakeholders (from **all** relevant sectors) are identified and engagement processes started

- If you have already started engaging with these stakeholders, what kind of process have you initiated? Do you think the process is being successful?

~5 mins: 4. Engagement in REGILIENCE

Here we would like to explain further in which activities they could be engaged in. Take the time to further elaborate on what these would imply* (i.e. helpdesk was maybe misunderstood during the survey).

Ask them to start thinking about which activities could better support the region in engaging with stakeholders and tackle the above-mentioned priorities. Explain they will receive, after the interview, a follow up email, asking them for interest in engaging in those activities.

- If selected among the 10 targeted regions and communities, you and your region shall be enabled to co-design a climate resilience trajectory by the end of the project. Our goal is to support you in developing or updating your Regional Adaptation Strategy in a way that effectively takes into account interconnections between sectors, development parameters and resilience development pathways. This will be done through capacity building, tailored engagement and support actions including:

- At the end of this interview, you will receive a follow up e-mail:

  We'd ask you to please start thinking about which are the activities that could **better support the region in engaging with the stakeholders** mentioned in the previous question?

Explain further opportunities to be supported in the application to the **Mission Climate Adaptation and Societal Transformation**, and ask them whether their region is already a signatory to the Mission Charter.

- Is your region already a signatory of the **Mission Charter**?

Before closing: give them the opportunity to expand a bit more on anything they feel was not addressed by the questions and they would like to point out to.

- Is there anything you would like to add?
- Anything you feel you would like to share, that was not addressed by the previous questions?
- Anything we should be aware of, in order to better understand your regional needs?

Annex V

List of existing key policy instruments on resilience and climate adaptation

From the survey question 2.1.3

Q 2.1.3 2.1.3 Could you please specify which are the plans/strategies/standards/regulations, etc. you are referring to?
Agenda Urbana Española
Athens Resilience Strategy for 2030
Climate Adaptation Plan (Region of Attica)
Cyprus Flood Management Plan
Cyprus Natiolan Adaptation Strategy
Cyprus National Adapation Plan
Estrategia Aragonesa de Cambio Climático
Estrategia Aragonesa de Recuperación Social y Económica
Estrategia de Adaptación de la Costa al Cambio Climático 2016 (Spain)
Estrategia de Arquitectura y Construcción Sostenible de la Región de Murcia 2030
Estrategia de Economía Circular de la Región de Murcia 2030
Estrategia de mitigación y adaptación al cambio climático (Spain)
Estrategia Española de Economía Circular 2030 (Spain)
Estrategia Española de Sostenibilidad Urbana y Local (Spain)
Estrategia Valenciana de Cambio Climático 2020-2030 (Region Valencia)
Galician Climate Change Plan
Government 25-years Environment Plan (UK)
Integrated National Energy and Climate Plan for the Republic of Croatia
Italian National Adaptation Strategy and Plan
Marine Spatial Plan on intermunicipal and municipal level (Norway)
National Action Plan (Blugaria)
National Adaptation Plan (France)
National Biodiversity Stratégy (France)
National Circular Economy Plan (France)
National Climate Adaptation & Mitigation Strategy (France)
National Plan for Energy and Climate (Bulgaria)
National Strategy for Climate Change Adaptation (Croatia)
National Strategy for Energy Development (Croatia) National Strategy for Climate Change Adaptation (Croatia)

Observatory of the Regional Epidemiology Department (Lazio region)

Plan Climat Air Energie Territorial (PCAET) Fance

Plan de Acción de la Estrategia de Arquitectura y Construcción Sostenible (Murcia region)

Plan de Acción para la Implementación de los ODS de la Agenda 2030 de Naciones Unidas en la Región de Murcia

Plan de residuos Región de Murcia 2016-2020

Plan Nacional de Adaptación al Cambio Climático 2021-2030 (Spain)

Plan national adaptation au changement climatique (PNACC),

Plan National de Adaptación al Cambio Climático 2021-2030 (PNACC-II).

Regional Climate Emergy Plan

Regional Plan for Adaptation to Climate Change (Greece)

Regional Schemes for land use, sustainable development and equality (SRADDET) (France)

Regional strategy for climate change

Rural Development Programme

Sustainable Energy & Climate Action Plan

SNAC (Strategia Nazionale di Adattamento ai Cambiamenti climatici) (Italy)

Strategia regionale di adattamento (Sardegna region)